alsa®
bologna
apparecchi medicali s.r.l.

ALSATOM

SU MPC SERIES

SERVICE MANUAL

INDEX

PREFACE 2
EQUIPMENT NEEDED 2
INTRODUCTION 2
PRELIMINARY 3
SETTING PROCEDURE 3
+5V AND +15V LOW POWER SUPPLY CHECK 3
D/A CONVERTER VOLTAGE REFERENCE CHECK 3
SETTING OF NEUTRAL PLATE ALARM CIRCUIT 3
HF OUTPUT POWER FREQUENCY CHECK 4
SETTING OF RAMP DRIVING SIGNAL 4
HF OUTPUT MOSFETS DRIVING SIGNAL CHECK 4
SETTING OF SIGNAL TO ENABLE UNIT FROM HANDSWITCH WITH PUSHBUTTONS 4
HF SECTION POWER SUPPLY CHECK 5
SETTING OF MINIMUM AND MAXIMUM HF OUTPUT POWER LEVELS 5
SETTING OF I_LEAK SIGNAL 5
SETTING OF CURRENT LIMIT 5
HF MAXIMUM OUTPUT POWER LEVELS AND WAVEFORMS CHECK IN ALL MODES 6
RICERCA GUASTI TROUBLESHOOTING 8
SCHEMATIC BLOCK, ELECTRIC DIAGRAMS AND COMPONENTS LAYOUT ..... a
BILLS OF MATERIALS ..... b
801336 – RF POWER SECTION & HANDLE CONTROL (SU 140/D MPC – SU 140 MPC) ..... b
801337 – uC SECTION & DRIVER SECTION (SU 140/D MPC – SU 140 MPC) c
801345 – RF POWER SECTION & HANDLE CONTROL (SU 100 MPC – SU 50 MPC) ..... d
801346 – uC SECTION & DRIVER SECTION (SU 100 MPC – SU 50 MPC) ..... e
801367 – RF POWER SECTION & HANDLE CONTROL (SU 140/BD MPC) ..... f
801368 – uC SECTION & DRIVER SECTION (SU 140/BD MPC) ..... g
LAYOUT OF INTERNAL ITEMS: BOARDS, OUTPUT SOCKETS, POWER ENTRY, MAINS SWITCH ..... h

PREFACE

Purpose of this manual is to supply instructions to test features and adjust the unit for a properly trained technical staff, allowing to solve most common failures.

EQUIPMENT NEEDED

DESCRIPTION	*FEATURES*	*EXAMPLE*
Dual trace oscilloscope	*BandWidth: > 40 MHz*	Tektronix mod. TDS210
True RMS digital multimeter	*Precision Class: 2%*	Tektronix mod. DMM912
Current probe	*BandWidth: 200 Hz÷50 MHz*	Tektronix mod. P6021
H.F. power and leakage current tester for electrosurgery	*Precision Class: 5%*	Fluke 454A
Supplementary display	*(*)*	-

(*) Supplementary display is needed to test SU 100 MPC and SU 50 MPC, since they can't show setting output power.

INTRODUCTION

ALSATOM SU MPC series electrosurgical units are made up of the following sections:

- Microcontroller section;
- HF output power section;
- Power display section (only for SU 140, 140/D, SU 140/BD);
- Handle control section (only for SU 140 e 140/D).

Microcontroller section performs main system functions: according to signals coming from HF output power section, setting commands and monitoring circuits, it enables HF output power delivery, blocking it as soon as control parameters are out of normal safety conditions. Driving signals for HF output power section are delivered in this section as well.
HF output power section is composed by a mosfet push-pull configuration: throughout the HF output transformer, it supplies HF power available in output connections. Some relays drive the waveform either to monopolar or bipolar output, blocking HF power in not used output receptacle.
Since HF output power is higher than 50 Watts in all models, neutral plate alarm is supplied: this blocks HF power delivery as soon as a neutral electrode failure occurs. Failed condition is displayed with a red light and error code PPP (in 140/D and 140 only) on front panel together with an acoustic signal
SU 140/D and SU 140 models are provided with two 3-digit seven-segment displays to allow user to set HF power in both cut and coagulation modes. Furthermore user can uses pencils with pushbuttons to activate these models, due to a circuit to allow activation for these accessories.
Switching the unit ON, SU MPC performs a selftest phase to check if all parameters are in safety range. During the selftest, displays show 8.8.8. 8.8.8., cut and coagulation activation lights is on. Next, CUT display shows "L" with software release for few seconds. At the same time COAGULATION display shows a digit from 1 to 5: this means what model is (refers to the following table).

Coagulation display Code	*Model*
1	SU 140/D
2	SU 140
3	SU 100
4	SU 50
5	SU 140/BD

Schematics to perform maintenance on ALSATOM SU MPC are the same for the following models: SU 140/D MPC, SU 140 MPC, SU 100 MPC, SU 50 MPC. In the last two models some components are not used. Refers to bills of materials of every model on the last page of this manual.
SU 140/BD MPC only has different schematics and bills of materials.

PRELIMINARY

PAY ATTENTION!! BEFORE TO CONNECT THE UNIT TO MAINS, CHECK MAINS VALUE ON REAR SIDE ELECTRICAL DATA LABEL.

Remove F3 fuse – connected to power supply for HF output – placed on main board (alsa code 801336).

SETTING PROCEDURE

J11 connected to GND is needed to switch ON the unit in setting mode. To do this, a 100 ohms/ ¼ watts resistors must be used. This avoids alarms due to setting not yet carried out or in case of troubleshooting. After the unit is switched on, connection from J11 and GND can be removed, until the next switching on. With the unit in setting mode, display shows different parameters according to what mode is selected to let to monitoring the whole unit. Refers to the following table for shown parameters according to the mode selector.

Mode selector	*Cut display*	*Coagulation display*
Pure Cut	HF output power setting	Proportional signal to HF output power
Blend Cut	HF output power setting	Proportional signal to HF output current
Macro Coag	Proportional signal to output waveform modulation	HF output power setting
Micro Coag	Proportional signal to mains	HF output power setting
Bipolar Coag	Proportional signal to HF output power	HF output power setting

+5V AND +15V LOW POWER SUPPLY CHECK

In setting mode, connect a multimeter in parallel to D28 (“TP1”) on main board. DC voltage must be +5V(± 0.2 V). Next connect multimeter to “TP2” and check DC voltage: this must be +15V(± 0.6 V).

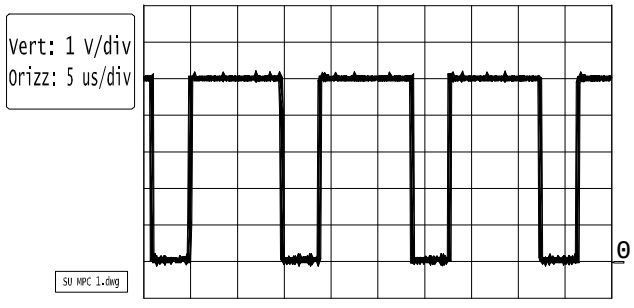
D/A CONVERTER VOLTAGE REFERENCE CHECK

Connect multimeter to J8 (“TPA”) on microcontroller board and check if DC voltage is +5V (± 0.01V); set voltage using R20 pot if required.

PAY ATTENTION!!! CARE SHOULD BE TAKEN TO SET THAT VOLTAGE! IF VOLTAGE REFERENCE IS HIGHER THAN 5.1 V, MICROCONTROLLER COULD BE DAMAGED. IF SETTING IS REQUIRED, REMOVE J8 JUMPER, SET REFERENCE VOLTAGE WITHOUT EXCEED THE ABOVE MENTIONED LIMIT. AFTER PLACE J8 JUMPER IN ITS ORIGINAL POSITION.

SETTING OF NEUTRAL PLATE ALARM CIRCUIT

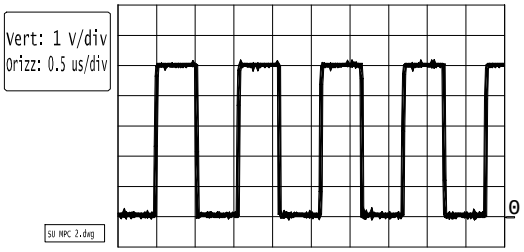
(not needed in SU 140/BD MPC)
Connect the oscilloscope probe to “TPB” on microcontroller board; set R35 pot to obtain a 71 kHz (± 2 kHz) square waveform.



Check the neutral plate alarm circuit using various resistors: with values higher than 100-200 ohms alarm occurs. With values lower than 100 ohms the circuit doesn't give alarm and the unit can be used.

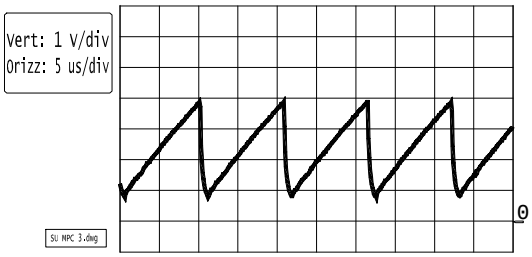
HF OUTPUT POWER FREQUENCY CHECK

Connect the oscilloscopi probe to "TPC" test point on microcontroller board and check a frequency of 938 kHz (± 5 kHz); waveform must be like the following:



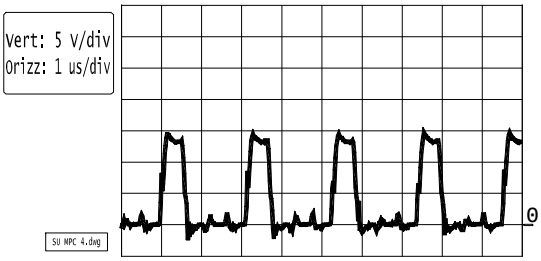
SETTING OF RAMP DRIVING SIGNAL

Set the unit in CUT mode with power setting at its minimum level, connect the oscilloscope probe to "TPD" test point; press the footswitch and set R31 pot in order to obtain the following waveform (ramp signal must be set at 4 V exactly in all models with both monopolar and bipolar output; only in SU 140/BD MPC ramp signal must be set at 4.120V).



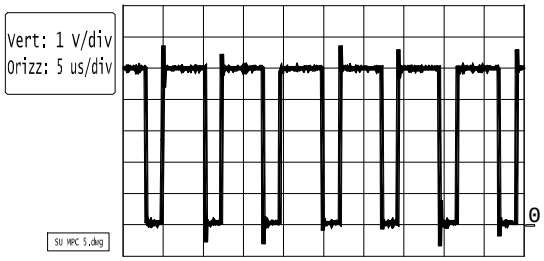
HF OUTPUT MOSFETS DRIVING SIGNAL CHECK

Connect the oscilloscope probe at "TPE" test point.
Set power setting at its maximum level.
Activating the unit in CUT mode, check the following waveform:



SETTING OF SIGNAL TO ENABLE UNIT FROM HANDSWITCH WITH PUSHBUTTONS

(needed in SU140/D MPC and SU140 MPC only)
Connect the oscilloscope probe at "TP3" and check the following waveform:



To check correct pencil activation mode using a standard pencil. If no activation occurs, turn R75 pot slightly counter clockwise. Moreover, pushing both pencil buttons at the same time unit must give alarm.

Switch the unit OFF and place F3 fuse in main board.

HF SECTION POWER SUPPLY CHECK

Switch ON the unit in *setting* mode.
Connect the multimeter to R18 placed on main board; check a +81V (± 5 V) DC voltage. This voltage can't be set.

SETTING OF MINIMUM AND MAXIMUM HF OUTPUT POWER LEVELS

Set 80 in CUT mode, connect a 500 ohms/200 Watts non-inductive load to monopolar output (in SU 140/BD MPC load must be 400 ohms).
Start the unit: HF output current flowing in the load must be 400 mAmps (i.e. 80 Watts). In SU 140/BD MPC current must be 440 mAmps.
If HF output current is different from the above mentioned value, turn R31 pot on microcontroller board.
Set 10 in CUT mode and start the unit.
Turn R39 pot on microcontroller board to obtain a HF output current of 145 mAmps (i.e. 10 Watts).
Since maximum and minimum settings are interactives, above mentioned steps must be performed two or three times in order to obtain best setting.

SETTING OF I_LEAK SIGNAL

Start the unit in CUT mode setting up values in the following table and check corresponding values on COAG section display.

	All models	*SU 140/BD only*
CUTsetting	*COAG Display*	*COAG Display*
5	5÷7	
10		6÷7
50	38÷39	29÷30
80	58÷63	56÷57
100	79÷82	73÷77

Values can be obtained turning R41 pot placed on main board.

SETTING OF CURRENT LIMIT

Connect a 100 ohms/100 watts non-inductive load (load must be 10 ohms in SU 140/BD).
Start the unit in COAG mode and turn R45 pot placed on microcontroller board on current limit threshold value. Once found this threshold, turn back the same pot slightly. Next, connect a 500ohms/100 watts non-inductive load to check if current limit setting affected nominal load HF delivery power in all modes.
After this check switch OFF the unit.

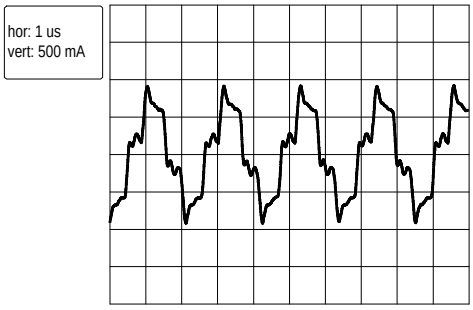
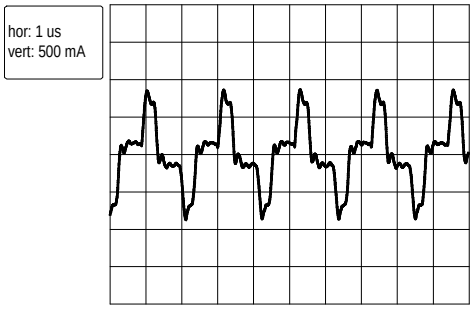
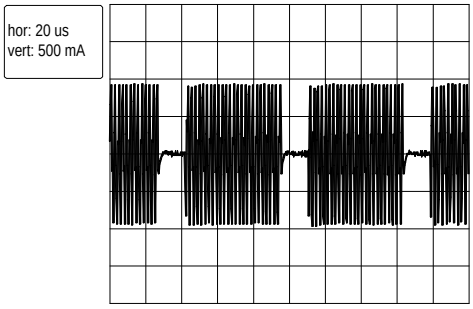
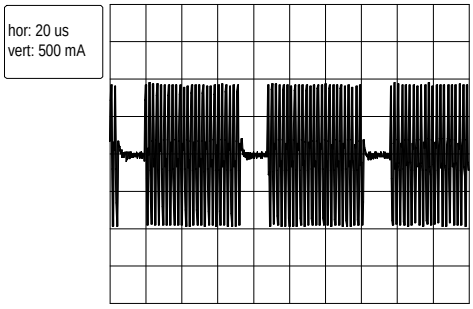
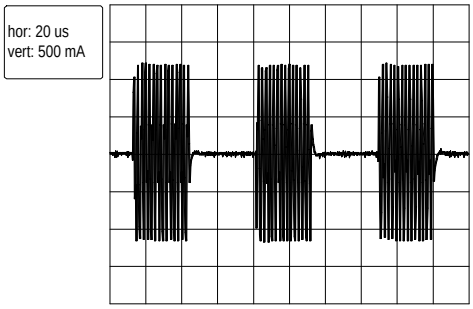
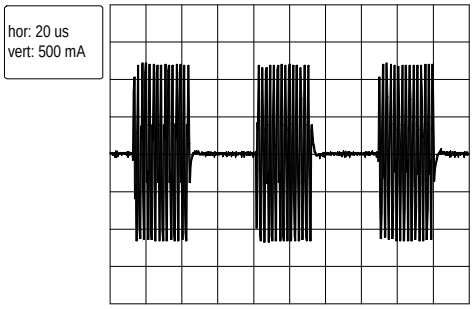
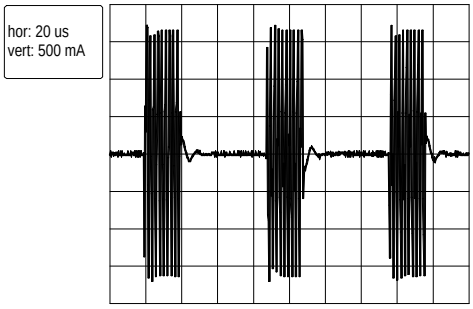
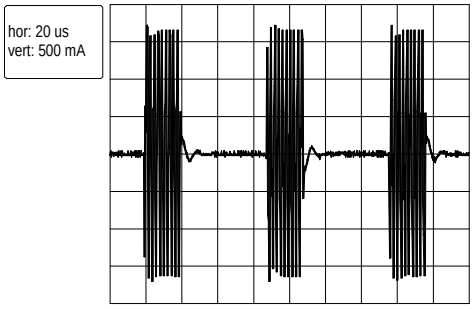
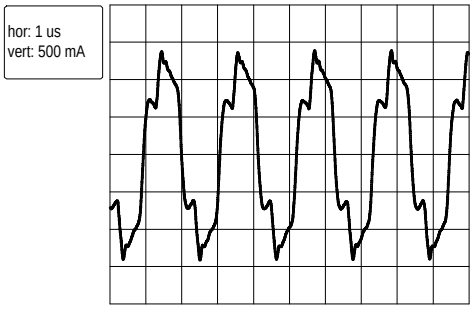
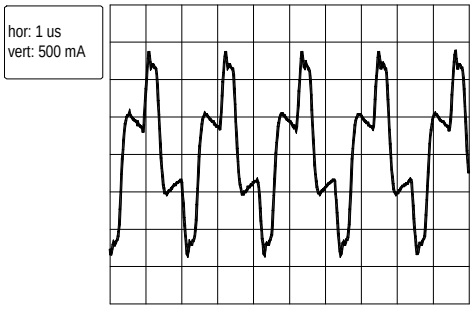
HF MAXIMUM OUTPUT POWER LEVELS AND WAVEFORMS CHECK IN ALL MODES

Switch ON the unit in *normal* mode (J11 opened); check if at the end of selftest, no error occurs.
Start the unit in all modes setting maximum levels. Compare HF output power to diagrams included in instructions manual (tolerance ±20% according to CEI EN 60601-2-2).
Maximum setting, nominal load for all modes reported in the following table:

MODE	*NOMINAL LOAD (ohms)*	*SU140/D SU 140 SU 100 HF OUTPUT POWER (W)*	*SU 50 HF OUTPUT POWER (W)*	*SU 140/BD HF OUTPUT POWER (W)*
CUT	500	140	80	100
BLEND	500	120	80	100
COAG	500	120	80	
MICRO COAG	200	60	60	
BIP	100	100	60	100

NOTE: in SU 140/BD MPC all bipolar modes only

Moreover, check HF output waveforms of every mode fit with the following pictures.

SU 140/D MPC, SU 140 MPC, SU 100 MPC	SU 50 MPC
 "Cut" con impostazione "140" su 500 ohm	 "Cut" con impostazione "80" su 500 ohm
 "Blend" con impostazione "120" su 500 ohm	 "Blend" con impostazione "80" su 500 ohm
 "Coag" con impostazione "120" su 500 ohm	 "Coag" con impostazione "80" su 500 ohm
 "Coag Micro" con impostazione "60" su 200 ohm	 "Coag Micro" con impostazione "60" su 200 ohm
 "Bipolar" con impostazione "100" su 100 ohm	 "Bipolar" con impostazione "60" su 100 ohm

RICERCA GUASTI TROUBLESHOOTING

To monitoring the unit, and make easy troubleshooting, the unit software gives different alarm codes depending on the failure. So it's possible to look for it directly on the damaged section or ask for information to our technical dept. giving the appeared error code.
The unit advises about error codes using different acoustic signals: number of acoustic slow repeated gives what error occurs. Refers to the following table for the complete list of error codes.

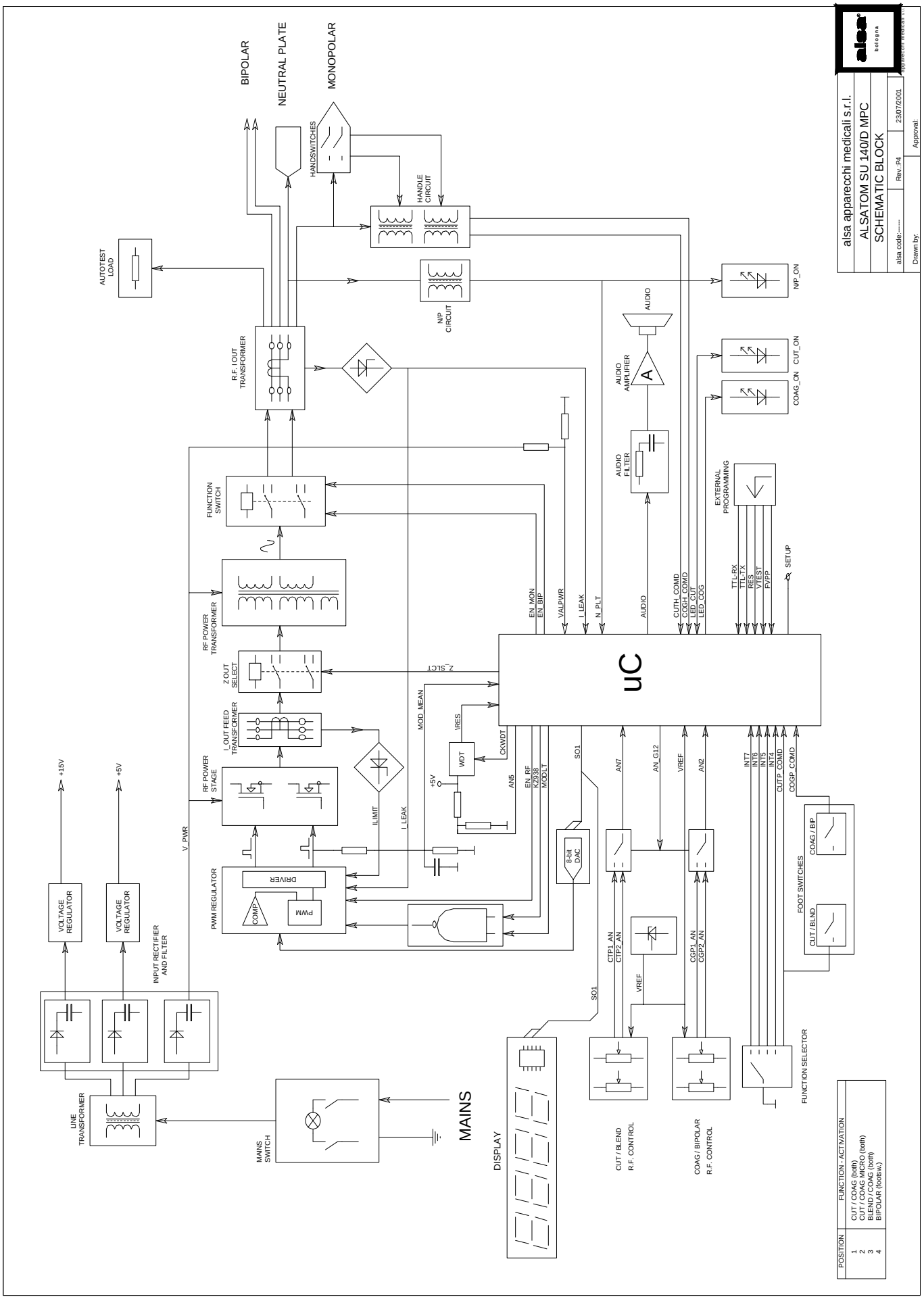
N° repeated acoustic alarms	*DETECTED ERROR*	*FAILURE PLACED IN*
1	Error microcontroller internal RAM	Microcontroller board
2	Fail CRC check	Microcontroller board
3	Error in system variables	Microcontroller board
4	Error in microcontroller low voltage power supply	Microcontroller board
5	Activation failure in pedal or manual mode when the unit is switched on	Main board
6	Error in HF output power	Microcontroller board / Main board
7	Wrong operation made by the user (eg. selection change during activation or wrong mode selector position)	-
8	Failure in one or both potentiometers	Main board
9	Activation time higher than 20 secs	-
10	Error in HF modulation signal	Microcontroller board
11	Error in HF output current monitoring circuit	Main board
12	Error in HF section power supply monitoring circuit	Main board
13	Error in watchdog timer	Microcontroller board
-	Neutral plate	Main board
-	Wrong activation by the user (press cut pedal with selector mode in bipolar)	-
-	Wrong activation by the user (press cut and coagulation pedals at the same time)	-

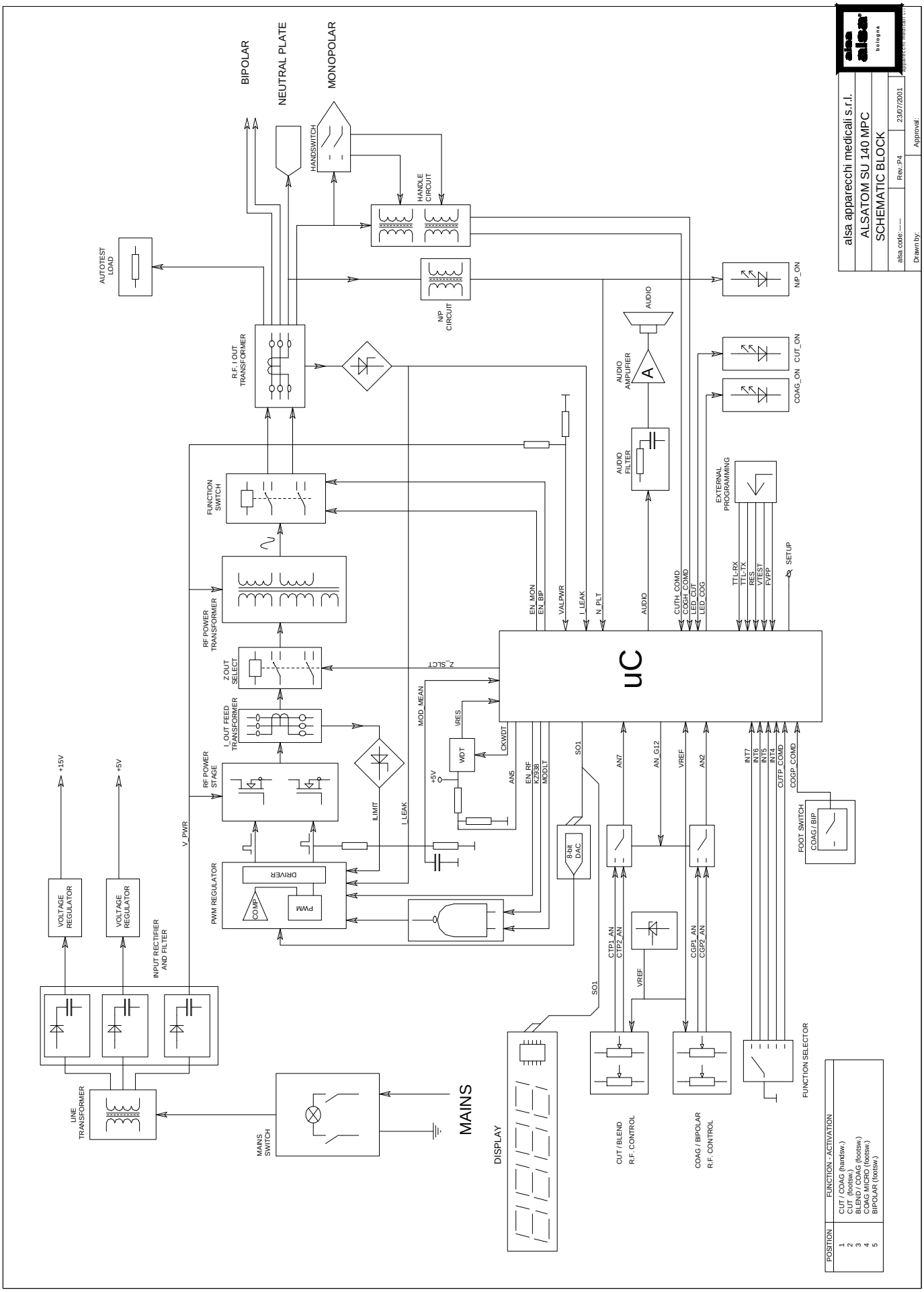
NOTE: last three errors have no alarm code because are recoverable failures.

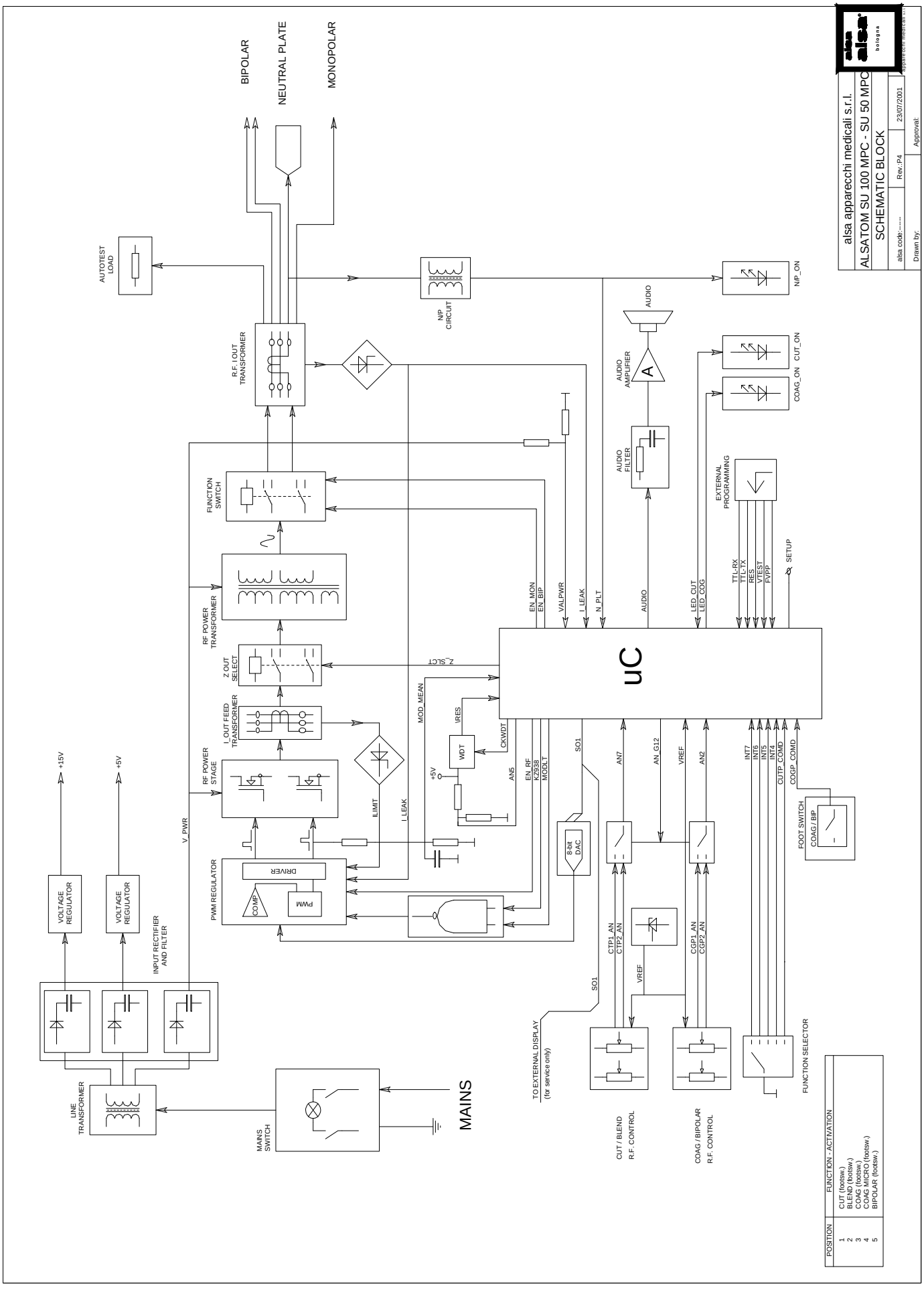
Neutral plate — a red light on panel advises about it; in models with displays, unit shows PPP on CUT display.

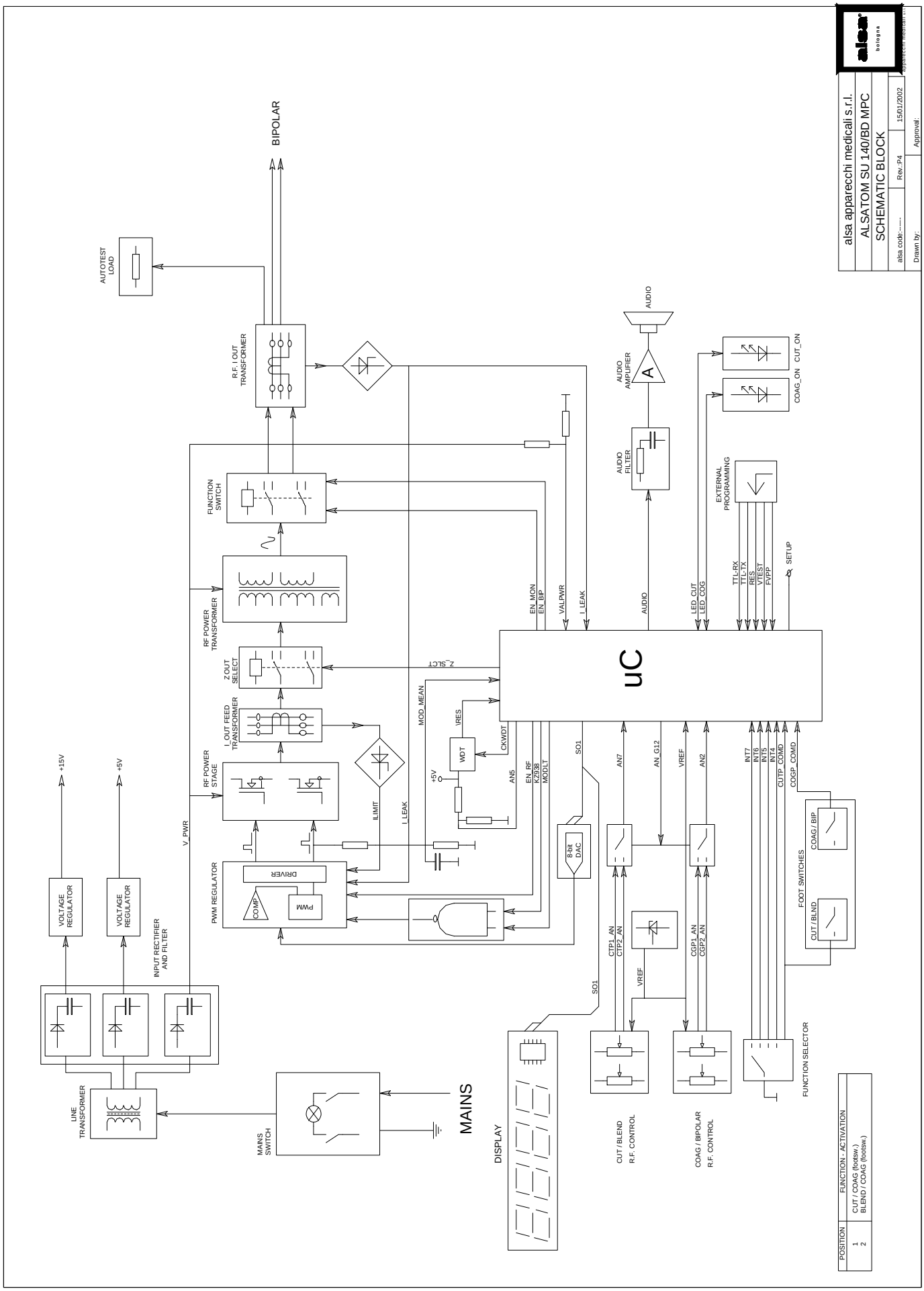
"Cross" activation — if a conflict exists from user activation and selector mode position. The unit advises with blinking yellow and blue lights for CUT and COAGULATION and a intermittent acoustic signal as well. In models with displays unit shows EEE on CUT display. To solve this problem, simply stop the activation.

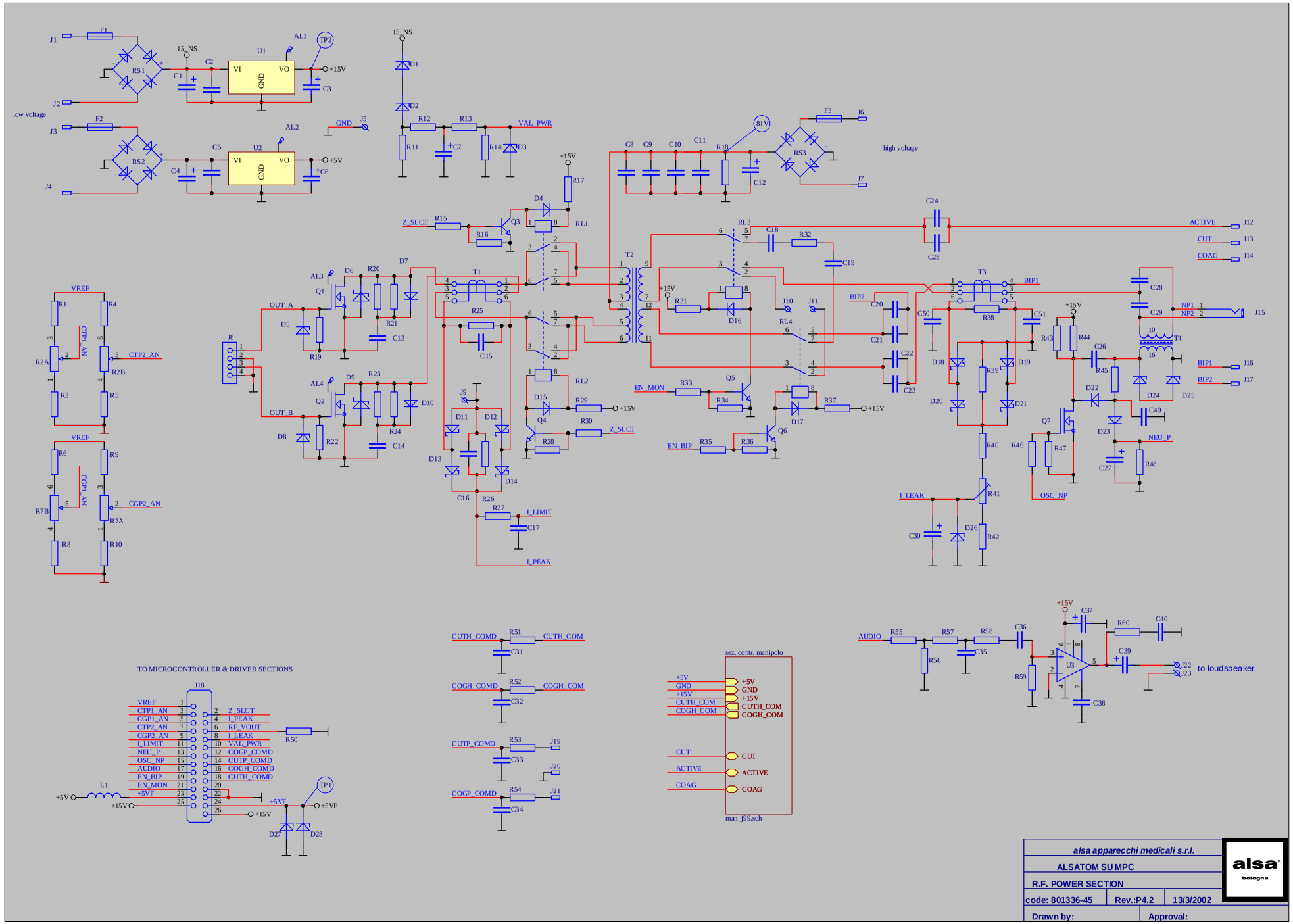
Simultaneous activation — as above, when two pedals or two pencil pushbuttons or a pushbuttons and a pedal are activated at the same time.

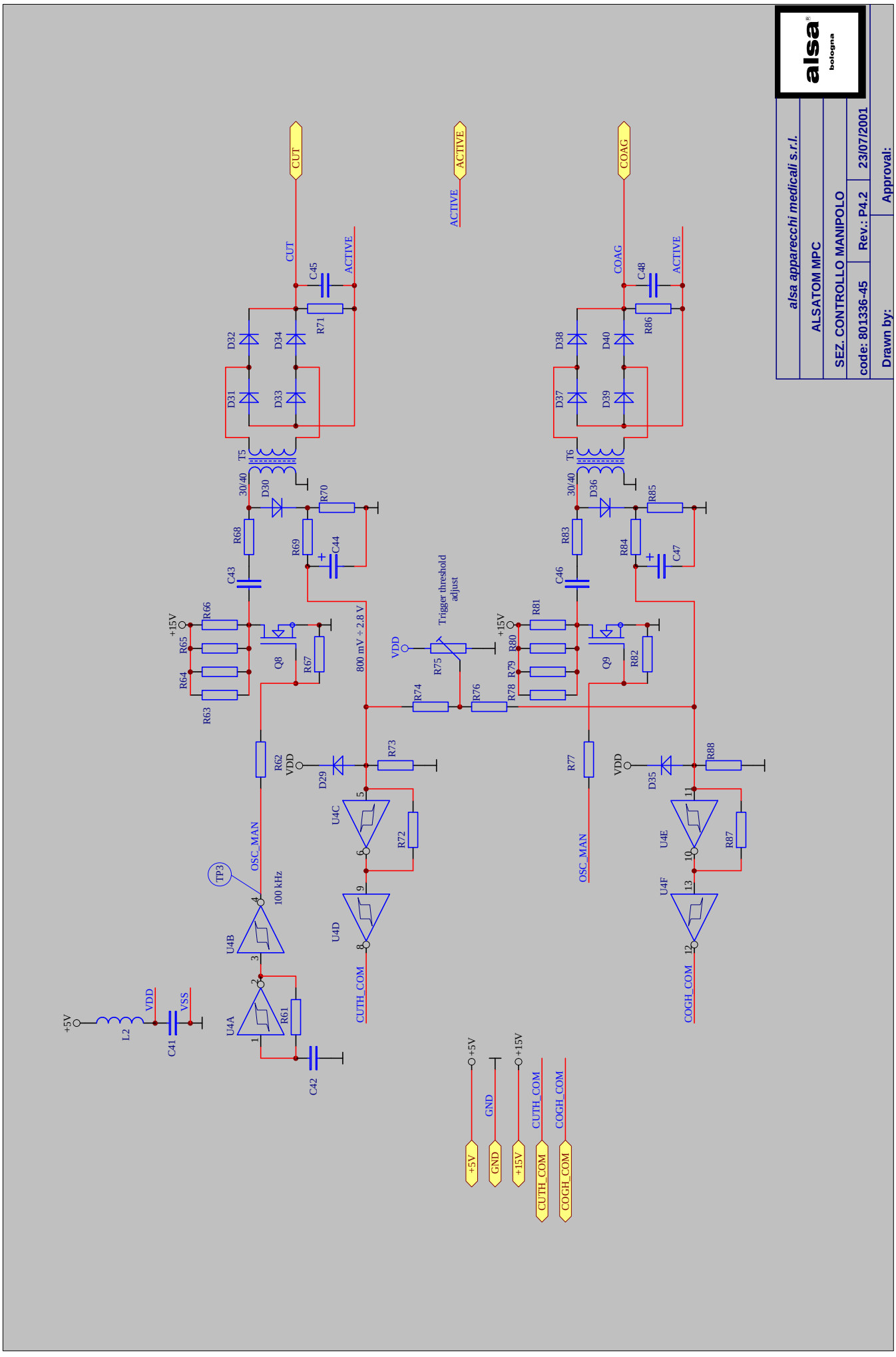

alsa apparecchi medicali s.r.l.
ALSATOM SU 140/D MPC
SCHEMATIC BLOCK
alsa code:-----
Rev.:P4
23/07/2001
Drawn by:
Approval:
BIPOLAR
NEUTRAL PLATE
MONOPOLAR
HANDSWITCHES
HANDLE CIRCUIT
AUTOTEST LOAD
NIP CIRCUIT
N/P_ON
AUDIO
AUDIO AMPLIFIER
AUDIO FILTER
R.F. I OUT TRANSFORMER
CUT_ON
COAG_ON
FUNCTION SWITCH
EXTERNAL PROGRAMMING
RF POWER TRANSFORMER
Z OUT SELECT
I_OUT FEED TRANSFORMER
RF POWER STAGE
PWM REGULATOR
DRIVER
PWM
COMP
uC
EN_MON
EN_BIP
VALPWR
I_LEAK
N_PLT
AUDIO
CUTH_COMD
COGH_COMD
LED_CUT
LED_COG
TTL-RX
TTL-TX
RES
VTEST
FVPP
SETUP
Z_SLCT
MOD_MEAN
VRES
WDT
CKWDT
AN5
EN_RF
K2938
MODLT
SO1
8-bit DAC
ILIMIT
I_LEAK
V_PWR
+15V
+5V
VOLTAGE REGULATOR
INPUT RECTIFIER AND FILTER
LINE TRANSFORMER
MAINS SWITCH
MAINS
DISPLAY
AN7
AN_G12
VREF
AN2
INT7
INT6
INT5
INT4
CUTP_COMD
COGP_COMD
FOOT SWITCHES
COAG / BIP
CUT / BLND
CTP1_AN
CTP2_AN
CGP1_AN
CGP2_AN
CUT / BLEND R.F. CONTROL
COAG / BIPOLAR R.F. CONTROL
FUNCTION SELECTOR
POSITION
FUNCTION - ACTIVATION
1 CUT / COAG (both)
2 CUT / COAG MICRO (both)
3 BLEND / COAG (both)
4 BIPOLAR (footsw.)

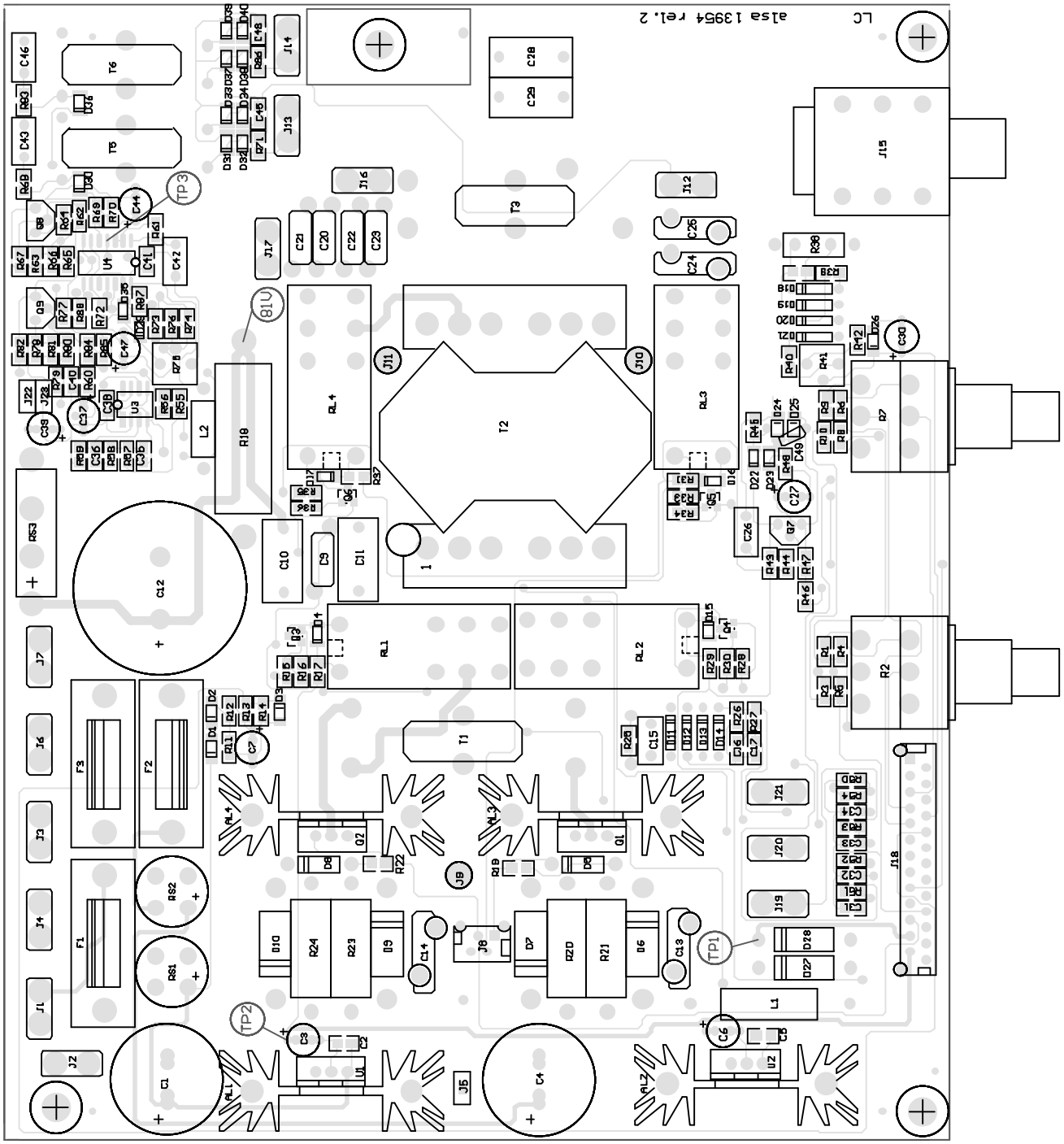

alsa apparecchi medicali s.r.l.
ALSATOM SU 140 MPC
SCHEMATIC BLOCK
alsa code:-----
Rev.:P4
23/07/2001
Drawn by:
Approval:
BIPOLAR
NEUTRAL PLATE
MONOPOLAR
HANDSWITCH
HANDLE CIRCUIT
AUTOTEST LOAD
N/P CIRCUIT
N/P_ON
R.F. I OUT TRANSFORMER
AUDIO
AUDIO AMPLIFIER
AUDIO FILTER
CUT_ON
COAG_ON
FUNCTION SWITCH
EXTERNAL PROGRAMMING
RF POWER TRANSFORMER
Z OUT SELECT
I_OUT FEED TRANSFORMER
RF POWER STAGE
PWM REGULATOR
DRIVER
COMP
PWM
uC
Z_SLCT
MOD_MEAN
VRES
WDT
CKWDT
+5V
AN5
ILIMIT
I_LEAK
V_PWR
EN_MON
EN_BIP
VALPWR
I_LEAK
N_PLT
AUDIO
CUTH_COMD
COGH_COMD
LED_CUT
LED_COG
TTL-RX
TTL-TX
RES
VTEST
FVPP
SETUP
EN_RF
K2938
MODLT
SO1
8-bit DAC
AN7
AN_G12
VREF
AN2
INT7
INT6
INT5
INT4
CUTP_COMD
COGP_COMD
FOOT SWITCH
COAG / BIP
+15V
+5V
VOLTAGE REGULATOR
VOLTAGE REGULATOR
INPUT RECTIFIER AND FILTER
LINE TRANSFORMER
MAINS SWITCH
MAINS
DISPLAY
CTP1_AN
CTP2_AN
CGP1_AN
CGP2_AN
CUT / BLEND R.F. CONTROL
COAG / BIPOLAR R.F. CONTROL
FUNCTION SELECTOR
POSITION
FUNCTION - ACTIVATION
1 CUT / COAG (handsw.)
2 CUT (footsw)
3 BLEND / COAG (footsw.)
4 COAG MICRO (footsw.)
5 BIPOLAR (footsw.)

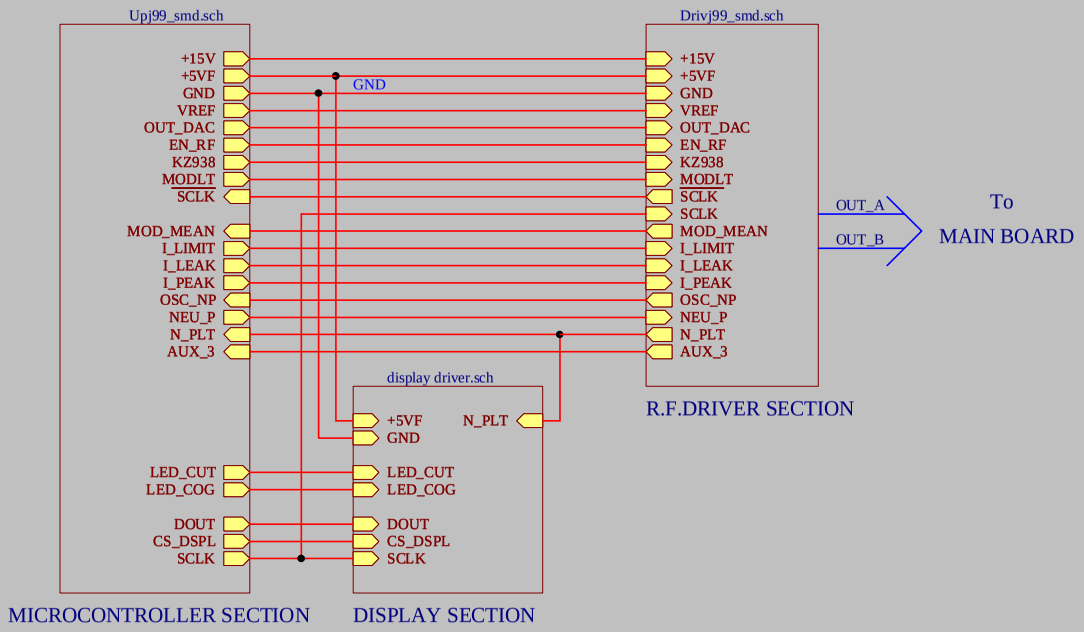

alsa apparecchi medicali s.r.l.
ALSATOM SU 100 MPC - SU 50 MPC
SCHEMATIC BLOCK
alsa code:-----
Rev.:P4
23/07/2001
Drawn by:
Approval:
BIPOLAR
NEUTRAL PLATE
MONOPOLAR
AUTOTEST LOAD
NIP CIRCUIT
NIP_ON
AUDIO
AUDIO AMPLIFIER
AUDIO FILTER
CUT_ON
COAG_ON
EXTERNAL PROGRAMMING
TTL-RX
TTL-TX
RES
VTEST
PVPP
SETUP
R.F. I OUT TRANSFORMER
FUNCTION SWITCH
RF POWER TRANSFORMER
Z OUT SELECT
I OUT FEED TRANSFORMER
RF POWER STAGE
PWM REGULATOR
DRIVER
COMP
PWM
V_PWR
ILIMT
I_LEAK
Z_SLCT
MOD_MEAN
VRES
WDT
CKWDT
+5V
AN5
EN_RF
K2938
MODLT
SO1
8-bit DAC
EN_MON
EN_BIP
VALPWR
I_LEAK
N_PLT
LED_CUT
LED_COG
uC
AN7
AN_G12
VREF
AN2
INT7
INT6
INT5
INT4
CUTP_COMD
COGP_COMD
FOOT SWITCH
COAG / BIP
+15V
+5V
VOLTAGE REGULATOR
VOLTAGE REGULATOR
INPUT RECTIFIER AND FILTER
LINE TRANSFORMER
MAINS SWITCH
MAINS
TO EXTERNAL DISPLAY (for service only)
CTP1_AN
CTP2_AN
VREF
CUT / BLEND R.F. CONTROL
CGP1_AN
CGP2_AN
COAG / BIPOLAR R.F. CONTROL
FUNCTION SELECTOR
POSITION
FUNCTION - ACTIVATION
1 CUT (footsw.)
2 BLEND (footsw.)
3 COAG (footsw.)
4 COAG MICRO (footsw.)
5 BIPOLAR (footsw.)


alsa apparecchi medicali s.r.l.
ALSATOM SU 140/BD MPC
SCHEMATIC BLOCK
alsa code:-----
Rev.:P4
15/01/2002
Drawn by:
Approval:
BIPOLAR
AUTOTEST LOAD
R.F. I OUT TRANSFORMER
FUNCTION SWITCH
RF POWER TRANSFORMER
Z OUT SELECT
I OUT FEED TRANSFORMER
RF POWER STAGE
PWM REGULATOR
DRIVER
COMP
PWM
V_PWR
ILIMIT
I_LEAK
MOD_MEAN
Z_SLCT
\RES
WDT
CKWDT
EN_RF
K2398
MODLT
SO1
8-bit DAC
AN5
AN7
AN_G12
VREF
AN2
uC
EN_MON
EN_BIP
VALPWR
I_LEAK
AUDIO
LED_CUT
LED_COG
TTL-RX
TTL-TX
RES
VTEST
FVPP
SETUP
EXTERNAL PROGRAMMING
AUDIO AMPLIFIER
AUDIO FILTER
COAG_ON
CUT_ON
INT7
INT6
INT5
INT4
CUTP_COMD
COGP_COMD
FOOT SWITCHES
COAG / BIP
CUT / BLND
FUNCTION SELECTOR
CTP1_AN
CTP2_AN
CGP1_AN
CGP2_AN
CUT / BLEND R.F. CONTROL
COAG / BIPOLAR R.F. CONTROL
DISPLAY
MAINS
MAINS SWITCH
LINE TRANSFORMER
INPUT RECTIFIER AND FILTER
VOLTAGE REGULATOR
VOLTAGE REGULATOR
+15V
+5V
POSITION
FUNCTION - ACTIVATION
1 CUT / COAG (footsw.)
2 BLEND / COAG (footsw.)


low voltage
high voltage
TO MICROCONTROLLER & DRIVER SECTIONS
sez. contr. manipolo
man_j99.sch
to loudspeaker
alsa apparecchi medicali s.r.l.
ALSATOM SU MPC
R.F. POWER SECTION
code: 801336-45
Rev.:P4.2
13/3/2002
Drawn by:
Approval:


alsa apparecchi medicali s.r.l.
ALSATOM MPC
SEZ. CONTROLLO MANIPOLO
code: 801336-45
Rev.: P4.2
23/07/2001
Drawn by:
Approval:
CUT
ACTIVE
COAG
+5V
VDD
VSS
L2
C41
C42
C43
C44
C45
C46
C47
C48
R61
R62
R63
R64
R65
R66
R67
R68
R69
R70
R71
R72
R73
R74
R75
R76
R77
R78
R79
R80
R81
R82
R83
R84
R85
R86
R87
R88
D29
D30
D31
D32
D33
D34
D35
D36
D37
D38
D39
D40
Q8
Q9
T5
T6
30/40
+15V
TP3
OSC_MAN
100 kHz
800 mV ÷ 2.8 V
Trigger threshold adjust
U4A
U4B
U4C
U4D
U4E
U4F
CUTH_COM
COGH_COM
GND

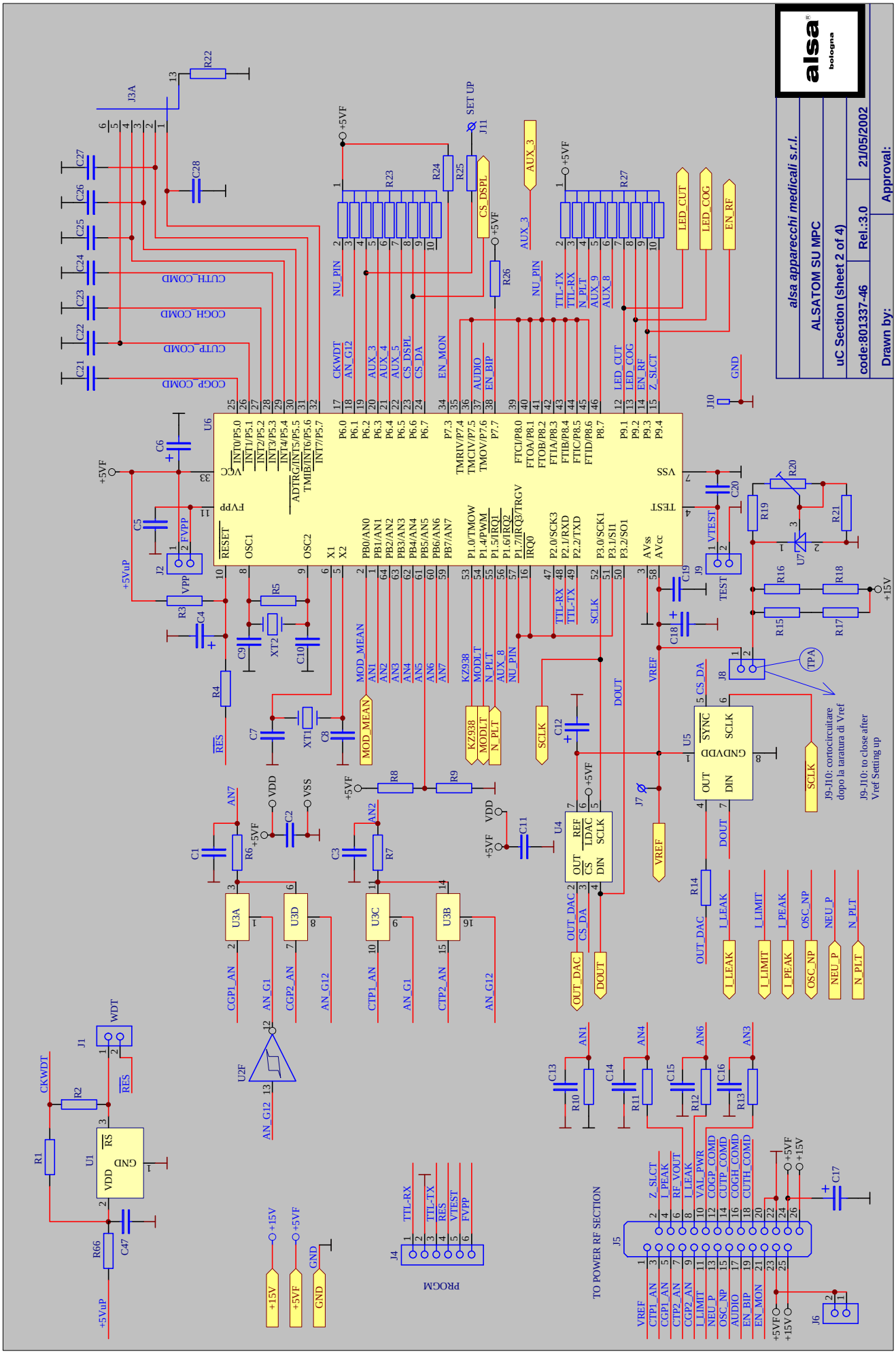

alsa 13954 rel. 2
LC

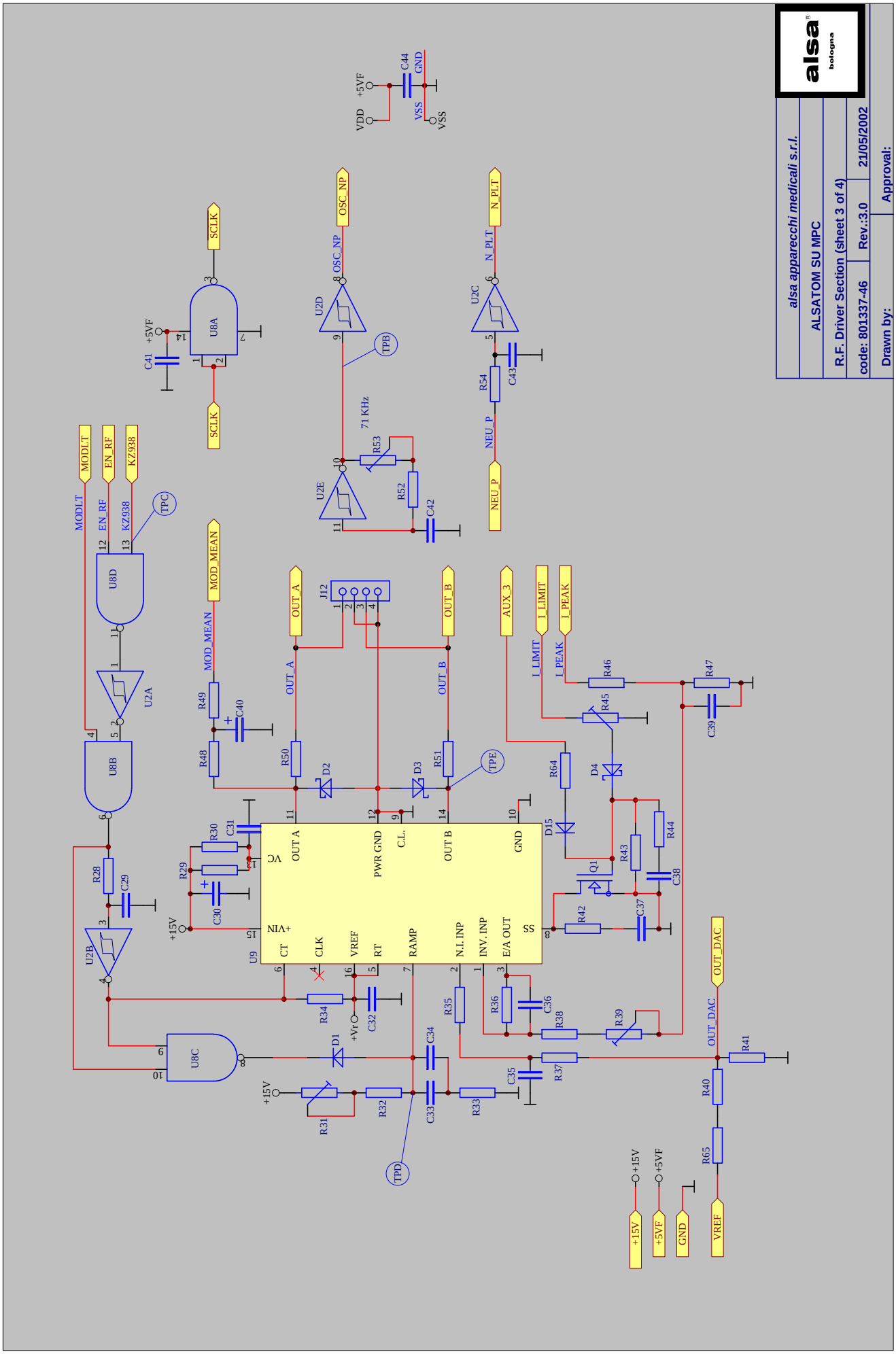


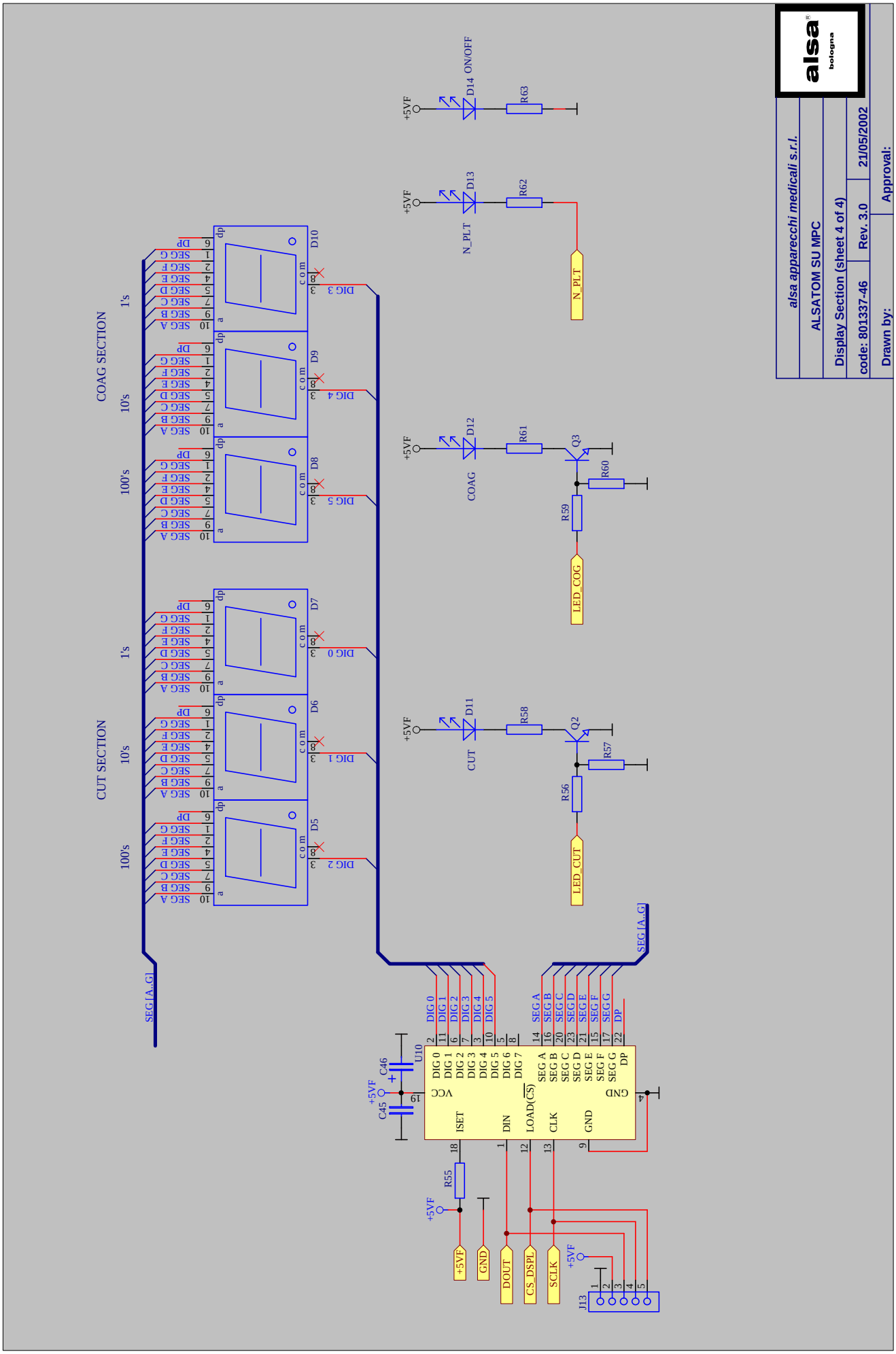
alsa apparecchi medicali s.r.l.		
ALSATOM SU MPC		
uC & DRIVER SECTION (sheet 1 of 4)		
code: 801337-46	Rev.: 3.0	21/05/2002
Drawn by:	Approval:	

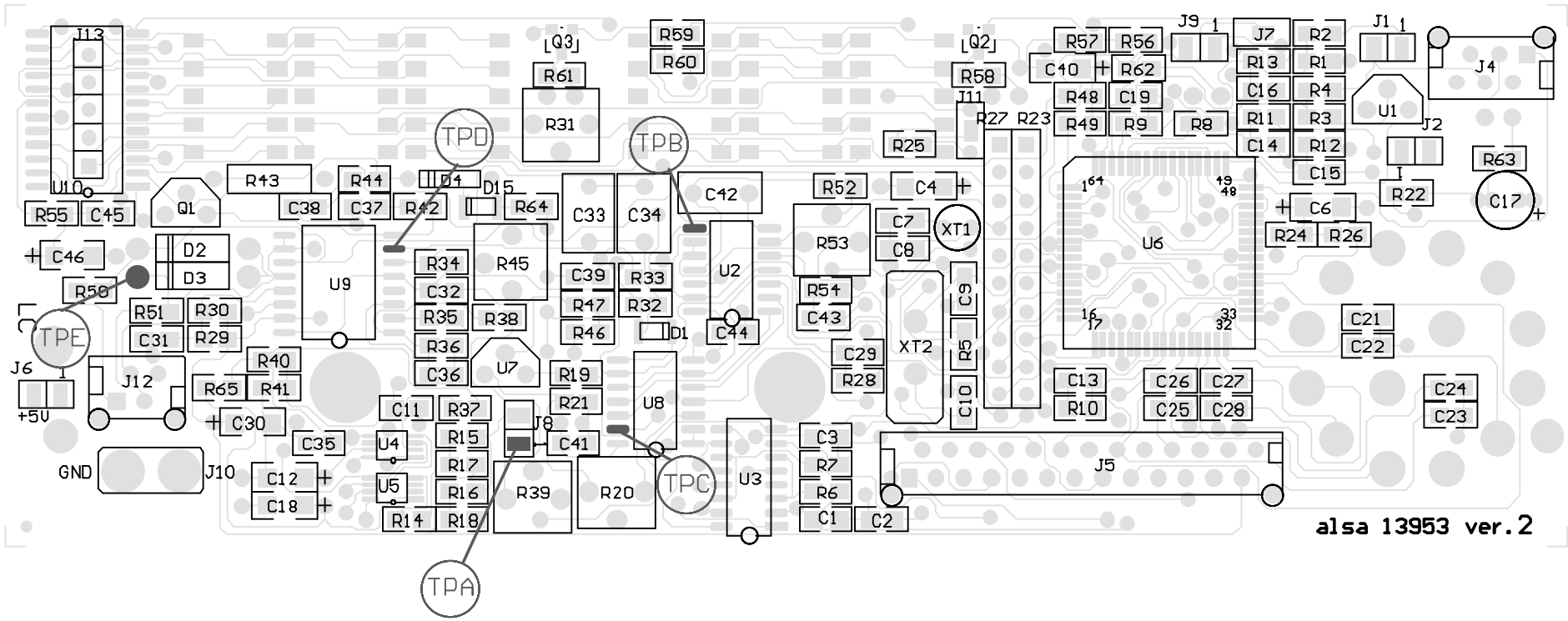
alsa bologna

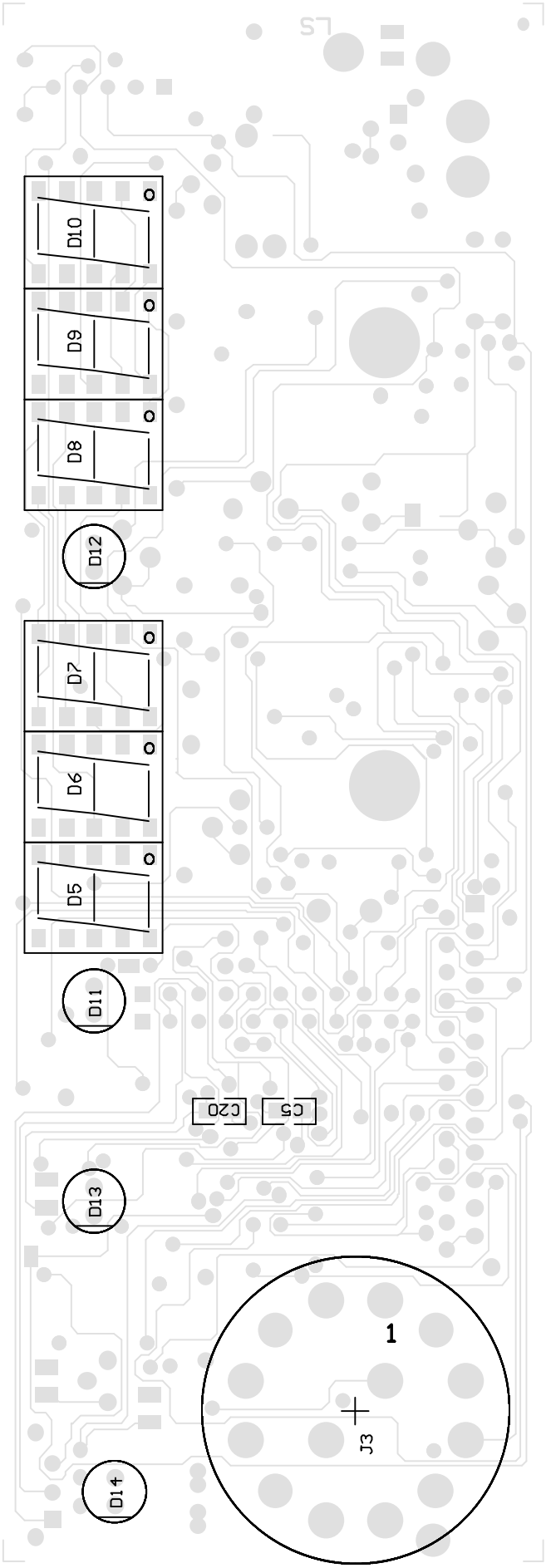
-Isa apparecchi medicali srl-
a-8


alsa apparecchi medicali s.r.l.
ALSATOM SU MPC
uC Section (sheet 2 of 4)
code:801337-46
Rel.:3.0
21/05/2002
Drawn by:
Approval:
J9-J10: cortocircuitare dopo la taratura di Vref
J9-J10: to close after Vref Setting up
TO POWER RF SECTION
PROGM


alsa apparecchi medicali s.r.l.
ALSATOM SU MPC
R.F. Driver Section (sheet 3 of 4)
code: 801337-46
Rev.:3.0
21/05/2002
Drawn by:
Approval:
alsa
bologna
U9
OUT A
PWR GND
C.L.
OUT B
GND
VC
+VIN
CT
CLK
VREF
RT
RAMP
N.I. INP
INV. INP
E/A OUT
SS
U2A
U2B
U2C
U2D
U2E
U8A
U8B
U8C
U8D
J12
71 KHz
TPB
TPC
TPD
TPE
+15V
+5VF
GND
VREF
OUT_DAC
OUT_A
OUT_B
AUX_3
I_LIMIT
I_PEAK
MODLT
EN_RF
KZ938
MOD_MEAN
OSC_NP
N_PLT
NEU_P
SCLK
VDD
VSS


alsa apparecchi medicali s.r.l.
ALSATOM SU MPC
Display Section (sheet 4 of 4)
code: 801337-46
Rev. 3.0
21/05/2002
Drawn by:
Approval:
CUT SECTION
COAG SECTION
100's
10's
1's
D14 ON/OFF
D13 N_PLT
D12 COAG
D11 CUT
D10
D9
D8
D7
D6
D5
R63
R62
R61
R60
R59
R58
R57
R56
Q3
Q2
N_PLT
LED_COG
LED_CUT
+5VF
SEG [A..G]
DIG 0
DIG 1
DIG 2
DIG 3
DIG 4
DIG 5
U10
C46
C45
R55
ISET
DIN
LOAD(CS)
CLK
VCC
GND
DOUT
CS_DSPL
SCLK
J13


J13
U10
R55
C45
Q1
R43
C38
R44
C37
R42
D4
D15
R64
TPD
TPB
R61
R31
Q3
R59
R60
C33
C34
C42
R25
R52
C4
Q2
R58
J11
R27
R23
R57
R56
C40
R62
R48
C19
R49
R9
R8
J9
J7
R2
R13
R1
C16
R4
R11
R3
C14
R12
C15
J1
J4
U1
J2
R63
C17
R22
C6
R24
R26
C46
R50
D2
D3
U9
R34
C32
R35
R45
R38
C39
R33
R47
R32
R46
D1
U2
C44
R53
R54
C43
C7
C8
XT1
U6
C9
R5
C10
XT2
C29
R28
C13
R10
C26
C27
C25
C28
C21
C22
C24
C23
TPE
J6
+5V
J12
R51
R30
C31
R29
R40
R65
R41
C30
C35
GND
J10
C12
C18
U4
U5
C11
R37
R15
R17
R16
R14
R18
J8
R19
R21
C41
U8
R39
R20
TPC
U3
C3
R7
R6
C1
C2
J5
TPA
alsa 13953 ver.2


D10
D9
D8
D12
D7
D6
D5
D11
C20
C5
D13
1
J3
D14

ALSATOM SU 140/D MPC - SU 140 MPC
RF POWER SECTION & HANDLE CONTROL alsa code: [801336] Rev.: [P4.2]
Date: March 13, 2002

Ref.	Part Type	Description	alsa code
R1	100_SMD	STANDARD CHIP RESISTOR	430496/S
R2	10KP/D	DUAL POTENTIOMETER	403099
R3	100_SMD	STANDARD CHIP RESISTOR	430496/S
R4	100_SMD	STANDARD CHIP RESISTOR	430496/S
R5	100_SMD	STANDARD CHIP RESISTOR	430496/S
R6	100_SMD	STANDARD CHIP RESISTOR	430496/S
R7	10KP/D	DUAL POTENTIOMETER	403099
R8	100_SMD	STANDARD CHIP RESISTOR	430496/S
R9	100_SMD	STANDARD CHIP RESISTOR	430496/S
R10	100_SMD	STANDARD CHIP RESISTOR	430496/S
R11	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R12	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R13	100_SMD	STANDARD CHIP RESISTOR	430496/S
R14	3K9/1%_SMD	1% PRECISION CHIP RESISTOR	430510/S
R15	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R16	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R17	47_SMD	STANDARD CHIP RESISTOR	430495/S
R18	33K/6W/F	WIREWOUND RESISTOR 33 K 6 W	430463
R19	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R20	100/3W/A	NON INDUCTIVE RESISTOR 3 W	430441
R21	100/3W/A	NON INDUCTIVE RESISTOR 3 W	430441
R22	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R23	100/3W/A	NON INDUCTIVE RESISTOR 3 W	430441
R24	100/3W/A	NON INDUCTIVE RESISTOR 3 W	430441
R25	220_SMD	STANDARD CHIP RESISTOR	430497/S
R26	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R27	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R28	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R29	47_SMD	STANDARD CHIP RESISTOR	430495/S
R30	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R31	47_SMD	STANDARD CHIP RESISTOR	430495/S
R32	470/5W/F	WIREWOUND RESISTOR 5 W	430164
R33	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R34	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R35	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R36	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R37	47_SMD	STANDARD CHIP RESISTOR	430495/S
R38	NU	NOT USED	------
R39	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R40	330_SMD	STANDARD CHIP RESISTOR	430498/S
R41	2KT/6mm	MINIATURE TRIMMER	403112/S
R42	1K8_SMD	STANDARD CHIP RESISTOR	430505/S
R43	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R44	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R45	330_SMD	STANDARD CHIP RESISTOR	430498/S
R46	560_SMD	STANDARD CHIP RESISTOR	430500/S
R47	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R48	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R50	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R51	100_SMD	STANDARD CHIP RESISTOR	430496/S
R52	100_SMD	STANDARD CHIP RESISTOR	430496/S
R53	100_SMD	STANDARD CHIP RESISTOR	430496/S
R54	100_SMD	STANDARD CHIP RESISTOR	430496/S
R55	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R56	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R57	22K_SMD	STANDARD CHIP RESISTOR	430517/S
R58	22K_SMD	STANDARD CHIP RESISTOR	430517/S
R59	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R60	10_SMD	STANDARD CHIP RESISTOR	430493/S

ALSATOM SU 140/D MPC - SU 140 MPC
RF POWER SECTION & HANDLE CONTROL alsa code: [801336] Rev.: [P4.2]
Date: March 13, 2002

Ref.	Part Type	Description	alsa code
R61	12K_SMD	STANDARD CHIP RESISTOR	430515/S
R62	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R63	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R64	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R65	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R66	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R67	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R68	100_SMD	STANDARD CHIP RESISTOR	430496/S
R69	470_SMD	STANDARD CHIP RESISTOR	430499/S
R70	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R71	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R72	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R73	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R74	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R75	1KT/6mm	MINIATURE TRIMMER	403111/S
R76	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R77	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R78	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R79	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R80	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R81	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R82	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R83	100_SMD	STANDARD CHIP RESISTOR	430496/S
R84	470_SMD	STANDARD CHIP RESISTOR	430499/S
R85	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R86	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R87	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R88	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
C1	1000U/E/35V	ELECTROLYTIC CAPACITOR	400256
C2	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C3	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C4	1000U/E/35V	ELECTROLYTIC CAPACITOR	400256
C5	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C6	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C7	220U/E/16V	ELECTROLYTIC CAPACITOR	400274
C8	10N/C/1KV	CERAMIC CAPACITOR	400133
C9	10N/C/1KV	CERAMIC CAPACITOR	400133
C10	100N/P	METALLIZED FILM CAPACITOR	400250
C11	100N/P	METALLIZED FILM CAPACITOR	400250
C12	2200U/SNAP/100V	VERTICAL ELECTROLYTIC CAPACITOR	400305
C13	2N2/C/3KV	HIGH VOLTAGE CERAMIC CAPACITOR	400223
C14	2N2/C/3KV	HIGH VOLTAGE CERAMIC CAPACITOR	400223
C15	1N/P/100V	METALLIZED FILM CAPACITOR	400312
C16	1N_SMD	CERAMIC CHIP CAPACITOR	400318/S
C17	10N_SMD	CERAMIC CHIP CAPACITOR	400319/S
C18	220P/PP/400V	POLYPROPYLENE CAPACITOR	400280
C19	220P/PP/400V	POLYPROPYLENE CAPACITOR	400280
C20	10N/C/1KV	CERAMIC CAPACITOR	400133
C21	10N/C/1KV	CERAMIC CAPACITOR	400133
C22	10N/C/1KV	CERAMIC CAPACITOR	400133
C23	10N/C/1KV	CERAMIC CAPACITOR	400133
C24	2N2/C/3KV	HIGH VOLTAGE CERAMIC CAPACITOR	400223
C25	2N2/C/3KV	HIGH VOLTAGE CERAMIC CAPACITOR	400223
C26	100N/P/100V	METALLIZED FILM CAPACITOR	400313
C27	1U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400173
C28	100N/P/400V	METALLIZED FILM CAPACITOR	400311
C29	100N/P/400V	METALLIZED FILM CAPACITOR	400311
C30	1U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400173
C31	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S

Ref.	Part Type	Description	alsa code
C32	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C33	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C34	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C35	10N_SMD	CERAMIC CHIP CAPACITOR	400319/S
C36	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C37	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C38	10N_SMD	CERAMIC CHIP CAPACITOR	400319/S
C39	47U/E/35V	VERTICAL ELECTROLYTIC CAPACITOR	400237
C40	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C41	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C42	1N/P/100V	METALLIZED FILM CAPACITOR	400312
C43	100N/P/100V	METALLIZED FILM CAPACITOR	400313
C44	1U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400173
C45	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C46	100N/P/100V	METALLIZED FILM CAPACITOR	400313
C47	1U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400173
C48	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
D1	15V_SMD	SMD ZENER DIODE	420104/S
D2	2V7_SMD	SMD ZENER DIODE	420099/S
D3	5V1_SMD	SMD ZENER DIODE	420101/S
D4	1N4148_SMD	SMD DIODE	420098/S
D5	15V/1W	ZENER DIODE 15V/1W	420097
D6	1,5KE250A	TRANSIL DIODE	420063
D7	BYT03/400	ULTRA FAST DIODE 3A/400V	420071
D8	15V/1W	ZENER DIODE 15V/1W	420097
D9	1,5KE250A	TRANSIL DIODE	420063
D10	BYT03/400	ULTRA FAST DIODE 3A/400V	420071
D11	BAT83	SCHOTTKY DIODE	420070
D12	BAT83	SCHOTTKY DIODE	420070
D13	BAT83	SCHOTTKY DIODE	420070
D14	BAT83	SCHOTTKY DIODE	420070
D15	1N4148_SMD	SMD DIODE	420098/S
D16	1N4148_SMD	SMD DIODE	420098/S
D17	1N4148_SMD	SMD DIODE	420098/S
D18	BAT83	SCHOTTKY DIODE	420070
D19	BAT83	SCHOTTKY DIODE	420070
D20	BAT83	SCHOTTKY DIODE	420070
D21	BAT83	SCHOTTKY DIODE	420070
D22	1N4148_SMD	SMD DIODE	420098/S
D23	1N4148_SMD	SMD DIODE	420098/S
D24	15V_SMD	SMD ZENER DIODE	420104/S
D25	15V_SMD	SMD ZENER DIODE	420104/S
D26	5V1_SMD	SMD ZENER DIODE	420101/S
D27	5V6/5W	ZENER DIODE 5.6V/5W (1N5339)	420088
D28	5V6/5W	ZENER DIODE 5.6V/5W (1N5339)	420088
D29	1N4148_SMD	SMD DIODE	420098/S
D30	1N4148_SMD	SMD DIODE	420098/S
D31	1N4148_SMD	SMD DIODE	420098/S
D32	1N4148_SMD	SMD DIODE	420098/S
D33	1N4148_SMD	SMD DIODE	420098/S
D34	1N4148_SMD	SMD DIODE	420098/S
D35	1N4148_SMD	SMD DIODE	420098/S
D36	1N4148_SMD	SMD DIODE	420098/S
D37	1N4148_SMD	SMD DIODE	420098/S
D38	1N4148_SMD	SMD DIODE	420098/S
D39	1N4148_SMD	SMD DIODE	420098/S
D40	1N4148_SMD	SMD DIODE	420098/S
Q1	IRF740	N CHANNEL MOSFET	427076
Q2	IRF740	N CHANNEL MOSFET	427076

ALSATOM SU 140/D MPC - SU 140 MPC
RF POWER SECTION & HANDLE CONTROL alsa code: [801336] Rev.: [P4.2]
Date: March 13, 2002

Ref.	Part Type	Description	alsa code
Q3	BC817	SMD NPN TRANSISTOR	427089/S
Q4	BC817	SMD NPN TRANSISTOR	427089/S
Q5	BC817	SMD NPN TRANSISTOR	427089/S
Q6	BC817	SMD NPN TRANSISTOR	427089/S
Q7	VN10KM	N CHANNEL MOSFET	427054
Q8	VN10KM	N CHANNEL MOSFET	427054
Q9	VN10KM	N CHANNEL MOSFET	427054
U1	LM78S15	VOLTAGE REGULATOR +15V	482086
U2	LM7805	VOLTAGE REGULATOR LM7805	482003
U3	LM386_SMD	BF LM386	482104
U4	74HCT14_SMD	HEX INVERTERS WITH SCHMITT TRIGGER	482106
L1	6UH8/800MA	INDUCTOR	422007
L2	1MH/100MA	INDUCTOR	422005
T1	713337	H.F. CURRENT TRANSFORMER	713337
T2	TRAS_J99	OUTPUT TRANSFORMER ALSATOM SU MPC	801338
T3	713955	OUTPUT CURRENT TRANSFORMER	713955
T4	713956	NEUTRAL PLATE CIRCUIT TRANSFORMER	713956
T5	SU_CUT	TRANSFORMER FOR HANDLE ACTIVATION	713957
T6	SU_COAG	TRANSFORMER FOR HANDLE ACTIVATION	713957
RL1	40.52-12VDC	RELAY OMRON	404040
RL2	40.52-12VDC	RELAY OMRON	404040
RL3	40.52-12VDC	RELAY OMRON	404040
RL4	40.52-12VDC	RELAY OMRON	404040
RS1	WL04	BRIDGE RECTIFIER 1A	420013
RS2	WL04	BRIDGE RECTIFIER 1A	420013
RS3	KBL06	BRIDGE RECTIFIER 4A/600V	420069
J1	399028	FASTON CONNECTOR P.C.B.	399028
J2	399028	FASTON CONNECTOR P.C.B.	399028
J3	399028	FASTON CONNECTOR P.C.B.	399028
J4	399028	FASTON CONNECTOR P.C.B.	399028
J5	PAD_CI	PAD	------
J6	399028	FASTON CONNECTOR P.C.B.	399028
J7	399028	FASTON CONNECTOR P.C.B.	399028
J8	PICO_4	4 POLES PICOFLEX CONN. MALE P.C.B.	384042
J9	PAD_CI	PAD	------
J10	PAD_CI	PAD	------
J11	PAD_CI	PAD	------
J12	399028	FASTON CONNECTOR P.C.B.	399028
J13	399028	FASTON CONNECTOR P.C.B.	399028
J14	399028	FASTON CONNECTOR P.C.B.	399028
J15	437035	JACK SOCKET (6.35 MM PCB VERSION)	437035
J16	399028	FASTON CONNECTOR P.C.B.	399028
J17	399028	FASTON CONNECTOR P.C.B.	399028
J18	PICO_26	26 POLES PICOFLEX CONN. MALE P.C.B.	384044
J19	399028	FASTON CONNECTOR P.C.B.	399028
J20	399028	FASTON CONNECTOR P.C.B.	399028
J21	399028	FASTON CONNECTOR P.C.B.	399028
J22	PAD_CI	PAD	------
J23	PAD_CI	PAD	------
AL1	ML73_2	ALUMINIUM HEAT SINK	713249
AL2	ML73_2	ALUMINIUM HEAT SINK	713249
AL3	ML73_2	ALUMINIUM HEAT SINK	713249
AL4	ML73_2	ALUMINIUM HEAT SINK	713249
F1	500MA/T	FUSE 500 MA T 5X20 MM	433026
F2	500MA/T	FUSE 500 MA T 5X20 MM	433026
F3	4A/T	FUSE 4 A T 5X20 MM	433041

ALSATOM SU 140/D MPC - SU 140 MPC
uC & DRIVER SECTION alsa code: [801337] Rev.: [P2.2]
Date: January 15,2002

Ref.	Part Type	Description	alsa code
R1	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R2	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R3	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R4	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R5	1M_SMD	STANDARD CHIP RESISTOR	430524/S
R6	100_SMD	STANDARD CHIP RESISTOR	430496/S
R7	100_SMD	STANDARD CHIP RESISTOR	430496/S
R8	3K3/1%_SMD	1% PRECISION CHIP RESISTOR	430509/S
R9	3K3/1%_SMD	1% PRECISION CHIP RESISTOR	430509/S
R10	100_SMD	STANDARD CHIP RESISTOR	430496/S
R11	100_SMD	STANDARD CHIP RESISTOR	430496/S
R12	100_SMD	STANDARD CHIP RESISTOR	430496/S
R13	100_SMD	STANDARD CHIP RESISTOR	430496/S
R14	33K/1%_SMD	1% PRECISION CHIP RESISTOR	430519/S
R15	330_SMD	STANDARD CHIP RESISTOR	430498/S
R16	330_SMD	STANDARD CHIP RESISTOR	430498/S
R17	330_SMD	STANDARD CHIP RESISTOR	430498/S
R18	330_SMD	STANDARD CHIP RESISTOR	430498/S
R19	2K7/1%_SMD	1% PRECISION CHIP RESISTOR	430507/S
R20	1KT/6mm	MINIATURE TRIMMER	403111/S
R21	3K3/1%_SMD	1% PRECISION CHIP RESISTOR	430509/S
R22	100_SMD	STANDARD CHIP RESISTOR	430496/S
R23	X_RNET10K	RESISTOR NETWORK 10K	430484
R24	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R25	100_SMD	STANDARD CHIP RESISTOR	430496/S
R26	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R27	X_RNET10K	RESISTOR NETWORK 10K	430484
R28	680_SMD	STANDARD CHIP RESISTOR	430501/S
R29	22_SMD	STANDARD CHIP RESISTOR	430494/S
R30	22_SMD	STANDARD CHIP RESISTOR	430494/S
R31	5KT/6mm	MINIATURE TRIMMER	403113/S
R32	8K2_SMD	STANDARD CHIP RESISTOR	430526/S
R33	47_SMD	STANDARD CHIP RESISTOR	430495/S
R34	1K8_SMD	STANDARD CHIP RESISTOR	430505/S
R35	12K_SMD	STANDARD CHIP RESISTOR	430515/S
R36	56K_SMD	STANDARD CHIP RESISTOR	430522/S
R37	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R38	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R39	20KT/6mm	MINIATURE TRIMMER	403115/S
R40	56K/1%_SMD	1% PRECISION CHIP RESISTOR	430523/S
R41	22K/1%_SMD	1% PRECISION CHIP RESISTOR	430525/S
R42	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R43	10M	METAL FILM RESISTOR 1/4 W 5%	430431
R44	470_SMD	STANDARD CHIP RESISTOR	430499/S
R45	10KT/6mm	MINIATURE TRIMMER	403114/S
R46	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R47	27K_SMD	STANDARD CHIP RESISTOR	430518/S
R48	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R49	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R50	10_SMD	STANDARD CHIP RESISTOR	430493/S
R51	10_SMD	STANDARD CHIP RESISTOR	430493/S
R52	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R53	20KT/6mm	MINIATURE TRIMMER	403115/S
R54	100_SMD	STANDARD CHIP RESISTOR	430496/S
R55	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R56	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R57	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R58	560_SMD	STANDARD CHIP RESISTOR	430500/S
R59	4K7_SMD	STANDARD CHIP RESISTOR	430511/S

ALSATOM SU 140/D MPC - SU 140 MPC
uC & DRIVER SECTION alsa code: [801337] Rev.: [P2.2]
Date: January 15,2002

Ref.	Part Type	Description	alsa code
R60	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R61	560_SMD	STANDARD CHIP RESISTOR	430500/S
R63	560_SMD	STANDARD CHIP RESISTOR	430500/S
R64	100_SMD	STANDARD CHIP RESISTOR	430496/S
R65	1K5/1%_SMD	1% PRECISION CHIP RESISTOR	430504/S
C1	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C2	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C3	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C4	1U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400173
C5	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C6	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C7	22P_SMD	CERAMIC CHIP CAPACITOR	400315/S
C8	22P_SMD	CERAMIC CHIP CAPACITOR	400315/S
C9	12P_SMD	CERAMIC CHIP CAPACITOR	400314/S
C10	12P_SMD	CERAMIC CHIP CAPACITOR	400314/S
C11	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C12	1U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400173
C13	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C14	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C15	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C16	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C17	220U/E/16V	ELECTROLYTIC CAPACITOR	400274
C18	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C19	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C20	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C21	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C22	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C23	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C24	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C25	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C26	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C27	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C28	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C29	470P_SMD	CERAMIC CHIP CAPACITOR	400317/S
C30	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C31	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C32	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C33	220P/PP/100V	POLYPROPYLENE CAPACITOR	400310
C34	100P/NPO	NPO CERAMIC CAPACITOR	400260
C35	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C36	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C37	10N_SMD	CERAMIC CHIP CAPACITOR	400319/S
C38	10N_SMD	CERAMIC CHIP CAPACITOR	400319/S
C39	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C40	1U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400173
C41	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C42	1N/P/100V	METALLIZED FILM CAPACITOR	400312
C43	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C44	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C45	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C46	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
D1	1N4148_SMD	SMD DIODE	420098/S
D2	11DQ06	SCHOTTKY DIODE	420054
D3	11DQ06	SCHOTTKY DIODE	420054
D4	BAT83	SCHOTTKY DIODE	420070
D5	TDSL3160	COMMON CATHODE 7 SEGMENT DISPLAY	420096
D6	TDSL3160	COMMON CATHODE 7 SEGMENT DISPLAY	420096
D7	TDSL3160	COMMON CATHODE 7 SEGMENT DISPLAY	420096
D8	TDSL3160	COMMON CATHODE 7 SEGMENT DISPLAY	420096

ALSATOM SU 140/D MPC - SU 140 MPC
uC & DRIVER SECTION alsa code: [801337] Rev.: [P2.2]
Date: January 15,2002

Ref.	Part Type	Description	alsa code
D9	TDSL3160	COMMON CATHODE 7 SEGMENT DISPLAY	420096
D10	TDSL3160	COMMON CATHODE 7 SEGMENT DISPLAY	420096
D11	GL5HY8	YELLOW LED LAMP 5MM	420036
D12	GL5HB8	BLUE LED LAMP 5MM	420092
D13	GL5HR8	RED LED LAMP 5MM	420025
D14	GL5HG8	GREEN LED LAMP 5MM	420037
D15	1N4148_SMD	SMD DIODE	420098/S
Q1	VN10KM	N CHANNEL MOSFET	427054
Q2	BC817	SMD NPN TRANSISTOR	427089/S
Q3	BC817	SMD NPN TRANSISTOR	427089/S
U1	TC32M	WATCHDOG TIMER	482105
U2	74HCT14_SMD	HEX INVERTERS WITH SCHMITT TRIGGER	482106
U3	ADG712	ANALOG SWITCH	482101
U4	NU	NOT USED	------
U5	AD5300	D/A CONVERTER	482100
U6	H8/3644(FP64)	MICROCONTROLLER	482102
U7	LM431	VOLTAGE REGULATOR	482078
U8	74HCT00_SMD	HCT7400	482107
U9	UC3825_SMD	PWM UC3825	482103
U10	MAX7219	7 SEGMENT DISPLAY DRIVER	482108
XT1	32KHZ	QUARTZ CRYSTAL 32 KHZ	252010
XT2	15MHZ/HC18	QUARTZ CRYSTAL 15 MHZ	252011
J1	CONN_2PM	2 POLES MALE CONNECTOR	384052
J2	CONN_2PM	2 POLES MALE CONNECTOR	384052
J3	407032	ROTARY SWITCH 2 POLES 6 POS.	407032
J4	PICO_6	6 POLES PICOFLEX CONN. MALE P.C.B.	384048
J5	PICO_26	26 POLES PICOFLEX CONN. MALE P.C.B.	384044
J6	CONN_2PM	2 POLES MALE CONNECTOR	384052
J7	PAD_CI	PAD	------
J8	CONN_2PM	2 POLES MALE CONNECTOR	384052
J9	CONN_2PM	2 POLES MALE CONNECTOR	384052
J10	399028	FASTON CONNECTOR P.C.B.	399028
J11	CONN_1PM	1 POLE MALE CONNECTOR	384058
J12	PICO_4	4 POLES PICOFLEX CONN. MALE P.C.B.	384042
J13	CONN_5PF	5 POLES FEMALE CONNECTOR	384051

ALSATOM SU 100 MPC - SU 50 MPC
RF POWER SECTION alsa code: [801345] Rev.: [P4.2]
Date: March, 13, 2002

Ref.	Part Type	Description	alsa code
R1	100_SMD	STANDARD CHIP RESISTOR	430496/S
R2	10KP/D	DUAL POTENTIOMETER	403099
R3	100_SMD	STANDARD CHIP RESISTOR	430496/S
R4	100_SMD	STANDARD CHIP RESISTOR	430496/S
R5	100_SMD	STANDARD CHIP RESISTOR	430496/S
R6	100_SMD	STANDARD CHIP RESISTOR	430496/S
R7	NU	NOT USED	------
R8	100_SMD	STANDARD CHIP RESISTOR	430496/S
R9	100_SMD	STANDARD CHIP RESISTOR	430496/S
R10	100_SMD	STANDARD CHIP RESISTOR	430496/S
R11	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R12	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R13	100_SMD	STANDARD CHIP RESISTOR	430496/S
R14	3K9/1%_SMD	1% PRECISION CHIP RESISTOR	430510/S
R15	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R16	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R17	47_SMD	STANDARD CHIP RESISTOR	430495/S
R18	33K/6W/F	WIREWOUND RESISTOR 33 K 6 W	430463
R19	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R20	100/3W/A	NON INDUCTIVE RESISTOR 3 W	430441
R21	100/3W/A	NON INDUCTIVE RESISTOR 3 W	430441
R22	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R23	100/3W/A	NON INDUCTIVE RESISTOR 3 W	430441
R24	100/3W/A	NON INDUCTIVE RESISTOR 3 W	430441
R25	220_SMD	STANDARD CHIP RESISTOR	430497/S
R26	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R27	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R28	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R29	47_SMD	STANDARD CHIP RESISTOR	430495/S
R30	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R31	47_SMD	STANDARD CHIP RESISTOR	430495/S
R32	470/5W/F	WIREWOUND RESISTOR 5 W	430164
R33	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R34	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R35	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R36	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R37	47_SMD	STANDARD CHIP RESISTOR	430495/S
R38	NU	NOT USED	------
R39	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R40	330_SMD	STANDARD CHIP RESISTOR	430498/S
R41	2KT/6mm	MINIATURE TRIMMER	403112/S
R42	680_SMD	STANDARD CHIP RESISTOR	430501/S
R43	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R44	1K5_SMD	STANDARD CHIP RESISTOR	430503/S
R45	330_SMD	STANDARD CHIP RESISTOR	430498/S
R46	560_SMD	STANDARD CHIP RESISTOR	430500/S
R47	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R48	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R50	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R51	100_SMD	STANDARD CHIP RESISTOR	430496/S
R52	100_SMD	STANDARD CHIP RESISTOR	430496/S
R53	100_SMD	STANDARD CHIP RESISTOR	430496/S
R54	100_SMD	STANDARD CHIP RESISTOR	430496/S
R55	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R56	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R57	22K_SMD	STANDARD CHIP RESISTOR	430517/S
R58	22K_SMD	STANDARD CHIP RESISTOR	430517/S
R59	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R60	10_SMD	STANDARD CHIP RESISTOR	430493/S

ALSATOM SU 100 MPC - SU 50 MPC
RF POWER SECTION alsa code: [801345] Rev.: [P4.2]
Date: March, 13, 2002

Ref.	Part Type	Description	alsa code
R61	12K_SMD	STANDARD CHIP RESISTOR	430515/S
R62	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R63	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R64	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R65	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R66	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R67	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R68	100_SMD	STANDARD CHIP RESISTOR	430496/S
R69	470_SMD	STANDARD CHIP RESISTOR	430499/S
R70	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R71	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R72	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R73	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R74	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R75	NU	NOT USED	------
R76	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R77	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R78	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R79	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R80	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R81	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
R82	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R83	100_SMD	STANDARD CHIP RESISTOR	430496/S
R84	470_SMD	STANDARD CHIP RESISTOR	430499/S
R85	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R86	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R87	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R88	3K3_SMD	STANDARD CHIP RESISTOR	430508/S
C1	1000U/E/35V	ELECTROLYTIC CAPACITOR	400256
C2	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C3	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C4	1000U/E/35V	ELECTROLYTIC CAPACITOR	400256
C5	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C6	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C7	220U/E/16V	ELECTROLYTIC CAPACITOR	400274
C8	10N/C/1KV	CERAMIC CAPACITOR	400133
C9	10N/C/1KV	CERAMIC CAPACITOR	400133
C10	100N/P	METALLIZED FILM CAPACITOR	400250
C11	100N/P	METALLIZED FILM CAPACITOR	400250
C12	2200U/SNAP/100V	VERTICAL ELECTROLYTIC CAPACITOR	400305
C13	2N2/C/3KV	HIGH VOLTAGE CERAMIC CAPACITOR	400223
C14	2N2/C/3KV	HIGH VOLTAGE CERAMIC CAPACITOR	400223
C15	1N/P/100V	METALLIZED FILM CAPACITOR	400312
C16	1N_SMD	CERAMIC CHIP CAPACITOR	400318/S
C17	10N_SMD	CERAMIC CHIP CAPACITOR	400319/S
C18	220P/PP/400V	POLYPROPYLENE CAPACITOR	400280
C19	220P/PP/400V	POLYPROPYLENE CAPACITOR	400280
C20	10N/C/1KV	CERAMIC CAPACITOR	400133
C21	10N/C/1KV	CERAMIC CAPACITOR	400133
C22	10N/C/1KV	CERAMIC CAPACITOR	400133
C23	10N/C/1KV	CERAMIC CAPACITOR	400133
C24	2N2/C/3KV	HIGH VOLTAGE CERAMIC CAPACITOR	400223
C25	2N2/C/3KV	HIGH VOLTAGE CERAMIC CAPACITOR	400223
C26	100N/P/100V	METALLIZED FILM CAPACITOR	400313
C27	1U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400173
C28	100N/P/400V	METALLIZED FILM CAPACITOR	400311
C29	100N/P/400V	METALLIZED FILM CAPACITOR	400311
C30	1U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400173
C31	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S

ALSATOM SU 100 MPC - SU 50 MPC
RF POWER SECTION alsa code: [801345] Rev.: [P4.2]
Date: March, 13, 2002

Ref.	Part Type	Description	alsa code
C32	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C33	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C34	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C35	10N_SMD	CERAMIC CHIP CAPACITOR	400319/S
C36	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C37	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C38	10N_SMD	CERAMIC CHIP CAPACITOR	400319/S
C39	47U/E/35V	VERTICAL ELECTROLYTIC CAPACITOR	400237
C40	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C41	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C42	NU	NOT USED	------
C43	NU	NOT USED	------
C44	NU	NOT USED	------
C45	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C46	NU	NOT USED	------
C47	NU	NOT USED	------
C48	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
D1	15V_SMD	SMD ZENER DIODE	420104/S
D2	2V7_SMD	SMD ZENER DIODE	420099/S
D3	5V1_SMD	SMD ZENER DIODE	420101/S
D4	1N4148_SMD	SMD DIODE	420098/S
D5	15V/1W	ZENER DIODE 15V/1W	420097
D6	1,5KE250A	TRANSIL DIODE	420063
D7	BYT03/400	ULTRA FAST DIODE 3A/400V	420071
D8	15V/1W	ZENER DIODE 15V/1W	420097
D9	1,5KE250A	TRANSIL DIODE	420063
D10	BYT03/400	ULTRA FAST DIODE 3A/400V	420071
D11	BAT83	SCHOTTKY DIODE	420070
D12	BAT83	SCHOTTKY DIODE	420070
D13	BAT83	SCHOTTKY DIODE	420070
D14	BAT83	SCHOTTKY DIODE	420070
D15	1N4148_SMD	SMD DIODE	420098/S
D16	1N4148_SMD	SMD DIODE	420098/S
D17	1N4148_SMD	SMD DIODE	420098/S
D18	BAT83	SCHOTTKY DIODE	420070
D19	BAT83	SCHOTTKY DIODE	420070
D20	BAT83	SCHOTTKY DIODE	420070
D21	BAT83	SCHOTTKY DIODE	420070
D22	1N4148_SMD	SMD DIODE	420098/S
D23	1N4148_SMD	SMD DIODE	420098/S
D24	15V_SMD	SMD ZENER DIODE	420104/S
D25	15V_SMD	SMD ZENER DIODE	420104/S
D26	5V1_SMD	SMD ZENER DIODE	420101/S
D27	5V6/5W	ZENER DIODE 5.6V/5W (1N5339)	420088
D28	5V6/5W	ZENER DIODE 5.6V/5W (1N5339)	420088
D29	1N4148_SMD	SMD DIODE	420098/S
D30	1N4148_SMD	SMD DIODE	420098/S
D31	NU	NOT USED	------
D32	NU	NOT USED	------
D33	NU	NOT USED	------
D34	NU	NOT USED	------
D35	1N4148_SMD	SMD DIODE	420098/S
D36	1N4148_SMD	SMD DIODE	420098/S
D37	NU	NOT USED	------
D38	NU	NOT USED	------
D39	NU	NOT USED	------
D40	NU	NOT USED	------
Q1	IRF740	N CHANNEL MOSFET	427076
Q2	IRF740	N CHANNEL MOSFET	427076

ALSATOM SU 100 MPC - SU 50 MPC
RF POWER SECTION alsa code: [801345] Rev.: [P4.2]
Date: March, 13, 2002

Ref.	Part Type	Description	alsa code
Q3	BC817	SMD NPN TRANSISTOR	427089/S
Q4	BC817	SMD NPN TRANSISTOR	427089/S
Q5	BC817	SMD NPN TRANSISTOR	427089/S
Q6	BC817	SMD NPN TRANSISTOR	427089/S
Q7	VN10KM	N CHANNEL MOSFET	427054
Q8	NU	NOT USED	------
Q9	NU	NOT USED	------
U1	LM78S15	VOLTAGE REGULATOR +15V	482086
U2	LM7805	VOLTAGE REGULATOR LM7805	482003
U3	LM386_SMD	BF LM386	482104
U4	NU	NOT USED	------
L1	6UH8/800MA	INDUCTOR	422007
L2	NU	NOT USED	------
T1	713337	H.F. CURRENT TRANSFORMER	713337
T2	TRAS_J99	OUTPUT TRANSFORMER ALSATOM SU MPC	801338
T3	713955	OUTPUT CURRENT TRANSFORMER	713955
T4	713956	NEUTRAL PLATE CIRCUIT TRANSFORMER	713956
T5	NU	NOT USED	------
T6	NU	NOT USED	------
RL1	40.52-12VDC	RELAY OMRON	404040
RL2	40.52-12VDC	RELAY OMRON	404040
RL3	40.52-12VDC	RELAY OMRON	404040
RL4	40.52-12VDC	RELAY OMRON	404040
RS1	WL04	BRIDGE RECTIFIER 1A	420013
RS2	WL04	BRIDGE RECTIFIER 1A	420013
RS3	KBL06	BRIDGE RECTIFIER 4A/600V	420069
J1	399028	FASTON CONNECTOR P.C.B.	399028
J2	399028	FASTON CONNECTOR P.C.B.	399028
J3	399028	FASTON CONNECTOR P.C.B.	399028
J4	399028	FASTON CONNECTOR P.C.B.	399028
J5	PAD_CI	PAD	------
J6	399028	FASTON CONNECTOR P.C.B.	399028
J7	399028	FASTON CONNECTOR P.C.B.	399028
J8	PICO_4	4 POLES PICOFLEX CONN. MALE P.C.B.	384042
J9	PAD_CI	PAD	------
J10	PAD_CI	PAD	------
J11	PAD_CI	PAD	------
J12	399028	FASTON CONNECTOR P.C.B.	399028
J13	NU	NOT USED	------
J14	NU	NOT USED	------
J15	437035	JACK SOCKET (6.35 MM PCB VERSION)	437035
J16	399028	FASTON CONNECTOR P.C.B.	399028
J17	399028	FASTON CONNECTOR P.C.B.	399028
J18	PICO_26	26 POLES PICOFLEX CONN. MALE P.C.B.	384044
J19	399028	FASTON CONNECTOR P.C.B.	399028
J20	399028	FASTON CONNECTOR P.C.B.	399028
J21	399028	FASTON CONNECTOR P.C.B.	399028
J22	PAD_CI	PAD	------
J23	PAD_CI	PAD	------
AL1	ML73_2	ALUMINIUM HEAT SINK	713249
AL2	ML73_2	ALUMINIUM HEAT SINK	713249
AL3	ML73_2	ALUMINIUM HEAT SINK	713249
AL4	ML73_2	ALUMINIUM HEAT SINK	713249
F1	500MA/T	FUSE 500 MA T 5X20 MM	433026
F2	500MA/T	FUSE 500 MA T 5X20 MM	433026
F3	4A/T	FUSE 4 A T 5X20 MM	433041

ALSATOM SU 50 MPC - 100 MPC
uC & DRIVER SECTION alsa code: [801346] Rev.: [P2.2]
Date: January 15, 2002

Ref.	Part Type	Description	alsa code
R1	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R2	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R3	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R4	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R5	1M_SMD	STANDARD CHIP RESISTOR	430524/S
R6	100_SMD	STANDARD CHIP RESISTOR	430496/S
R7	100_SMD	STANDARD CHIP RESISTOR	430496/S
R8	3K3/1%_SMD	1% PRECISION CHIP RESISTOR	430509/S
R9	3K3/1%_SMD	1% PRECISION CHIP RESISTOR	430509/S
R10	100_SMD	STANDARD CHIP RESISTOR	430496/S
R11	100_SMD	STANDARD CHIP RESISTOR	430496/S
R12	100_SMD	STANDARD CHIP RESISTOR	430496/S
R13	100_SMD	STANDARD CHIP RESISTOR	430496/S
R14	33K/1%_SMD	1% PRECISION CHIP RESISTOR	430519/S
R15	330_SMD	STANDARD CHIP RESISTOR	430498/S
R16	330_SMD	STANDARD CHIP RESISTOR	430498/S
R17	330_SMD	STANDARD CHIP RESISTOR	430498/S
R18	330_SMD	STANDARD CHIP RESISTOR	430498/S
R19	2K7/1%_SMD	1% PRECISION CHIP RESISTOR	430507/S
R20	1KT/6mm	MINIATURE TRIMMER	403111/S
R21	3K3/1%_SMD	1% PRECISION CHIP RESISTOR	430509/S
R22	100_SMD	STANDARD CHIP RESISTOR	430496/S
R23	X_RNET10K	RESISTOR NETWORK 10K	430484
R24	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R25	100_SMD	STANDARD CHIP RESISTOR	430496/S
R26	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R27	X_RNET10K	RESISTOR NETWORK 10K	430484
R28	680_SMD	STANDARD CHIP RESISTOR	430501/S
R29	22_SMD	STANDARD CHIP RESISTOR	430494/S
R30	22_SMD	STANDARD CHIP RESISTOR	430494/S
R31	5KT/6mm	MINIATURE TRIMMER	403113/S
R32	8K2_SMD	STANDARD CHIP RESISTOR	430526/S
R33	47_SMD	STANDARD CHIP RESISTOR	430495/S
R34	1K8_SMD	STANDARD CHIP RESISTOR	430505/S
R35	12K_SMD	STANDARD CHIP RESISTOR	430515/S
R36	56K_SMD	STANDARD CHIP RESISTOR	430522/S
R37	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R38	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R39	20KT/6mm	MINIATURE TRIMMER	403115/S
R40	56K/1%_SMD	1% PRECISION CHIP RESISTOR	430523/S
R41	22K/1%_SMD	1% PRECISION CHIP RESISTOR	430525/S
R42	1K_SMD	STANDARD CHIP RESISTOR	430502/S
R43	10M	METAL FILM RESISTOR 1/4 W 5%	430431
R44	470_SMD	STANDARD CHIP RESISTOR	430499/S
R45	10KT/6mm	MINIATURE TRIMMER	403114/S
R46	47K_SMD	STANDARD CHIP RESISTOR	430520/S
R47	27K_SMD	STANDARD CHIP RESISTOR	430518/S
R48	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R49	2K2_SMD	STANDARD CHIP RESISTOR	430506/S
R50	10_SMD	STANDARD CHIP RESISTOR	430493/S
R51	10_SMD	STANDARD CHIP RESISTOR	430493/S
R52	15K_SMD	STANDARD CHIP RESISTOR	430516/S
R53	20KT/6mm	MINIATURE TRIMMER	403115/S
R54	100_SMD	STANDARD CHIP RESISTOR	430496/S
R55	10K/1%_SMD	1% PRECISION CHIP RESISTOR	430514/S
R56	4K7_SMD	STANDARD CHIP RESISTOR	430511/S
R57	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R58	560_SMD	STANDARD CHIP RESISTOR	430500/S
R59	4K7_SMD	STANDARD CHIP RESISTOR	430511/S

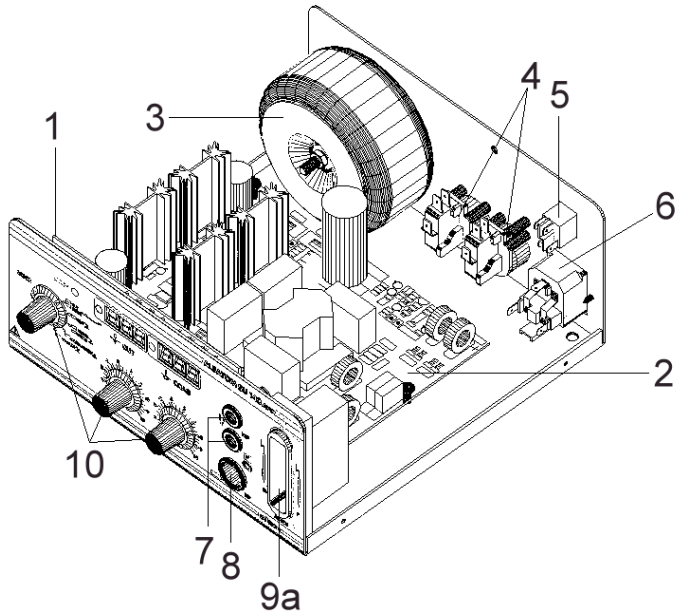
ALSATOM SU 50 MPC - 100 MPC
uC & DRIVER SECTION alsa code: [801346] Rev.: [P2.2]
Date: January 15, 2002

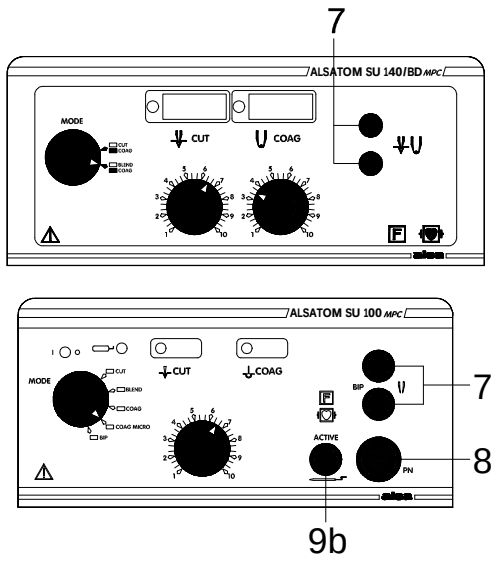
Ref.	Part Type	Description	alsa code
R60	10K_SMD	STANDARD CHIP RESISTOR	430513/S
R61	560_SMD	STANDARD CHIP RESISTOR	430500/S
R62	560_SMD	STANDARD CHIP RESISTOR	430500/S
R63	560_SMD	STANDARD CHIP RESISTOR	430500/S
R64	100_SMD	STANDARD CHIP RESISTOR	430496/S
R65	1K5/1%_SMD	1% PRECISION CHIP RESISTOR	430504/S
C1	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C2	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C3	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C4	1U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400173
C5	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C6	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C7	22P_SMD	CERAMIC CHIP CAPACITOR	400315/S
C8	22P_SMD	CERAMIC CHIP CAPACITOR	400315/S
C9	12P_SMD	CERAMIC CHIP CAPACITOR	400314/S
C10	12P_SMD	CERAMIC CHIP CAPACITOR	400314/S
C11	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C12	1U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400173
C13	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C14	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C15	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C16	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C17	220U/E/16V	ELECTROLYTIC CAPACITOR	400274
C18	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C19	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C20	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C21	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C22	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C23	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C24	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C25	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C26	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C27	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C28	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C29	470P_SMD	CERAMIC CHIP CAPACITOR	400317/S
C30	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
C31	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C32	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C33	220P/PP/100V	POLYPROPYLENE CAPACITOR	400310
C34	100P/NPO	NPO CERAMIC CAPACITOR	400260
C35	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C36	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C37	10N_SMD	CERAMIC CHIP CAPACITOR	400319/S
C38	10N_SMD	CERAMIC CHIP CAPACITOR	400319/S
C39	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C40	1U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400173
C41	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C42	1N/P/100V	METALLIZED FILM CAPACITOR	400312
C43	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C44	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C45	100N_SMD	CERAMIC CHIP CAPACITOR	400320/S
C46	10U/T/35V	TANTALUM ELECTROLYTIC CAPACITOR	400134
D1	1N4148_SMD	SMD DIODE	420098/S
D2	11DQ06	SCHOTTKY DIODE	420054
D3	11DQ06	SCHOTTKY DIODE	420054
D4	BAT83	SCHOTTKY DIODE	420070
D5	NU	NOT USED	------
D6	NU	NOT USED	------
D7	NU	NOT USED	------

ALSATOM SU 50 MPC - 100 MPC
uC & DRIVER SECTION alsa code: [801346] Rev.: [P2.2]
Date: January 15, 2002

Ref.	Part Type	Description	alsa code
D8	NU	NOT USED	------
D9	NU	NOT USED	------
D10	NU	NOT USED	------
D11	GL5HY8	YELLOW LED LAMP 5MM	420036
D12	GL5HB8	BLUE LED LAMP 5MM	420092
D13	GL5HR8	RED LED LAMP 5MM	420025
D14	GL5HG8	GREEN LED LAMP 5MM	420037
D15	1N4148_SMD	SMD DIODE	420098/S
Q1	VN10KM	N CHANNEL MOSFET	427054
Q2	BC817	SMD NPN TRANSISTOR	427089/S
Q3	BC817	SMD NPN TRANSISTOR	427089/S
U1	TC32M	WATCHDOG TIMER	482105
U2	74HCT14_SMD	HEX INVERTERS WITH SCHMITT TRIGGER	482106
U3	ADG712	ANALOG SWITCH	482101
U4	NU	NOT USED	------
U5	AD5300	D/A CONVERTER	482100
U6	H8/3644(FP64)	MICROCONTROLLER	482102
U7	LM431	VOLTAGE REGULATOR	482078
U8	74HCT00_SMD	HCT7400	482107
U9	UC3825_SMD	PWM UC3825	482103
U10	NU	NOT USED	------
XT1	32KHZ	QUARTZ CRYSTAL 32 KHZ	252010
XT2	15MHZ/HC18	QUARTZ CRYSTAL 15 MHZ	252011
J1	CONN_2PM	2 POLES MALE CONNECTOR	384052
J2	CONN_2PM	2 POLES MALE CONNECTOR	384052
J3	407032	ROTARY SWITCH 2 POLES 6 POS.	407032
J4	PICO_6	6 POLES PICOFLEX CONN. MALE P.C.B.	384048
J5	PICO_26	26 POLES PICOFLEX CONN. MALE P.C.B.	384044
J6	CONN_2PM	2 POLES MALE CONNECTOR	384052
J7	PAD_CI	PAD	------
J8	CONN_2PM	2 POLES MALE CONNECTOR	384052
J9	CONN_2PM	2 POLES MALE CONNECTOR	384052
J10	399028	FASTON CONNECTOR P.C.B.	399028
J11	CONN_1PM	1 POLE MALE CONNECTOR	384058
J12	PICO_4	4 POLES PICOFLEX CONN. MALE P.C.B.	384042
J13	CONN_5PF	5 POLES FEMALE CONNECTOR	384051

ALSATOM SU-MPC SERIES (50, 100, 140, 140/D, 140/BD)

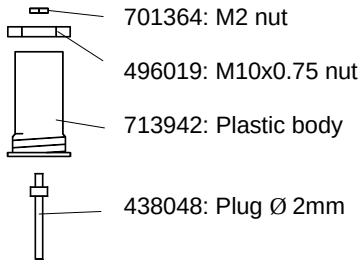




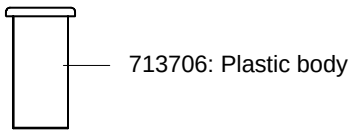
1) 801346: Microcontroller Board (SU 50-MPC, SU 100-MPC)
801337: Microcontroller Board (SU 140-MPC, SU 140/D-MPC)
801368: Microcontroller Board (SU 140/BD-MPC)
2) 801345: Mainboard (SU 50-MPC, SU 100-MPC)
801336: Mainboard (SU 140-MPC, SU 140/D-MPC)
801367: Mainboard (SU 140/BD-MPC)
3) 801341: Transformer
4) 416099: Pedal switch (2 pcs. SU 140/D-MPC, SU 140/BD; 1 pc. in the other models)
5) 416098: Main switch
6) 437029: Power entry module
7) Bipolar socket (2 pcs. in each model) - See details below
8) Neutral plate socket (not in SU 140/BD)-See details below
9a) Active socket (SU 140-MPC, SU 140/D-MPC) - See details below
9b) Active socket (SU 50-MPC, SU 100-MPC) - See details below
10) Knob (3 pcs. SU 140-MPC, SU 140/D-MPC, SU 140/BD-MPC – 2 pcs. SU 50-MPC, SU 100-MPC) – See details below.

DETAILS OF COMPONENTS

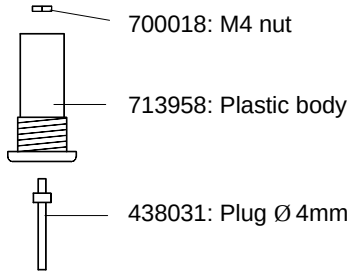
7) Bipolar socket



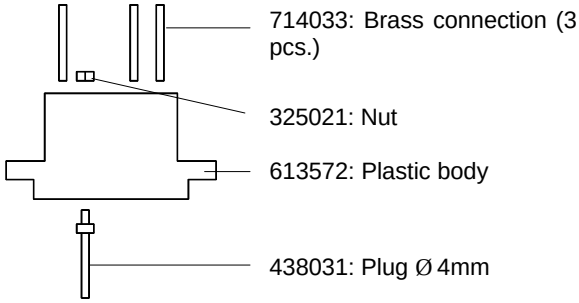
8) Neutral plate socket



9b) Active socket



9a) Active socket



10) Knob