ETICA 2300
Hardware Service manual
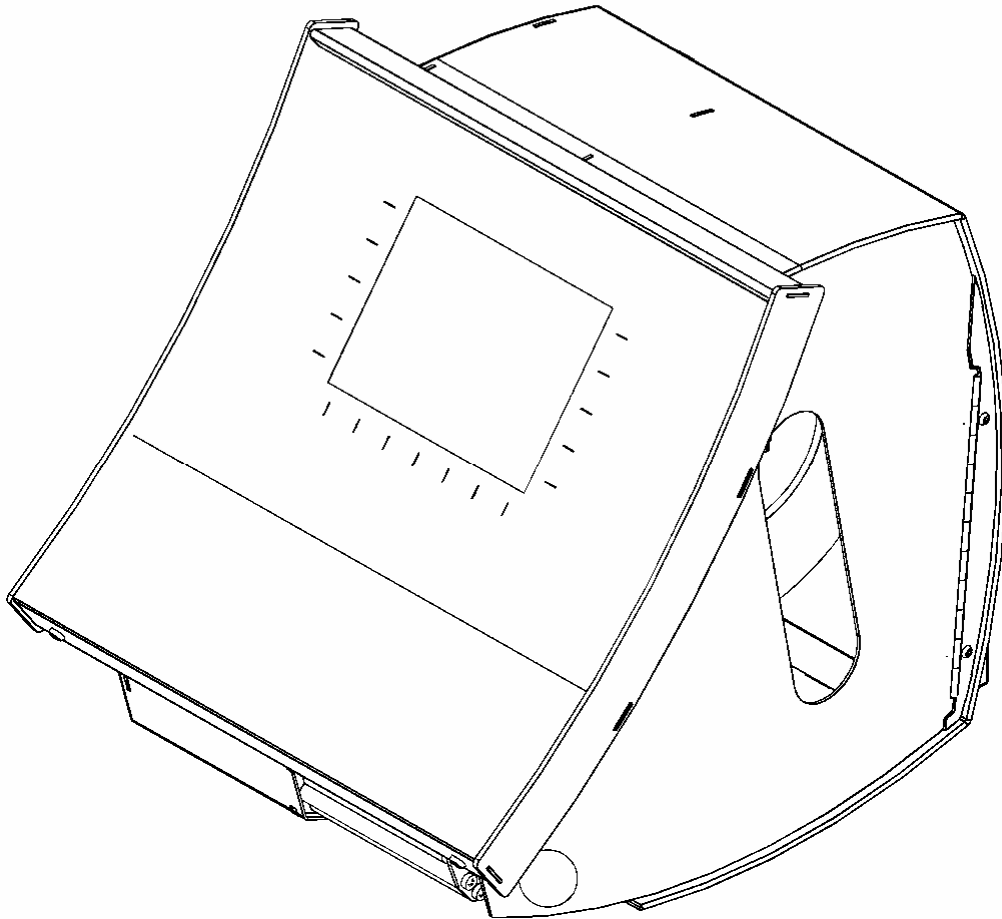
METTLER TOLEDO

Table of Contents

INTRODUCTION

This document is intended for After Sales Support technicians working on all normal versions of Etica 2300.
This manual gives details of the product codes of the parts and the make up of the sub-assemblies in the Etica 2300 group.
It also describes the maintenance tasks most frequently carried out on this weighing-labelling unit.

The official summary list of spare parts and sub-assemblies required for these maintenance operations is given page 97.
These spare parts and sub-assemblies are available as standard from **MT-LOG**. You can order them by EDI, giving their respective MTCIMF codes.

Parts written in <u>bold underlined</u> together with an asterisk (*), in the various exploded views shown in this manual are available as "spare parts" from MT-LOG.

Parts written in bold <u>double underlined</u> together with a double asterisk (**), in the various exploded views are available as "accessories" from MTA.

For any comments or corrections specifically concerning the content of this manual, contact directly the MT-EPEC Technical Support team, responsible for any updates:

- Santy Savatxath (French, English): + 33 6 08 27 92 84 / santy.savatxath@mt.com
- Bruno Goudard (French, English, German): + 33 6 81 685 305 / bruno.goudard@mt.com

1.GENERAL CHARACTERISTICS

The **Etica2300 weighing-labelling unit is a multi-protocol weight-price indicator/calculator, equipped with a thermal label printer.** It has European certification (Directives 90/384/CEE and 93/68/CEE) as a non automatic electronic weighing instrument.

The Etica2300 is dedicated to weighing-labelling applications in commercial or industrial environments and especially to pre-weighing of fresh products. It cannot be used for direct sale to the public.

The **Etica2300 weighing-labelling unit can be used alone, as a simple label printer, or in combination with**:
-the D, M and K series IDNET weighing bases (Albstadt design).
-the WP27DS multi-interval top of the range Prepack base (MT EPEC design)
-the 8270 multi-range standard Prepack base (MTWR design)

1.1 Technical characteristics

INPUT
230 V, 50-60 Hz 1.6 A / Fuse: T3.15 A/250 V

OUTPUT
+5V /4.0A and +12V /1.0A and +24V / 1.2A

OPERATING TEMPERATURE RANGE
-10°C to +40°C / 5% to 85 % relative humidity (no condensation)

SAFETY
In compliance with the Low Voltage Directive; protected against short circuits.

The **Etica2300 model weighing-labelling unit is equipped with seven communication interfaces (with the optional** PC104 communication board):
        -COM0 RS232 (Bar code reader)
        -COM1 RS232 (Weighing base)
        -COM2 RS232
        -COM3 RS485
        -RJ 45 Ethernet 10/100 Mbs
        -USB1 and USB2. (optional)
        -RJ11 Wrapping unit connection

1.2 Metrological characteristics

The **Etica2300** labelling unit can be connected to various weighing bases. (WP27DS, IDNET, etc.)

The metrological characteristics are as follows:

Precision	Class III (IPFNA or IPFA)
Resolution	=3000 points
Weighing cell power supply	5.4 Volts to 10 Volts
Maximum signal for the dead load	3mV
Minimum signal for the dead load	0.5 mV
Sensitivity	1 µV/E.v
Minimum voltage of the measurement range	0.5 mV
Maximum voltage of the measurement range	13.5 mV
Minimum impedance for the weighing cell	100Ω
Maximum impedance for the weighing cell	1000Ω
Max. wire length	2 m (4 wires) for RLC=350 Ω min.
Unit price interval value	du = 0.01 €kg
Maximum unit price	9999,99€
Price interval	dp = 0.01 €
Max. price	999 999,99€

1.3 Technical characteristics of weighing bases

The weighing bases are:

WP27DS base

SW1-5	SW1-6	SW1-7	RANGE		
OFF	OFF	OFF	Free range		
ON	OFF	OFF	3kg/2g	12kg/5g	MULTI INTERVAL
OFF	ON	OFF	6kg/2g	12kg/5g	
ON	ON	OFF	4kg/2g	8kg/5g	

IDNET base

DNA								
Scale Capacity	units	accuracy	e1 = Vmin	units	Plc	Load cell Capacity kg	ZTC spec ppm LC cap/C	Signal 5 V EXC uV/e
6	kg	3000	2	g	0.8	20	16.0	1.00
6	kg	2x3000	1	g	0.8	10	16.0	1.00
12	kg	6000	2	g	0.8	20	16.0	1.00
30	lb	3 000	0.01	lb	0.7	50	12.7	0.91
15	kg	3000	5	g	0.8	50	16.0	1.00
15	kg	2x3000	2	g	0.8	20	16.0	1.25
30	kg	6000	5	g	0.8	50	16.0	1.00

1.4 Etica2300 working keypad
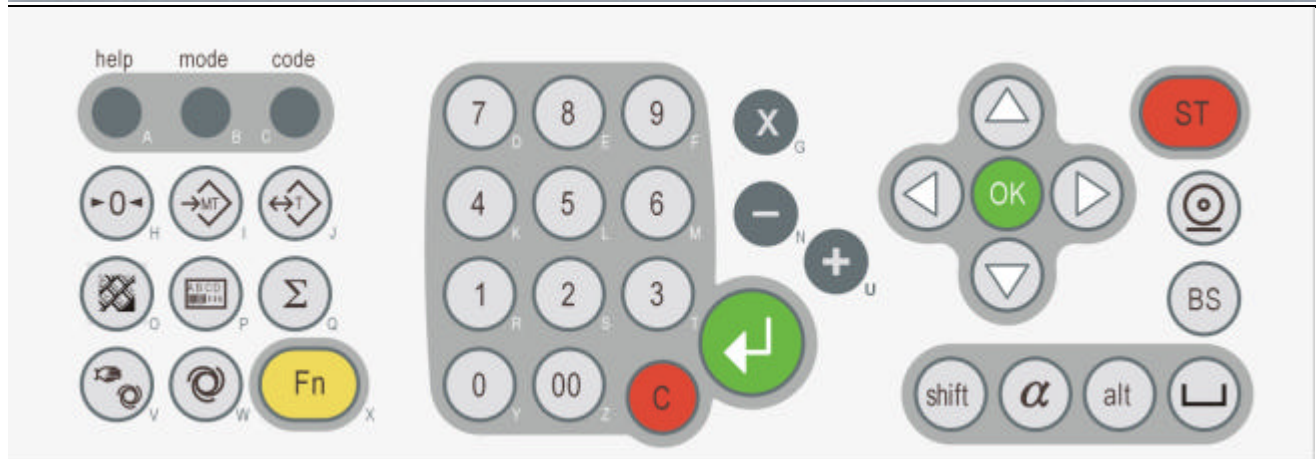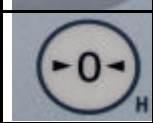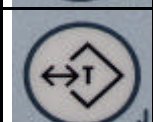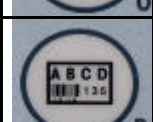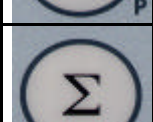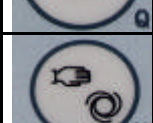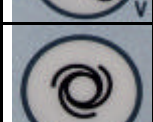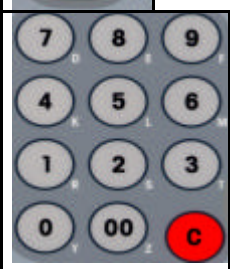
The keypad consists of 59 keys.

Description of keys:

	➢ 17 function keys dynamically allocated on screen
	➢ TABULATION key
	➢ RETURN TO PREVIOUS MENU key

> HELP key or letter "A".

> MODE key or letter "B".

> Reference code entry key or letter "C"

> RESET key or letter "H"

> MANUAL TARE key or letter "I".

> SEMI-AUTOMATIC TARE key or letter "J"

> KEYPAD ACCESS key (special characters) or letter "O"

> LABEL MENU key or letter "P"

> TOTALLING key, log or letter "Q"

> Key not used or letter "V"

> Key not used or letter "W"

> EXTRA FUNCTIONS key or letter "X"

> Numeric keys and correction key, letters " D; E; F; K; L; M; R; S; T; Y; Z"

> MULTIPLICATION key or letter "G"

> SUBTRACTION key or letter "N"

> ADDITION key or letter "U"

> VALIDATION key

> Movement key

> CANCEL key

> PRINT key

> BACK SPACE key

> SHIFT KEY (press another key simultaneously to enter the corresponding alphabetic letter)

> CAPS LOCK key

> ALT key

> SPACE key
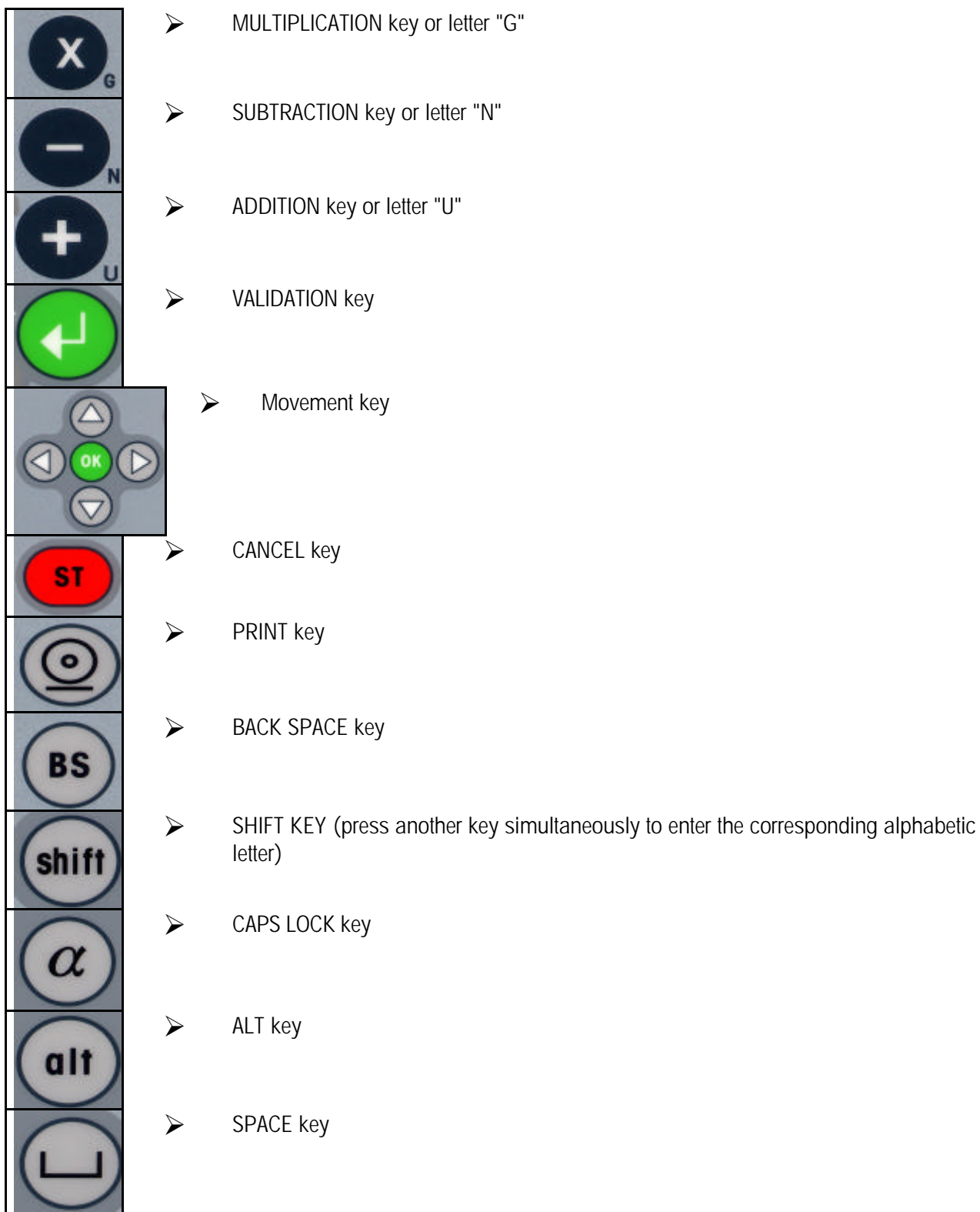
2. INSTALLATION

Step 1- Place the weighing base and your assembly on a flat, stable support

Step 2 – Adjust the feet of the weighing base, checking the bubble level

Step 3- Check the connections between the weighing base and the **Etica2300**

Step 4- Make sure that that there is a label roll.

Step 5- Plug in your weighing/labelling unit to a 230 V mains power outlet

Step 6- Press the ON / OFF switch to ON

Step 7- The unit loads the data and displays the working screen.

(i) **You are recommended to program your unit fully before entering operating mode.**

3. EXPLODED VIEWS

3.1 General view of the *Etica2300* (29268560)
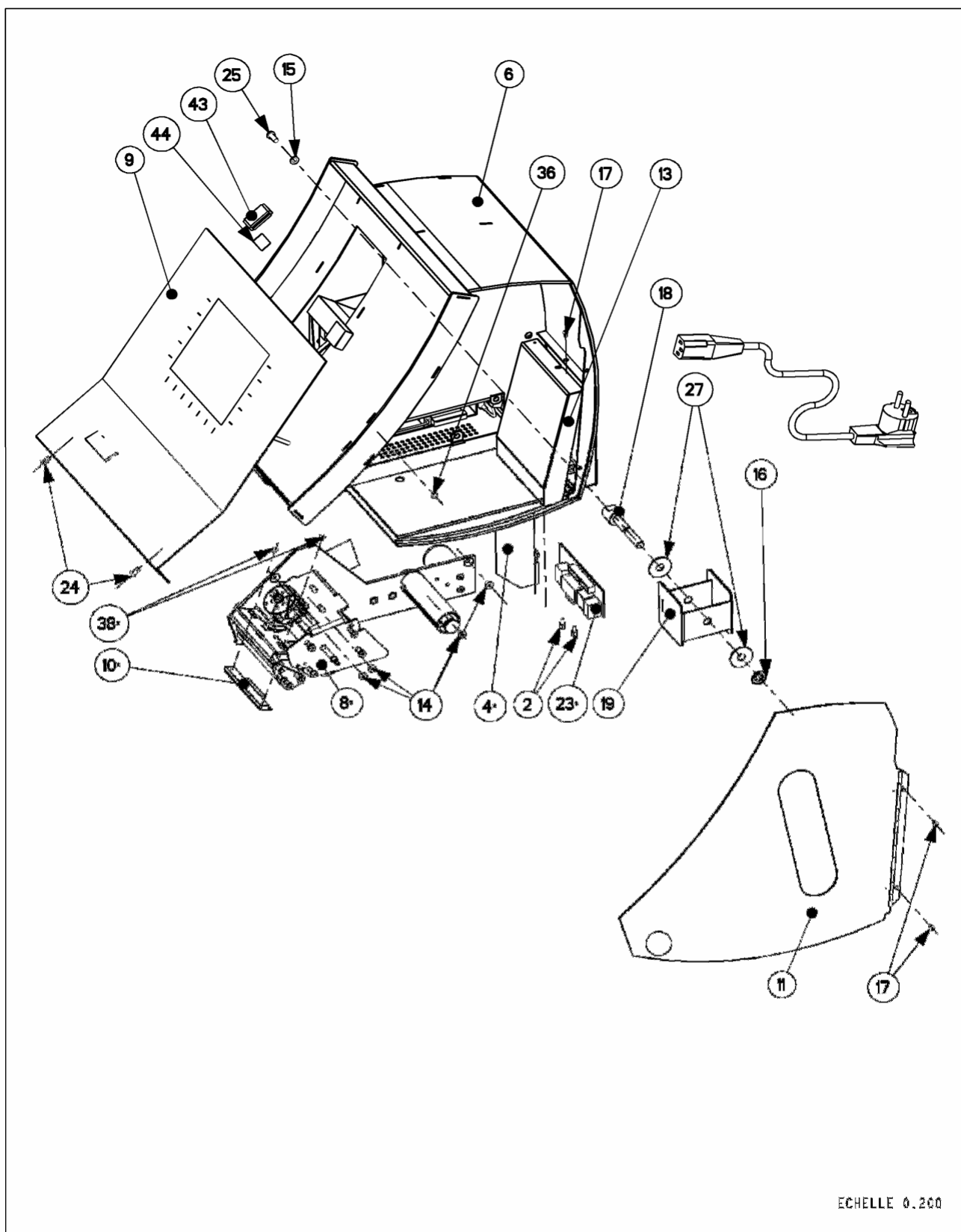
ECHELLE 0.200

EPEC METTLER TOLEDO	DESSINE: DRAWN BY: JACQUEMIN	DATE: LE: 18/08/02	DESIGNATION: ETICA 2300 EQUIPE					
	MODELE: ETICA 2300	REVISIONS	Ø	C	D	E	PLAN N° 29268560	/3

3.2 General view of the *Etica2300* (29268560 continued)

3.3 Complete list of *Etica2300* components

No.	Qty	Designation	MTCIMF reference
1	2	SCREW FHC M3X10 STAINLESS STEEL	29006979
2	2	SUBD CONNECTOR STRUT	00209834
3*	**1**	**CICA COM CPU WEIGHT BASE**	**29223081**
4*	**1**	**SOCKETS / CPU CABLE**	**29223102**
5	1	CABLE SWITCH	29223105
6	1	BODY STRUCTURE	29268580
7	1	EQUIPPED BOARD SUPPORT PLATE	29268584
8*	**1**	**PRINTER / REWINDER PLATE**	**29268585**
9	1	EQUIPPED DISPLAY PLATE	29268586
10*	**1**	**THERMAL HEAD KF2003 GK4**	**22006052**
11	1	EQUIPPED PAPER ACCESS DOOR	29268588
12	1	ELECTRONIC ACCESS DOOR	29268608
13	1	SOCKET COVER PLATE	29268610
14	4	SCREW F TORX M4X6 STAINLESS STEEL	22008388
15	1	SERRATED LOCKWASHER SIZE 5 STAINLESS STEEL	29210038
16	1	LOCKING WASHER D6	29015744
17	5	SCREW TBHC M3X6 STAINLESS STEEL	29015868
18	1	ROLL SUPPORT MANDREL PIN	29016617
19	1	ROLL SUPPORT D=76	29016752
20*	**1**	**CABLE CPU COM WEIGHT**	**29220040**
21	1	STRUT	29268612
22	1	UNICOR MOTHERBOARD	29223106
23*	**1**	**CONNECTOR BOARD**	**22005437**
24	5	SCREW TBHC M4X8 STAINLESS STEEL	29016392
25	1	SCREW TBHC M5X12 STAINLESS STEEL	29016400
26*	**1**	**KEYPAD / CPU CABLE**	**29223101**
27	2	FRICTION WASHER	29015503
28	8	TORX SCREW M4x8	22001568
29	1	SOCKET COVER	29268617
30	2	SCREW C M3x4 STAINLESS STEEL	00076110
32	6	SERRATED LOCKWASHER SIZE 4	00206235
33	1	EARTH CABLE	29223104
34	1	ROTATION BRACKET	29268607
35	1	MAINS CORD	00505784
36	1	DISC MAGNET m1219-4	29210033
37*	**1**	**DISPLAY / CPU CABLE**	**29220038**
38*	**2**	**TORX SCREW M3x4**	**22006134**
40	1	SOCKET COVER	00206286
41	1	RUBBER FOOT	00200068
43	1	FLAT CABLE FERRITE	29220048
44	0,02	DOUBLE SIDED TAPE width 12 mm	29014225
45	1	SEALING PLATE	29268599
46	1	SEALING STICKER	00203808
47	1	IDENTIFICATION PLATE	22006759
48	1	SCREW FHC M4x10 STEEL	22003002

3.4 Equipped motherboard (29223106)

ECHELLE 0.400

32 MB (22006190)
64 MB (22006191)
128 MB (22006192)

2 *

4 *

1 *

3 *

64 MB RAM (22007263)
128 MB RAM (22006195)
256 MB RAM (22007388)
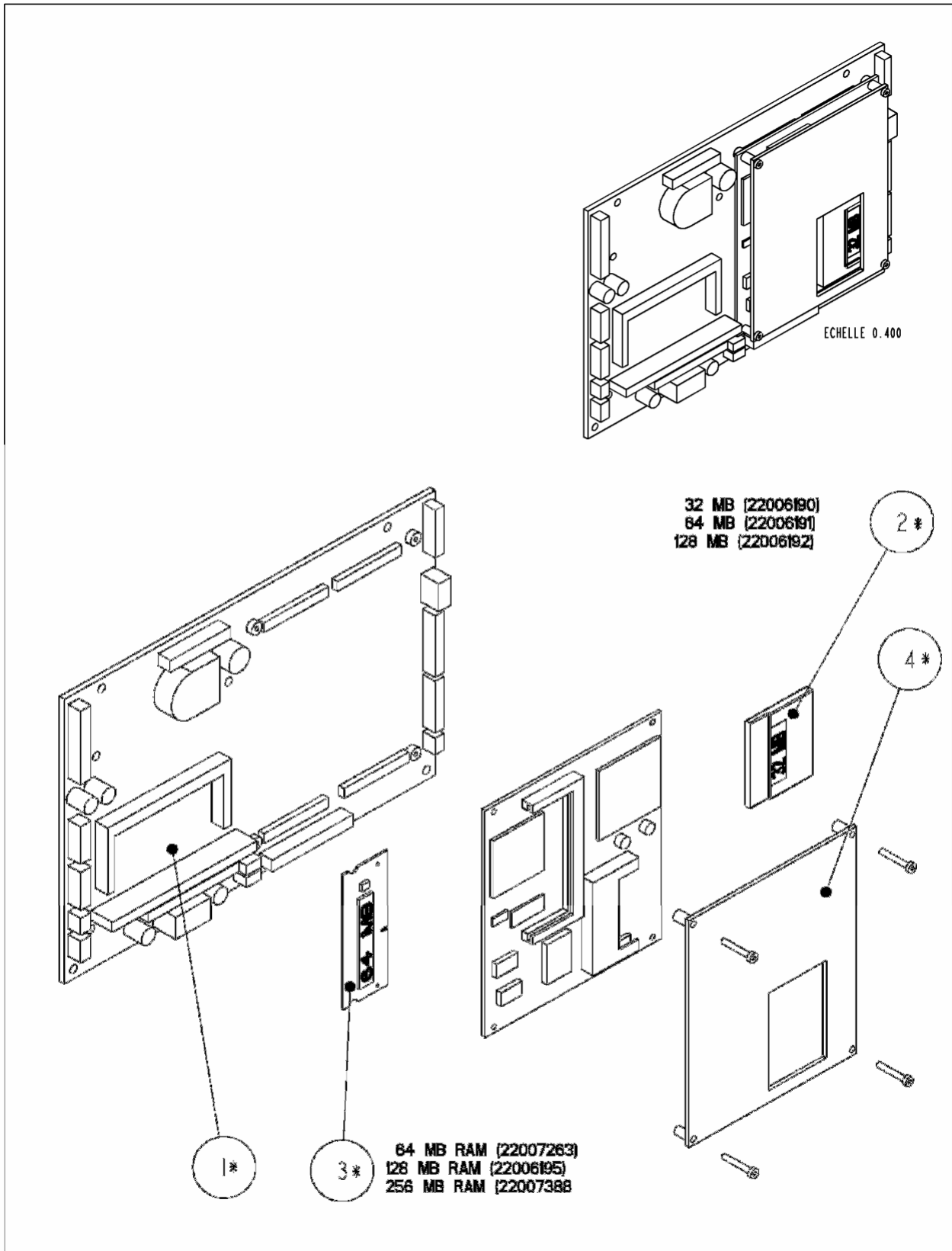
EPEC	DESSINE: DRAWN BY:	DATE:	DESIGNATION: CARTE MERE EQUIPEE					
	FERRE	LE: 17/03/03						
METTLER TOLEDO	MODELE: Et.2300/2400-GI-GCI	REVISIONS	Ø	A	B	C	PLAN N° 29223106	1/2

List of motherboard components

No.	Qty	Designation	MTCIMF reference
1*	1	PCU-UBASE CPU BOARD	22005434
2*	1	COMPACT FLASH 32 MB	22006190
3*	1	RAM / SIMM 64 MB BOARD	22007263
4*	1	ETX GEODE 266 EXPANSION BOARD	22007444

3.5 Board support plate (29268584) assembly
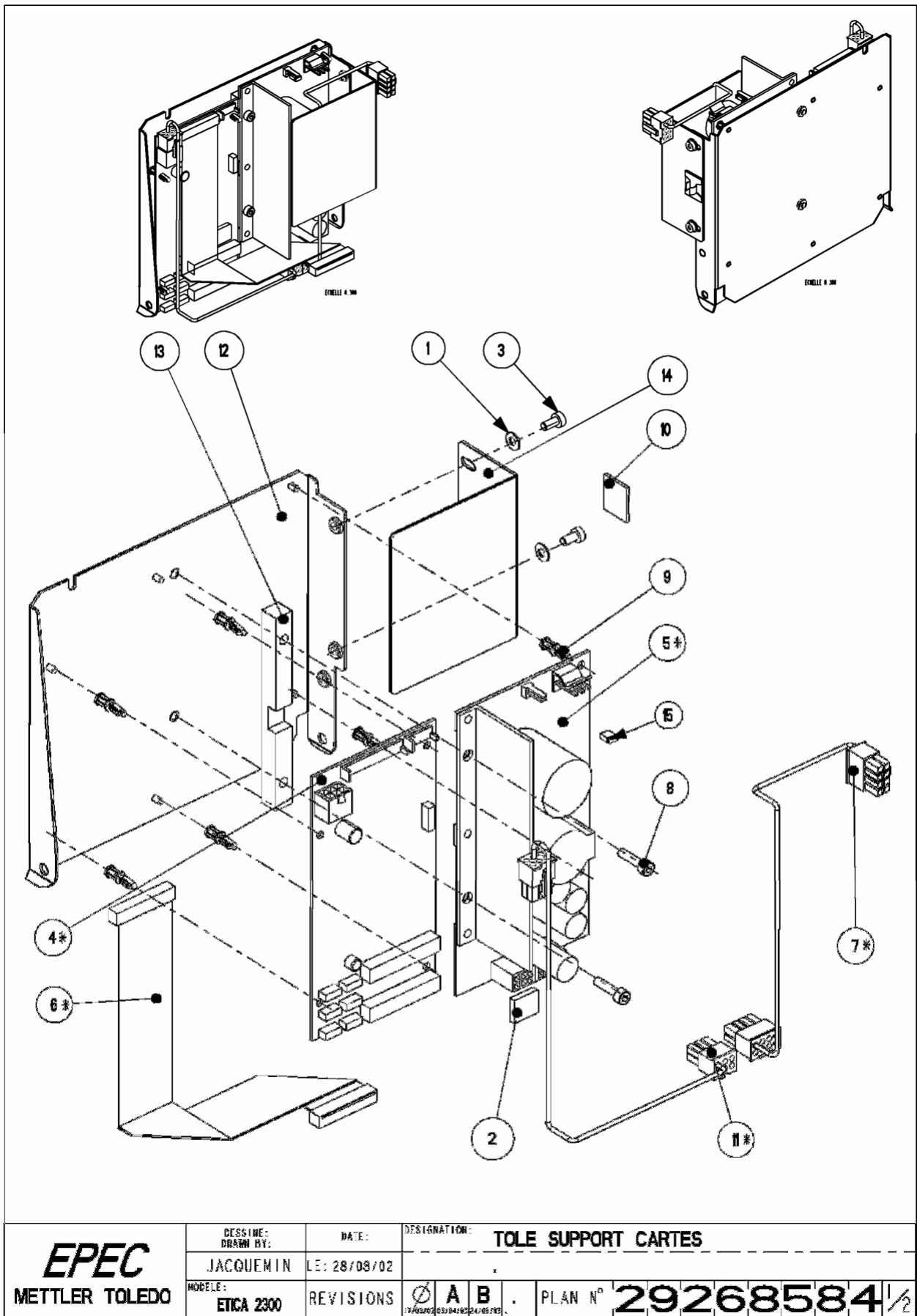
List of support plate assembly spare parts

No.	Qty	Designation	MTCIMF reference
1	2	WASHER D4 STAINLESS STEEL	00206128
2	1	BLANK EPROM	00506241
2	1	PROGRAM	22007442
3	2	TORX SCREW M4x8	22001568
4*	**1**	**PRINTER BOARD**	**22005076**
5*	**1**	**POWER SUPPLY BOARD**	**22006145**
6*	**1**	**CPU / PRINTER CABLE**	**22006215**
7*	**1**	**POWER SUPPLY / CPU CABLE**	**22006218**
8	2	SCREW CHC M4x16 STAINLESS STEEL	29014197
9	6	SERIES 100 2 CIRCUIT SUPPORT	29210021
10	1	CABLE TIE D10	29210040
11*	**1**	**POWER SUPPLY / PRINTER CABLE**	**29223103**
12	1	BOARD SUPPORT PLATE	29268609
13	1	POWER SUPPLY BOARD HEAT SINK	29268614
14	1	POWER SUPPLY BOARD SCREENING PLATE	29268615
15	1	JUMPER PITCH 2.54	29024888

3.6 Printer / rewinder plate (29268585*) sub-assembly
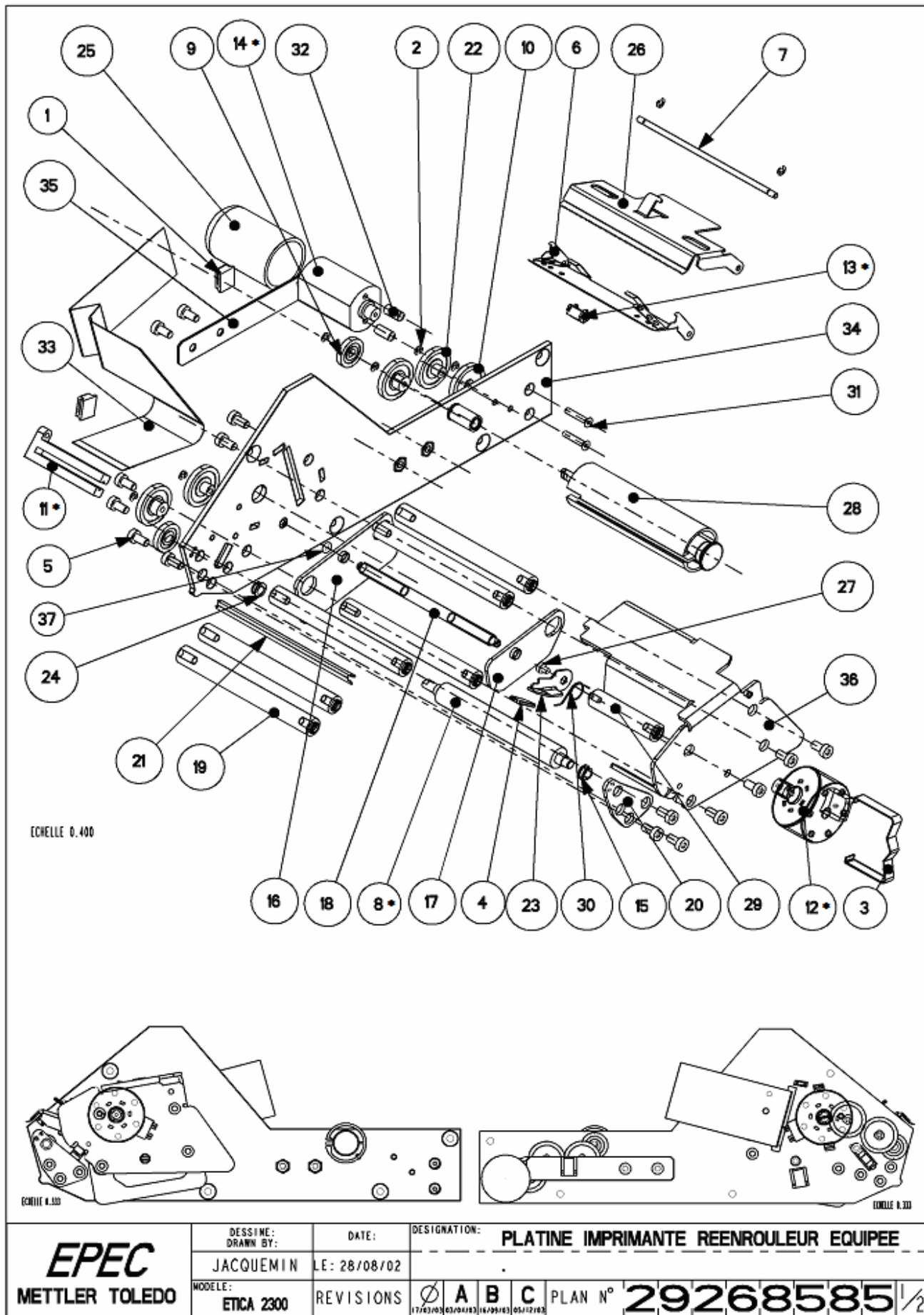
ECHELLE 0.400

EPEC	DESSINE: DRAWN BY: JACQUEMIN	DATE: LE: 28/08/02	DESIGNATION: PLATINE IMPRIMANTE REENROULEUR EQUIPEE
METTLER TOLEDO	MODELE: ETICA 2300	REVISIONS	.

REVISIONS Ø A B C   PLAN N° **29268585** ½

List of printer / rewinder plate (29268585*) sub-assembly parts

No.	Qty	Designation	MTCIMF reference
1	2	CABLE TIE	00202076
2	8	CIRCLIP D =2.5	00206104
3	1	PRINTER MOTOR CLAMP	00209043
4	1	LEVER GUARD	00209829
5	15	TORX SCREW M4x8	22001568
6	1	HEAD SUPPORT SPRING	22006053
7	1	HEAD PIN	22006055
8*	**1**	**ROLL**	**22006057**
9	2	REWINDER PINION	22006058
10	3	PINION 19/55	22006059
11*	**1**	**PAPER CELL**	**22006060**
12*	**1**	**PAPER MOTOR**	**22006061**
13*	**1**	**LABEL PRESENCE CELL**	**22006063**
14*	**1**	**REWINDER MOTOR**	**22006064**
15	1	SLIDE BEARING	22006066
16	1	REAR PAPER GUIDE	22006067
17	1	FRONT PAPER GUIDE	22006068
18	1	PAPER GUIDE SETTING SCREW	22006069
19	6	ATTACHMENT PIN	22006070
20	1	ROLL SUPPORT PLATE	22006071
21	1	LABEL KNIFE	22006073
22	2	PINION 2 Z=55	22006074
23	1	HEAD SUPPORT LEVER	22006079
24	1	SLIDE BEARING	22006088
25	1	MOTOR GUARD	22006093
26	1	THERMAL HEAD SUPPORT	22006129
27	1	TORX SCREW M3x4	22006134
28	1	REWINDER	22006136
29	1	TILTING UNIT LEVER SUPPORT	22006273
30	1	TILTING UNIT SPRING	22009301
31	2	SCREW TFHC M3x16 STAINLESS STEEL	29210025
32	2	STRUT 3 X D5 X L10	29210034
33	1	PRINTER / HEAD RIBBON CABLE	29220039
34	1	PRINTER PLATE	29268581
35	1	CABLE PROTECTIVE PLATE	29268616
36	1	PRINTER HOUSING	29268620

List of printer / rewinder plate (29268585*) sub-assembly parts

3.7 Monochrome display plate (29268586)
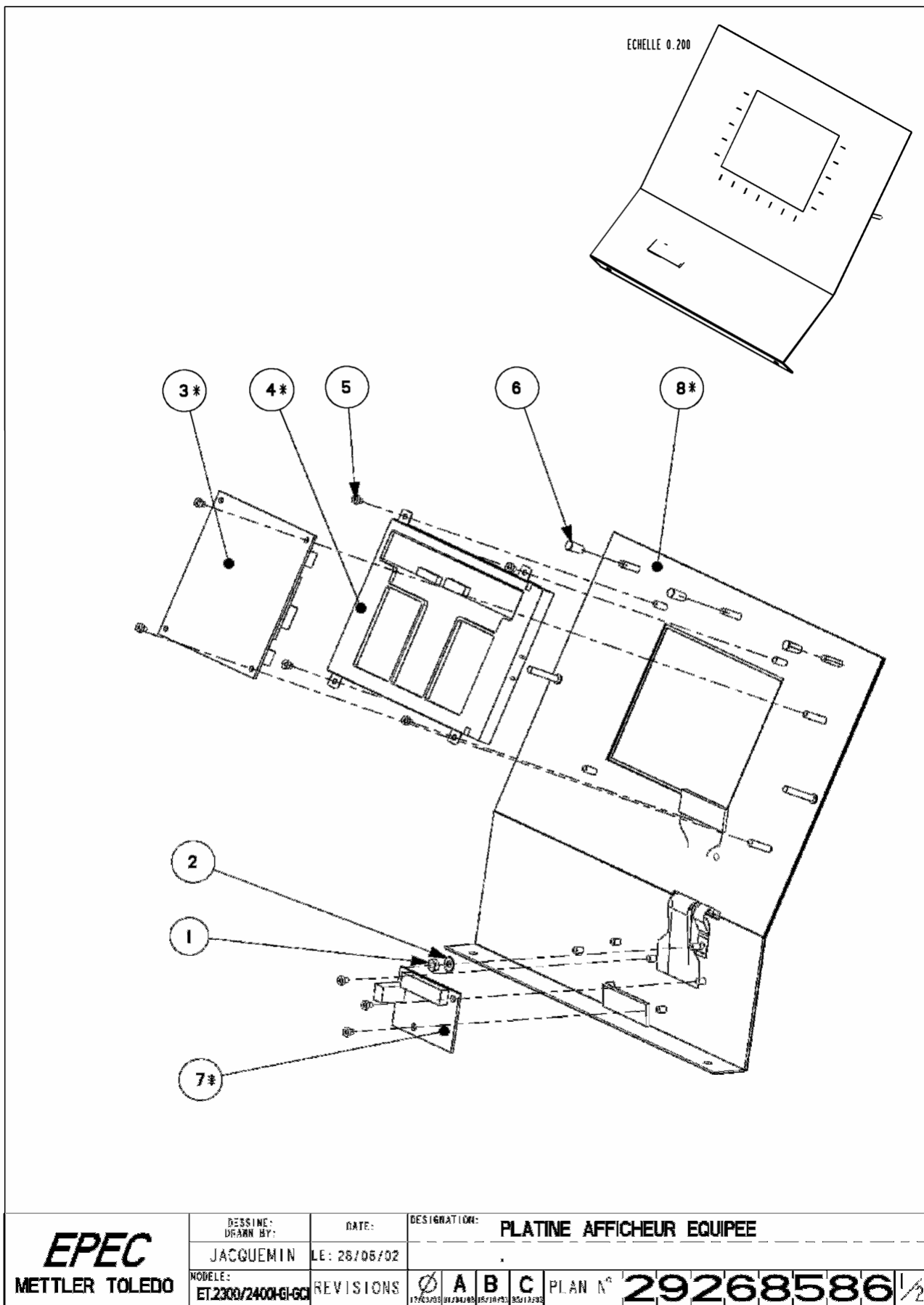
List of monochrome display plate (29268586) sub-assembly parts

No.	Qty	Designation	MTCIMF reference
1	1	NUT HUM4 STAINLESS STEEL	00076498
2	1	WASHER 4.3x9x0.8 STAINLESS STEEL A4	00206128
3*	**1**	**MONOCHROME DISPLAY CIRCUIT**	**22005401**
4*	**1**	**MONOCHROME DISPLAY HLM8620**	**22006050**
5	9	TORX SCREW DIN7500 M3x4	22006134
6	3	SNAP CAP	29210024
7*	**1**	**KEYPAD BOARD**	**29223091**
8*	**1**	**ASSEMBLED KEYPAD/PLATE**	**29268597**

3.8 Equipped colour display plate (29268590)
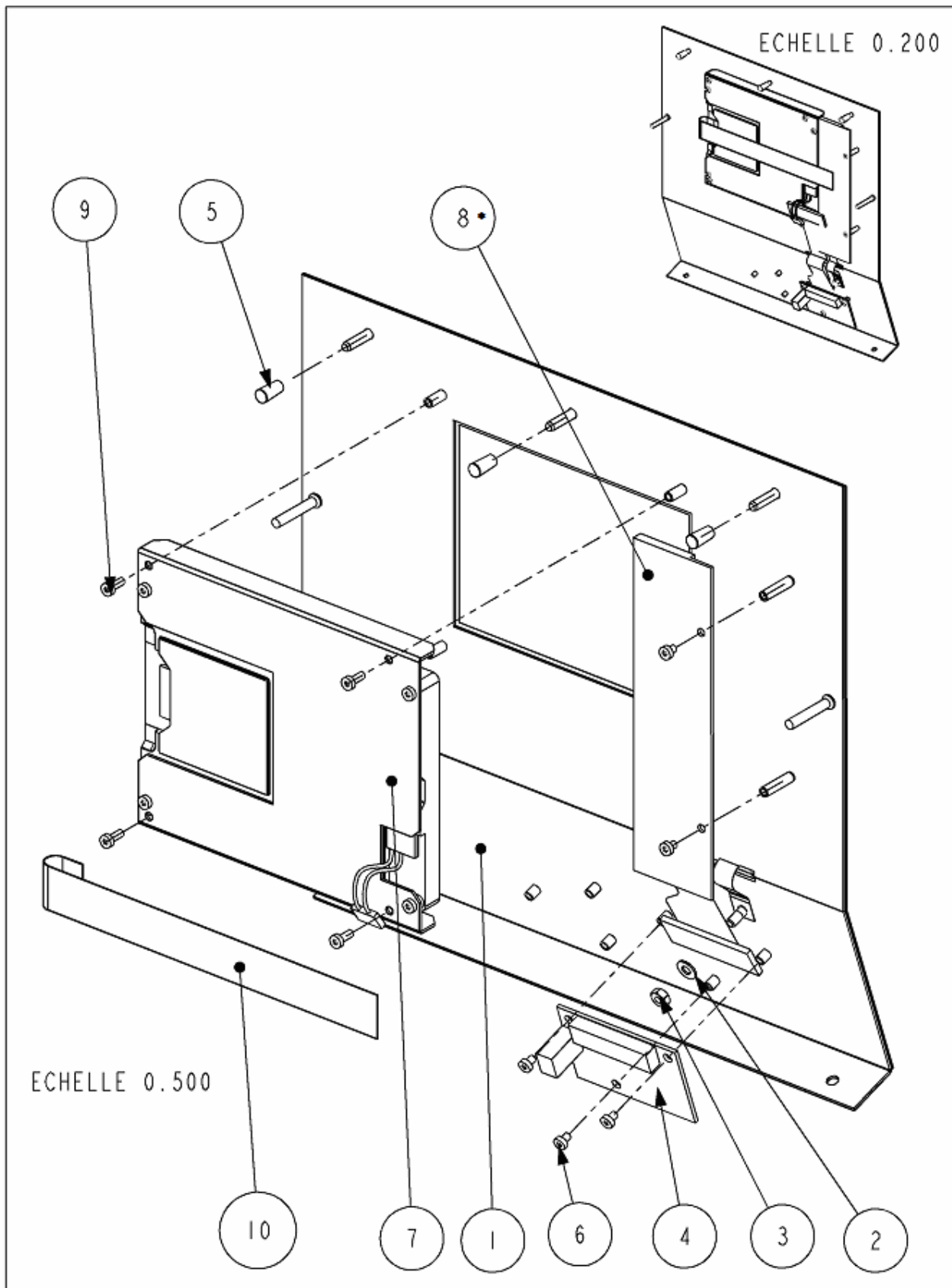
ECHELLE 0.200

ECHELLE 0.500

EPEC	DESSINE: DRAWN BY:	DATE:	DESIGNATION:	PLATINE AFFICHEUR COULEUR EQUIPEE
METTLER TOLEDO	V.BARBOSA	LE: 14/01/04		.
	MODELE: ET 2300	REVISIONS	Ø . . .	PLAN N° 29268590 ½

List of equipped colour display plate (29268590) sub-assembly parts

No.	Qty	Designation	MTCIMF reference
1	1	ASSEMBLED KEYPAD/PLATE	29268597
2	1	WASHER 4 3X9X0 8 A4	00206128
3	1	NUT HUM4 STAINLESS STEEL	00076498
4	1	KEYPAD INTERFACE BOARD	29223091
5	3	SNAP CAP	22006134
6	5	SCREW CZXM3X4	22006134
7	1	AQ COLOUR DISP SUPP	29268589
8*	**1**	**COLOUR TFT INTERFACE**	**29223211**
9	4	TORX SCREW TBM3X8 STAINLESS STEEL	29210129
10	1	33 PIN RIBBON CABLE	29220062

3.9 Colour display plate (29268589 continued)

ECHELLE 1.000

2ᵛ   3   1

EPEC METTLER TOLEDO	DESSINE: DRAWN BY: V.BARBOSA	DATE: LE: 14/01/04	DESIGNATION: SUPPORT AFFICHEUR COULEUR EQUIPE	
MODELE: ET 2300	REVISIONS	Ø . . .	PLAN N° 29268589 ½	
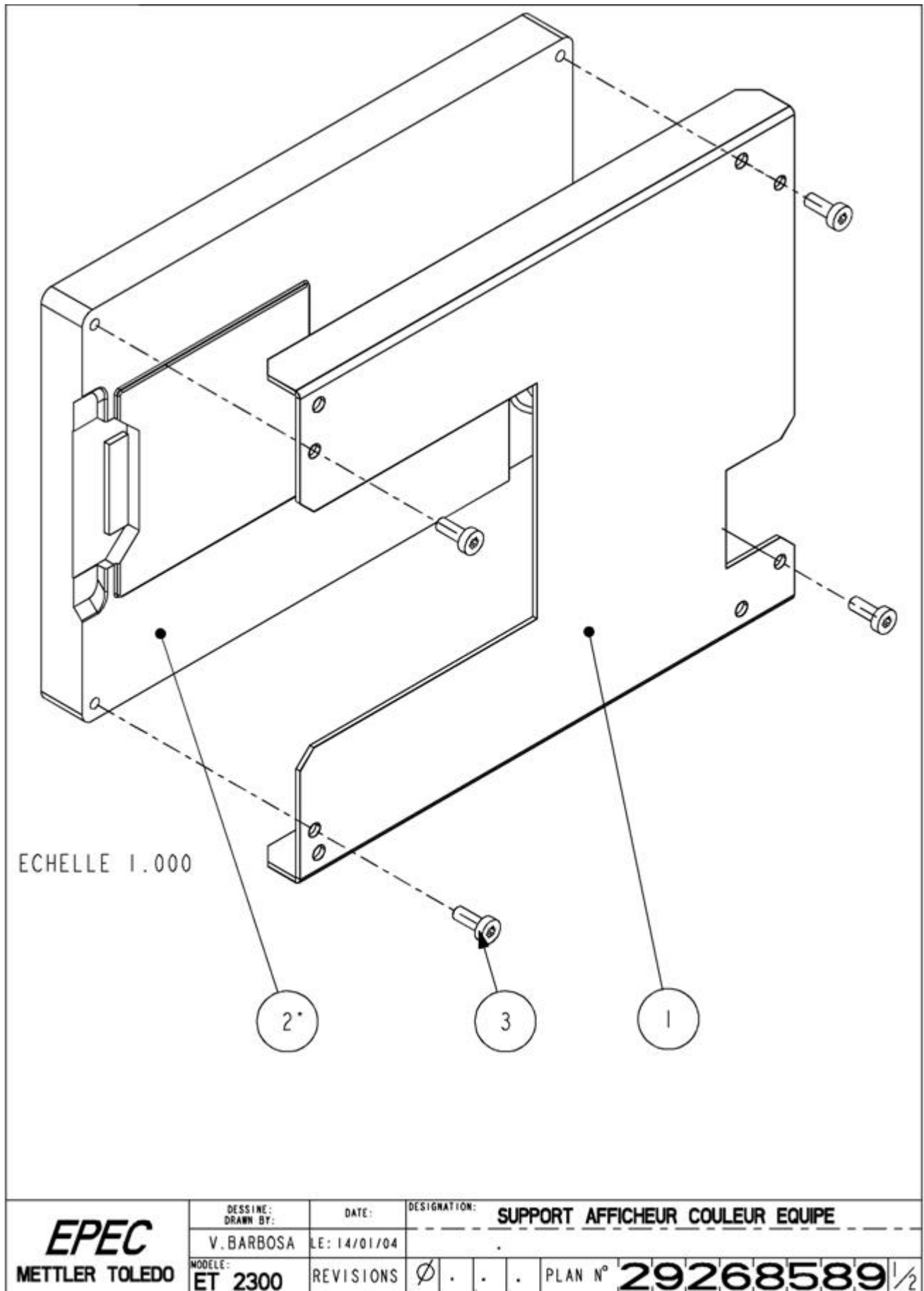
List of colour display plate sub-assembly parts (continued)

No.	Qty	Designation	MTCIMF reference
1	1	COLOUR DISP SUPP PLATE	29268629
2*	**1**	**SHARP DISPLAY LQ057Q3DC02**	**29220058**
3	4	TORX SCREW DIN 7500C M3X6 STAINLESS STEEL	29210131

3.10 Adjustable foot 110 mm (29268587**)

ECHELLE 0.200

ECHELLE 0.400
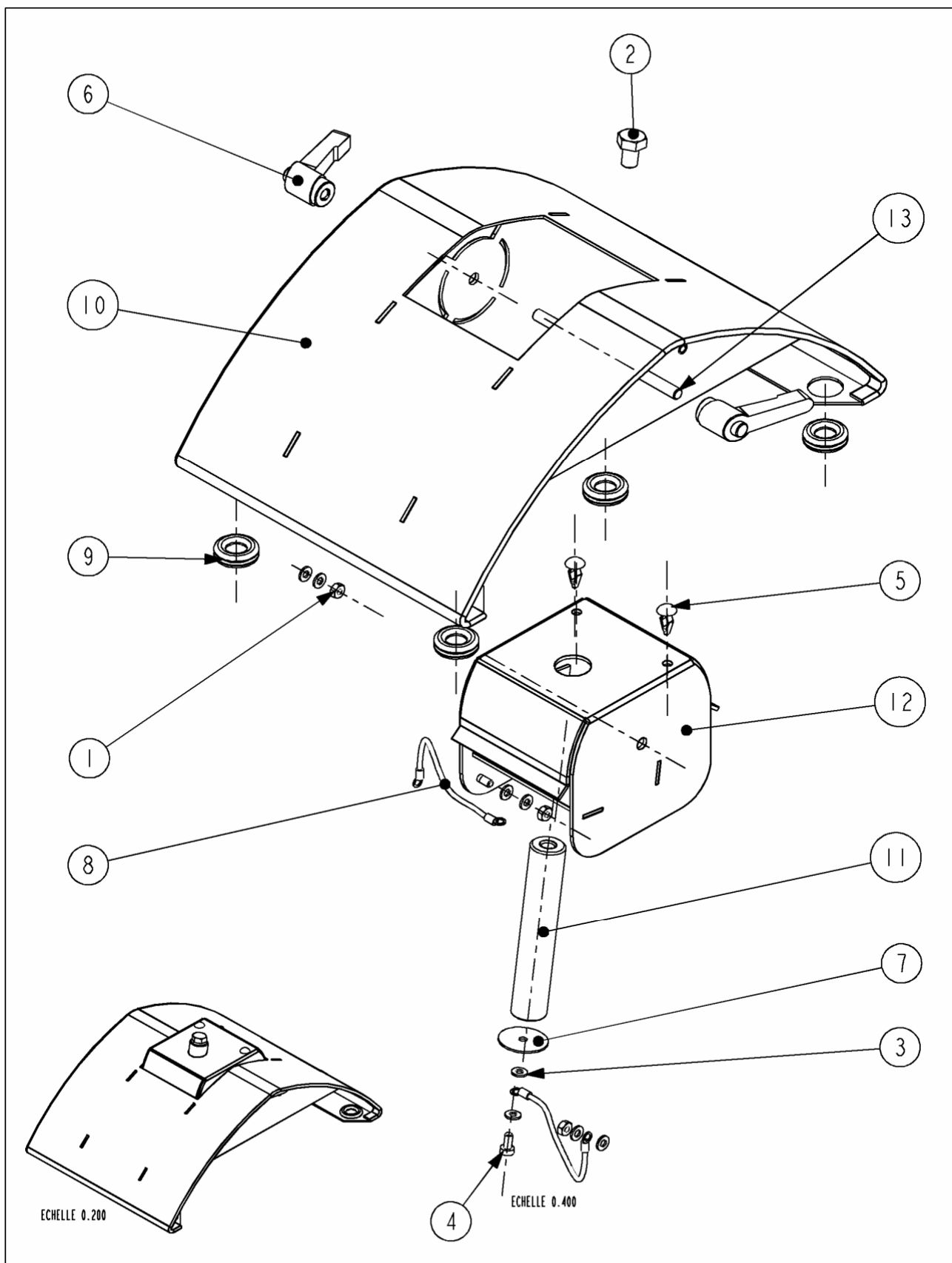
	DESSINE: DRAWN BY:	DATE:	DESIGNATION: PIED EQUIPE					
EPEC METTLER TOLEDO	JACQUEMIN	LE: 28/08/02	.					
	MODELE: ETICA 2300	REVISIONS	Ø	A	B	C	PLAN N°	29268587 ½
			17/03/03	28/03/03	13/08/03	02/10/03		

List of adjustable foot 110 mm (29268587**) sub-assembly parts

No.	Qty	Designation	MTCIMF reference
1	3	NUT HUM4 STAINLESS STEEL	00076498
2	1	SCREW H M8X12 STAINLESS STEEL	29210092
3	8	SERRATED LOCKWASHER SIZE 4	00206235
4	1	TORX SCREW M4x8 STAINLESS STEEL	29210098
5	2	PUSH-IN CLIP	29016303
6	2	CLAMP LEVER HANDLE	29210015
7	1	FLAT WASHER 4x25x1 STAINLESS STEEL	29210041
8	2	EARTH CABLE	29223104
9	4	GROMMET	29267915
10	1	FOOT	29268582
11	1	PIVOT PIN	29268605
12	1	ROTATION PIN SUPPORT	29268611
13	1	STAINLESS STEEL THREADED ROD M6	29268613

3.11 Paper access door (29268588)
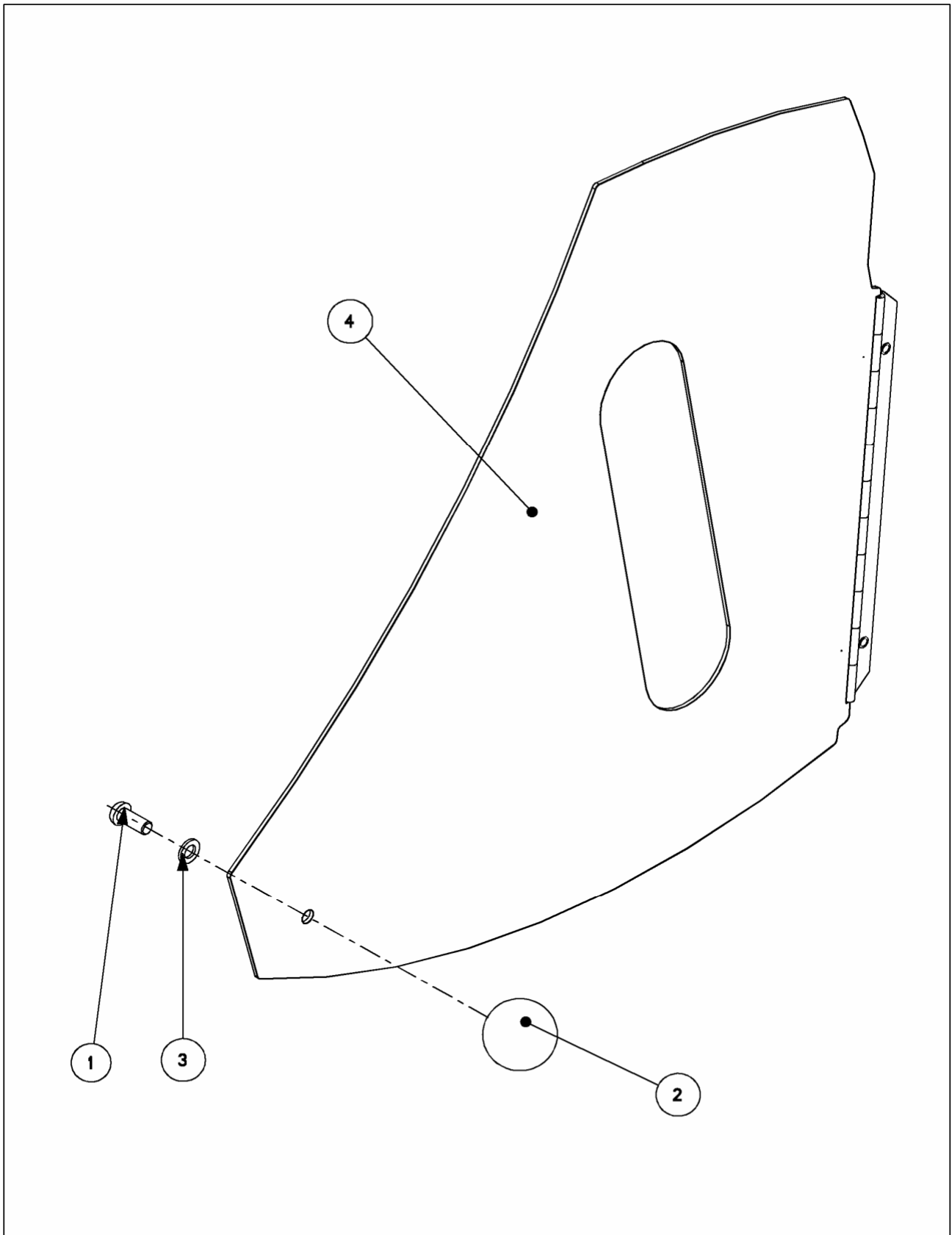
	DESSINE: DRAWN BY:	DATE:	DESIGNATION:	PORTE ACCES PAPIER EQUIPE				
EPEC METTLER TOLEDO	JACQUEMIN	LE: 02/09/02		.				
	MODELE: ETICA 2300	REVISIONS	Ø | A 17/03/03|03/04/03	. | .	PLAN N°	**29268588** ½

List of paper access door (29268588) sub-assembly parts

No.	Qty	Designation	MTCIMF reference
1	1	SCREW TBHC M5X12 STAINLESS STEEL	29016400
2	1	BALL HANDLE	29210035
3	1	SERRATED LOCKWASHER SIZE 5 STAINLESS STEEL	29210038
4	1	PAPER ACCESS DOOR	29268583

3.12 Fixed foot (29268592**)

ECHELLE 0.200

	DESSINE: DRAWN BY:	DATE:	DESIGNATION: **PIED FIXE EQUIPE**		
EPEC **METTLER TOLEDO**	FERRE	LE: 17/03/03	.		
	MODELE: **ETICA 2300**	REVISIONS	∅	**A**	**B**	.	PLAN N° **29268592** ½

List of Fixed foot (29268592**) sub-assembly parts

No.	Qty	Designation	MTCIMF reference
1	2	SCREW H M8X12 STAINLESS STEEL	29210092
2			
3	2	PUSH-IN CLIP	29016303
4	1	BOX ATTACHMENT PIN	29267373
5	4	GROMMET	29267915
6	1	FIXED FOOT	29268606

4. DNA and WP27 Loadcell SEALING

Mettler – Toledo GmbH D-72458 Albstadt Made in Germany			
TYPE	TD 27	12	**VDC**
SERIE N°			**Hz**
ANNEE		0,15	**A**
CERTIF N°	**L.N.E N°**		
MATERIEL CONFORME AU CODE DU TRAVAIL			

Vignette autocollante
autodestructible

OU

Vis de scellement avec
coupelle et plomb insculpé

4.1 WP27DS BASE

SCELLEMENT (4)

ECHELLE 0.250
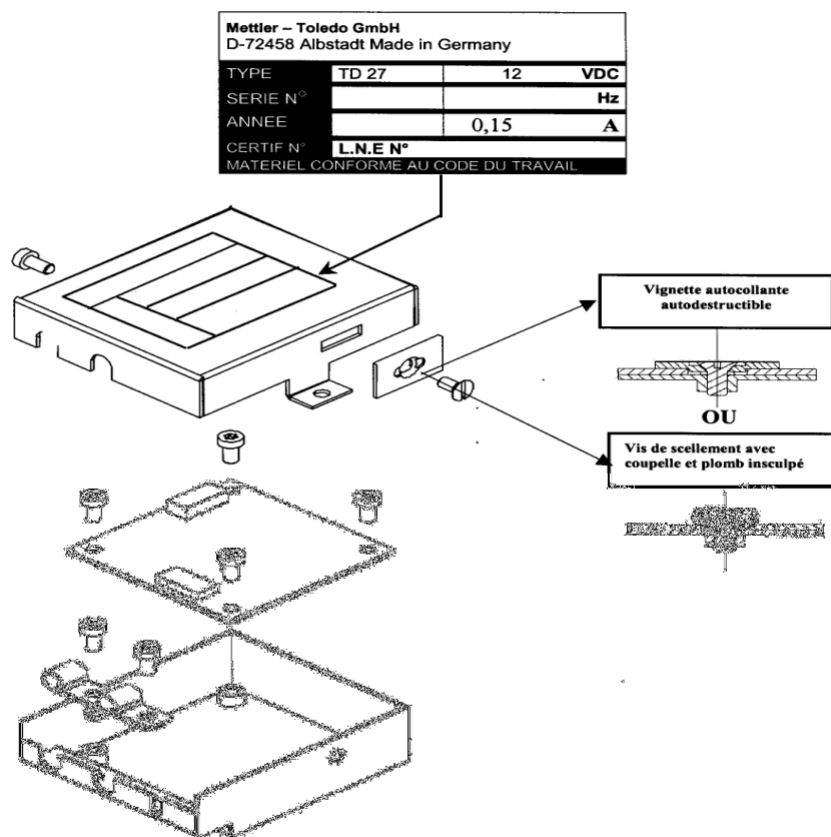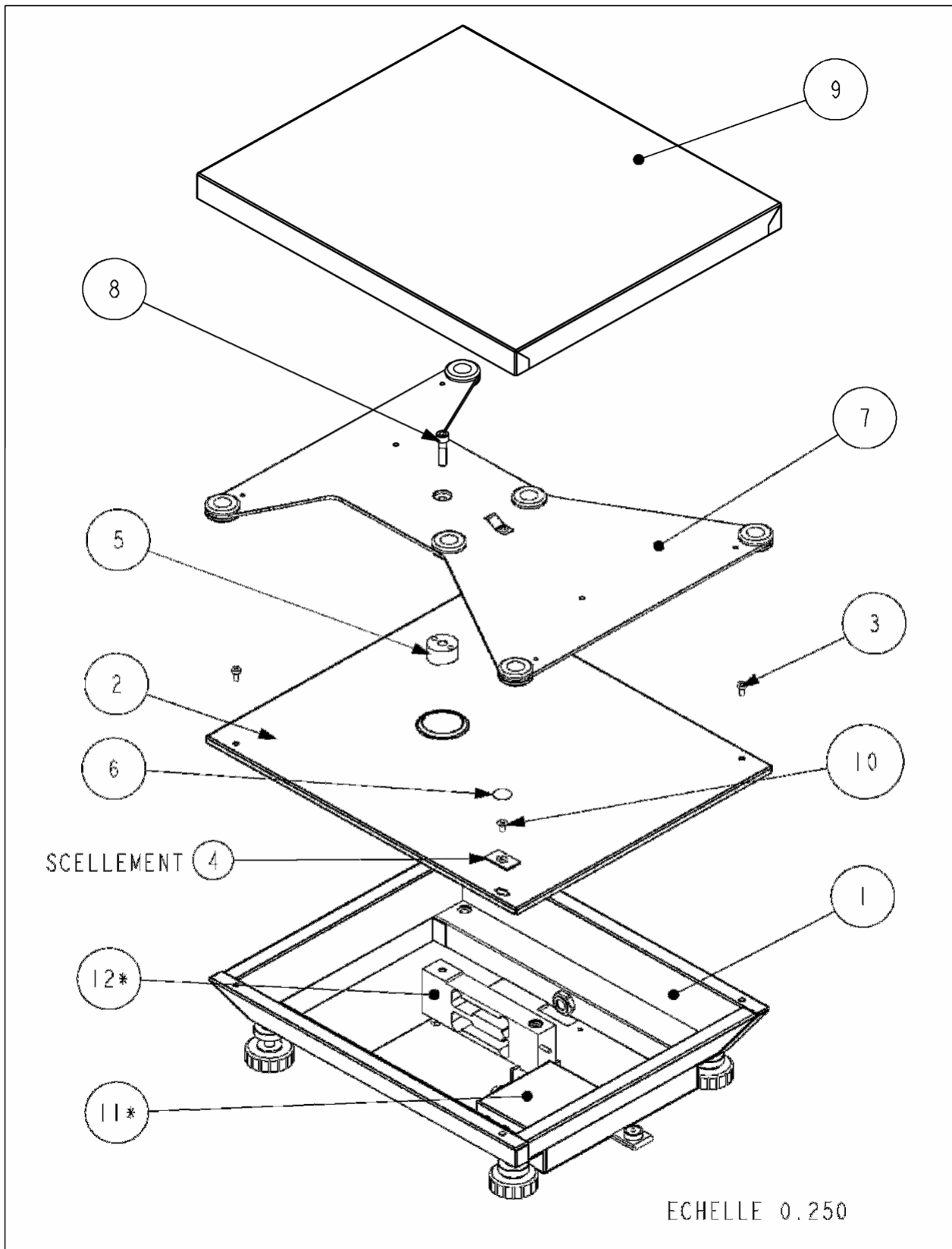
EPEC	DESSINE: DRAWN BY:	DATE:	DESIGNATION:	BASE POIDS WP27	
	V.BARBOSA	LE: 23/09/03		.	
METTLER TOLEDO	MODELE: WP27	REVISIONS	Ø	A	PLAN N° 29267960 ½

List of WP27DS base sub-assembly parts

No.	Qty	Designation	MTCIMF reference
1	1	EQUIPPED WP27 BASE TANK	29210092
2	1	WEIGHT BASE COVER	29267972
3	3	TORX SCREW M4X8 STAINLESS STEEL	29210098
4	1	SEALING PLATE	29267979
5	1	CELL CROSSBAR	29267978
6	1	SEALING STAMP	00203808
7	1	WP27 EQ PLATE SUPPORT	29267963
8	1	SCREW CHC M6X25 STAINLESS STEEL	29014192
9	1	WEIGHT BASE PLATE	29267977
10	1	SCREW FHC M4X8 STAINLESS STEEL	29015065
11*	**1**	**BOX TD27**	**29267990**
12*	**1**	**SENSOR ACJ 6/2 15/5**	**29018309**

4.2. IDNET BASE

IDNET sealing

Self-adhesive sticker
Self-destructive

Sealing screw

5. ELECTRONIC BLOCK DIAGRAM
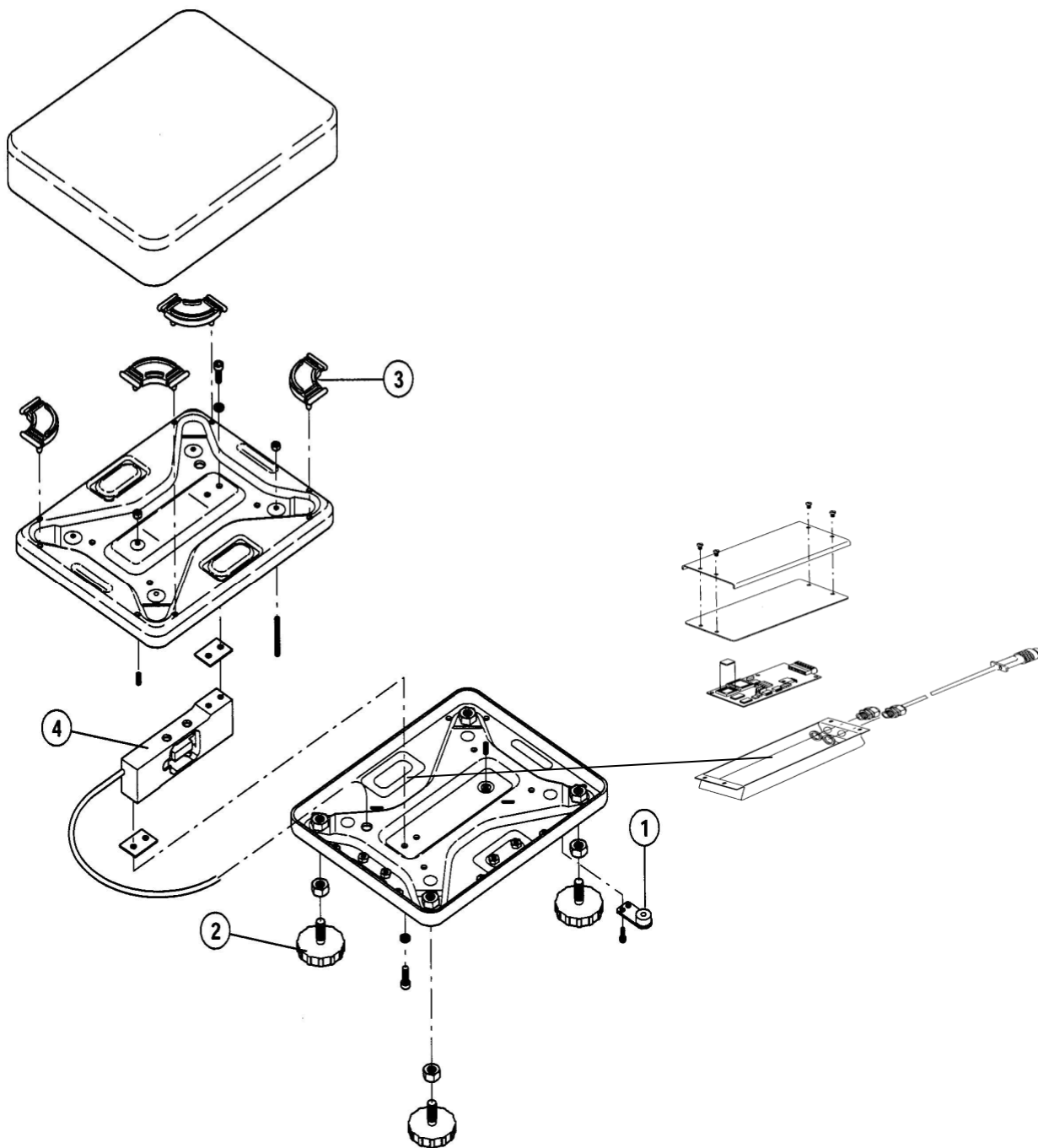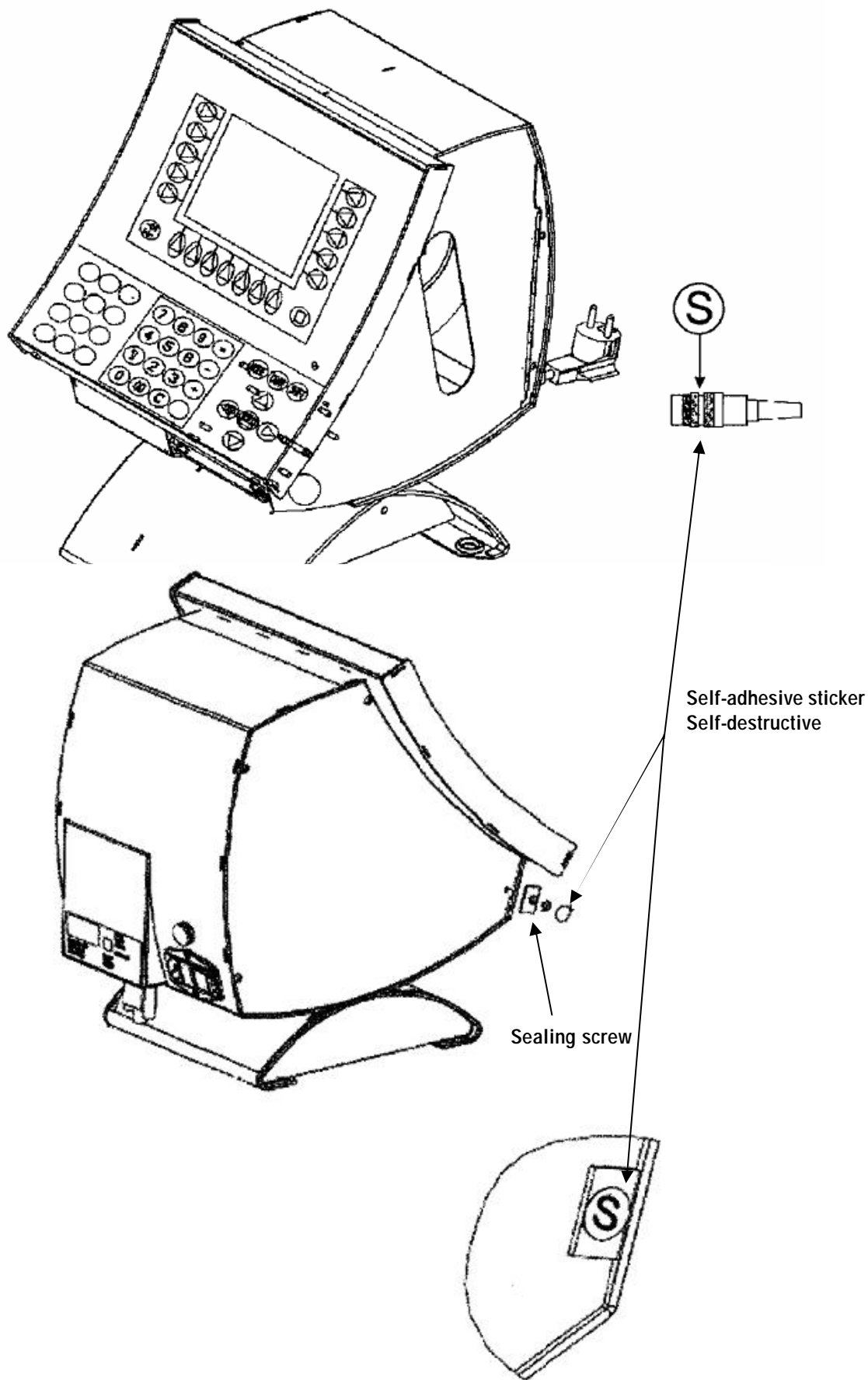
6. DIAGNOSTIC AND FAULT ANALYSIS

This chapter helps you solve any problems you may encounter with the Etica2300 unit during installation or use.

Before you can use the *Etica2300* unit, it must first start.

You will only be able to see whether the *Etica2300* unit is operating correctly after it has started.

On start-up, all the components are supplied with electricity so that they can perform a series of test procedures before the operating system is loaded.

Errors may occur during these procedures, preventing the unit from operating.

In this case, the most difficult part is the diagnostic: what is preventing the unit from starting?

The error can usually be corrected very simply if it has been diagnosed correctly.

Start with the Check-list below to check the main points. This will allow you to detect an error before any damage occurs.

There are two possible cases:

The unit does not come on at all:

Check-list

- Check 1: Remove the power supply cable from the unit and check again that the mains CABLE and the fuse F1 6.3A/250V are correctly fitted.
- Check 2: Is the jumper on connector **X2** fitted between pins 1 and 2? (X2)
- Check 3: Is the **Compact Flash** memory board locked in its connector? (ETX-MGX 266)
- Check 4: Check all the ribbon cables including those of the power supply and the hard disk (if present) (See flowcharts appended).

The unit comes on but nothing appears on screen:

Whenever you switch on the unit, LED **D90** is permanently lit.
It indicates that the processor of the JUMPtec ETX CPU for PC embedded computer board is running the boot program contained in the BIOS. This program sets the default parameters, it initialises all the components and puts all the components in a particular mode.

If these sequences are not carried out, LED D90 flashes three times per second:
- Check the state of the JUMPtec ETX CPU for PC embedded computer board.
- Reload the BIOS boot software on the Compact-Flash board or the hard disk.
- Reinstall the system application.

6.1 Nothing happens on start-up

When the *Etica2300* is switched on nothing happens. The usual start-up message "Starting, please wait" is not displayed. No LED lit,

After switching on nothing happens

Yes → **Is the power supply faulty?**

Yes →
- Check the 230 V power supply
- Check its voltage
- The fuse F1 6.3Amp
- **Change the power supply**

No ↓

Are the power supply cables causing a short circuit Or break?

Yes →
- Check the position with an Ohmmeter
- Check the motherboard power supply and power supply lead
- (change the mains lead)

No ↓

Is the ETX JUMPtec board defective?

Yes →
- Check that the ETX board is inserted properly
- Check the STX1 and STX4 support pins.

No ↓

Is the Flash memory card defective?
(Compact Flash card)

Yes →
- Check the Flash memory card on its connector
- Is the support in good condition?

No ↓

Short circuit between Neutral or Phase of the mains and the electrical ground.

Yes →
- Check the circuit-breaker
- Reset the circuit-breaker
- Are the drives connected to ground?

No ↓

Change the motherboard
PCB-BASE(2005434)

6.2 No weighing management:

When switched on the unit displays the error message "scale communication" "Starting … Please wait"

Yes →

Is the power supply of the IDNET board defective?

Yes →
- Check the power supply
- Check its voltage
- **Change the power supply**

No ↓

Is the connection cable with the weighing bases at fault?

Yes →
- Check the continuities
- **Change the weighing base lead (29223166)**

No ↓

Is the communication part faulty?

Yes →
- Check the connection of the Load-cell connector (KU60)
- **Change the Ubase / weight Communication lead (29220040)**

No ↓

Is the choice of communication port correct?

Yes →
- Check the communication parameters
- **COM1 (TXD2 and RXD2)**

No ↓

Change the IDNET base

6.3 Printing problems

When switched on the unit does not display anything unusual,
But it is impossible to print a ticket

Yes → Is the power supply of the printer board defective?

Yes →
- Check the power supply
- Check the voltages +5 V and +24 Volts
- **Change the power supply board**

No ↓

Is the connection cable with the UBASE and PCB ULP3-C at fault?

Yes →
- Check the continuities
- **Change the UBASE/PRINTER lead (29223148)**

No ↓

Are the application and the code data loaded in the two Flash memories?

Yes →
- Check IC11 (AM29F040) (Flash Present)
- **Check IC13 (AM29F040) Not present**

No ↓

Are LEDs D20 and D21 printer PCB lit for 1second and 5 seconds?
Does D20 stay lit permanently after display of zero? .

Yes →
- Check the UBASE/POWER SUPPLY ribbon cable (29223147)

No ↓

Change the printer PCB board (29223191)

7. REPLACEMENTS

Before opening the box and before handling the electronic components, cables, switches, etc., unplug the power cables from the power outlets..

Note that certain components, in particular the power supply unit, remain charged with electricity for a certain time, even after the unit has been unplugged.

Before you touch an electronic component, you must discharge the static electricity from your body. To do this, touch something metallic connected to earth.

<u>**Organising the dismantling and reassembly**</u>

Carefully draw up the list of all the components and peripherals that you will need and check, point by point, that everything is there.

<u>**Check-lists:**</u>

Equipment needed:

- A flat screwdriver, width 2-2.5 mm
- A No. 10 Torx spanner
- A No. 20 Torx spanner
- A No. 2 Allen key
- A No. 2.5 Allen key
- A No. 3 Allen key
- A No. 6 Allen key
- A No. 7 open ended spanner
- A Compact Flash card loaded with the latest *ETICA2300* **program version.**

7.1 Replacing the PCB UBASE (22005434) board

Dismantling: see drawing 29268560 page 14

- Switch off the unit, unplug the mains plug
-Turn the unit to the left
- Unscrew the four screws TBHC M 4X8 **(24)** holding the electronic access door **(14),** with a No. 2.5 Allen key
- Remove the access door **(14)**
- Unscrew the Torx screw M4 x8 **(28)** on the strut **(21)** holding the POWER SUPPLY/PRINTER board support plate **(7 29268584)**, with a No. 20 Torx spanner
- Swing the power supply/printer board support sub-assembly **(7)** downwards

⚠️ *Caution: carefully unplug the connectors, labelling them (display, keypad, power supply, printer, scale, communication, etc.*

- Unscrew the four Torx screws M4x8 **(28)** holding the PCB UBASE board **(22),** with a No. 20 Torx spanner
- Remove the PCB UBASE board **(22)**
- Unscrew the four screws holding the boards: **ETX expansion board (4)**, compact Flash card **(2)** and RAM / SIM 64 Mb board **(3)** (drawing **29223106)**, with a flat screwdriver, width 2
- Remove the EXT expansion board (4) from the PCB-UBASE board

Assembly:

- Put back the boards: **ETX expansion board (4)**, compact Flash card **(2)** and RAM / SIM 64 MB board **(3)** (drawing **29223106)**, on the new PCB UBASE boards **(22)**
- Tighten the four screws holding the boards: ETX expansion board **(4),** compact Flash card **(2)** and RAM / SIM 64 MB board **(3)** (drawing **29223106)**, with a flat screwdriver, width 2

- Fit the new CPU board **[(22) 22005434]**.
- Tighten the four Torx screws M4x8 **(28),** with a No. 20 Torx spanner

⚠️ **Caution**: carefully plug in the connectors, respecting the plugging direction: display, keypad, power supply, printer, scales, communication, etc.

- Swing the power supply/printer board support sub-assembly **(7)** upwards
- Tighten the Torx screw M4x8 **(28)** on the strut **(21)** with a No. 20 Torx spanner

- Plug in the mains connector
- Test for correct operation
- Put back the access door **(14)**
- Tighten the four screws TBHC M 4X8 **(24)** holding the electronic access door **(14),** with a No. 2.5 Allen key
-Turn the unit to the right

7.2 Replacing the power supply board (22006145)

Dismantling: see drawings 29268560 and 29268584, pages 14 and 18

- Switch off the unit, unplug the mains plug
- Turn the unit to the left
- Unscrew the four screws TBHC M 4X8 **(24)** holding the electronic access door **(14)**, with a No. 2.5 Allen key
- Remove the access door **(14)**
- Unscrew the Torx screw M4 x8 **(28)** on the strut **(21)** holding the POWER SUPPLY/PRINTER board support plate **(7 29268584)**, with a No. 20 Torx spanner
- Swing the power supply/printer board support sub-assembly **(7)** downwards
- Unscrew the two Torx screws M4x8 (**3** drawing 29268584), with a No. 20 Torx spanner
- Remove the power supply board screening plate (**14** drawing 29268584.)

- Unplug:
  - The Power/Switcher mains CABLE **(21 drawing 29223100)**
  - the Power UBASE CABLE **(4 drawing 29223100)**
  - The Power/PCB Printer CABLE **(14 drawing 29223100)**

- Unscrew the two CHC M4x16 STAINLESS STEEL screws (**8** see drawing 29268584), with a No. 3 Allen key.

⚠ **Caution: retrieve the power supply heat sink (13 drawing 29268584)**

Remove the power supply board (**5** code 22006145)

Assembly:

- Fit the power supply heat sink **(13)**
- Fit the new power supply board **(5)**.
- Tighten the two CHC M4x16 STAINLESS STEEL screws (**8** see drawing 29268584), with a No. 3 Allen key.

- Plug in:
  - The Power/Switcher mains CABLE (21 drawing 29223100)
  - the Power UBASE CABLE (4 drawing 29223100)
  - The Power/PCB Printer CABLE (14 drawing 29223100)

- Fit the power supply board screening plate (**14** drawing 29268584.)
- Tighten the two Torx screws M4x8 (**3** drawing 29268584), with a No. 20 Torx spanner
- Swing the power supply/printer board support sub-assembly **(7)** upwards
- Tighten the Torx screw M4 x8 **(28)** on the strut **(21)** holding the POWER SUPPLY/PRINTER board support plate (7 29268584), with a No. 20 Torx spanner

- Plug in the mains connector
- Test for correct operation
- Put back the access door **(14)**
- Tighten the four screws TBHC M 4X8 **(24)** holding the electronic access door **(14)**, with a No. 2.5 Allen key
- Turn the unit to the right

⚠ **Caution: do not forget to put back the strap on connector X2**

7.3 Replacing the PCB-ULP3-C board (22005076)

Dismantling: see drawings 29268560 and 29268584, pages 14 and 18

- Switch off the unit, unplug the mains plug
-Turn the unit to the left
- Unscrew the four screws TBHC M 4X8 **(24)** holding the electronic access door **(14)**, with a No. 2.5 Allen key
- Remove the access door **(14)**
- Unscrew the Torx screw M4x8 **(28)** on the strut **(21)** holding the POWER SUPPLY/PRINTER board support plate **(7 29268584)**, with a No. 20 Torx spanner
- Swing the power supply/printer board support sub-assembly **(7)** downwards

- Unplug:
   - The Power–PCB Printer CABLE **(14)**
   - The UBASE- PCB Printer CABLE **(13)**
   - the PCB Printer-Thermal Head CABLE **(17)**
   - The sensor detection CABLEs
   - The DC motor CABLEs

- Remove the PCB Printer ULP board **(4)**

Assembly:

- Fit the new PCB Printer ULP board **(4)**

- Plug in:
   - The Power–PCB Printer CABLE **(14)**
   - The UBASE- PCB Printer CABLE **(13)**
   - the PCB Printer-Thermal Head CABLE **(17)**
   - The sensor detection CABLEs
   - The DC motor CABLEs

- Swing the power supply/printer board support sub-assembly **(7)** upwards
- Tighten the Torx screw M4 x8 **(28)** on the strut **(21)** holding the POWER SUPPLY/PRINTER board support plate **(7 29268584)**, with a No. 20 Torx spanner

- Plug in the mains connector
- Test for correct operation
- Put back the access door **(14)**
- Tighten the four screws TBHC M 4X8 **(24)** holding the electronic access door **(14)**, with a No. 2.5 Allen key
-Turn the unit to the right

7.4 Replacing the screen and converter board/keypad board assembly

Dismantling: see drawings No. 29268560 and No. 29268586, pages 13 and 24

- Switch off the unit, unplug the mains plug
- Unscrew the two screws TBHC M 4X8 **(24** drawing 29268560**)** holding the display plate **(9),** with a No. 2.5 Allen key
- Pull the display plate sub-assembly (9) forward.
- Disconnect the CABLEs:
        - LCD screen **(18)** (29223100)
        - Flexible keypad **(8)** (29223100)
        - Converter **(7)** (29223100)

- Unscrew the three nuts HUM4 **(1)** (29223100), No. 7 open ended spanner
- Remove the keypad board **(7)**

- Unscrew the two Torx screws DIN 7500 M3x4 **(5)**, with a No. 10 Torx spanner
- Remove the PCB-ULCD0 converter board **(3)**

- Unscrew the four Torx screws DIN 7500 M3x4 **(5)**, with a No. 10 Torx spanner
- Remove the LCD Display screen HLM 8620 **(4)**

Caution: **Retrieve the three struts when replacing the keypad board.**

Assembly

- Fit the new screen HLM 8620 **(4)**
- Tighten the four Torx screws DIN 7500 M3x4 **(5)**, with a No. 10 Torx spanner

- Fit the new PCB-ULCD0 converter board (3)
- Tighten the two Torx screws DIN 7500 M3x4 **(5)**, with a No. 10 Torx spanner

- Fit the keypad board **(7)**
- Tighten the three nuts HUM4 (1) (29223100), No. 7 open ended spanner

- Position the display plate sub-assembly **(9)**
- Plug in the CABLEs:
        - LCD screen **(18)** (29223100)
        - Flexible keypad **(8)** (29223100)
        - Converter **(7)** (29223100)
- Tighten the two screws TBHC M 4X8 **(**24 drawing 29268560**)** holding the display plate **(9),** with a No. 2.5 Allen key
- Plug in the mains CABLE
- Test for correct operation

7.5 Replacing the thermal head (10) (29268560)

Dismantling, see drawings: 29268560 ; 29268585 ; 29268588

- Switch off the unit, unplug the mains plug
- Open the paper access door (No. **4** drawing 29268588)
- Remove the paper roll
- Lie the ET2300 on its left side
- Unscrew the three **Torx screws** M4x8 **(5),** with a No. 20 Torx spanner
- Remove the printer housing (**36** drawing 29268585)
(as shown on the following diagram)
- Move the thermal head support forward slightly (**26** drawing 29268585)
- Unscrew the two Torx screws **M3X4 (38)** holding the head, with a No. 10 Torx spanner
- Disconnect the ribbon cable from the printer board to the head (**17** drawing 29223100)
- Pull the thermal head **(10)** forward

Assembly

- Fit the new thermal head **(10)**.
- Plug in the ribbon cable from the printer board to the head (**17** drawing 29223100)
- Tighten the two Torx screws **M3X4 (38)** to hold the head, with a No. 10 Torx spanner
- Fit the thermal head support (**26** drawing 29268585)
- Fit the printer housing (**36** drawing 29268585), pulling the spring lever **(23)** fully forward
- Tighten the **three Torx screws** M4x8 **(5),** with a No. 20 Torx spanner
- Put back the ET2300 on its support
- Put back the paper roll
- close the paper access door (No. **4** drawing 29268588)
- Plug in the mains CABLE
- Test for correct operation

The length of the two screws M3x4 (No. 38 drawing 29268560) holding the thermal head, is very important. Using other lengths could damage the head!

Before changing the thermal head, do not forget to clean it with the recommended product

Printer housing **(36)**

Do not unscrew

Torx screw M4x8 **(5)**
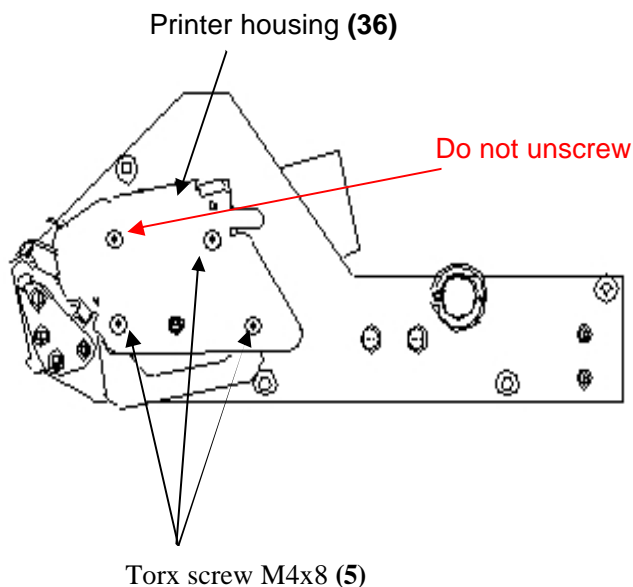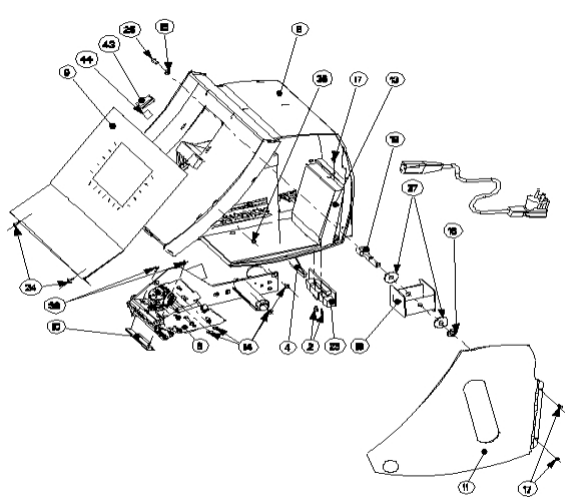
8. DESCRIPTION, TEST POINTS AND SETTINGS

8.1 Description of the PSU-0053-03 power supply board (22006145)

The PSU-0053-03-SCH power supply board complies with the requirements of the generic standardised European test standards for residential, commercial and light industry environments.

8.1.1. Electrical characteristics:

INPUT
> -100-240V AC, 47-63Hz / 1.6A
> - Fuse: T3.15 A/250 V

OUTPUT
> +5V /4.0A and +12V /1A and + 24V / 1.2A

POWER
> 130W

OPERATING TEMPERATURE
> -10°C to +40°C
> 5% to 95% relative humidity (no condensation)

SAFETY
> - Extra low voltage safety

PROTECTION
> - Protection against short circuit of output voltages
> - Can be operated with no load

The **ETICA2300** power supply is divided into two separate parts:

- The primary part consists of:

- The mains filter (R1, R2, R13, R15, C1, C2, C3, L4, TR5 F1)
- The mains alternating voltage is rectified and filtered by the diode bridge D1 and capacitor C4.
- The oscillation of the primary coil of transfo TR1 is carried out by IC1 and T1

- The secondary part consists of:
  - +5V

The +5.15V voltage for the logic circuits, the processor, the printer board and the display (back-light), USB1 is provided by D4, T3 IC8.
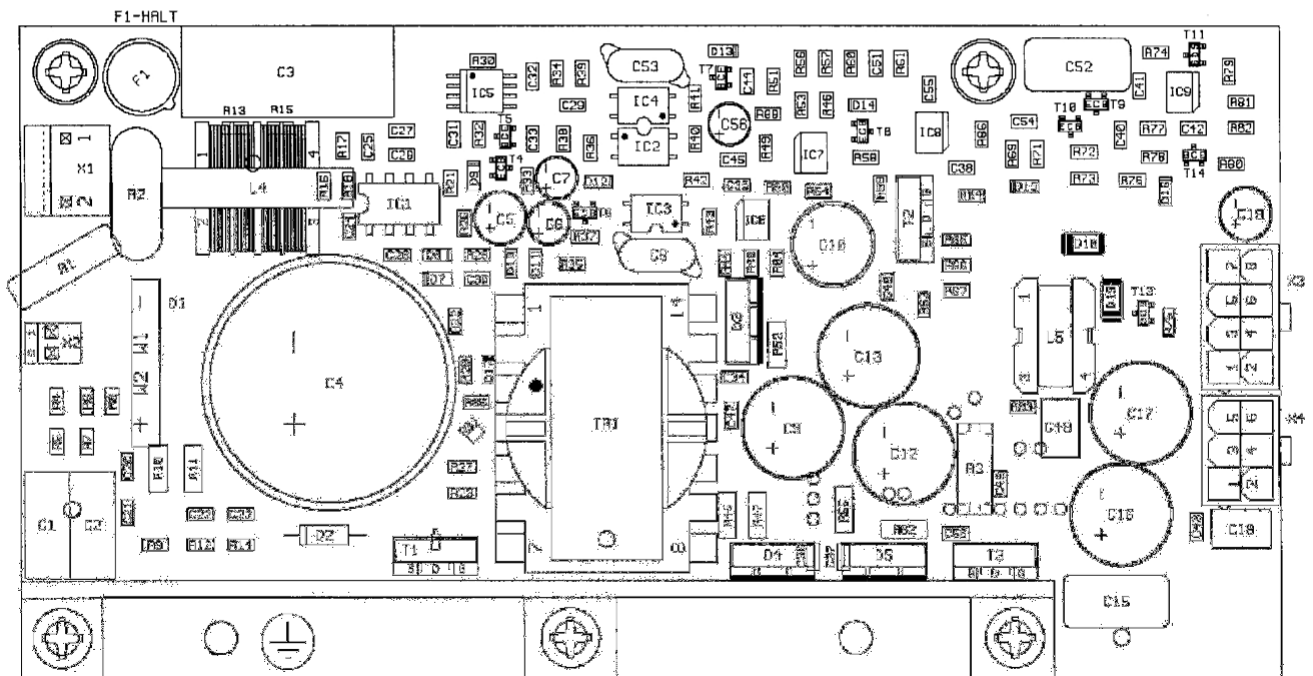
  - +12V

The +13.8V voltage for the analogue part, serial output, till, fan is provided by diode D3, T2.

  - +24V

The +24.4V voltage for the printer board, the motor and the thermal head are provided by the secondary coil of transfo TR1, D5, C12 and C16.

8.1.2 Wiring diagram and test points

X1 / 1		L1
X1 / 2		N
X2 / 1		ON / OFF – SWITCH (SIGNAL)
X2 / 2		ON / OFF – SWITCH (SIGNAL)
X3 / 1-2	X4 / 6	U3 (5.15V)
X3 / 3		POWER-DOWN (SIGNAL)
X3 / 4		POWER-OFF (SIGNAL)
X3 / 5-7	X4 / 3-5	GND (OUTPUT)
X3 / 8		U2 (13.8V)
	X4 / 1-2	U1 (24.4V)

8.1.3 Wiring diagram

8.2 Description of the PCB-UBASE ME 22005434 CPU board

The electronics of the *ETICA2300* is based on embedded PC architecture.
the PCB-EXT-MGX266 embedded PC board supplies the ISA, I²C, PCI Buses and also the standard PC interfaces, e.g.: LPT, COM, USB, IDE, CRT, LCD, keypad and mouse.
All vital functions of the *ETICA2300* are managed by the PCB-EXT-MGX266 embedded PC board.
The PCB-UBASE board is a host board..
It has numerous connectors to interface the *ETICA2300* peripherals.
The four connectors STX1, STX2, STX3, STX4 are designed to take the embedded PC board.

The UBASE system is organised around the Atmel AT 90S1200 (IC80) microcontroller.
It manages the following interfaces:

- Wrapping unit / till connection
- Weighing management check
- Power supply part check
- Software protection.
- EEPROM to store the maintenance parameters, secured by a checksum

The AT 90S1200 controller communicates with the PCB-EXT-MGX266 embedded PC board on the I²C-Bus

The power supply part:

The UBASE board requires two separate power supplies and two ON/OFF command signals:
-V DC (+5V) with a 4 Amp current (pin 1)
-+12V with a 1 Amp current (pin 8)
- PDREQ (ON/OFF command by the power supply board pin 2)
- PDACK (ON/OFF command by the power supply board pin 6)
- Earth

The ventilation part

The UBASE board has two connectors ST81 and ST82.
They are used to power the fans which cool the microprocessor.
Its power supply voltage is +12V (pin 1) and the earth (pin 2.

The acquisition part (keypad/mouse)

Connectors ST61 ST62 provide the internal/external interface with the keypad and the mouse.

The communication part:

UBASE has 7 communication channels:
Connector ST50 provide these links:
- COM0 RS 232 full duplex serial port managed by IC50 LT1237.
- COM2 and COM3 RS232 and RS485 supplied by the PC104 board
- Ethernet interface managed by TR 50 H0009
- 2 ports USB1 and USB2 managed by IC51 and IC52 MIC2026
- Keypad and mouse external connections

Connector KU60 provides the link:
- COM1 RS232 or 20mA current loop for the weighing base connection

The display part:

The CS5530A graphic processor is used to display simultaneously and independently the two LCD and CRT screens.
The LCD and CRT resolutions are:
- XGA 1024x768 with 16 bits
- Or SXGA 1280x1024 with 8 bits
Connector KU70 is used for the primary display connection..
ST41 is used for the secondary display connection (not used)
ST60 is used for the CRT screen connection

The audio part:

The audio part is managed by the AC97 compatible coprocessor.
Its technical characteristics are:
- 16 bit Stereo full duplex
- Stereo input and output lines
- Mono microphone input
- 3D effect managed by the processor.

The extension parts:

ST30. ST32 for extension with the PC/104(Plus) board
ST40 to add extra RAM. DIMM format
STX1. STX4 to connect the JUMPtec CPU board

LEDs:

The LEDs indicate the various statuses of the AT90C1200 coprocessor, Ethernet and IDE on the UBASE board for production and maintenance.

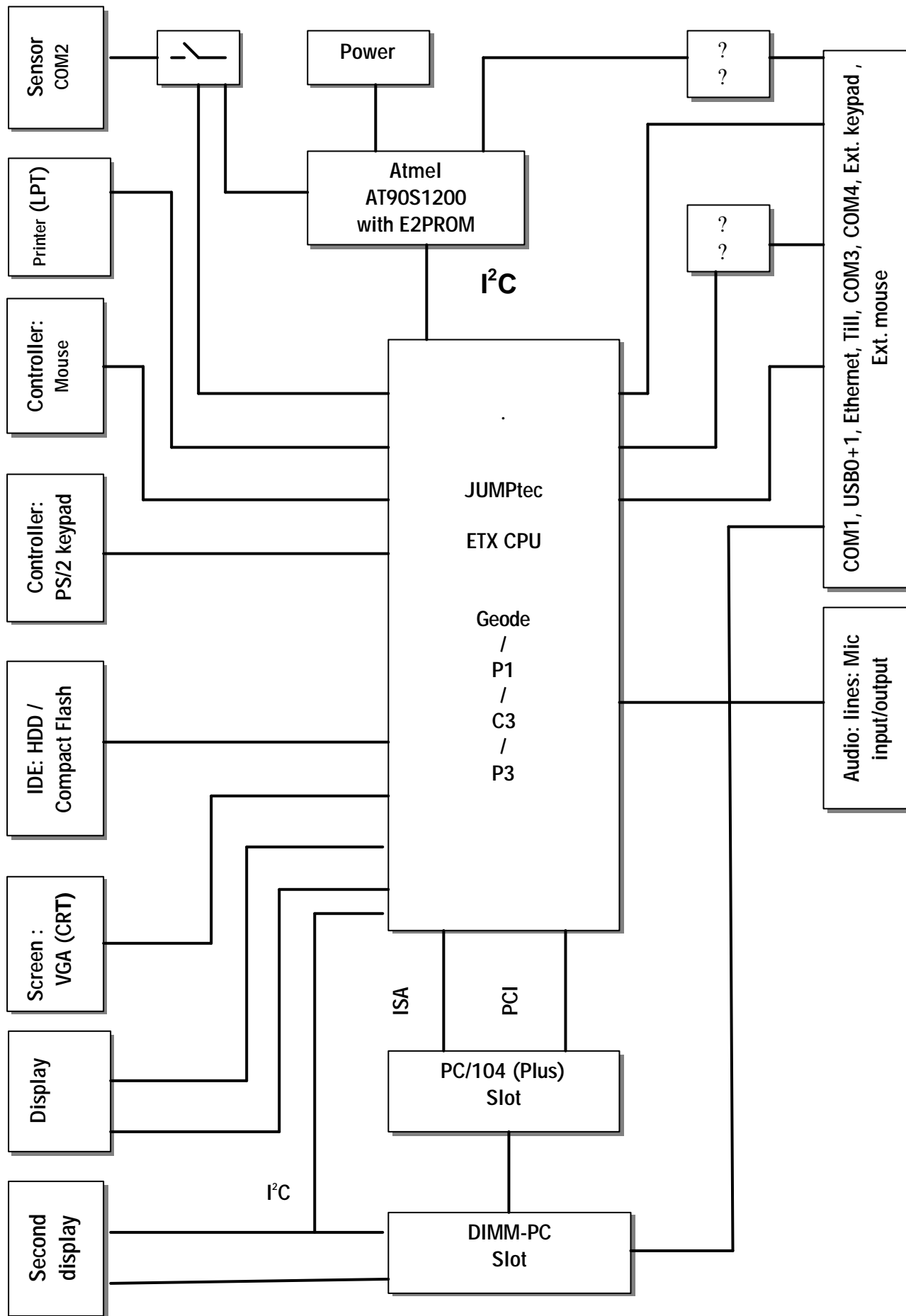If all LEDs are off, the UBASE board is not operating.
For further details, refer to the following table:

D70	IDE active
○	No access
✳	Access to the hard disk or Compact-Flash

D90	AT90C1200 microcontroller status
○	UBASE not running, no voltage
¤ 3-4 times	Initialisation after Reset
✳	Initialisation successful
✳	Traffic communication
✳ 3/sec	Mains power failure
✳ 1/sec	Voltage switched off by the computer system

D50	D51	D52	Ethernet status
Link	Traffic	100Mbit / s	
○	○	○	No connection
✳	○	○	Ethernet link OK, with 10Mbit/s
✳	✳	○	Traffic communication with 10 Mbit/s
✳	○	●	Ethernet link OK, with 100Mbit/s
✳	✳	●	Traffic communication with 100 Mbit/s
○	○	●	No network initialisation (with ETX)

8.2.1 Block diagram of the PCB-UBASE ES-22005434 CPU board

8.2.2 PCB-UBASE ME-22005434 diagram

Ext. mouse   **Audio**   **Printer ES-22005077**   **Display**   **Fan**

Ethernet status: Active
D50=Connection
D51=Comm 10 MB
D52=Comm 100 MB

Hard disk

IDE active
D70=active:
Hard disk access

Power supply

Weighing base

**D90=Active
Micro-cont.Status
Initialisation**

Connections: wrapper/till, COM1, COM3, COM4   **CRT screen**   **Keypad/Mouse**
Till;Ethernet 10/100, USB1, USB2, Keypad, Mouse
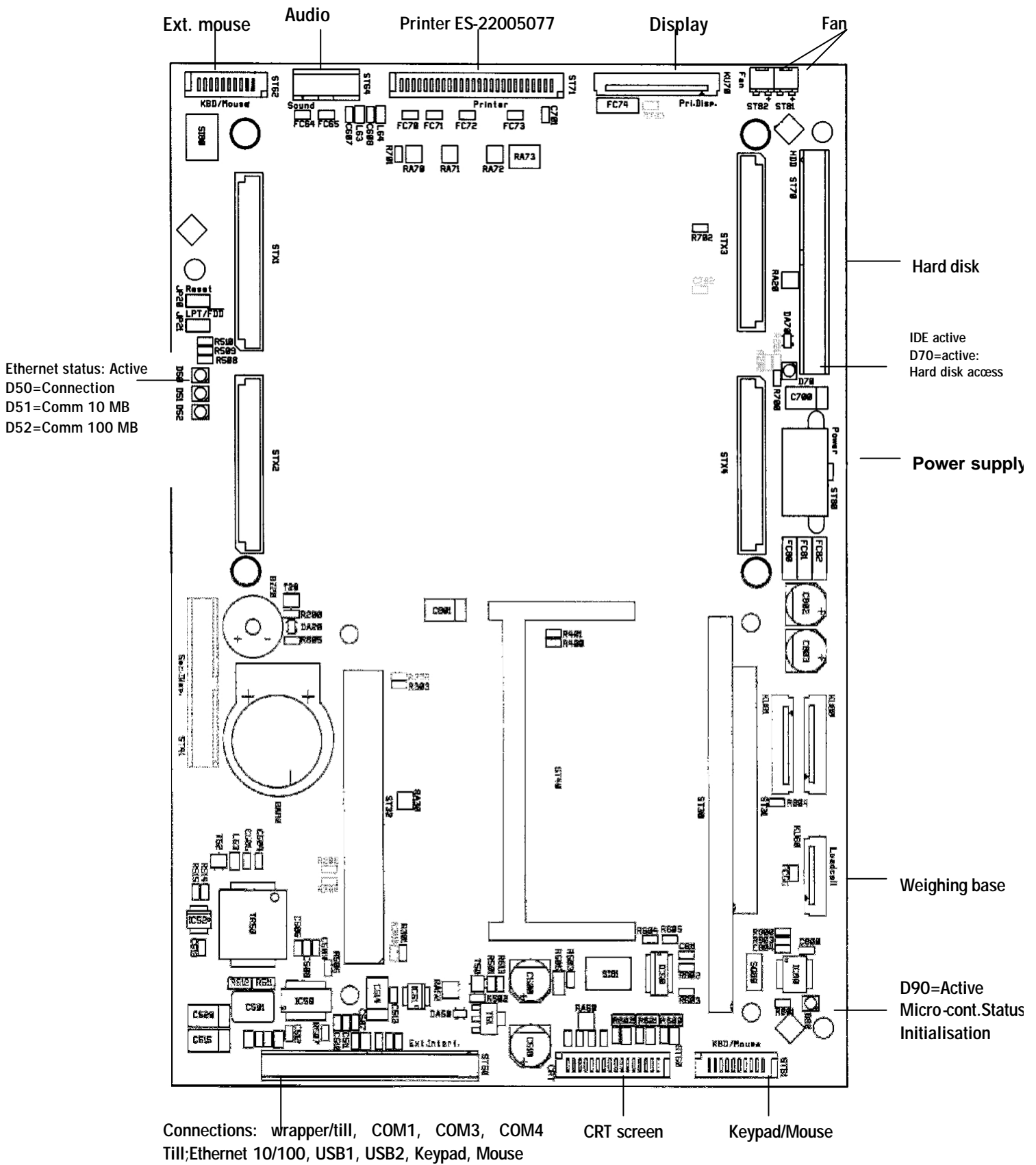
8.3 Description of the PCB-EXT-MGX266 board (22006755)

The JUMPtec ETX CPU board for embedded PC is the centre of the *Etica2300* operating system.
It has numerous interfaces to communicate with the host board (PCB-UBASE ME-22005434)
The ETX–CPU acts as a removable processor module designed to be plugged onto a motherboard.
The ETX-CPU board is plugged into the host board using four standardised connectors, STX1, STX2, STX3, STX4 providing the physical and mechanical junctions
It has an 86 processor (Géode National Semiconductor) with a bios and an operating system.

The JUMPtec ETX-CPU board is organised around a Géode GX1 processor. (National Semiconductor)
It consists of:

Processor:
- GeodeGX1 266B –85- 1.8 processor
-33MHz clock bus

Processor frequency
- Processor frequency: 266MHz

Cache memory:
-1st level cache memory: 16kbits

Chipset:
-Chipset: Multifunction I/O CS5530A

Video:
- 2D graphic accelerator
The CS5530A video controller is equipped with 4 MB RAM (UMA).
It can display the two LCD and CRT screens simultaneously and independently.
The LCD and CRT resolutions are:
- XGA 1024x768 with 16 bits
- Or SXGA 1280x1024 with 8 bits

DRAM:
- RAM extension 1xSO-DIMM: 8/ 16/ 32/ 64/ 128/ 256MB SDRAM module

Bios-Flash on the board:
- The ETX CPU board has a Phœnix Bios. It is stored in the board Flash-EEPROM. Its memory size is 256Mbit or 512Mbit.
While booting, press F2 to access the Bios setup. (follow the instructions displayed on screen)

IDE-PCI hard disk interface:
- Two IDE interfaces are used to connect a hard disk (Ultra 33 DMA mode)

Two serial ports (COM1 and COM2)
- RS232

- Ethernet 10Base-T/100Base-TX Lan:

10/100 base-T two twisted pairs (RJ45)

Two USB ports:

- USB boot support (floppy drive, Zip, LS-120).

Audio:

AC97 compatible 16 bits Stereo full duplex line Stereo input/output
Mono microphone input, 3D audio effect processor

Compact-Flash

- Socket type 1 in the board for Compact-Flash (Master on secondary IDE)
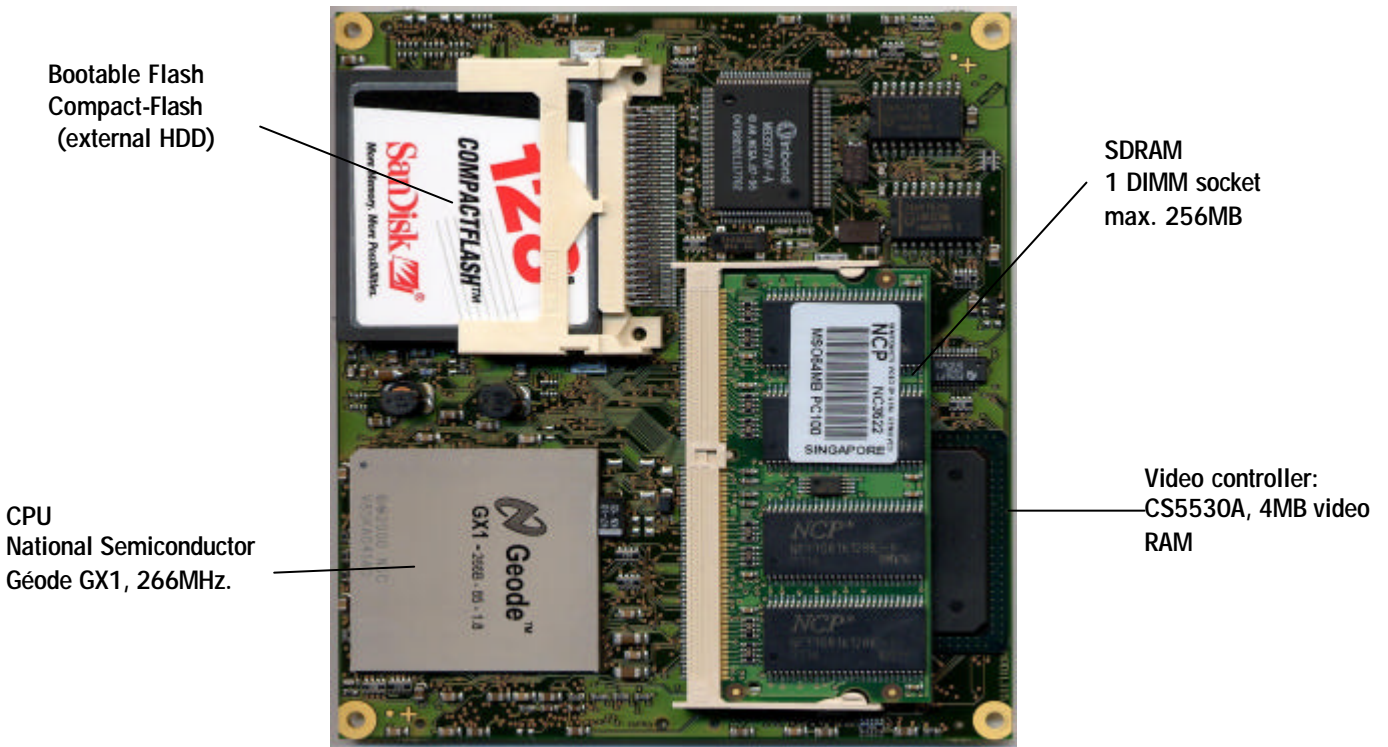
Power dissipation:

- Power dissipation: 4W / 5V

Connections:

>   a) Connector STX1:
>   - Carries PCI, USB and sound signals
>
>   b) Connector STX2:
>   - Carries the ISA Bus signals
>
>   c) Connector STX3:
>   - Manages the peripherals: VGA, COM1 and COM2, LCD, diskette, mouse, keypad.
>
>   d) Connector STX4:
>   - Handles exchanges via the Ethernet and IDE1 and 2 (hard disk) protocols

In our application, these connections are not all used.

8.3.1 Layout of the PCB ETX-MGX266 board (22006755)

Bootable Flash
Compact-Flash
 (external HDD)

SDRAM
1 DIMM socket
max. 256MB

Video controller:
CS5530A, 4MB video
RAM

CPU
National Semiconductor
Géode GX1, 266MHz.

## 8.4 Description of the monochrome LCD screen HLM 8620 (22006050)

The *Etica2300* is equipped with an STN LCD screen HLM 8620 –12 5.7".
Contrast and brightness are adjusted by the program.

The STN LCD screen HLM 8620 is associated with its DC/AC converter board ES 22005601 A. (Back-light)

The technical characteristics of the STN LCD screen HLM 8620 are as follows:

     - Display mode: -Transmissive and negative mode FSTN LCD (black and white type)
     - Format: - 5.7" 320 x 240 dots
     - Input data: - 4-bits parallel
     - Back-light: - CCFL (Cold cathode fluorescent lamp)
     - Power supply: - +5 (VDD) for logic and V DC for LCD drive
     - Temperature: -R16 soldered validates the temperature compensation.

8.4.1 Block diagram
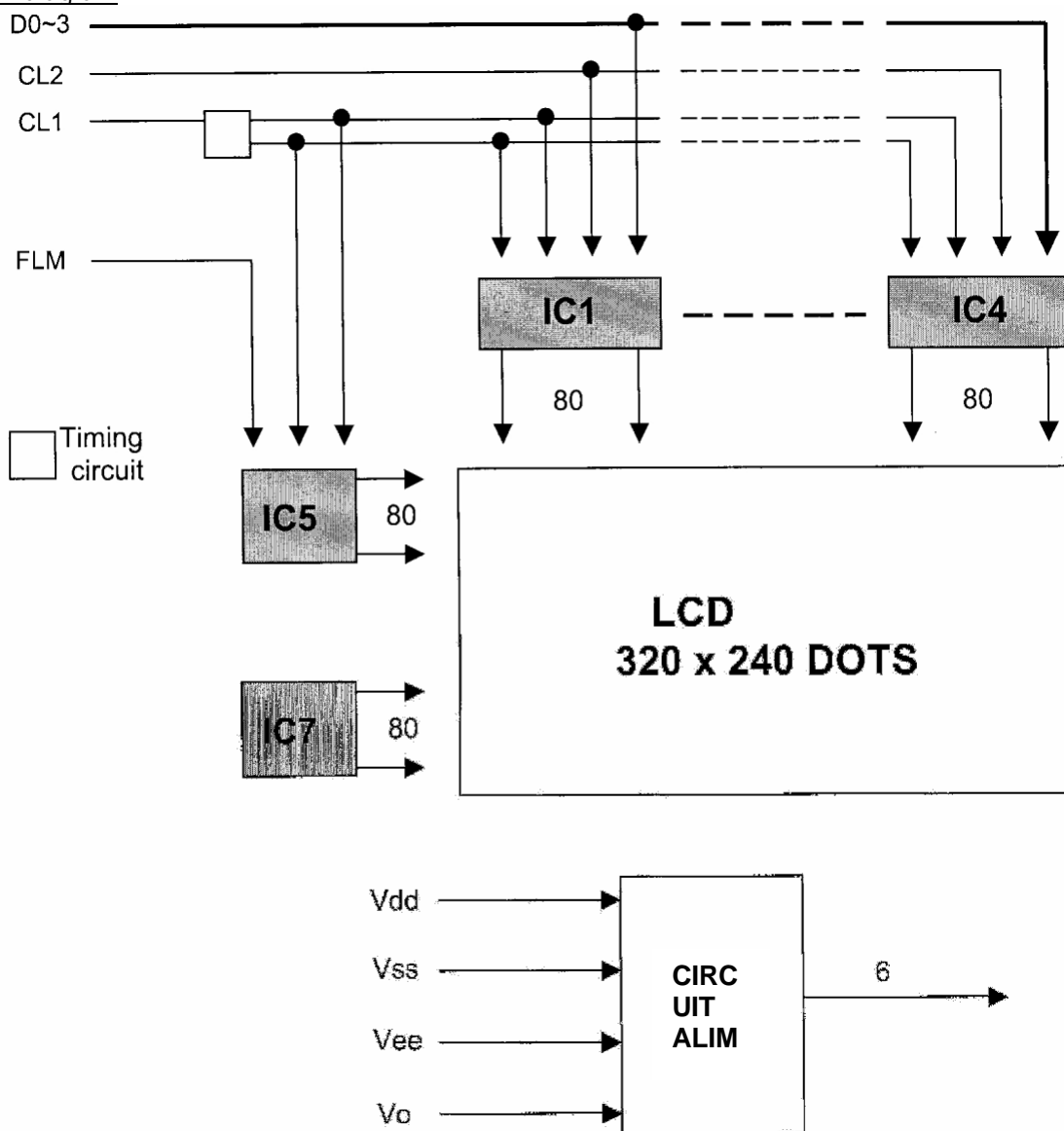
8.4.2 Colour screen LQ057Q3DC02

Colour screen TFT-LCD module SHARP LQ057Q3DC02

Features

- 14.5cm [5.7"] QVGA format
- Built-in long life CCFT backlight (50 000 h)
- High brightness (350 cd/m²)
- Wide viewing angle
  (Horizontal: 130° Vertical: 105°)

Specifications

Parameter		Unit
Display size	14.5 [5.7]	cm ["]
Dot format (H x V)	320 x RGB x 240	dot
Dot pitch (H x V)	0.12 x 0.36	mm
Active area (H x V)	115.2 x 86.4	mm
Color	262 144	-
Input signal	6-bit Analog RGB	-
Viewing direction	12:00	-
Backlight type	1CCFT	-

Parameter		Unit
Brightness	350	cd/m²
Contrast ratio	300 : 1	-
Power consumption	3.9	W
Outline dimensions (W x H x D)	144.0 x 104.6 x 13.0	mm
Weight	220	g
Operating temperature	-10 to +70	°C
Storage temperature	-30 to +80	°C

Outline Dimensions

unit : mm
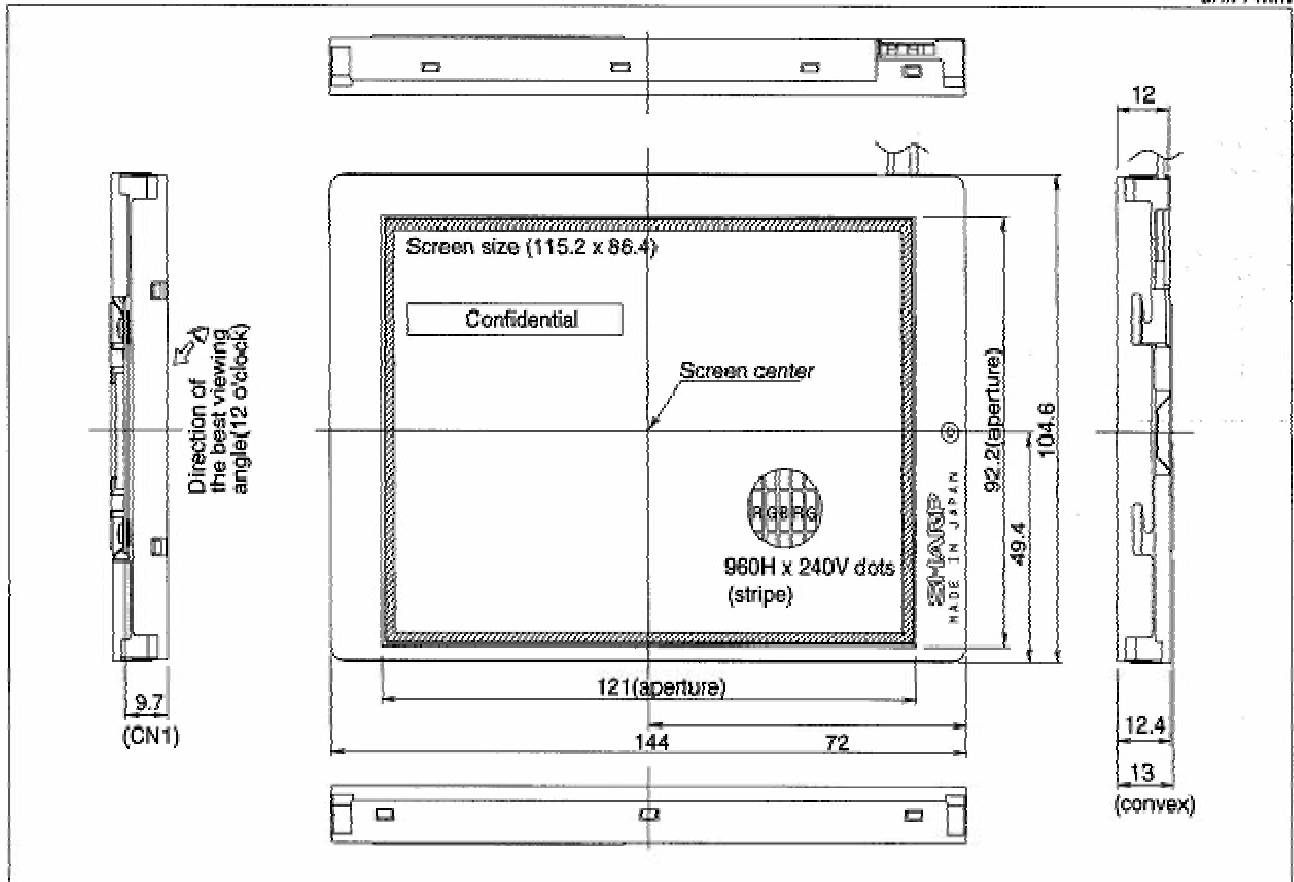
## 8.5 Description of the PCB-ULCDO ES 22005402A converter board

The PCB-ULCD0 ES22005402 A board converts the TFT interface into an STN interface.
It also manages the power supply +3.3V and the Pic. (control converter IC12 PIC16C621A)

It converts the DC low voltage (+5V) into alternating high voltage (~310V AC).(IC30 CXA-K10A)
This voltage is used to power the back-light of the LCD screen.

All control signals supplied by the PCB-UBASE ES 22005435 A board on connector KU 10 are interfaced by the IC11
DS90CF364MTD coprocessor.
Connector ST 40 of the STN LCD HLM 8620-12 screen board.

8.5.1 Diagram of the PCB-ULCDO ES 22005402 A board

Output on
STN LCD

Back-light connector   Data interface input and ULCDO
                              power supply
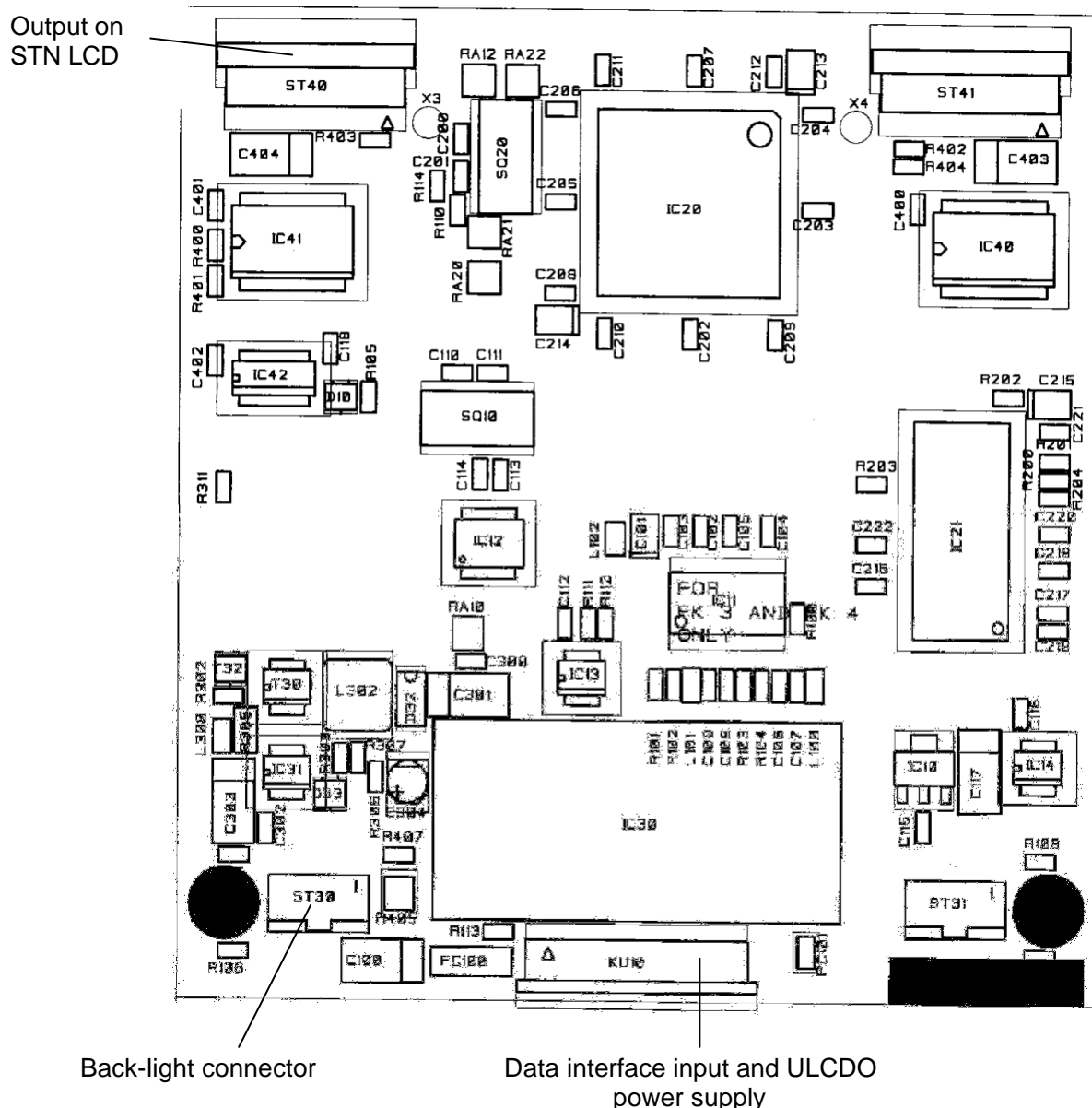
8.6 Description of the PCB-PRINTER board (22005076)

The ULP printer can be used with two types of thermal head: 2" or 3".
Two print heads can be connected.
The ULP printer is equipped with:
- C161PI microcontroller. It is the centre of the printing system.
- 512kB RAM
- 2kB EEPROM (storage of initial configurations)
- Two 512kB Flash memories (512kB code Flash and 512kB Data Flash) (storage of application images and bitmap characters) managed by page. To improve the performance when transferring data to the thermal head..
- Three interfaces (Centronics, RS232 and USB)
- Two thermal heads
- Two stepping motors
- Detection cells
- Two LEDs to indicate the board status

Technical characteristics:

- Power supply: -+5V / 200mA
                             -+24V: 5A (printing)
- Speed: -125mm / s
- Resolution: - 8 Dot/mm (200dpi)
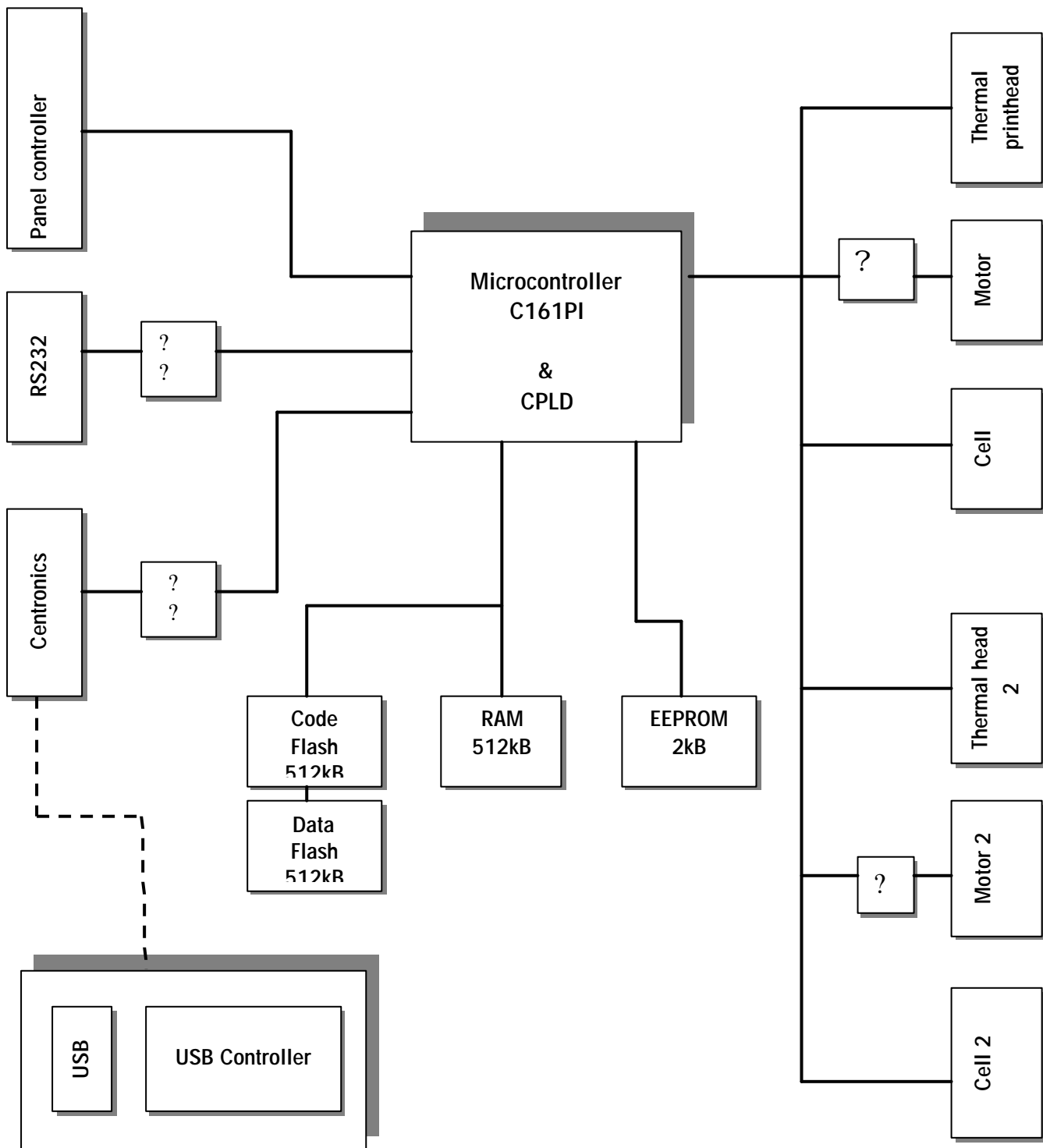
The application can be loaded by the serial interfaces.

The ULP electronics is divided into four parts:

a) The controller part is managed by microcontroller C161PI (IC10).
    The microcontroller operates at a frequency of 25MHz.
    The application is stored in IC11 AM29FO40 (Flash)
    The code data is stored in IC13 AM29FO40.

b) The communication interface part is used to manage:
    - The RS232 port IC22 MAX232
    - The Centronics port is based on IC20 74VHC574 and IC21 74VHC541
    - Two status indication LEDs (communication and application)
    -IC23 SFH9240 is a reflection cell. It is used to position the print block.

c) The power supply +5V and +24V and +24VPHP
    - The IC31 DS1813 board reset
    - Logic switch IC30 2064E-100

d) ROHM KF2003-GK42C thermal head(s) are used.
    The head is loaded by IC10 C161PI.

    The stepping motors are controlled by the L6219DS power drivers (IC40, 41, 42) to control the motor phases with current regulation for each phase.
    T40, T42, T43 (BS584) detect the cells.

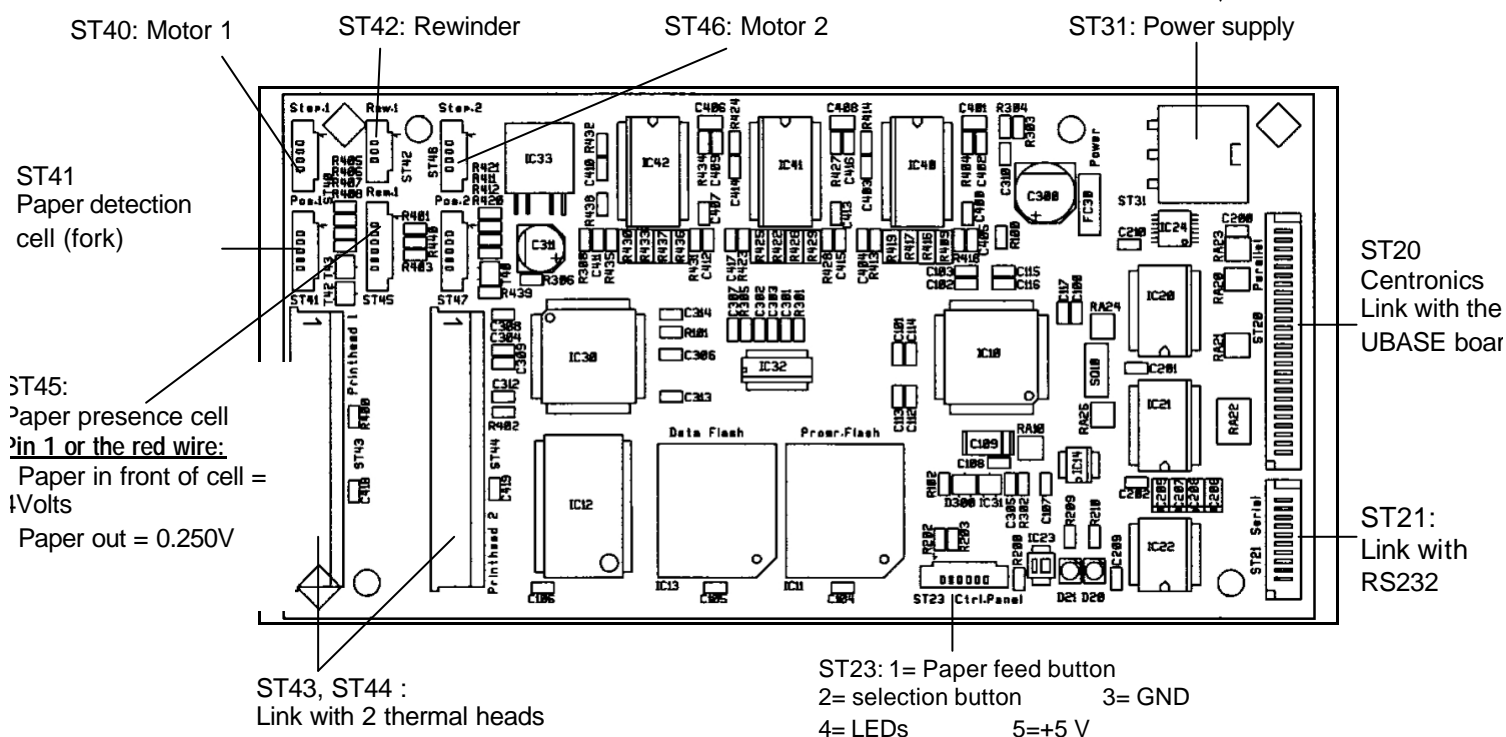8.6.1 Block diagram of the PCB-printer board (29223191)

```
┌─────────────┐                                                    ┌──────────────┐
│   Panel     │                                                    │   Thermal    │
│  controller │                                                    │  printhead   │
└─────────────┘                                                    └──────────────┘

┌─────────────┐        ┌─────────────────────┐        ┌───┐       ┌──────────────┐
│    RS232    │──┌───┐──│    Microcontroller  │────────│ ? │───────│    Motor     │
└─────────────┘  │ ? │  │       C161PI        │        └───┘       └──────────────┘
                 │ ? │  │                     │
                 └───┘  │         &           │                    ┌──────────────┐
                        │        CPLD         │                    │     Cell     │
┌─────────────┐  ┌───┐  └─────────────────────┘                    └──────────────┘
│ Centronics  │──│ ? │
└─────────────┘  │ ? │                                             ┌──────────────┐
                 └───┘                                             │ Thermal head │
                                                                   │      2       │
       ┌──────────┐  ┌──────────┐  ┌──────────┐                    └──────────────┘
       │   Code   │  │   RAM    │  │  EEPROM  │
       │  Flash   │  │  512kB   │  │   2kB    │                    ┌───┐┌──────────┐
       │  512kB   │  └──────────┘  └──────────┘               ────│ ? ││ Motor 2  │
       ├──────────┤                                               └───┘└──────────┘
       │   Data   │
       │  Flash   │                                             ┌──────────────┐
       │  512kB   │                                             │    Cell 2    │
       └──────────┘                                             └──────────────┘

┌─────────────────────────┐
│ ┌─────┐ ┌─────────────┐ │
│ │ USB │ │USB Controller│ │
│ └─────┘ └─────────────┘ │
└─────────────────────────┘
```

8.6.2 Layout, connectors and LEDs:

The two LEDs D20 and D21 indicate the statuses of the ULP board for production and maintenance.

D20 Indicates application level	D21 Indicates communication statuses	
○	○	ULP not operating, no power, no application
✳ 5/sec	○	No application, Boots loader successful
✳ 1/sec	○	Application initialisation successful
✳	✖	ULP initialisation by UBASE successful
✳	★	Communication between UBASE and ULP via Centronics or RS232
✳	●	Last data transfer from UBASE to ULP via Cent or RS232
✳	○	Last data transfer from ULP to UBASE

Pin	Name
1	+24V
2	GND
3	GND
4	+24V
5	GND
6	+5V

ST40: Motor 1   ST42: Rewinder   ST46: Motor 2   ST31: Power supply

ST41
Paper detection
cell (fork)

ST45:
Paper presence cell
Pin 1 or the red wire:
Paper in front of cell =
4Volts
Paper out = 0.250V

ST20
Centronics
Link with the
UBASE board

ST21:
Link with
RS232

ST43, ST44 :
Link with 2 thermal heads

ST23: 1= Paper feed button
2= selection button   3= GND
4= LEDs   5=+5 V

ST41

Cell position		Paper + Width	Width	Nothing
1	Receiver cell +	3,25V	0,20V	0,15V
2	Receiver cell – (GND)	0V	0V	0V
3	NC			
4	Transmitter cell +	1.2V	1.2V	1.2V
5	Transmitter cell – (GND)	0V	0V	0V

8.7 RS 232/485 PC104 communication expansion board (29223232)

The PC 104 communication expansion board, 29223232, is an interface board. It is used to communicate with the various peripherals. (PC utilities: Kheops, EtiTools, process control board, printer, etc.)

The PC 104 board is plugged into the PCB-UBASE CPU host board, 22005434, using two connectors J1 and J4 providing the mechanical and physical junctions.

It has three communication channels.

> - COM2 RS 232 full duplex serial port, managed by IC1 AMD211EAR. The RS 232 CABLE, code 29223107, provides the link between connector J2 of the PC 104 board and the SubD 9-pin female connector.
> - COM3 RS 485 differential serial port, managed by IC2 MAX 485. The RS 485 CABLE, code 29223108, provides the link between connector J3 of the PC 104 board and the SubD 9-pin male connector.
> - LPT Centronics parallel port.

8.7.1 Layout diagram.

J2 : RS 232 connector   J3: RS 485 connector

J1 and J4: Plug in on the PCB-UBASE CPU board

J5 : Centronics connector (LPT)

J6 : CPLD programming
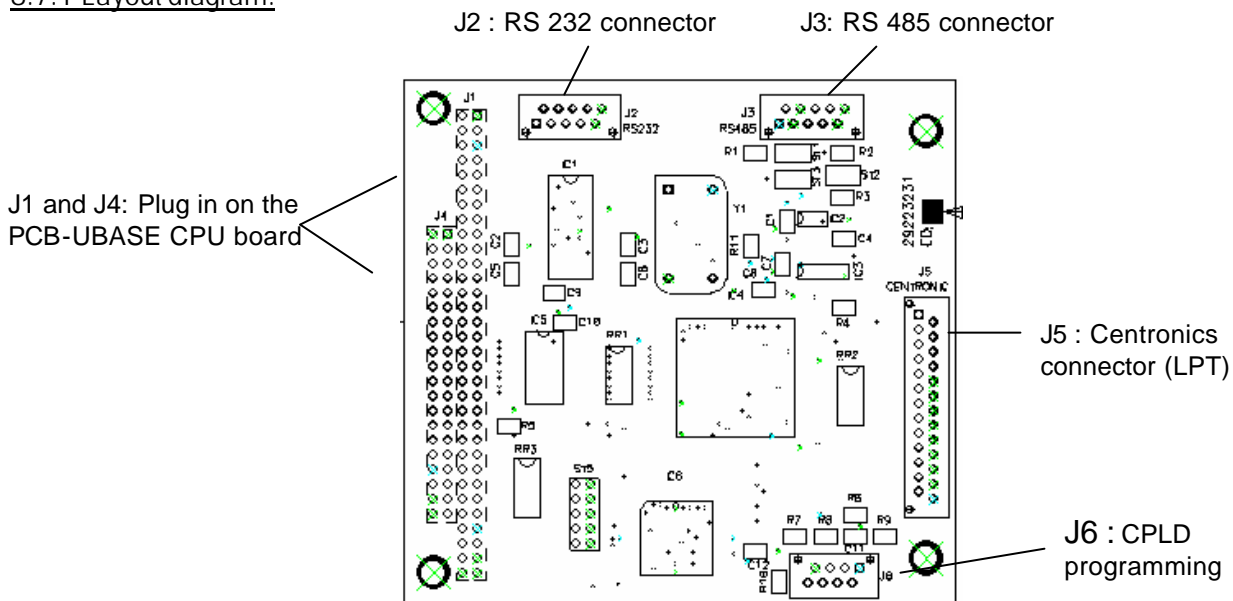
8.7.2 Configuration of the PC 104 board

Depending on the BIOS of the motherboard (PCB-EXT-MGX266), **Phoenix Bios 4.0 Release 6.0 or 6.0.E**, the various serial outputs of the PC 104 board may be available or not.
The required configuration is as follows.
> - Switch on the *Etica2300*
> - Press F2 (-0-)
You access the **BIOS** setting menu.

Advanced=➔ (press the down arrow 7 times and validate with OK) ➔ I/O Device Configuration=➔ [Both]

Phoenix Bios 4.0 Release 6.0		Phoenix Bios 4.0 Release 6.0.E	
Serial port A	[Auto]	Serial port A	[Enabled]
Serial port B	[Auto]	Serial port B	[Enabled]
IRDA port	[Disabled]	IRDA port	[Disabled]
Onboard LPT	[Auto]	Onboard LPT	[Enabled]
Mode (printer)	[EPP]	Mode (printer)	[EPP]

- To save, press F10 (the Tare key) and validate with OK.

8.7.3 PC 104 board serial port tests

The following hardware is required to test the PC 104 board serial ports:
- Windows HyperTerminal
- The Link cable (29223205) or the crossed RS 232 connection cable. (For the RS232 communication test).
- The PC organiser kit, code 430060.00. (for the RS 485 test).

Concerning the RS 485 communication, since the Etica2300 wiring is different from that of the Carat range (Lutrana product), fit a **Kheops network CABLE (29223109**) instead of the Carat network CABLE (177226.00).

8.7.4 Example of RS 485 communication test

ORGANISER 430060.00

RS 485
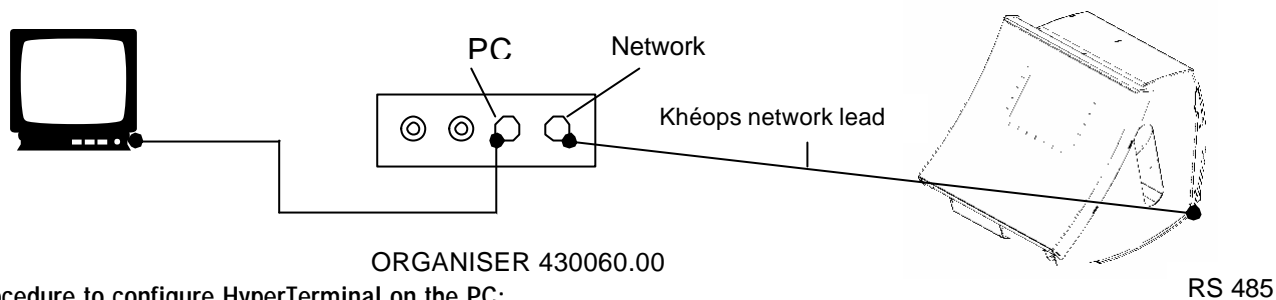
Procedure to configure HyperTerminal on the PC:

Start\Programs\Accessories\Communications\HyperTerminal

- New connection:
Enter the name: type a name: e.g. "Test"
- Connection to:
Connect using: COM1 port used on the PC.
- Port parameters: 9600,8,N,1 no flow control.
- ASCII configuration: Local copy of characters entered

Procedure to configure the Etica2300 unit

- Press [Fn] and enter the password 24681357, validate with OK
The screen displays "Menu: Functions"
- Choose menu 7=Test
- Then menu 5=Serial port test
- Press the "Port" icon, the screen displays

                COM0: (motherboard RS 232)
                COM1: (Weighing base)
                COM2: (PC 104 board RS 232)
                COM3: (PC 104 board RS 485)
- Choose COM3
- Choose RS 485.
- Press the "Tab" key
The test is ready.

Note: If the "szCommPort" option is chosen incorrectly, it may block the communication. Set the szCommPort option to TCP.
(Configuration option\Device\szCommPort=TCP).
After the test, put back: Configuration option\Device\szCommPort=COM3 and RS485. (depending on the configuration)

8.8 Description of the TD27 board (diagram No. 29223021/222)

The model TD 27 data processing board is an independent weight acquisition and processing board operating with s strain gauge sensor.

Depending on the type of sensor used, the various ranges can be configured using jumpers.
The board has a series of 8 jumpers labelled SW1-1 to SW1-8, used to select an operating mode.
SW1-5 to SW1-7 $\Rightarrow$ selection of the various ranges (see table)

SW1-5	SW1-6	SW1-7	RANGE	
OFF	OFF	OFF	Free range	
ON	OFF	OFF	3kg/2g 12kg/5g	MULTI INTERVAL
OFF	ON	OFF	6kg/2g 12kg/5g	
ON	ON	OFF	4kg/2g 8kg/5g	

**- Power supply circuit*:*

-
The acquisition board is housed in a metal box to prevent any external disturbance (EMC). All connections are filtered by EMI filters. The 12 V input voltage passes through a diode which protects against possible polarity inversion before reaching two 5 V regulators, one used to power the logic part (MC78L05ACP) and the other (LM2931AZ-5.0) the analogue part.
The 12 Vdc +/- 15% power supply cable with Max. current 60mA.

- Analogue circuits:

-
The weighing signal is passed through EMI filters which eliminate the high frequency signals.
The filtered signal is fed to an Analogue/Digital converter, resolution 24 bits. The converter used is a CIRRUS LOGIC integrated circuit, CS5532BSEP in SMC version . It contains a two-differential channel switch attacking a chopped differential amplifier with gain programmable from 1 to 64 (PGIA), followed by a 4th order DELTA SIGMA type 24 bit converter, followed by a programmable digital filter, Fmin is 6.25 Hertz and Max 3840 Hertz. This circuit is interfaced with a logic control circuit via an SPI (Serial Port Interface) bus at a speed of 1Mhz. It is therefore used with two possible gains and the filter is programmed to 12.5 Hertz. Since this converter has two channels, the first channel is used to measure the signal from the weighing sensor and the other channel is used to measure the ambient temperature. The temperature sensor is a negative temperature coefficient (NTC) thermistor of value 100kohms at 25°C, mounted on a WINSTON bridge formed by 4 1 kohms 1% resistors.

- Digital circuits:

The weight processing is carried out by a MOTOROLA microcontroller (68HC912D60A) in the HC12 family at a frequency of 8MHz. This microcontroller (master) controls the converter via an SPI bus. It can be connected to a display to show the weight or the number of converter points. A series of 8 jumpers is connected to it, to configure the TD27 module. (Board configuration chapter)
It has two serial communication channels to communicate with an external computer, its zero channel is RS232 type provided by a MAXIM specialised circuit type MAX232ECSE protected against electrostatic discharges (ESD) of +/- 15kVolt. The other channel is RS485 type provided by a MAXIM specialised circuit type MAX485ECSA, also with ESD protection to +/-15kvolt. A MOTOROLA circuit, MC34064, ensures that the microcontroller starts correctly as soon as the 5 Volt power supply is stabilised.

- Weight calculation software and safety devices:

The weight processing program is stored in FLASH type memory inside the microcontroller (it has 60 kB), the size of this program is about 20 kB. The calculations are carried out in RAM in the micro (2 kB), the space reserved to execute the program is about 1.7 kB. The weight calibration parameters are stored in EEPROM inside the microcontroller, these values are periodically checked by a checksum. If one of these values is incorrect, the weighing is blocked. The values are as follows:
- Reference weight value.
- Value of the number of points of the reference weight.
- Calibration setting value.
- Gravity zone value.
- Checksum value.
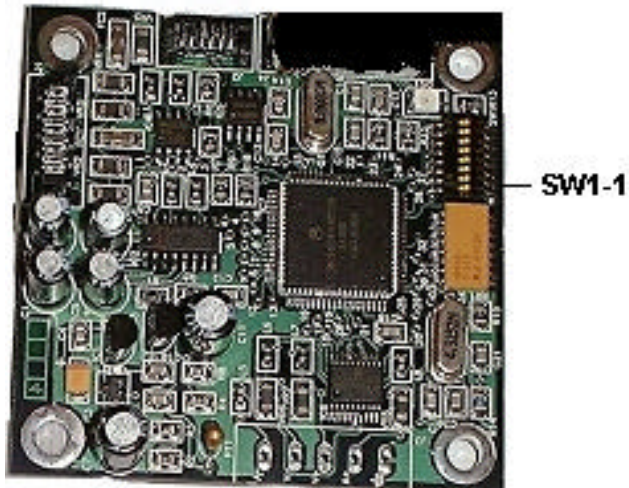
9.8.1 TD27 setting guide

SW1-1: ON => calibration mode.   OFF => normal mode.
SW1-2: ON => weighing synchronisation.   OFF => keypad/display connection
SW1-3: ON => temperature display.   OFF => weight display.
SW1-4: ON => Gain = 32.   OFF => Gain = 16.
SW1-5 to SW1-7: =>selection of the various ranges (see table).
SW1-8: ON => display in number of points. OFF => normal display.

<u>Range table.</u>

SW1-7	SW1-6	SW1-5	RANGE		
OFF	OFF	OFF	Free range		
OFF	OFF	ON	3kg/2g	12kg/5g	MULTI-INTERVAL
OFF	ON	OFF	6kg/2g	12kg/5g	
OFF	ON	ON	4kg/2g	8kg/5g	

If a jumper is changes, reinitialise the system and recalibrate (SW1-1 :ON).

9. CONNECTION CABLES

9.1 UBASE / Keypad cable (29223101*)

	2	CONNECTOR 10 CIRCUITS PICOFLEX	(2)	90327-0310	MOLEX
	0.350mm	FLAT CABLE 10 CONDUCTORS	(1)	3365/10	3M
CODE	QTY	DESIGNATION	REP	REFERENCE	SUPPLIER

ED.	DATE	NAME	MODIFICATION
D			
C			
☑			
A			
Ø	01/03	R.C.	RELEASE

NS TESTUT SAS
3 RUE DE PrS
91170 VRY-CHATILLON
TEL: 01 69 12 85 80
TELECOPIE: 01 69 12 85 81

DESIGNED CHOTTP3U DATE: 21/01/2003
CHECKED   DATE:
APPROVED,   DATE:
SCALE: 1

DESIGNATION: CABLE UC KEYBOARD
KABEL ETICA UBASE / TASTATUR

CODE	APPLIANCE	
29223101	ETICA 2300	Ø
N	29223101	¹/₁ ED

9.2 Power supply / Printer board CABLE (29223103*)
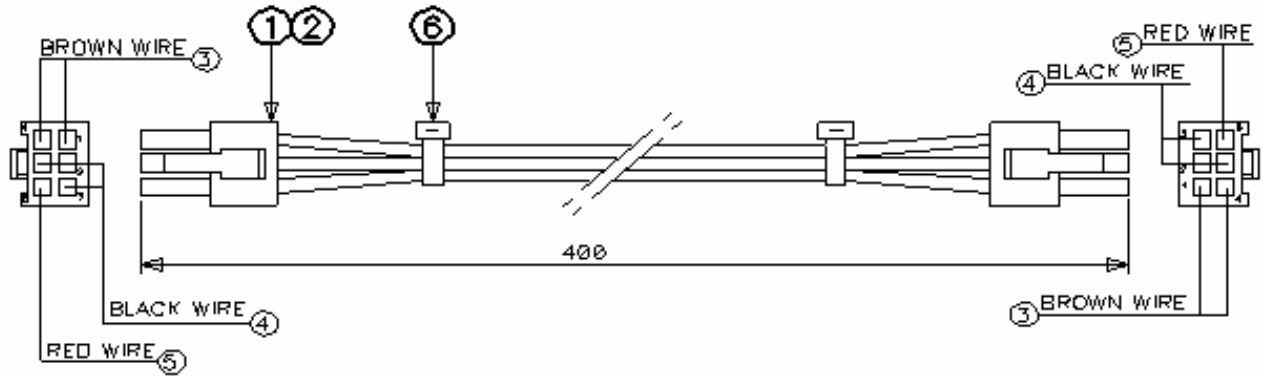
CODE	QTY	DESIGNATION	REP	REFERENCE	SUPPLIER
4	CLAMP	6	0186-0010-018	SES STERLING
	0.40m	RED CABLE 0,75mm	(5)	H05V-K	
	1,20m	BLACK CABLE 0,75mm	(4)	H05V-K	
	0,60m	BROWN CABLE 0,75mm	(3)	H05V-K	
	12	CRIMP FEMALE MINI FIT	(2)	39-00-0078	MOLEX
	2	CONNECTOR MINI FIT JR 6 CIRCUITS	(1)	39-01-2060	MOLEX
CODE	QTY	DESIGNATION	REP	REFERENCE	SUPPLIER

Reproduction et communication sans autorisation interdites. Ce plan est la propriété exclusive de la Sté NS TESTUT SAS (Loi n 57298 du 11-03-1957) ALL RIGHTS RESERVED

ED.	DATE	NAME	MODIFICATION
D			
C			
B			
A			
0	01/03	R.C.	RELEASE

NS TESTUT SAS

3 RUE DE PIS
91170 VIRY-CHATILLON
TEL. 01 69 12 85 80
TELECOPIE. 01 69 12 85 81

DESIGNED C.HOTTEAU DATE: 24/01/2003	
CHECKED	DATE:
APPROVED:	DATE:
	SCALE 1

DESIGNATION:
CABLE POWER – PCB PRINTER
KABEL POWER ULP-C

CODE 29223103	APPLIANCE ETICA 2300	0
N	29223103	1/1 ED

9.3 Kheops network CABLE (29223109)

VUE CÔTÉ CÂBLAGE

MARRON
ORANGE
ROUGE
NOIR + TRESSE DU CABLE

TRESSE DU CÂBLE

2000

NOIR + TRESSE DU CABLE 4　3　MARRON
5　2
ORANGE 6　1 ROUGE

VUE CÔTÉ CÂBLAGE

POUR MEMOIRE

ROUGE　　L
MARRON
NOIR
ORANGE　　L

NOTA: LE SERRE CABLE DOIT ETRE
POSITIONNE SUR LA TRESSE
DU CABLE
– LE SERRE CABLE DOIT ETRE
SOLIDAIRE DU CAPOT

D					
C					
B					
A					
B	04/04	R.C.	1ere DIFFUSION		
ED	DATE	NOM		MODIFICATION	

CODE	QTE	DESIGNATION	REP	REFERENCE	FOURNISSEUR
	1	CAPOT SUBD 9PTS	5	CVN09M	ANTELEC
	1	CONNECTEUR SUBD 9PTS MALE	4	ADM09M	ANTELEC
	0,08m	GAINE THERMO TYPE R1	3	8821 0021 01	SEB
	2m	CABLE 4 CONDUCTEURS BLINDE 0,22mm²	2	5094C	ALPHAWIRE
	1	CONNECTEUR DIN 7 PTS MALE	1	5V70	LUMBERG

METTLER TOLEDO EPEC
3 RUE DE RIS
91170 VIRY–CHATILLON
TEL. 01 69 12 66 66
TELECOPIE: 01 69 12 66 61

DESSINE: CHOTTEAU DATE: 29/04/2004
VERIFIE: DATE:
APPROUVE: DATE:
ECH: 1

DESIGNATION:
CORDON RESEAU KHEOPS

CODE 29223109　APPAREIL ETICA 2300

N　29223109　1/1

9.4 Crossed Ethernet 10/100/1000Base-T cable (29223215)

TOP:

FRONT:

1   8
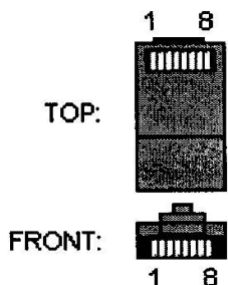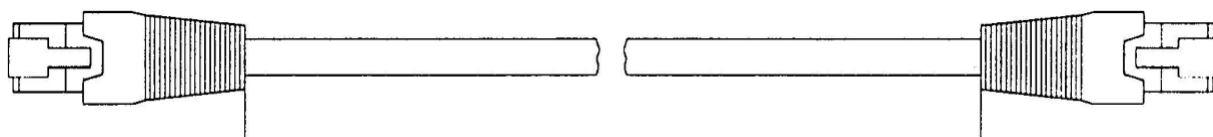
RJ 45
Male

RJ 45
Male

TX+ (BI_DA+) White/orange	1	1	TX+ (BI_DA+)
TX- (BI_DA-) Orange	2	2	TX- (BI_DA-)
RX+ (BI_DB+) White/Green	3	3	RX+ (BI_DB+)
- (BI_DC+) Blue	4	4	- (BI_DC+)
- (BI_DC-) White/blue	5	5	- (BI_DC-)
RX- (BI_DB-) Green	6	6	RX- (BI_DB-)
- (BI_DD+) White/Brown	7	7	- (BI_DD+)
- (BI_DD-) Brown	8	8	- (BI_DD-)

DRAWN BY:	DATE:	Model:	REVISIONS				
S.SAVATXATH	20/03/2003	Cable		∅			
DESIGNATION: Crossed Ethernet Cable				29223215		1 / 1	

10. ETICA2300 SOFTWARE CONFIGURATION

10.1 Bios-Flash

Bios is a program stored in flash memory on the *ETX_CPU* board. Its main function is to manage the motherboard setting and the interface board parameters, i.e. simple parameters such as the date, time, hard disks and complex parameters such as the hardware synchronisation and the operating modes of the peripherals (USB Controller).

For our purposes, *EPP* mode must be used (the Bios default value is *ECP*).
EPP mode is used to manage the printer correctly.

In addition, on the new generation of the **PCB-EXT_CPU** board (22006755), its Bios is equipped with an extra **USB Controller**.
Set the **USB Controller** peripheral to **Disable**. (conflict with the keypad)

To simplify modifications to the Bios of the *ETX_CPU* board, the following equipment is recommended:

- An external screen
- An external keyboard

The required configuration is as follows.
- Switch on the *Etica2300*
- Press F2 (-0-) before booting.
You access the *BIOS* setting menu.

Advanced=➜(press the down arrow 7 times and validate with OK)➜ I/O Device Configuration=➜[Both]

Phoenix Bios 4.0 Release 6.0		Phoenix Bios 4.0 Release 6.0.E	
Serial port A	[Auto]	Serial port A	[Enabled]
Serial port B	[Auto]	Serial port B	[Enabled]
IRDA port	[Disabled]	IRDA port	[Disabled]
Onboard LPT	[Auto]	Onboard LPT	[Enabled]
Mode (printer)	[EPP]	Mode (printer)	[EPP]

To modify the **USB Controller:**
Advanced=➜(press the down arrow 7 times and validate with OK)➜ I/O Device Configuration=➜(down arrow 12 times)
USB Controller ➜press the minus (**-**) key to assign the **Disable value**

- To save, press F10 (the Tare key) and validate with OK.

10.2 Configuration of the application software

For specific requirements, you can modify these values displayed in the menu (Fn, 76).
Example:

Options	$nothing	= DNA base connected
Options	$TD26	= WP27 base connected
Options	$NOCELL	= No weighing base

This configuration is only allowed while installing the machine.
Note:
In order to modify the various options, you need the "**Eticonf**" utility in the "**ETITOOLS**".

11. LABEL ADJUSTMENT

11.1 Label adjustment (Label pre-determination function)

Press the button:
The screen displays:

Add
A blank label to end of
label series

Label adjustment

Test
Produce test label

Edit
Edit the label
definition

List
Label definition
list

Enable/disable
Label detection cell and print-
run function with label
presence detection

11.1.1 Adjustment of the label detection cell

This function allows you to adjust the sensitivity and threshold of the label detection cell.

On the main screen, press

-Choose "**Open session**"
-Enter the **Service Operator** code:

24681357. and confirm by pressing OK.

-Using the arrows, select Service\Hardware\Printer
- Confirm by pressing the OK button.
"Service\Hardware\Printer mode"
Short code: **413**)

Page1➔Main printer settings interface
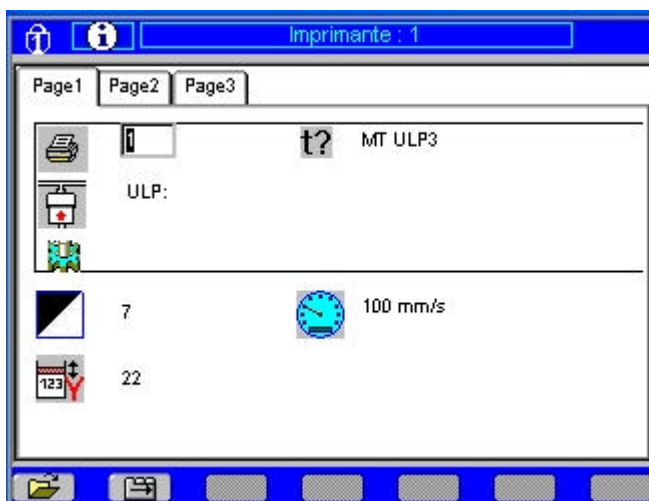
Icon		Description
🖨		Choice of printer
t? MT ULP3		Type of printer
ULP:		Communication parameters (port)
		Network elements (IP address)
◨ 7		Printer contrast
22		Label output offset
100 mm/s		Printing speed

Function buttons:

The [image] button allows you to select the Next page.

The [image] button allows you to enter edit mode.

The [image] button allows you to move between the different windows.

The [image] button allows you to save changes and return to information mode

The [image] button allows you to display a specific modification screen for the selected field

Note: these buttons only appear if a change has been made
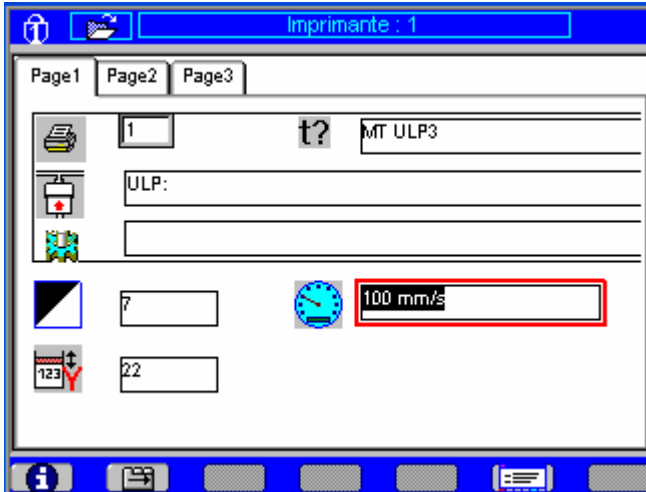
Press the [icon] button to enter edit mode.

Press the [icon] button to display the specific modification screen for the selected field.

Eg: The printing speed in mm/sec.

No	Valeur
0	#125 mm/s
1	#100 mm/s
2	#90 mm/s
3	#80 mm/s
4	#70 mm/s
5	#60 mm/s
6	#50 mm/s
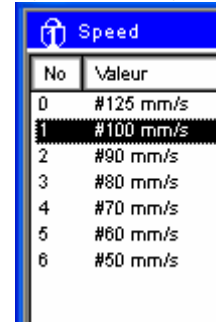
Page2→Cell set-up screen.
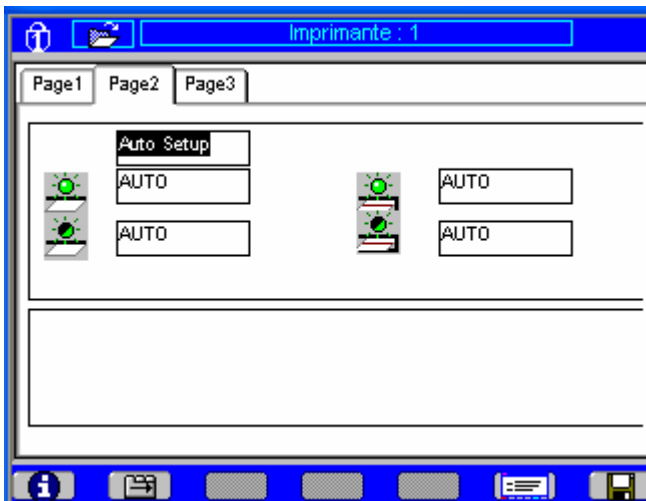
Press the [icon] button to go to page 2

Press the [icon] button to choose the printer set-up mode.

Setup Selection

Valeur
DONE
AUTO
MANU
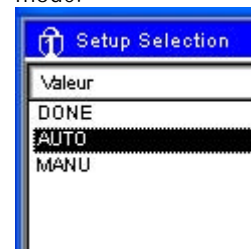
-**Auto Setup** allows you to configure the default cell values (with save function)

-**Manu** allows you to validate the cell values manually on screen.

Press the [icon] button to save and set the cells.

Cell set-up complete screen

Page3→ Firmware download onto ULP3 card screen

Press the [icon] button to go to page 3

Press the [icon] button to choose the file to download onto the ULP3 card.
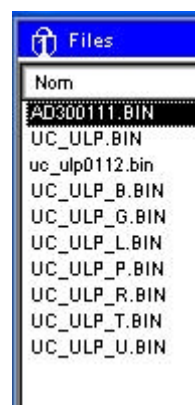
Choose the most recent file, uc_ulp0112.bin

Press the [icon] button to run the download and save the new Firmware.

File description:
_B: Baltik
_L: Latin
_R: Russian
_T: Turk

12. CALIBRATION PROCEDURE

12.1 WP 27DS BASE

Check that your Etica2300 is configured with the WP27DS weighing base (use ETICONF)
- *Level the base using the adjustment feet.*
- *switch the unit on and wait until the screen displays the main menu.*
- *The TD27 module adjustment strap should be in the OFF position (SW1-OFF)*

Procedures:

On the TD 27 card, perform the configuration as per the desired metrological characteristics using the SW1 5 – 6 – 7 switches (paying attention to the sensor used),

Configuration mode

On the main screen, press

-Choose "**Open session**"

-Enter the **Service Operator** code:

24681357. and confirm by pressing the OK button.

The screen displays:
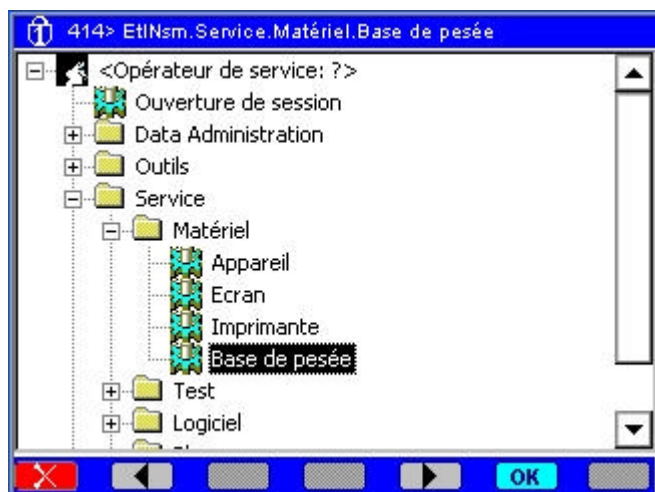
-Using   the   arrows,   select
Service\Hardware\Weighing Base
- Confirm by pressing the OK button. \Weighing base
"Service\Hardware\Weighing Base mode"
(Short code: **414**)

Three WP27DS base set-up options are displayed on screen.
These menus are: ***Information➔ Filtering➔ Calibration***

12.1.1 Information menu
This menu displays the weighing parameters and the TD27 program version (EEPROM)

Function buttons:

The [button] button allows you to select the Next page.

The [button] button allows you to enter edit mode.

The [button] button allows you to move between the different windows.

The [button] button allows you to save changes and return to information mode

Note: this button only appears if a change has been made

12.1.2 Filtering menu
This menu allows you to configure the weight precision and the weight stability.
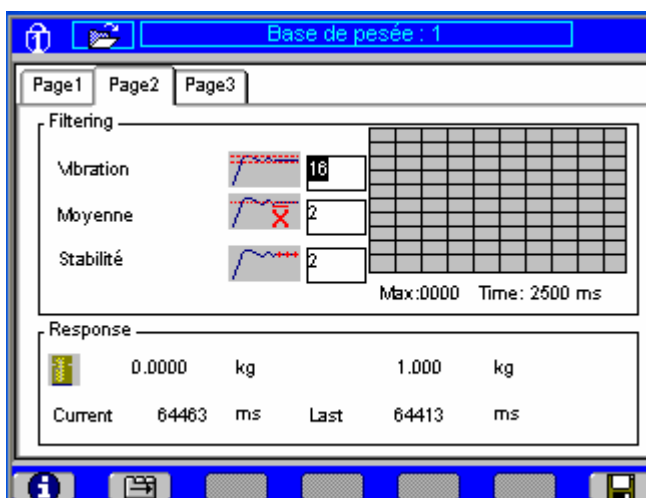
-***Vibration*** or Tunnel allows you to increase or decrease the weight acquisition time.
These values are between 0 and 50.
The default value is **16**.

-*Mean* (1-16), the mean value of the number of measurements used to determine the weight precision.
(The larger this value, the more precise the weight that is displayed).
The default value is **2**.

-***Stability*** (1-6), allows you to fix the number of the Tunnel stability level. The default value is **2**.

Press the [button] button to save these values.

12.1.3 Calibration menu:

This menu allows you to configure the different metrological values of the weighing cell.

IMPORTANT: SW1-1=OFF must be ensured at all times (TD27 card)

Press the [button] to enter calibration mode

Follow the instructions on screen.

Disconnect the Etica2300 weighing base
Reconnect the weighing base

Gravity Zone allows you to validate the gravity acceleration zone. Eg: Paris=48.

Select the desired gravity zone and confirm by pressing **OK**.

Follow the instructions on screen.

Unload the weight from the platform when reaching **PLATFORM UNLOADED**.

-Confirm with **YES**

Select **YES** when reaching **CALIBRATION WEIGHT.**

The authorised calibrated weight for the calibration is between **1/3 and the maximum load.**

Change or place the requested calibrated weight (5000 = 5kg) on the platform.

-Confirm by pressing **OK**

END (calibration is complete)

Press the [button] to save.

Press the ESC key to quit calibration.

12.2 IDNET base

When leaving the factory shop, the *IDNET* base is configured with all metrological data. It is ready to work.

If another configuration is required, follow the procedure below:

Check that your Etica2300 is configured with the IDNET weighing base (use ETICONF)
- *Level the base using the adjustment feet.*
- *switch the unit on and wait until the screen displays the main menu.*

Configuration mode
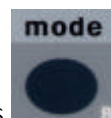
On the main screen, press **mode**

-Choose "**Open session**"

-Enter the **Service Operator** code:

24681357.

Confirm by pressing the **OK** button.

The screen displays:
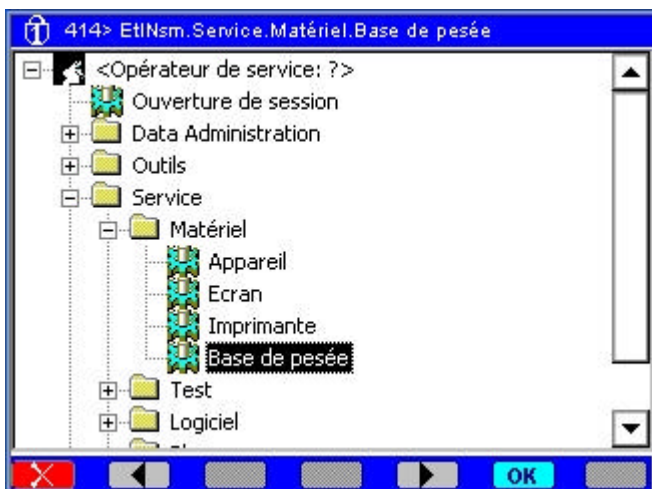
-Using the arrows, select Service\Hardware\Weighing Base
-Confirm by pressing the **OK** button in the directory: \Weighing base
"Service\Hardware\Weighing Base mode"
(Short code: **414**)

Three **IDNET** base set-up options are displayed on screen.

These menus are: **Information➔Filtering➔Calibration**

12.1.1 Information menu
This menu displays the weighing parameters and the **DNA** program version (EEPROM)

Function buttons:

The ⌷ button allows you to select the Next page.
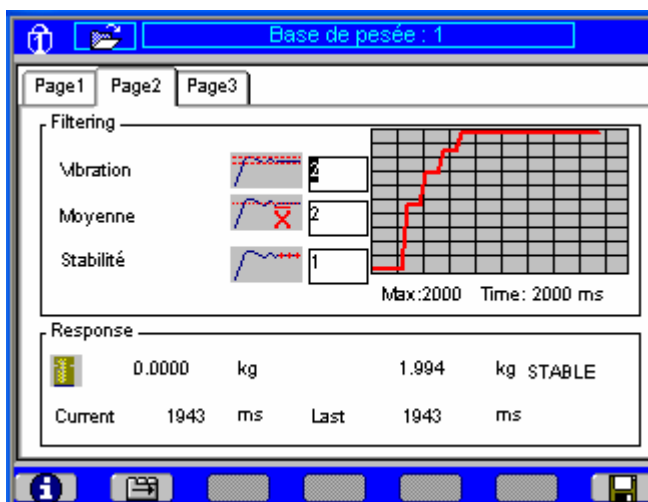
The 📂 button allows you to enter edit mode.

The ⬅➡ button allows you to move between the different windows.

The 💾 button allows you to save changes and return to information mode

Note: this button only appears if a change has been made

12.1.2 Filtering menu
This menu allows you to configure the weight precision and the weight stability.

-*Vibration* (1-14) allows you to increase or decrease the weight acquisition time.
The default value is 3.

-Mean (1-3), the mean value of the number of measurements used to determine the weight precision.
(The larger this value, the more precise the weight that is displayed).
The default value is 2

-**Stability** (1-4), allows you to fix the number of the Tunnel stability level.
The default value is 1.

Press the 💾 button to save these values.

12.1.3 Calibration menu:

This menu allows you to calibrate and configure the different metrological values of the IDNET base.

Press the button to enter calibration mode

The screen displays:

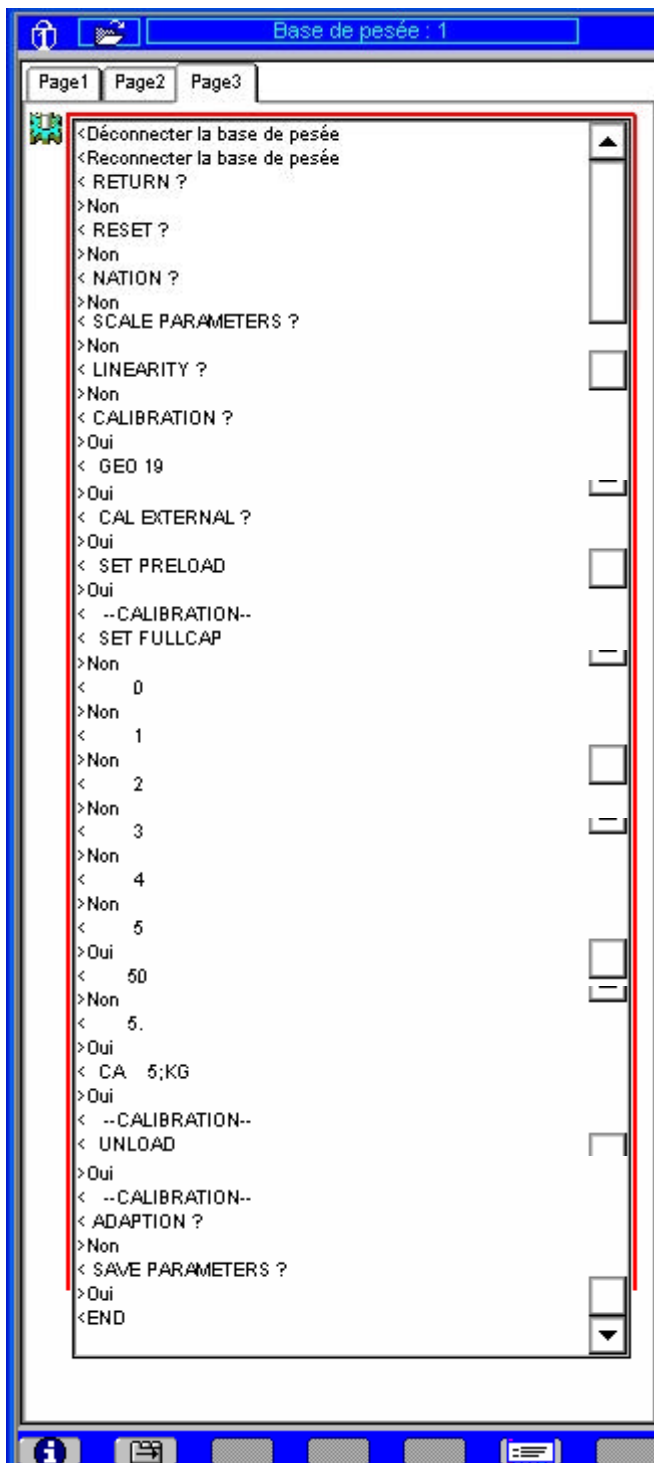Disconnect the Etica2300 weighing base

The screen displays:

Reconnect the Etica2300 weighing base

When <RETURN?> is displayed

Press the button to choose the Response

The cell responds with the following menus:

RETURN allows you to quit the calibration mode without changing the selected parameters.

RESET restores the original settings to the metrological parameters.

NATION allows you to choose the destination country.

SCALE PARAMETERS allows you to modify the cell's metrological parameters. (Max. load, min. interval)

LINEARITY can never be modified.

CALIBRATION allows you to adjust the *GEO* value and run the calibration of the measurement cell with a given weight.

SAVE PARAMETERS allows you to save the chosen configuration.

-**Select NO when reaching**:
RETURN?
RESET?
NATION?
SCALE PARAMETERS?
LINEARITY?

-**Select YES when reaching**:
CALIBRATION?
GEO 19?
CAL EXTERNAL?
Unload the weight from the platform when reaching **SET PRELOAD**.
-Select **YES**

SET FULLCAP
-**Select NO in response to**:
0 ; 1 ; 2 ; 3 ; 4

-**Select YES in response to:**
5

-**Select NO in response to**:
50

-**Select YES in response to:**
5.
Place the 5kg weight on the platform when reaching **CA 5,KG**
select **YES**
Unload the weight from the platform when reaching **UNLOAD**.
select **YES**

-**Select NO when reaching**:
ADAPTATION?

-**Select YES when reaching**:
SAVE PARAMETERS?

**END** (calibration is complete)
Press the ESC key to quit calibration.

12.2.4 Scale Parameters menu:
The SCALE PARAMETERS menu allows you to set the graduation. (max. load, min. load, progression interval etc…)

Eg: Definition of a multi-interval instrument:

        Max: 6/15 kg
        Min: 40 g
        e   = 2/5 g

Repeat the procedure on pages **86,87 and 88** up to the **SCALE PARAMETERS** menu and confirm with **YES**
Follow the instructions on screen.
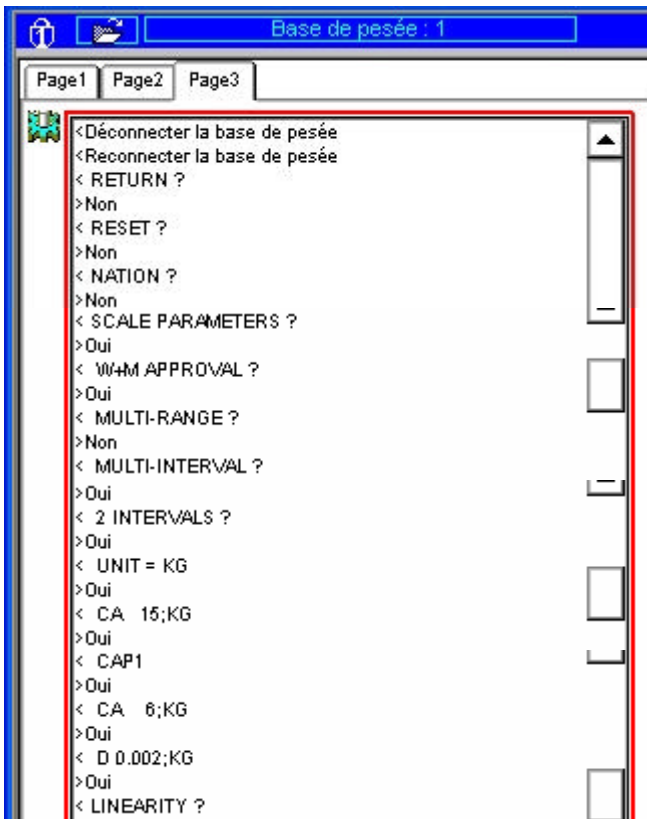
When <SCALE PARAMETERS?> is displayed
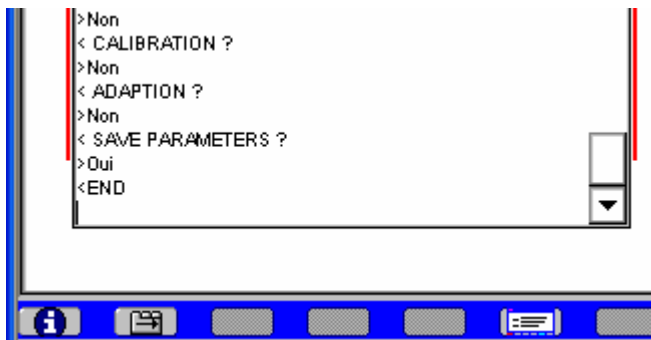Press the [ ] button to choose the Response

Note: Multi-Interval
      Multi-Range

-**Select YES when reaching**:

SCALE PARAMETERS?
W+M APPROVAL?
MULTI-INTERVAL?
2 INTERVALS?
UNIT = KG?
CA 15;KG
CAP1
CA 6;KG
D 0.002;KG

-**Select NO when reaching**:

LINEARITY?
CALIBRATION?
ADAPTATION?

```
>Non
< CALIBRATION ?
>Non
< ADAPTION ?
>Non
< SAVE PARAMETERS ?
>Oui
<END
```

-**Select YES when reaching**:

SAVE PARAMETERS?

END (cell parameter set-up is complete)
Press the ESC key to quit.

13. ERROR MESSAGES

List of error messages for the *Etica2300* model weighing-labelling unit:

MESSAGES or IMAGES	MEANINGS
SCALE COMMUNICATION	Loss of communication (scale switched off, faulty connection cable, faulty communication board, etc.)
INSUFFICIENT SETTING	Setting below the minimum permitted value.
BAD SETTING	Pan removed, sensor damaged - Zero offset.
LOW	Setting between 0 and – 9 intervals.
SETTING IMPOSSIBLE	Setting above the maximum permitted value.
RANGE EXCEEDED	Overload greater than Max + 9 intervals.
PRINTER FAULT	Connection cable disconnected – Printer off or faulty - Incorrect label definition.
PAPER OUT	No more label rolls n the printer or end of roll
REMOVE LABEL	The label has not been removed from the print head.
DATABASE ERROR	Read/write database error.

ERROR	Extended error messages for TD 26 or TD27 modules.
ERR-METRO	Checksum error of metrological parameters
ERR-CALIB	Calibration error
ERR-REF-WEIGHT	Reference weight error
ERR-AVERAGE	Error in number of averages
ERR-NB-STAB	Error in number of values for stability (Tunnel)
ERR-STAB	Stability criterion error

14. CHANGING THE PAPER ROLL AND MAINTENANCE

14.1 Changing the label rolls

Note: *You do not need to turn the device off to proceed with this operation.*
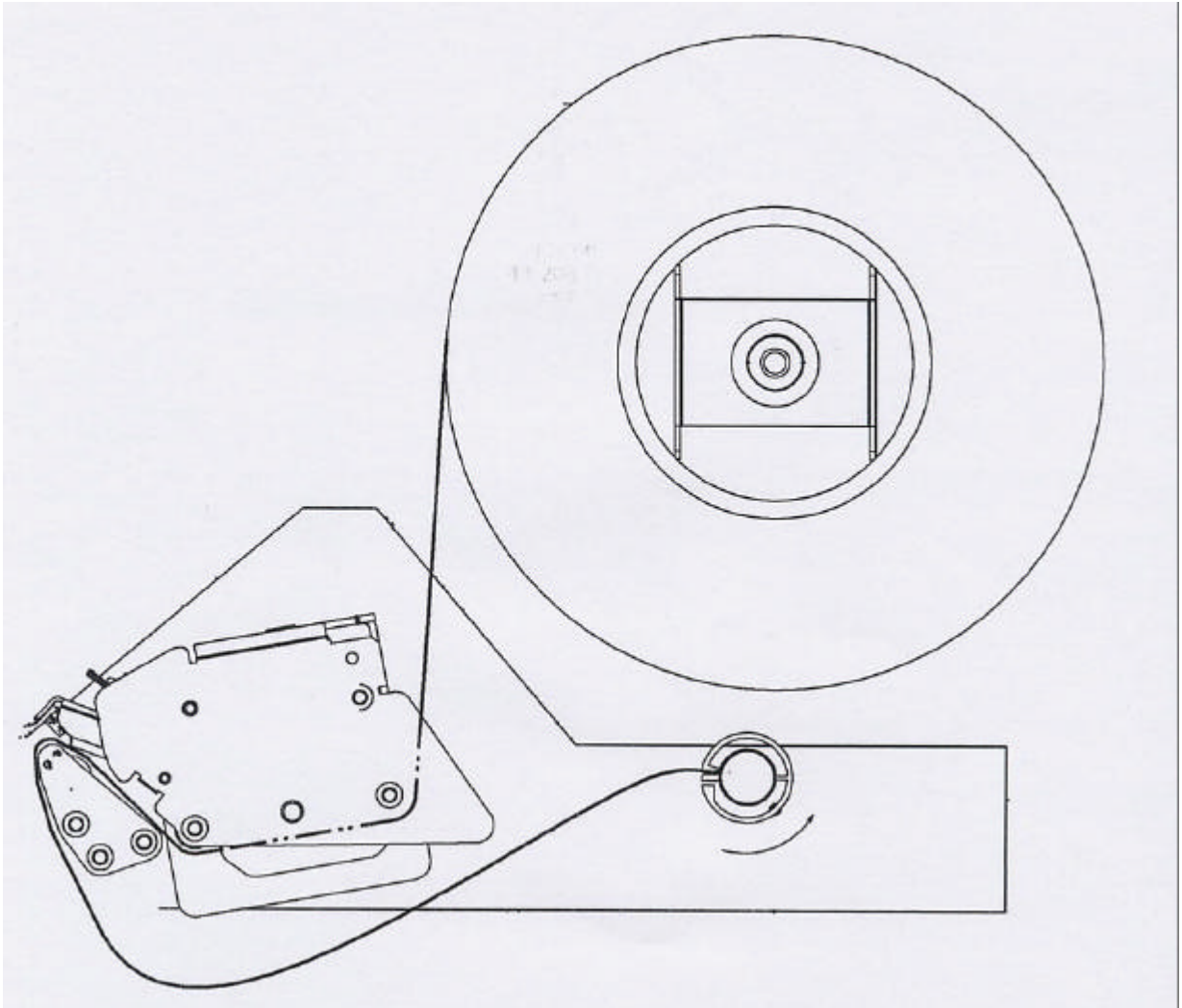
14.2 Maintenance / Cleaning

Note: Like all devices operating under difficult conditions, the Etica 2300 requires a few simple precautions during cleaning, as well as minimum maintenance.

Cleaning

- Disconnect the device form the 230 V mains.
- Never clean the device with a high pressure cleaner or a water spray.
- Use a damp cloth or sponge to clean the outer parts, the screen and the programming keypad.
- Never use abrasive scouring pads which would damage the screen and make your weighing labelling unit unusable.
- If you need to clean your device more thoroughly, do not use aggressive products. Excellent cleaning products are available in the shops, which will make your machine look as good as new.

Cleaning the mechanical parts of the printer in contact with the paper

To ensure constant printing quality, parts in contact with the label roll must be cleaned regularly. Depending on the paper quality used, glue deposits may build up on the pins and the print head.
Paper particles, torn off by the paper rubbing on the printer guide parts, may also build up on these parts.
This is to be expected and will not affect printer operation if light maintenance is carried out on a regular basis:

- Remove the paper particles with a dry brush.
- Unlock the tilting unit to access the thermal head.
- Clean the axles in contact with the paper and the printer head using a soft cloth with isoproplyl alcohol.
- Never use ordinary household cleaning products.
- Never use hard or metallic tools (knives, screwdrivers, etc.) to clean the print head, even if a piece of label is stuck on it: It will damage the parts cleaned and invalidate the warranty.

15. APPENDICES

15.1 APPENDIX 1: LIST OF SPARE PARTS*

Available as standard from MT-LOG

DESIGNATION	MTCIMF CODE
PCB-UBASE	22005434
PCB-EXT-MGX266	22006755
RAM 64MB, SO DIMM144	22007263
COMPACT FLASH 128MB + SOFTWARE	29268577
COLOUR TFT INTERFACE BOARD	29223211
SHARP COLOUR DISPLAY	29220058
POWER SUPPLY PSU0063 BOARD	22006145
CONNECTOR BOARD	22005437
ALL EQUIPPED PRINTER	29235004
PRINTER DRIVE ROLL	22006057
PCB-PRINTER ULP BOARD	22005076
PCB-KEYBOARD BOARD	29223091
CPU/LOADCELL COMMUNICATION BOARD	29223081
THERMAL-HEAD-K2003 GK4	22006052
ALL ASSEMBLED KEYBOARD	29268597
TD27-BOARD	29229221
SENSOR ACJ 6/2 15/5	29018309
KEYBOARD/CPU CABLE	29223101
DISPLAY/CPU CABLE	29220038
CONNECTORS/CPU CABLE	29223102
CPU/LOADCELL COMMUNICATION CABLE	29220040
CPU/PRINTER CABLE	22006215
POWER SUPPLY/CPU CABLE	22006218
POWER SUPPLY/PRINTER CABLE	29223103
RS485 PC 104 COMMUNICATION EXPANSION BOARD	29223231
LABEL DETECTION CELL	22006063
PAPER MOTOR	22006061
REWINDER MOTOR (IGARASHI)	22006064
REWINDER MOTOR (DUNKER)	22009470
UPDATE KIT FROM IGARASHI TO DUNKER MOTOR (MOTOR INCLUSIVE)	29267425
PAPER CELL (Fork)	22006060
UP GRADE KIT B/W TO COLOUR DISPLAY	29235002
ULMA/AUTOMAC INTERFACE CABLE	29223241
ULMA INTERFACE CABLE	29223243

15.2 APPENDIX 2: LIST OF ACCESSORIES**

Available as standard from MTA

DESIGNATION	MTCIMF CODE
Accessory – High speed multi-Interval weighing platform WP27DS (6 kg/2g 12 kg/5g)……………………………………………………	29 299 017
Accessory –E2300 Automac Elixa Prima adaptation kit* (including multi-range weighing platform 6kg/2g 12kg/5g)…………………..	29 299 008
Accessory – E2300 Automac Elixa Plus (XS) adaptation kit* (including multi-range weighing platform 6kg/2g 12kg/5g)…………………..	29 299 025
Accessory – E2300 Ulma Compact integration kit (including multi-range weighing platform 6kg/2g 12kg/5g)…………………..	29 299 009
Accessory – 70mm painted fixed support……………………………………………..	292 990 027
Accessory – 110mm painted adjustable support……………………………….	292 990 028
Accessory – 38/40mm polyamide chuck adaptation kit………………………..	29 299 078
Accessory – PCMCIA Adapter……………………………………………………..	29 299 038
Accessory - communication RS485 + RS232…………………………………	29 299 048
Accessory – Metrologic hand held laser barcode scanner + stand…………….	29 299 049

EPEC-Nr. 29230032

To protect your METTLER TOLEDO product's future:
METTLER TOLEDO Service assures you of quality, measuring, accuracy and preservation of value of the METTLER
TOLEDO products for years to come. Please ask for details on our attractive Service Offer. Thank you

Subject to technical modifications and modifications
in the extent of supply of accessories

© Mettler-Toledo EPEC SAS 2006 EPEC-Nr. **29230032-E** Printed in Germany 06/06

Internet http://www.mt.com

A Mettler-Toledo Gesellschaft mbH., Südrandstr. 17, 1230 Wien,
Tel. (01) 604 19 80, Telefax (01) 604 28 80, Telex 111302
B N. V. Mettler-Toledo S. A., Leuvensesteenweg 384, 1932 Zaventem,
Tel. (032) 02 334 02 11, Fax (032) 02 334 03 34
CH Mettler-Toledo (Schweiz) AG, Im Langacher, 8606 Greifensee,
Tel. (044) 944 45 45, Telefax (044) 944 45 10
CZ Mettler-Toledo, s.r.o., 100 00 Praha 10
Tel. 272 123 150, Fax 272 123 170
D Mettler-Toledo GmbH, Postfach 110840, 35353 Giessen,
Tel. (0641) 507-333, Telefax (0641) 507-349, Telex 482912
DK Mettler-Toledo A/S, 2600 Glostrup
Tel. (43) 270 800, Fax (43) 270 828
E Mettler-Toledo S.A.E ., Avda. San Pablo 28, 28820 Coslada (Madrid),
Tel. (01) 669 62 22, Fax (01) 669 33 47
F Mettler-Toledo S.A., 18/20 Avenue de la Pépiniére, 78222 Viroflay Cedex,
Tél. (01) 30 97 17 17, Fax (01) 30 97 16 16
HR Mettler-Toledo, d.o.o., 10000 Zagreb
Tel. 01 29 58 130, Fax 01 29 58 140
HU Mettler Toledo Kft., 1139 Budapest
Tel. (01) 288 40 40, Fax (01) 288 40 50
I Mettler-Toledo S.p.A., Via Vialba 42, 20026 Novate Milanese,
Tel. (02) 33 3321, Telefax (02) 35 62 973
NL Mettler-Toledo B.V., Postbus 6006, 4000 HA Tiel,
Tel. (03440) 63 83 63, Telefax (03440) 63 83 90
NO Mettler-Toledo A/S, 1008 Oslo
Tel. 22 30 44 90, Fax 22 32 70 02
PL Mettler-Toledo Sp. z.o.o., 02-822 Warszawa
Tel. (22) 545 06 80, Fax (22) 545 06 88
SE Mettler-Toledo AB, 120 08 Stockholm
Tel. 08-702 50 00, Fax 08-642 45 62
SL Mettler-Toledo, d.o.o., 1236 Trzin
Tel. (01) 530 8050, Fax (01) 562 1789
SK Mettler-Toledo s.r.o., 82104 Bratislava
Tel. (02) 434 27 496, Fax (02) 433 37 190
UK Mettler-Toledo Ltd, Leicester, LE4 1AW
Tel. (0116) 235 0888, Fax (0116) 236 5500