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1. Mechanics

1.1 Disassembling

This manual contains a flow chart, which describes the easiest way to disassemble and make service on INDEX Everest-D.

The flow chart is located in chapter 6 in this manual.

The flow chart for disassembling of INDEX EVEREST-D will be used in the following way:

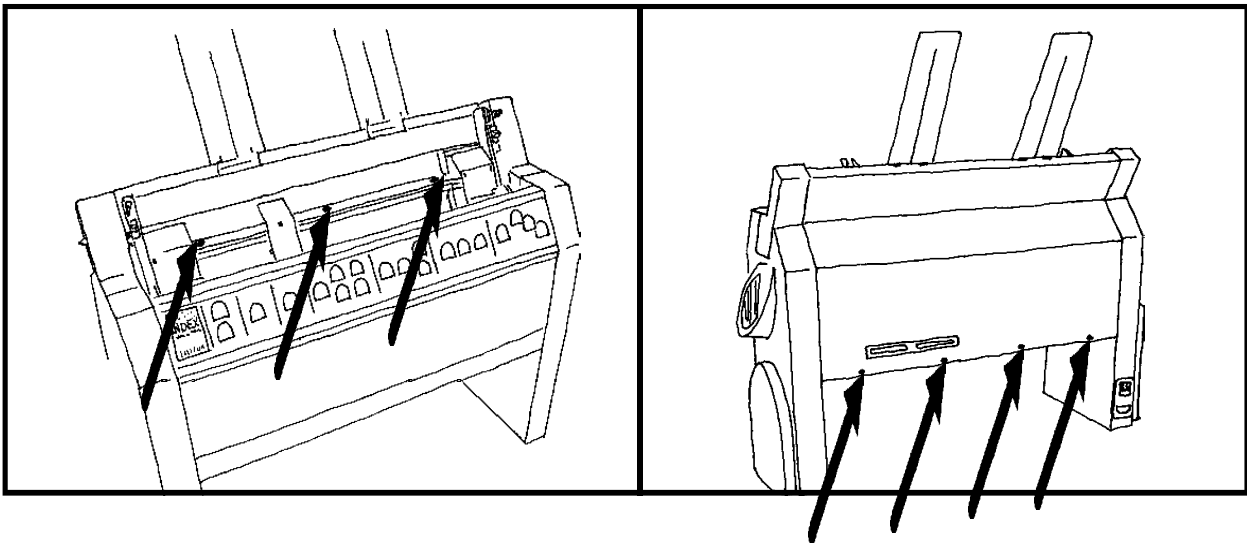
Look for the detail that you want to disassemble in the flow chart, for example anvils.

By following the flow from EVEREST-D to ANVILS. You will see that you have to do the following:

1. Open the front panel cover.
2. Lift out the printing head.
3. Remove the axle.
4. Open the back bar.
5. Lift out the rubber damper.
6. Remove the anvils.

1.1.1 Backplate

Figure 1.1.1 Disassembling of the back plate.

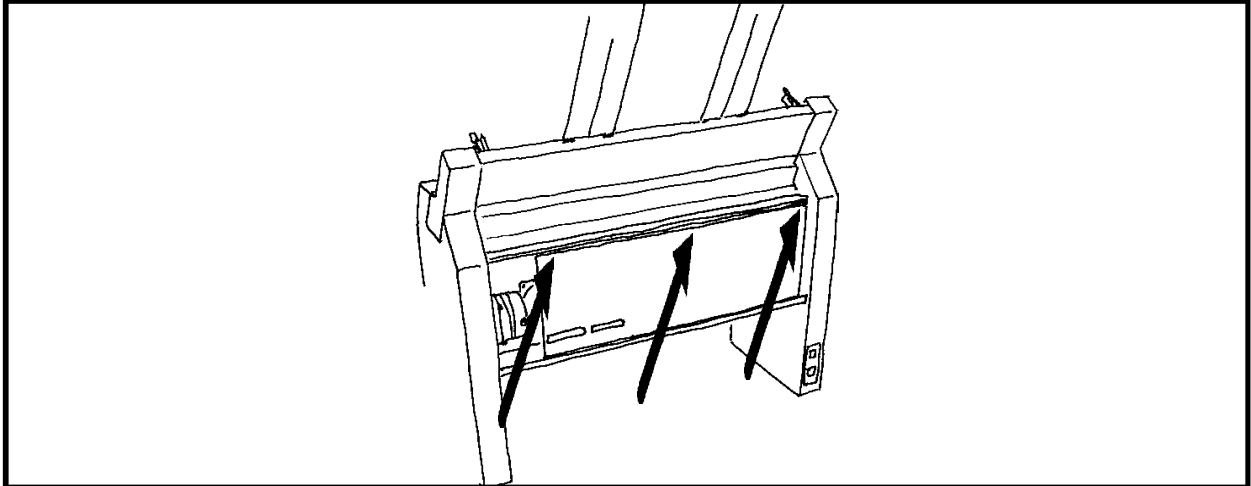


1. Unscrew the three screws from the front side of the sheet feeder.
2. Unscrew the four screws on the back plate.
3. Remove the back plate.

1.1.2 Expose the main board

Figure 1.1.2 Main board.

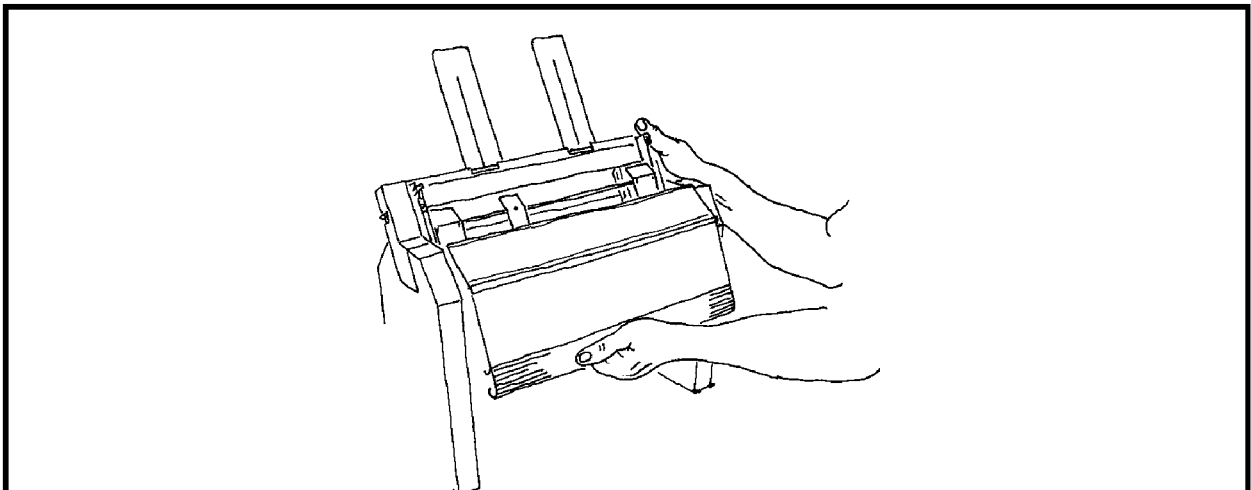
1. Unscrew the marked screws in the upper row of the main board.



2. Turn down the main board.

1.1.3 Open the front panel cover

Figure 1.1.3 Opening the front panel cover.

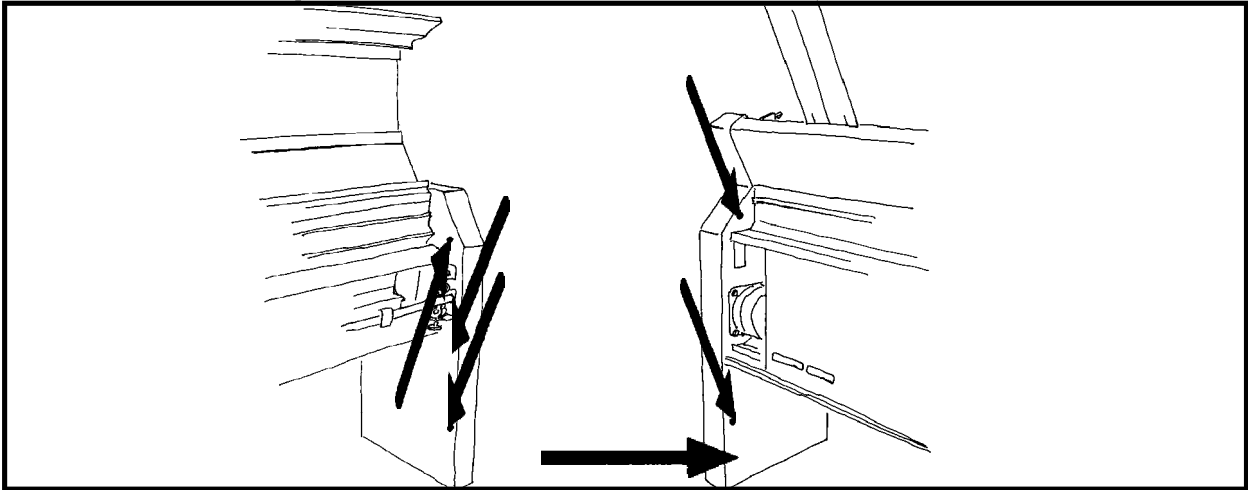


1. To open the cover, grab the handle and the plastic casing.

2. Open the front panel cover.

1.1.4 Right casing

Figure 1.1.4 Right casing.



1. Unscrew the marked screws.
2. Slide out the casing.

1.1.5 Left casing

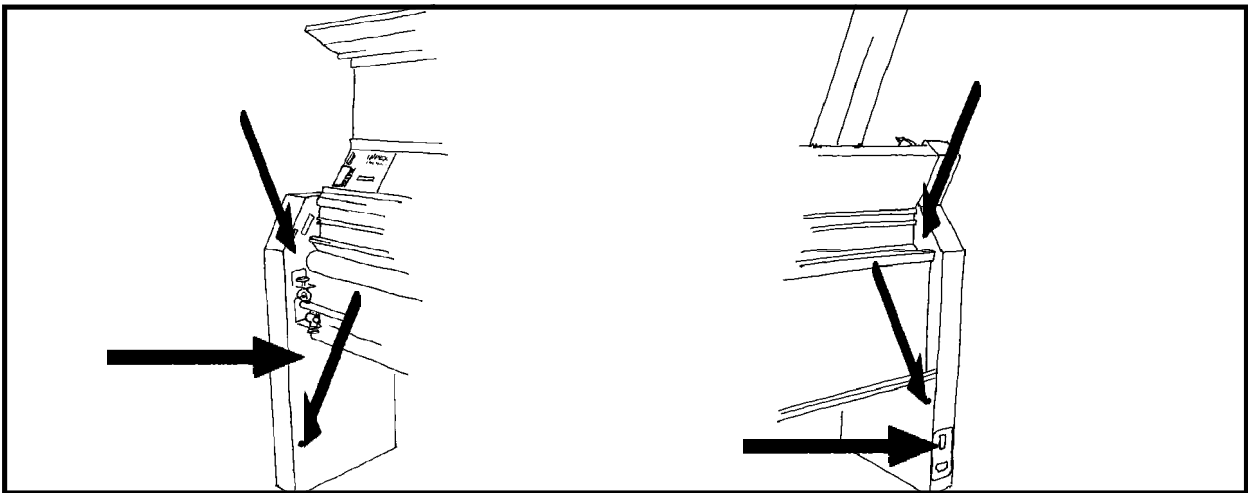


Figure 1.1.5 The left casing.

1. Unscrew the marked screws.
2. Slide out the casing.

1.1.6 Remove the main board

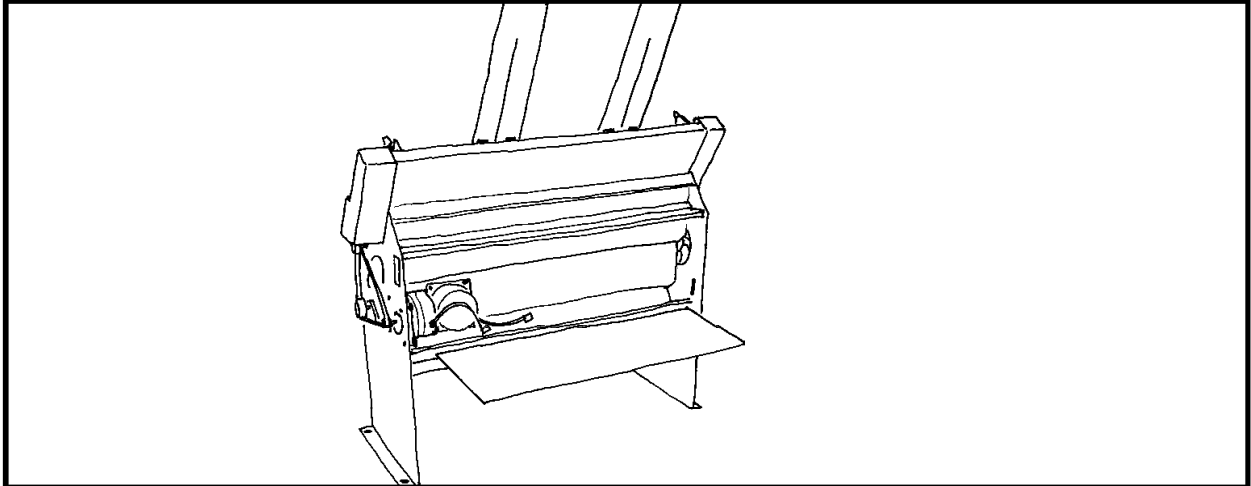


Figure 1.1.6 Main board.

1. Loosen the flat cables.
2. Unscrew the board.
3. Take out the main board.

1.1.7 Loosen the front panel cover

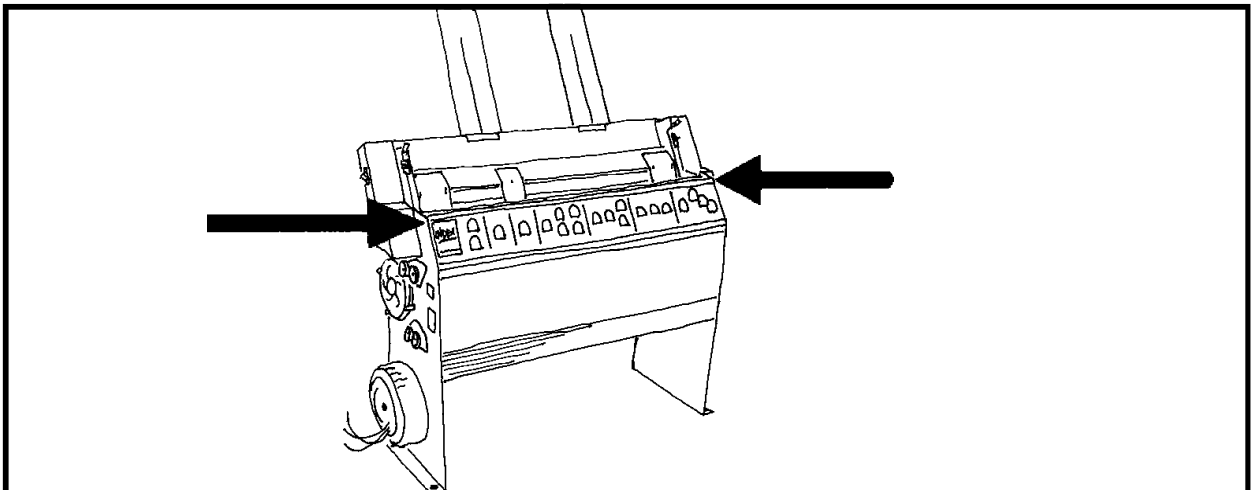


Figure 1.1.7 Disassembling of the front panel cover.

1. Loosen the flat cable from the switch panel.
2. Unscrew the screws from the sideplates.

1.1.8 Fan

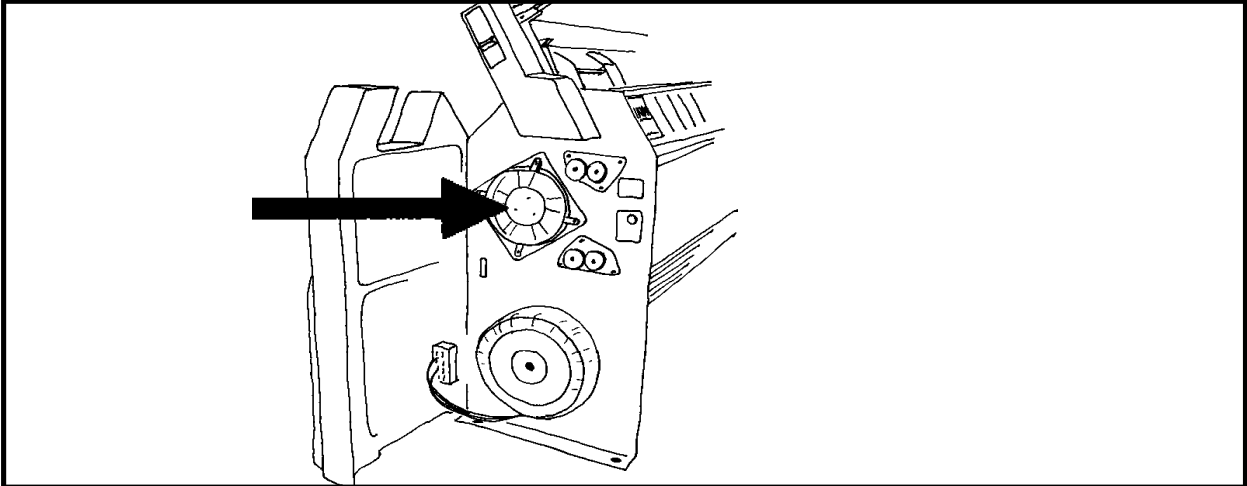


Figure 1.1.8 Location of the fan.

1. Loosen the connection cables to the fan.
2. Unscrew the fan.
3. Remove the fan.

1.1.9 Front panel cover indicator

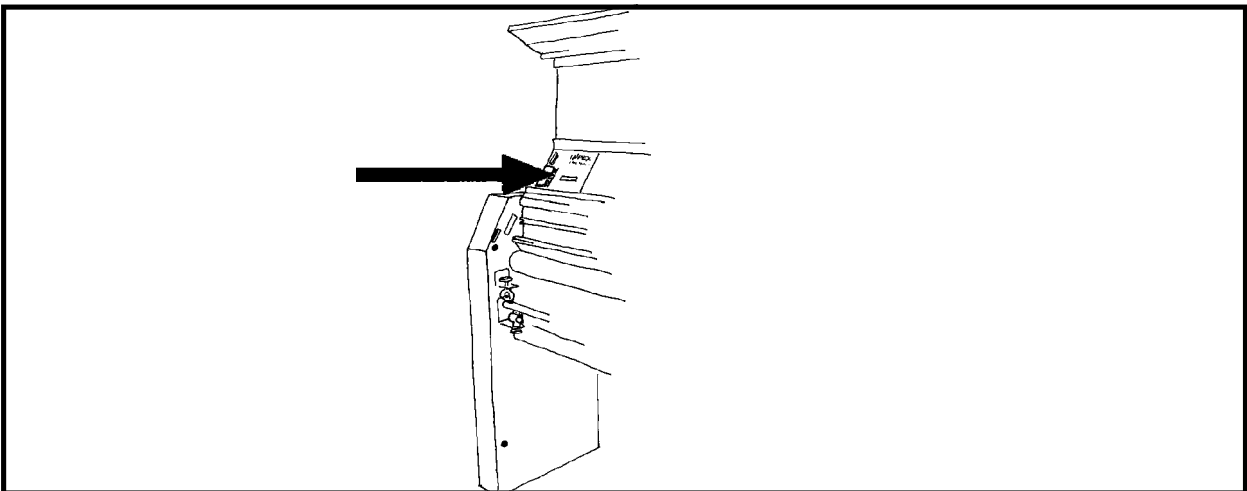


Figure 1.1.9 Front panel cover indicator.

1. Loosen the connection cables to the front panel cover indicator.
2. Slide out the board
3. Loosen the indicator with a soldering iron.

1.1.10 Transformer

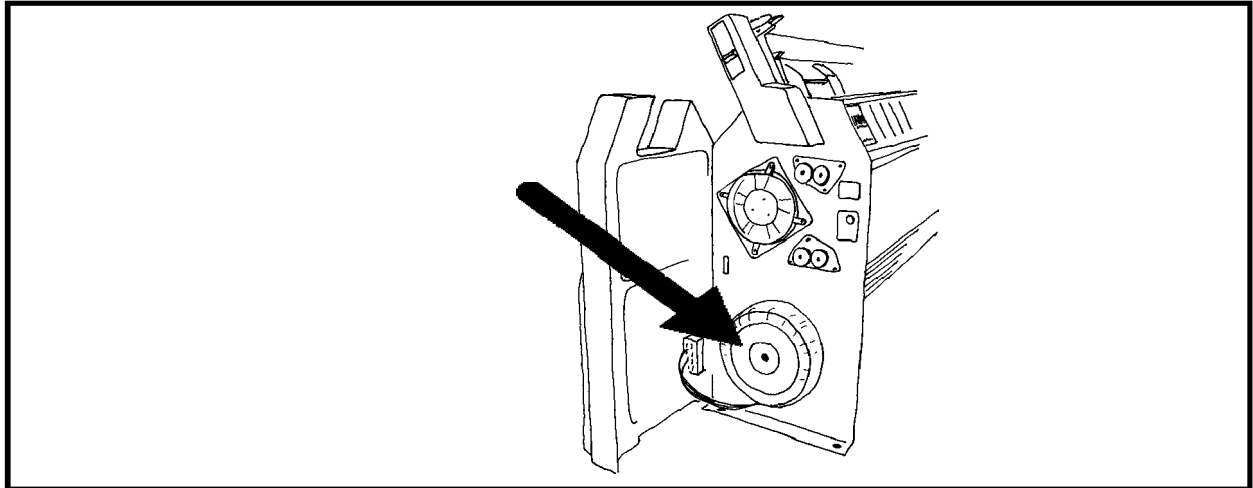


Figure 1.1.10 Transformer.

1. Loosen the connection cables to the transformer.
2. Unscrew the transformer.

1.1.11 Roll bearing, left side.

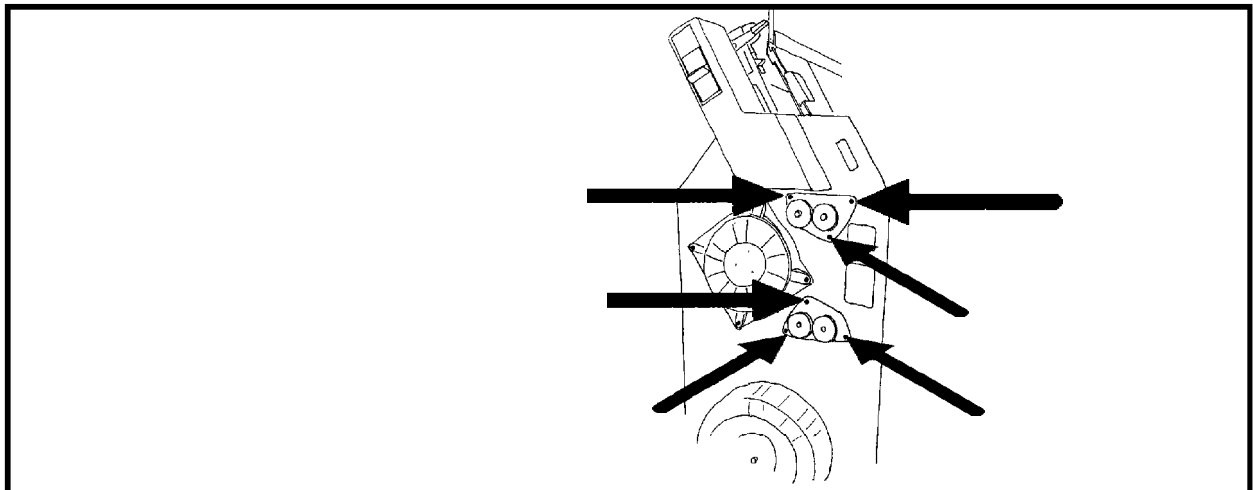


Figure 1.1.11 Roll bearing.

1. Unscrew the three screws on the upper roll bearing.
2. Carefully remove the roll bearing.

Do the same operation for the other bearing.

1.1.12 Stepper motor, paper feeding

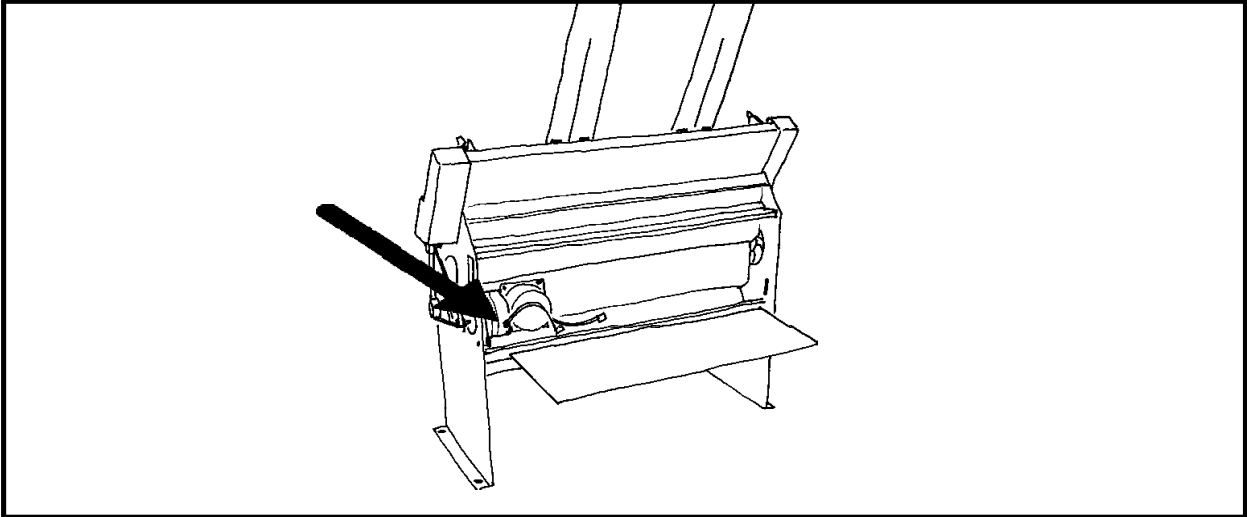


Figure 1.1.12 Stepper motor, paper feeding.

1. Loosen the connection cables to the stepper motor.
2. Loosen the four screw and remove the motor.

1.1.13 Driving belt

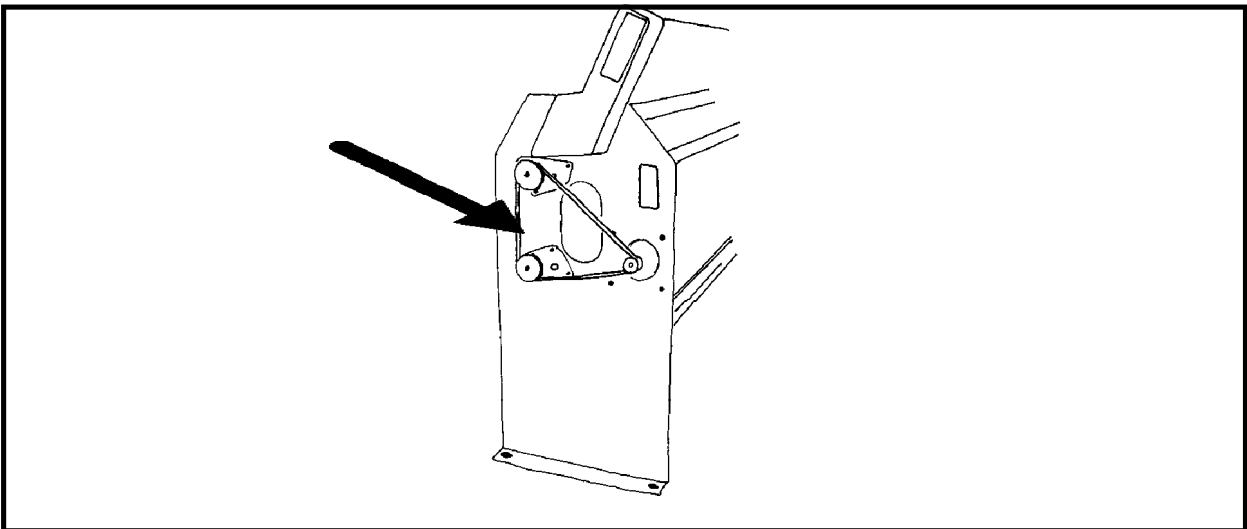


Figure 1.1.13 Location of the driving belt.

1. Pull off the driving belt from the pulleys.

1.1.14 Pulleys

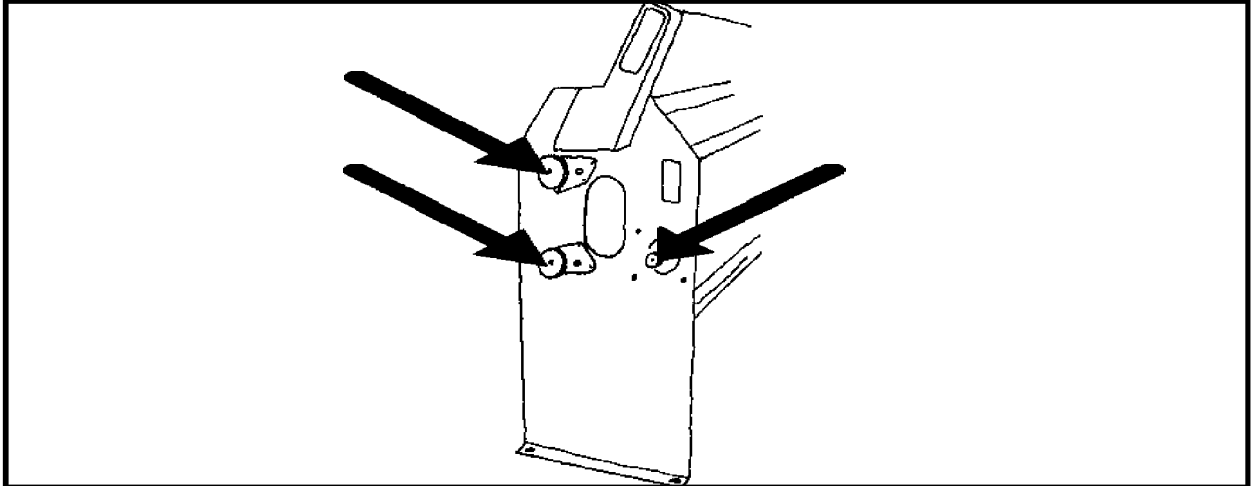


Figure 1.1.14 Pulleys.

1. Remove the pulleys with a puller.

1.1.15 Right roll bearing

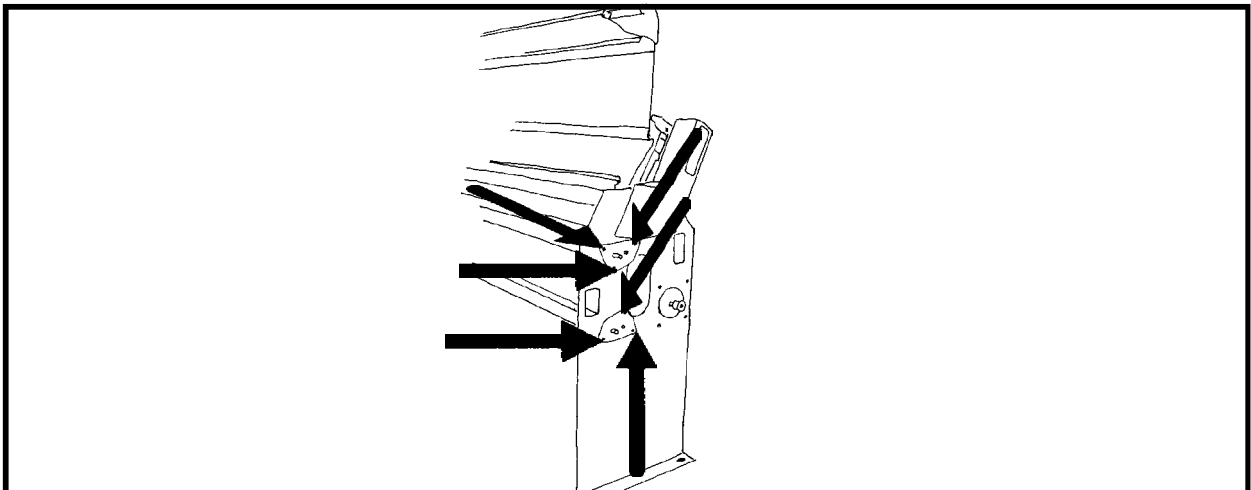


Figure 1.1.15 The right roll bearing.

1. Unscrew the upper roll bearing.
 2. Carefully remove the roll bearing.
- Do the same operation for the other bearing.

1.1.16 Roll axle

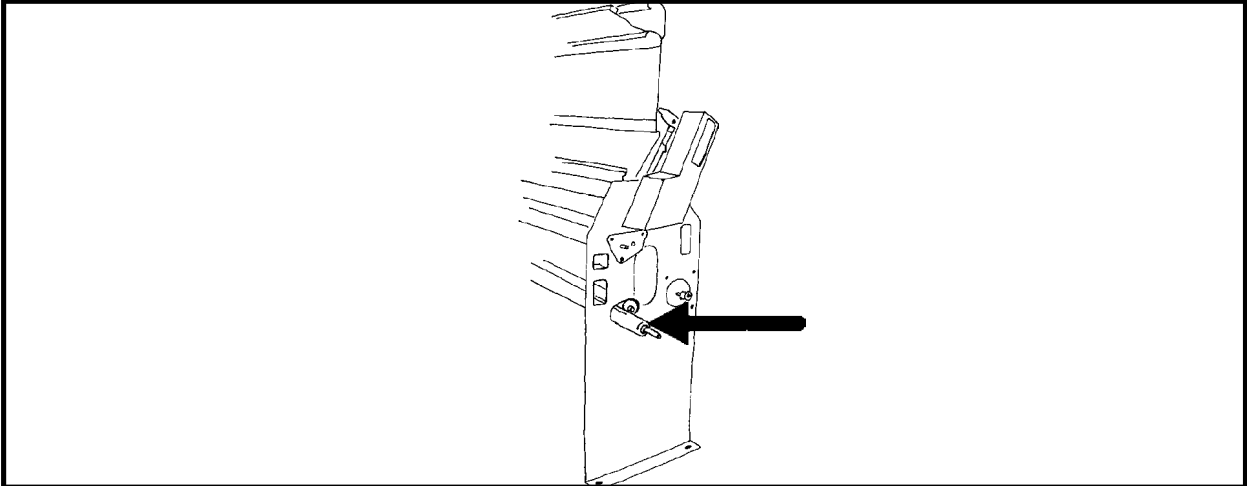


Figure 1.1.16 Roll axles.

1. When the roll bearing is removed, carefully slide out the roll axles.

1.1.17 Printing head

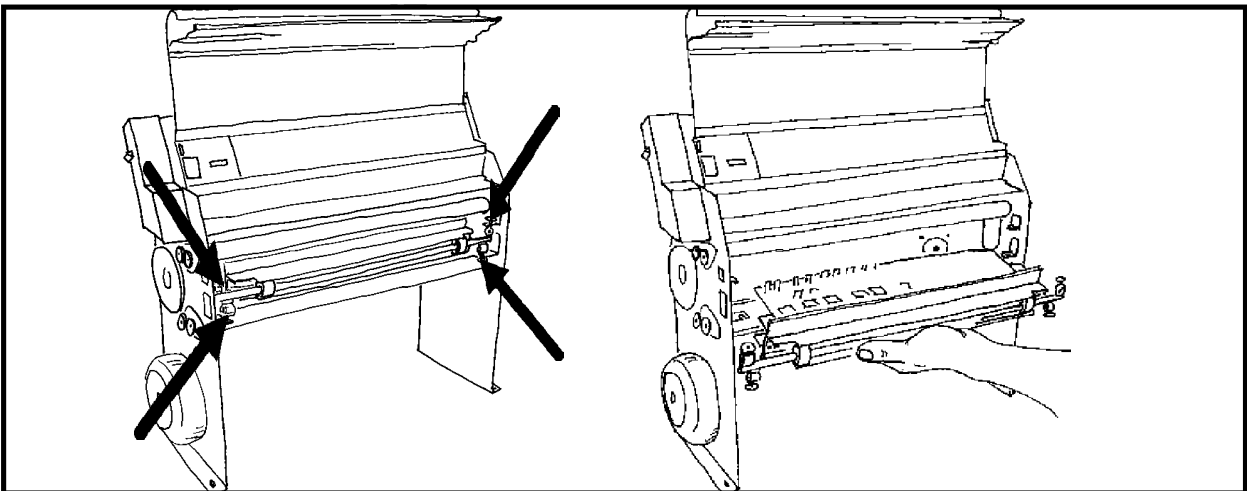


Figure 1.1.17 Printinghead.

1. Unscrew the four nuts on the screws holding the printing head.
2. Carefully pull out the printing head.
3. Loosen the two flat cables and the ground connection cable.

1.1.18 Front panel board

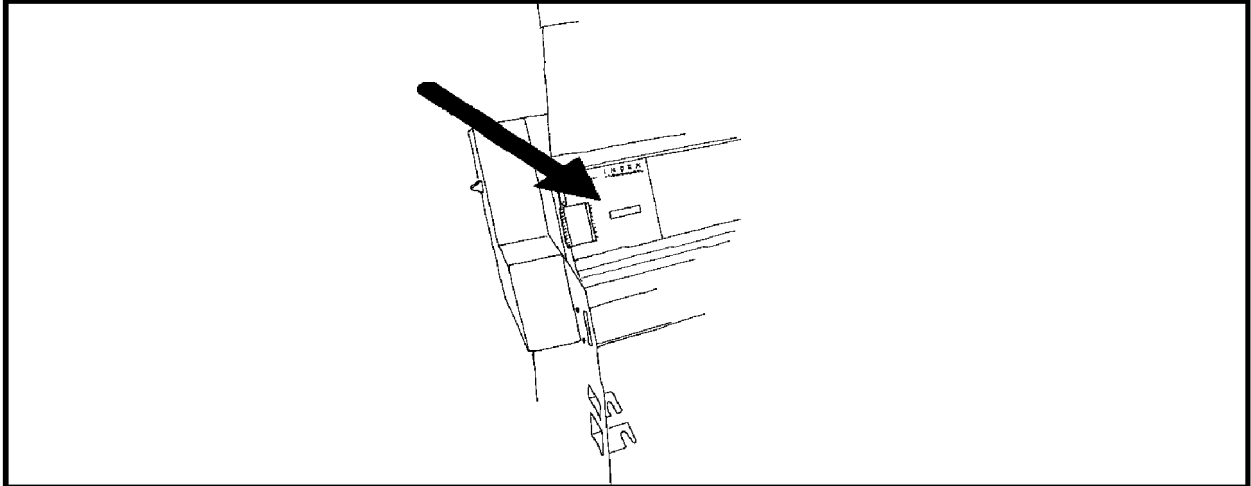


Figure 1.1.18 Front panel board.

1. Loosen the cable connections to the front panel board.
2. Slide out the board from the profile.

1.1.19 Printing head board

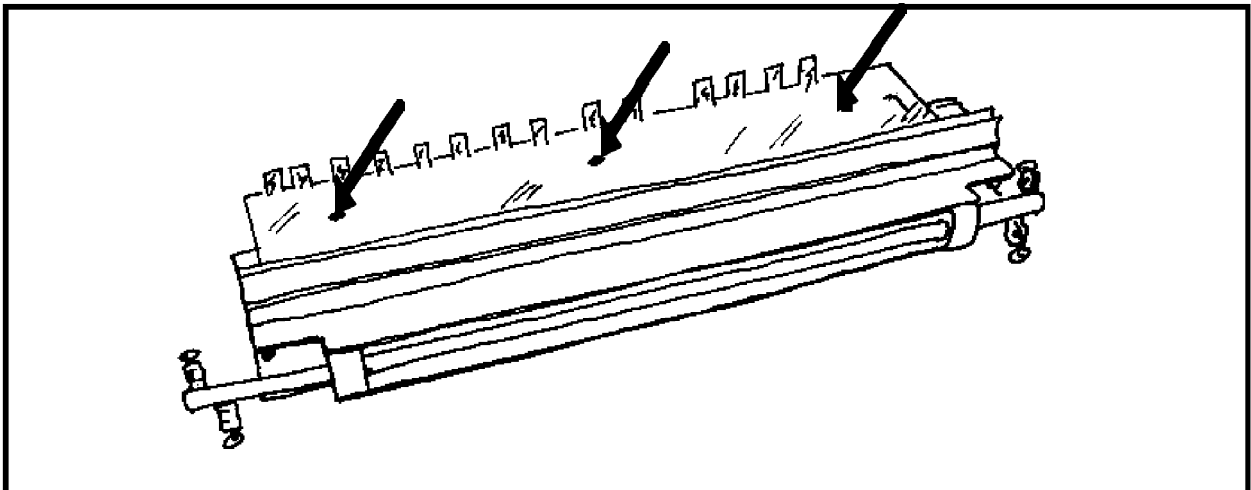


Figure 1.1.19 Driving board.

1. Unscrew the board.
2. Remove the board.

1.1.20 Steering dowels

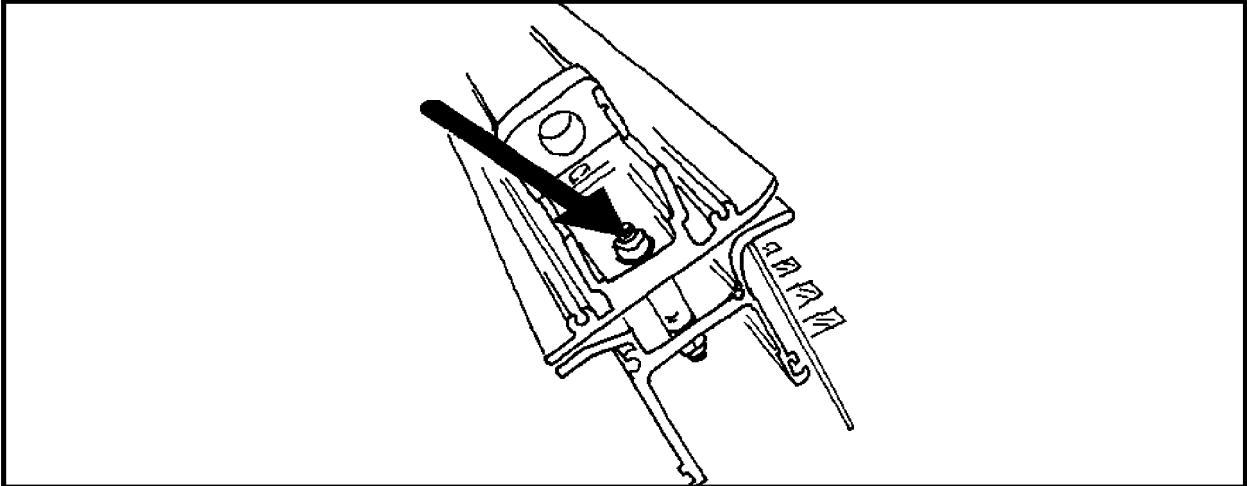


Figure 1.1.20 Steering dowels.

1. Loosen steering dowels from the anvil profile.
2. Loosen steering dowels from the hammer profile.

1.1.21 Plastic films

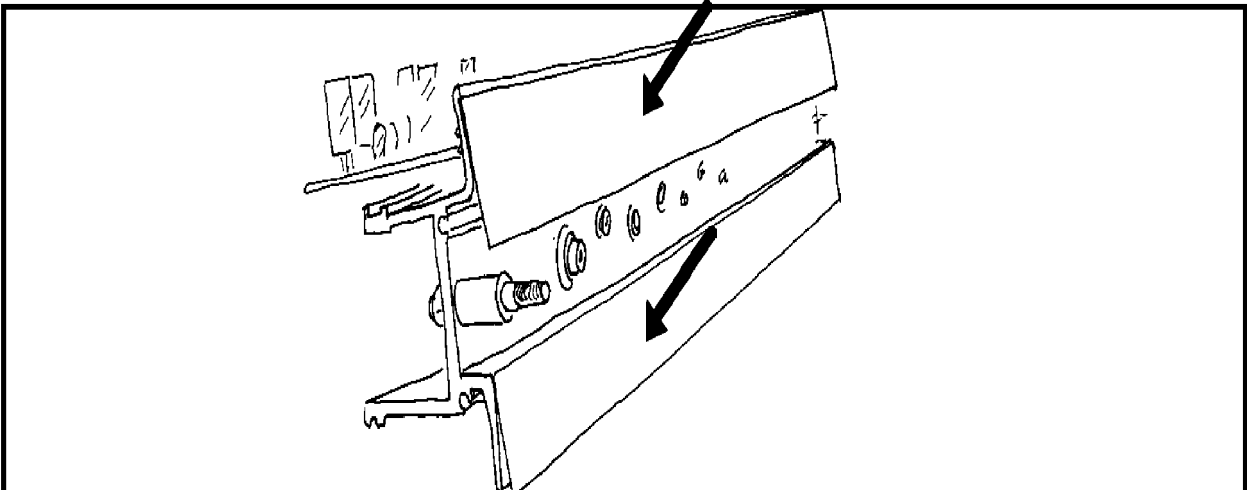


Figure 1.1.21 Plastic films.

1. Pull off the plastic films.

1.1.22 Hammers

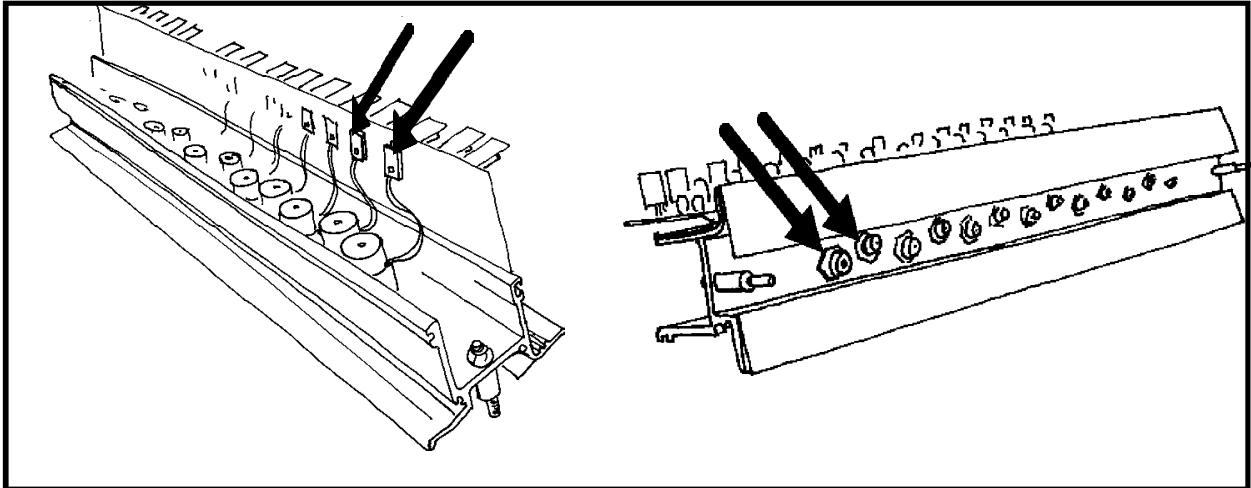


Figure 1.1.22 Hammers.

1. Loosen the cables from the printing head board sockets.
2. Unscrew the hammers.

1.1.23 Casing

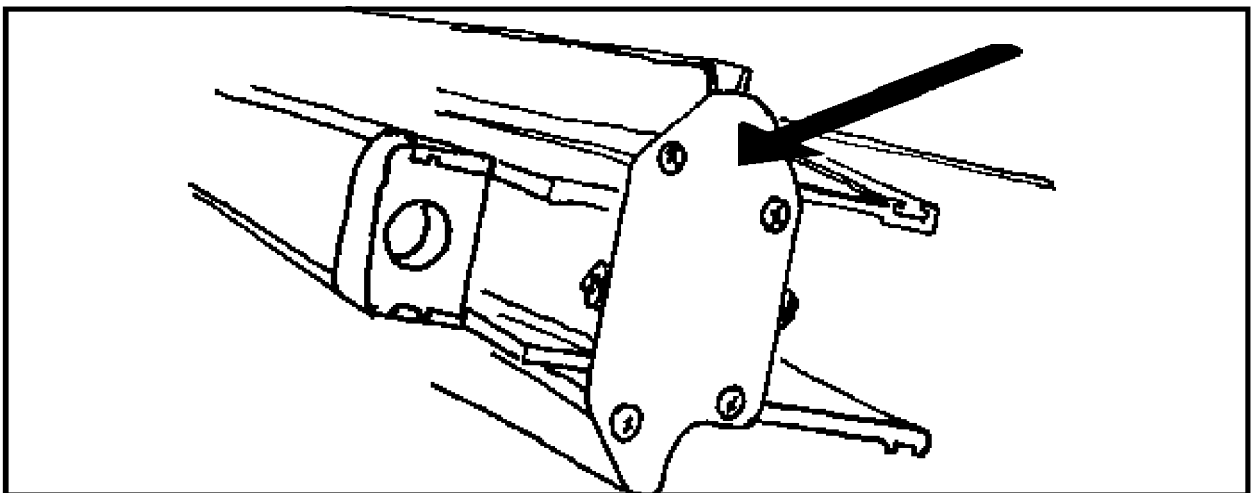


Figure 1.1.23 Casing.

1. Unscrew the casing.

1.1.24 Back bar

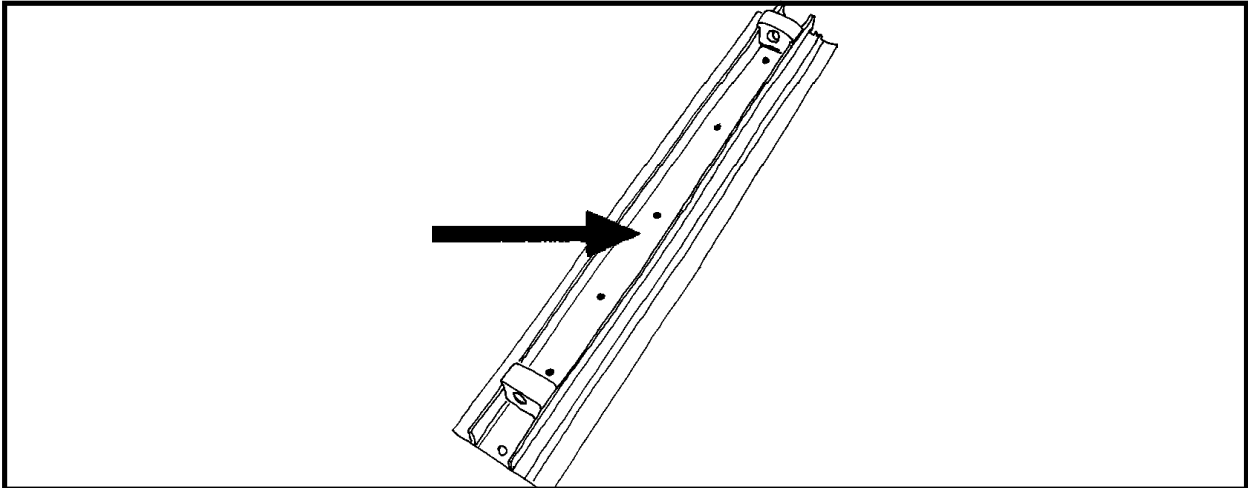


Figure 1.1.24 Back bar.

1. Unscrew the marked allen screws holding the back bar.
2. Remove the back bar.

1.1.25 Rubber damper

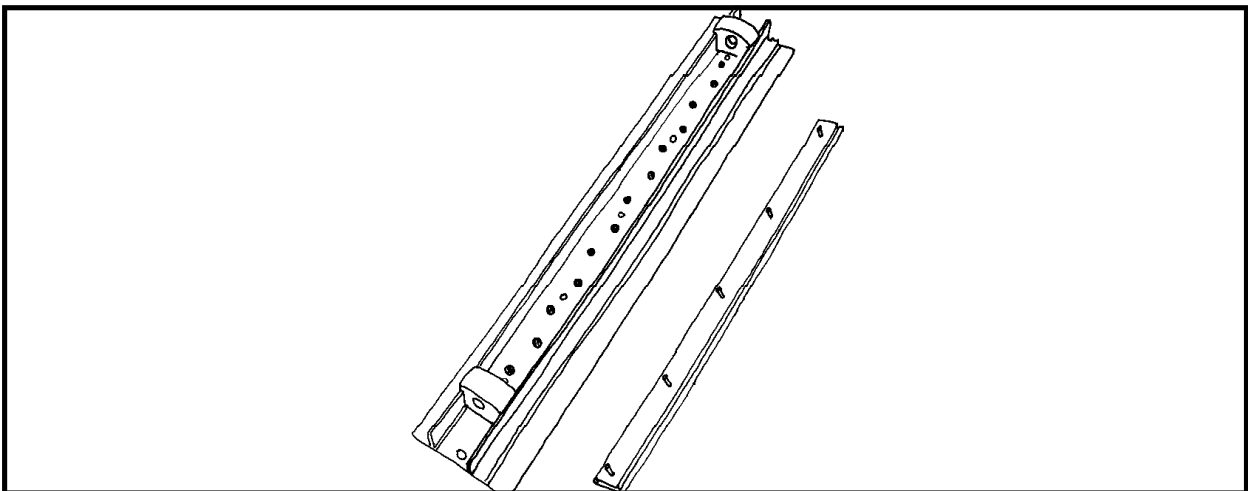


Figure 1.1.25 Rubber damper.

1. Remove the rubber damper, located under the back bar.

1.1.26 Anvils

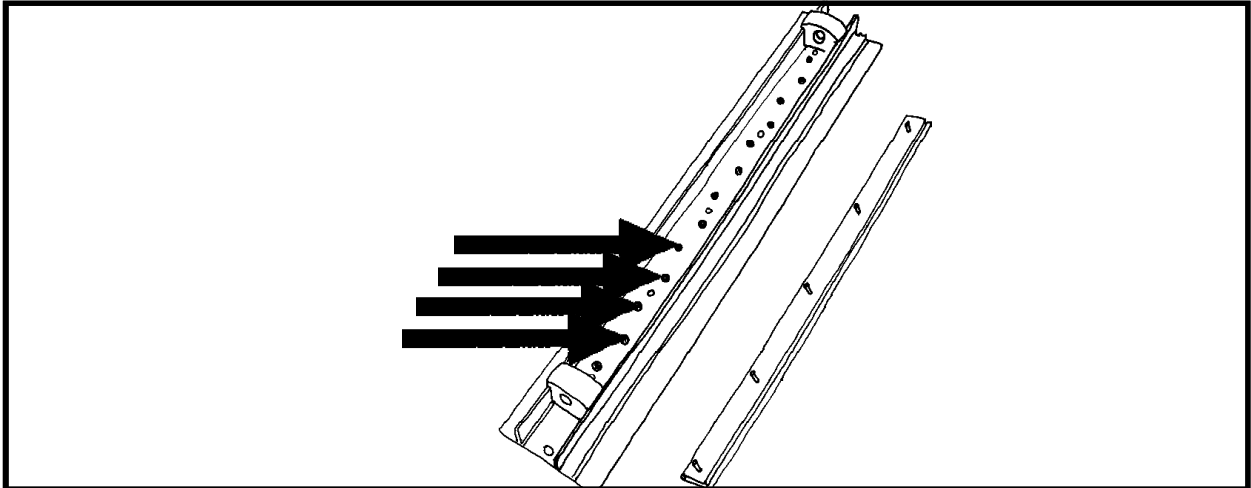


Figure 1.1.26 Location of the anvils.

1. Take out the anvils.

1.1.27 Axle

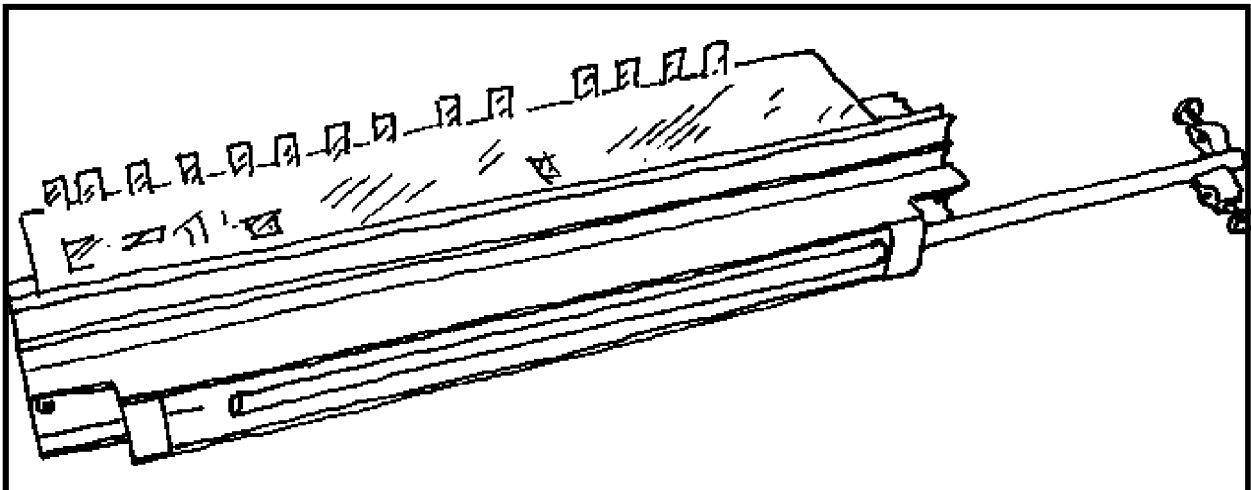


Figure 1.1.27 Axle.

1. Carefully pull out the axle from the gliding bearings.

1.1.28 Gliding bearings

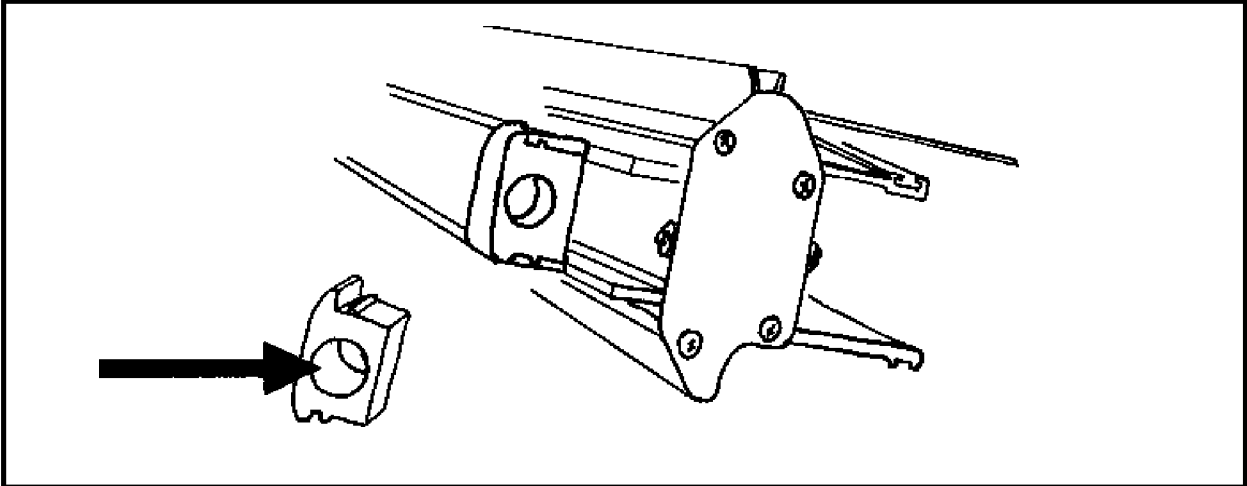


Figure 1.1.28 Gliding bearings.

1. Carefully knock out the gliding bearings from the bearing housing.

1.1.29 Stepper motor, printing head

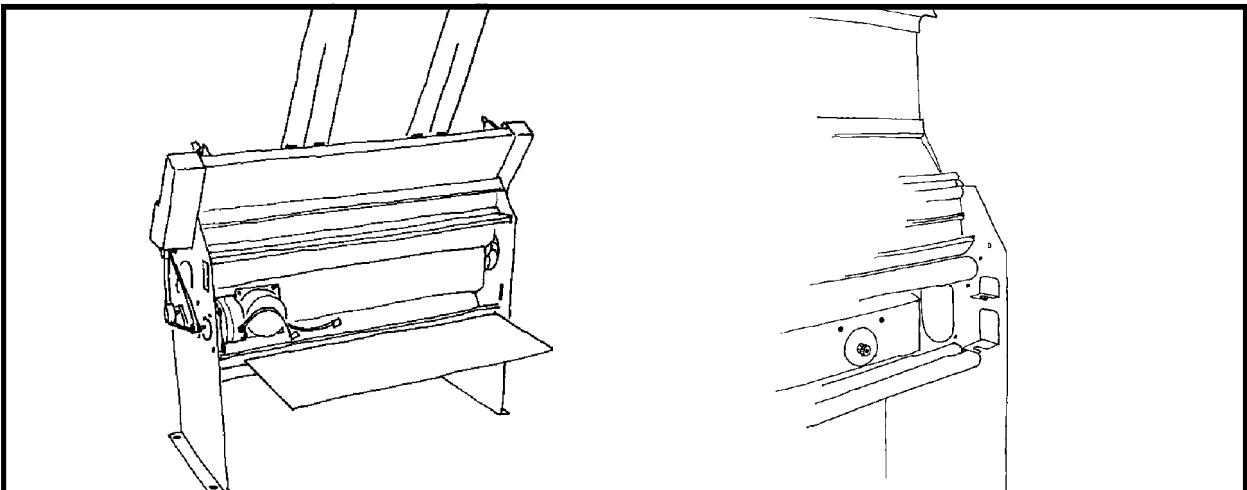


Figure 1.1.29 Stepper motor.

1. Loosen the cable to the stepper motor.
2. Unscrew the motor.
3. Pull out the motor.

1.1.30 Gear wheel, printinghead motor

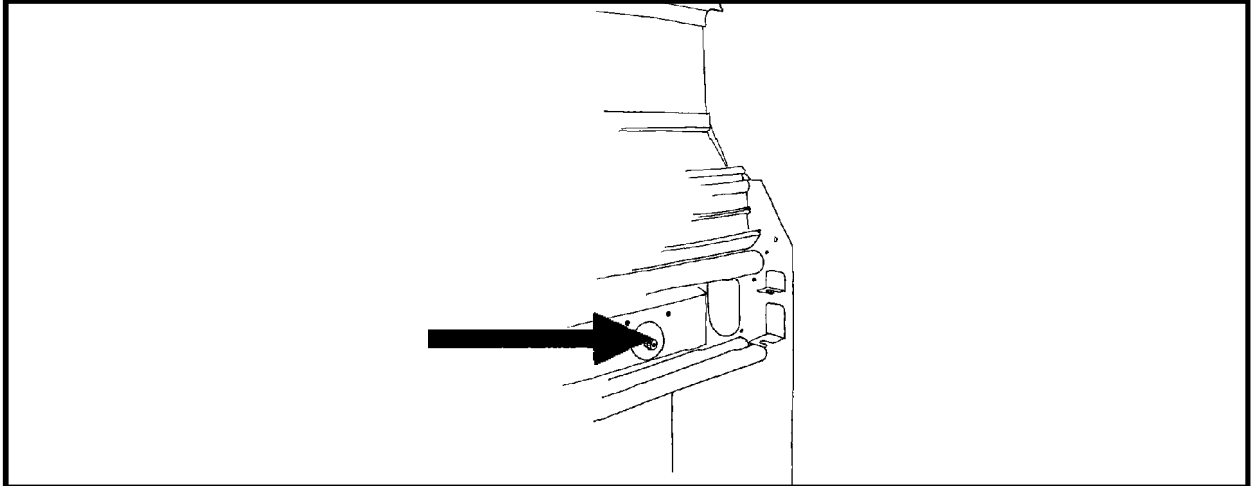


Figure 1.1.30 Gear wheel.

1. Pull out the gear wheel with a puller.

1.1.31 Reference pulse sensor

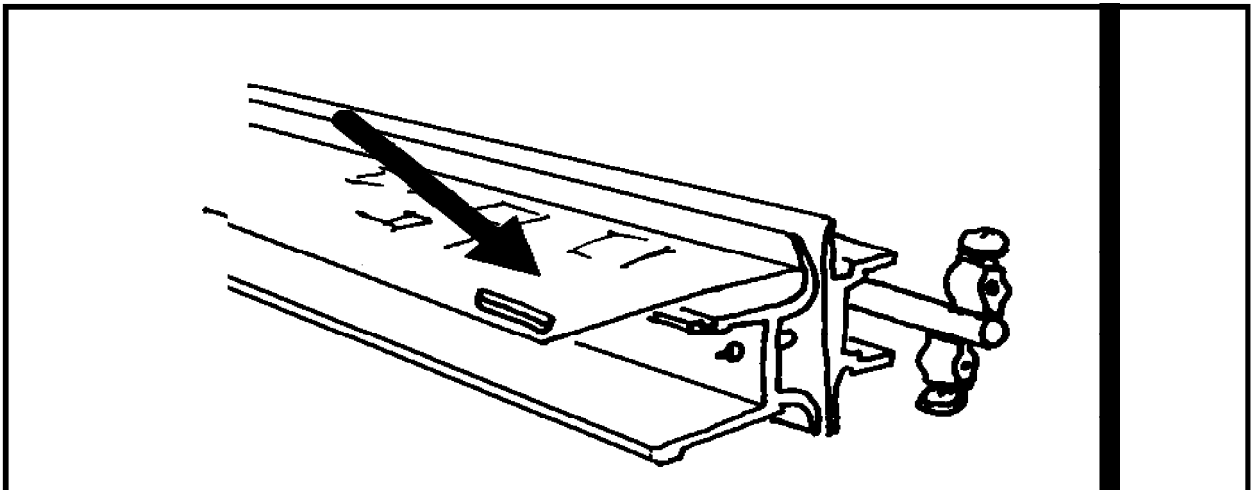


Figure 1.1.31 Printinghead reference pulse sensor.

1. Loosen the sensor with a soldering iron.

1.1.32 Gear wheel, paper feeding

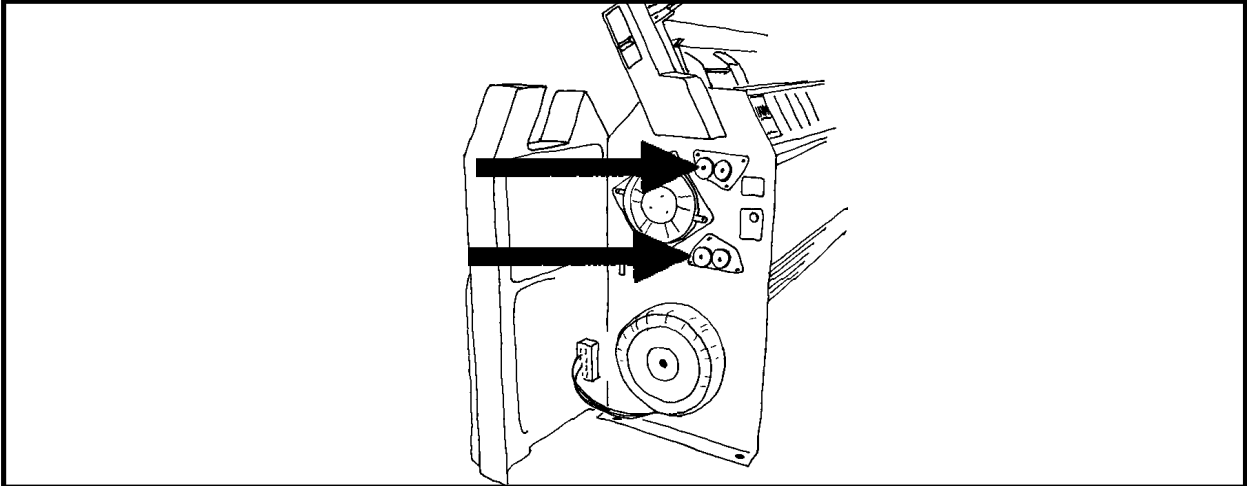


Figure 1.1.32 Gear wheels.

1. Pull out the gear wheels with a puller.

1.1.33 Sheet feeder

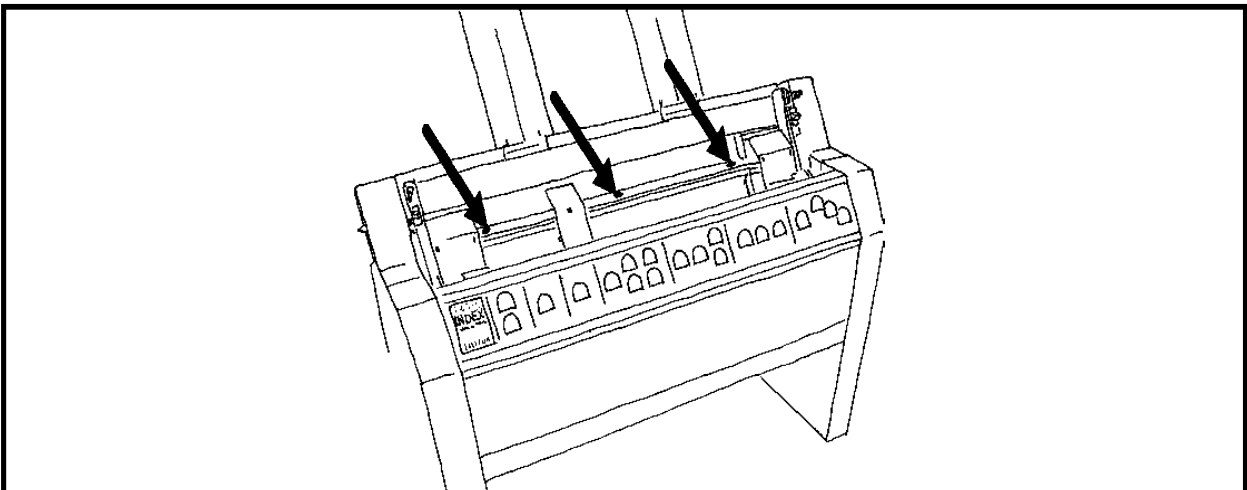


Figure 1.1.33 Sheet feeder

1. Unscrew the three screws.
- 2.. Lift off the sheet feeder

2. Service instructions

2.1 Adjust printing head reference pulse offset

1. Press VALUE simultaneously while power on. Everest will echo a beeping sound.
2. Press VALUE until several times until the distance between the printing head and the sideplate is 2-3 mm.
3. Press "Setup" to store the new reference pulse offset.

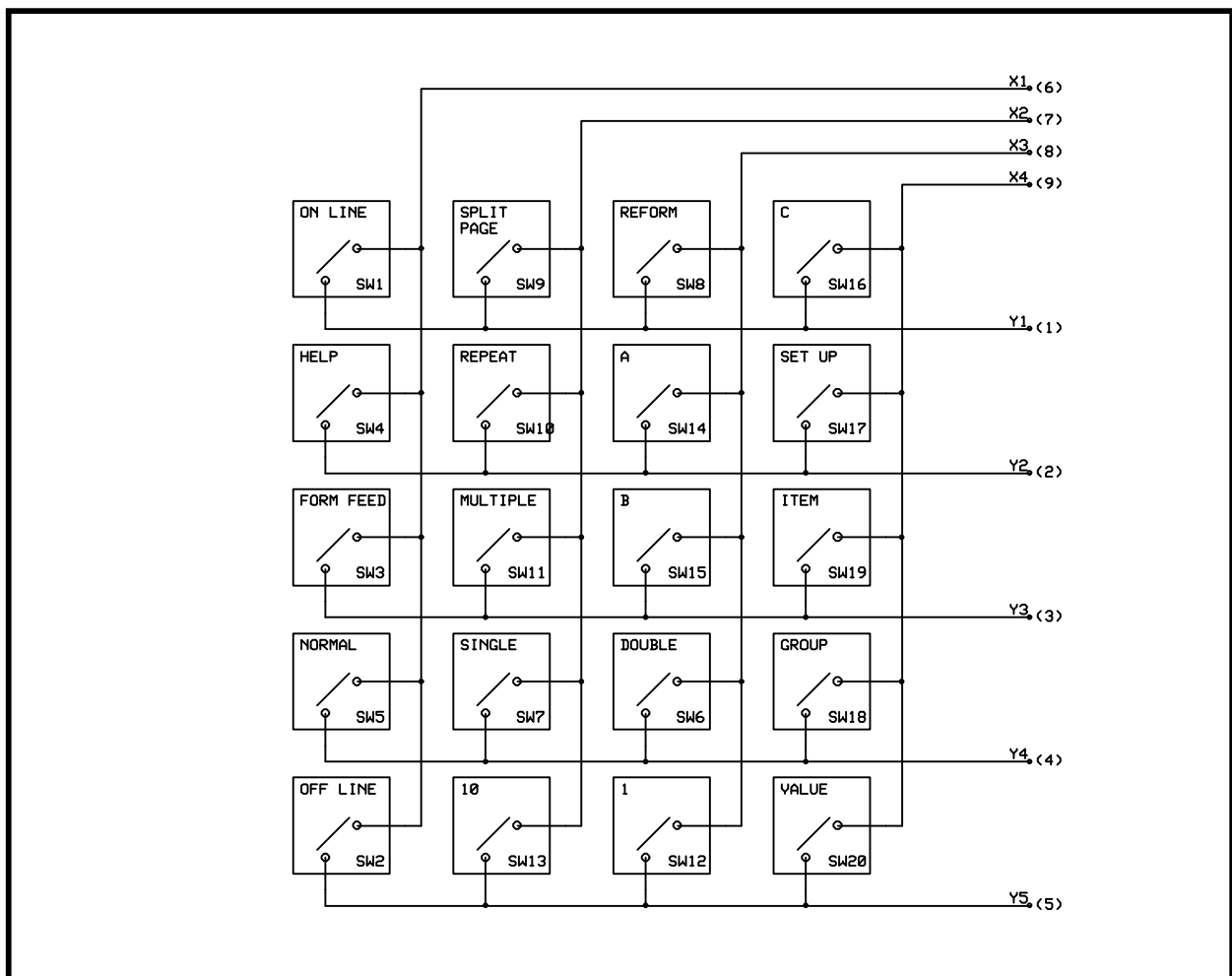
2.2 Internal printer test program

An integrated test program enables sequence testing of the different hardware modules in Everest. The modules that the program test are: RAM, PROM, FAN, Sheet feeder, Stepper motor paper-feed, stepper motor + reference pulse on the printing head, front panel + front panel decoding, Centronics port, RS 232-C port, paper indicator and front panel indicator.

In the user manual, chapter 5.10, you will find the complete instructions for the test program.

2.3 Front panel

Use the following schematic description to solve connection problems with the front panel.



2.4 Hammer configuration

The hammers is working in the following order:

Male hammers (prints page 1, down page in document stack.)

No 1 character 1-3
No 3 character 4-10
No 5 character 11-17
No 7 character 18-24
No 9 character 25-31
No 11 character 32-38
No 13 character 39-42

Female hammers (prints page 2, upper page in document stack.)

No 2 character 1-7
No 4 character 8-14
No 6 character 15-21
No 8 character 22-28
No 10 character 29-35
No 12 character 36-42

2.5 Fault messages.

2.5.1 Failure "100" - No reference-pulse.

Major fault. Turn the printer off/on. If you still get the same message, check the reference-pulse sensor on the printinghead board and the magnet on the centre plate and the fuses on the mainboard.

2.5.2 Failure "Front panel open".

Close the front panel cover and give ON LINE.

2.5.3 Failure "Paper length fault".

This fault appears when the paper is to short comparing to the measured paper length. If the paper is dark, for example with a dark picture, this fault can appear. Give ON LINE to continue printout on the current page. Give REPEAT to continue printing a new copy of the current page

2.5.4 Failure "Paper jam".

This fault appears when the paper is to long comparing to the measured paper length. Give ON LINE to continue printing with the current page. Give REPEAT to continue printing a new copy the next page.

2.5.5 Failure "140".

Not valid command when selecting A,B or C from computer.

2.5.6 Failure "150".

Fault in setup file, a non numeric value.

2.5.7 Failure "160"

Major fault. The EEPROM is not receiving or writing information in a correct way. Try to do a "SUPER-SYSTEM RESET".

2.5.8 Failure "170. "

Major fault/problem in the EEPROM. Do a Super-System-Reset by pressing Repeat + Power on. If that does not help - replace the EEPROM's. **Note!** This will reset the page-counter.

2.6 Reference pulse offset.

If the printinghead reference pulse is improperly setted, in will effect the vertical alignment on the first line of braille.

The problem is simply corrected by the following sequence:

Turn the printer on, while you are pressing the value key.

Everest echo ; Change # (0-40, steps of 2). Press the value key again until you get the new required value. The printing head should be 2-3 mm from the left side plate.

Exit the command by pressing the Setup key. Echo: "Saving value #".

2.7 Paper sensor adjustment

To adjust the sensibility of the paper sensor, there is potentiometer at the driving board.

To increase sensibility, turn contr-clockwise. If that operation is not enough, replace the resistor R1 by a 680 ohm resistor. To decrease sensibility, turn the potentionmeter clock-wise.

2.8 Voltage compensation.

If the main power supply is incorrect, it can course the vertical lines not to be straight.

To override this, it's possible to adjust the timing of the hammer activity.

The adjustment is made by an ESC-sequence.

Index provide Everest users with a software, that creates a ESC-sequence to adjust the vertical alignment.

The file called VOLT.EXE is located on your Utility disc, in a directory called VOLT.

2.8.1 Run Volt

1. Insert the disc in your computer ex. drive a.

Type: A:\volt\volt

On the screen this menu will now appear:

```
Change parameters
Send file to Everest
Exit
```

Choose any of the three options above, by using the arrow keys + Enter or use the key representing the inverse letter on each line.

2.8.2 Change parameters

Select the option “Change parameters” in the previous menu.
The following menu will now appear:

```

60 cps
70 cps
80cps
90cps
100cps
2.5mm graphic
2.0mm graphic
Return to main menu

```

Choose an option according to the installation of your printer, ex. 100cps. from the menu above, by using the arrow keys + Enter or the key representing the inverse letter on each line.:

A new menu will now appear, as follows:

```

+5 steps
+4 steps
+3 steps
+2 steps
+1 step
+-0 step
- 1 step
-2 steps
-3 steps
-4 steps
-5 steps

```

Every step in compensation = 0,15mm

Choose the required adjustment value by using the arrow keys and press the Enter key.

High voltage - use minus values

Low voltage - use plus values

You will then automatically return to the previous menu, where you can choose either to change another option or return to main menu.

(We normally recommend to change all the different options/speeds to the same value, but sometimes it can be necessary with different values for different printing speeds.)

2.8.3 Send file to Everest

Choose “Send file to Everest”. The following menu will appear:

```

Send file to LPT1
Send file to LPT2
Send file to Com1
Send file to Com2
Exit

```

Choose the connected port by using the arrow key or the inverse letter in each line.

When the Esc-sequence is transferred to Everest, you will automatically return to the main menu.

The file that you created is will be saved as “Volt.txt” and is built like the following example:

After the start command (ESC+ALT16) there are 7 positions, the first 5 for the different

printing-speeds, two for the different graphic modes and the last for the ESC that ends the command. See description below;

pos1	pos2	pos3	pos4	pos5	pos6	pos7	pos8	pos9	pos 10
ESC	ALT16	0	0	0	0	0	0	0	ESC
		60	70	80	90	100	2,5 mm	2,0mm	end of command
		cps	cps	cps	cps	cps	graphic	graphic	

Example: To adjust only the 90 cps at low voltage, will give the following ESC-sequence:

ESC+ALT16+0002000+ESC

The value 2 (=ASCII 50) represents a compensation of +2 (from 0 = ASCII48)

We recommend to adjust all the different positions to the same value, as next example:

(ESC+ALT16+2222222+ESC)

3 Printer modules

3.1 Screws nuts and glue

10001	Allen key, 4mm
10010	Screw, MC6S M3x12
10040	Screw, MC6S M4x12
10052	Flengepipe 6x1x16,5
10053	Screw, MC6S 12.9 M4x35
10060	Screw, MC6S M3x16
10070	Screw, MC6S M4x18
10080	Screw, MC6S M5x12
10090	Screw, MC6S M5x55
11010	Screw, RXS-H ST9.5
11020	Screw, FXS-H ST2.9x9.5
11030	Screw, RXS-H ST2.9x19
11050	Screw, RXK-H ST3.5x6.5
11060	Screw, RXK-H ST4.2x9.5
11070	Screw, RXK-H ST4.2x19
11080	Screw, M6S M3x12
11090	Screw, RXS-H ST4.2x9.5
12000	Screw, MCS M2.5
12010	Screw, MCS M3x1
13000	Distancepipe DRN 3260X5
13001	Distancepipe DRM 3260X5
13010	Distancepipe DRN 3260X12
13020	Flengepipe
13030	Flengepipe plastic
14000	Washer 8.2x14x0.5
14005	Pressure string SF-TF 0.75X9X15
14010	Locking washer, YT 4.3
14020	Locking washer, YT 5.3
14030	String washer, FBB 4.1
14040	Locking washer, YT 2.7
14050	Locking washer, YT 3.2
14060	Washer, sbr 5.5X12X2
14070	Washer 5.5X10X1
15011	Glue Loctite 317
15012	Glue, Loctite 406
15014	Loctite 736 activator
15020	Molykote pg75
16000	Attachment anchor S
16001	Attachment anchor L
16010	Attachment belt
17000	Tape 1.6x12mm
17010	Tape 1.6x25mm
17020	Tape 0.25x25mm
18000	Locking nut, DIN 985 M3
18010	Locking nut, DIN 985 M5
18030	Nut, M4
18041	Nut M6M M4 Fzb
18050	Nut M6M M2.5 Fzb

3.2 Printinghead

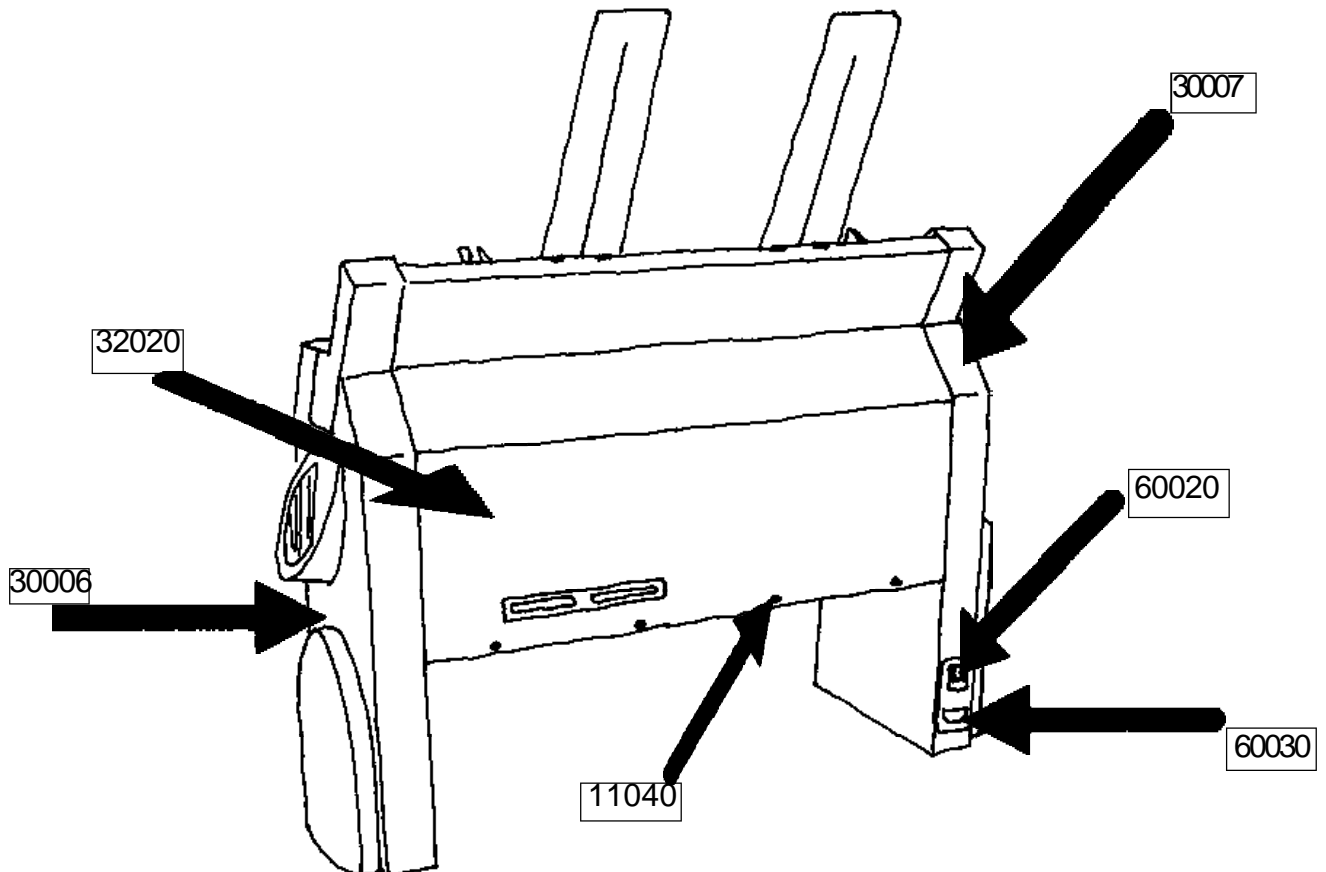
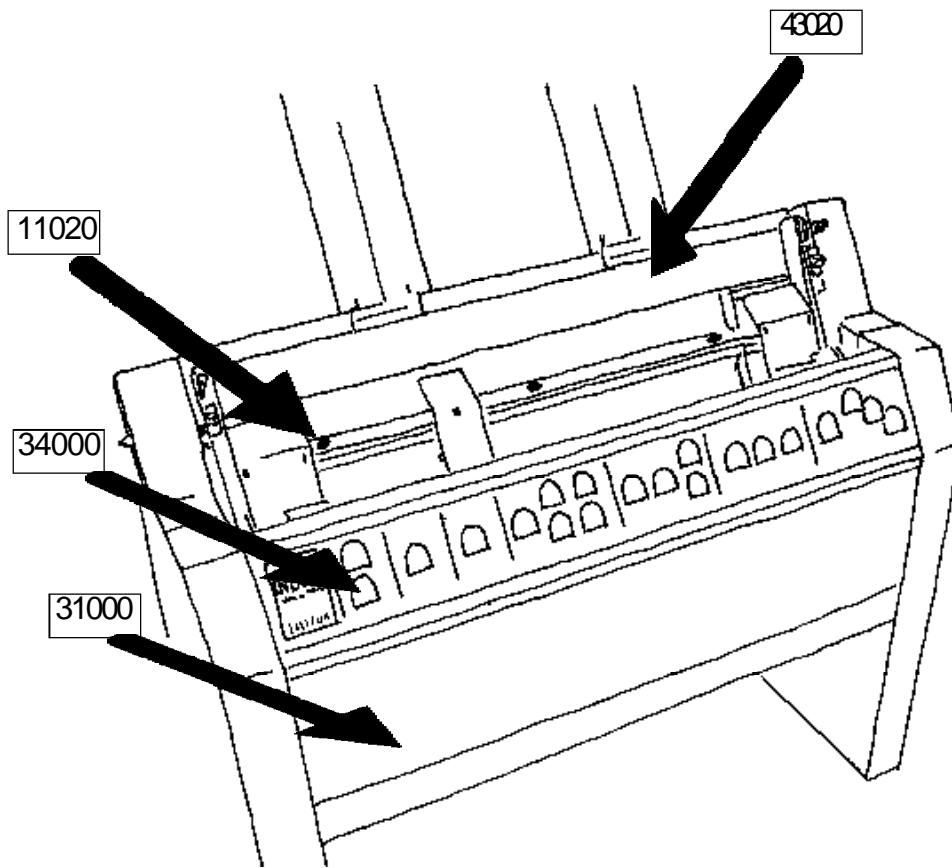
21010	Bearing holder
21011	Compl. Bearing holder
21020	Anvil profile
21030	Hammer profile
21040	Back bar
22010	Anvil female
22020	Anvil male
22030	Hammer male
22040	Hammer female
23010	Housing
23020	Plastic film, upper
23030	Plastic film, lower
23040	Steering dowel
23050	Gear bar
23060	Axle
23070	Gliding bearing DRYSTAR BM 1015 FB
23080	Rubber damper

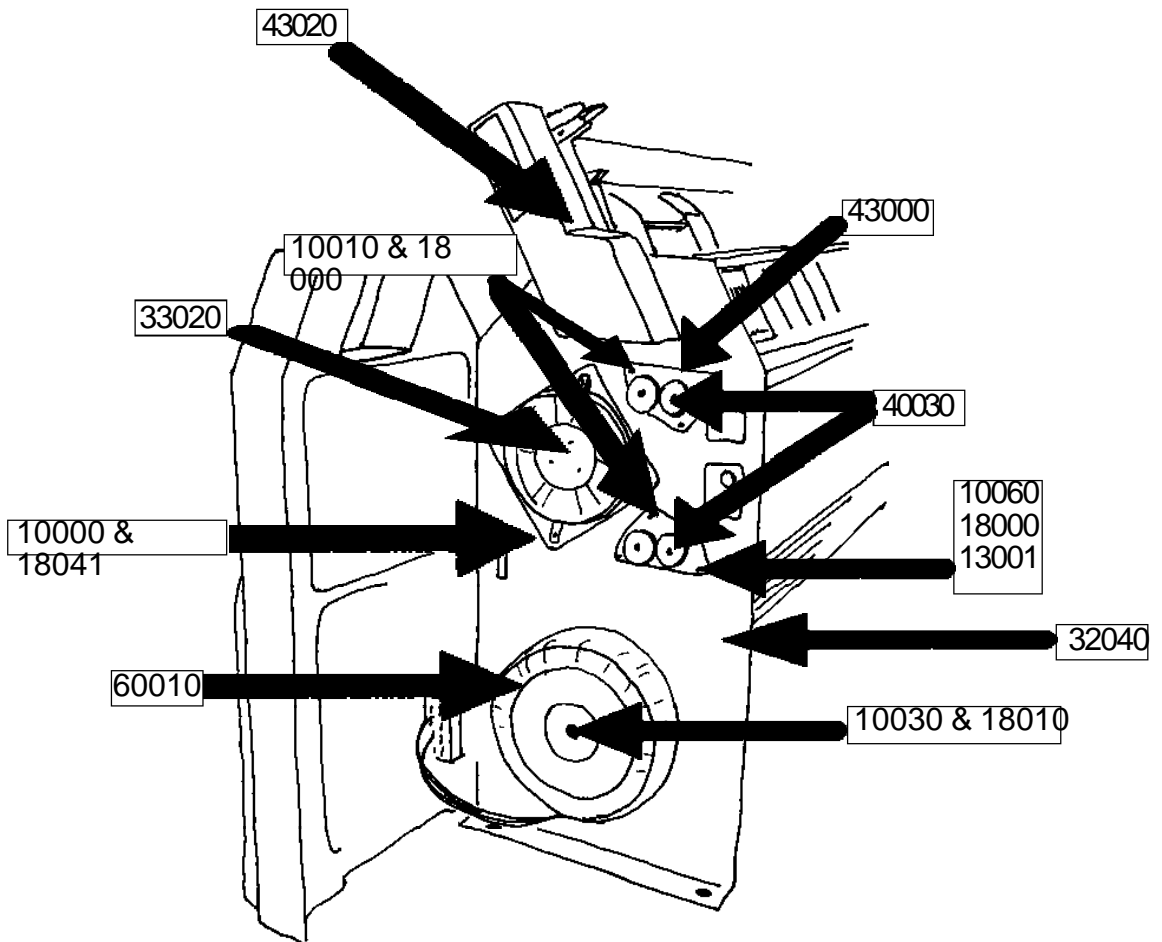
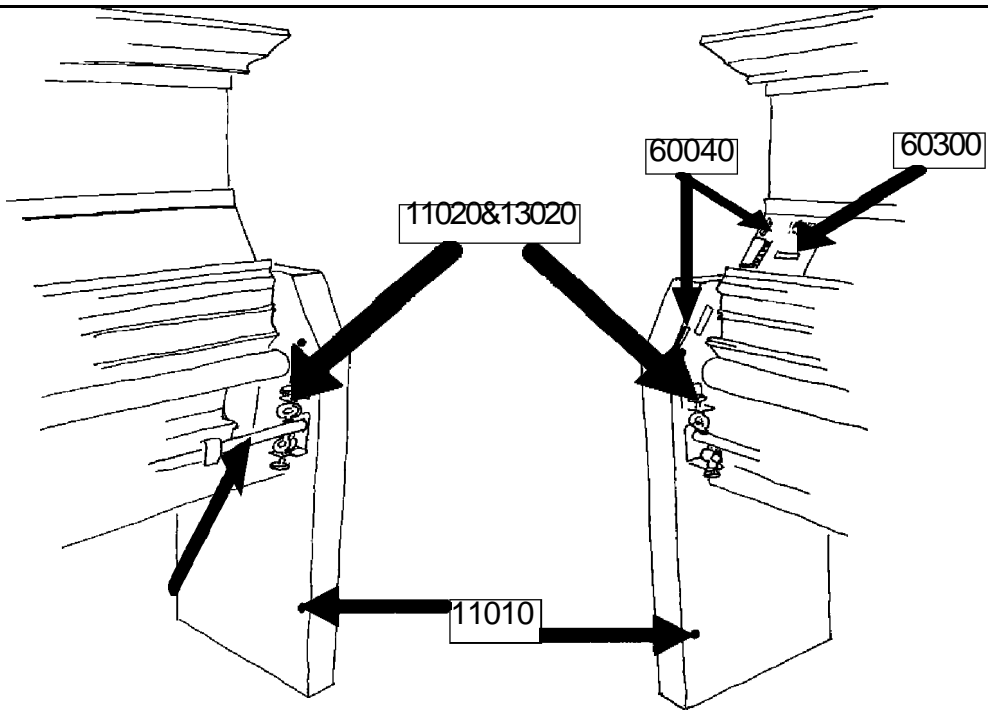
3.3 Chassis

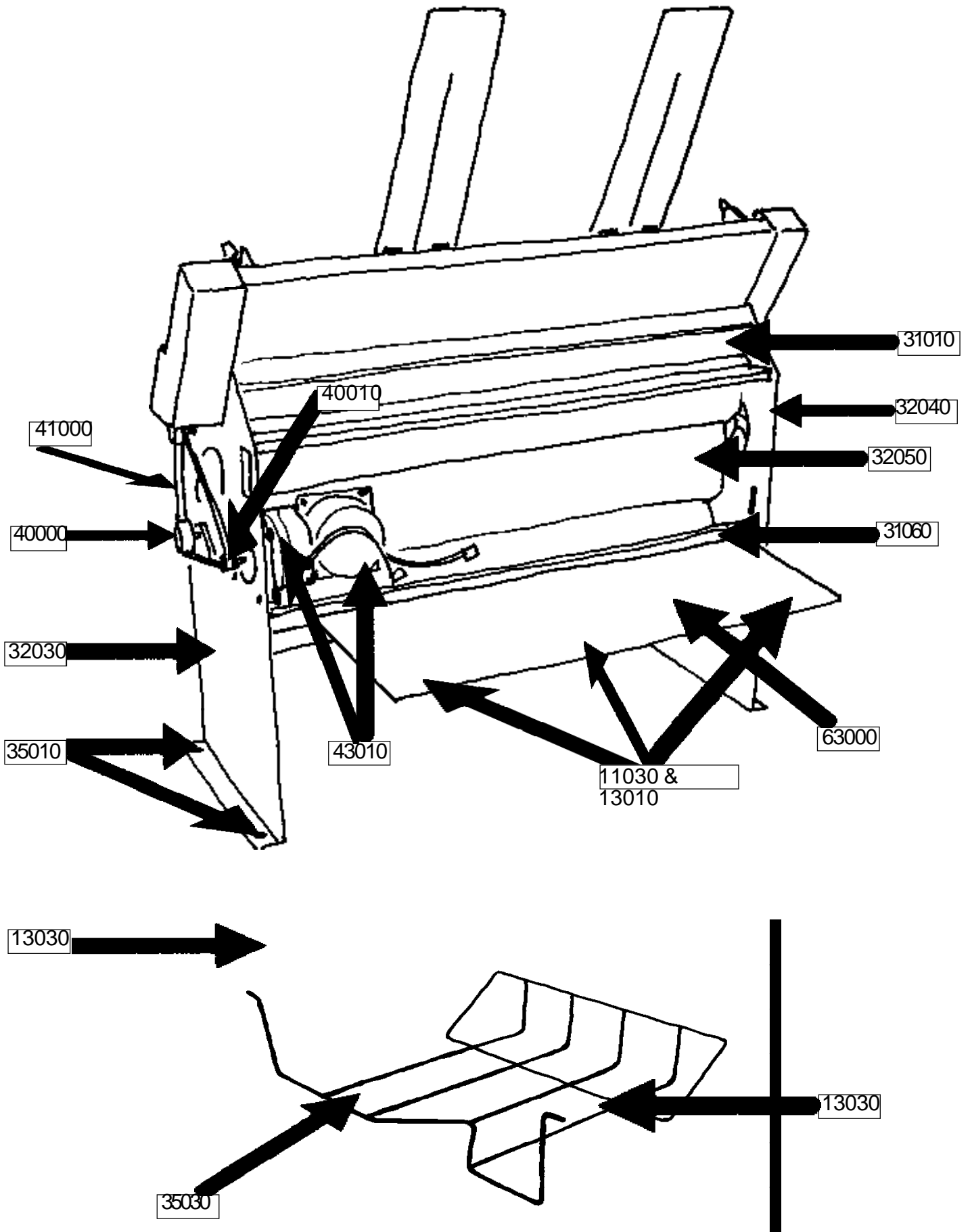
30006	Casing, right
30007	Casing, left
31000	Complete front cover
31010	Frame profile, upper
31020	Frame profile, lower
31030	Front panel profile lower
31040	Front panel profile upper
31050	Front panel connecti.
31060	Main board holder
32010	Steering plate
32020	Back plate
32030	Side plate, right
32040	Side plate, left
32050	Centre plate
32061	Gliding plate, PA6 F
32085	Front panel sealing R
32090	Front panel sealing L
32095	Sound decr. plates
32100	Upper sound sealing
33010	Fan, Matsukyu
34010	Front panel E-D EUR
34020	Front panel E-D TSI
35030	Front panel E-S EUR
35040	Front panel E-S TSI
35010	Rubber feet
35020	Glass
35030	Loud-speaker
35040	Document collector

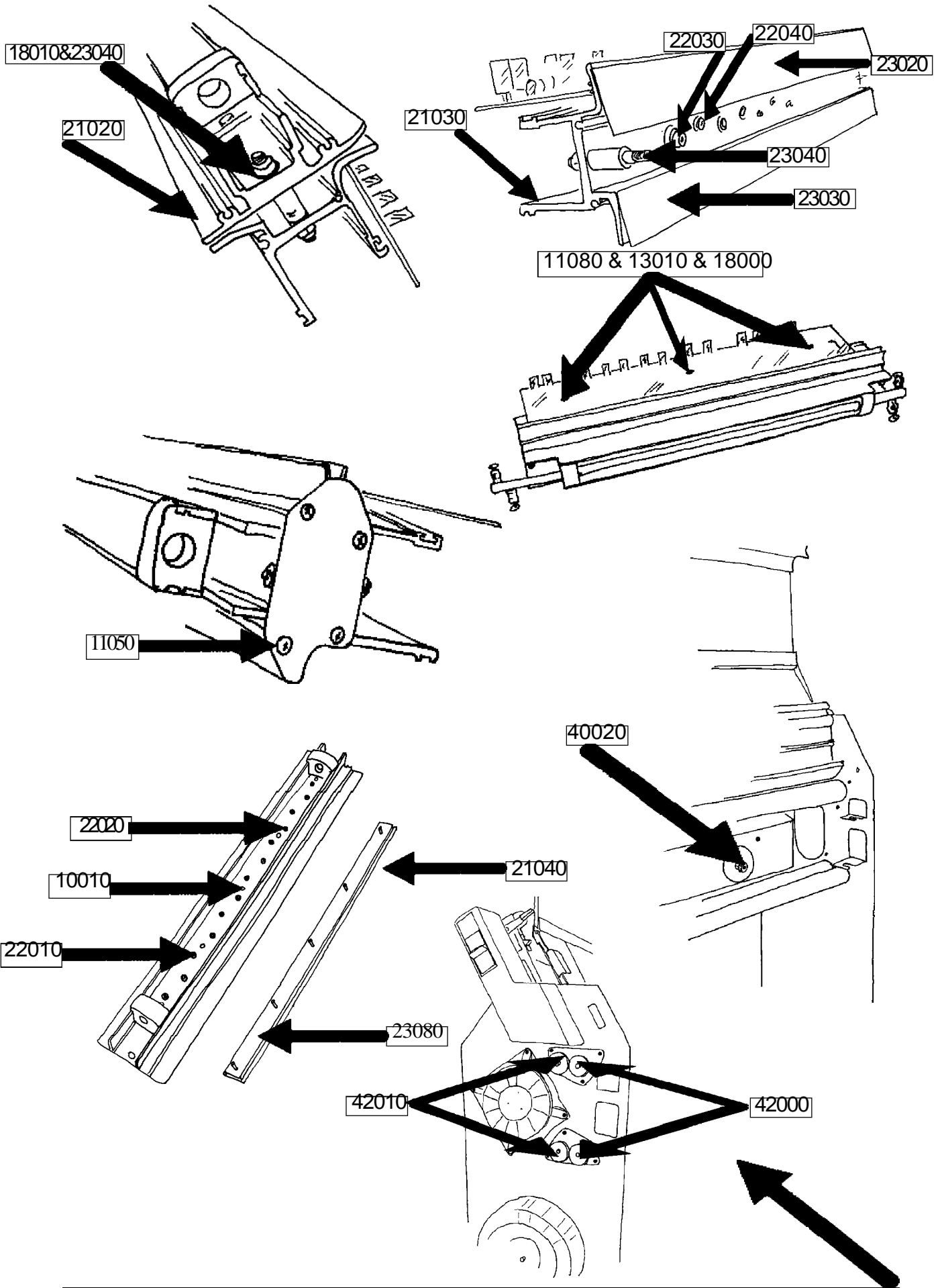
3.4	Transmission	3.5	Shipping material
40000	Pulley, 36 steps	50000	Protection mat. box
40010	Pulley, 18 steps	51010	Box EUR
40020	Gearwheel, 20 steps	51020	Box TSI
40030	Gearwheel, 40 steps	51300	Plastic bag, L
41000	Driving belt	51310	Plastic bag, S
42001	Roll axle, steel,		
42011	Roll axle, steel,	3.6	Electronics
42030	Complete roll axle		
42040	Complete roll axle		
43000	Roll bearings	60002	Printinghead cable
43010	Stepper motor HY200-22	60010	Transformer
43020	Sheet-feeder	60020	Power input, compl
44000	Paper guide	60040	Switch 155/230V
44010	Sheet feeder support	60090	Reference pulse sens.
		61030	Front panel cable
		61050	Ground connection
		63000	Main board
		63020	Printing head board
		63040	Front panel board

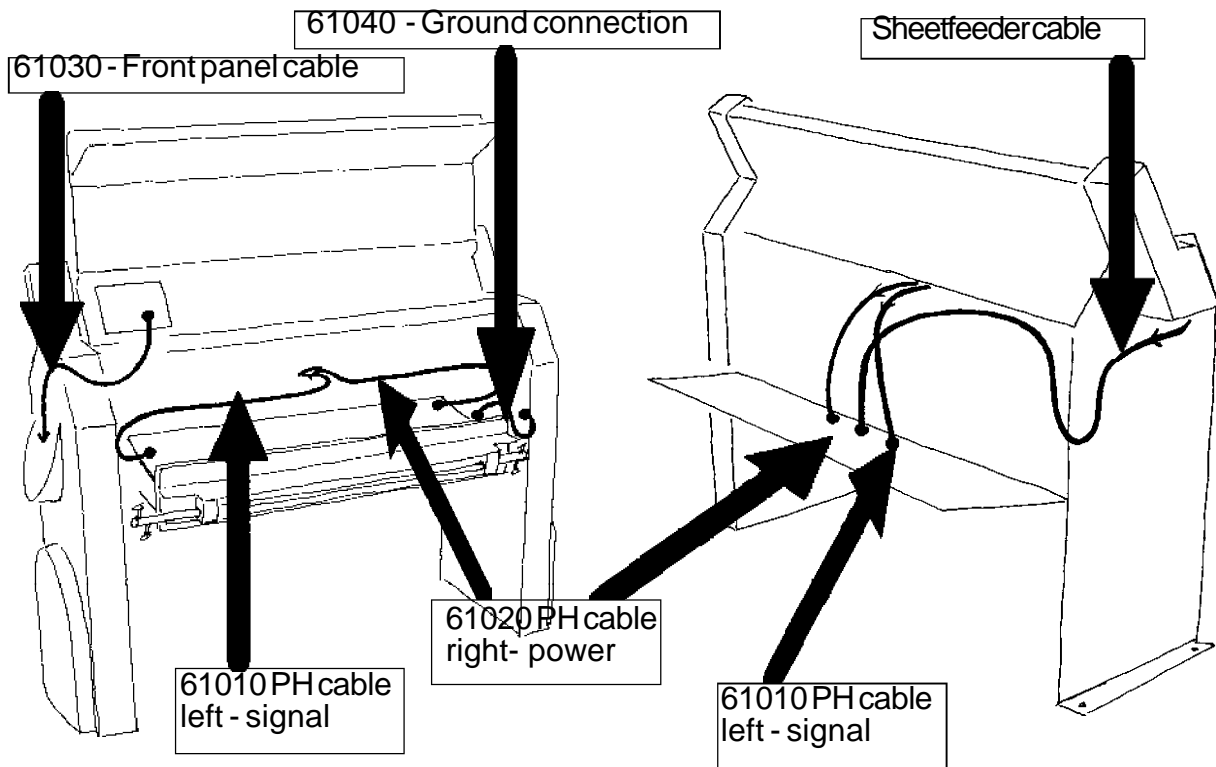
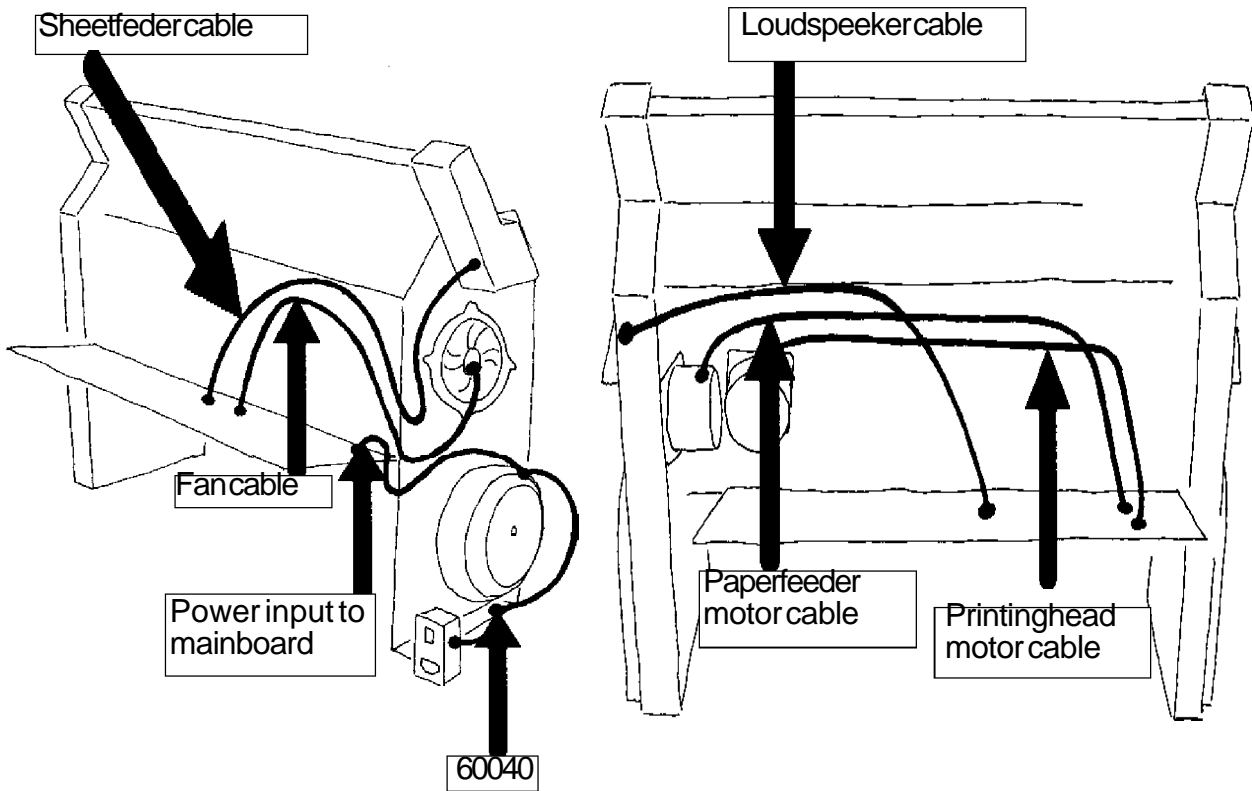
3.7 Component locations











4 Electronic components

4.1 Printinghead board

C1	760010U3	10 F/10V	F1	73800231	RXE 110 PTC Resistor
C4	76002U24	2,2 F/16V	F2	73800231	RXE 110 PTC Resistor
C5	760010U3	10 F/10V	F3	73800231	RXE 110 PTC Resistor
C6	765100N1	100 nF/50V	F4	73800231	RXE 110 PTC Resistor
C7	76503N31	3,3 nF/50V	F5	73800231	RXE 110 PTC Resistor
C8	765022N1	22 nF/50V	F6	73800231	RXE 110 PTC Resistor
C9	76503N31	3,3 nF/50V	F7	73800231	RXE 110 PTC Resistor
C10	765022N1	22 nF/50V	F8	73800231	RXE 110 PTC Resistor
C11	765100N1	100 nF/50V	F9	73800231	RXE 110 PTC Resistor
C12	76503N31	3,3 nF/50V	F10	73800231	RXE 110 PTC Resistor
C13	765022N1	22 nF/50V	F11	73800231	RXE 110 PTC Resistor
C14	76503N31	3,3 nF/50V	F12	73800231	RXE 110 PTC Resistor
C15	765022N1	22 nF/50V	F13	73800231	RXE 110 PTC Resistor
C16	765100N1	100 nF/50V	J1	9211X023	
C17	76503N31	3,3 nF/50V	J2	9211X023	
C18	765022N1	22 nF/50V	J3	9211X023	
C19	76503N31	3,3 nF/50V	J4	9211X023	
C20	765022N1	22 nF/50V	J5	9211X023	
C21	765100N1	100 nF/50V	J6	9211X023	
C22	76503N31	3,3 nF/50V	J7	9211X023	
C23	765022N1	22 nF/50V	J8	9211X023	
C24	76503N31	3,3 nF/50V	J9	9211X023	
C25	765022N1	22 nF/50V	J10	9211X023	
C26	765100N1	100 nF/50V	J11	9211X023	
C27	76503N31	3,3 nF/50V	J12	9211X023	
C28	765022N1	22 nF/50V	J13	9211X023	
C29	76503N31	3,3 nF/50V	J14	98900111	
C30	765022N1	22 nF/50V	J15	98900112	
C31	765100N1	100 nF/50V	P1	750005K4	Trimpotentiometer 5k BOURNS type 3323
C32	76503N31	3,3 nF/50V	PS1	58000101	Ref. pulse sensor HAMLIN 59045-010
C33	765022N1	22 nF/50V	R1	73210001	1k
C34	76503N31	3,3 nF/50V	R2	73247001	4,7k.
C35	765022N1	22 nF/50V	R3	732010K1	10k.
C36	765100N1	100 nF/50V	R4	73233001	3,3k
C37	76503N31	3,3 nF/50V	R5	73218001	1,8k
C38	765022N1	22 nF/50V	R6	732022K1	22k.
D1	70100101	MR 811	R7	732010K1	10k.
D2	70100101	MR 811	R8	73247001	4,7k
D3	70100101	MR 811	R9	73247001	4,7k.
D4	70100101	MR 811	R10	732010K1	10k.
D5	70100101	MR 811	R13	73106801	560 ohm - 1/8W
D6	70100101	MR 811	R14	73103301	330 ohm - 1/8W
D7	70100101	MR 811	R15	732015K1	15k.
D8	70100101	MR 811	R16	732010K1	10k
D9	70100101	MR 811	R17	732010K1	10k
D10	70100101	MR 811	R18	731010K1	10k - 1/8W
D11	70100101	MR 811	R19	73110001	1k -1/8W
D12	70100101	MR 811			
D13	70100101	MR 811			

R20	732010K1	10k	R75	73110001	1k - 1/8W
R21	73700101	0,1 ohm - 0,7W	R76	732010K1	10k.
R22	73700101	0,1 ohm - 0,7W	R77	73700101	0,1 ohm - 0,7W
R23	732015K1	15k.	R78	73700101	0,1 ohm- 0,7W
R24	732010K1	10k.	R79	732015K1	15k.
R25	732010K1	10k.	R80	732010K1	10k.
R26	731010K1	10k - 1/8W			
R27	73110001	1k - 1/8W	R81	732010K1	10k.
R28	732010K1	10k.	R82	731010K1	10k - 1/8W
R29	73700101	0,1 ohm - 0,7W	R83	73110001	1k
R30	73700101	0,1 ohm - 0,7W	R84	732010K1	10k.
			R85	73700101	0,1 ohm - 0,7W
R31	732015K1	15k.	R86	73700101	0,1 ohm - 0,7W
R32	732010K1	10k.	R87	732015K1	15k.
R33	732010K1	10k.	R88	732010K1	10k.
R34	731010K1	10k - 1/8W	R89	732010K1	10k.
R35	73110001	1k - 1/8W	R90	731010K1	10k - 1/8W
R36	732010K1	10k.			
R37	73700101	0,1 ohm- 0,7W	R91	73110001	1k - 1/8W
R38	73700101	0,1 ohm- 0,7W	R92	732010K1	10k.
R39	732015K1	15k.	R93	73700101	0,1 ohm - 0,7W
R40	732010K1	10k.	R94	73700101	0,1 ohm - 0,7W
			R95	732015K1	15k.
R41	732010K1	10k	R96	732010K1	10k.
R42	731010K1	10k - 1/8W	R97	732010K1	10k.
R43	73110001	1k - 1/8W	R98	731010K1	10k - 1/8W
R44	732010K1	10k	R99	73110001	1k - 1/8W
R45	73700101	0,1 - ohm- 0,7W			
R46	73700101	0,1 - ohm 0,7W	R100	732010K1	10k.
R47	732015K1	15k.	R101	73700101	0,1 ohm - 0,7W
R48	732010K1	10k.	R102	73700101	0,1 ohm - 0,7W
R49	732010K1	10k.	R103	732015K1	15k.
R50	731010K1	10k - 1/8W	R104	732010K1	10k.
			R105	732010K1	10k.
R51	73110001	1k - 1/8W	R106	731010K1	10k - 1/8W
R52	732010K1	10k	R107	73110001	1k - 1/8W
R53	73700101	0,1 ohm - 0,7W	R108	732010K1	10k.
R54	73700101	0,1 ohm - 0,7W	R109	73700101	0,1 ohm - 0,7W
R55	732015K1	15k	R110	73700101	0,1 ohm - 0,7W
R56	732010K1	10k.			
R57	732010K1	10k.	R111	732015K1	15k.
R58	731010K1	10k - 1/8W	R112	732010K1	10k.
R59	73110001	1k - 1/8W	R113	732010K1	10k.
R60	732010K1	10k.	R114	731010K1	10k 1/8W
			R115	73110001	1k 1/8W
R61	73700101	0,1 ohm - 0,7W	R116	732010K1	10k.
R62	73700101	0,1 ohm - 0,7W	R117	73700101	0,1 ohm - 0,7W
R63	732015K1	15k.	R118	73700101	0,1 ohm - 0,7W
R64	732010K1	10k	R119	732010K1	10k.
R65	732010K1	10k.			
R66	731010K1	10k - 1/8W	R120	732010K1	10k.
R67	73110001	1k - 1/8W	R121	732010K1	10k.
R68	732010K1	10k	R122	732010K1	10k.
R69	73700101	0,1ohm - 0,7W	R123	732010K1	10k.
R70	73700101	0,1ohm - 0,7W	R124	732010K1	10k.
			R125	732010K1	10k.
R71	732015K1	15k.	R126	732010K1	10k.
R72	732010K1	10k.	R127	732010K1	10k.
R73	732010K1	10k.	R128	732010K1	10k
R74	731010K1	10k - 1/8W	R129	732010K1	10k

RT30 732010K1 10k
R131 732010K1 10k.

4.2 Main board

RN1 74008491 7x10k Resistor net
RN2 74008491 7x10k Resistor net

T1 71000101 BC546B
T2 71000101 BC546B
T3 71200201 MTP 30055E
T4 71000101 BC546B
T5 71000101 BC546B
T6 71200201 MTP 30055E
T7 71000101 BC546B
T8 71000101 BC546B
T9 71200201 MTP 30055E
T10 71000101 BC546B

T11 71000101 BC546B
T12 71200201 MTP 30055E
T13 71000101 BC546B
T14 71000101 BC546B
T15 71200201 MTP 30055E
T16 71000101 BC546B
T17 71000101 BC546B
T18 71200201 MTP 30055E
T19 71000101 BC546B
T20 71000101 BC546B

T21 71200201 MTP 30055E
T22 71000101 BC546B
T23 71000101 BC546B
T24 71200201 MTP 30055E
T25 71000101 BC546B
T26 71000101 BC546B
T27 71200201 MTP 30055E
T28 71000101 BC546B
T29 71000101 BC546B
T30 71200201 MTP 30055E
T31 71000101 BC546B
T32 71000101 BC546B
T33 71200201 MTP 30055E
T34 71000101 BC546B
T35 71000101 BC546B
T36 71200201 MTP 30055E
T37 71000101 BC546B
T38 71000101 BC546B
T39 71200201 MTP 30055E

U1 55300102 OPB707B Optic sensor
U2 53100121 LM 393D.
U3 51105952 74HC595AD.
U4 51105952 74HC595AD.
U5 53700212 UDN2916EB
U6 53700212 UDN2916EB
U7 53700212 UDN2916EB
U8 53700212 UDN2916EB
U9 53700212 UDN2916EB
U10 53700212 UDN2916EB.
U11 53700212 UDN2916EB
U12 53600102 LM317T.

C1 760100N8 100nF
C2 760010U3 10F/10V
C3 761100N1 100nF/50v
C4 760100N8 100nF
C5 761100N1 100nF/50v
C6 761100N1 100nF/50v
C7 761100N1 100nF/50v
C8 761100N1 100nF/50v
C9 761100N1 100nF/50v

C10 761100N1 100nF/50v
C11 761100N1 100nF/50v
C12 761100N1 100nF/50v
C13 761100N1 100nF/50v
C14 761100N1 100nF/50v
C15 761100N1 100nF/50v
C16 761100N1 100nF/50v
C17 761100N1 100nF/50v
C18 761100N1 100nF/50v
C19 761047N1 47nF/50v
C20 761100N1 100nF/50v

C30 761100N1 100nF/50v
C31 761100N1 100nF/50v
C32 761100N1 100nF/50v
C33 761100N1 100nF/50v
C34 761100N1 100nF/50v
C35 761100N1 100nF/50v
C36 761100N1 100nF/50v
C37 76101N21 1.2nF/50v
C38 761100N1 100nF/50v
C39 761022N1 22nF/50v

C40 761022N1 22nF/50v
C41 76101N21 1.2nF/50v
C42 761022N1 22nF/50v
C43 761022N1 22nF/50v
C44 76101N21 1.2nF/50v
C45 761100N1 100nF/50v
C46 761022N1 22nF/50v
C47 761022N1 22nF/50v
C48 76101N21 1.2nF/50v
C49 761022N1 22nF/50v

C50 761022N1 22nF/50v
C51 761100N1 100nF/50v
C52 761100N1 220nF/50v
C53 761100N1 100nF/50v
C54 761010N1 10nF/50v
C55 761100N1 10nF/50v
C56 761100N1 100nF/50v
C57 761220P1 220pF/50v
C58 761220P1 220pF/50v
C59 761100N1 100nF/50v

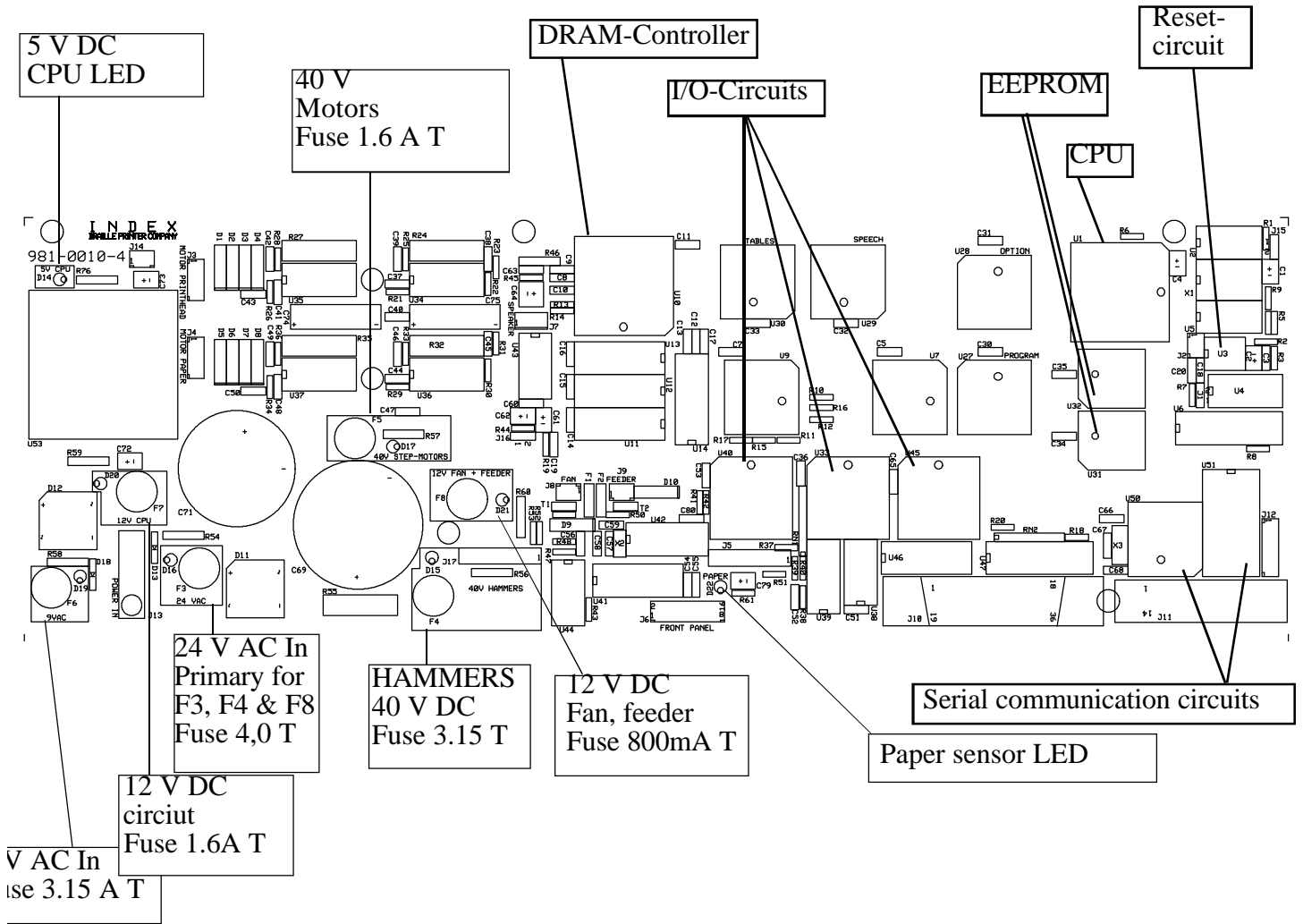
C60 761010N1 10nF/50v
C61 760010U3 10F/10V

C62	760010U3	10F/10V	J10	98900105	Centronics
C63	761047N1	47nF/50v	J11	98900104	RS232-C
C64	760100U2	100F/6.3V	J12	98900109	Socket 6x1
C65	761100N1	100nF/50v	J13	9291X041	4-p socket
C66	761015P1	15pF/50v	J14	9211X021	Socket 2x1
C67	761015P1	15pF/50v	J15	9211X031	Socket 3x1
C68	761100N1	100nF/50v	J16	9211X031	Socket 3x1
C69	77022344	22000F/40V	J17	98900103	Socket 9x1
C71	77015332	15000F/16V	R1	731010K1	10K - 1/8W
C72	760010U3	10F/10V	R2	731010K1	10K - 1/8W
C73	760010U3	10F/10V	R3	73110001	1K - 1/8W
C74	77122045	22F/63V	R4	73110001	1K - 1/8W
C75	77122045	22F/63V	R5	73110001	1K - 1/8W
C79	760010U3	10F/10V	R6	731010K1	10K - 1/8W
C80	761010N1	10nF/50v	R7	731010K1	10K - 1/8W
D1	70100301	1N4935	R8	731010K1	10K - 1/8W
D2	70100301	1N4935	R9	73110001	1K - 1/8W
D3	70100301	1N4935	R10	731010K1	10K - 1/8W
D4	70100301	1N4935	R11	731010K1	10K - 1/8W
D5	70100301	1N4935	R12	731010K1	10K - 1/8W
D6	70100301	1N4935	R13	731010K1	10K - 1/8W
D7	70100301	1N4935	R14	731010K1	10K - 1/8W
D8	70100301	1N4935	R15	731010K1	10K - 1/8W
D9	70100301	1N4935	R16	731010K1	10K - 1/8W
D10	70100301	1N4935	R17	731010K1	10K - 1/8W
D11	70600101	BR 64 DC-circuit	R18	731010K1	10K - 1/8W
D12	70600101	BR 64 DC-circuit	R19	731010K1	10K - 1/8W
D13	70000101	1N4148	R20	731010K1	10K - 1/8W
D14	55000101	GL3EG8 LED	R21	731056K1	56K - 1/8W
D15	55000101	GL3EG8 LED	R22	73122001	2.2K - 1/8W
D16	55000101	GL3EG8 LED	R23	731010K1	10K - 1/8W
D17	55000101	GL3EG8 LED	R24	73700473	0.47 ohm - 3W
D18	70000101	1N4148	R25	73110001	1K - 1/8W
D19	55000101	GL3EG8 LED	R26	731056K1	56K - 1/8W
D20	55000101	GL3EG8 LED	R27	73700473	0.47 ohm - 3W
D21	55000101	GL3EG8 LED	R28	73110001	1K - 1/8W
D22	55000101	GL3EG8 LED	R29	731056K1	56K - 1/8W
F1	73800151	RXE030	R30	73122001	2.2K - 1/8W
F2	73800151	RXE030	R31	731010K1	10K - 1/8W
F3	8702A0T1	Fuse holder	R32	73700473	0.47 ohm - 3W
F4	8702A0T1	Fuse holder	R33	73110001	1K - 1/8W
F5	8702A0T1	Fuse holder	R34	731056K1	56K - 1/8W
F6	8702A0T1	Fuse holder	R35	73700473	0.47 ohm - 3W
F7	8702A0T1	Fuse holder	R36	73110001	1K - 1/8W
F8	8702A0T1	Fuse holder	R37	731068K1	68K - 1/8W
J1	9211X031	Socket 3x1	R38	73182001	8.2K - 1/8W
J2	9211X023	Socket 2x1	R39	731047K1	68K - 1/8W
J3	98900101	Socket 4x1	R40	731010K1	10K - 1/8W
J4	98900101	Socket 4x1	R41	731010K1	10K - 1/8W
J5	98900102	Socket 9x1	R42	731010K1	10K - 1/8W
J6	98900108	Socket 7x2	R43	731010K1	10K - 1/8W
J7	9211X033	Socket 3x1	R44	73110001	1K - 1/8W
J8	9211X023	Socket 2x1	R45	73110001	1K - 1/8W
J9	9211X023	Socket 2x1	R46	73702701	2.7 ohm - 1/4W
			R47	731010K1	10K - 1/8W

R48	731010K1	10K - 1/8W	U13	61100401	HM514256AP-12 256X4 DRAM
R49	73100101	10 ohm - 1/8W	U14	61100401	HM514256AP-12 256X4 DRAM
R50	73100101	10 ohm - 1/8W			
R51	731010K1	10K ohm - 1/8W			
R52	73110001	1K - 1/8W	U27	61000702	PROM 64K x 16 BIT (Program)
R53	73110001	1K - 1/8W	U28	61000702	PROM 64K x 16 BIT (Braille tables)
R54	730010K1	10K - 1/8W	U29	61000702	PROM 128K x 16 BIT (Digitized speech)
R55	73910001	1K - 2W	U30	61000702	PROM 64K x 16 BIT
R56	730010K1	10K - 1/4W	U31	61200302	X2664BJ-25 (XICOR)
R57	730010K1	10K - 1/4W	U32	61200302	X2664BJ-25 (XICOR)
R58	73027001	2.7K - 1/4W	U33	60200302	MC68230FN10
R59	73027001	2.7K - 1/4W	U34	53700301	PBL3770A
R60	73027001	2.7K - 1/4W	U35	53700301	PBL3770A
R61	73122001	2.2K -1/8W	U36	53700301	PBL3770A
R76	73022001	2.7K - 1/4W	U37	53700301	PBL3770A
RN1	740010K7	10kx7 ohm	U38	75900111	DS1267-50
RN2	74033007	3.3kx7 ohm	U39	50102211	SN74LS221N
T1	71700201	BD681			
T2	71700201	BD681	U40	60200302	MC68230FN10
U1	60000302	MC68000FN8	U41	60900201	MM74C923N
U2	50300741	SN74F74N	U42	60800101	MSM5205RS
U3	53901001	TL7705A	U43	53000101	LM 390
U4	53901101	MAX 699	U44	50000061	SN7406N
U5	50100031	SN74LS03N	U45	60200302	MC68230FN10
U6	65600101	PALC22V10Q-25PC	U46	50102441	SN74LS244N
U7	65600302	MACH110-20JC	U47	65600101	PALC22V10Q-25PC
U8	65600302	MACH110-20JC	U50	60100302	MC68681FN
U9	65600302	MACH110-20JC	U51	53800101	MAX235
U10	61900101	DP8420AV-20 D-RAM CONTROLLER	U53	53600202	LM323K
U11	61100401	HM514256AP-12 256X4 DRAM	X1	53900101	Oscillator 16MHz
U12	61100401	HM514256AP-12 256X4 DRAM	X2	87500101	Crystal 384kHz
			X3	87500201	CSB 384P crystal 3.6864kHz

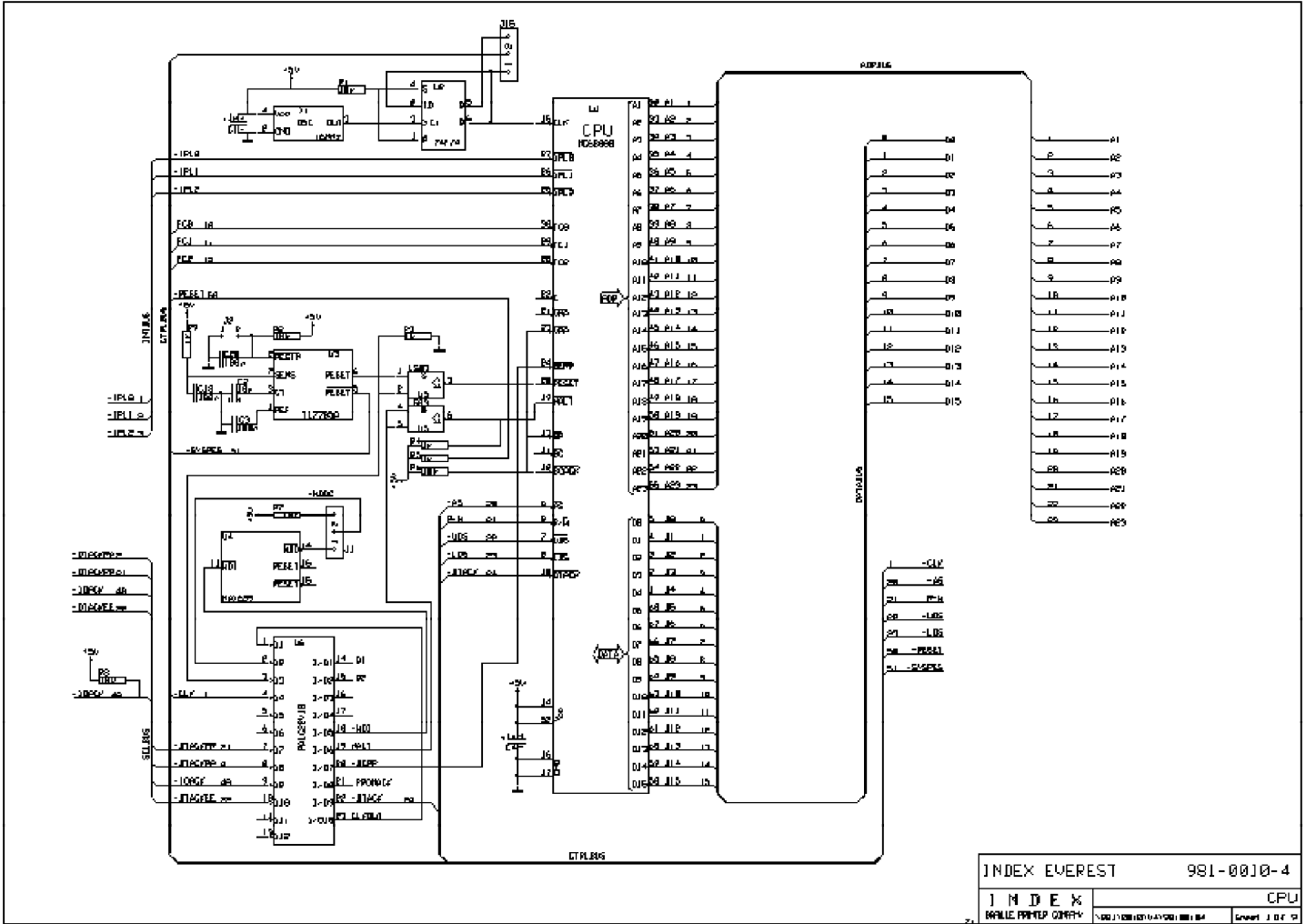
5 Schematic descriptions

5.1 Mainboard layout

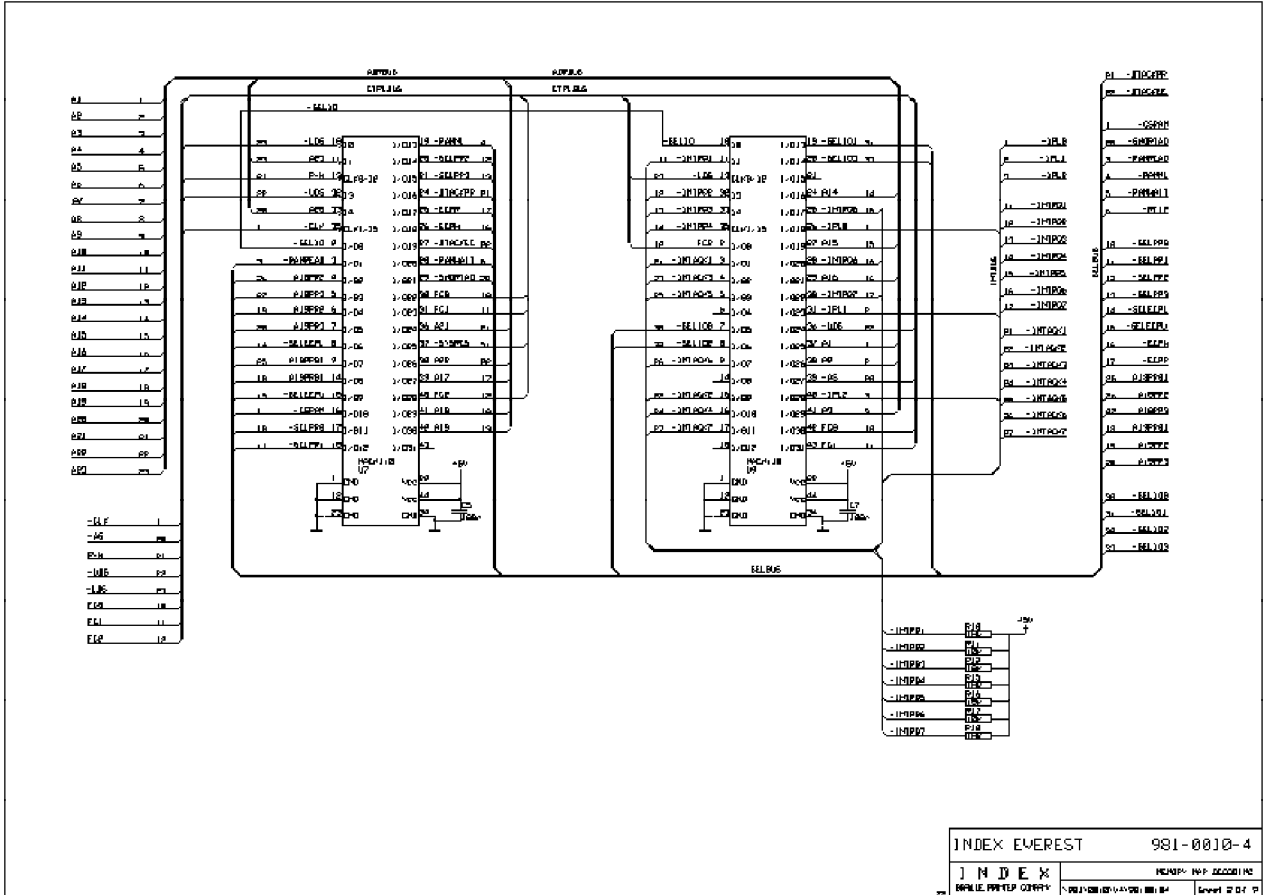


Internal Fuses				
No	Size	Type	Voltage	Target
F3	4.0A	S	24 V AC	
F4	3.15A	S	40 V	Hammers
F5	1.6A	F	40 V	Motors
F6	3.15A	S	9 V AC	
F7	1.6A	S	12 V	CPU
F8	800mA	S	12 V	Fan+Feeder

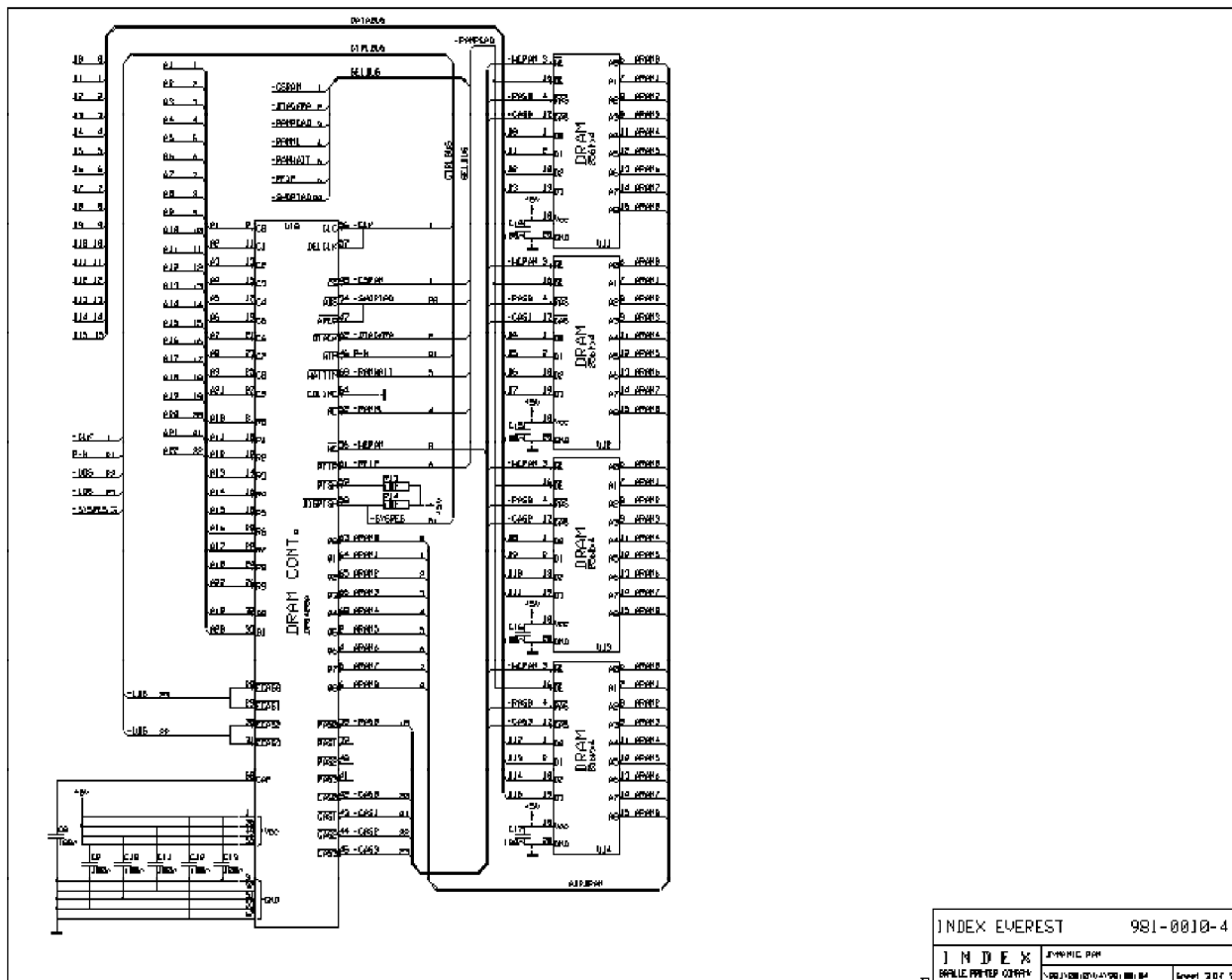
5.2 CPU



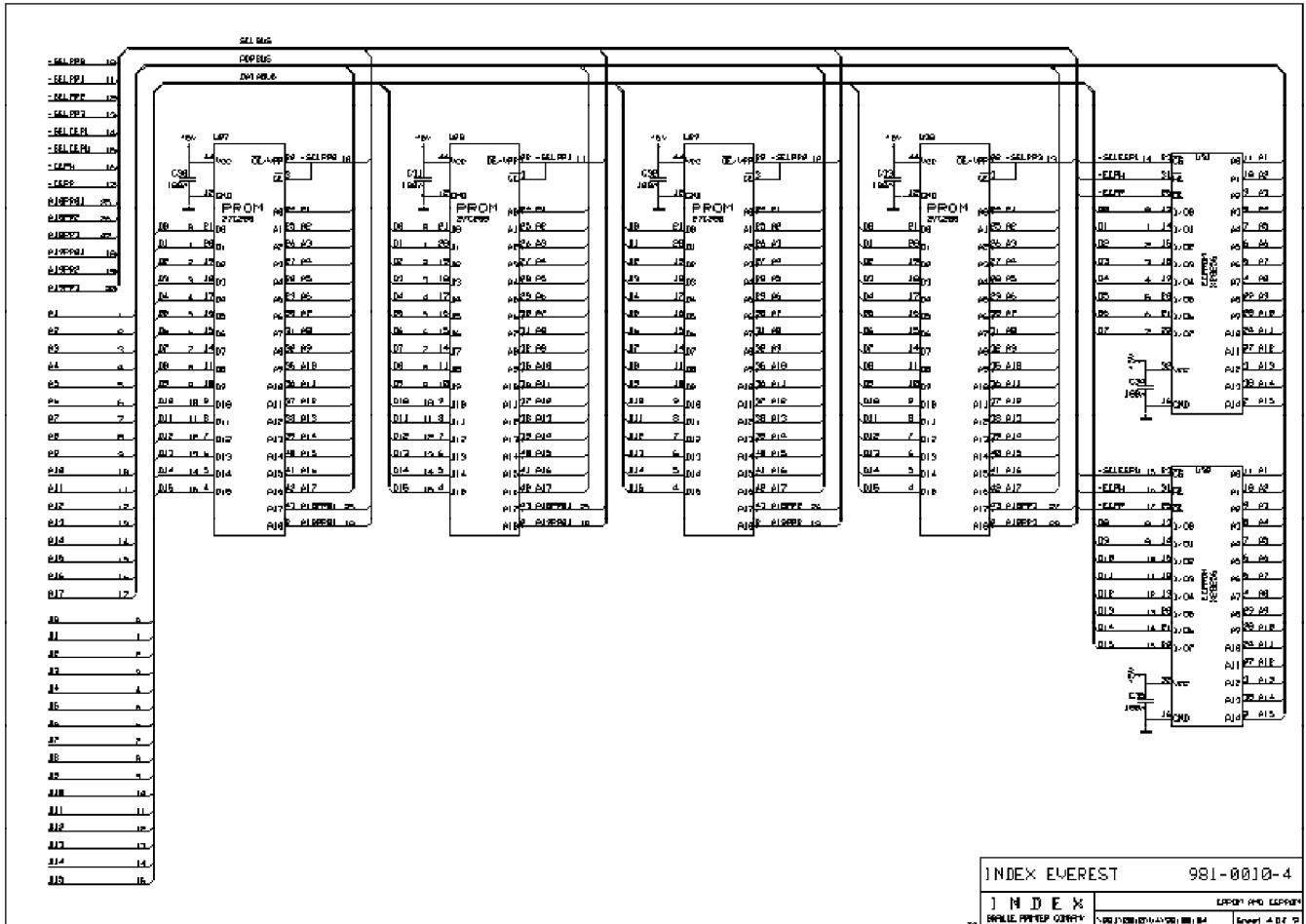
5.3 Memory map decoding



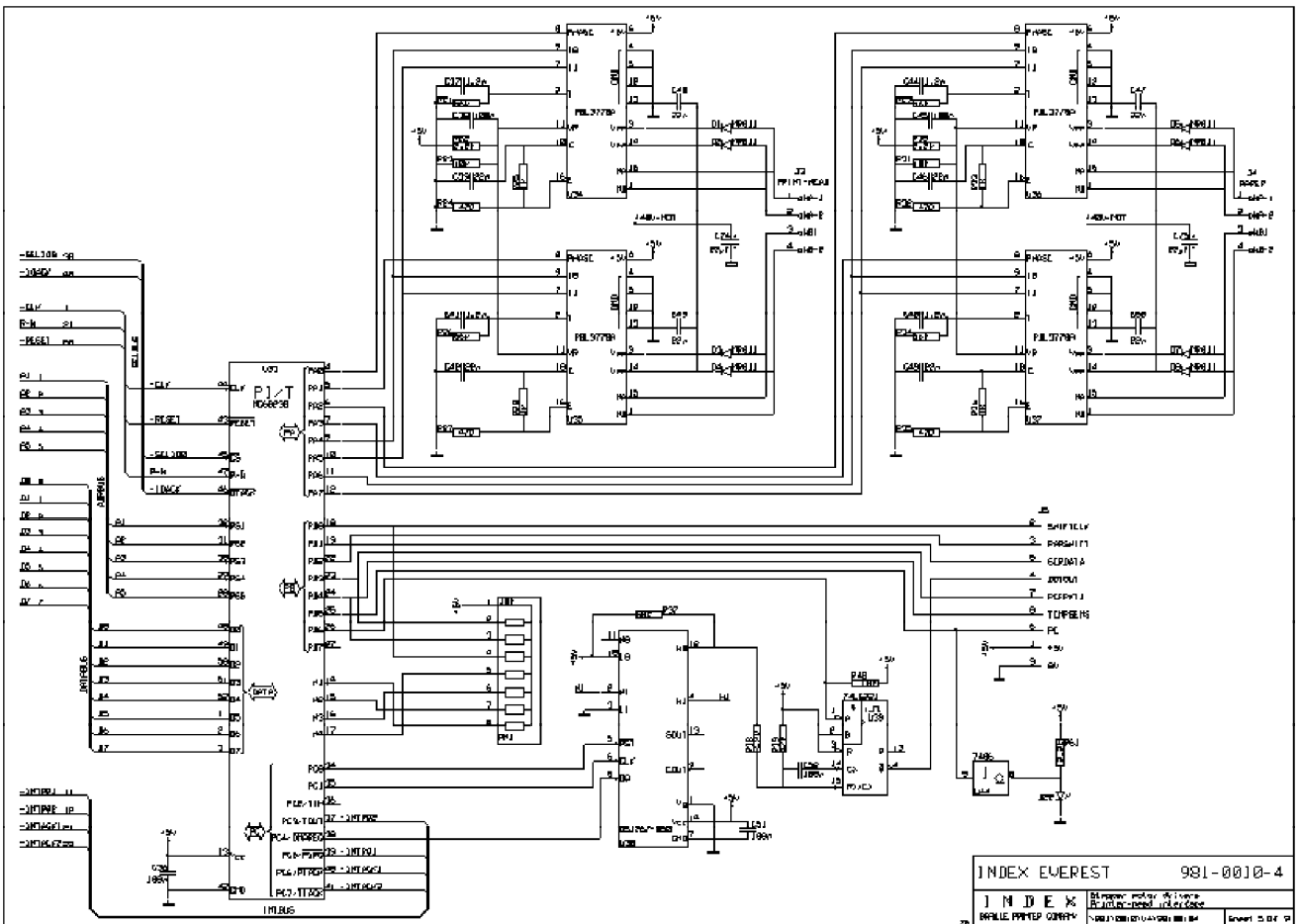
5.4 Dynamic Ram



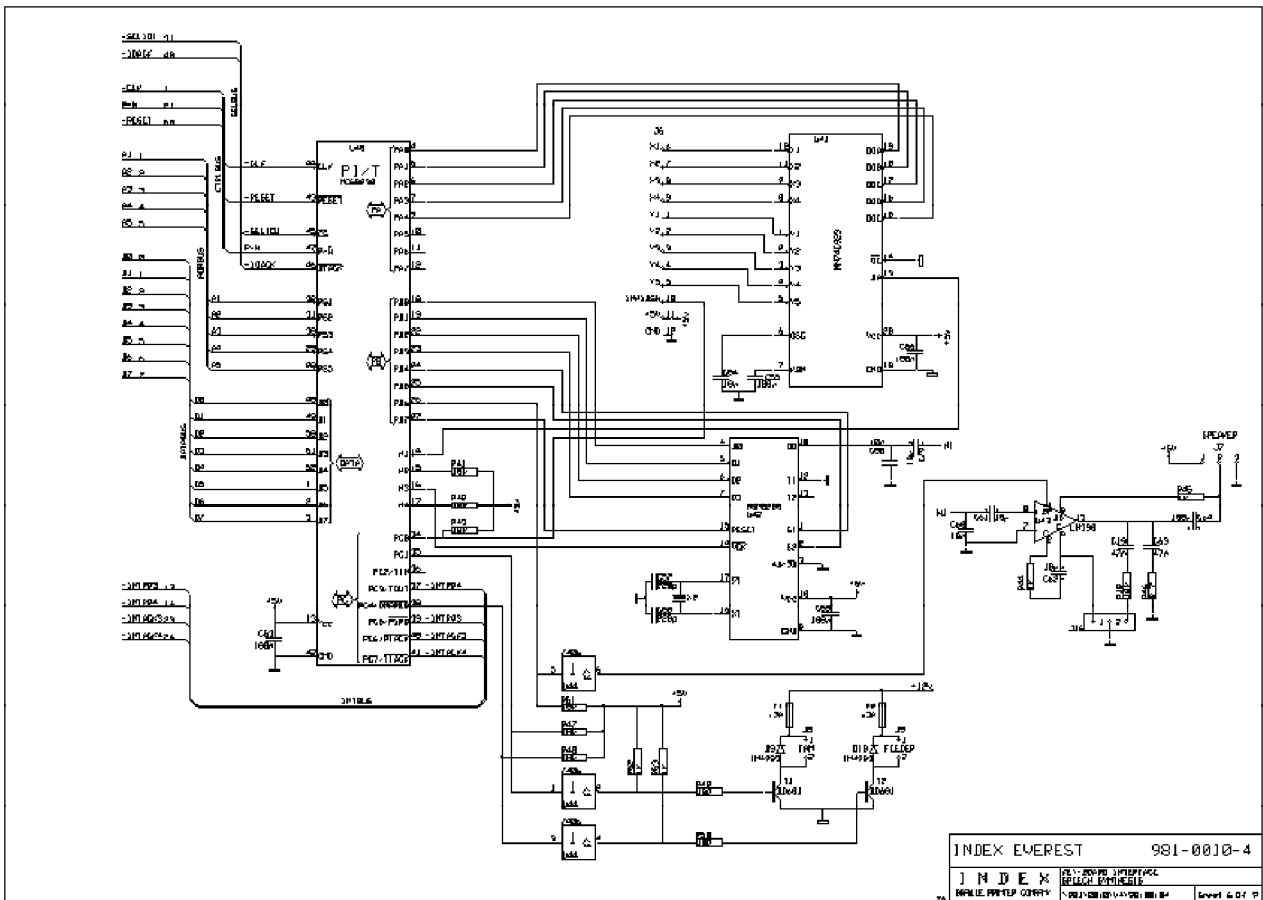
5.5 EPROM & EEPROM



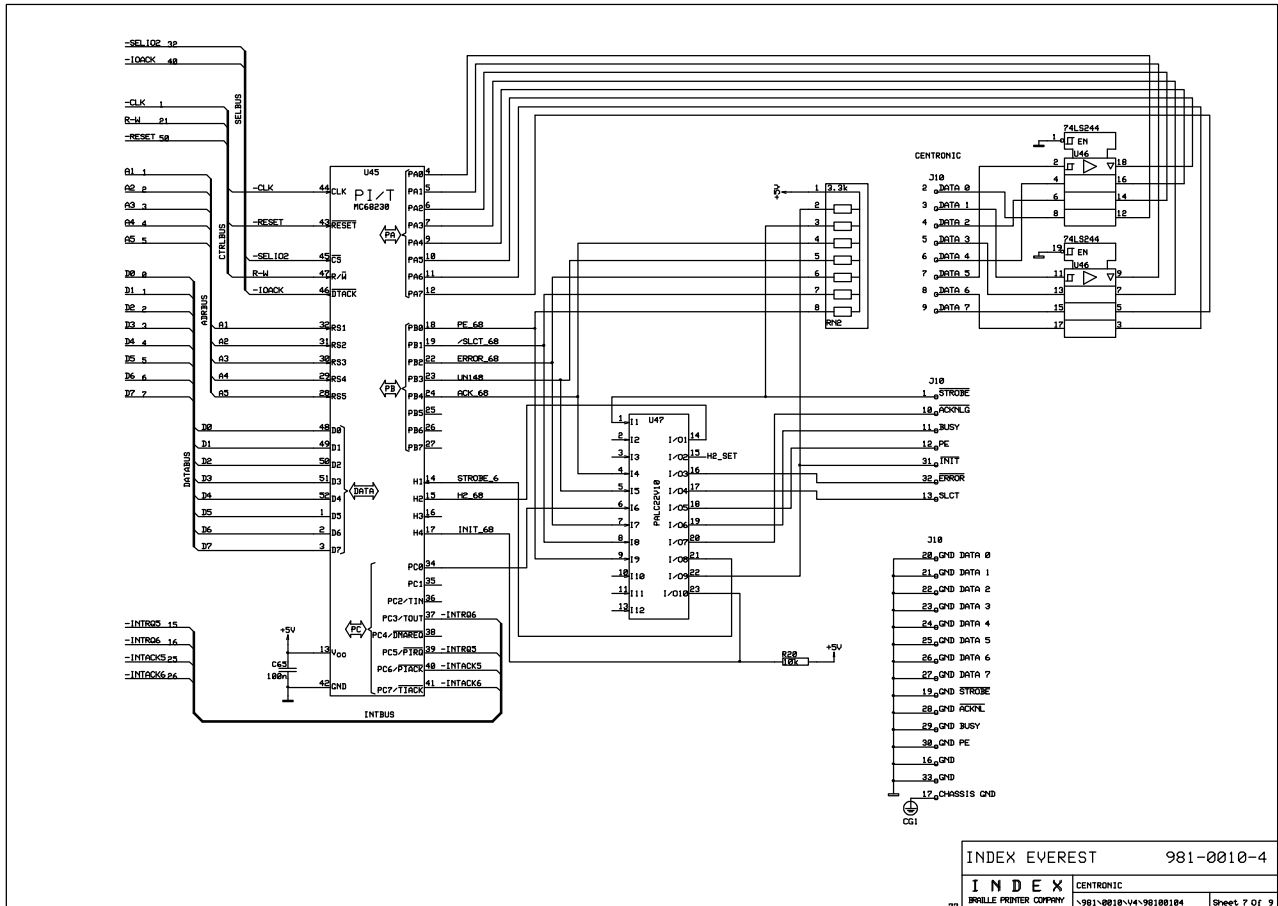
5.6 Stepper motor drivers - printinghead interface



5.7 Keyboard Interface & Speech synthesis



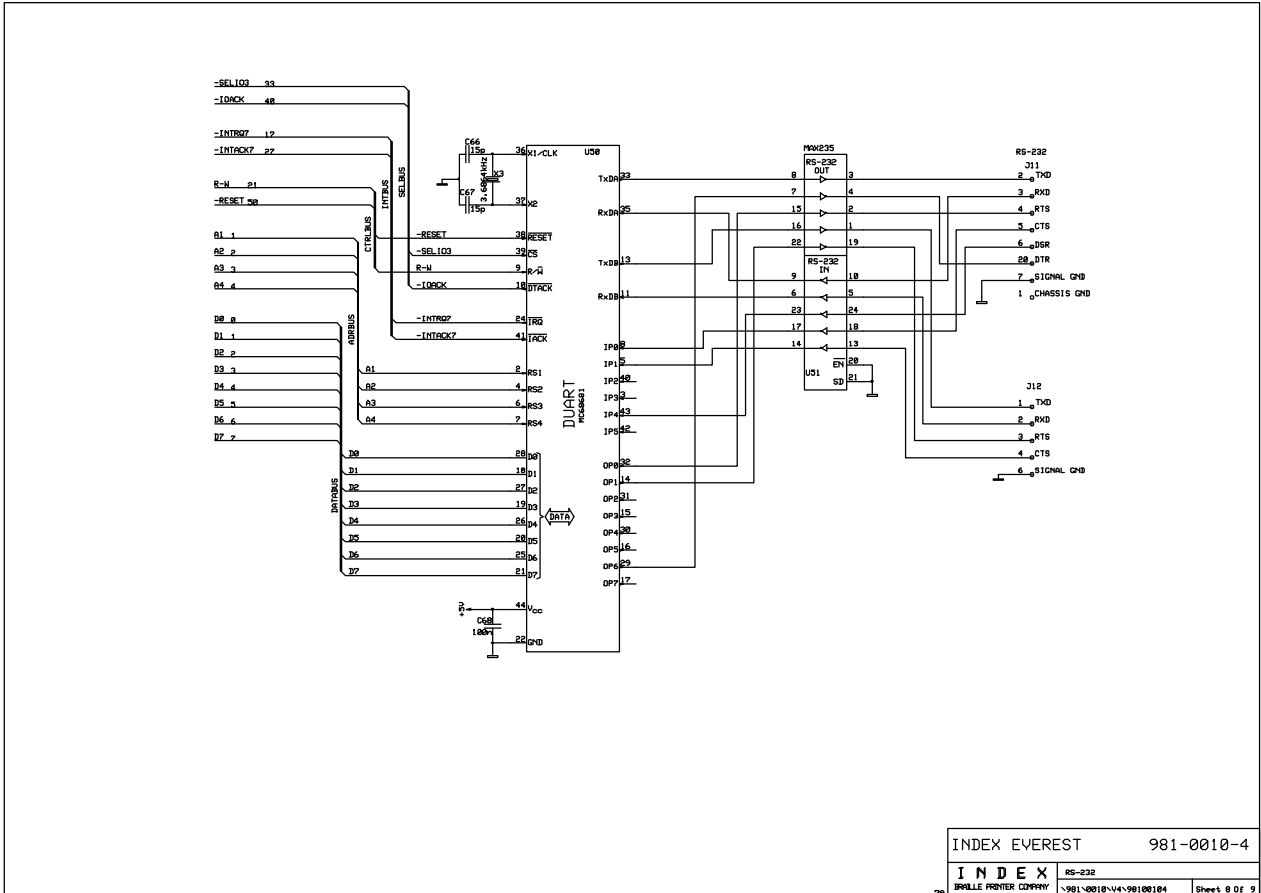
5.8 Centronics interface



INDEX EVEREST	981-0010-4
I N D E X	CENTRONIC
BRILLE PRINTER COMPANY	\981-0010\4\98100104
	Sheet 7 of 9

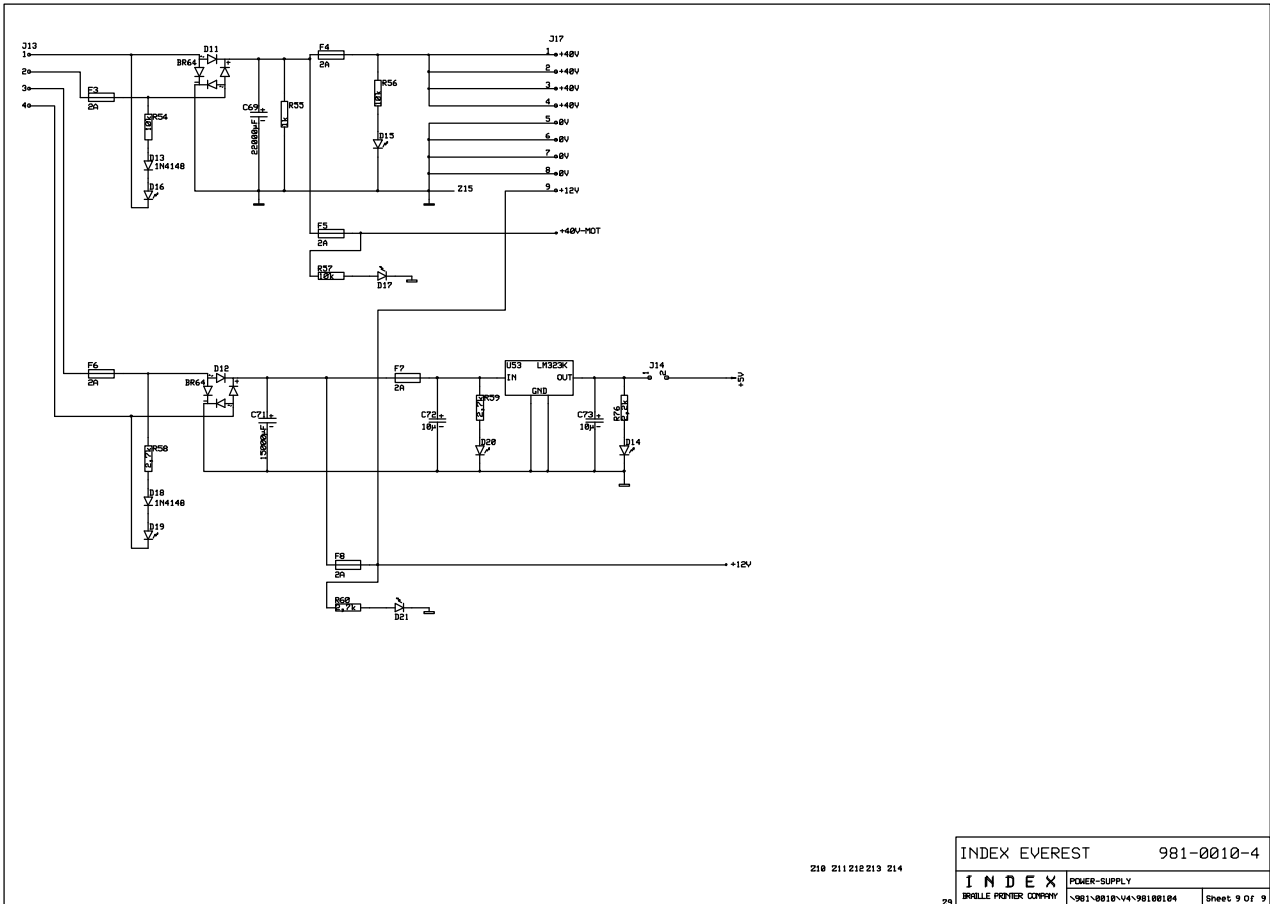
5.9

RS-232

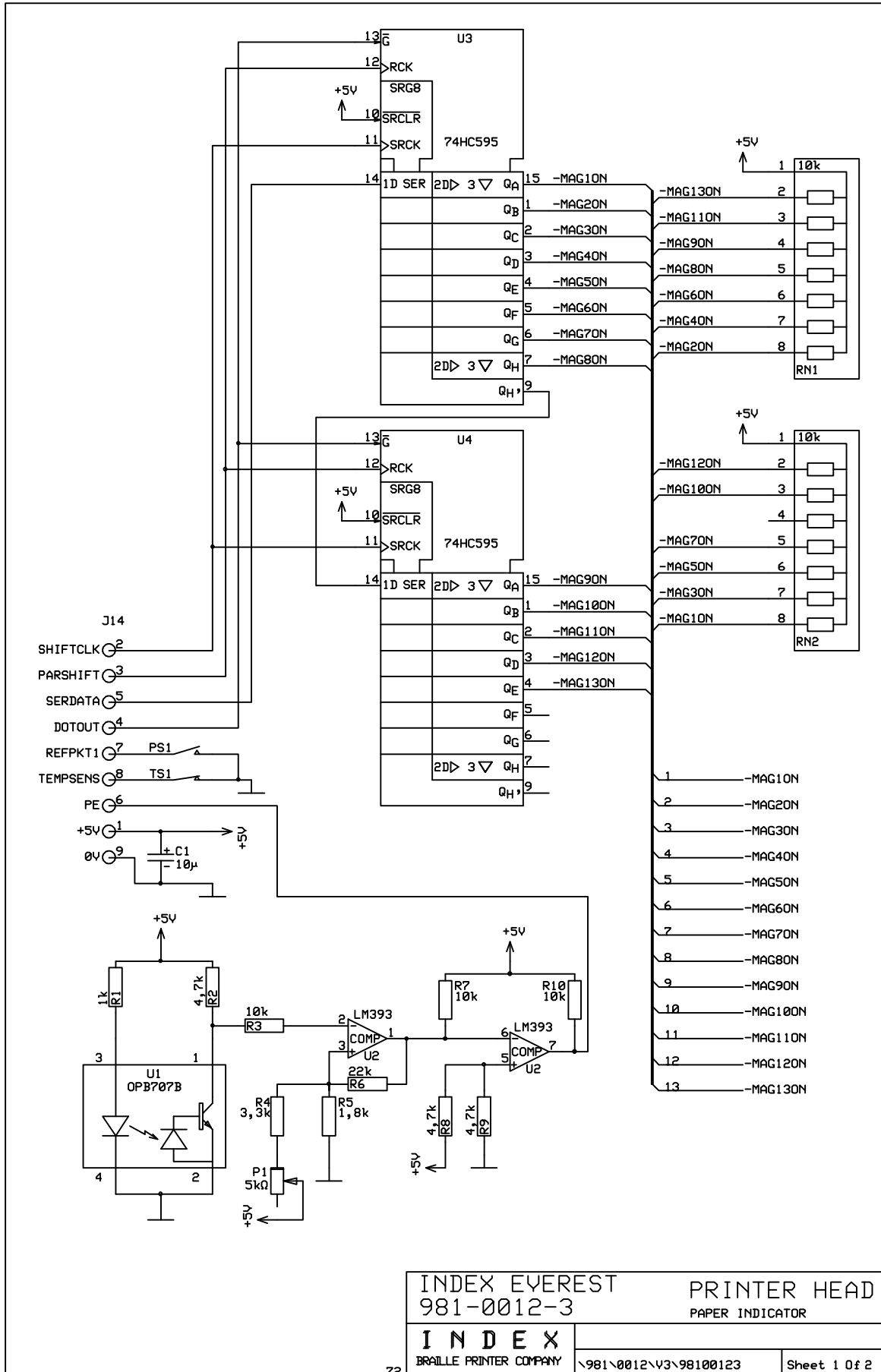


INDEX EVEREST		981-0010-4
I N D E X	RS-232	
BRILLE PRINTER COMPANY	981-0010-44-98100104	Sheet 8 Of 9

5.10 Power supply

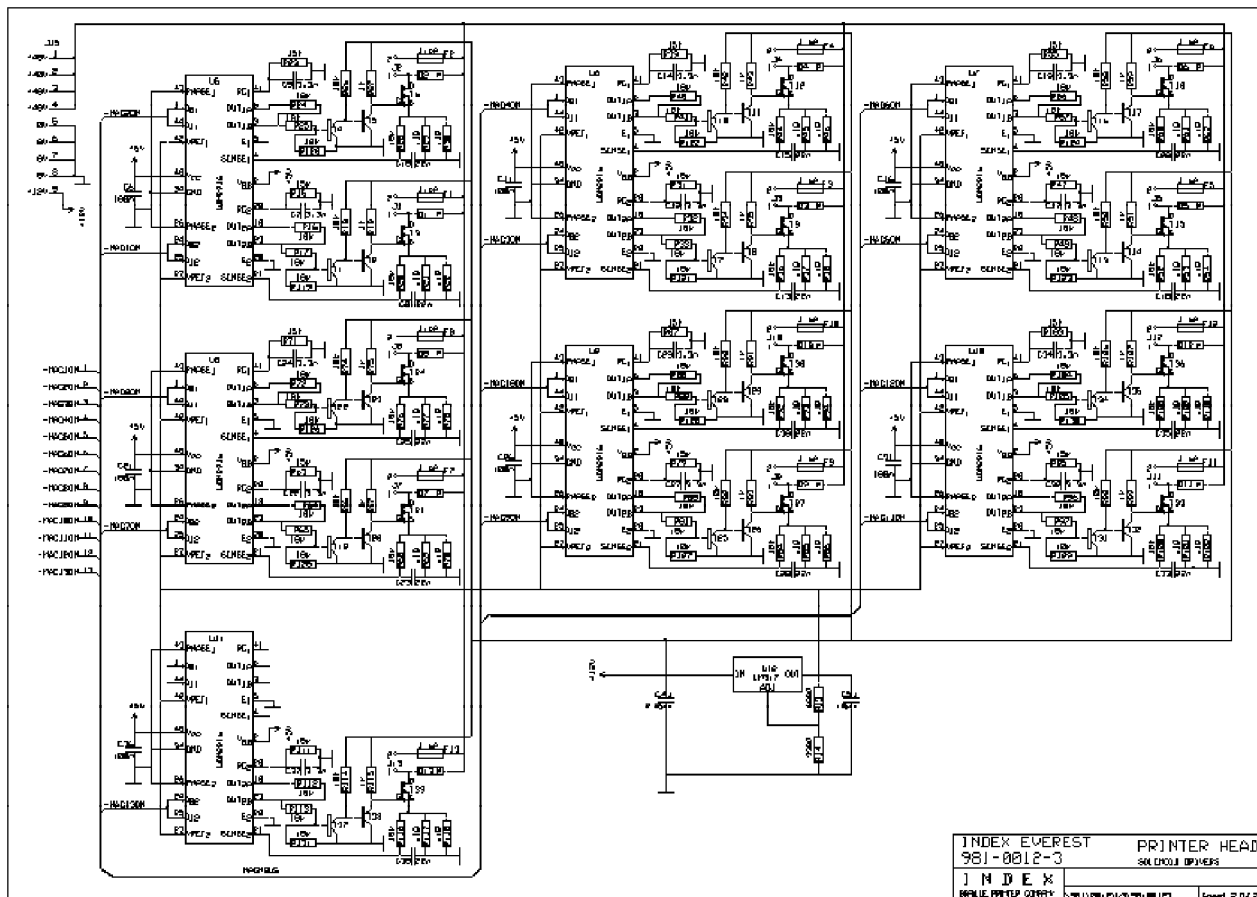


5.11 Printing head - paper indicator



INDEX EVEREST 981-0012-3	PRINTER HEAD PAPER INDICATOR
I N D E X BRAILLE PRINTER COMPANY	Sheet 1 of 2

5.12 Printing head - solenoid drivers



INDEX EVEREST	PRINTER HEAD
981-0012-3	SOL ENOID DRIVERS
INDEX	
BRILLE PRINTER COMPANY	100110001 1/11/90 100110013
	Level 2 of 2

6 Cables

6.1 Serial communication

The EIA Standard, RS232-C, is the interface between Data Terminal Equipment(DTE), and Data Communication Equipment(DCE). DTE is typically a computer, printer, or terminal. DCE is generally a modem. RS232-C is the latest version of the standard and outlines the set of rules for exchanging data between computers and peripherals.

The standard has four categories of leads: ground, data, control, and timing. Protective ground is used for protection from electrical shock, with Signal ground used as a reference for the other categories of leads. The data leads are used for transmitting and receiving data. Control leads control the interface, direction of data flow, and indicate the status of the attached equipment. The timing leads are used only in synchronous environments. Usually when printers are being attached to computers, these leads are not used.

6.1.1 RS232-C circuit summary.

Pin	Interchange	CCITT	Description	Type	Direction
1	AA	101	Protective ground	gnd	n/a
7	AB	102	Signal or common gnd	gnd	n/a
2	BA	103	Transmitted data	data	To DCE
3	BB	104	Received data	data	From DCE
4	CA	105	Request to send	ctrl	To DCE
5	CB	106	Clear to send	ctrl	From DCE
6	CC	107	Data set ready	ctrl	From DCE
20	CD	108.2	Data terminal ready	ctrl	To DCE
22	CE	125	Ring indicator	ctrl	From DCE
8	CF	109	Rec'd line sig. detect	ctrl	From DCE
21	CG	110	Signal quality detect	ctrl	From DCE
23	CH	111	Data sig. rate sel DTE	ctrl	To DCE
23	CI	112	Data sig. rate sel DCE	ctrl	From DCE
24	DA	113	Trans sig elem timing DTE	time	To DCE
15	DB	114	Trans sig elem timing DCE	time	From DCE
17	DD	115	Rec'r sig elem timing DCE	time	From DCE
14	SBA	118	Secondary trans. data	data	To DCE
16	SBB	119	Secondary rec. data	data	From DCE
19	SCA	120	Secondary request to send	ctrl	To DCE
13	SCB	121	Secondary clear to send	ctrl	From DCE
12	SCF	122	Secondary RLSD	ctrl	From DCE

6.1.2 Index RS232-C configuration

Everest-D is designed like a DTR (Data Terminal Equipment), according to the RS232-C standard. With a 25 female D-sub connector. When using DTR handshake you can link pin 4 and 5 on INDEX and normally on the computer-side also.

With XON/XOFF communication is it possibly to use a three wire connector pin 2,3,7 on Everest-D and link 4-5 and 6-20.

Pin 1	GND N/A	Protected Ground
Pin 2	TXD FROM	Transmitted Data
Pin 3	RXD TO	Receive Data
Pin 4	RST FROM,	Request to send
Pin 5	CTS TO	Clear to send
Pin 6	DSR TO	Data set ready
Pin 7	SG N/A	Signal ground
Pin 20	DTR FROM	Data terminal ready

6.1.3 Cable INDEX IBM-PC

On Index side 25 D-sub male connector and PC side 25 D-sub female.

Pin configuration

Index-PC

1-1
2-3
3-2
4-5
20-6
7-7
6-20

4-5 are linked together on both sides.

We recommend to use DTR handshake together with PC computers.

6.1.4 Cable INDEX-AT

On Index side 25 d-sub male connector and on AT side 9 p D-sub female connector

Index - AT

2 - 3
3 - 2
7 - 5
4 - 8
5 - 7
20 - 6
6 - 4

6.1.5 Cable configuration Index - Apple McIntosh

INDEX - McIntosh

RXD 3 - 3 TXD
 TXD 2 - 5 RXD -
 GND 7 - 8 RDX+
 └─ 4 SG
 DSR 6 -1 HSK Out
 DTR
 DTR 20 - 2 HSK In
 CTS

4 ┌
 5 └

6.2 Centronics interface

Centronics Parallel Interface: This interface, originally designed and used by Centronics, Inc., was copied by many other printer manufacturers to eventually become the default parallel standard for printers. As with RS232-C this is merely a standard. Adherence to it is left totally to each vendor.

As with the RS232-C interface, the parallel interface has four categories of leads: ground, data, control, and timing. However, the shape of the connector is different. The Centronics parallel connector differs from a DB25 connector by having 36 pins in an amphenol type connector. Eight of the leads are used to carry the bits of a character in parallel.

The parallel interface is unidirectional. This means that data can be sent in only one direction, from the computer to the printer, hence software flow control is not appropriate. Only hardware flow control is used in a parallel interface. Another difference from RS232-C is that there is the capability to indicate the reason for a busy condition, or why the printer can't receive any more data. The printer can indicate that it is out of paper or that it is off line by turning off/on the correct lead. The computer can also clear the printer's buffer, as well as reinitialize the printer's control logic (reset). Depending on the printer, this can be used to clear the different print modes.

6.2.1 Centronics interface standard

Signal name	pin(s)	Source	Category	Description
Data strobe	1, 19	IBM	Timing	A 1 microsec pulse to clock data
Data 1	2, 20	IBM	Data	Each one of these leads
Data 2	3, 21	IBM	Data	provides for a single bit of a data
Data 3	4, 22	IBM	Data	character. A high represents a
Data 4	5, 23	IBM	Data	1; a low represents a 0.
Data 5	6, 24	IBM	Data	
Data 6	7, 25	IBM	Data	
Data 7	8, 26	IBM	Data	
Data 8	9, 27	IBM	Data	
Acknowledge	10, 28	Ptr	Control	Indicates reception of a character
Busy	11, 29	Ptr	Control	Printer cannot receive more data
PE	12	Ptr	Control	Printer out of paper
Select	13	Ptr	Control	Indicates that printer is selected.
0 volts	14	Ptr	Ground	Signal ground reference
OSCXT	15	Ptr		A 100/200 kHz signal
0 volts	16	N/A	Ground	Signal ground reference
Chassis ground	17	Ptr	Ground	Frame ground for electrical safety
+5 volts	18	Ptr		Positive voltage.
Input prime	31, 30	IBM	Control	Resets printer.
Fault	32,	Ptr	Control	Indicates a printer fault condition

7 Disassembling flowchart

