DIRECT THERMAL LABEL PRINTERS

models

witty 2000 K

witty 2000 KA

witty 2000 KM

USER MANUAL

italora

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Features and specifications are subject to change without notice

witty 2000 K, **witty 2000 KA**, **witty 2000 KM**

GRAPHIC LABEL PRINTERS

1. GENERAL DESCRIPTION

These units offer an accurate and high quality printing moreover a formatting capability of 26 layouts in Flash memory. They can operate in dispensing mode, because of the inside mechanism for peeling and rewinding, or in strip form. Resident Bar Codes are dispensed at high speed and the eleven character generators with eighty magnifications give a wide range of fonts. The inside label unwind holder offers an autonomy of 1750 labels (54 x 40 mm), the modular design of these printers offers an easy service as well for electronic boards as for mechanics maintenance.

2. TECHNICAL SPECIFICATIONS

Printers of this family have obtained the IMQ approval according to European Standard EN 60950, and the EC type approval certificate n° UCM 01/001 – C according to the EN 45501 standard.

PRINTING
Method: Direct Thermal
Resolution: 8 dots/mm, 448 dots/line
Print width: 55 mm
Print speed: up to 150 mm/s
DISPLAY: LCD backlight 2 x 16 characters
KEYPAD: 28 alphanumeric keys
X/Y positioning of texts and bar codes
Texts and bar codes printed in four orthogonal directions
Lines, boxes, shadow and reverse printing
Graphic and logos: bit image mode
Bar Codes: EAN8, EAN13, 2/5, 2/5 I, 3/9, 2/7, DUN-14/16, UPC-A, UPC-B, UPC-E, CODE 128, EAN 128, PDF417
- Automatic Check Digit computation
- Wide/narrow ratio full programmable
- Half, standard and double density
- Height programmable
- Suppression of human readable characters

Batch printing: up to 99.999.999 labels
Layouts: 26 programmable in Flash
Up to 10 protection levels for variable data printing
4 up/down 16 digits counters
Real Time Clock
Black intensity adjustable via software
Print button for last label repeating
THERMAL HEAD TEMPERATURE CONTROL
DATA TRANSFER INTERFACE
RS232 port – 25 pins – for connetion to host computer or to electronic scale: serial parameters settable via software or keyboard
RS232 port – 9 pins – **(witty 2000 KM)** for connetion to electronic scale: serial parameters settable via software or keyboard
PARALLEL CENTRONICS : on request
HANDSHAKE PROTOCOL
SW : XON/XOFF
HW : DTR
DATA TRANSMISSION
ASCII format
CHARACTER GENERATORS

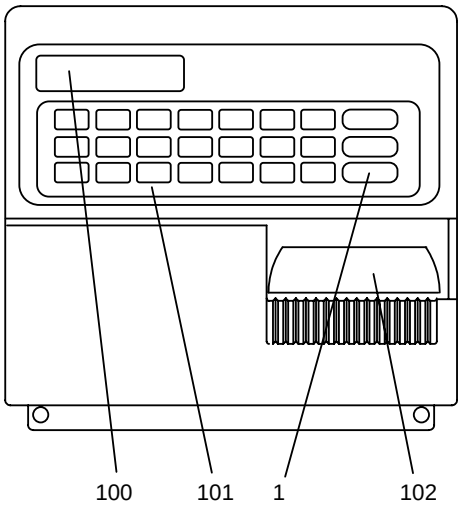
Micro	(fixed matrix)	5x5
Standard	(fixed matrix)	7x5
Draft	(fixed matrix)	8x13
Big	(proportional)	32
New Century	(proportional)	45
Title	(fixed matrix)	88x88
Compact	(proportional)	19
Olaf	(fixed matrix)	32x48
Century	(proportional)	31
Arial	(proportional)	49
Bookman	(proportional)	63
Magnifications		9x9

CHARACTER SIZES
0.62 x 0.66 min.; 99.00 x 105.30 max.
PERMANENT MEMORY
32 - bit RISC microprocessor
4 MB flash memory
1 Mb RAM
DETECTORS
End of paper and feeding synchronism
PRINT MEDIA
Labels, tags and continuous paper
LABEL SIZES
Width: 30 mm min., 64 mm max
Length: 6 mm min.
519 mm max
Key: width min.: 2 mm
depth min.: 7 mm starting 2 mm min. from the inner edge
ROLL SIZES
Width: 30 mm min., 64 mm max
Outer diameter: 130 mm max
Core diameter: 38 mm min.
PRINTER DIMENSIONS
Height: 170 mm; Depth: 380 mm
Length: 178 mm; Weight: 10 Kg
POWER REQUIREMENTS
Voltage: 115/230/240 Vac; 50-60 Hz
ENVIRONMENT
Operating temperature: 0°/ 40° C
Storage temperature: -20°/60° C
Humidity: 10% - 95% non-condensing
OPTIONS
Label taken sensor

3. UNPACKING

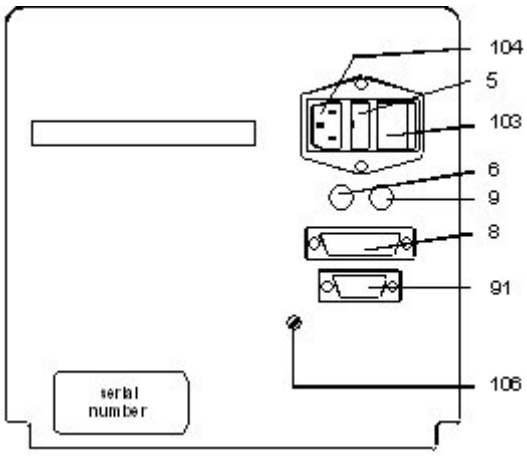
Open the box and check the content :
- **italora** label printer model **witty 2000 K** or **witty 2000 KA** or **witty 2000 KM**
- power cable
- roll of labels
- printing tests
- 1 serial cable. **(witty 2000 KM)** 2 serial cables.
- CD Rom with manuals and Etik

4. EXTERNAL DESCRIPTION



PICTURE 3

1: printing button
100: display
101: keypad
102 label output



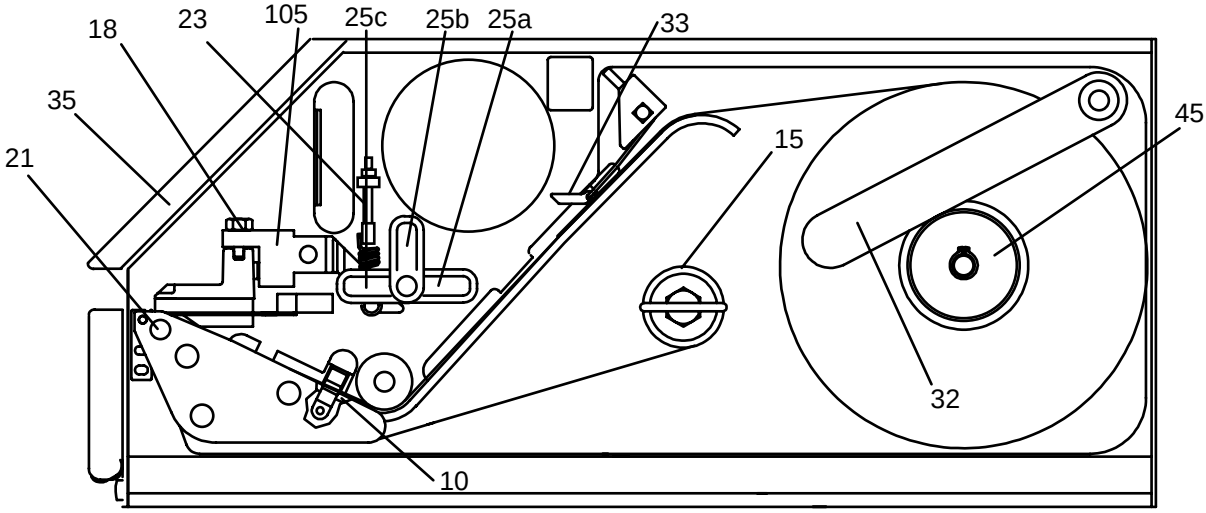
PICTURE 4

5: 2 fuses 2AT (main)
6: 1 fuse 1.6AT (logic)
8: RS232 connector (25 pins)
9: fuse 8AT (thermal head)
91 RS232 connector (9 pins) **(witty 2000 KM)**
103: main switch
104: power cord plug
106: trimmer for black intensity fine adjust
- clockwise = more intensity
- anticlockwise = less intensity

5. MAIN COMPARTMENT DESCRIPTION

(see following picture)

10 - photosensor for end of roll and label synchronisation
15 - rewinding shaft with adjusting clutch
18 - print head position fine adjustment
21 - rubber feeding roll
23 - print head assembly pressure spring
25 - lock / unlock lever
25a - working position
25b - open position
25c - cleaning position
32 - label guide arm
33 - pressure clip
35 - front cover
45 - label unwind holder
105 - print head assembly



PICTURE 6

6. INCOMING INSPECTION

* Open the main compartment.
* Check the presence of the label.
* Check the correct pinout of the serial I/O Cannon 25 pins female connector.
* For further details see chapter "Connection to Host Computer".
* Check the voltage on the name plate next to the power receptacle.
* Connect the power cable to a grounded power line
* Pull the printhead down by rotating the lever #25a.
* Switch the main switch on (rear panel) The message WITTY 2000 K(x) READY will be displayed.
* Push the PRINT BUTTON, you will get a printing test with Firmware release information.
* Sending data from the computer you will get the first printing.
* Push the PRINT BUTTON to get the last printing again; the printer keeps the information of the last printing until next data arrive.

NOTE: **Printer retains the label length and the backing paper transparency in permanent memory. In case of change of print media see the following paragraph.**

6.1. LABEL FORMAT SET UP PROCEDURE

(see pictures 7 and 8)

The printer retains the label length and the backing paper transparency in permanent memory. **If changing label format or print media type** you have to use the following procedure to update the values:

1 - Switch the printer off.
2 - Lift the printing head up by rotating lever #25b.
3 - Thread the web between the feed roller and the printig head #21,105.
4 - Check web has been rightly positioned under the label photosensor #10.
5 - Pull the printing head down by rotating the lever #25a.
6 - Switch the printer on while pushing the print button.
7 - Printer ejects some labels (depending on their length) and stores the values of the media.
8 - Release the print button.

For further information about media options see chapter 7 and the paragraph "Labels, tags and continuous media printing" of the PROGRAMMING MANUAL.

7. PRINTING MEDIA DESCRIPTION

White coated glossy printing paper
- weight: 65 ÷ 90 g/mq (ISO536)
- caliper: 0,075 ÷ 0,083 mm (ISO534)

ADHESIVE SPECIFICATIONS
- peel adhesion(90° C): 430 N/m
- service temperature: -20° C ÷ + 70° C

LINER SPECIFICATIONS
- BG 40 brown, supercalendered glassine
- weight: 65g/mq (ISO536)
- caliper: 0.057 mm (ISO534)
- transparency: 45%

TAGS AND CONTINUOUS STRIPS
- weight: 200 g/mq max

SUGGESTED MODELS
- Fasson Fasthermal NT
- Kanzaki KPT 86-H

LABEL AND TAGS DIMENSIONS
See Chapter 2

Keep labels in a dry place at temperature not over 40° C and not exposed to direct sun light.

8. LABEL ROLL REPLACEMENT

In case of changing of label format or printing media type, remember to follow the "Label format set up procedure" shown on paragraph 6.1.

8.1. DISPENSING MODE

(see picture 8)

Open side of printer.
Remove the empty label roll.
Lift guide arm #32.
Insert new label roll onto roller #45
Bring the guide arm #32 down and push it tightly against the side of the label roll.
By rotating the lever #25b, lift the printing head #105 from the feed roller #21, setting the movement of labels and ribbon free.
Remove clip #28 from the rewinding shaft #15.
Remove backing paper from the rewinding shaft.
Remove the first 50 centimetres from liner of the new roll labels.
Hold pressure clip #33 up and feed the liner through the path, slide it on the rewinder unit #15 and fasten it with the clip holder #28.
Turn the rewinder to stretch the paper.
Turn head lever back to closed position #25a.
Check paper has been rightly positioned under the label photosensor #10.
Check pressure clip #33 has been positioned between centre and outer side of the label.
Close side of printer.

8.2. STRIP FORM MODE

(see picture 9)

Open side of printer.
Remove the empty label roll.
Lift up the guide arm #32.
Insert new label roll onto roller #45
Bring the guide arm #32 down and push it tightly against the side of the label roll.
By rotating the lever #25b, lift the printing head #105 from the feed roller #21, setting the movement of labels and ribbon free.
Hold pressure clip #33 up and feed the paper through the path.
Turn head lever back to closed position #25a.
Check paper has been rightly positioned under the label photosensor #10.
Check pressure clip #33 has been positioned between centre and outer side of the label.
Close side of printer.

8.3. REWINDING MODE

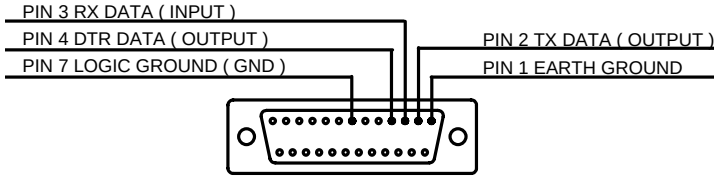
(see pictures 10 and 11)

Is necessary to rewind printed labels inside option P/N 801620098 (see picture 11).

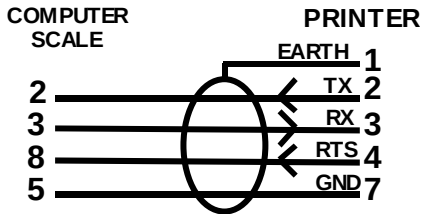
Open side of printer.
Remove the empty label roll.
Lift guide arm #32.
Insert new label roll onto roller #45
Bring the guide arm #32 down and push it tightly against the side of the label roll.
By rotating the lever #25b, lift the printing head #105 from the feed roller #21, setting the movement of labels and ribbon free
Remove clip #28 from the rewinding shaft #15.
Hold pressure clip #33 up and feed the paper through the path, slide it on the rewinder unit #15 and fasten it with the clip holder #28.
Turn the rewinder to stretch the paper.
Turn head lever back to closed position #25a.
Check paper has been rightly positioned under the label photosensor #10.
Check pressure clip #33 has been positioned between centre and outer side of the label.
Close side of printer.

9. CONNECTION TO HOST COMPUTER AND ELECTRONIC SCALE

witty 2000 K, **witty 2000 KB** and **witty 2000 KM** printers have a RS232 hardware interface.
Provided on board connector (for connecting to host computer and/or electronic scale) is a Cannon 25 pins "DB" female cabled as shown in the following pictures.

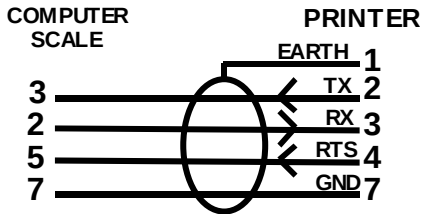


COMPUTER/SCALE CONNECTOR WITH 9 PINS



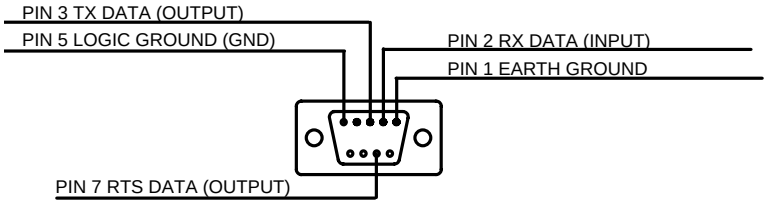
COMPUTER/SCALE CONNECTOR:
-using sw protocol XON/XOFF:
short together PINS 7-8 and 1-4-6.
-using hw protocol DTR:
short together PINS 1-4-6.

COMPUTER/SCALE CONNECTOR WITH 25 PIN

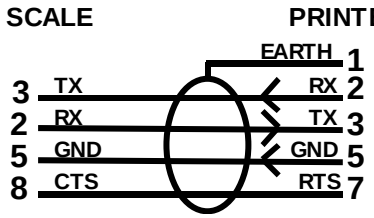


COMPUTER/SCALE CONNECTOR:
-using sw protocol XON/XOFF:
short together PINS 4-5 and 6-8-20.
-using hw protocol DTR:
short together PINS 6-8-20.

witty 2000 KM printer has a second RS232 hardware interface. The connector (for connecting to electronic scale) is a Cannon 9 pins "DB" female cabled as shown in the following picture.



SCALE CONNECTOR WITH 9 PINS



SCALE CONNECTOR:
-using sw protocol XON/XOFF:
short together PINS 7-8 and 1-4-6.
-using hw protocol DTR:
short together PINS 1-4-6.

10. MAINTENANCE

WHEN NOT IN USE:
- SWITCH OFF POWER
- ALWAYS LIFT UP THE PRINTER HEAD

10.1. CLEANING

Print Head

- Turn the power off.
- Wait until thermal head cools down.
- Lift the print head by using the lever on position 25c
- Remove labels roll.
- Moisten a cotton cloth with denatured alcohol.
- Polish the below side to remove incidental adhesive traces or parts of labels
- Wait until dry before use

WARNING: never use hard tools as this may damage the print head.

Rubber feeding roll: use alcoholic detergents.
Photosensor: use a soft brush.
Metallic and plastic parts: use a soft cloth with water-based detergent (weak).

Removing adhesive traces or parts of labels: use alcoholic detergents. Be careful the liquid does not drip on the electronic compartment.

11. TROUBLE SHOOTING

11.1. NO LABELS FEEDING

Following situations may occur.
a) DISPLAY is OFF, check (pict.3,#100):
- main voltage
- main switch (pict.4,#103) ON.
- main connector (pict.4,#104) plugged in
- main fuses (pict.4,#6) intact.

b) DISPLAY message is PAPER OUT, check:
- label roll is not used up.
- paper position under the photosensor (pict.8,#10)

c) DISPLAY message is HEAD OVERHEATING:
- head temperature control active, printer stops until temperature has fallen to normal values.

11.2. INCORRECT LABEL ALIGNMENT

Make sure that:
- print head is closed (pict.6,#25a)
- paper position under the photosensor (pict.8,#10)
- backing paper is correctly rewound (pict.6,#15)
- pressure clip (pict.6,#33) is positioned between centre and outer side of the label.
- guide arm (pict.6,#32) is tightly pushed against the side of the label roll.

See also "Label format set up procedure" paragraph 6.1

11.3. PAPER SLIDES TO RIGHT SIDE

Check whether:
- pressure clip (pict.6,#33) is positioned between centre and outer side of the label.
- guide arm (pict.6,#32) is closely positioned against the side of the label roll.

11.4. PRINTING WITH PATCHES MISSING

Check whether:
- thermal print head needs cleaning

(chapter 11)

11.5. BLANK LABELS

Check whether
- the fuse (8AT) on the back panel has blown
- the print head connector is correctly plugged in (pict.13,#112) with polarity key up.

11.6. POOR PRINTING CONTRAST

- Use key ARROW UP to make print darker.
- Use key ARROW DOWN to make print lighter. Otherewise use the software command ?77& (see Programming Manual).

BEWARE: continual high operating temperature of thermal head may reduce its working life

11.7. LABELS ARE NOT CORRECTLY PEELED OFF (DISPENSING MODE)

- Make sure the label adhesive respects the specifications (see chapter 7).
- Turn the nut (pict.16,#113) clockwise, in order to increase the rewinding torque (a half of a turn max) while holding the roller (pict.16,#15) still.

BEWARE: excessive torque may cause incorrect labels alignment.

12. HARDWARE NOTES

12.1. HOW TO CHECK ELECTRONIC BOARDS

- **First unplug the power cable from the printer.**
- open side of printer
- remove the front panels (pict.17,#32,35), turning the 2 screws (pict.17,#128,129) and the 3 inside screws (pict.19,#114,115,116) out.
- turn the 2 rear panel screws (pict.18,#117,118) and the 3 side screws (pict.19,#119,120,121) out.
- pull carefully off the electronic cabinet from the printer chassis and unplug the following connectors from CPU board (pict.21).
  Y4 = stepping motor
  Y5 = label photosensor
  Y9 = thermal head
  Y17.= keypad
  Y18 = display
- disconnect the ground cable turning the chassis nut out.

12.2. ELECTRONIC BOARDS REPLACEMENT

Unplug the following connectors from the CPU board (pict.21):
Y7 = serial interface
Y10 = power supply
- turn the 4 rear panel screws (pict.18,#122,123,124,125) out.
- turn the lock screw out (pict.20,#113) and pull out the CPU board (pict.20,#50).
- unplug the fuses connectors and the main switch connector.
- turn the 2 lock screws (pict.20,#126,127) out.
- pull the power supply (pict.20,#13) out.

12.3. PRINT HEAD PROTECTION FUSE REPLACEMENT

- Thermal print head is protected by an 8 A timed fuse (pict.4,#9).

12.4. THERMAL PRINT HEAD REPLACEMENT

(see picture 27)

1 switch the printer off .
2 unplug the flat connector #112 from the print head.
3 lift print head by rotating the lever #25c.
4 turn the screw #130 out.
5 remove the adjusting nut #18.
6 pull out the print head and dissipater assembly from the pivot pin.
7 turn the screw #138 out and remove the print head #26 from the dissipater.
8 replace thermal head and run back steps 7 to 2.

WARNING: pay attention to plug in correctly the thermal head connector, wrong connection causes irreversible damage to the print head functionality (pict. 13)

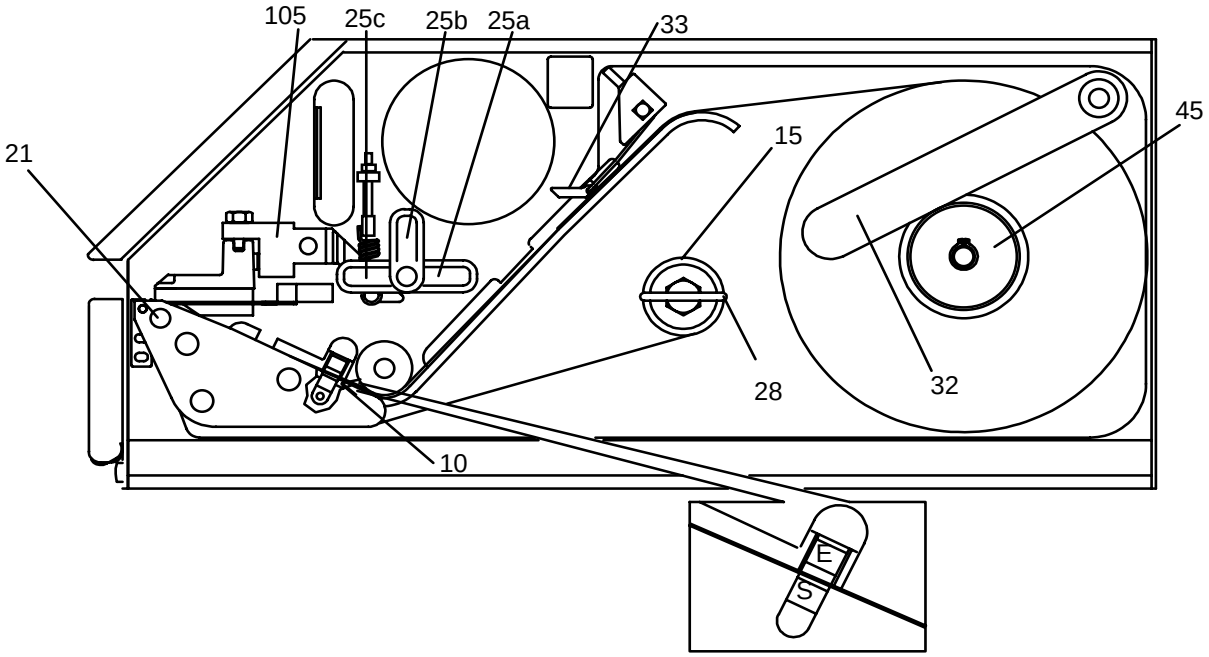
9 in case of printing quality problems, loosen the screw #130 and turn slowly the adjusting nut in or out #18, for the best printing quality, finally lock the screw #130.

12.5. DRIVE BELT REPLACEMENT

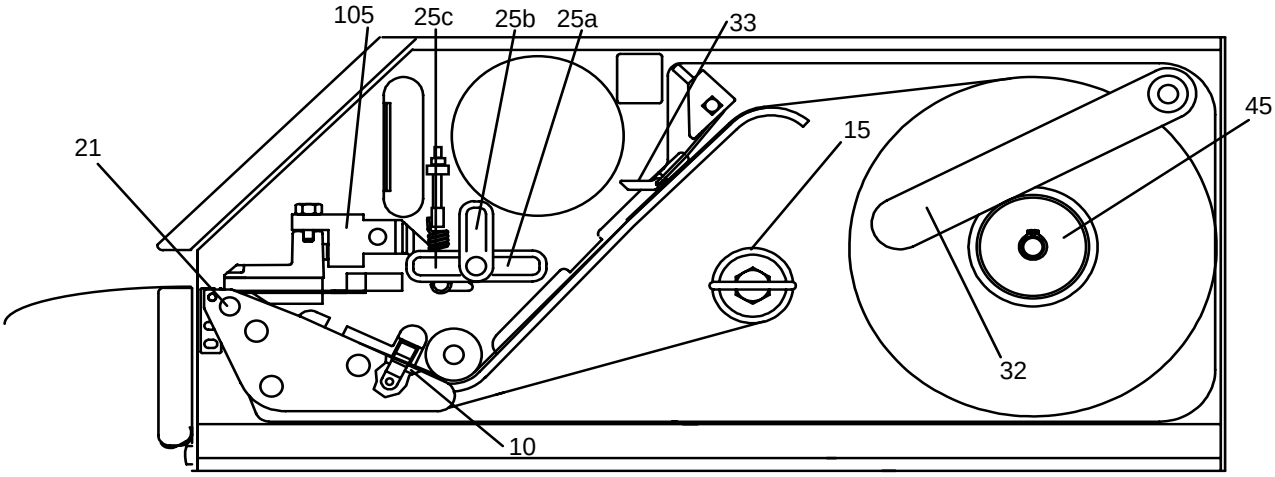
(see picture 28 and 29)

Disassemble the electronic cabinet from the printer chassis as shown in paragraph 12.1, remove the 3 screws #131,132,133 and the safeguard plate #134, then loosen the idler #16. Replace the belt and stretch it by the idler till you get a deflection of 4 to 6 mm when applying a force of 7 N.

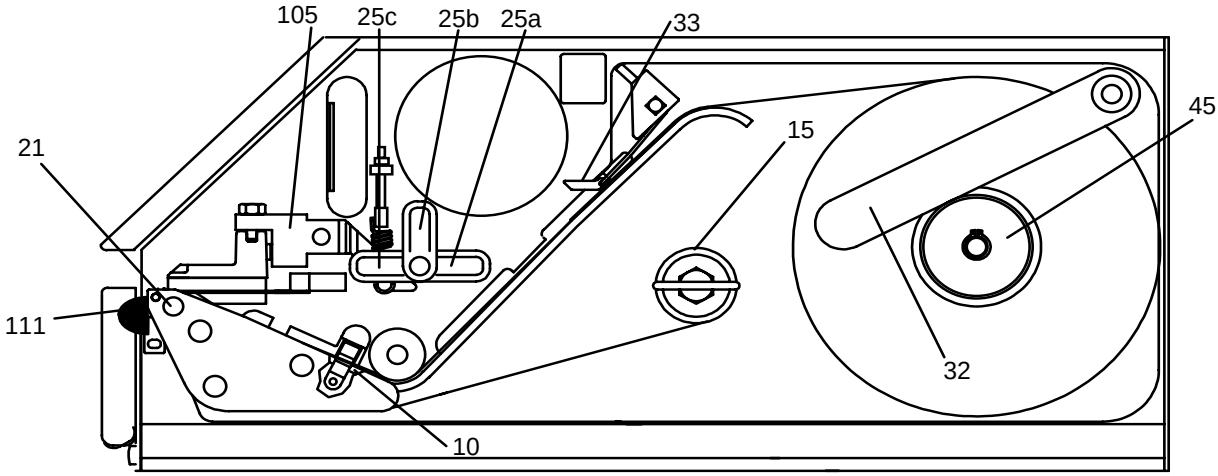
13. PICTURES



PICTURE 8

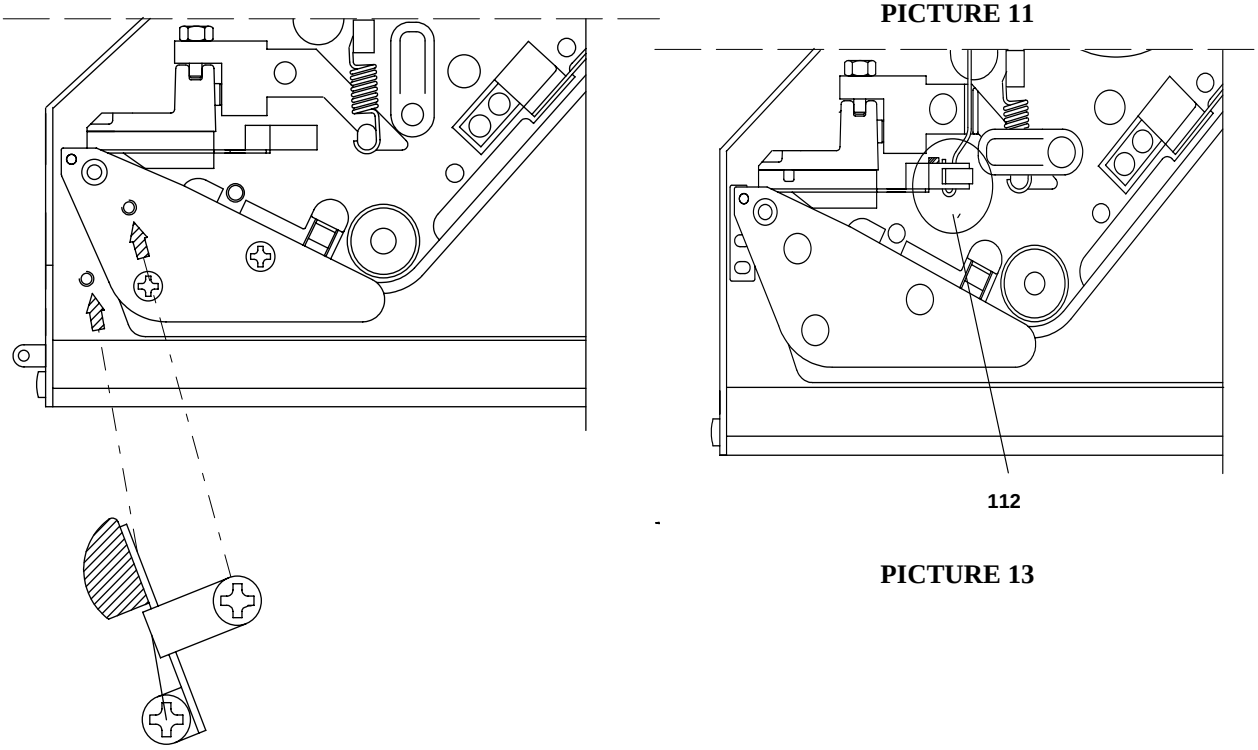


PICTURE 9

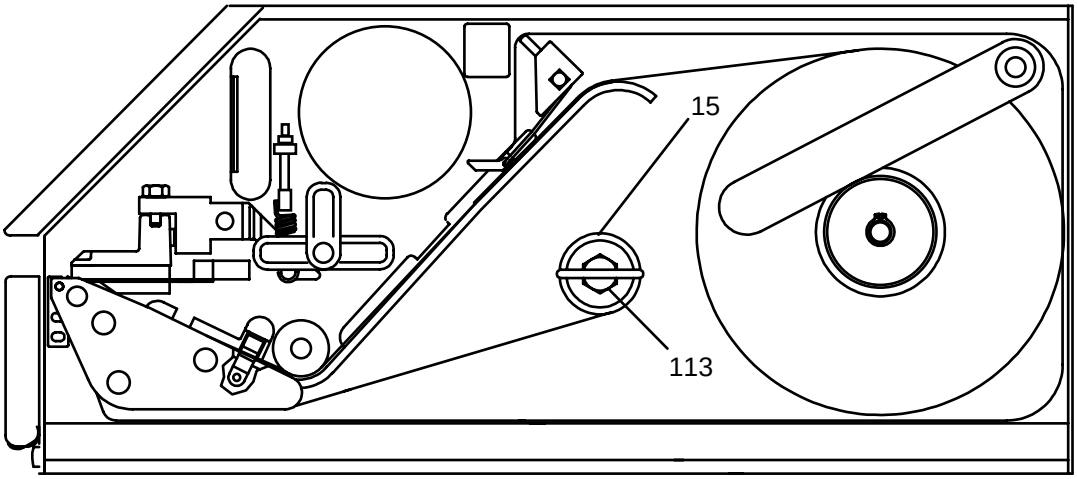


PICTURE 10

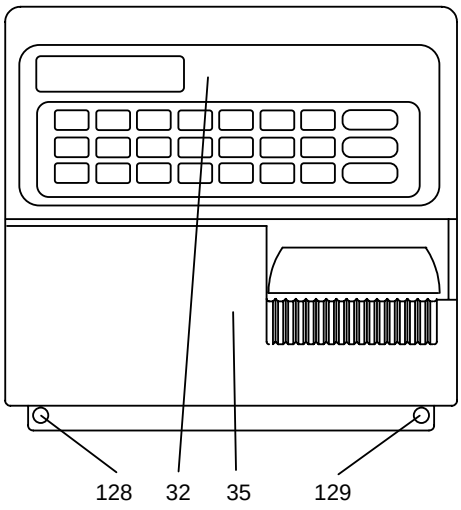
PICTURE 11



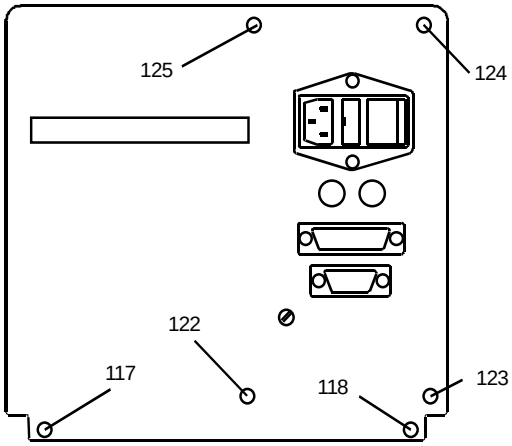
PICTURE 13



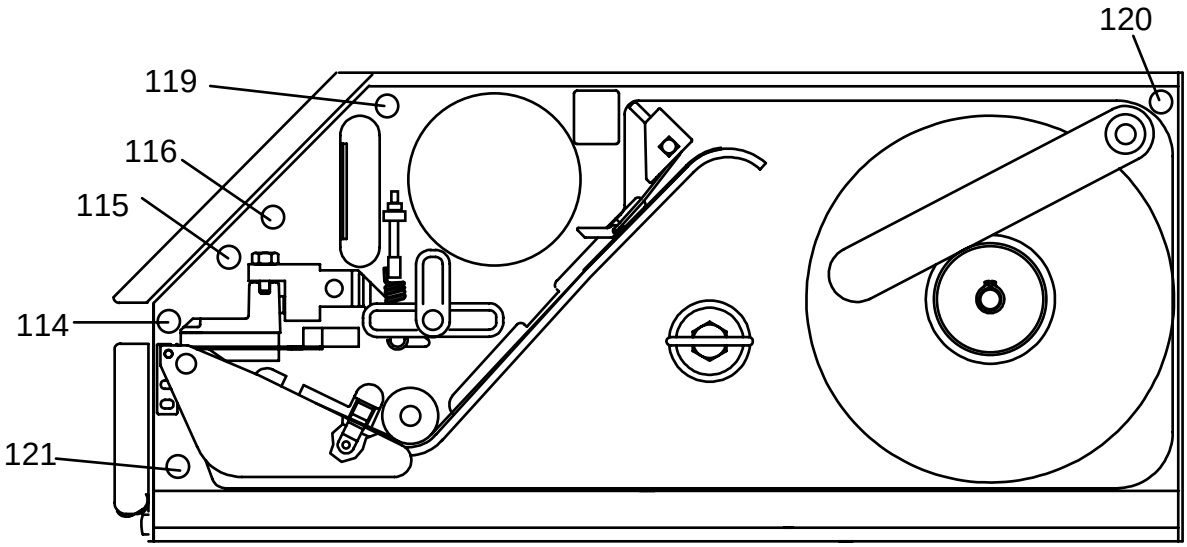
PICTURE 16



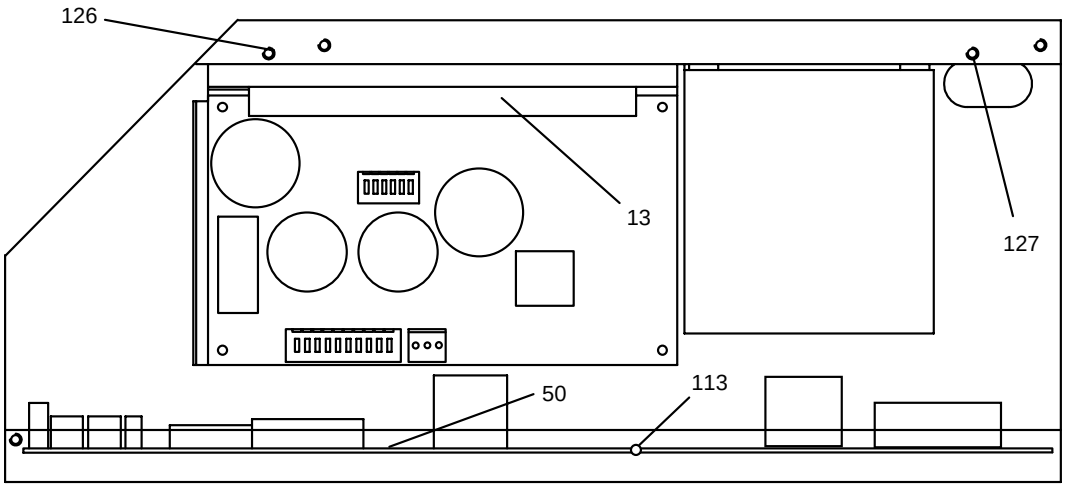
PICTURE 17



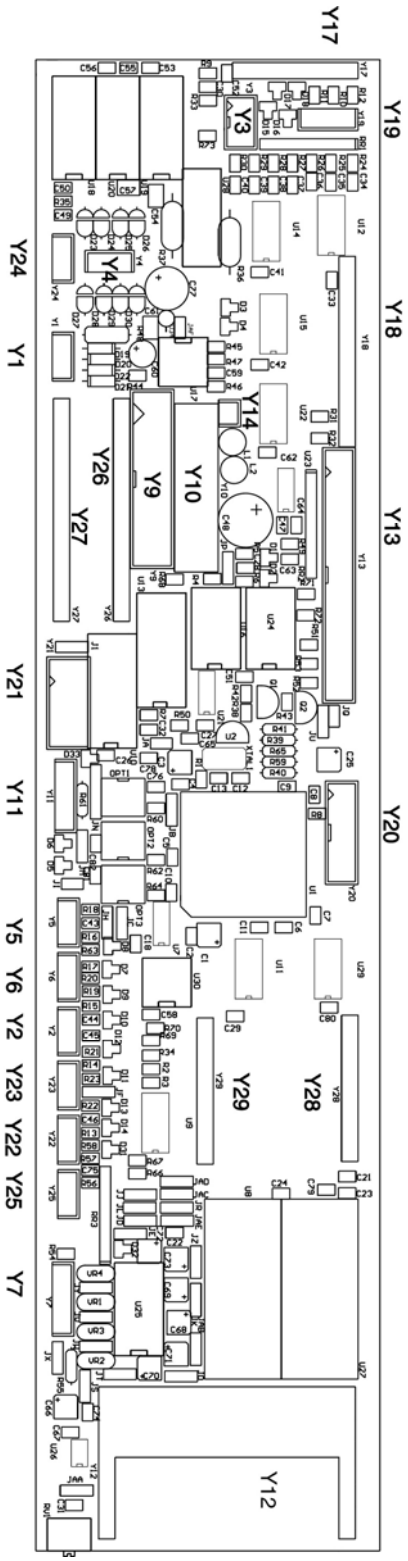
PICTURE 18



PICTURE 19

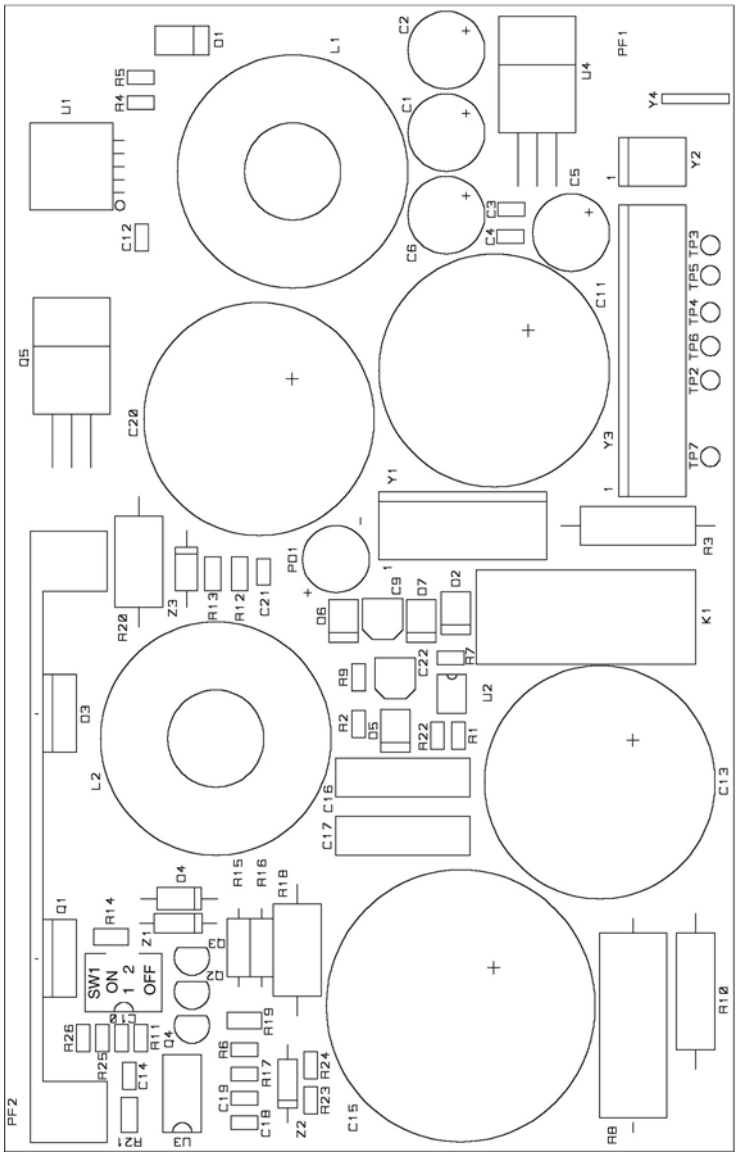


PICTURE 20

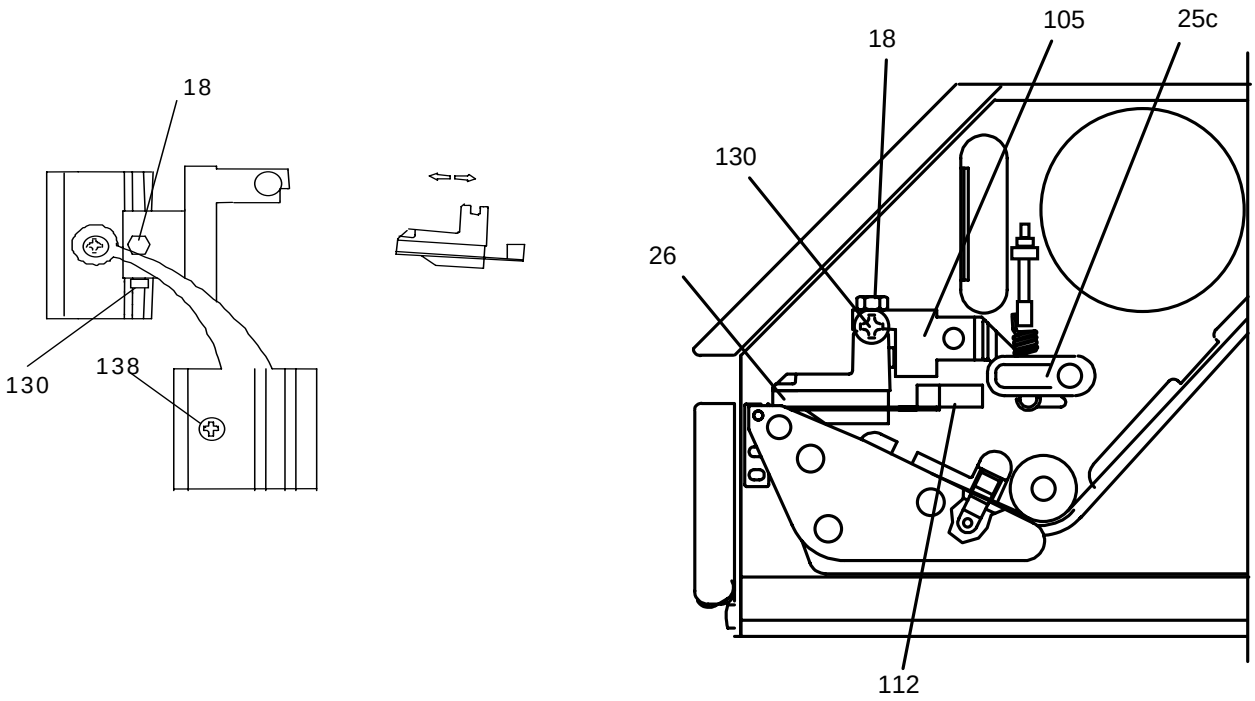


Y4 **Motor**
Y5 **Label sensor**
Y6 **Label taken sensor**
Y7 **Serial port**
Y9 **Thermal head**
Y10 **Power supply**
Y17 **Membrane Switches**
Y18 **LCD**

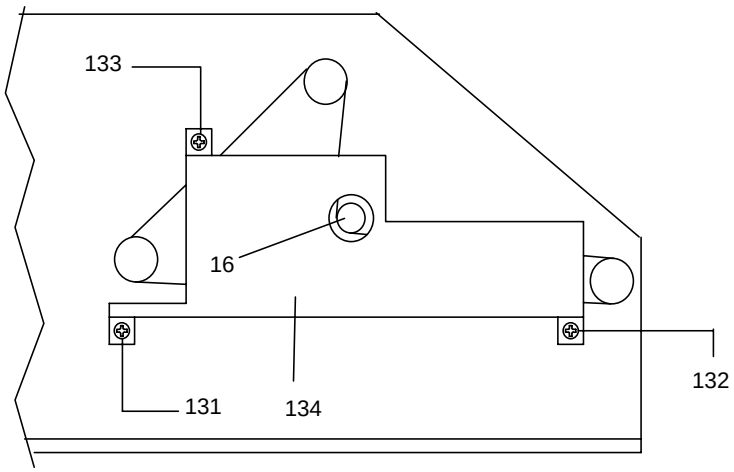
PICTURE 21 **LOGIC BOARD - layout**



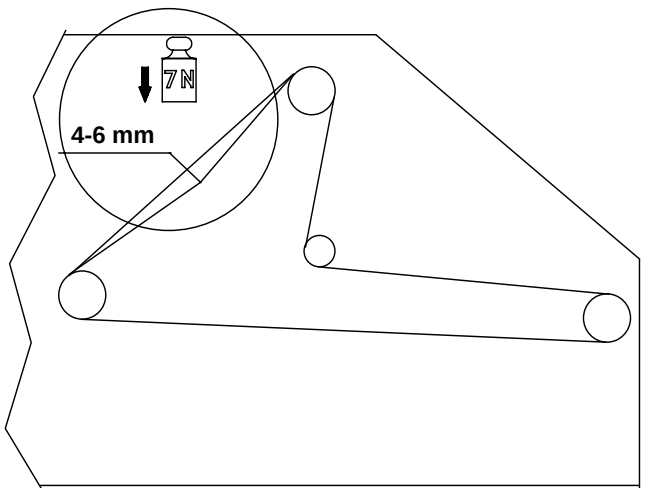
PICTURE 23 POWER SUPPLY – layout



PICTURE 27

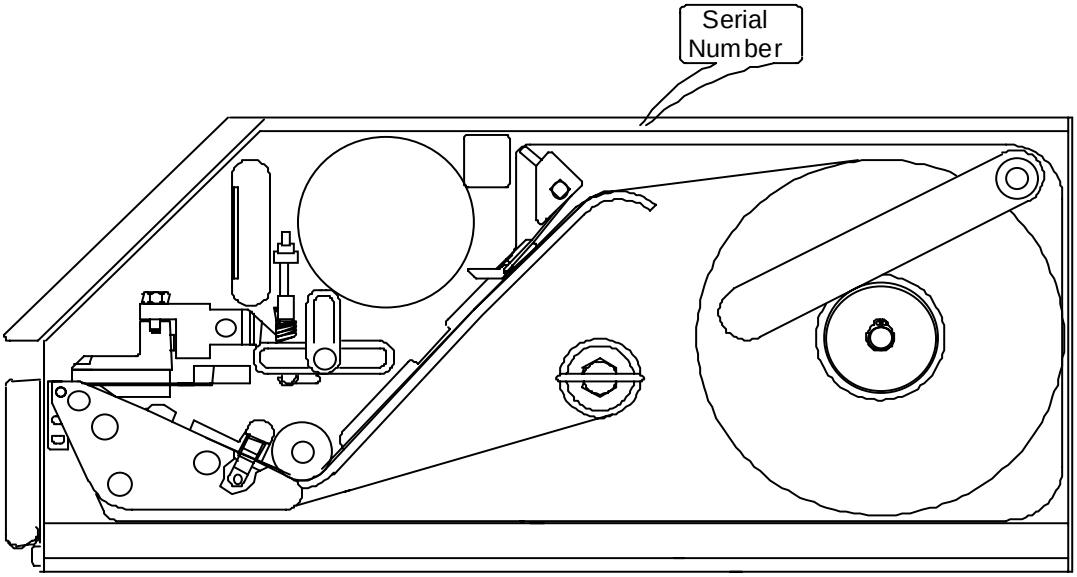


PICTURE 28



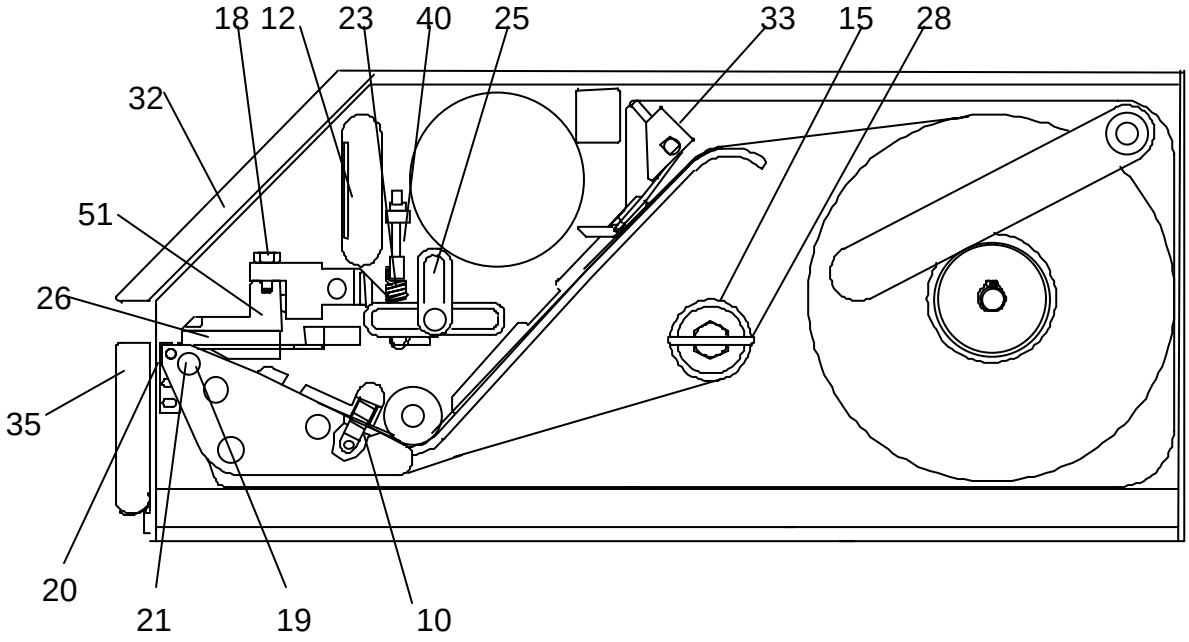
PICTURE 29

14. PART LIST AND RELEVANT PICTURES



Spare parts list
(items are referred to following pictures)

ITEM	CODE	DESCRIPTION	witty 2000 K(x)
3	800949050	rear panel	**K** and **KA**
3	800949420	Rear panel	**KM** only
4	801292050	filter cap	*
5	056102080	fuse 2A T	*
6	056102020	fuse 1.6A T	*
7	059006270	RS232 connector – 9 pins	**KM** only
8	801665050	RS232 connector – 25 pins	*
9	056102030	fuse 8A T	*
10	801295040	label photosensor	*
12	801665210	flat cable	*
13	800945H3002	power board	*
15	800925090	rewinding assembly	*
16	800925310	belt idler assembly	*
18	801312400	nut	*
19	061702050	bush	*
20	800926080	peeling shaft assembly	*
21	801312130	feeding roller	*
23	800742100	spring	*
24	801682010	pinion	*
25	800925880	print head lever	*
26	800822040	thermal print head (8 dots per mm)	*
28	801312440	clip holder	*
31	800622381	side cover	*
32	800926380	front panel with display and keypad	*
33	810940029	media position holder assembly	*
34	801872020	pinion	*
35	800762200	lower front panel	*
36	800622371	cabinet	*
38	802352830	belt	*
40	801842500	tie rod	*
49	800946230	stepping motor assembly	*
50	80087510279	CPU board	*
51	800926630	heat dissipater assembly	*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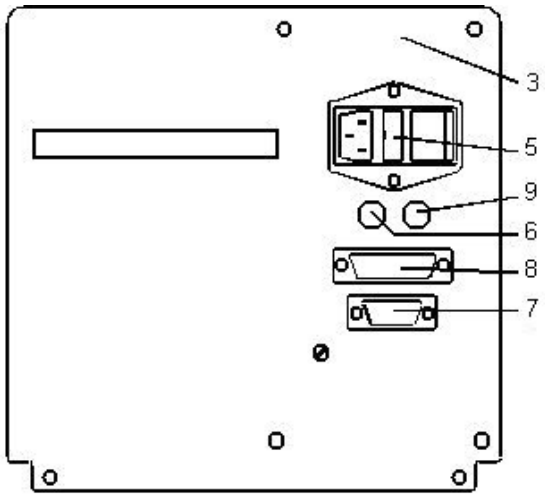
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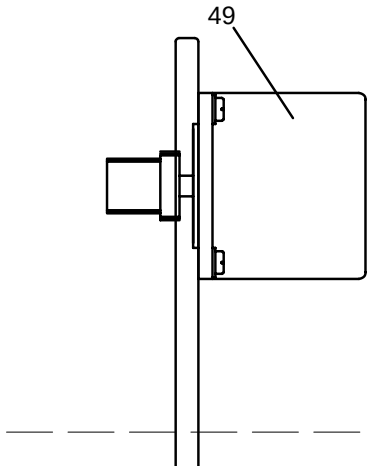
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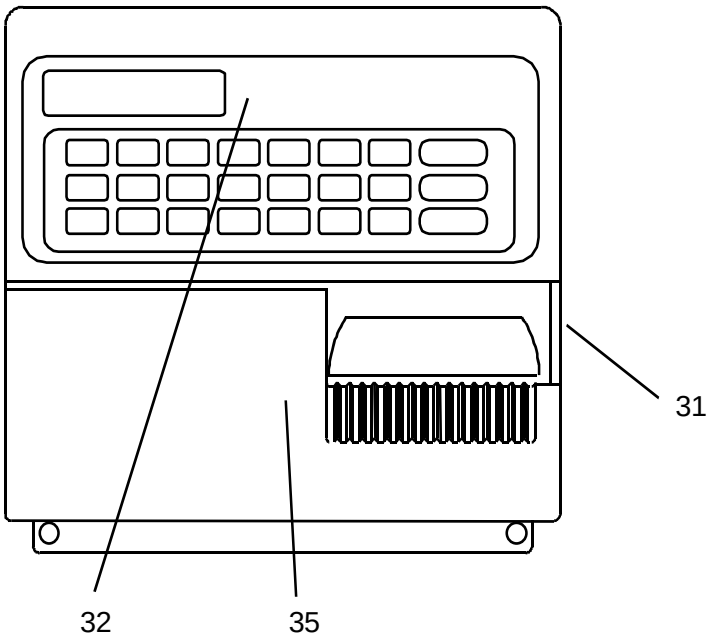
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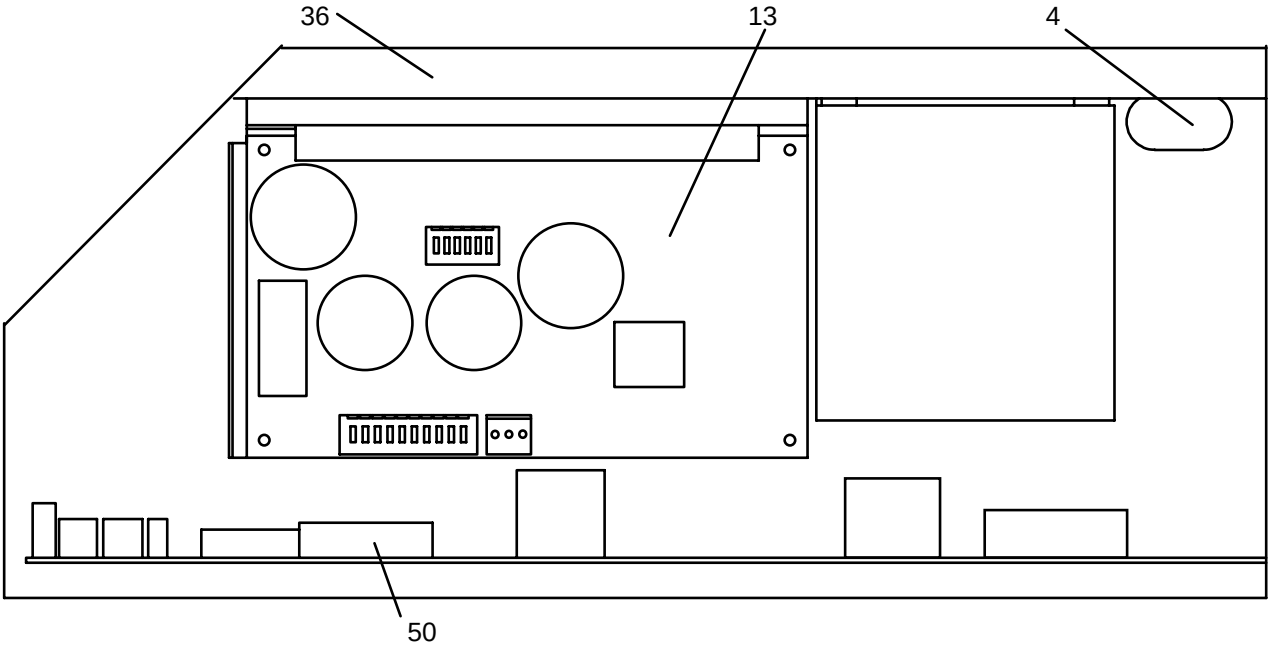
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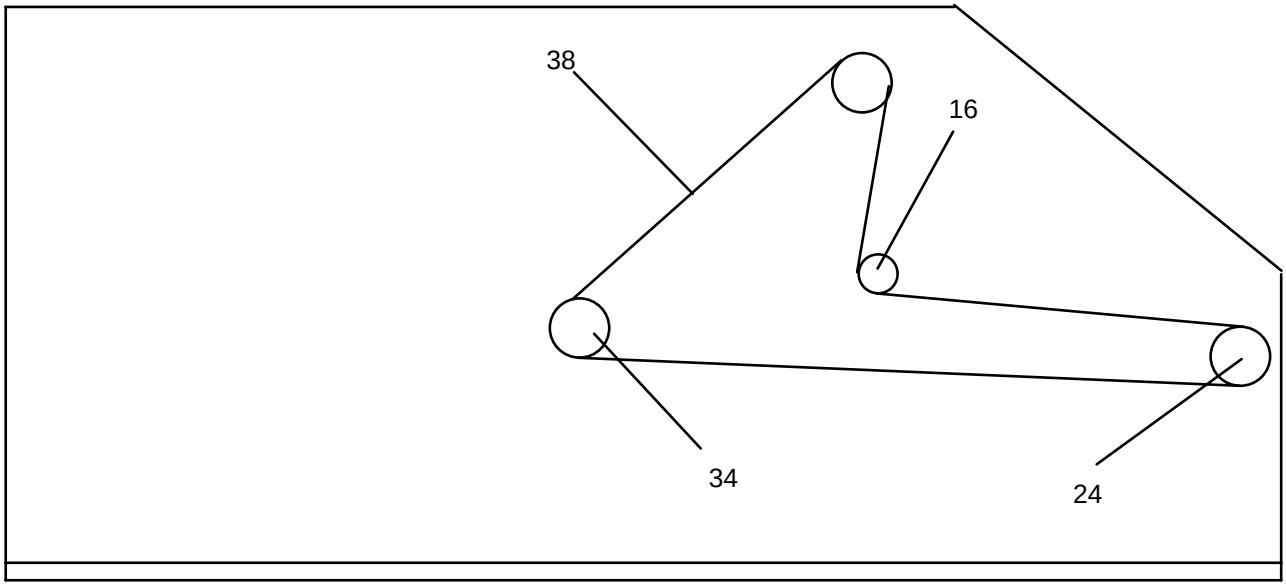
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