THERMAL & THERMAL TRANSFER
LABEL PRINTERS

models

smart 260 & smart 280

USER MANUAL

starting from S/N 4824 E

italora

Italora S.r.L. Largo Guastalla 7 - 20082 Binasco - (Milano) - Italy
phone ++39.02.90092074 - fax ++39.02.9055461

http://www.italora.it
e-mail: sales@italora.it

rev. 03.11

CONTENTS

Features and specifications are subject to change without notice

smart 260 & smart 280

GRAPHIC LABEL PRINTERS

1. GENERAL DESCRIPTION

These units offer an accurate and high quality printing moreover a formatting capability of 5 layouts in EEPROM. 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 eight character generators with eighty magnifications give a wide range of fonts.

The inside label unwind holder offers an autonomy of 1500 labels (106 x 70 mm), the modular design of these printers offers an easy service as well for electronic boards as for mechanics maintenance.

Printers of this family have obtained the IMQ approval according to European Standard EN 60950.

2. TECHNICAL SPECIFICATIONS

PRINTING
Method: Direct Thermal and Thermal Transfer
Resolution: 6 dots/mm, 640 dots/line (**smart 260**)
8 dots/mm, 832 dots/line (**smart 280**)
Print width: 105.6 mm (**smart 260**)
104.0 mm (**smart 280**)
Print speed: up to 120 mm/s
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, EAN13+ADDON
- 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 9999 labels
Layouts: 5 programmable in EEPROM, 50 fields each
Up to 10 protection levels for variable data printing
4 up/down 16 digits counters
Black intensity adjustable via software
Print button for last label repeating
THERMAL HEAD TEMPERATURE CONTROL
SERIAL DATA TRANSFER INTERFACE
RS232, default setting: 9600, N, 8, 1
BAUD RATE programmable in EPROM
HANDSHAKE PROTOCOL
SW : XON/XOFF
HW : DTR
DATA TRANSMISSION
ASCII format
CHARACTER GENERATORS

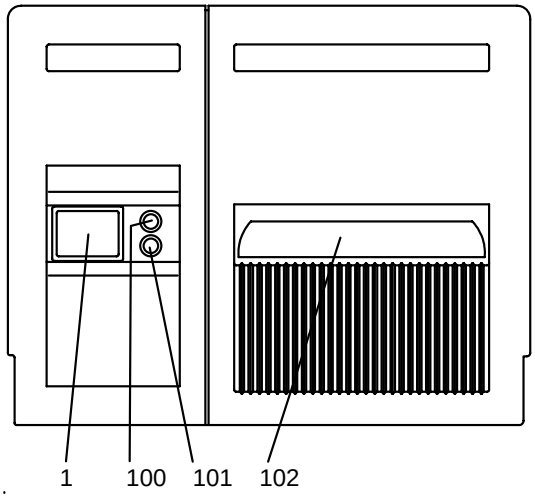
Micro	(fixed matrix)	5x5
Standard	(fixed matrix)	7x5
Draft	(fixed matrix)	8x13
Big	(fixed matrix)	16x24
New Century	(proportional)	45
Arial	(proportional)	32
Motor	(fixed matrix)	32x48
Compact	(proportional)	19
Magnifications		9x9

CHARACTER SIZES
(**smart 260**) 0.83 x 0.83 mm minimum
48.00 x 72.00 mm maximum
(**smart 280**) 0.62 x 0.66 mm minimum
36.00 x 57.00 mm maximum
PERMANENT MEMORY
32K bytes, 20 years data retention
DETECTORS
For end of paper and feeding synchronism
For end of thermal ribbon
PRINT MEDIA
Labels, tags and continuous strips
LABEL SIZES
Width: 30 mm min., 110 mm max
Length: 10 mm min.
250 mm max (**smart 260**)
303 mm max (**smart 280**)
Key: width min.: 2 mm
depth min.: 7 mm starting 2 mm min. from the inner edge
ROLL SIZES
Width: 30 mm min., 110 mm max
Outer diameter: 150 mm max
Core diameter: 38 mm min.
THERMAL RIBBON
Base polyester film
Outer diameter: 58 mm max, length 220 meters
Width: 35 mm min., 110 mm max
Core diameter: 25.4 mm
PRINTER DIMENSIONS
Height: 200 mm; Depth: 440 mm
Length: 235 mm; Weight: 17 Kg
POWER REQUIREMENTS
Voltage: 220/240 Vac; 50-60 Hz
on request 110 Vac
ENVIRONMENT
Operating temperature: 0°/ 40° C
Storage temperature: -20°/60° C
Humidity: 10% - 95% non-condensing
OPTIONS
Real Time Clock
Label taken sensor
Guillotine

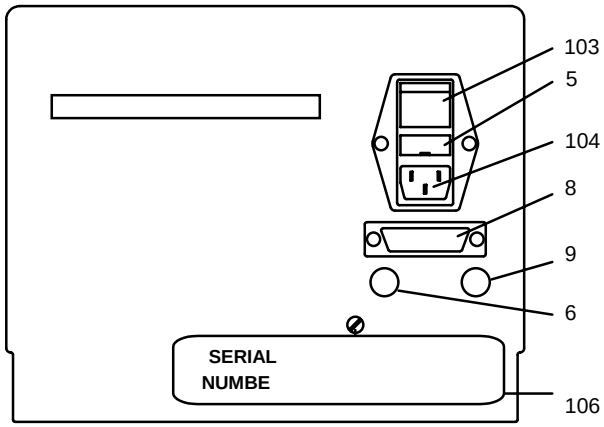
3. UNPACKING

Open the box and check the content :
a) **italora** label printer model **smart 260** or **smart 280**
b) power cable
c) roll of labels
d) roll of thermal ribbon (TT model only)
e) printing tests
f) serial cable
g) CD Rom with manuals and Etik Light

4. EXTERNAL DESCRIPTION



PICTURE 3



PICTURE 4

1: manual printing push button
100: **red led** => lit at POWER ON
101: **green status led** =>
- **lit**: ON-LINE
- **blinking**: end of paper
  end of ribbon
- **off**: syntax error (push printing button to restart)
  head temperature control active

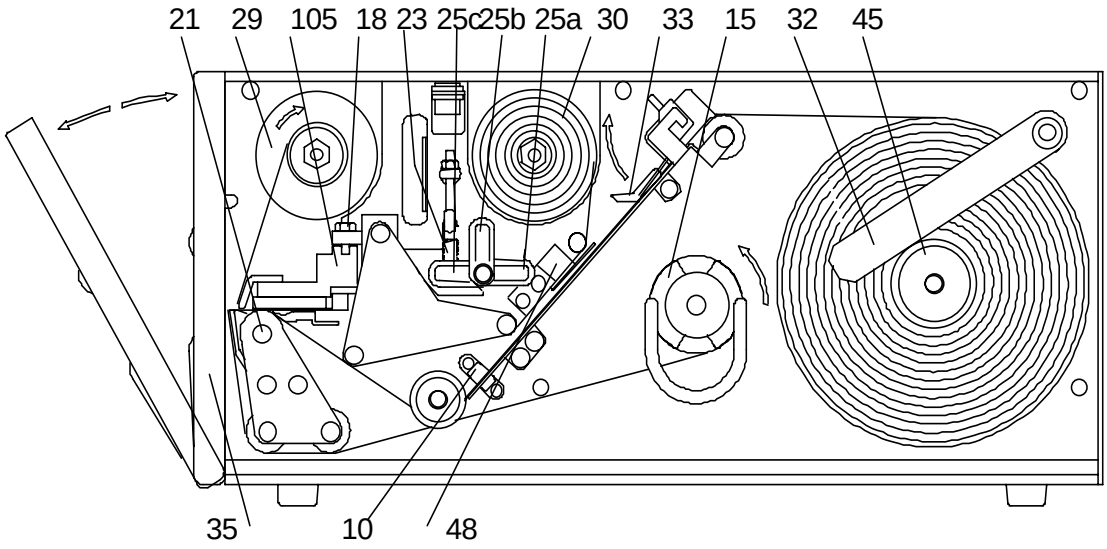
102 label output

5: 2 fuses 2AT (main)
6: 1 fuse 1.6AT (logic)
8: I/O connector
9: fuse 8AT (thermal head)
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
29 - thermal ribbon rewinder (TT model)
30 - thermal ribbon stock (TT model)
32 - label guide arm
33 - pressure clip
35 - front cover
45 - label unwind holder
48 - photosensor for end of thermal ribbon (TT model)
105 - print head assembly



PICTURE 6

6. INCOMING INSPECTION

* Open the main compartment
* Check the presence of the label roll and of the thermal ribbon roll (TT model)
* Check the correct pinout of the serial I/O Cannon 25 pins female connector and connect the printer to the computer .
* 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
* Lift the printhead down by rotating the lever #25a.
* Switch the main switch on (rear panel) RED and GREEN leds ON mean operating conditions.
* Push the PRINT BUTTON, you will get a printing test with the EPROM 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 - Lift 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.
9 - The green led lit and the printer is ready to work.

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

7.1 PAPER SPECIFICATIONS

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
- Fasson Fastransfer MP - S470 (TT models)
- Fasson Fastransfer Extra - S470 (TT models)

LABEL AND TAGS DIMENSIONS
See Chapter 2

7.2. THERMAL RIBBON SPECIFICATIONS

- film thickness 4.5 ÷ 6 micron
- core diameter: 25.4 mm
- outer diameter: 58 mm max
- width: 35 mm min/ 110 mm max
- length: about 220 meters (58 mm DIA. max)
- ink coating outside

SUGGESTED MODELS
- TOIKO C 250 (matt paper)
- TOIKO CR 150 (glossy paper and polypropylene)
- TOIKO R 300 (plastic media)

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

8. THERMAL RIBBON AND LABEL ROLL REPLACEMENT

8.1. THERMAL RIBBON REPLACEMENT (TT MODELS)

(see picture 7)

Open side of printer.
Remove the used roll. Remove the core #47 from the shaft and put it on the rewinder #29.
By rotating the lever #25b, lift the printing head #105 from the feed roller #21, setting the movement of the ribbon free.
Slide new ribbon #43 onto shaft and thread it under the ribbon photosensor #48 and the threaders #108,107 and 37 and up round to the rewinder #29.
Attach the ribbon leader with label/tape to core #47.
Return head lever to closed position #25a.
Close side of printer.

8.2. 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.

8.2.1. 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.

8.2.2. 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.

8.2.3. REWINDING MODE

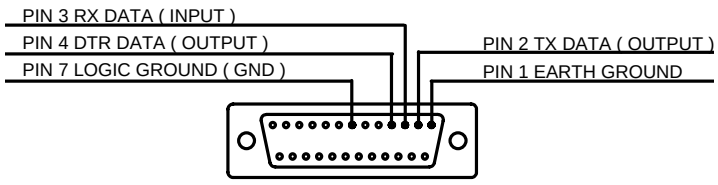
(see picture 10 and 11)

Is necessary to rewind printed labels inside to remove the plate #20, turning the screws #139,140 out.

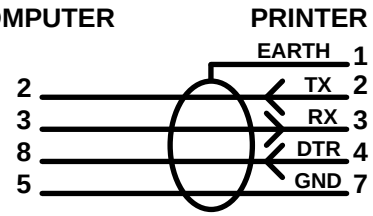
Open side of printer.
Remove the empty label roll.
Lift guide arm #32.
Insert new label roll onto roller #45
Bring the guide arm #32 down and push it tightly against the side of the label roll.
By rotating the lever #25b, lift the printing head #105 from the feed roller #21, setting the movement of labels 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

smart 260 and **smart 280** printers have a RS232 hardware interface. Provided on board connector is a Cannon 25 pins "DB" female cabled as shown in the following pictures.

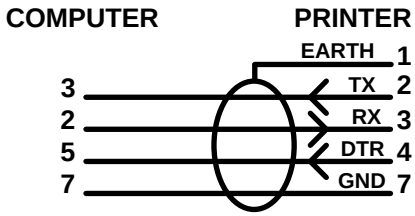


COMPUTER CONNECTOR WITH 9 PINS



COMPUTER 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 CONNECTOR WITH 25 PIN



COMPUTER 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.

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 and thermal ribbon.
- 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

Four situations may occur.

a) RED led 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) RED led is ON, GREEN STATUS led is BLINKING check:
- label roll is not used up.
- paper position under the photosensor (pict.8,#10)

c) RED led is ON, GREEN STATUS led is BLINKING check:
- thermal ribbon is not used up (TT models).
- thermal ribbon position under the photosensor (pict.7,#48) (TT models).

d) RED led is ON, GREEN STATUS led is OFF:
- 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 10)

AND FOR TT MODELS:
- thermal ribbon unwinds correctly.
- there are creases on the rewound thermal ribbon. If so, turn the nut (pict.7,#110) clockwise, in order to increase the rewinding torque (a quarter of a turn max) while holding the roller (pict.7,#29) still.

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.
- thermal ribbon is correctly positioned, opaque surface on the label side (TT models).

11.6. POOR PRINTING CONTRAST

- See printer rear panel.
- turn the print head screw (pict.4,#106) for temperature fine adjustment :
  clockwise to make print darker.
  anticlockwise 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 and may also fuse the ribbon (TT models).

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,#41) clockwise, in order to increase the rewinding torque (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 6 side screws (pict.19,#114,115,116, 119,120,121)
- turn the 2 rear panel screws (pict.18,#117,118) out.
- pull carefully off the electronic cabinet from the printer chassis and unplug the following connectors from CPU board (pict.21).
  P1 = stepping motor
  P2 = thermal head
  P4 = label photosensor
  P7 = leds and push button
  P9 = ribbon photosensor
- disconnect the ground cable turning the chassis nut out.

12.2. ELECTRONIC BOARDS REPLACEMENT

Unplug the following connectors from the CPU board (pict.21):
CN1 = power supply
CN2 = power supply
P5 = serial interface

- turn the 4 rear panel screws (pict.18,#122,123,124,125) out.
- turn the lock screws (pict.20,#111,113) out 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

12.4.1. smart 260 , (6 dots resolution)

(see picture 26)

1 switch the printer off .
2 unplug the flat connector from the print head.
3 turn the screws #128 and #129 out.
4 lift print head by rotating the lever #25c.
5 remove the plate #37 and the print head #26 from the support.
6 replace the thermal head and run back steps 5 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)

7 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.
8 in case of creases on the rewound thermal ribbon, loosen the screws #128,129 and adjust the plate #37 in order to obtain a correct parallelism and flatness on the rewound ribbon; finally lock the screws #128,129 (TT models).

12.4.2. smart 280 , (8 dots resolution)

(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)

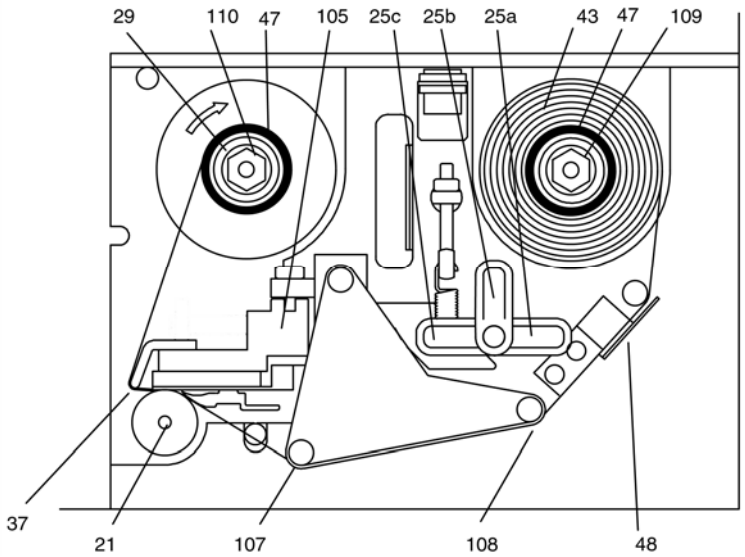
9 in case of printing quality problems, loosen the screw #130 and turn slowly the adjusting nut in or out #18, for the best printing quality, finally lock the screw #130.
10 in case of creases on the rewound thermal ribbon, loosen the screws #128,129 and adjust the plate #37 in order to obtain a correct parallelism and flatness on the rewound ribbon; finally lock the screws #128,129 (TT models).

12.5. DRIVE BELT REPLACEMENT

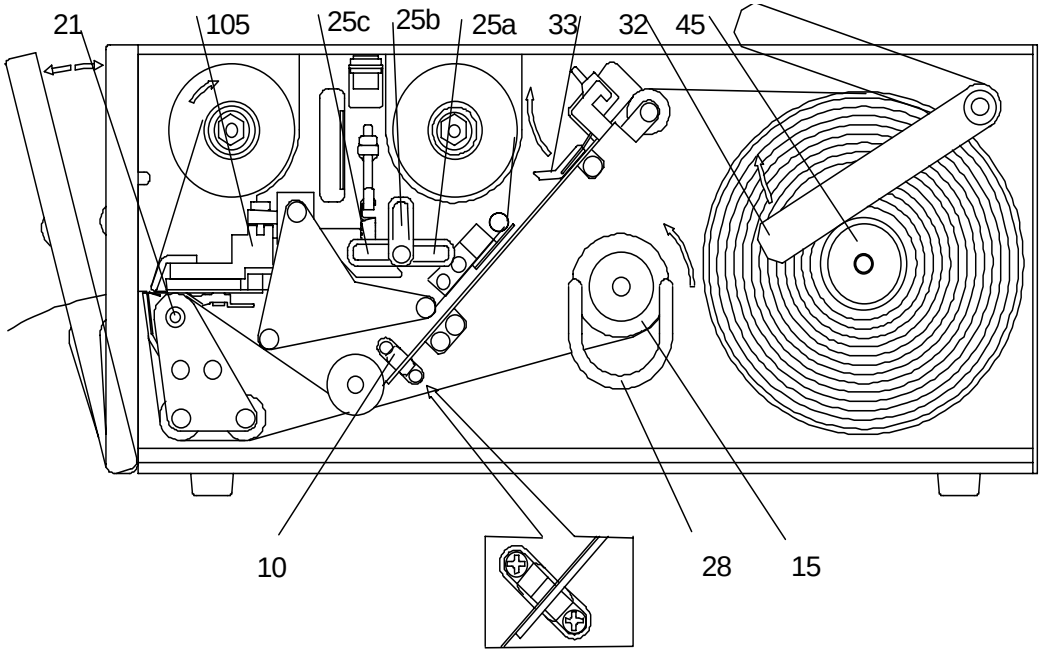
(see picture 28 and 29)

Disassemble the electronic cabinet from the printer chassis as shown in paragraph 14.1, remove the 2 screws #131, 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.

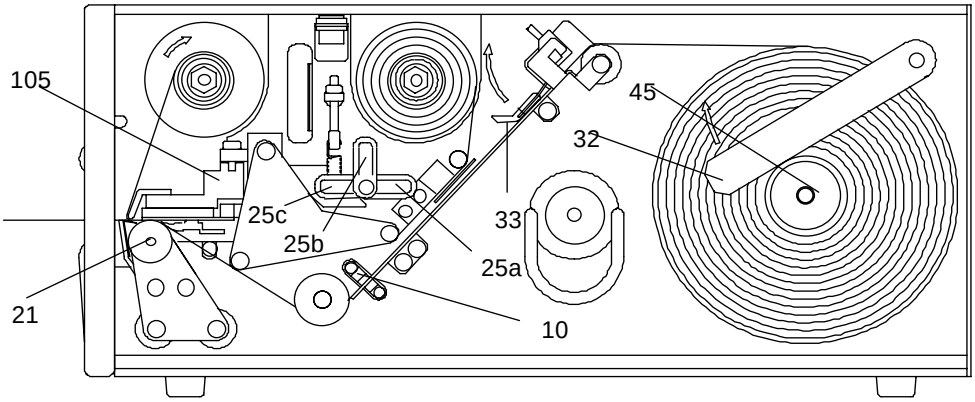
13. PICTURES



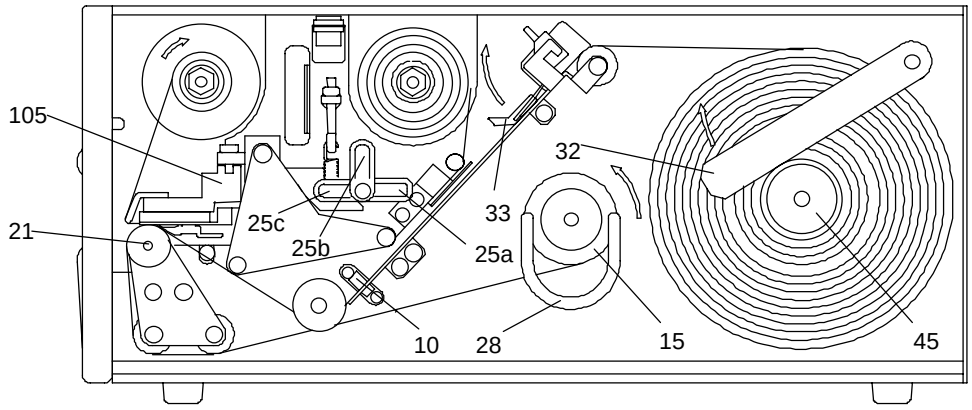
PICTURE 7



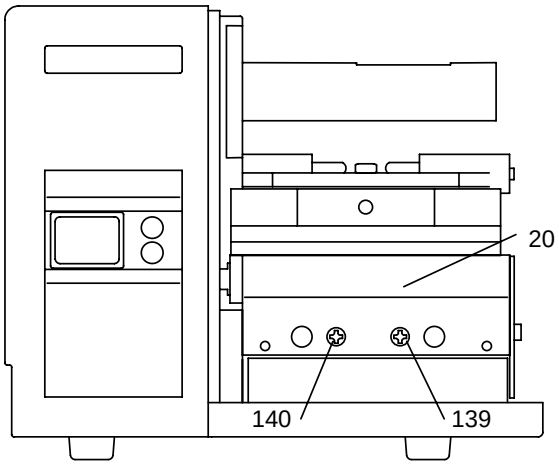
PICTURE 8



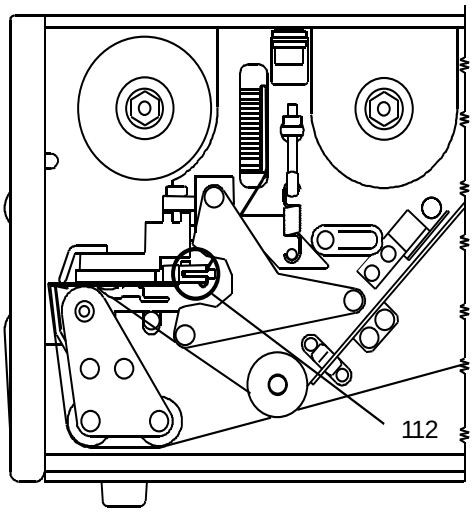
PICTURE 9



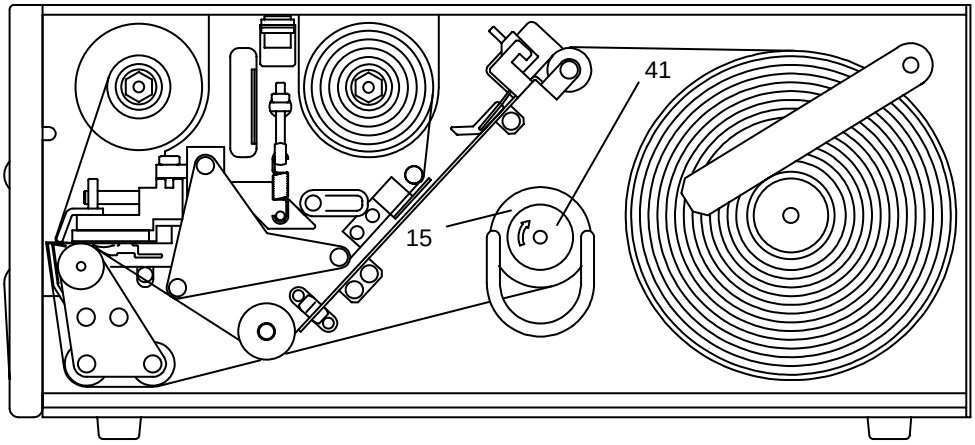
PICTURE 10



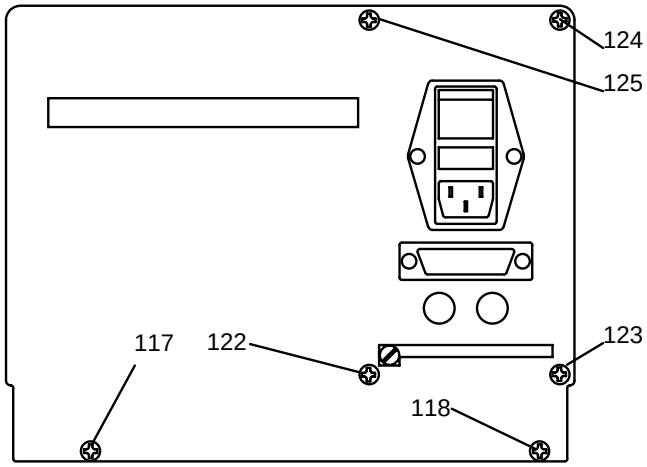
PICTURE 11



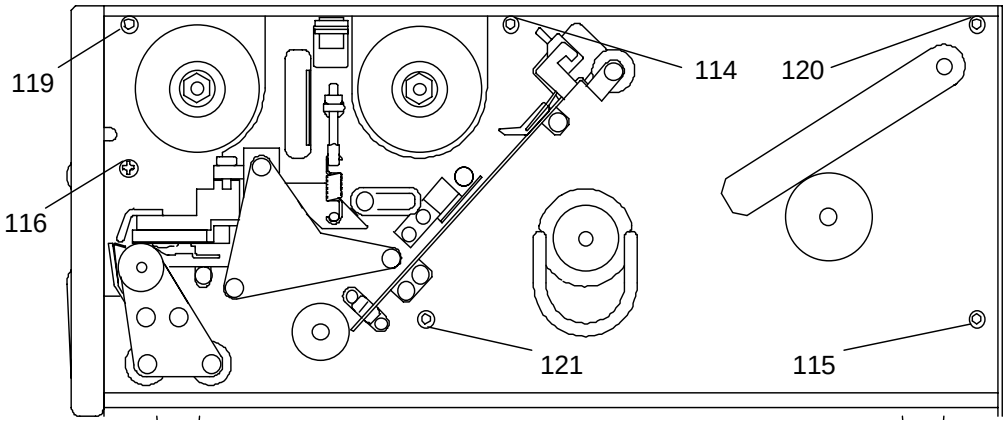
PICTURE 13



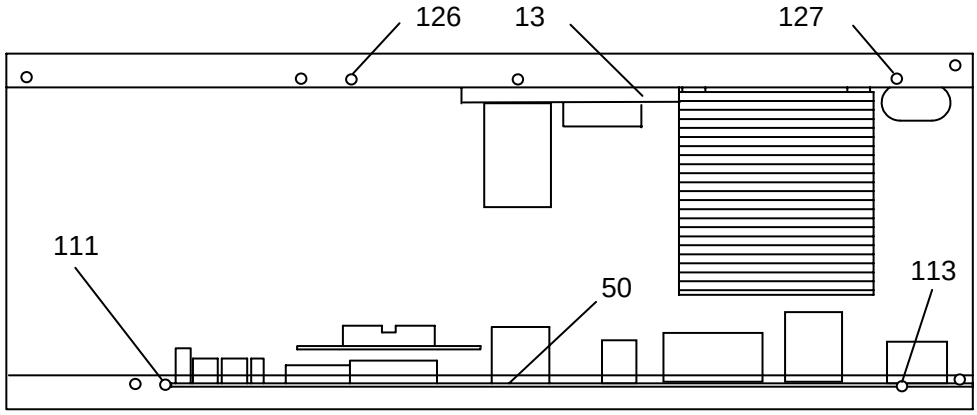
PICTURE 16



PICTURE 18



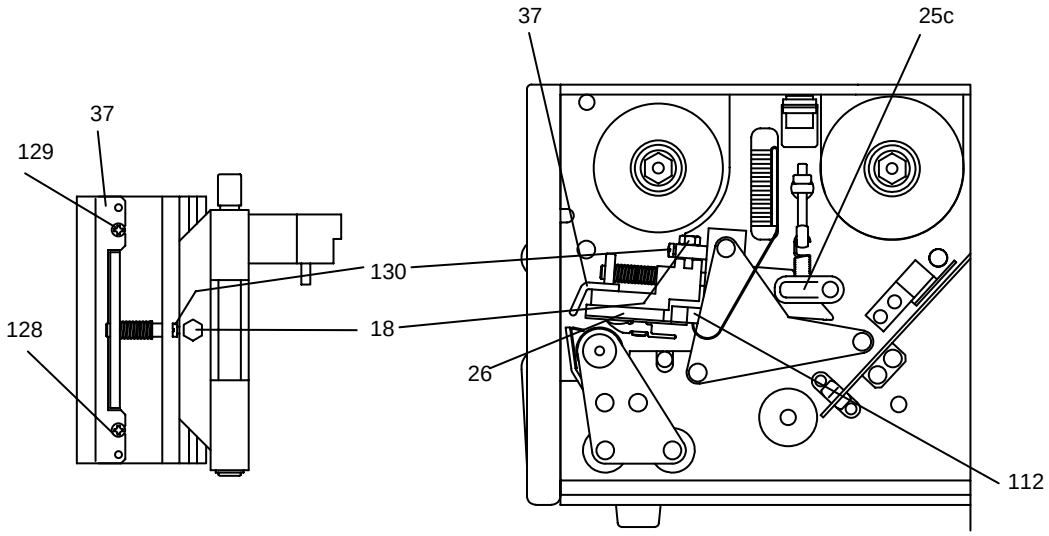
PICTURE 19



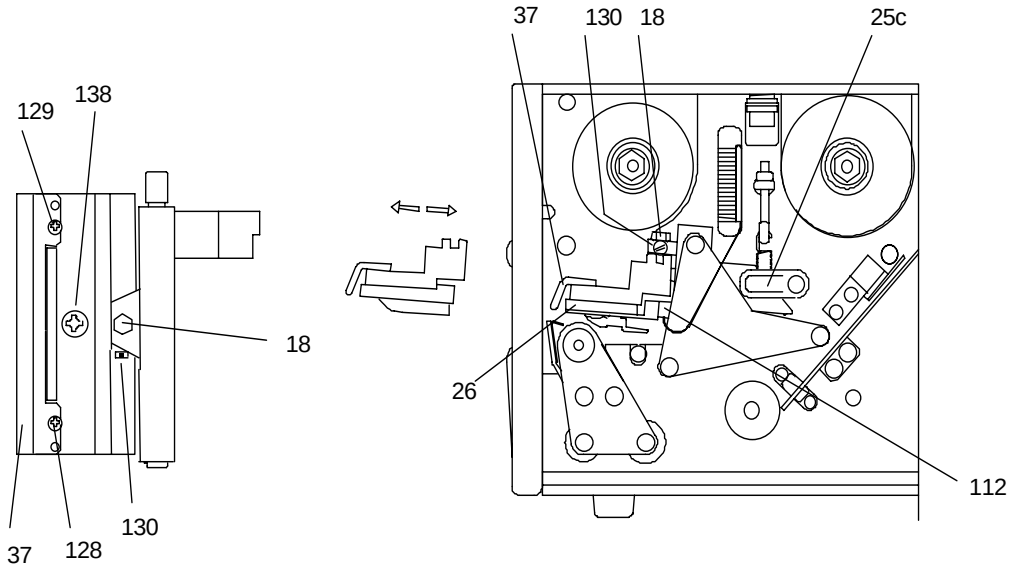
PICTURE 20

P1	Motor	Motore	Moteur
P2	Thermal head	Testina termica	Tete thermique
P4	Paper Sensor	Sensore carta	Cellule papier
P5	Serial interface	Porta seriale	Comunication serie
P6	Label taken sensor	Sensore prelievo etichetta	Cellule detection etiquette
P7	Push button, Led	Tasto di stampa, led	Touche d'impression, Led
P8	Cutter	Taglierina	Massicot
P9	Ribbon sensor	Sensore nastro	Cellule ruban
CN1	Power supply	Alimentazione	Alimentation
CN2	Fuses	Fusibili	Fusibles
J1	Printhead termistor	Termistore testina	Cellule de temperature de la tete
J2	Factory use only	Ad uso interno	Reserve
J3	Direct thermal	Termica diretta	Thermique direct
J4	+5V on Rs232, pin 19	+5V su Rs232, pin 19	+5V sur Rs232, pin 19

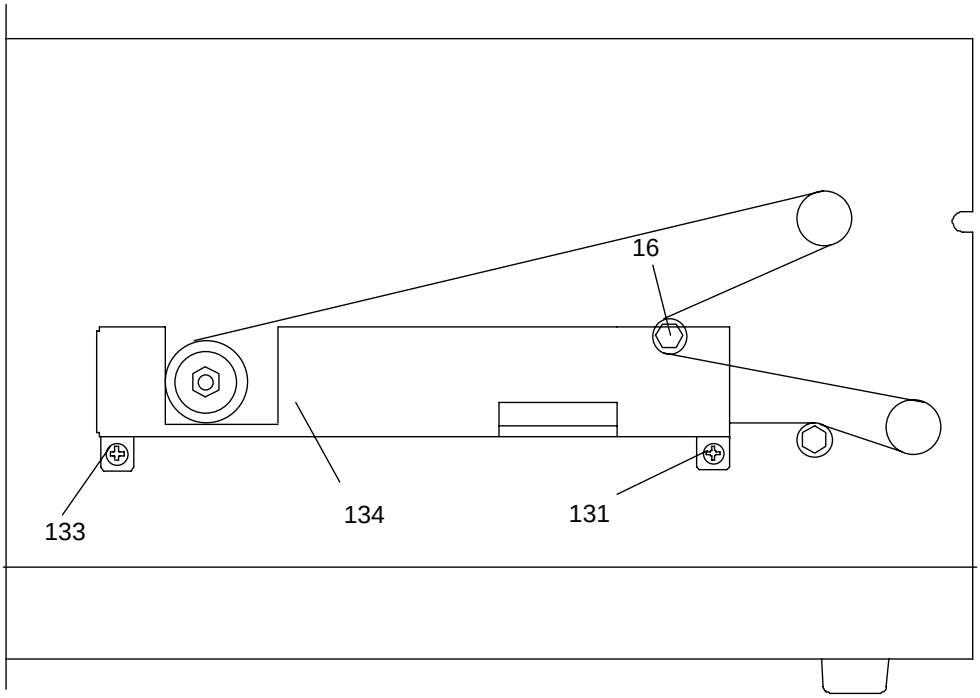
PICTURE 21 CPU BOARD - layout



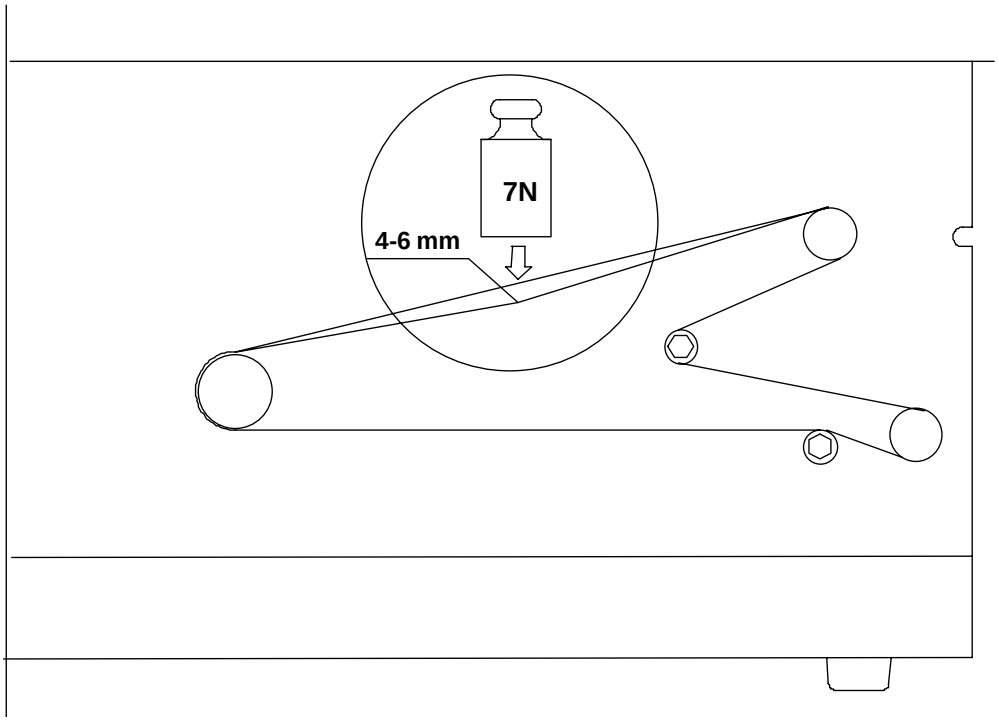
PICTURE 26



PICTURE 27

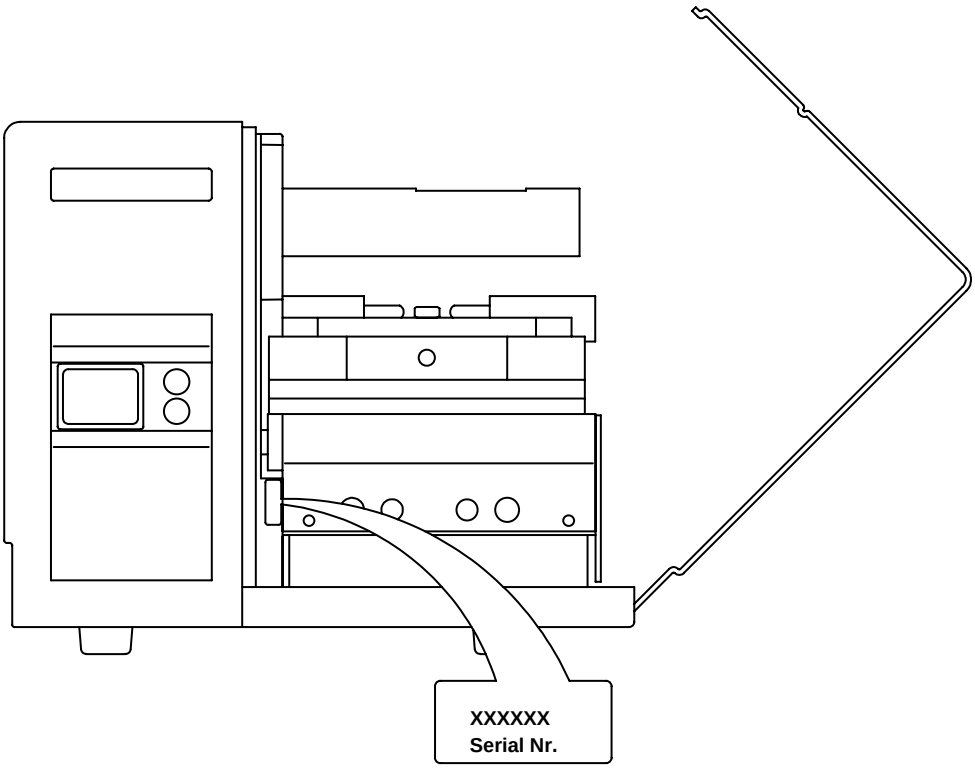


PICTURE 28



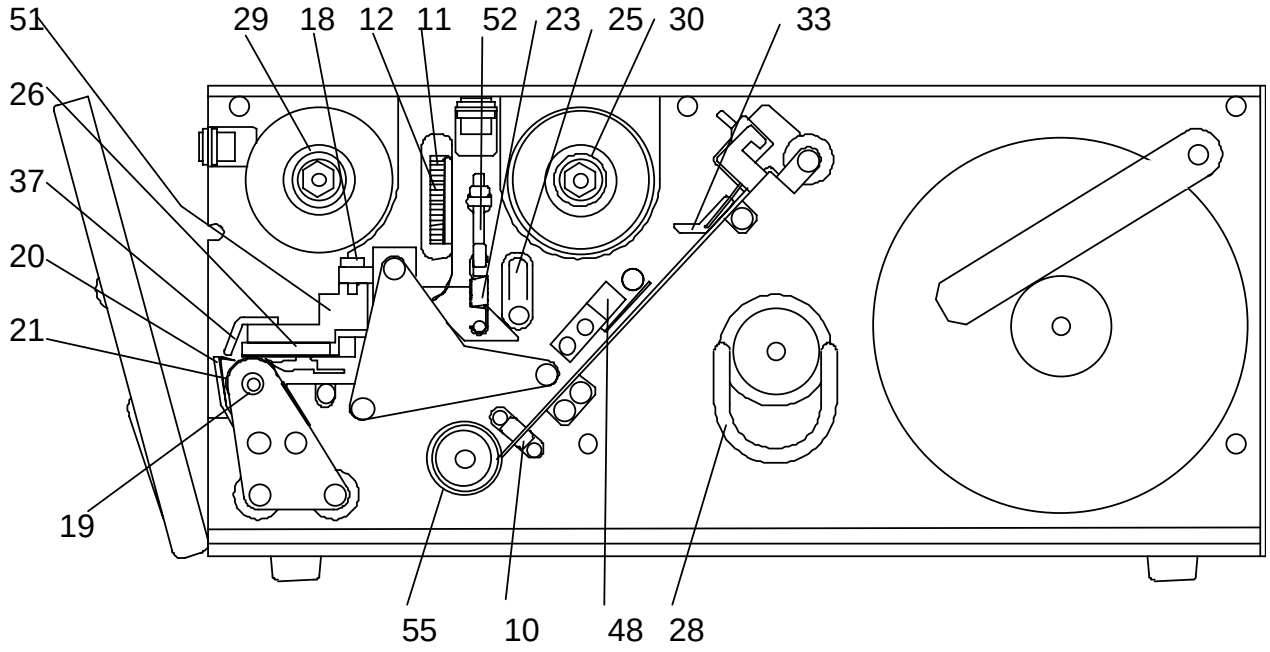
PICTURE 29

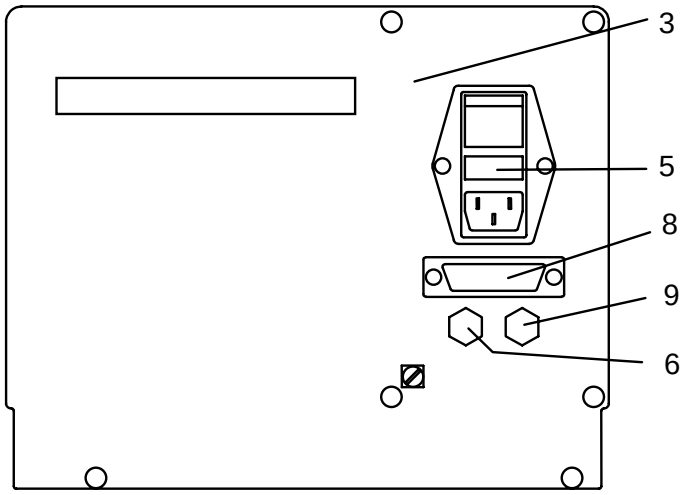
14. PART LIST AND RELEVANT PICTURES

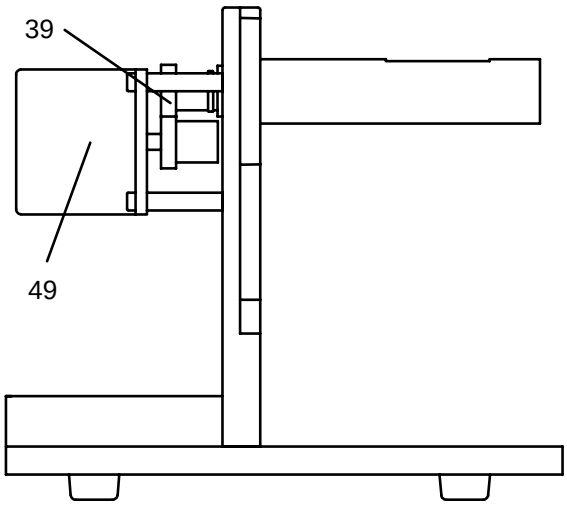


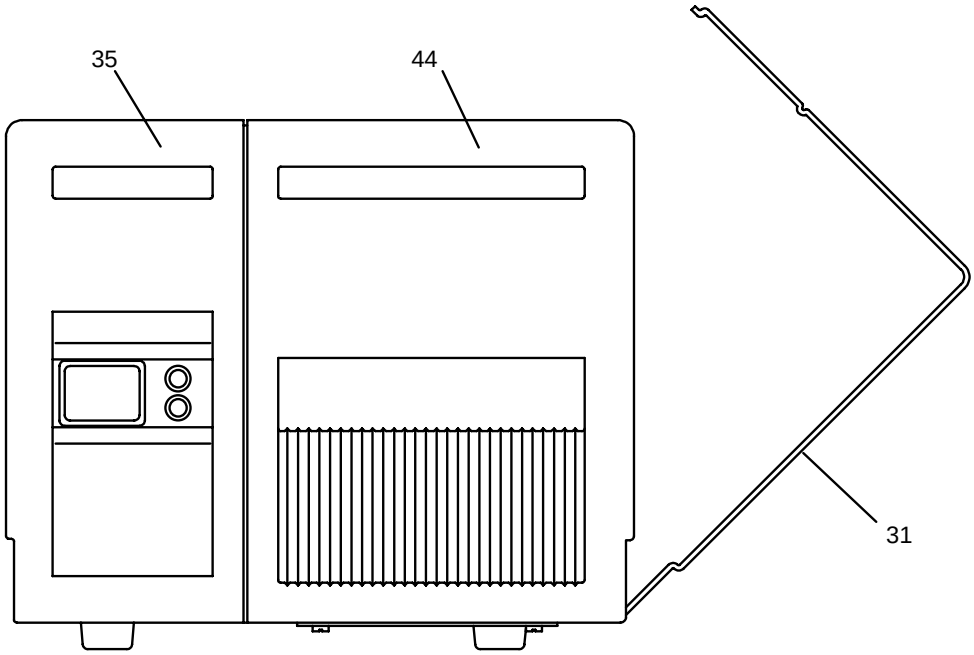
Spare parts list
(items are referred to following pictures)

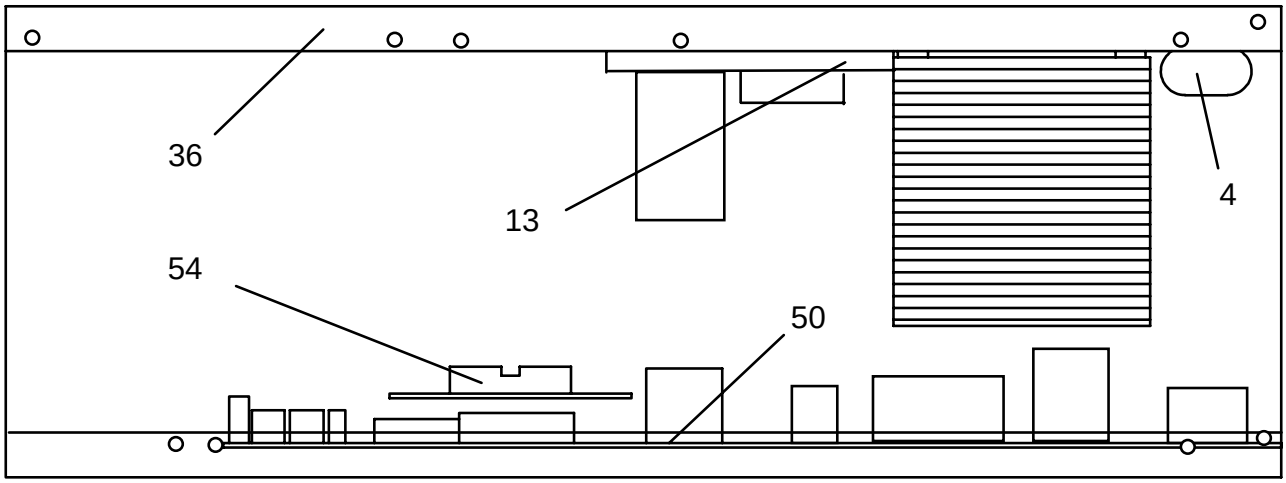
ITEM	CODE	DESCRIPTION	smart 260	smart 280
3	800946590	rear panel	*	*
4	801292050	filter cap	*	*
5	056102080	fuse 2A T	*	*
6	056102020	fuse 1.6A T	*	*
8	801665050	RS232 connector	*	*
9	056102030	fuse 8A T	*	*
10	801295040	label photosensor	*	*
12	801665210	flat cable	*	*
13	802605020	power board	*	*
16	800925310	belt idler assembly	*	*
18	800722460	nut	*	*
19	061702070	bush	*	*
20	800926290	peeling plate assembly	*	*
21	801842380	feeding roller	*	*
23	800742100	spring	*	*
24	801842660	pinion	*	
24	801872020	pinion		*
25	800925890	print head lever	*	*
26	801862010	thermal print head (6 dots per mm)	*	
26	800822011	thermal print head (8 dots per mm)		*
28	801842130	clip holder	*	*
29	800942690	ribbon rewinding assembly	*	*
30	800942700	ribbon stock assembly	*	*
31	801845083	side cover	*	*
33	810940029	media position holder assembly	*	*
35	80184246601	blue front cover	*	*
36	801842083	electronic cabinet	*	*
37	800542410	ribbon plate	*	*
38	800782320	belt	*	*
39	801622160	ribbon rewinding gear	*	*
44	800925330	blue front cover (movable)	*	*
48	801625030	ribbon photosensor	*	*
49	800946970	stepping motor assembly	*	
49	800946610	stepping motor assembly		*
50	802605032	CPU board	*	
50	802605033	CPU board		*
51	800926330	heat dissipater assembly	*	
51	800926320	heat dissipater assembly		*
52	801842501	tie rod	*	*
54	802605130	PCP adapter	*	
55	800925280	ring clip	*	*

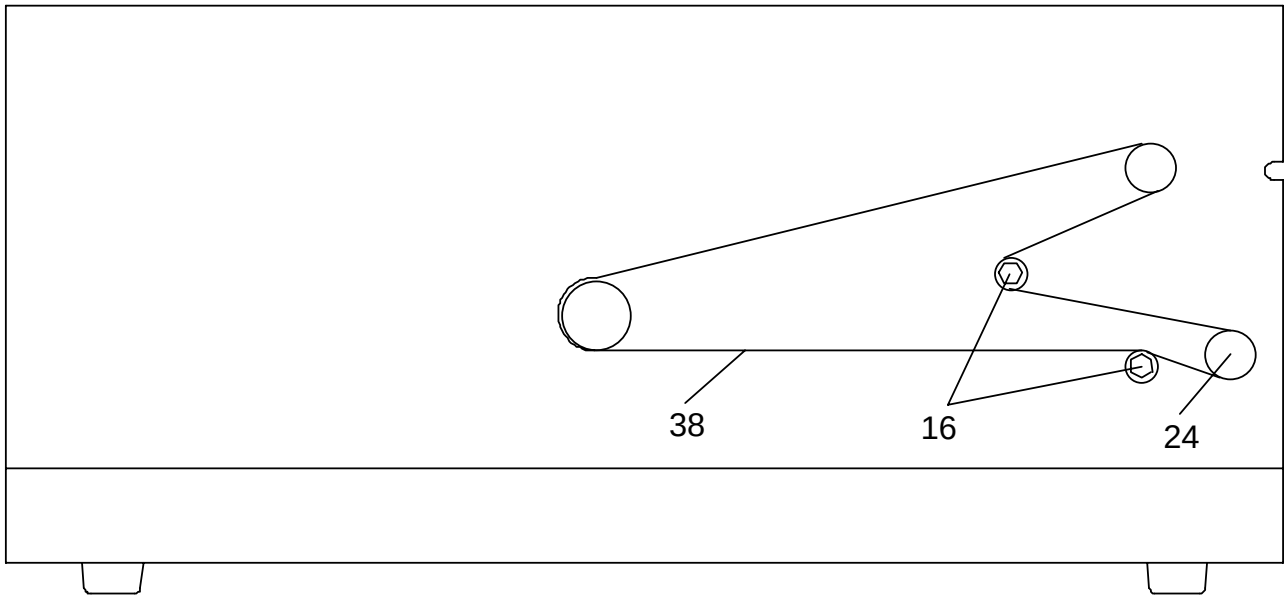

51
29
18
12
11
52
23
25
30
33
26
37
20
21
19
55
10
48
28


3
5
8
9
6


39
49


35
44
31


36
13
4
54
50


38
16
24