
XT 150 & XT 150/S



TECHNICAL AND MAINTENANCE MANUAL

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INDEX

SECTION 1

<i>General Description</i>	<i>Pag. 4</i>
<i>Electrical Specifications (Table A)</i>	<i>Pag. 6</i>
<i>Dimensional & Environmental Specifications (Table B)</i>	<i>Pag. 8</i>

SECTION 2

<i>Electrical Description</i>	<i>Pag. 9</i>
<i>Front Panel's View Description (Stereo Version)</i>	<i>Pag. 12</i>
<i>Front Panel's View (Fig. 1A)</i>	<i>Pag. 14</i>
<i>Front Panel's View Description (Mono Version)</i>	<i>Pag. 13</i>
<i>Front Panel's View (Fig. 1B)</i>	<i>Pag. 15</i>
<i>Rear Panel's View Description</i>	<i>Pag. 16</i>
<i>Rear Panel's View (Fig. 2)</i>	<i>Pag. 17</i>
<i>Block Diagram (Fig. 3)</i>	<i>Pag. 18</i>
<i>Top's View Description</i>	<i>Pag. 19</i>
<i>Top's View (Fig. 4)</i>	<i>Pag. 20</i>
<i>Down's View Description</i>	<i>Pag. 21</i>
<i>Upper's View (Fig. 5)</i>	<i>Pag. 22</i>
<i>Recommend Test Equipment (Table C)</i>	<i>Pag. 23</i>

SECTION 3

<i>Installation Procedures</i>	<i>Pag. 24</i>
--------------------------------	----------------

SECTION 4

<i>Maintenance Procedures</i>	<i>Pag. 29</i>
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SECTION 5

<i>Calibration Procedure of Modules</i>	<i>Pag. 36</i>
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APPENDIX A

<i>Circuit Diagram, Bills of Material and Layouts</i>	<i>Pag. 46</i>
<i>Wiring Diagrams</i>	<i>Pag. 47</i>
<i>Audio Input Card</i>	<i>Pag. 50</i>
<i>Frequency Selector Card (Mod. TSW-1)</i>	<i>Pag. 54</i>

<i>Frequency Selector Card (Mod. TSW-3)</i>	<i>Pag. 58</i>
<i>VCO Card</i>	<i>Pag. 62</i>
<i>PLL Card</i>	<i>Pag. 70</i>
<i>Alarms Card</i>	<i>Pag. 78</i>
<i>Meter Card</i>	<i>Pag. 83</i>
<i>Transformer Supply Section</i>	<i>Pag. 88</i>
<i>Main Power Supply</i>	<i>Pag. 91</i>
<i>Switching 1 Power Supply</i>	<i>Pag. 95</i>
<i>Switching 2 Power Supply</i>	<i>Pag. 99</i>
<i>Mono/MPX Card</i>	<i>Pag. 103</i>
<i>Stereo Coder Card (Mod. SDC30)</i>	<i>Pag. 109</i>
<i>R.F. Power Amplifier</i>	<i>Pag. 116</i>
<i>Low Pass Filter Card</i>	<i>Pag. 120</i>
<i>Directional Coupler Card</i>	<i>Pag. 124</i>
<i>Clipper Card</i>	<i>Pag. 128</i>
<i>150PS2 Card</i>	<i>Pag. 132</i>
<i>Stereo Coder Card (Mod. SDC30A002)</i>	<i>Pag. 136</i>
<i>TCX0 Card</i>	<i>Pag. 151</i>

CHAPTER 1

GENERAL DESCRIPTION

1.0 INTRODUCTION

This manual gives necessary information about XT150 and XT150S exciter. When referring to the Mono or Stereo Version, it will be duly noted.

1.1 GENERAL DESCRIPTION

The XT150 is housed in a 3U, 19" rack-mounting container comprising a number of interconnected modules mounted internally on the main chassis, facilitating removal and substitution. The power output control, audio input level control and analog meter for the measurement of operating parameters, are all mounted on the front panel.

The line power, audio input, RF output and telemetry (optional) connectors are mounted on the rear panel.

1.2 ELECTRICAL DESCRIPTION

The XT150 is an exciter working in the 87.5 to 108 MHz band, programmable in steps of 10KHz. Its power output is continuously adjustable from 10W to 150W into a 50 Ohm load.

The XT150 incorporates a stereo coder which guarantees excellent stereo separation together with low harmonic distortion (only for Stereo version). It also accepts two SCA signals. A front panel switch allows stereo operation (only for stereo version) or "mono/mpx" operation which excludes the stereo encoder and uses the "right" input as the mono input and the "left" input as the wideband composite input. The specification features low audio distortion and intermodulation figures (typically 0.03%) and a high signal-to-noise ratio (typically -80 dB). A voltage selector on the transformer primary allows a variety of supply voltages to be used.

1.3 METERS AND INDICATORS

The operating parameters of the exciter can be monitored using the analog multimeter (12 Fig.1A and 8 Fig.1B) situated on the front panel. The parameter to be measured is selected by the rotary selector (11 Fig.1A and 7 Fig.1B). The frequency control (10 Fig.1A and 14 Fig.1B) allows frequencies to be selected in steps of 10KHz. Three red alarm leds indicate VCO unlock (15 Fig.1A and 11 Fig.1B), excess VSWR on the output and the excess of temperature (4 Fig.1A and 8 Fig.1B), and the shutdown condition, programmed by a remote command (10 Fig.1A and 6 Fig.1B). Three green leds (7 Fig.1A and 3 Fig.1B) indicate the presence of +12V, +15V and +28V voltages which are used to power the various cards inside the exciter. A selector (2 Fig.1A) allows selection between Mono/MPX and Stereo functions and another selector (6 Fig.1A and 2 Fig.1B) is provided to choose the level of the input signal. Trimmers are provided for adjustment of left and right channels (5 Fig.1A and 1 Fig.1B) and a switch allows the stereo subcarrier to be enabled or disabled (3 Fig.1A).

1.4 AUTOMATIC FREQUENCY CONTROL

The operating frequency is governed by a thermally-compensated, reference

oscillator working within a phase-locked loop (PLL). The XT150 reaches frequency lock within a maximum of 30 seconds.

1.5 CONTROL CIRCUITS

The control circuits allow automatic control of output power(internal and external), maintaining the chosen power level across the entire operating band. Furthermore another circuit protects the final stage against excessive VSWR or short circuits and excessive temperature. Then, there are other protection circuits that allow to limit the maximum output power and to protect the equipment against a power supply's overvoltage.

1.6 R.F. AMPLIFIER

The RF amplifier is a wide-band design and guarantees an adjustable power output of 10 to 150 watts across the entire band. A low-pass filter enables the TEX150 to be used as a low power transmitter, connected directly to an antenna.

1.7 TECHNICAL SPECIFICATIONS

Please refer to Table (A) for the electrical specifications and Table (B) for the mechanical specifications.

TABLE A

ELECTRICAL SPECIFICATIONS

<i>Power Supply</i>	<i>100-130V, 50-60Hz 198-250V, 50-60Hz</i>
<i>Power Consumption</i>	<i>approx. 350W</i>
<i>Cooling</i>	<i>Forced ventilation</i>
<i>Frequency Range</i>	<i>from 87.5 to 108MHz in steps of 10KHz</i>
<i>Output Power</i>	<i>adjustable from 10 to 100 W</i>
<i>Automatic Output Level Control</i>	<i>Stabilizes the set RF output level</i>
<i>Output Impedance</i>	<i>50 Ohm</i>
<i>Output Connector</i>	<i>Standard "N-type"</i>
<i>Harmonic Suppression</i>	<i>> -65dB</i>
<i>Spurious Signal Suppression</i>	<i>> -80dB</i>
<i>Mono Intermodulation Distortion</i>	<i>0.05 % or less, measured at 1KHz and 1.3 KHz, ratio 1:1 at 100% modulation</i>
<i>Frequency Stability</i>	<i>±500Hz (typ. ±300Hz) from 0° to 50°C</i>
<i>Modulation Type</i>	<i>Direct frequency modulation of the RF oscillator at fundamental frequency</i>
<i>Frequency Deviation</i>	<i>±75KHz nominal</i>
<i>Harmonic Distortion</i>	<i>< 0.05% (typically 0.01%)</i>
<i>FM Signal-to-Noise Ratio</i>	<i>> 75 dB mono, > 70 dB stereo measured with 75KHz deviation in the 30Hz to 15KHz band RMS.</i>
<i>Residual AM (Asynchronous)</i>	<i>approx. 0.05%=65dB RMS</i>
<i>Residual AM (Synchronous)</i>	<i>0.1%=60dB</i>
<i>Pre-emphasis</i>	<i>50µs ±2% or 75µs ±2% selectable</i>

<i>Audio Input Impedance</i>	<i>10K0hm balanced or 5Kohm unbalanced (600ohm on request)</i>
<i>Audio Input Level</i>	<i>Selectable from -9 to +6 dBm in five steps continuously from -12 to +9 dBm</i>
<i>Audio Frequency Range</i>	<i>30-15000Hz, MONO input 30-100000Hz, MPX input</i>
<i>Audio Input Filter</i>	<i>> 45dB at 19KHz (Mono) > 40dB from 20KHz to 100KHz</i>
<i>Mono Frequency Response</i>	<i>±0.3dB from 30Hz to 15KHz</i>
<i>MPX Frequency Response</i>	<i>±0.5dB from 30Hz to 75KHz</i>
<i>Stereo Separation</i>	<i>> 45dB (typ. 50dB)</i>
<i>Pilot Tone Frequency</i>	<i>19KHz ± 1Hz</i>
<i>Pilot tone level</i>	<i>-20dBm adjustable</i>
<i>Number of SCA inputs</i>	<i>2</i>
<i>SCA input impedance</i>	<i>1K0hm unbalanced</i>
<i>SCA input level</i>	<i>0dBm per ± 7.5KHz of deviation</i>
<i>SCA input response</i>	<i>± 0.5dBm from 40KHz to 100KHz</i>

TABLE B
MECHANICAL SPECIFICATIONS

<i>Rack dimensions</i>	<i>483.00 mm (19.0") W</i> <i>132.50 mm (5.20") H</i> <i>345.00 mm (13.7") D</i>
<i>Operating temperature</i>	<i>from -10°C to 50°C</i>
<i>Humidity</i>	<i>95% max., non-condensing</i>
<i>Weight</i>	<i>12 Kg</i>

CHAPTER 2

ELECTRICAL DESCRIPTION

2.1 INTRODUCTION

This section describes, in detail, the operating theory behind the XT150. To aid understanding, the unit has been subdivided into blocks, each of which is fully described below. The block diagram is shown in Fig.3.

2.2 POWER SUPPLY

This circuit comprises a board, mounted on a heat sink, which is fixed to the central part of the lower section of the unit (2 Fig.5). The power supply generates the various stabilized voltages necessary for each of the various modules that make up the XT150. The transformer has a selectable input from 110 V to 240 V and two outputs A +18V (6.3A) and B +32V (10A). This power supply is composed of two main parts: after having undergone filtering for mains-borne interference, the supply is transformed into four lower voltages, rectified, smoothed and stabilized to the following values: +12V, +15V and 10 to 28V variable to obtain the high efficiency (85-90%). The +15V supplies the encoder mixer, the PLL card, the VCO card, the meter 100 card and the alarm card. The +12V supplies the input of RF power amplifier driver (BGY33) and the 10-28V variable supplies the output of RF power amplifier driver (BGY33) and the final power stage of the same module (two MRF317 or two SD1480).

The variable voltage of the final stage is controlled by the PWR ADJ control which determines the R.F. power output of the exciter. The automatic control of output power guarantees the power level set by the PWR ADJ control right across the frequency range and independantly of other variables such as temperature, load variations etc. The system works by comparing the value set by the PWR ADJ control with the actual power output of the unit and compensating accordingly. The final stage driver is composed of two separate parts, the input part is supplied with +12V voltage, and the output part is supplied by the switching power supply with 4-12V variable voltage obtained dividing the 10 - 28 V variable voltage. A power limiting circuit intervenes in the event of excess SWR on the output, thus protecting the final stage.

2.3 AUDIO INPUT CARD

This card is situated on the rear panel of the exciter (1 Fig.4 and 3 Fig.5). The card filters all audio signal inputs to the unit, removing RF interference, before supplying them to the encoder mixer or Mono\MPX card. The main operating parameters of the exciter are available for remote monitoring via a telemetry connector.

2.4 CODER MIXER (only for Stereo Version)

This card is situated in the lower part of the unit (6 Fig.4).

The card can function either as a stereo encoder or as a simple mixer for the various audio inputs. The function may be selected by a control situated on the front panel. In stereo encoder mode, the 19KHz pilot tone is derived from a quartz crystal reference oscillator. So too is the sampling

frequency which allows the L and R signals to be separated from the multiplexed signal, plus the suppression of the 38KHz frequency. The level of the left and right signals is set by the corresponding selector situated on the front panel. The signals are then filtered at 15KHz and pre-emphasized (50 μ S CCIR, 75 μ S FCC) before being sent to the multiplex circuit. The audio signals from the two SCA inputs are mixed in to provide the output. In mixer mode (Mono MPX) the stereo encoder is bypassed, the right input accepts a mono signal and the left input accepts a multiplex signal upto 100KHz. The SCA inputs remain unchanged. Three rectifiers allow the peak levels of the two inputs "Left/MPX" and "right/mono" to be displayed on the analog meter, and provide the audio detector circuit with the deviation level.

2.5 PLL CARD

The PLL card is situated internally, in the upper part of the unit (6 Fig.5). The circuit includes a reference cristal oscillator (optional high stability), a logic section that includes the frequency dividers and comparator. The reference cristal oscillator generates a 4MHz frequency that is divided to generate a 1KHz fixed signal. This signal is compared to the operating frequency generated by the VCO divided opportunely on the ground of the frequency setted on the Contraves. An indicator situated on the front panel signals the "unlocked" condition. The comparator output (AFC signal) is sent to the varicap diodes situated on the VCO Card.

2.6 VCO CARD

The VCO card is situated internally, in the upper part of the unit (4 Fig.4). This module includes an audio input stage at low frequency, a voltage controlled oscillator at low noise (VCO) and a driver stage. The audio signal supplied by the encoder mixer is amplified and then injected into the VCO to provide class F3 modulation. The voltage controlled oscillator (VCO) generates the signal on the frequency setted on the Contraves. This signal is amplified to 300 mW level (25dBm) to drive the final stage and to be sent to PLL circuit situated on the PLL card. The operating frequency genereted by the VCO is divided down before

being compared to a reference frequency, generated by a high stability oscillator (standard 5ppm). The error voltage is filtered and used to compensate the VCO frequency and guarantee its stability. A trimmer is present on this card for adjustment of deviation.

2.7 R.F. POWER AMPLIFIER

The final power stage is mounted on a heat sink to dissipate waste heat and is enclosed in a totally screened, metal container, fixed to the upper-middle part of the central section of the unit (1 Fig.5). The RF signal coming from the Stereo Decoder or Mono\MPX at a power level of about 300 mW, reaches the driver stage (BGY33) and is amplified to a level from about 1W to 20 W before being further amplified by the final stage (two MRF317 or two SD1480) to a level of up to 150 W. The resultant signal is then filtered by a low-pass filter (2 Fig.5) which removes any harmonic content. A directional coupler allows the direct and reflected power levels to be measured and displayed on the analog multimeter and also feedback to the power supply for automatic control of the output power (see Power Supply description). A BNC connector situated on the rear panel provides a power signal at -40 dB of the amplifier output power.

2.8 METER CARD

This card is situated centrally on the front panel (5 Fig.4 and 7 Fig.5). The card receives direct and reflected power signals from the power supply which, in turn, come from the final power stage. The Stereo encoder card supplies deviation and left and right signal levels. These signal levels are then displayed on the analog meter according to the position of the rotary selector situated on the front panel.

2.9 CONTRAVES CARD

This card is fixed to the left-hand side of the front panel (5 Fig.5). The operating frequency selected by the frequency control is represented by a signal which is supplied to the frequency dividers that form part of the PLL circuits found on the PLL card.

2.10 ALARMS CARD

This card is fixed in the lower part of the unit (7 Fig.4). This circuit allows to adjust, through 7 trimmers, the threshold of the external and internal output level, internal and external VSWR level, temperature and to preset the maximum value of the output power. In case of fault there isn't an automatic reset, because the transmitter provides to decrease the output power to continue the transmission without stops, even if at minimum power.

2.11 MONO\MPX CODER CARD (Mono Version)

This card is fixed in the lower part of the unit. The Mono\MPX card is an Audio Mixer at four inputs, two balanced (Mono and MPX) and two unbalanced (SCA1 and SCA2). Mono and MPX input level can be setted through relative switches placed on front panel, on 5 fixed positions and on a variable position from -12dBm to +9dBm (pre-setted at 0dBm). It's possible to set the pre-emphasis value at 50µS, 75µS or linear. Then, it's possible to insert or remove a low pass filter at 15KHz.

2.12 CLIPPER CARD (Optional)

This card is fixed with a sandwich structure on the coder card and is accesible from lower part of the equipment. Its function is that to limit drastically any audio signal that exceeds a prefixed threshold. Therefore, it's used to avoid any type of over-modulation as to maximum peak permitted of $\pm 75\text{KHz}$. With an exceeding signal, immediately too, of 6 dB the nominal level for a deviation of $\pm 75\text{KHz}$, this card allows to contain deviation increasing within 1dB.

FRONT PANEL STEREO VERSION VIEW DESCRIPTION (FIG.1A)

1	STEREO/MONO-MPX	Selects STEREO or MONO/MPX operation
2	STEREO LED	Indicates the operation of the stereo encoder
3	19KHz LED	Indicates the 19KHz pilot tone presence
4	MODE SELECTOR	Button in: STEREO OPERATION MODE pilot tone present Button out: MONO OPERATION MODE pilot tone absent
5	L/MPX & R/MONO LEVEL	L/MPX and R/Mono input level adjustable from -12 to +9 dBm; this is possible if the input level switch is completely turned clockwise
6	INPUT LEVEL	Input signal attenuator adjustable in 5 steps from -9 to +6 dBm
7	VOLTAGES LEDS	Indicates the presence of the internal operating voltages +12V, +15V and +28V
8	SWR	Indicates that reflected power exceeds 10W
9	PWR ADJ	10-turn trimmer to regulate the power output of the exciter. AGC maintains the level set by this control
10	REMOMTE	Indicates that the exciter has been shut-down by remote control

11	MEASUREMENT SELECTOR	The measurement made by the meter corresponds to the position of this selector
12	METER	Analog meter used to display the following operating parameters of the exciter: Direct power f.s. 200W Reflected power f.s. 50W Deviation f.s. 100KHz Right channel input level f.s. +3dB Left channel input level f.s. +3dB
13	POWER	ON/OFF switch
14	MHz/KHz	Rotary frequency selector
15	L.O. UNLOCK	If ON indicates that the VCO is not locked to the reference frequency. The output power will drop to zero in this condition

FRONT PANEL MONO VERSION VIEW DESCRIPTION (FIG.1B)

1	L/MPX & R/MONO LEVEL	L/MPX and R/Mono input level adjustable from -12 to +9 dBm
2	INPUT LEVEL	Input signal attenuator adjustable in 5 steps from -9 to +6 dBm
3	VOLTAGES LEDS	Indicates the presence of the internal operating voltages +12V, +15V and +28V
4	SWR	Indicates that reflected power exceeds 10W
5	PWR ADJ	10-turn trimmer to regulate the power output of the exciter. AGC maintains the level set by this control
6	REMOTE	Indicates that the exciter has been shut-down by remote control
7	MEASUREMENT SELECTOR	The measurement made by the meter corresponds to the position of this selector
8	METER	Analog meter used to display the following operating parameters of the exciter: Direct power f.s. 200W Reflected power f.s. 50W Deviation f.s. 100KHz Right channel input level f.s. 3dB Left channel input level f.s. 3dB
9	POWER	Supply on/off switch
10	MHz/KHz	Rotary frequency selector
11	L.O. UNLOCK	Indicates that the VCO is not locked to the reference frequency. The output power will drop to zero in this condition

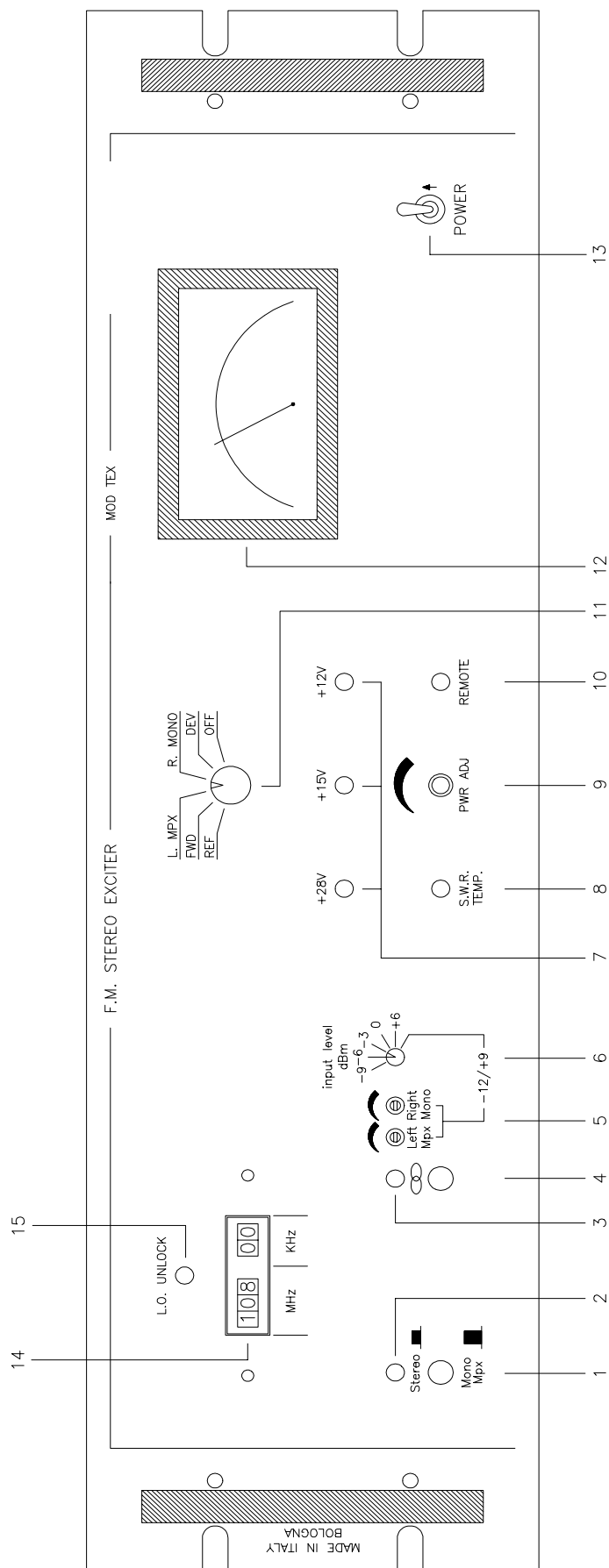


FIG. 1A

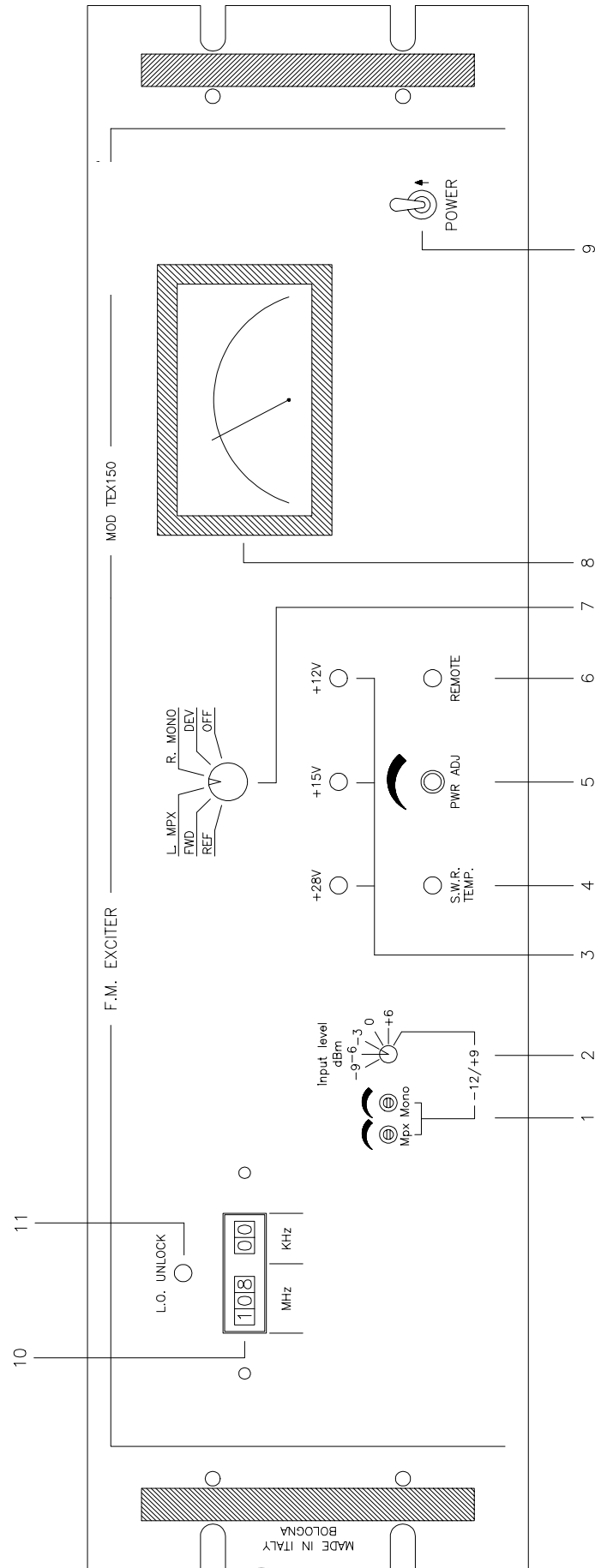


FIG. 1B

REAR PANEL VIEW DESCRIPTION

(FIG. 2)

1	FUSE BLOCK	Fuse block and line voltage selector. Use a small screwdriver to change the fuse or the line voltage. Rotate the block and position it for the desired voltage.
2	PLUG	Line power connector
3	REMOTE 1	BNC connector, External AGC input
4	REMOTE 2	BNC connector, External Reflected Feedback input
5	EXT REF 1 KHz	External 1 KHz reference (optional)
6	REMOTE 3	BNC connector. Connecting the central conductor to ground will cause the RF output power level to drop to zero and to stay there until the short is removed. When used with an R.V.R. amplifier, this connector should be connected to the "REMOTE" output of the power amplifier.
7	FAN	Fan-assisted cooling for the power stage and the power supply.
8	TELEMETRY TERMINALS	10-pin telemetry card 1-2-3-10 GND 4 Forward power 5 Reflected power 6 VPA 7 IPA 8 SWR alarm 9 Unlock alarm
9	P.A. FUSE	Power Amplifier Protection fuse 8A
10	R.F. OUTPUT	N-type connector, 50 Ohm
11	R.F. TEST POINT	-40 dB output referred to the output power level
12	FUSE	Main Protection Fuse 6A
13	RIGHT (MONO)	BNC connector for FCC unbalanced version; Cannon XLR for CCIR version with balanced input
14	LEFT (MPX)	BNC connector for FCC version; Cannon XLR for CCIR version with balanced input
15	SCA 1	BNC connector, unbalanced SCA1 input
16	SCA 2	BNC connector, unbalanced SCA2 input or output (internally selectable) for pilot tone (i.e. for RDS encoder)

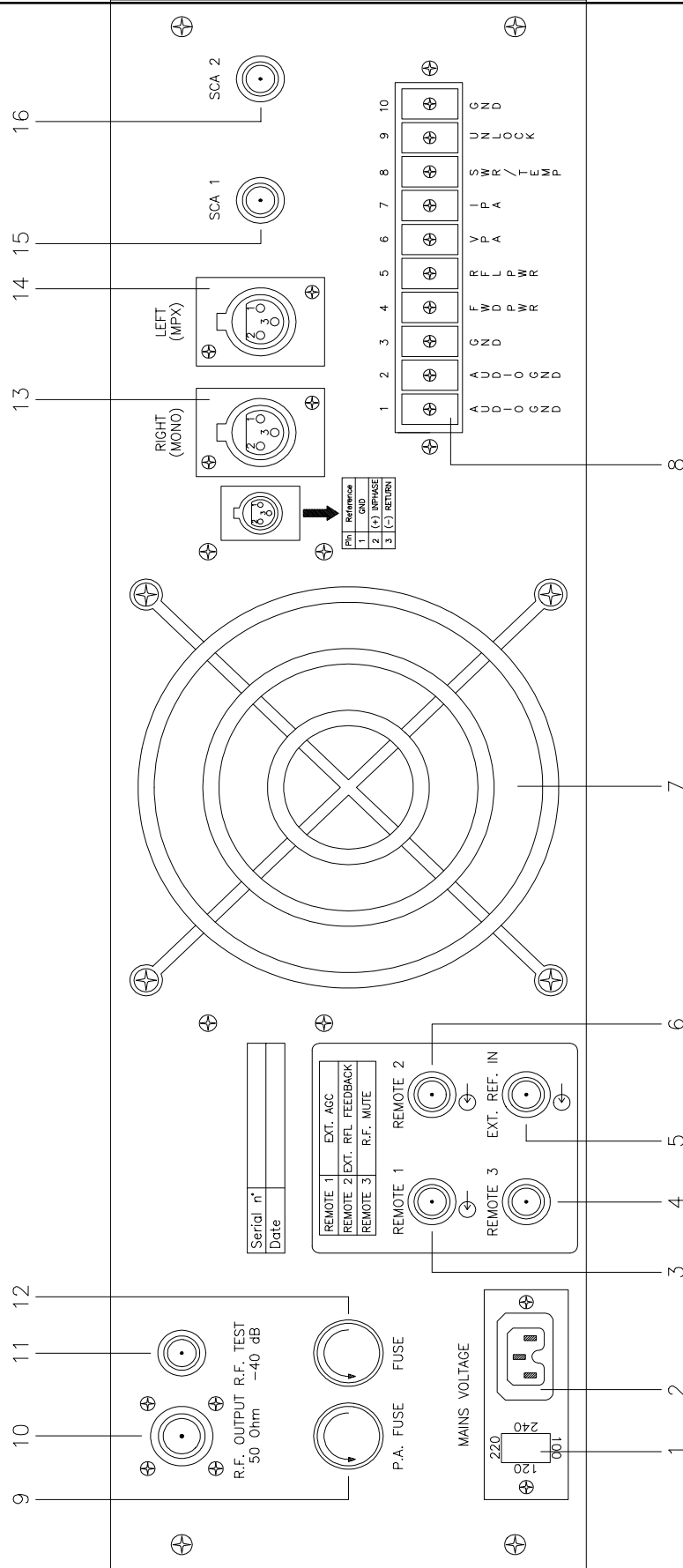
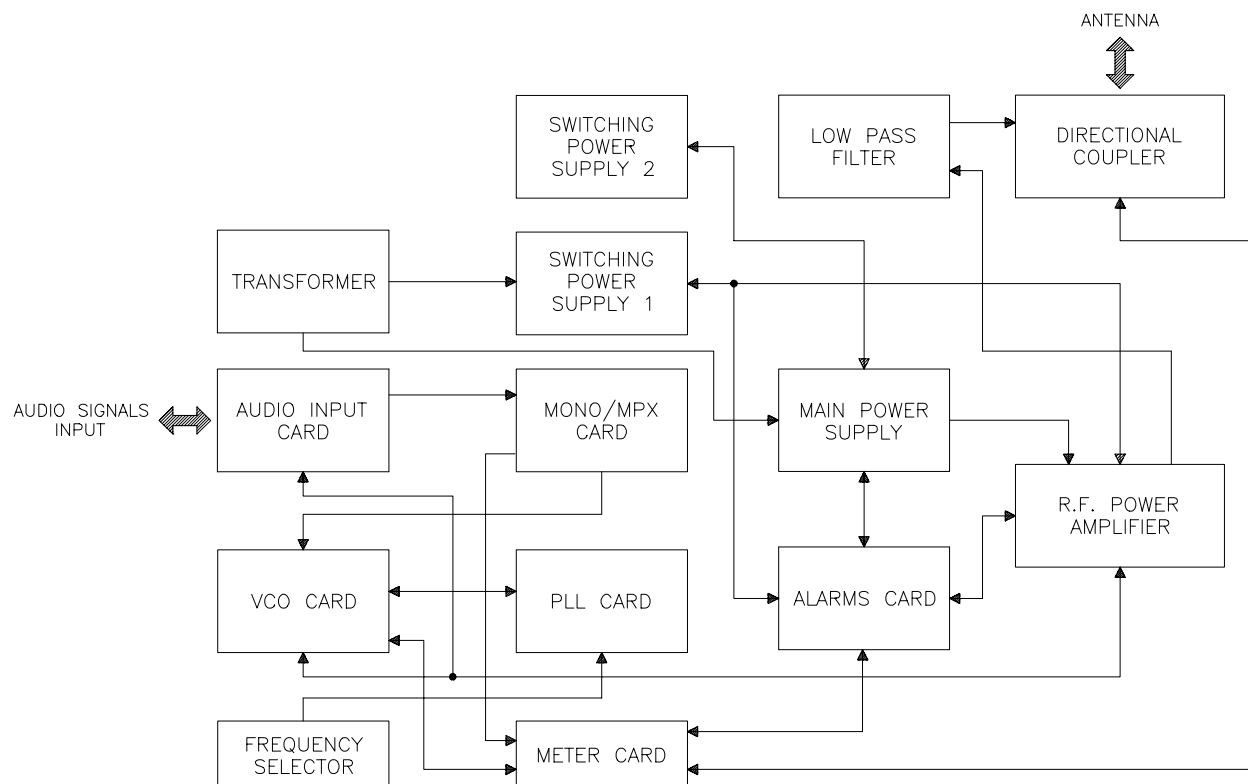
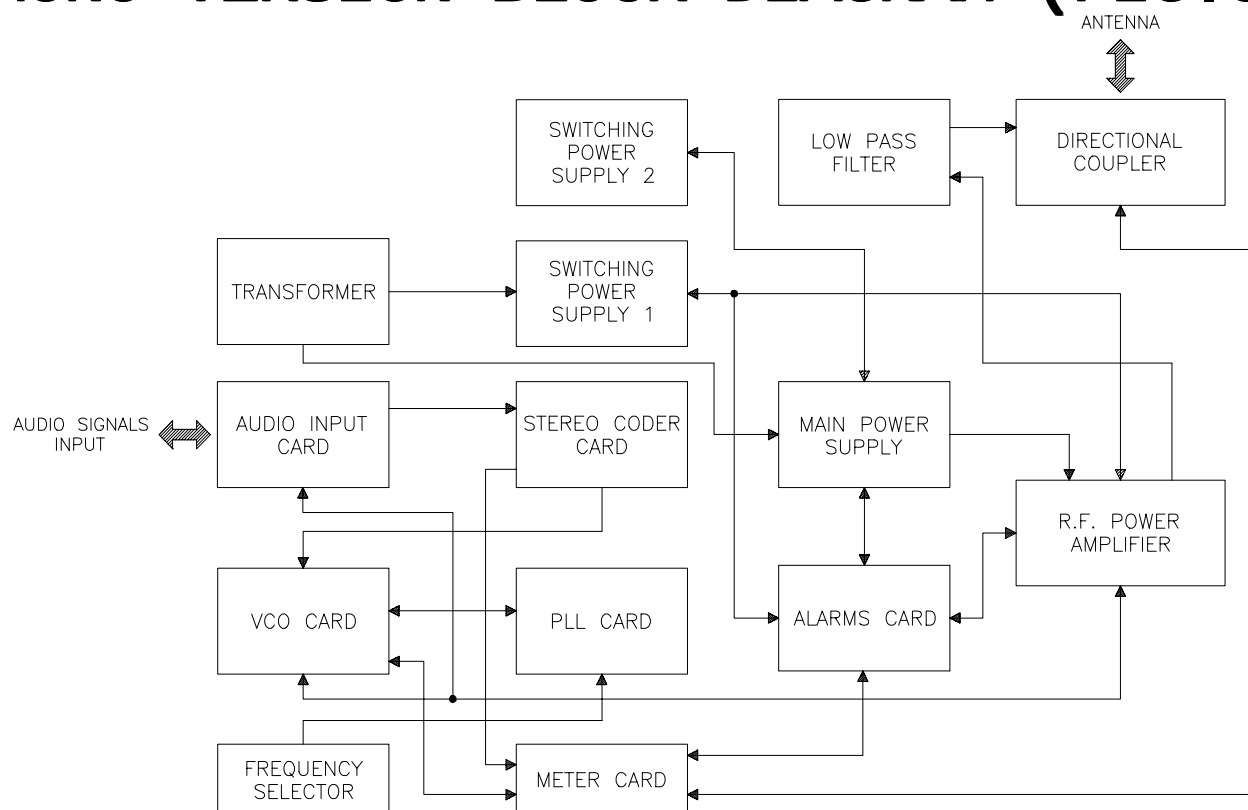


FIG. 2



MONO VERSION BLOCK DIAGRAM (FIG.3A)



STEREO VERSION BLOCK DIAGRAM (FIG.3B)

TOP VIEW DESCRIPTION (FIG.4)

- | | | |
|---|-------|--|
| 1 | ..... | Audio Input Card |
| 2 | ..... | Power Supply Card |
| 3 | ..... | Switch Power Supply 1 |
| 4 | ..... | Anolog Meter |
| 5 | ..... | Meter Card |
| 6 | | Stereo Coder Card (for Stereo Version)
Mono\MPX Card (for Mono Version) |
| 7 | ..... | Alarms Card |
| 8 | ..... | Analog Meter |

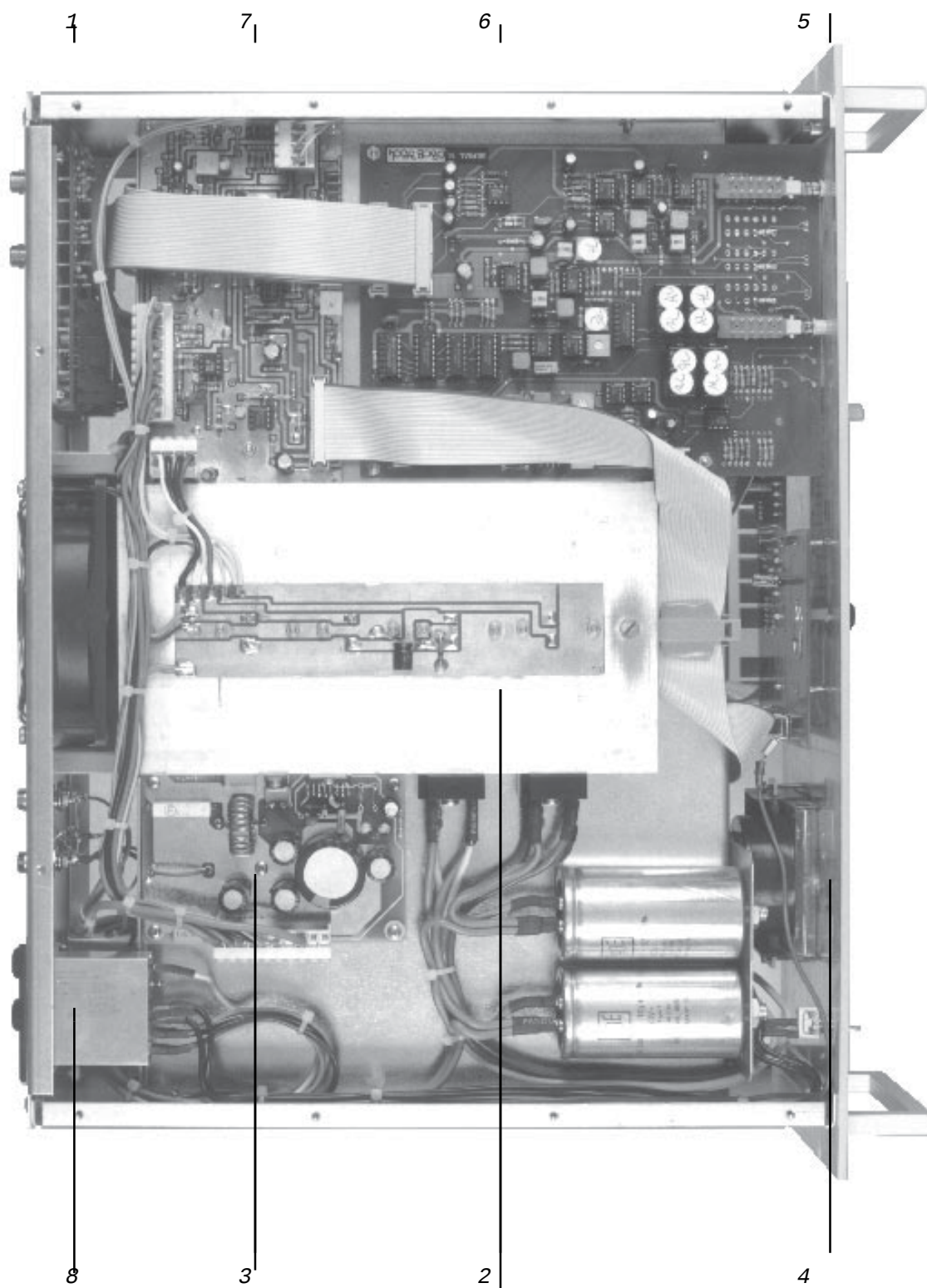


FIG. 4

DOWN VIEW DESCRIPTION (FIG.5)

1	.....	Power Amplifier Card
2	.....	Low Pass Filter
3	.....	Audio Input Card
4	.....	VCO Card
5	.....	Frequency Selector Card
6	.....	PLL Card
7	.....	Meter Card
8	.....	Switching Power Supply 2
9	.....	Toroidal transformer
10	.....	Directional Coupler

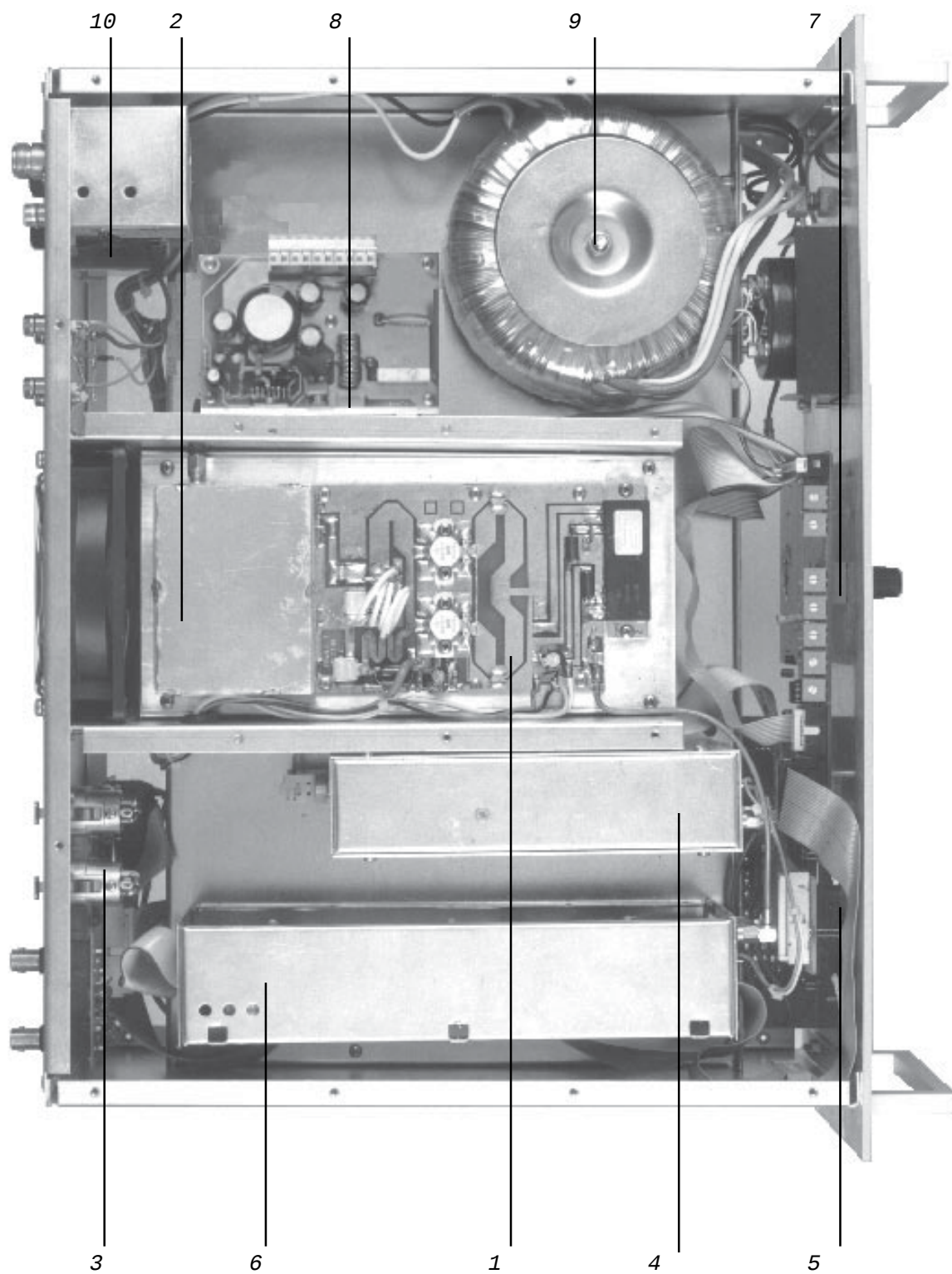


FIG. 5

TABLE C

RECOMMENDED TEST EQUIPMENT

<i>INSTRUMENT</i>	<i>MODEL</i>	<i>SPECIFICATION</i>
<i>Coaxial Load Resistor</i>	<i>Bird Mod. 8173</i>	<i>Power Rating 300W continuous</i>
<i>Wattmeter</i>	<i>Bird Mod. 43</i>	<i>Power Range: 100mW to 10KW using Bird Plug-in-Elements Frequency Range: 0.45 to 2300MHz</i>
<i>Plug-in-Elements</i>	<i>Bird</i>	<i>Power Rating: 250W Freq. Range: 50 to 125MHz</i>
<i>Stereo Decoder</i>	<i>A.E.V. Mod. SMD</i>	<i>Stereo Separation: > 60 dB from 30Hz to 15 KHz</i>
<i>Low Distorsion A.F. Generator</i>	<i>Krohn-Hite Mod. 4400A</i>	<i>THD < 0.001%</i>
<i>Oscilloscope</i>	<i>Tektronix Mod. 2247A</i>	<i>100MHz Oscilloscope Counter/Timer</i>
<i>F.M. Modulation Meter</i>	<i>Rohde Schwarz Mod. F.A.M.</i>	
<i>Digital Multimeter</i>	<i>Metrix</i>	

CHAPTER 3

INSTALLATION PROCEDURES

3.1 INTRODUCTION

This chapter contains the information required for installation of the TEX150 exciter and for preliminary checks.

3.2 UNPACKING

Remove the unit from its packaging and before any other operation, check for any damage that the unit may have suffered in transit and that all front and rear panel controls are functioning.

3.3 INSTALLATION

1) Check that the line voltage selector is correctly set for the local supply. If not, remove the cover on which the voltages are printed and rotate it until the required value corresponds to the arrow, and reinsert it. Check also that the fuse (1 Fig.2) mounted inside the cover is present and in order.

The current capacity of the fuse are as follows:

220-240 V	-	6.3 A
100-120 V	-	12 A

2) Now ensure that the PWR ADJ control (9 Fig.1A or 5 Fig.1B) is rotated fully anti-clockwise, using a small screwdriver. N.B. The control is a ten-turn potentiometer so care should be taken to verify the minimum position.

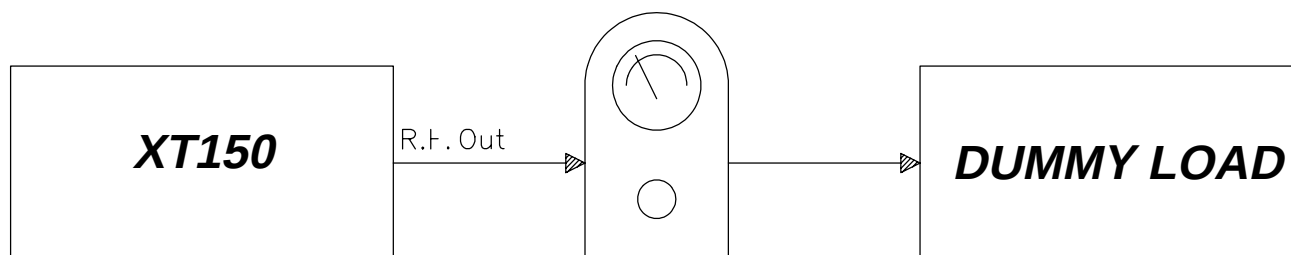
Units are usually shipped with this control already at minimum.

WARNING: When the unit is switched on with the control at its minimum position, power output is about 10W.

3) Connect a dummy load with a power rating of at least 150 W continuous to the RF output, situated on the rear panel of the unit. It is advisable to connect a bypass wattmeter in series with this load in order to verify the accuracy of the unit's own internal wattmeter (see SETUP 1).

WATT-METER

SETUP 1



4) Connect a switch, via a cable, to the REMOTE 3 connector (4 Fig.2) on the rear panel so that the switch is able to short the central conductor to its screen. Leave the switch in the short-circuit position.

5) Switch the unit's ON/OFF switch (13 Fig.1A or 9 Fig.1B) to the OFF position.

6) Connect line power to the unit via the VDE socket (2 Fig.2).

Note: It's essential that the unit be properly earthed to ensure both the safety of the operator as well as the correct functioning of the equipment.

7) Switch the power On switch (13 Fig.1A or 9 Fig.1B) to the ON position and check that the three green internal voltage led (7 Fig.1A or 3 Fig.1B) and the red UNLOCK led (15 Fig.1A or 11 Fig.1B) are all on. Select the desired operating frequency using the corresponding selector. The red UNLOCK led should switch off within 30 seconds, indicating that the oscillator has locked onto the operating frequency. The frequency selector comprises five figures of which the three to the left of the decimal point represent (from left to right) hundreds of MHz, tens of MHz and MHz. The two figures to the right of the decimal point represent (from left to right) hundreds of KHz and tens of KHz.

Eg: 098.45 = ninety eight megahertz and four hundred and fifty Kiloherztz.

Eg: 103.94 = one hundred and three Megahertz and nine hundred and forty Kiloherztz.

Furthermore, if a frequency is selected beyond the two limits of the 87.5-108 MHz band, the amplifier will continue to work even through the displayed frequency no longer corresponds to the operating frequency of the unit.

Note: Transmitting outside the legal band (87.5-108 MHz) is an offence and may lead to prosecution.

8) After having verified that the UNLOCK led is switched off and that the unit is therefore locked to the selected operating frequency, switch the switch connected to the REMOTE connector so as to remove the short circuit between the central conductor and ground. The RF output is now enabled and should correspond to a power level of about 10W. To check this reading, select FWD on the meter selector and read the power from the 200 W FSD scale.

9) Using a small screwdriver, rotate the PWR ADJ control clockwise; the power output should increase progressively to a maximum of 100W. Check the value with the bypass wattmeter which should be within $\pm 10\%$.

10) With the power output at 150W, select a new operating frequency well away from the current value. Eg: 107 MHz: the UNLOCK led should switch on and the power output should fall to zero at the same time. Only when the UNLOCK led switches off (unit locked to new frequency) should the power output resume its previous level.

11) Automatic power control check

It is advisable to start this procedure with the operating frequency set to 87.50 MHz. When locked to this frequency, the PWR ADJ control should be adjusted for an output power of 50 W. Now, with no further adjustment of the PWR ADJ control, change the operating frequency in steps of 4-5 MHz, ensuring that the output power remains constant at 50 W.

12) SWR alarm check

For this test, adjust the PWR ADJ control for a power output of 10W. Disconnect the output load and check that the S.W.R. led switches on. Now adjust the PWR ADJ control to check that the unit switches on again at a reflected power level of about 20 W. Turn the PWR ADJ control for maximum power and check that the reflected power does not exceed 50 W. Re-connect the output load and check that REF falls to zero, the SWR led switches off and that PWR FWD jumps to 150 W.

13) Now short circuit the central conductor of the REMOTE input to ground and the output power should drop instantly to zero. Removing the short should cause the power output to return, gradually, to its previous level.

14) Deviation reading check

The maximum input sensitivity is determined by the position of the INPUT LEVEL control. In the -12/+9 position, the sensitivity will depend on the L/mpx and R/mono controls. Put the selector in the DEV position. Connect a low-distortion audio generator to the LEFT and RIGHT inputs. Inject a 400 Hz tone at a level of 0dBm ($775\text{mV}_{\text{RMS}} = 2.2\text{V}_{\text{pp}}$). Put the INPUT LEVEL control in the 0dBm position. Select stereo mode (the corresponding led will switch on). Enable the PILOT using the relevant switch (the green led will switch on). With the selector in the R/MONO position, check that the reading is 0b, measured on the +3dB FSD scale. Repeat the operation for the L/MPX. Check that the deviation reading is 100%.

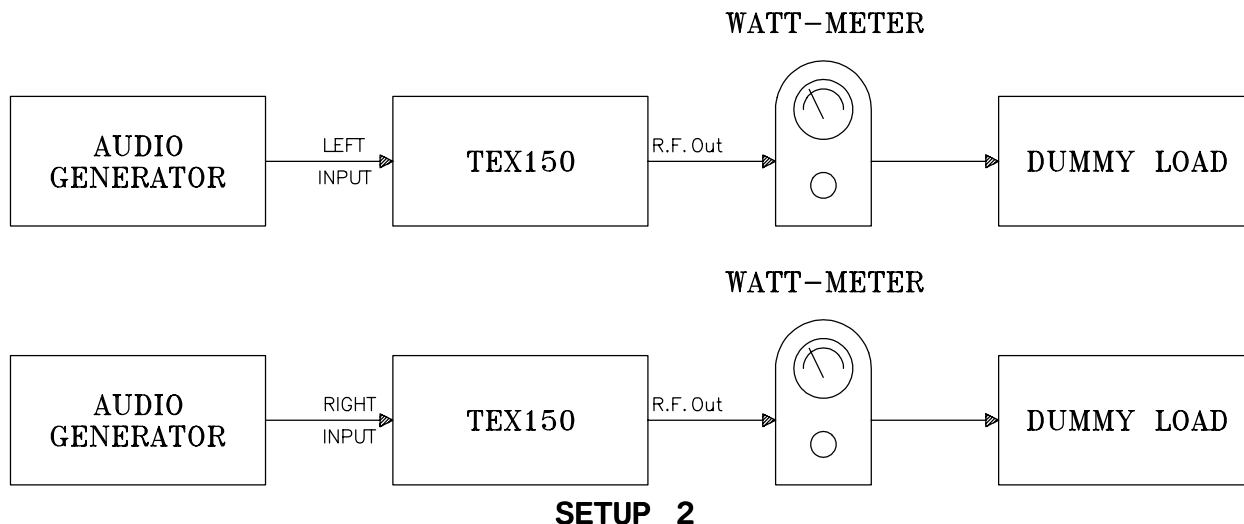
3.3

1) Inject the pilot tone checking that the corresponding led switches on.

3.4 OPERATION USING THE INTERNAL STEREO ENCODER (Only for Stereo Ver.)

1) Inject the pilot tone checking that the corresponding led switches on.

- 2) Select STEREO operation confirmed by the corresponding led.
- 3) Select the sensitivity of the audio LEFT/RIGHT inputs to match the signal level being supplied to the unit. (CONT..PG.27)
- 4) Connect the signal source to the LEFT/RIGHT inputs. These are balanced inputs (see SETUP 2).

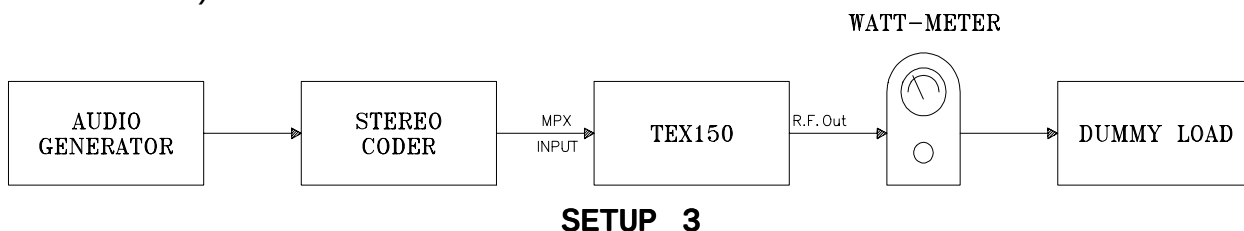


5) Check on the internal analog meter that the L/R signal levels are those expected, selecting the desired input with the corresponding control.

6) The effective modulation level may be measured on the analog multimeter by selecting DEV with the corresponding selector.

3.5 CONNECTION OF AN EXTERNAL STEREOPHONIC SOURCE

1) Connect the stereo source's output to the MPX input of the unit (see SETUP 3).



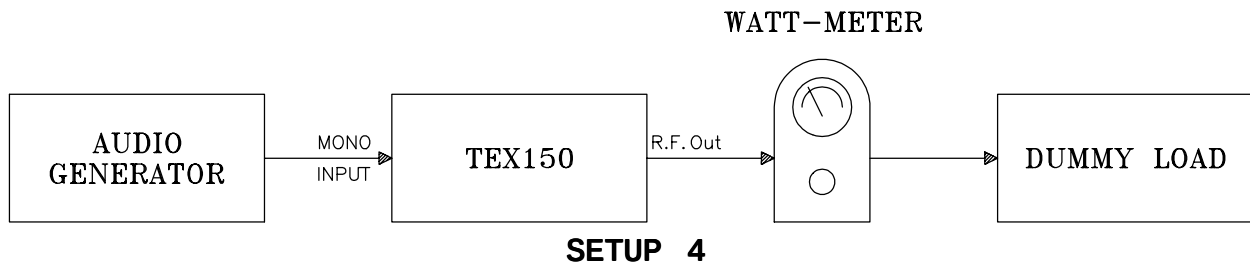
2) Adjust the stereo encoder to obtain just the 19 KHz subcarrier output and ensure the total absence of signals on the left and right inputs of the encoder.

3) Adjust the output level of the encoder to obtain the correct level as displayed on the analog meter of the TEX150.

4) Inject audio signals into the left and right inputs of the encoder and adjust the sensitivity of the input to obtain a peak reading of MAX=75KHz with both channels enabled.

3.6 MONOPHONIC TRANSMISSION

1) Connect the signal source (audio mixer, receiver, compressor etc.) to the MONO input. This input is unbalanced (see SETUP 4).



2) Select the desired INPUT LEVEL.

3) Adjust the signal level of the equipment connected to the TEX150 (with the audio signal present) for a peak reading of DEVIATION MAX 75 KHz.

Note that international standards permit a maximum deviation (DEV MAX) of 75 KHz for frequency modulated, radiophonic transmissions. Exceeding this limit will only result in the degradation of signal quality.

In the case of mono transmissions, the stereo input is available for frequencies between 15 KHz and 100 KHz (i.e. subcarriers for SCA, RDS etc.).

CHAPTER 4

MAINTENANCE PROCEDURES

4.1 SAFETY REQUIREMENTS

WARNING WARNING WARNING WARNING WARNING WARNING WARNING WARNING

When the exciter is operational, removing the top cover will expose lethal voltages on the line voltage selector and heavy currents on the power supply filter terminals and power transistors. Use insulated tools for any type of maintenance work and do not touch any internal components when the exciter is switched on.

Ensure that the exciter is disconnected from the line supply before carrying out any maintenance work.

MAINTENANCE LEVEL 1

4.2 ROUTINE MAINTENANCE

The only routine maintenance required by the TEX150 is the periodic replacement of the cooling fan and the removal of accumulated dust. The period between such action will depend on ambient operating conditions such as temperature, air-borne dust levels and humidity. It is advisable to check the unit every 6 months and to replace noisy or worn fans. Fans should be replaced as a matter of course after no more than 18 months of operation.

MAINTENANCE LEVEL 2

4.3 STEREO ENCODER CARD REPLACEMENT

- 1)Open the top and bottom covers of the unit.
- 2)Disconnect connectors J1, J3 and J4.
- 3)Unscrew the four nuts fixing the card on internal chassis.
- 4)Unscrew the screw inside the INPUT LEVEL knob and slide it off.
- 5)Raise the card from its supports, simultaneously sliding the switches and the INPUT LEVEL switch pivot from the panel.

4.4 RF POWER AMPLIFIER TRANSISTOR REPLACEMENT

For this module it's only possible to replacement the transistors:

- 1)Open the top cover of the unit.
- 2)Open the top cover of the RF power amplifier.
- 3)Unscrew the two fixing screws of the device (BGY33, MRF317 or SD1480).
- 4)Remove the broken transistor.

NOTE: During replacement of broken devices it's necessary to pay attention to device's pin position and insertion, to check that the device's fixing screws aren't in short-circuit and to check that the soldering is good and without impurities.

NOTE: Interpose between devices and heat-sink an electronic silicone compound.

4.5 VCO REPLACEMENT

- 1)Open the top cover of the unit.
- 2)Disconnect connectors CN1, CN2, J1, J3 and J4.
- 3)Desolder the two wires connected on J2 and J5 of the VCO Card.
- 4)Unscrew the fixing screws of the VCO card metal box on the internal chassis.
- 5)Remove the metal box.

NOTE: For any adjustment is sufficient remove the top and bottom covers of the metal box.

4.6 AUDIO INPUT CARD REPLACEMENT

- 1)Open the bottom cover of the unit.
- 2)Disconnect connectors CN1, and CN2.
- 3)Unscrew the nuts of the two connectors BNC1 and BNC2 situated on the rear panel.
- 4)Unscrew the two screws fixing the telemetry terminals block, situated on the rear panel.

5)Desolder the six wires (placed on EC1 and EC2) connecting the Audio Input Card to the two audio connectors, RIGHT (mono) and LEFT (MPX).

6)Slide the card out.

4.7 MAIN POWER SUPPLY'S TRANSISTORS REPLACEMENT

1)Open the top and bottom covers of the unit.

2)Remove from flat cable clamp the flatwire fixed on heat-sink.

3)Unscrew the two fixing screws of the components U1 and D1 of the switching power supply (pay attention to device insulator).

4)Unscrew the two fixing screws of the two rectifier bridges.

5)Unscrew the fixing screws of the heat-sink and raise the top part of heat-sink paying attention to cabling.

6)Desolder the device's pins.

7)Carefully lift out the device.

NOTE: During replacement of broken devices it's necessary to pay attention to device's pin position and insertion, to check that the device's fixing screws aren't in short-circuit and to check that the soldering is good and without impurities.

NOTE: Interpose between devices and heat-sink an electronic silicone compound.

4.8 METER CARD REPLACEMENT

1)Open the top and bottom covers of the unit.

2)Unscrew the four fixing screws of the front panel.

3)Unscrew the nut inside the measurement selector situated on the front panel and the selector fixing nut.

4)Disconnect connectors CN1, CN2, CN3, CN6 and CN7 situated on the Meter card.

5)Disconnect the faston CN4.

6)Remove the card paying careful attention to the various leds and adjustments.

4.9 FREQUENCY SELECTOR CARD REPLACEMENT

1)Open the top cover of the unit.

- 2)Unscrew the four fixing screws of the front panel.
- 3)Disconnect connector CN1 situated on the Contraves card.
- 4)Unscrew the two card's fixing screws on the front panel.
- 5)Remove the Contraves card.

4.10 PLL CARD REPLACEMENT

- 1)Open the top and bottom covers of the unit.
- 2)Disconnect connectors CN1, J2, and J5, desolder the two wires connected on J1 and J3 of the PLL Card.
- 3)Unscrew the fixing screws of the PLL card metal box on the internal chassis.
- 4)Remove the metal box.

NOTE: For any adjustment is sufficient remove the top and bottom covers of the metal box.

4.11 MONO/MPX CARD REPLACEMENT

- 1)Open the top and bottom covers of the unit.
- 2)Disconnect connectors JP1, JP2 and JP3.
- 3)Unscrew the four nuts fixing the card on internal chassis.
- 4)Unscrew the screw inside the INPUT LEVEL knob and slide it off.
- 5)Raise the card from its supports, simultaneously sliding the switches and the INPUT LEVEL switch pivot from the panel.

4.12 ALARMS CARD REPLACEMENT

- 1)Open the top and bottom covers of the unit.
- 2)Disconnect connectors JP1 and JP2 of the Stereo Coder card (or Mono/MPX card) to ease the removal of the Alarms card.
- 3)Disconnect connectors CN1, CN2, CN3 and CN4.
- 4)Unscrew the fixing screws of the card on the internal chassis.
- 5)Remove the card.

4.13 SWITCHING POWER SUPPLY 1 REPLACEMENT

- 1)Open the top and bottom covers of the unit.
- 2)Disconnect connector J1 on the Switching card.
- 3)Unscrew the two fixing screws of D1 and U1 devices, placed on the heat-sink.
- 4)Unscrew the fixing screws of the Switching card.
- 5)Remove the card.

NOTE: During replacement of broken devices it's necessary to pay attention to device's pin position and insertion, to check that the device's fixing screws aren't in short-circuit and to check that the soldering is good and without impurities.
Interpose between devices and heat-sink an electronic silicone compound.

4.14 SWITCHING POWER SUPPLY 2 REPLACEMENT

- 1)Open the top covers of the unit.
- 2)Disconnect connector J1 on the Switching card.
- 3)Unscrew the two fixing screws of D1 and U1 devices, placed on the heat-sink.
- 4)Unscrew the fixing screws of the Switching card.
- 5)Remove the card.

NOTE: During replacement of broken devices it's necessary to pay attention to device's pin position and insertion, to check that the device's fixing screws aren't in short-circuit and to check that the soldering is good and without impurities.
Interpose between devices and heat-sink an electronic silicone compound.

4.15 LOW PASS FILTER REPLACEMENT

- 1)Open the top and bottom covers of the unit.
- 2)Disconnect output SMA coonector.
- 3)Desolder input cable and metal box.
- 4)Remove metal box.

4.16 DIRECTIONAL COUPLER REPLACEMENT

- 1)Open the top and bottom covers of the unit.
- 2)Disconnect SMA input connector.
- 3)Desolder three wires connecting to METER100 card.
- 4)Unscrew the fixing screws of the two connectors on the rear panel.
- 5)Remove the card.

4.17 FAN REPLACEMENT

- 1)Open the top and bottom covers of the unit.
- 2)Unscrew the fixing screws of the rear panel to ease fan removal, paying attention to connecting wires.
- 3)Unscrew the fixing screws of the R.F. Power Amplifier on the rear panel.
- 4)Unscrew the fixing screws of the fan on the rear panel.
- 5)Desolder the two supply wires of the fan.
- 6)Remove the fan.

4.18 ANALOG METER REPLACEMENT

- 1)Open the top and bottom covers of the unit.
- 2)Unscrew the fixing screws of the front panel to ease Meter removal, paying attention to connecting wires.
- 3)Disconnect connector CN3 on the METER card.
- 4)Unscrew the fixing screws of the analog meter on the front panel.
- 5)Remove the analog meter.

4.19 TRANSFORMER REPLACEMENT

- 1)Open the top and bottom covers of the unit.
- 2)Desolder transformer's wires on VDE socket, disconnect the fastons on the rectifier bridges.

- 3) Remove fastons' wires (previously disconnected) from the upper part of the equipment.
- 4) Unscrew the fixing bolt of the transformer.
- 5) Remove the transformer paying attention to rubber insulators, (Pay attention to replace correctly rubber insulators).

CHAPTER 5

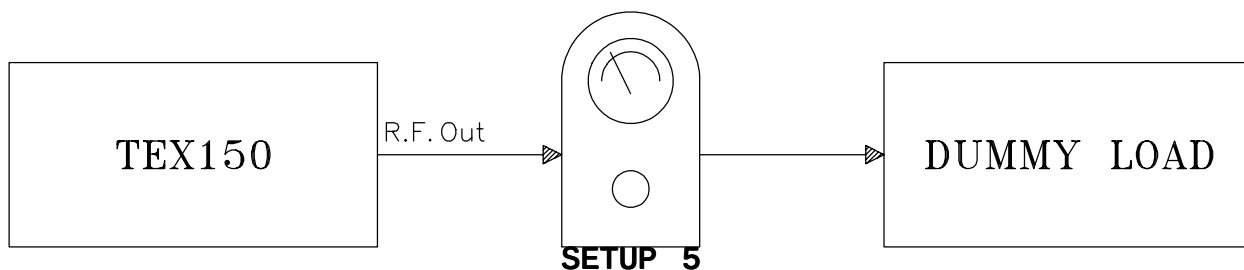
CALIBRATION PROCEDURE

THESE PROCEDURES SHOULD ONLY BE CARRIED OUT BY HIGHLY SPECIALIZED TECHNICIANS USING THE CORRECT EQUIPMENT. MAINTENANCE ERRORS CAN CAUSE SERIOUS DAMAGE TO THE UNIT AND WILL AUTOMATICALLY MAKE THE WARRANTY VOID.

5.1 STEREO CODER CALIBRATION

It will be necessary to check and recalibrate the following parameters after replacement of the Stereo Encoder card (see SETUP 5):

WATT-METER



- 1) Select 0dBm on the INPUT LEVEL selector (encoder and pilot tone inserted).
- 2) Connect a low distortion, sine-wave, audio generator to the left and right inputs.
- 3) Connect a 50 Ohm 300 W load to the RF output of the TEX150.
- 4) Connect the -40dB tap to the F.A.M. (or other modulation analyzer).
- 5) Connect a stereo MEAS-decoder to the rear FM-MPX output of the F.A.M.
- 6) Switch on the TEX150 and wait for the PLL to lock.
- 7) Adjust the audio output of the generator to 0dBm ($2.2V_{pp} = 775mV_{RMS}$ 400Hz).
- 8) Select, with the appropriate control, a reading of Right (MONO) and adjust P8 on the encoder to obtain 0dB.
- 8A) Repeat the operation for Left (MPX), adjusting P7.
- 9) With the FAM in FM, P+ mode, and with a 30Hz-200KHz audio filter, check that the deviation is 75KHz. If not, adjust trimmer R35, situated on the Main card, accordingly.

9A) Remove the audio signal from both channels, leaving the pilot tone inserted, and check that the deviation is between 6.5KHz and 8KHz (typically 7.5KHz). Adjust P6 if necessary.

10) Remove the audio signal from one channel.

N.B. Check that the generator output is still at 0db.

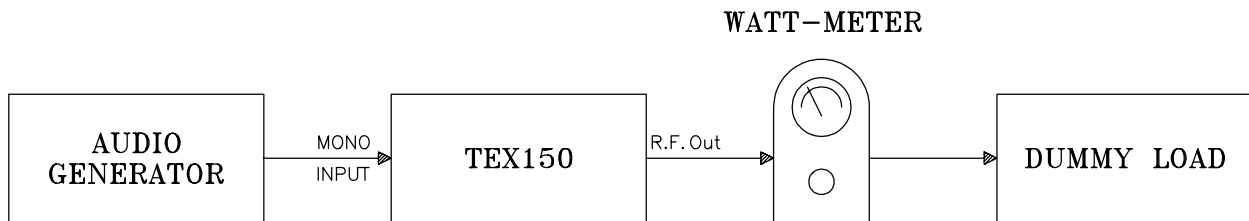
Now measure the stereo separation with the Stereo Meas-Decoder, which, with a 400Hz signal, should be better than 45dB. Repeat the operation for the other channel. Should the separation figure be different for the two channels (a difference of upto 3dB is acceptable), adjust trimmer P4 on the Encoder card accordingly.

5.2 VCO CARD CALIBRATION

After having replaced the VCO Card and relevant connectors, carry out the following procedure:

MONO VERSION

1) Connect an audio generator to the Mono input or MPX (see SETUP 6).



SETUP 6

2) Switch on TEX150, select a frequency at 98MHz and select 0dBm on the INPUT LEVEL selector (pilot tone inserted).

3) Connect a 50 Ohm, 300 W dummy load to the RF output.

4) Connect the F.A.M. or other modulation analyzer to the -40dB tap.

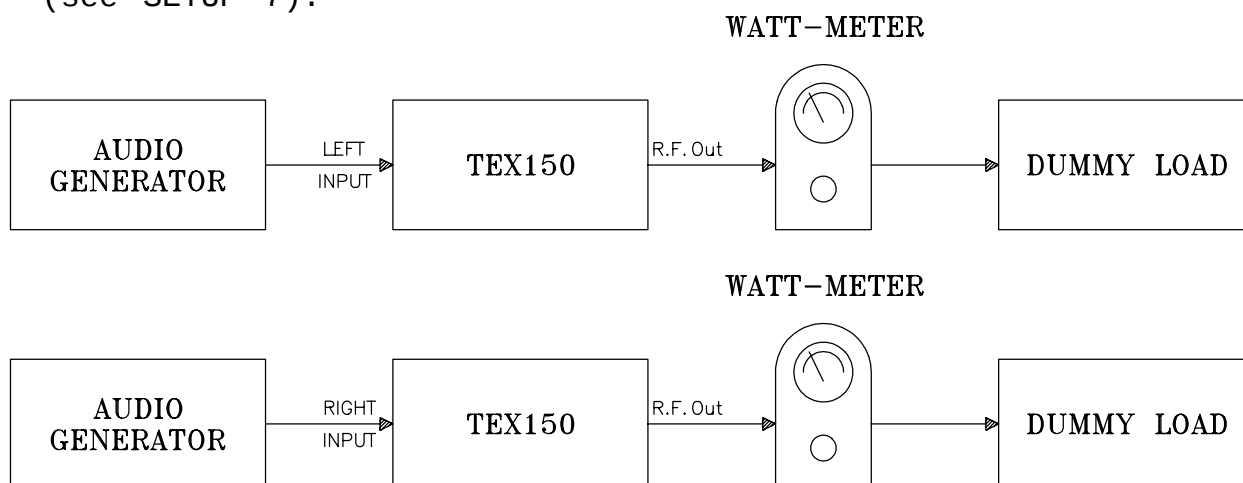
5) Inject a 400Hz, 0dBm ($775\text{mV}_{\text{rms}} = 2.2\text{V}_{\text{pp}}$) tone into the Mono (or MPX) input.

6) Configure the FAM to measure deviation with the 30Hz-200KHz/FM/P+ filters and check that it is 75KHz. If not, adjust trimmer R15 accordingly.

7) Verify correct value on TEX150's analog meter.

STEREO VERSION

- 1) Connect an audio generator to the Left and Right inputs (together) (see SETUP 7).



SETUP 7

- 2) Switch on TEX150, select a frequency at 98MHz and select 0dBm on the INPUT LEVEL selector (pilot tone inserted).
- 3) Connect a 50 Ohm, 300 W dummy load to the RF output.
- 4) Connect the F.A.M. or other modulation analyzer to the -40dB tap.
- 5) Inject a 400Hz, 0dBm ($775V_{rms}=2.2V_{pp}$) tone into Left and Right inputs.
- 6) Configure the F.A.M. to measure deviation with the 30Hz-200KHz/FM/P+ filters and check that it is 75KHz. If not, adjust trimmer R15 accordingly.
- 7) Verify correct value on TEX100's analog meter.

NOTE: The audio generator used in these tests must have a distortion figure better than 0.01%.

Perform this test at the operating frequency of the exciter.

5.3 R.F. POWER AMPLIFIER MODULE CALIBRATION

No calibration is required after the replacement of this card.

5.4 POWER SUPPLY CALIBRATION

No calibration is required after the replacement of these two cards (Main power supply and switching power supply).

5.5 AUDIO INPUT CARD CALIBRATION

No calibration is required after the replacement of this card.

5.6 METER CARD CALIBRATION

All meter readings should be calibrated after the replacement of any card:

- 1)Inject a 400 Hz, 0dBm pilot tone into the Left (or Right) input.
(see SETUP 7 for Stereo Version, or see SETUP 6 for Mono Version)
- 2)Connect a bypass wattmeter between the RF output and a 50 Ohm, 300W dummy load.
- 3)Adjust the power output to 150W.
- 4)With the selector, select the following measurements and make adjustments according to the table below:

MEASUREMENT	VALUE	FSD	TRIMMER	NOTE
R(MONO)	0dB	+3dB	R6	
L(MPX)	0dB	+3dB	R5	
FWD PWR	150W	200W	R8	
REF PWR	10W	50W	R7	1
DEV	VAR	100KHz	R4	
SWR LED	---	---	R23	

NOTE:

1. Disconnect the load for this measurement only and adjust PWR ADJ for 50W of direct output power.

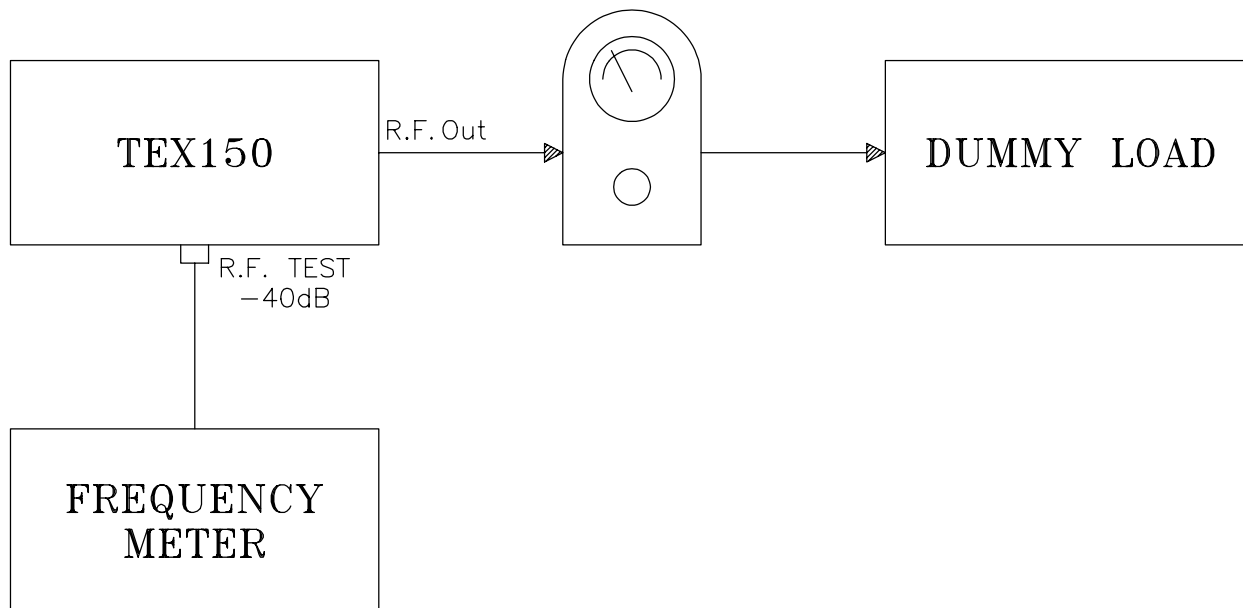
5.7 FREQUENCY SELECTOR CARD CALIBRATION

No calibration is required after the replacement of this card.

5.8 PLL CARD CALIBRATION

After having replaced the PLL card, carry out the following procedure (see SETUP 8):

WATT-METER



SETUP 8

- 1) Switch on the equipment and select the frequency of 98MHz.
- 2) Wait 10 minutes to have thermal stabilization of the equipment.
- 3) Unscrew the fixing screws of PLL's metal box and open the cover near to VCO metal box.
- 4) Check with frequency meter if the frequency setted is right. If the frequency read on frequency meter is different from frequency setted on the contraves , adjust variable capacitor C2 on PLL card.

5.9 ALARMS CARD CALIBRATION

After having replaced the alarms card, carry out the following procedure:

A) Internal AGC Adjustment

- 1) Connect a 50 Ohm, 300 W dummy load to the RF output.
- 2) Adjust output power at minimum turning PWR ADJ trimmer (9 Fig.1a or 5 Fig.1B) completely anticlockwise and then switch on the equipment.

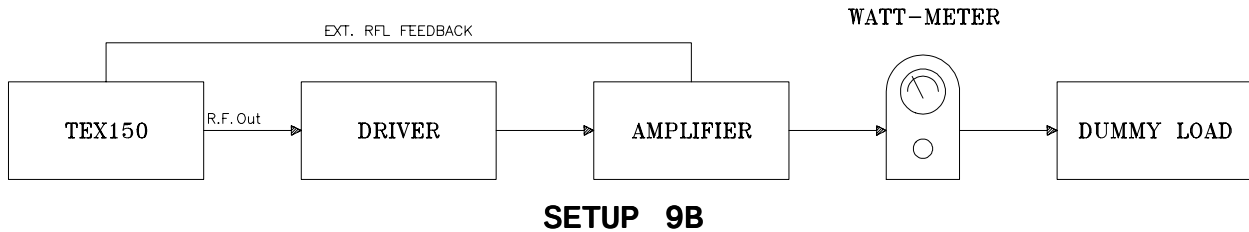
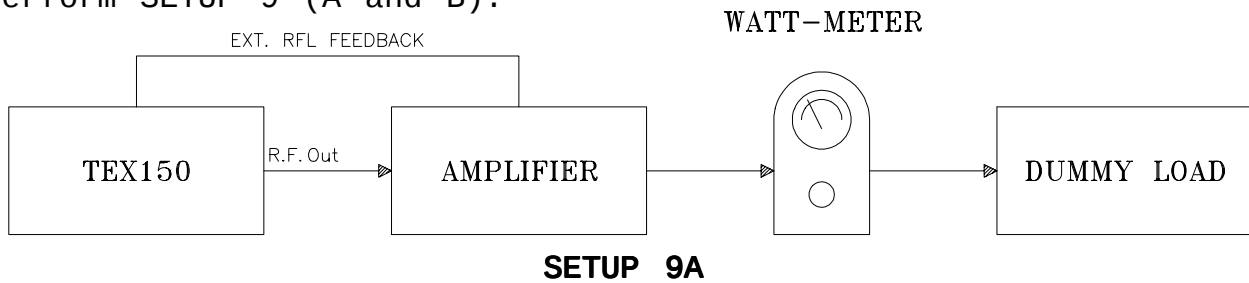
- 3) Turn trimmer R2, placed on Alarms card, completely clockwise.
- 4) Increase output power until maximum through PWR ADJ (9 Fig.1A or 5 Fig.1B) trimmer (clockwise).
- 5) Adjust variable capacitor C2 on Directional Coupler to read, through a voltmeter between Directional Coupler's REF contact and GND (see as reference Directional Coupler Layout), minimum voltage value.
- 6) Adjust R2 to obtain a reading of 150W on external wattmeter.
- 7) Select with Meter Selector (11 Fig.1A or 8 Fig.1B) the FWD position.
- 8) Adjust trimmer R8 on METER card to read 150W on TEX150's analog meter.

B) Internal VSWR Adjustment

- 1) Connect a 50 Ohm, 300 W dummy load to the RF output.
- 2) Adjust output power at minimum turning PWR ADJ trimmer (9 Fig.1A or 5 Fig.1B) completely anticlockwise and then switch on the equipment.
- 3) Turn trimmer R7, placed on Alarms card, completely clockwise.
- 4) Disconnect external dummy load, increase output power until 150W turning PWR ADJ trimmer (9 Fig.1 or 5 Fig.2) clockwise. O u t p u t power must increase slowly because the protection is working. (If this doesn't happen, suspend all operation e contact the seller)
- 5) Adjust R7 to obtain a reading of 10W on external wattmeter.
- 6) Select with Meter Selector (11 Fig.1A or 8 Fig.1B) the REF position.
- 7) Adjust trimmer R7 on METER card to read 10W on TEX150's analog meter.

C) External AGC Adjustment

1) Perform SETUP 9 (A and B).



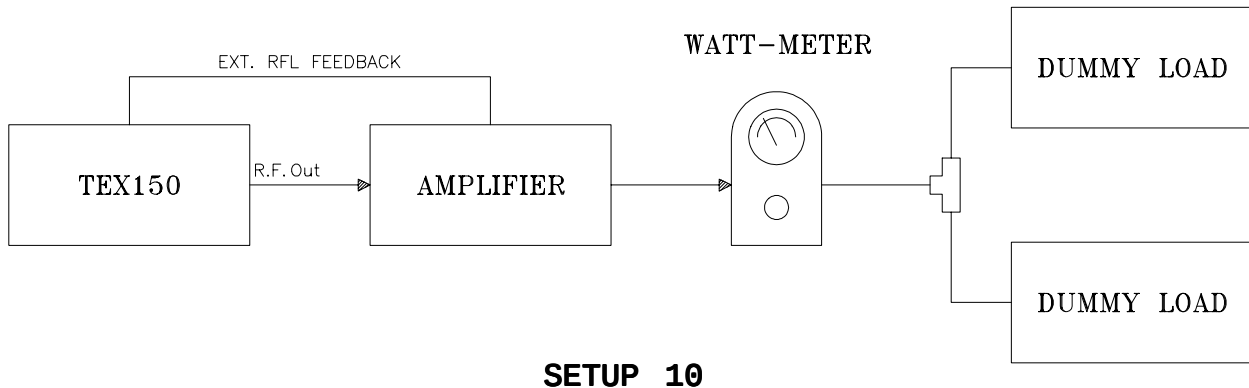
2) Adjust output power at minimum turning PWR ADJ trimmer (9 Fig.1 or 5 fig.2) completely anticlockwise and then switch on the equipment.

3) This adjustment is necessary when TEX150 is connected as exciter or driver for a power amplifier. Therefore, it's necessary to have on last amplifier of the system an output voltage proportional with antenna output forward power and connect this signal to REMOTE1 (3 Fig.2). Increase TEX150's output power with PWR ADJ (9 Fig.1) to have the necessary output power to drive the next stage of the system (e.g. for a 1KW amplifier, read 1050W on external wattmeter).

4) Turn trimmer R16, until to have maximum output power of the power amplifier on external wattmeter (e.g. 1000W). In these conditions is possible to control output power into the range of 50W presetted, protecting the equipment against voltage variations).

D) External VSWR Adjustment

1) Perform SETUP 10.



2)Adjust output power at minimum turning PWR ADJ trimmer (9 Fig.1A or 5 fig.1B) completely anticlockwise and then switch on the equipment.

3)This adjustment it's necessary when TEX150 is connected as exciter or driver for a power amplifier. Therefore, it's necessary to have on last amplifier of the system an output voltage proportional with antenna output reflected power and connect this signal to REMOTE2 (6 Fig.2).

4)Turn trimmer R12, until to have an output power of the power amplifier on external wattmeter (e.g. 900W, -10%).

In these conditions is possible to control output power into the range of $\pm 10\%$ presetted, protecting the equipment against VSWR variations).

E) Temperature Alarm Adjustment

1)Perform SETUP 11.

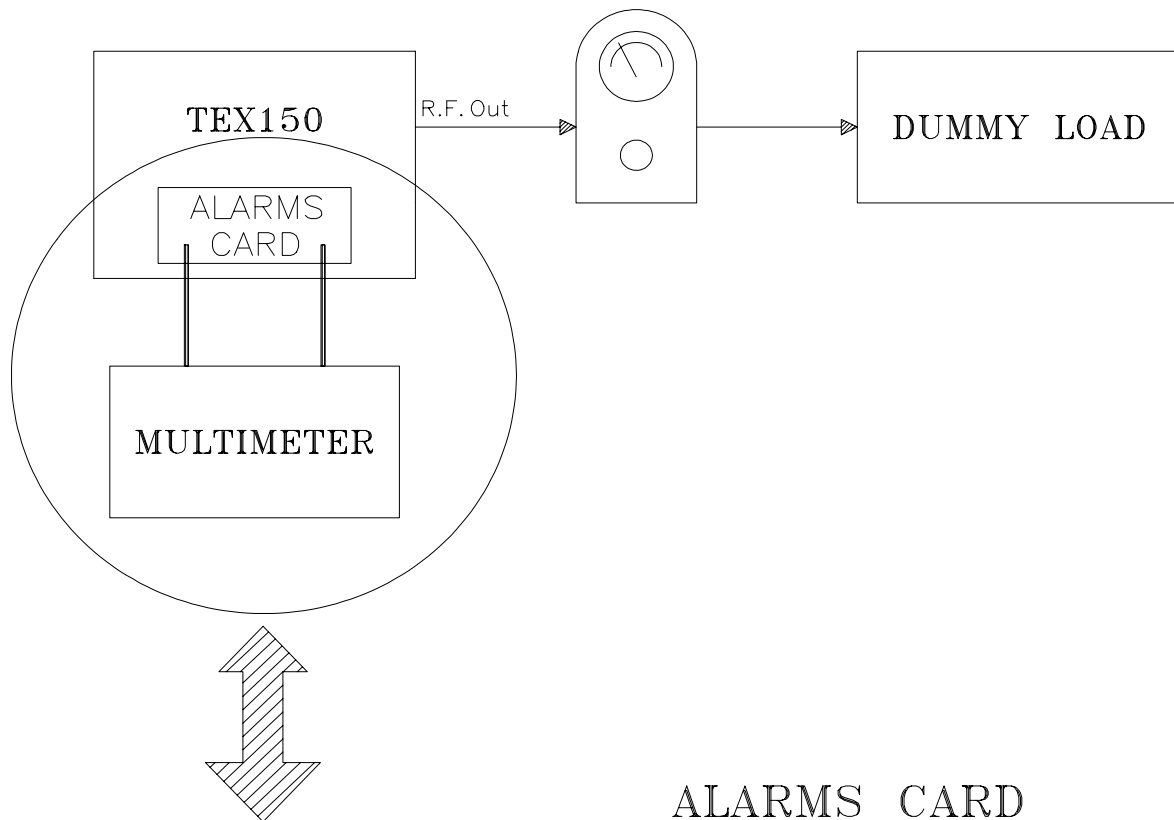
2)Adjust output power at minimum turning PWR ADJ trimmer (9 Fig.1A or 5 fig.1B) completely anticlockwise and then switch on the equipment.

3)Increase output power until 150W turning PWR ADJ trimmer (9 Fig.1A or 5 Fig.1B) clockwise.

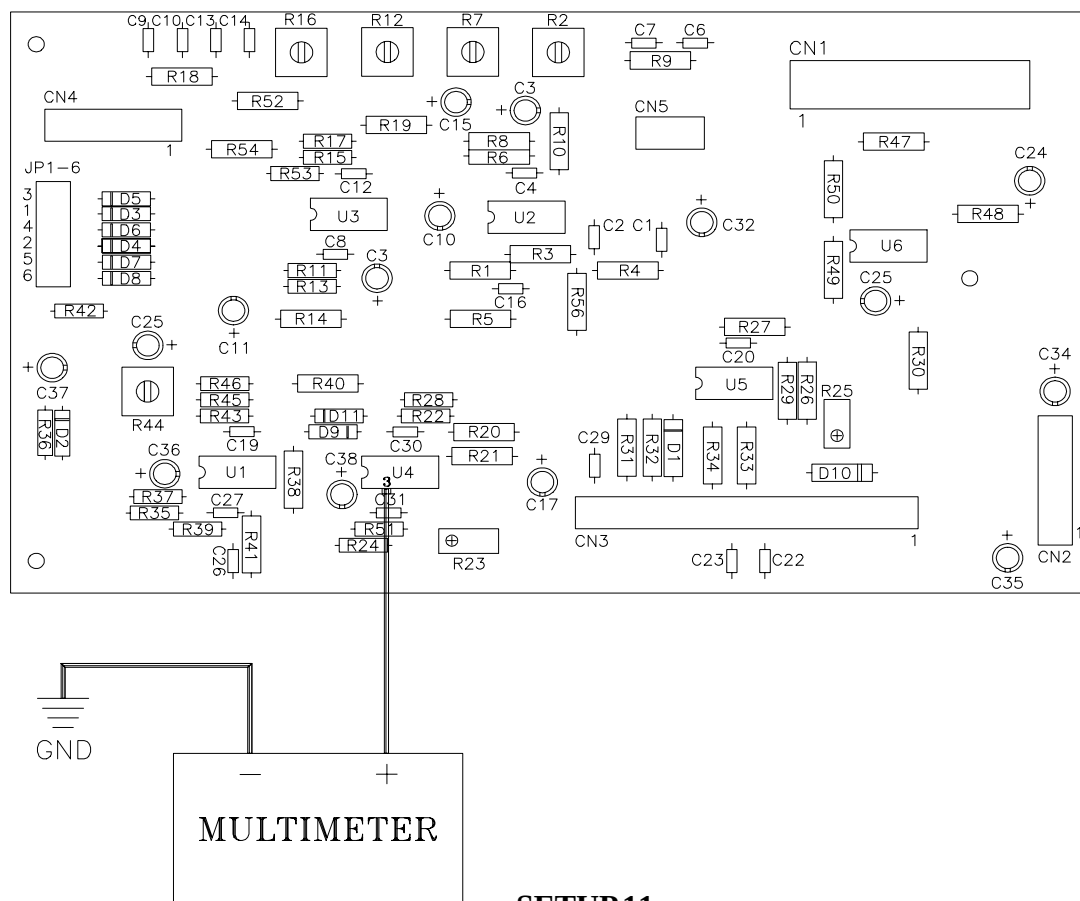
4)Turn trimmer R23, until to have on pin 3 of U4 a voltage included between 265 and 275 mV. In these conditions temperature protection starts at 70°C. Adjust R23 until output power begins to decrease.

5)Then, adjust R25 until SWR/TEMP led indicator (8 Fig.1A or 4 Fig.1B) starts to blink.

WATT-METER



ALARMS CARD



SETUP11

F) Maximum Output Power Adjustment

Can be necessary to set maximum output power at maximum value included between 10 and 150W.

1) Connect a 50 ohm, 300W dummy load to the RF output.

2) Adjust output power at minimum turning PWR ADJ trimmer (9 Fig.1A or 5 Fig.1B) completely anticlockwise and then switch on the equipment.

3) Increase output power until 150W turning PWR ADJ trimmer (9 Fig.1A or 5 Fig.1B) clockwise.

4) Turn trimmer R44, until to have maximum output power presetted on external wattmeter.

5) Then, adjust output power turning PWR ADJ trimmer (9 Fig.1A or 5 fig.1B) and note that output power can be increased over presetted value.

NOTE: The jumpers shown in table , disable all protections (all enabled from firm). A no-correct use of these jumpers can cause seroius damage to the unit and will automatically make the warranty void.

ALARMS CARD TRIMMERS AND JUMPERS

REF.	DESCRIPTION
R2	Internal AGC Adjustment
R7	Max Power Output Adjustment (VSWR INFINITE)
R12	External VSWR Threshold Adjustment
R16	External AGC Adjustment
R23	Temperature Threshold Adjustment
R25	Temperature Led Lighting Adjustment
R44	Max Power Output Adjustment
JP1	Internal AGC Insertion (DON'T REMOVE)
JP2	Internal AGC Insertion (DON'T REMOVE)
JP3	External VSWR Insertion
JP4	External AGC Insertion
JP5	Temperature Threshold Insertion
JP6	Maximum Output Power Threshold Insertion

APPENDIX A

CIRCUIT DIAGRAMS, LAYOUTS AND BILLS OF MATERIAL

This section contains circuit diagrams, layouts and bills of material of the modules which composing the equipment. For more information about each module see as reference Section 2.

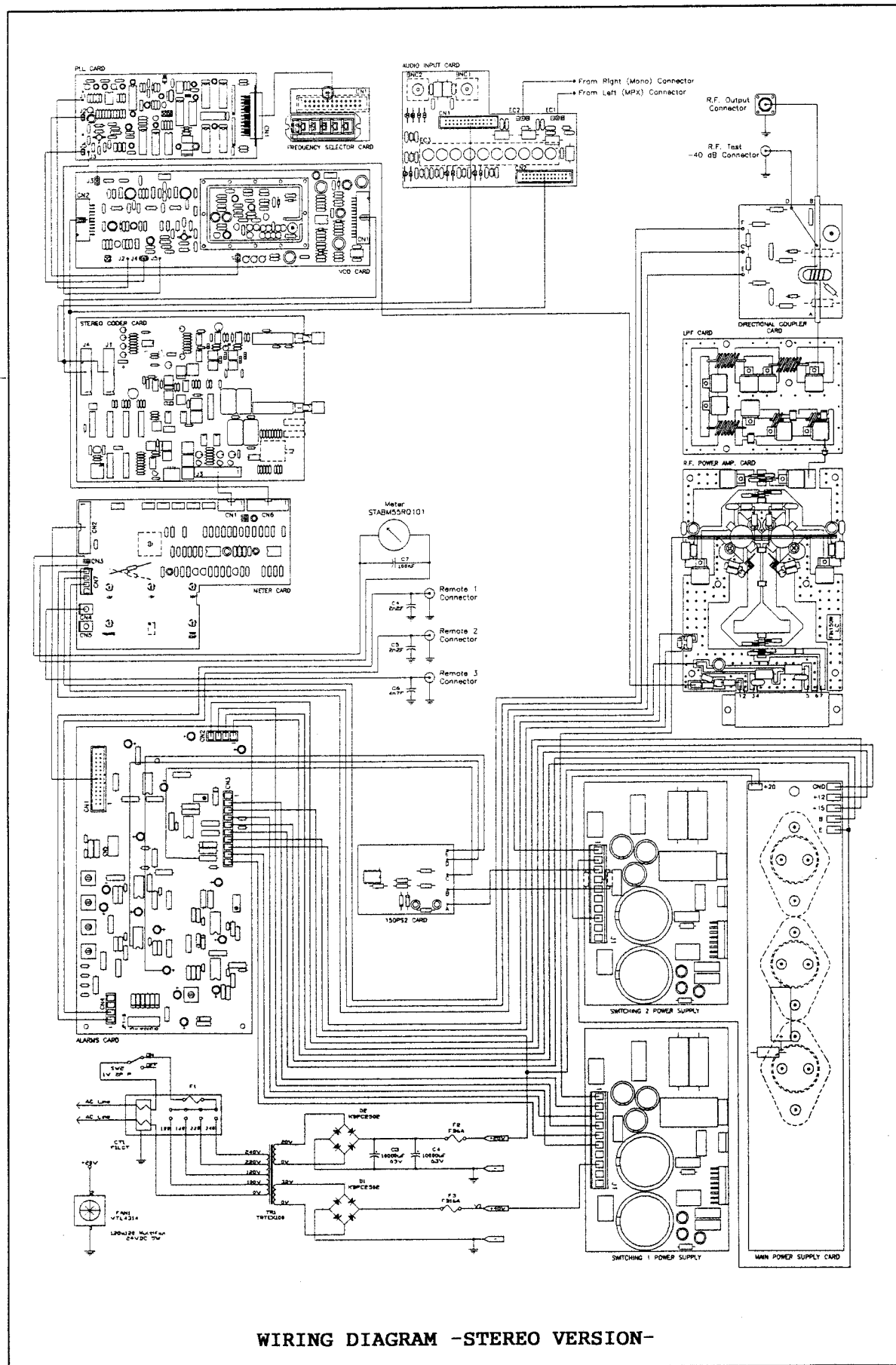
WIRING DIAGRAM

1 Mono/MPX Version

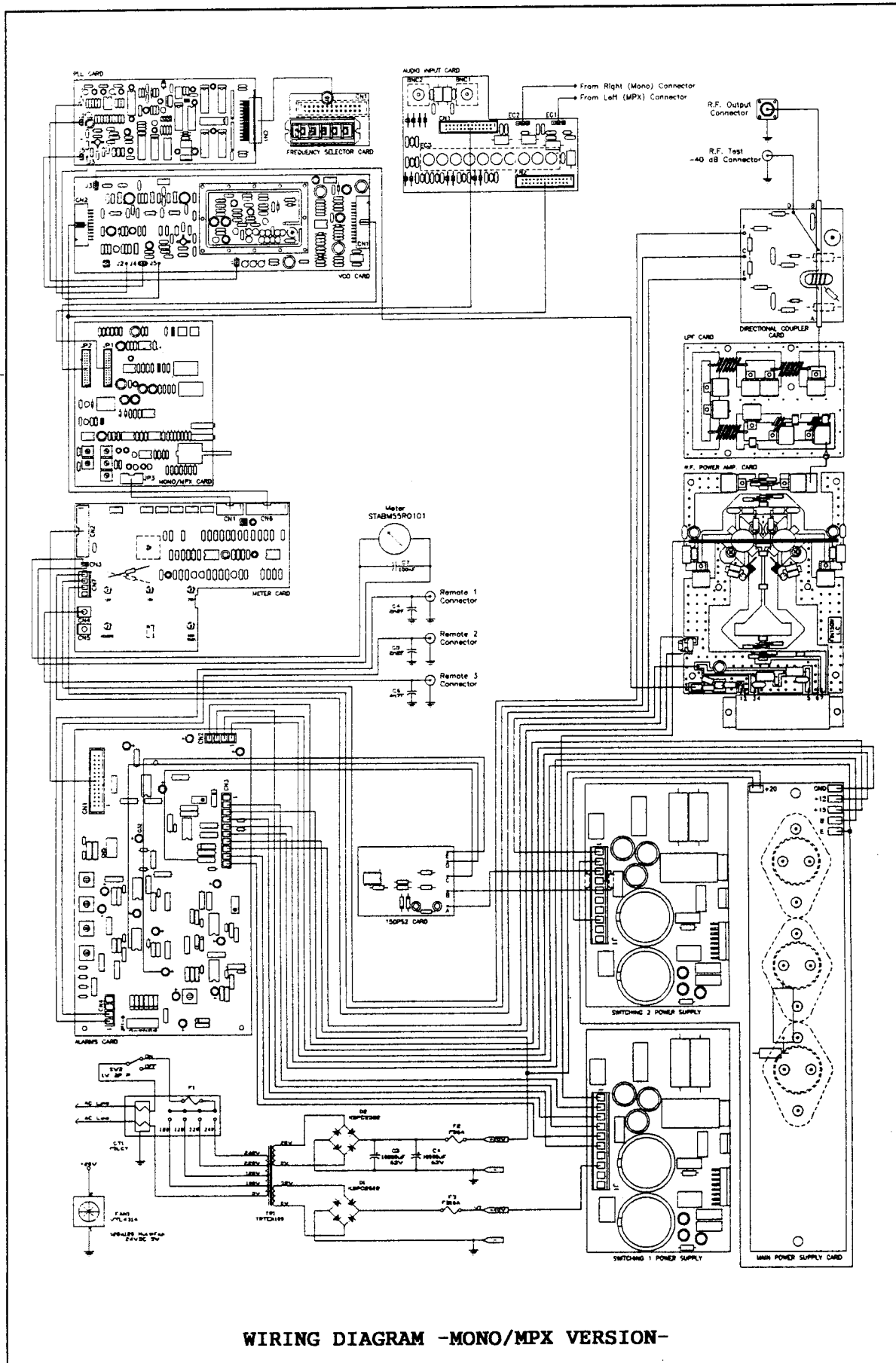
Pag. 49

2 Stereo Version

Pag. 48



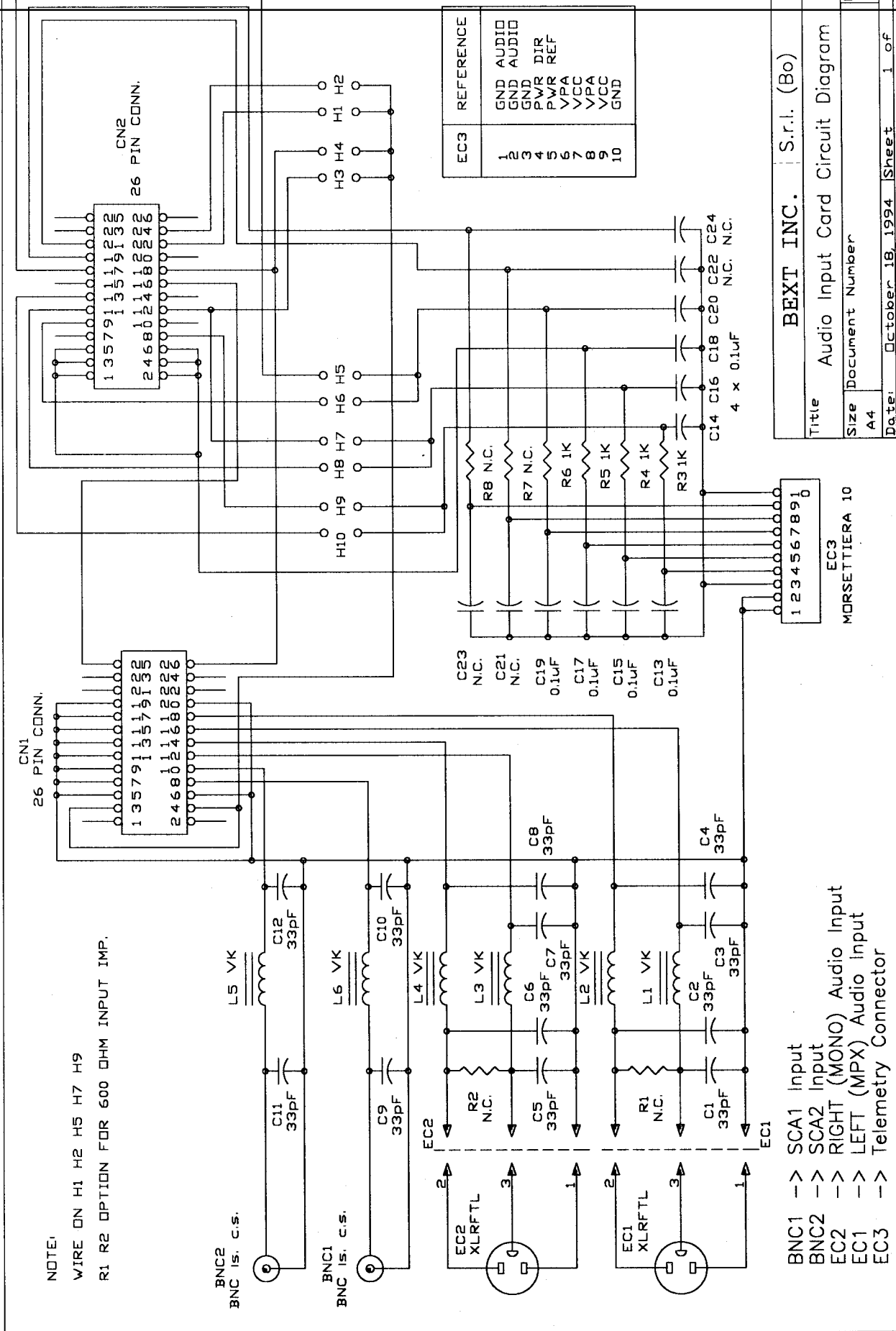
WIRING DIAGRAM -STEREO VERSION-



WIRING DIAGRAM -MONO/MPX VERSION-

AUDIO INPUT CARD

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 51</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 52</i>
<i>3</i>	<i>Component Layout</i>	<i>Pag. 53</i>



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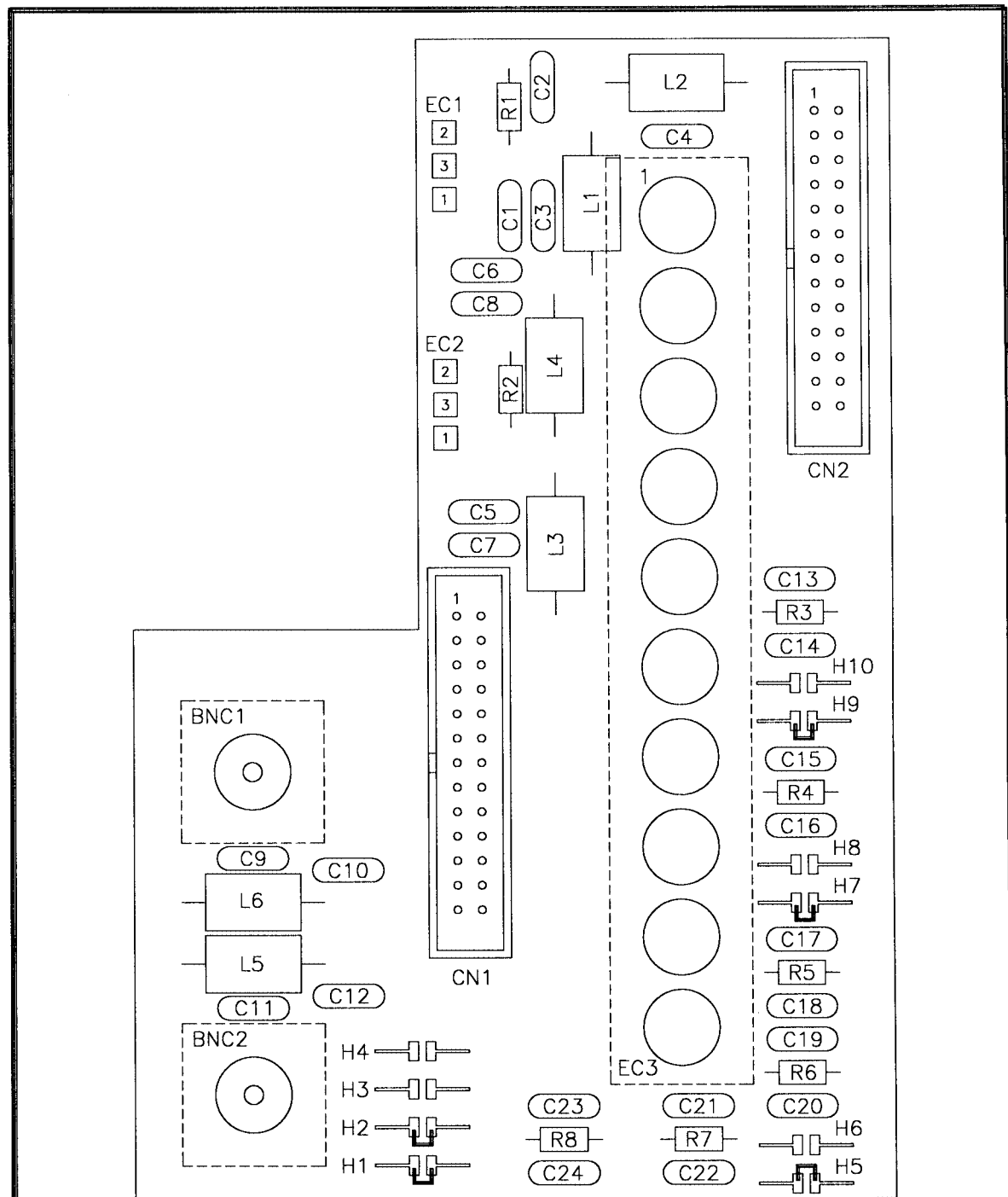
Title Audio Input Card Circuit Diagram

Size Document Number A4

Date: October 18, 1994 Sheet 1 of 1

REV

Audio Input Card			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	4	R3, R4, R5, R6	1K	RESISTOR 1/4W 5%	RSC1/4JK0001
2	12	C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12	33pF	CERAMIC CAPACITOR NP0	CKM330BJ600C
3	8	C13, C14, C15, C16, C17, C18, C19, C20	0.1uF	CERAMIC CAPACITOR	CKM104BK600P
4	6	L1, L2, L3, L4, L5, L6	VK	RF CHOKE	IMPVK00A
5	2	EC1, EC2	XLRFTL	XLR FEMM. DA TELAI0	CNTXLRFP3P
6	1	EC3	MORSET. 10	MORSETT. TEL. 10 CONT.	MORSP10P
7	2	CN1, CN2	26 P CONN.	CONN. M 2*13 P 2.54	CNTMCSFC26P
8	2	BNC1, BNC2	BNC IS.CS.	CONN. BNC A STAMP. IS.	CNTBNCFCISIS
9	10	H1, H2, H3, H4, H5, H6, H7, H8, H9, H10	WIRE JUMP.	PONTICELLO A FILO	WIREJUMPER
10	8	R1, R2, R7, R8, C21, C22, C23, C24	N.C.	NOT CONNECTED	



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DENOMINAZIONE
Audio Input Card Component Layout / Piano di Montaggio
DISPOSITIVO

SEMILAVORATO

DISEGNATO
D'Alessio D. li

DISEGNO

MATERIALE

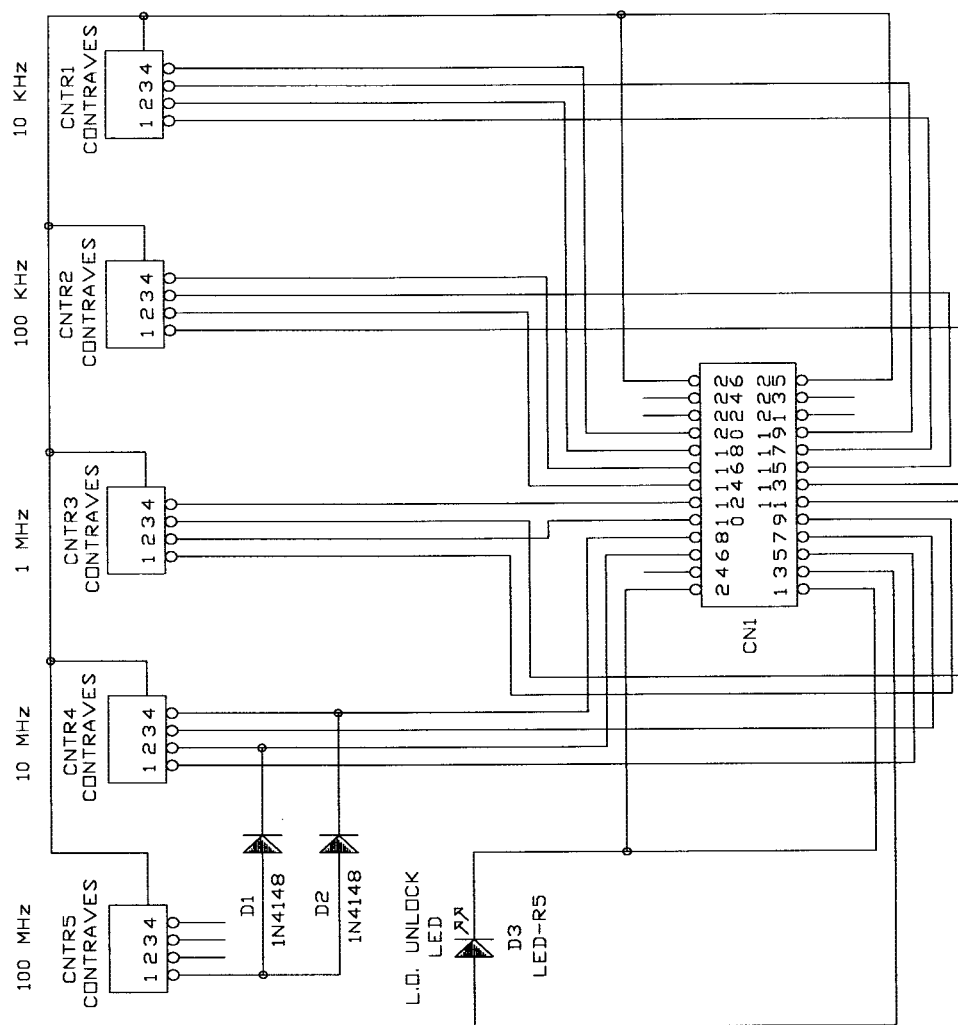
SCALA

TRATTAMENTO

TAVOLA n 1 di 1

FREQUENCY SELECTOR CARD (Mod. TSW-1)

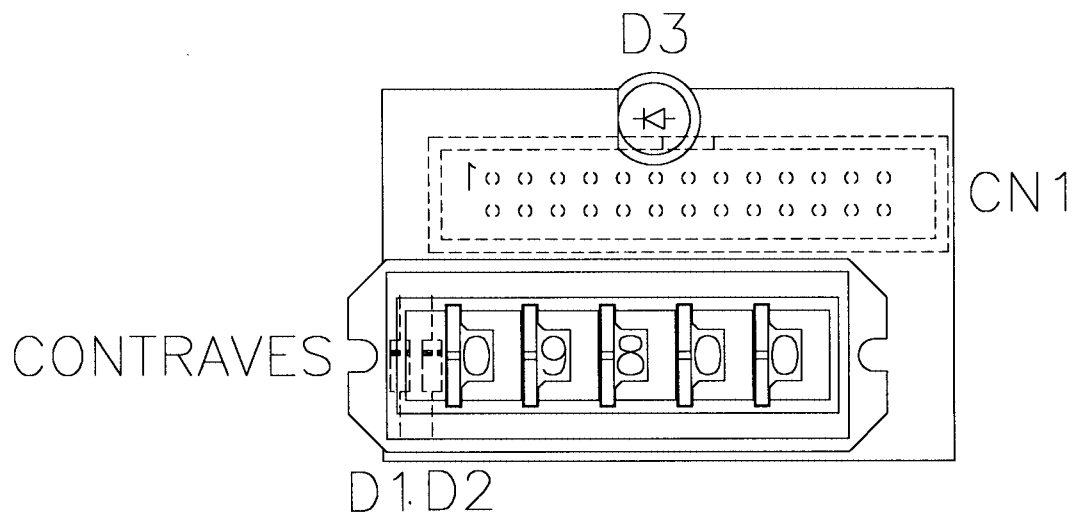
<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 55</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 56</i>
<i>3</i>	<i>Component Layout</i>	<i>Pag. 57</i>



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Title		Frequency Selector Card Circuit Diagram
Size	Document Number	REV
A4	TSW-1	
Date:	October 17, 1994	Sheet 1 of 1

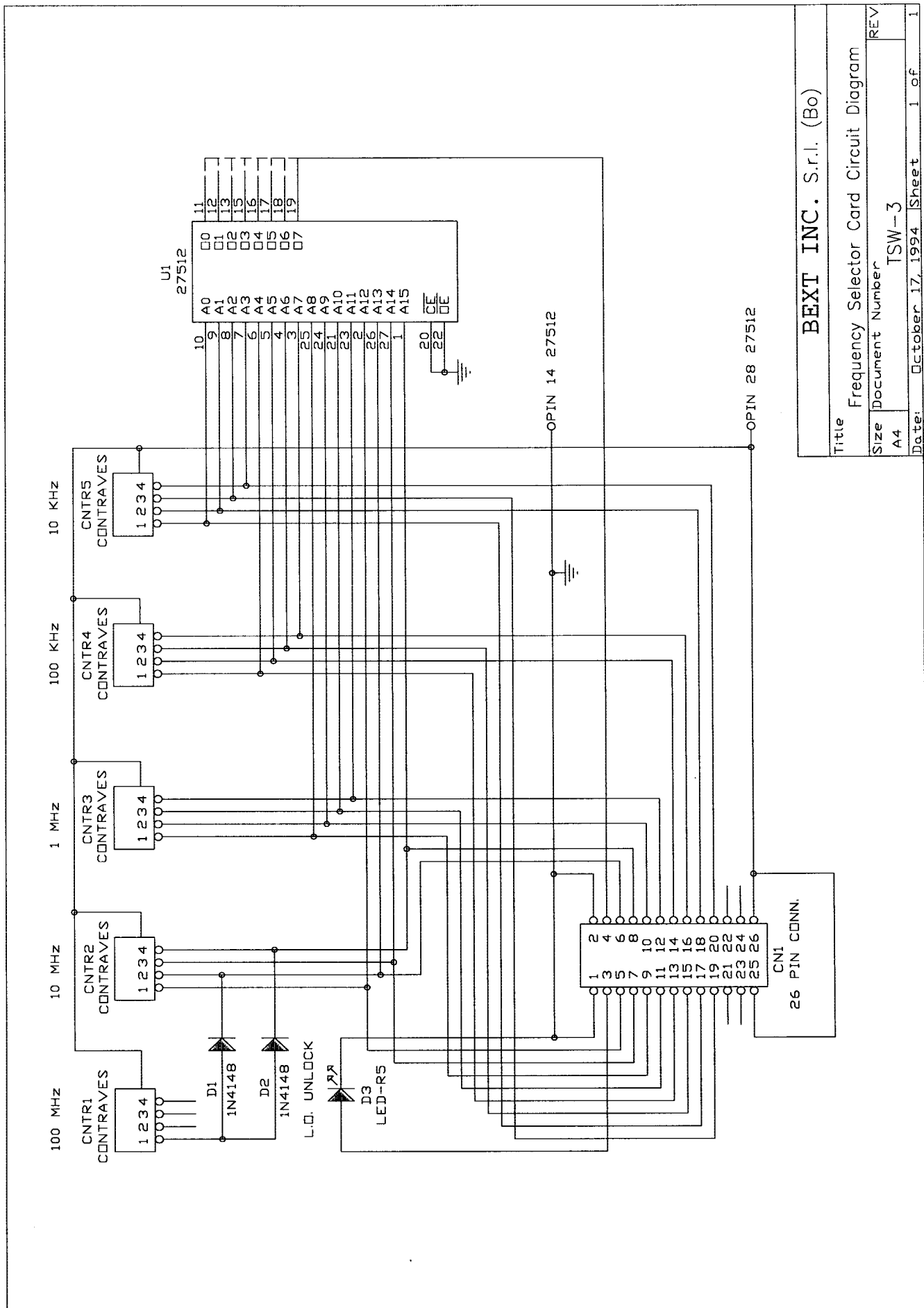
Frequency Selector Card Mod. TSW-1				Bill Of Materials	Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	1	CN1	26 P CONN.	CONN. M 2*13 P 2.54	CNTMCSFC26P
2	5	CNTR1, CNTR2, CNTR3, CNTR4, CNTR5	CONTRAVES	COMMUTATORI BCD 15mm	COMBCD15
3	2	D1, D2	1N4148	SILICON DIODE	DIS1N4148
4	1	D3	LED-R5	RED LED DIODE	LEDRO05



BEXT INC. ®	DENOMINAZIONE Frequency Selector Card Component Layout / Piano di Montaggio		
	DISPOSITIVO		
SEMILAVORATO	DISEGNATO D'Alessio D. li	DISEGNO TSW-1	
MATERIALE	SCALA	TAVOLA n di	
TRATTAMENTO			

FREQUENCY SELECTOR CARD (Mod. TSW-2)

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 59</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 60</i>
<i>3</i>	<i>Coponent Layout</i>	<i>Pag. 61</i>

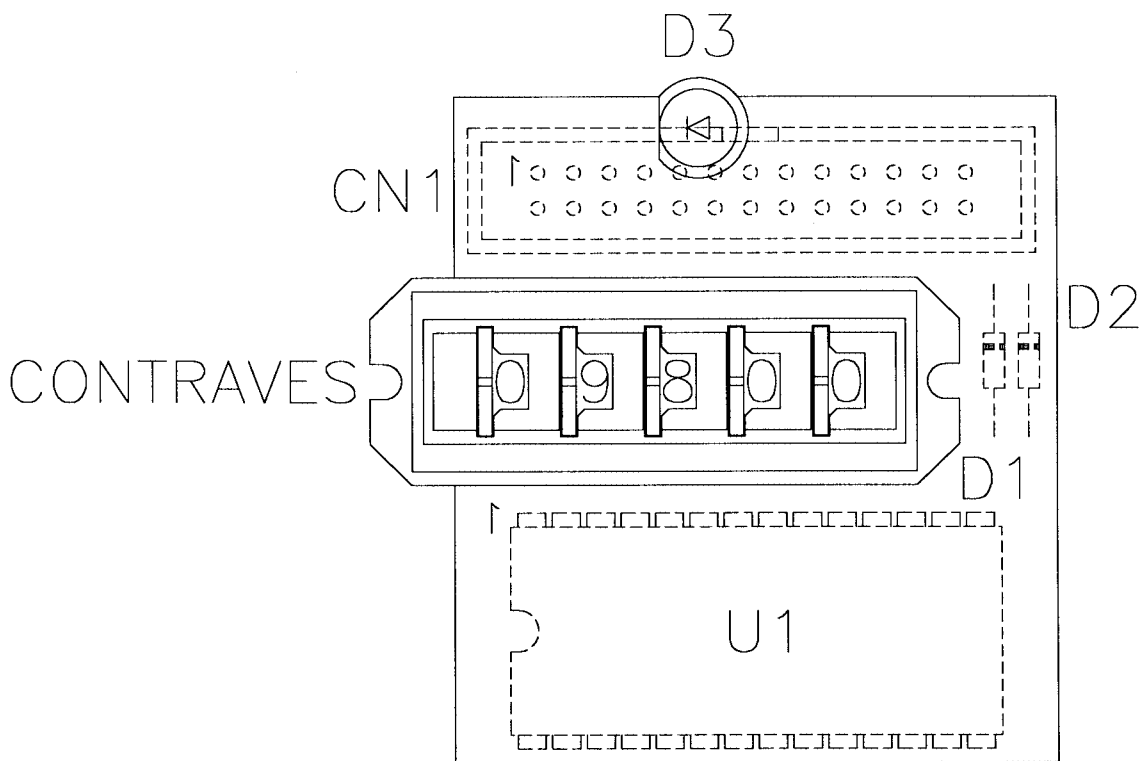


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Frequency Selector Card Circuit Diagram

Size	Document Number	REV
A4	TSW-3	
Date:	October 17, 1994	Sheet 1 of 1

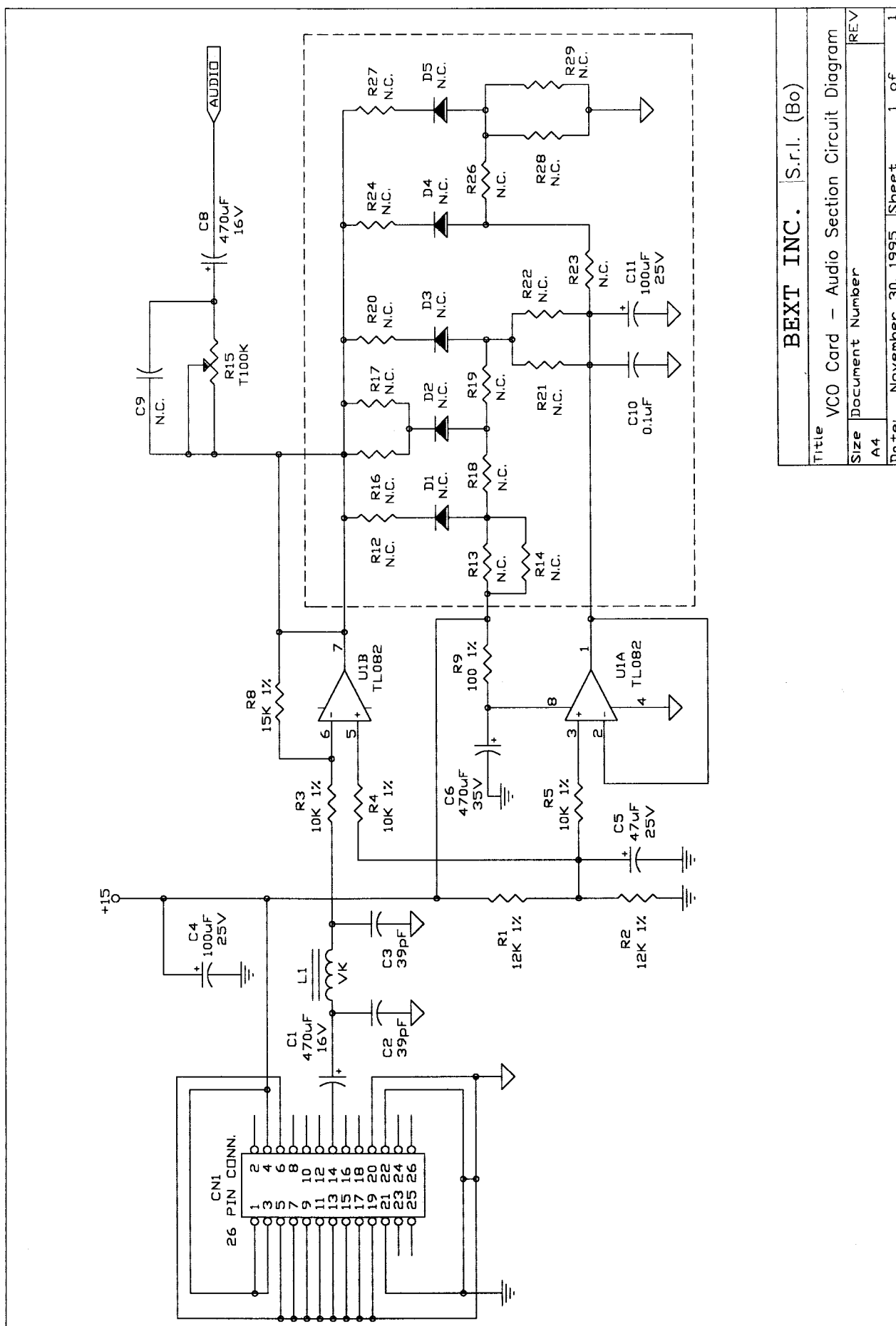
Frequency Selector Card Mod.T SW-3				Bill Of Materials	Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	1	CN1	26 P CONN.	CONN. M 2*13 P 2.54	CNTMCSFC26P
2	5	CNTR1, CNTR2, CNTR3, CNTR4, CNTR5	CONTRAVES	COMMUTATORI BCD 15mm	COMBCD15
3	2	D1,D2	1N4148	SILICON DIODE	DIS1N4148
4	1	D3	LED-R5	RED LED DIODE	LEDRO05
5	1	U1	27512	65,536x8 B CMOS EPROM	CID27512



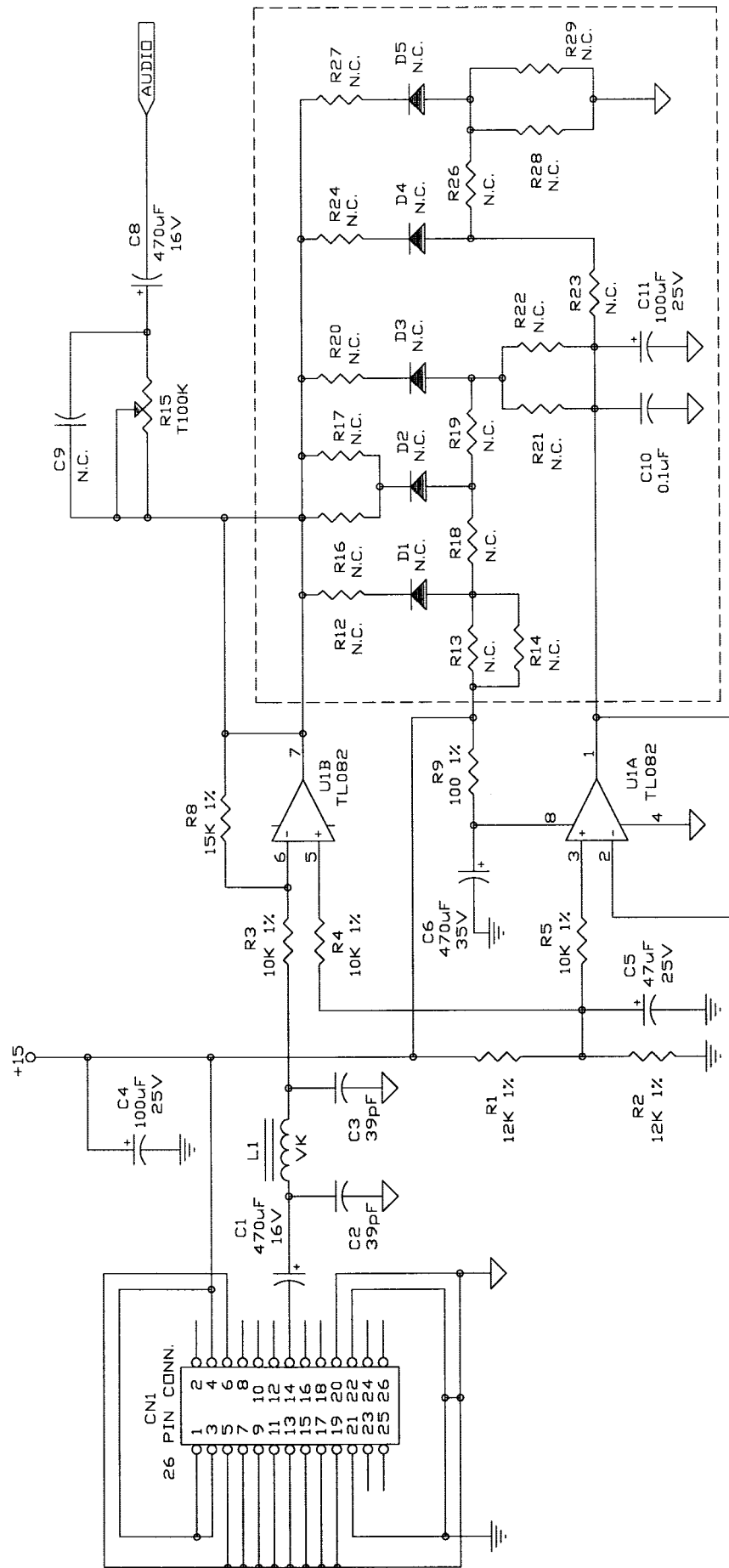
BEXT	DENOMINAZIONE Frequency Selector Card Component Layout / Piano di Montaggio		
	DISPOSITIVO		
SEMILAVORATO	DISEGNATO D'Alessio D.		DISEGNO TSW-3
MATERIALE	SCALA		TAVOLA n di
TRATTAMENTO			

VCO CARD

<i>1</i>	<i>A.F. Section Circuit Diagram</i>	<i>Pag. 63</i>
<i>2</i>	<i>A.F. Section Bill of Materials</i>	<i>Pag. 64</i>
<i>3</i>	<i>R.F. Section Circuit Diagram</i>	<i>Pag. 65</i>
<i>4</i>	<i>R.F. Section Bill of Materials</i>	<i>Pag. 66</i>
<i>5</i>	<i>VCO Component Layout</i>	<i>Pag. 69</i>



VCO Card - A.F. Section			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	1	R9	100 1%	RESISTOR 1/4W 1%	RSM1/4FH0100
2	3	R3, R4, R5	10K 1%	RESISTOR 1/4W 1%	RSM1/4FK0010
3	2	R1, R2	12K 1%	RESISTOR 1/4W 1%	RSM1/4FK0012
4	1	R8	15K 1%	RESISTOR 1/4W 1%	RSC1/4FK0015
5	1	R15	T100K	TRIMMER REG. VERT. 10mm	RVTD10VK0100
6	2	C2, C3	39pF	CERAMIC CAPACITOR NP0	CKM390BJ600C
7	1	C10	0.1µF	CERAMIC CAPACITOR	CKM104BK600P
8	1	C5	47µF	ELECTROLYTIC CAPACITOR	CEA476BM630
9	2	C4, C11	100µF	ELECTROLYTIC CAPACITOR	CEA107BM350
10	3	C1, C6, C8	470µF	ELECTROLYTIC CAPACITOR	CEA477BM350
11	1	L1	VK	RF CHOKE	IMPVK00A
12	1	CN1	26P CONN.	CONN. M 2*13 P 2.54	CNTMCSFC26P
13	1	U1	TL082	DOUBLE OP. AMP.	CILTL082
14	22	D1, D2, D3, D4, D5, C9, R12, R13, R14, R16, R17, R18, R19, R20, R21, R22, R23, R24, R26, R27, R28, R29	N.C.	NOT CONNECTED	



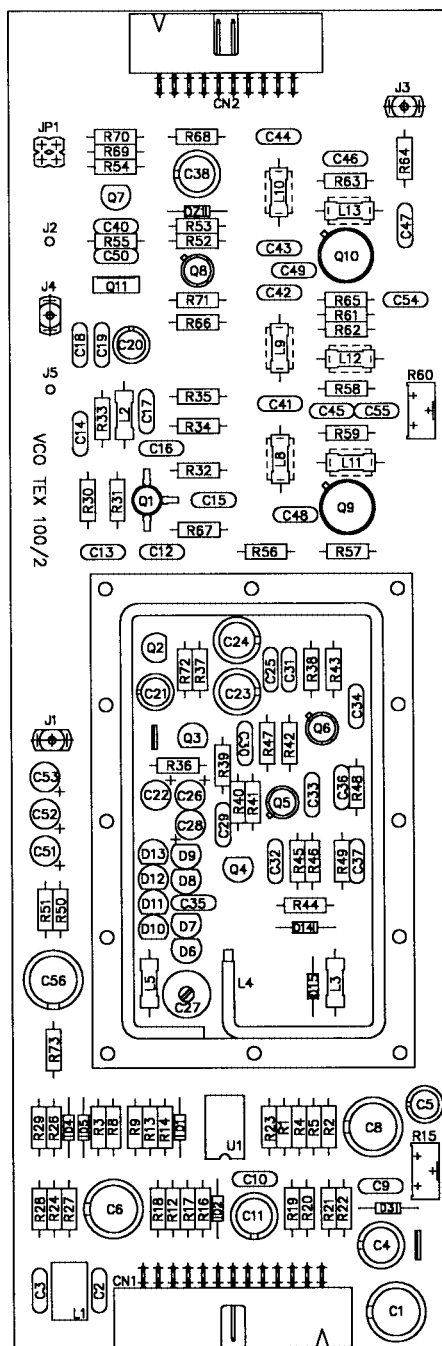
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Title		VCO Card - Audio Section Circuit Diagram
Size	Document Number	REV
		A4
Date:	November 30, 1995	Sheet 1 of 1

VC0 Card - R.F. Section			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	1	R60	0	0 OHM RESISTOR	R000
2	3	R56, R58, R64	5.6 1%	RESISTOR 1/4W 1%	RSM1/4FH05, 6
3	4	R32, R38, 5 R48, R6	10 1%	RESISTOR 1/4W 1%	RSM1/4FH0010
4	1	R39	22.1 1%	RESISTOR 1/4W 1%	RSM1/4FH22, 1
5	2	R35, R59	47 1%	RESISTOR 1/4W 1%	RSM1/4FH0047
6	1	R34	56 1%	RESISTOR 1/4W 1%	RSM1/4FH0056
7	3	R33, R37, R40	100 1%	RESISTOR 1/4W 1%	RSM1/4FH0100
8	1	R73	120 1%	RESISTOR 1/4W 1%	RSM1/4FH0120
9	1	R63	210 1%	RESISTOR 1/4W 1%	RSM1/4FH0210
10	1	R43	220 1%	RESISTOR 1/4W 1%	RSM1/4FH0220
11	1	R62	270 1%	RESISTOR 1/4W 1%	RSM1/4FH0270
12	2	R44, R46	470 1%	RESISTOR 1/4W 1%	RSM1/4FH0470
13	2	R36, R49	680 1%	RESISTOR 1/4W 1%	RSM1/4FH0680
14	4	R50, R67, R68, R71	1K 1%	RESISTOR 1/4W 1%	RSM1/4FK0001
15	1	R61	1K5 1%	RESISTOR 1/4W 1%	RSC1/4FK01, 5
16	1	R45	2K7 1%	RESISTOR 1/4W 1%	RSM1/4FK02, 8
17	2	R42, R55	4K7 1%	RESISTOR 1/4W 1%	RSM1/4FK04, 7
18	1	R57	5K6 1%	RESISTOR 1/4W 1%	RSM1/4FK05, 6
19	1	R47	6K8 1%	RESISTOR 1/4W 1%	RSM1/4FK06, 8
20	5	R41, R51, R66, R69, R72	10K 1%	RESISTOR 1/4W 1%	RSM1/4FK0010
21	2	R31, R54	22K 1%	RESISTOR 1/4W 1%	RSM1/4FK0022
22	1	R53	47K 1%	RESISTOR 1/4W 1%	RSM1/4FK0047
23	1	R52	1M 1%	RESISTOR 1/4W 1%	RSM1/4FM0001
24	1	C16	2p2	CERAMIC CAPACITOR NP0	CKM2, 2BJ600C
25	1	C35	22pF	CERAMIC CAPACITOR NP0	CKM220BJ600C
26	1	C32	33pF	CERAMIC CAPACITOR NP0	CKM330BJ600C

PLL Card			Bill Of Materials		Page 2
Item	Quantity	Reference	Part	Description	Part Order Code
28	2	RR1,RR2	RR2K2	RESISTOR NETWORK	RRR1/4JK02,2
29	1	C36	2p2	CERAMIC CAPACITOR NPO	CKM2,2BJ600C
30	1	C38	220pF	CERAMIC CAPACITOR NPO	CKM221BK600C
31	1	C35	330pF	CERAMIC CAPACITOR	CKM331BK600P
32	1	C6	560pF	CERAMIC CAPACITOR	CKM561BK600P
33	1	C34	1n5P	POLYESTER CAPACITOR	CPE152BK101
34	3	C37,C40,C41	4n7	CERAMIC CAPACITOR	CKM472BK600P
35	3	C3,C9,C11	47nF	CERAMIC CAPACITOR	CKM473BK600P
36	8	C21,C26, C27,C28,C29, C31,C33,C42	0.1μF	CERAMIC CAPACITOR	CKM104BK600P
37	1	C19	0.1μFT	TANTALIUM CAPACITOR	CET104AM350
38	1	C13	2.2μFT	TANTALIUM CAPACITOR	CET225AM350
39	13	C7,C8,C10, C12,C14,C15, C16,C22,C24, C25,C30,C32, C43	10μF	ELECTROLYTIC CAPACITOR	CEA106AM350
40	1	C18	22μF	ELECTROLYTIC CAPACITOR	CEA226BM350
41	1	C17	22μFT	TANTALIUM CAPACITOR	CET226AM350
42	1	C23	47μF	ELECTROLYTIC CAPACITOR	CEA476BM630
43	1	C20	100μF	ELECTROLYTIC CAPACITOR	CEA107BM350
44	1	L4	2μ2	RF CHOKE	IMP02U2A
45	1	L1	220μH	RF CHOKE	IMP220UA
46	2	L2,L3	VK	RF CHOKE	IMPVK00A
47	1	J7	2 PIN STRIP	STRIP M P 2.54 2 PIN	CNTSTRIPMCS
48	1	JP1	4 PIN STRIP	STRIP M P 2.54 4 PIN	CNTSTRIPMCS
49	1	J1	2 PIN JUMP	MINIJUMPER P 2.54	MINIJUMPER
50	1	CN1	DB25 M F	CONN. M 25 FILT. MURATA	
51	2	J2,J5	SMB	CONN. SMB CRIMP. RG188	CNTSMBFCVD
52	2	D2,D3	1N4148	SILICON DIODE	DIS1N4148
53	1	U6	7805	POS. STABILIZER 1A	CIL7805P

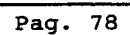
VC0 Card - R.F. Section			Bill Of Materials		Page 3
Item	Quantity	Reference	Part	Description	Part Order Code
53	1	Q4	J310	FET TRANSISTOR	TRNJ310
54	7	JP1, C13, C27, R30, C51, C53, R70	N.C.	NOT CONNECTED	
55	2	C34, C36	100pF	CERAMIC CAPACITOR NP0	CKM101BJ600C
56	1	C12	220pF	CERAMIC CAPACITOR NP0	CKM221BK600C



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	DISPOSITIVO		
SEMILAVORATO	DISEGNATO D'Alessio D. II	DISEGNO	
MATERIALE	SCALA	TAVOLA n 1 di 1	
TRATTAMENTO			

PLL CARD

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 71</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 72</i>
<i>3</i>	<i>Component Layout</i>	<i>Pag. 77</i>



PLL Card			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	1	R49	0	0 OHM RESISTOR	R000
2	1	R43	10 1%	RESISTOR 1/4W 1%	RSM1/4FH0010
3	1	R39	22 1%	RESISTOR 1/4W 1%	RSM1/4FH0022
4	1	R22	27 1%	RESISTOR 1/4W 1%	RSM1/4FH0027
5	1	R42	47 1%	RESISTOR 1/4W 1%	RSM1/4FH0047
6	1	R41	56 1%	RESISTOR 1/4W 1%	RSM1/4FH0056
7	4	R5, R6, R8, R47	100 1%	RESISTOR 1/4W 1%	RSM1/4FH0100
8	1	R35	180	RESISTOR 1/4W 5%	RSC1/4JH0180
9	1	R44	220 1%	RESISTOR 1/4W 1%	RSM1/4FH0220
10	2	R32, R34	270 1%	RESISTOR 1/4W 1%	RSM1/4FH0270
11	1	R3	390 1%	RESISTOR 1/4W 1%	RSM1/4FH0390
12	4	R4, R21, R33, R40	470 1%	RESISTOR 1/4W 1%	RSM1/4FH0470
13	7	R17, R18, R20, R26, R27, R30, R38	1K 1%	RESISTOR 1/4W 1%	RSM1/4FK0001
14	3	R13, R36, R37	1K5 1%	RESISTOR 1/4W 1%	RSC1/4FK01, 5
15	1	R31	2K2 1%	RESISTOR 1/4W 1%	RSC1/4FK02, 2
16	1	R11	4K7 1%	RESISTOR 1/4W 1%	RSM1/4FK04, 7
17	1	R7	5K6 1%	RESISTOR 1/4W 1%	RSM1/4FK05, 6
18	3	R9, R12, R14	10K 1%	RESISTOR 1/4W 1%	RSM1/4FK0010
19	2	R10, R45	22K 1%	RESISTOR 1/4W 1%	RSM1/4FK0022
20	1	R28	27K 1%	RESISTOR 1/4W 1%	RSM1/4FK0027
21	1	R48	33K 1%	RESISTOR 1/4W 1%	RSM1/4FK0033
22	1	R15	39K 1%	RESISTOR 1/4W 1%	RSM1/4FK0039
23	2	R19, R25	47K 1%	RESISTOR 1/4W 1%	RSM1/4FK0047
24	1	R16	82K 1%	RESISTOR 1/4W 1%	RSM1/4FK0082
25	1	R23	100K 1%	RESISTOR 1/4W 1%	RSM1/4FH0100

*PLL Card**Bill Of Materials**Page 2*

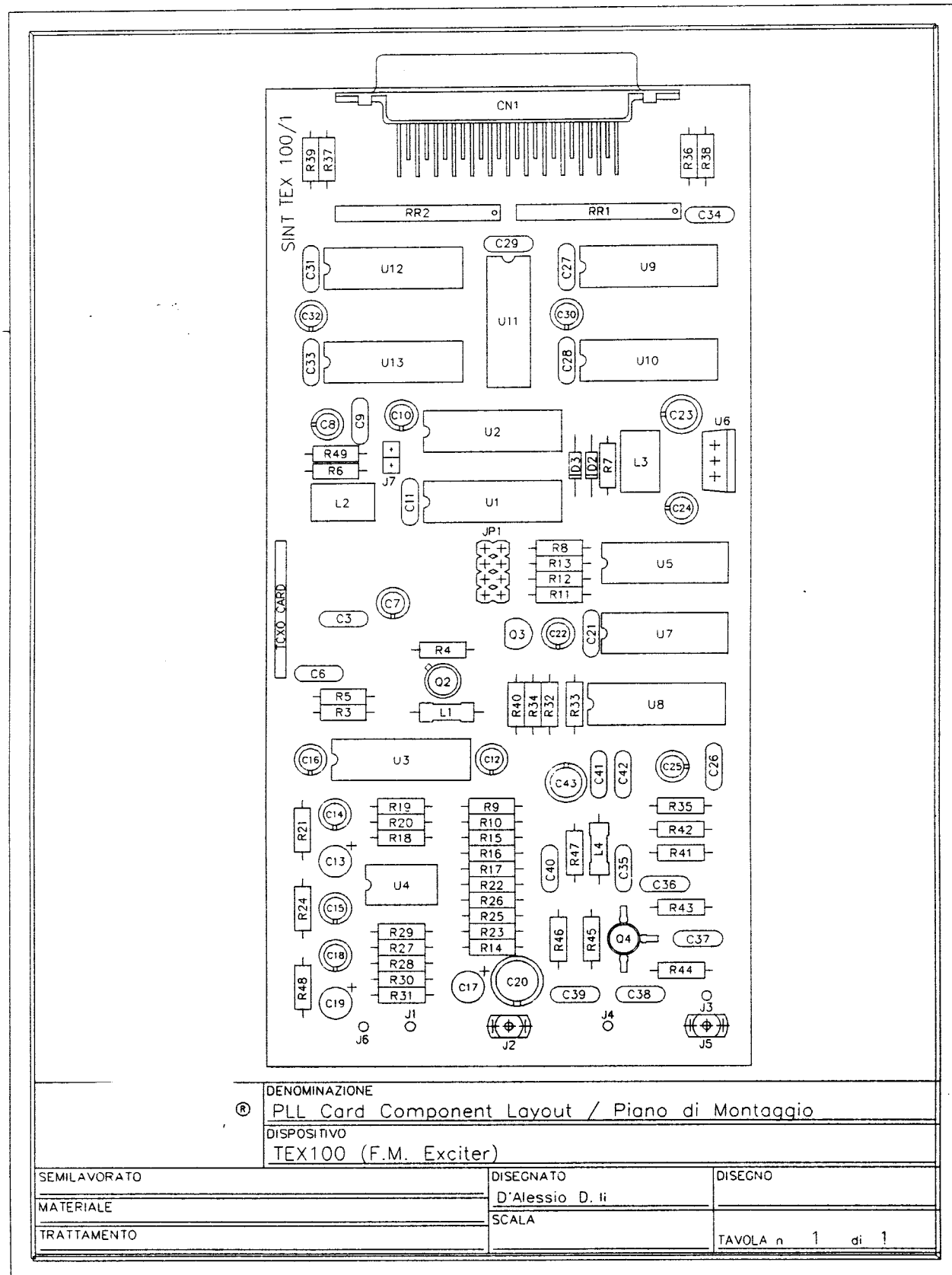
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<i>26</i>	<i>1</i>	<i>R29</i>	<i>1M 1%</i>	<i>RESISTOR 1/4W 1%</i>	<i>RSM1/4FM0001</i>
<i>27</i>	<i>1</i>	<i>R24</i>	<i>10M 1%</i>	<i>RESISTOR 1/4W 1%</i>	<i>RSM1/4FM0010</i>

PLL Card			Bill Of Materials		Page 3
Item	Quantity	Reference	Part	Description	Part Order Code
28	2	RR1, RR2	RR2K2	RESISTOR NETWORK	RRR1/4JK02, 2
29	1	C36	2p2	CERAMIC CAPACITOR NP0	CKM2, 2BJ600C
30	1	C38	220pF	CERAMIC CAPACITOR NP0	CKM221BK600C
31	1	C35	330pF	CERAMIC CAPACITOR	CKM331BK600P
32	1	C6	560pF	CERAMIC CAPACITOR	CKM561BK600P
33	1	C34	1n5P	POLYESTER CAPACITOR	CPE152BK101
34	3	C37, C40, C41	4n7	CERAMIC CAPACITOR	CKM472BK600P
35	3	C3, C9, C11	47nF	CERAMIC CAPACITOR	CKM473BK600P
36	8	C21, C26, C27, C28, C29, C31, C33, C42	0.1µF	CERAMIC CAPACITOR	CKM104BK600P
37	1	C19	0.1µFT	TANTALIUM CAPACITOR	CET104AM350
38	1	C13	2.2µFT	TANTALIUM CAPACITOR	CET225AM350
39	13	C7, C8, C10, C12, C14, C15, C16, C22, C24, C25, C30, C32, C43	10µF	ELECTROLYTIC CAPACITOR	CEA106AM350
40	1	C18	22µF	ELECTROLYTIC CAPACITOR	CEA226BM350
41	1	C17	22µFT	TANTALIUM CAPACITOR	CET226AM350
42	1	C23	47µF	ELECTROLYTIC CAPACITOR	CEA476BM630
43	1	C20	100µF	ELECTROLYTIC CAPACITOR	CEA107BM350
44	1	L4	2µ2	RF CHOKE	IMP02U2A
45	1	L1	220µH	RF CHOKE	IMP220UA
46	2	L2, L3	VK	RF CHOKE	IMPVK00A
47	1	J7	2 PIN STRIP	STRIP M P 2.54 2 PIN	CNTSTRIPMCS
48	1	JP1	4 PIN STRIP	STRIP M P 2.54 4 PIN	CNTSTRIPMCS
49	1	J1	2 PIN JUMP	MINIJUMPER P 2.54	MINIJUMPER
50	1	CN1	DB25 M F	CONN. M 25 FILT. MURATA	
51	2	J2, J5	SMB	CONN. SMB CRIMP. RG188	CNTSMBFCVD

*PLL Card**Bill Of Materials**Page 4*

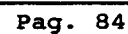
<i>Item</i>	<i>Quantity</i>	<i>Reference</i>	<i>Part</i>	<i>Description</i>	<i>Part Order Code</i>
52	2	D2, D3	1N4148	SILICON DIODE	DIS1N4148
53	1	U6	7805	POS. STABILIZER 1A	CIL7805P

PLL Card			Bill Of Materials		Page 5
Item	Quantity	Reference	Part	Description	Part Order Code
54	1	Q3	BC547	NPN TRANSISTOR	TRNBC547
55	1	Q2	2N918	NPN RF TRANSISTOR	TRN2N918
56	1	Q4	BFR96	NPN RF TRANSISTOR	TRNBFR96
57	1	U4	TL082	DOUBLE OP. AMP.	CILTTL082
58	1	U8	SP8680	ECL DIVIDER	CIDSP8680B
59	1	U3	4046	CMOS PHASE COMPARATOR	CID4046
60	1	U2	4518	CMOS BCD DIVIDER	CID4518
61	1	U1	4520	CMOS BIN DIVIDER	CID4520
62	1	U7	7400	TTL QUAD NAND	CID7400
63	5	U9, U10, U11, U12, U13	74LS190	TTL BCD DIVIDER	CID74LS190
64	1	U5	74LS196	TTL LS DIVIDER	CID74LS196
65	2	C39, R46	N.C.	NOT CONNECTED	



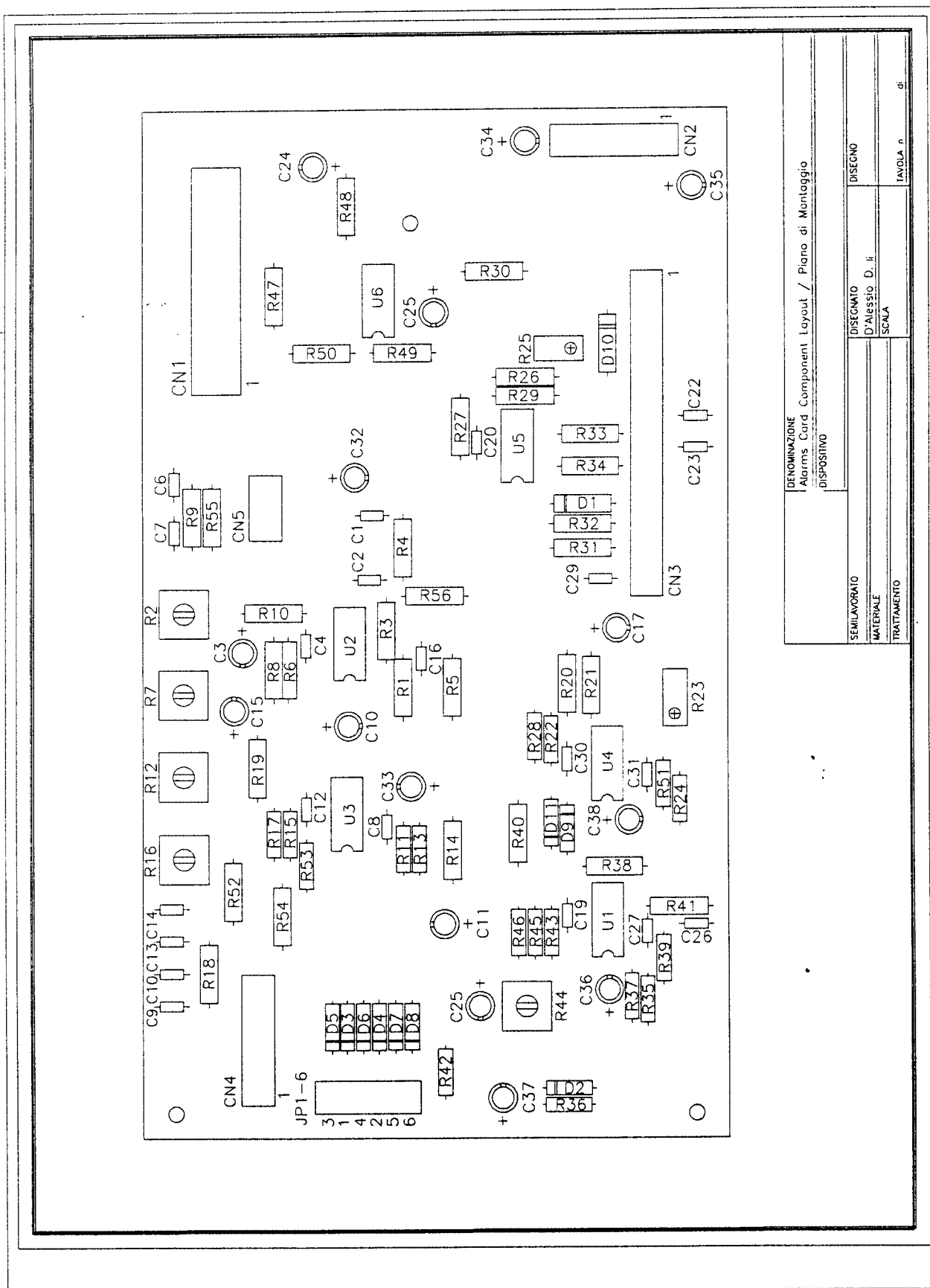
ALARMS CARD

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 79</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 80</i>
<i>3</i>	<i>Coponent Layout</i>	<i>Pag. 82</i>



Alarms Card			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	1	R34	15 1%	RESISTOR 1/4W 1%	RSM1/4JH0015
2	1	R36	100 1%	RESISTOR 1/4W 1%	RSM1/4FH0100
3	1	R8	330 1%	RESISTOR 1/4W 5%	RSM1/4FH0330
4	2	R30, R48	470 1%	RESISTOR 1/4W 1%	RSM1/4FH0470
5	14	R3, R5, R10, R13, R14, R17, R19, R20, R33, R35, R42, R46, R47, R57	1K 1%	RESISTOR 1/4W 1%	RSM1/4FK0001
6	1	R50	2K2 1%	RESISTOR 1/4W 1%	RSC1/4FK02, 2
7	3	R31, R32, R37	4K7 1%	RESISTOR 1/4W 1%	RSM1/4FK04, 7
8	2	R38, R45	10K 1%	RESISTOR 1/4W 1%	RSM1/4FK0010
9	9	R1, R4, R6, R9, R11, R15, R18, R21, R52	12K 1%	RESISTOR 1/4W 1%	RSM1/4FK0012
10	4	R22, R43, R53, R54	22K 1%	RESISTOR 1/4W 1%	RSM1/4FK0022
11	2	R24, R49	47K 1%	RESISTOR 1/4W 1%	RSM1/4FK0047
12	6	R26, R28, R29, R41, R55, R56	100K 1%	RESISTOR 1/4W 1%	RSM1/4FH0100
13	2	R39, R40	470K 1%	RESISTOR 1/4W 1%	RSC1/4FK0470
14	1	R51	1M 1%	RESISTOR 1/4W 1%	RSM1/4FM0001
15	4	R2, R7, R12, R16	TC10K	TRIM. REG. VERT. CERMET	RVTCERVK0010
16	1	R23	M1K	TRIMMER MULTIGIRI	RVTMULAK0001
17	1	R44	M10K	TRIMMER MULTIGIRI	RVTMULAK0010
18	1	R25	M20K	TRIMMER MULTIGIRI	RVTMULAK0020
19	4	C4, C8, C12, C16	12pF	CERAMIC CAPACITOR NP0	CKM120BJ600C
20	2	C22, C23	470pF	CERAMIC CAPACITOR	CKM471BK600P
21	1	C20	2n2	CERAMIC CAPACITOR	CKM222BK600P

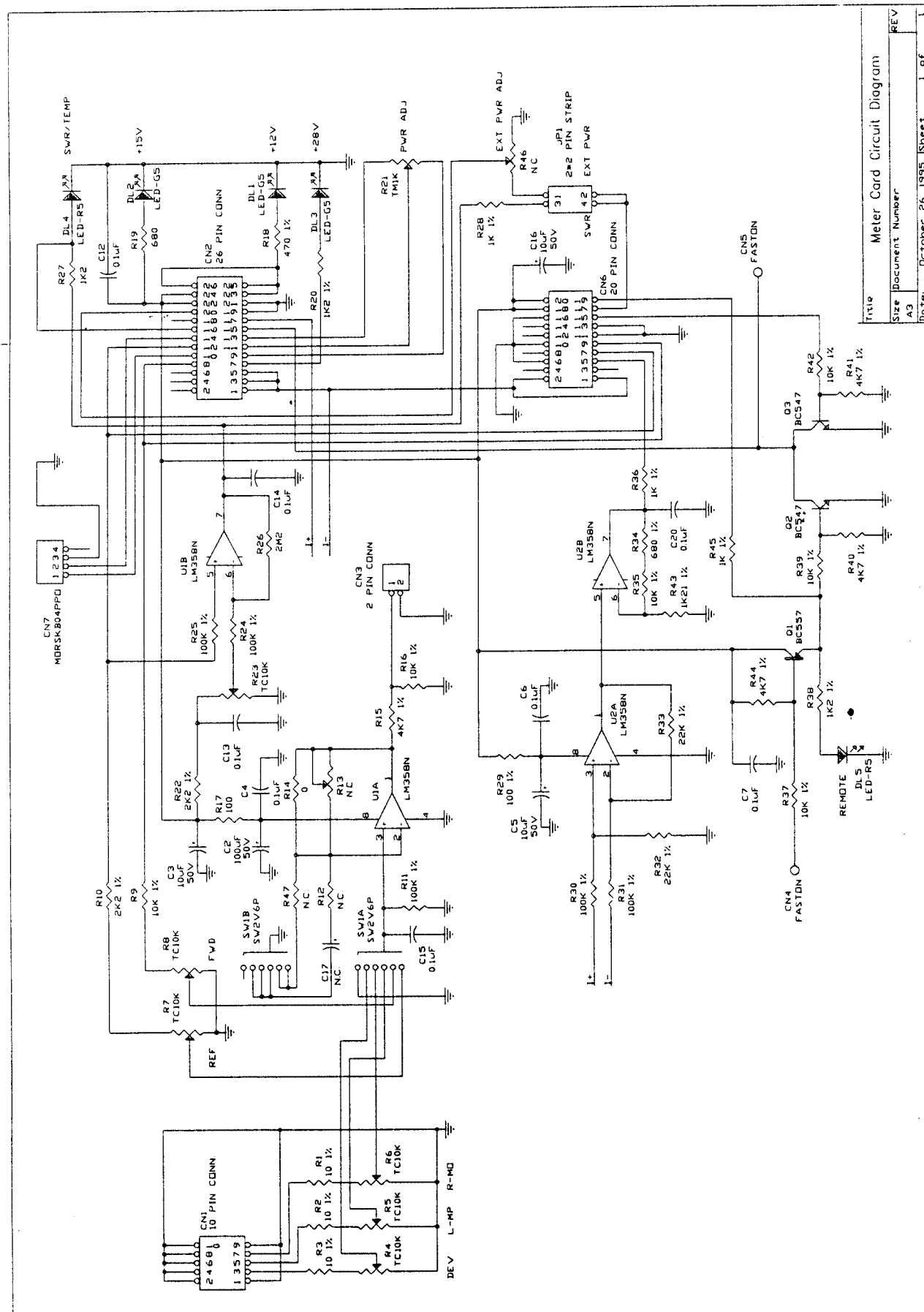
Alarms Card			Bill Of Materials		Page 2
Item	Quantity	Reference	Part	Description	Part Order Code
22	8	C1, C2, C5, C6, C9, C10, C13, C14	4n7	CERAMIC CAPACITOR	CKM472BK600P
23	5	C3, C7, C11, C15, C33	0.47μF	TANTALIUM CAPACITOR	CET474AM350
24	1	C36	1μF	ELECTROLYTIC CAPACITOR	CEA105AM630
25	6	C18, C25, C34, C35, C37, C38	10μF	ELECTROLYTIC CAPACITOR	CEA106AM350
26	2	C24, C32	100μF	ELECTROLYTIC CAPACITOR	CEA107BM350
27	6	JP1, JP2, JP3, JP4, JP5, JP6	2 PIN STRIP	STRIP M P 2.54 2 PIN	CNTSTRIPMCS
28	1	CN3	MORSKB10PP0	MORS. LUMBERG F. CS 10P	MORSKB10PP0
29	2	CN2, CN4	MORSKB04PP0	MORS. LUMBERG F. CS 04P	MORSKB04PP0
30	1	CN1	26P CONN.	CONN. M 2*13 P 2.54	CNTMCSFC26P
31	9	D3, D4, D5, D6, D7, D8, D9, D10, D11	1N4148	SILICON DIODE	DIS1N4148
32	1	D1	Z12V	ZENER DIODE 12V 0.4W	DIZ12V0W4
33	1	D2	Z24V	ZENER DIODE 24V 0.4W	DIZ24V0W4
34	5	U1, U2, U3, U4, U5	LM358N	DOUBLE OP. AMP.	CILLM358N
35	1	U6	NE555	TIMER	CIL555
36	10	C17, C19, C21, C26, R27, C27, C28, C29, C30, C31	N.C.	NOT CONNECTED	



DENOMINAZIONE		Alarms Card Component Layout / Piano di Montaggio	
DISPOSITIVO		DISEGNO	
SEMILAVORATO		D'ALESSIO D. II	
MATERIALE		SCALA	
TRATTAMENTO		TAVOLA n. di	

METER CARD

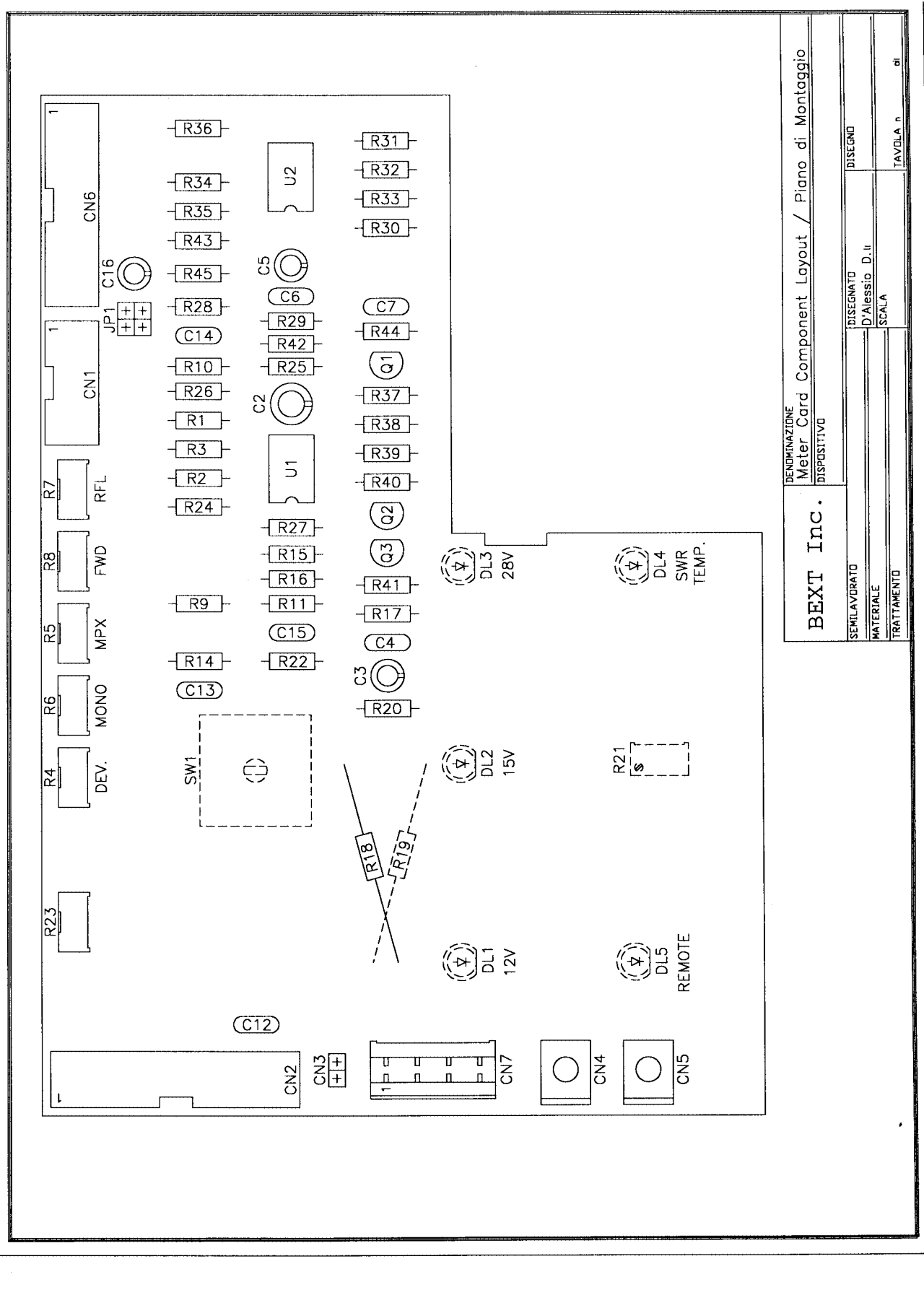
<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 84</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 85</i>
<i>3</i>	<i>Component Layout</i>	<i>Pag. 87</i>



Size	Document Number	REV
A3		
Date	October 26, 1995	Sheet 1 of 1

Meter Card			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	1	R14	0	0 OHM RESISTOR	R000
2	3	R1,R2,R3	10 1%	RESISTOR 1/4W 1%	RSM1/4FH0010
3	1	R29	100 1%	RESISTOR 1/4W 1%	RSM1/4FH0100
4	1	R17	100	RESISTOR 1/4W 5%	RSC1/4JH0100
5	1	R18	470 1%	RESISTOR 1/4W 1%	RSM1/4FH0470
6	1	R34	680 1%	RESISTOR 1/4W 1%	RSM1/4FH0680
7	1	R19	680	RESISTOR 1/4W 5%	RSC1/4JH0680
8	3	R28,R36,R45	1K 1%	RESISTOR 1/4W 1%	RSM1/4FK0001
9	2	R20,R38	1K2 1%	RESISTOR 1/4W 1%	RSM1/4FK01, 2
10	1	R27	1K2	RESISTOR 1/4W 5%	RSC1/4JK01, 2
11	1	R43	1K21 1%	RESISTOR 1/4W 1%	RSC1/4FK1, 21
12	2	R10,R22	2K2 1%	RESISTOR 1/4W 1%	RSC1/4FK02, 2
13	4	R15,R40, R41,R44	4K7 1%	RESISTOR 1/4W 1%	RSM1/4FK04, 7
14	6	R9,R16, R35,R37, R39,R42	10K 1%	RESISTOR 1/4W 1%	RSM1/4FK0010
15	2	R32,R33	22K 1%	RESISTOR 1/4W 1%	RSM1/4FK0022
16	5	R11,R24, R25,R30,R31	100K 1%	RESISTOR 1/4W 1%	RSM1/4FH0100
17	1	R26	2M2	RESISTOR 1/4W 5%	RSC1/4JM02, 2
18	6	R4,R5,R6, R7,R8,R23	TC10K	TRIM. REG. VERT. CERMET	RVTCERVK0010
19	1	R21	TM1K	TRIMM. MULT. REG. VERT.	RVTMULVK0001
20	8	C4,C6,C7, C12,C13, C14,C15,C20	0.1µF	CERAMIC CAPACITOR	CKM104BK600P
21	3	C3,C5,C16	10µF	ELECTROLYTIC CAPACITOR	CEA106AM350
22	1	C2	100µF	ELECTROLYTIC CAPACITOR	CEA107BM350
23	1	JP1	2*2P STRIP	STRIP M P 2.54 2*2 PIN	CNTSTRIPMCS
24	2	CN4,CN5	FASTON	CONN. FASTON M C.S.	CNTFSTMCSGR

Meter Card			Bill Of Materials		Page 2
Item	Quantity	Reference	Part	Description	Part Order Code
25	1	CN7	MORSKB04PP0	MORS. LUMB, FEMM. CS 4P	MORSKB04PP0
26	1	CN3	2 PIN CONN.	CONN. M 2*1 P 2.54	CNTM2PCS
27	1	CN1	10P CONN.	CONN. M 2*5 P 2.54	CNTMCSFC10P
28	1	CN6	20P CONN.	CONN. M 2*10 P 2.54	CNTMCSFC20P
29	1	CN2	26P CONN.	CONN. M 2*13 P 2.54	CNTMCSFC26P
30	1	SW1	SW2V6P	COMM.. 2 VIE 6 POS FEME	COMR2V6PCS
31	2	DL4, DL5	LED-R5	RED LED DIODE	LEDRO05
32	3	DL1, DL2, DL3	LED-G5	GREEN LED DIODE	LEDVE05
33	2	Q2, Q3	BC547	NPN TRANSISTOR	TRNBC547
34	1	Q1	BC557	PNP TRANSISTOR	TRNBC557
35	2	U1, U2	LM358N	DOUBLE OP. AMP.	CILLM358N
36	5	R12, R13, C17, R46, R47	N.C.	NOT CONNECTED	



BENEDIZIONE
Meter Card Component Layout / Piano di Montaggio
DISPOSITIVO

BEXT Inc.

SEMILAVORATO

MATERIALE

TRATTAMENTO

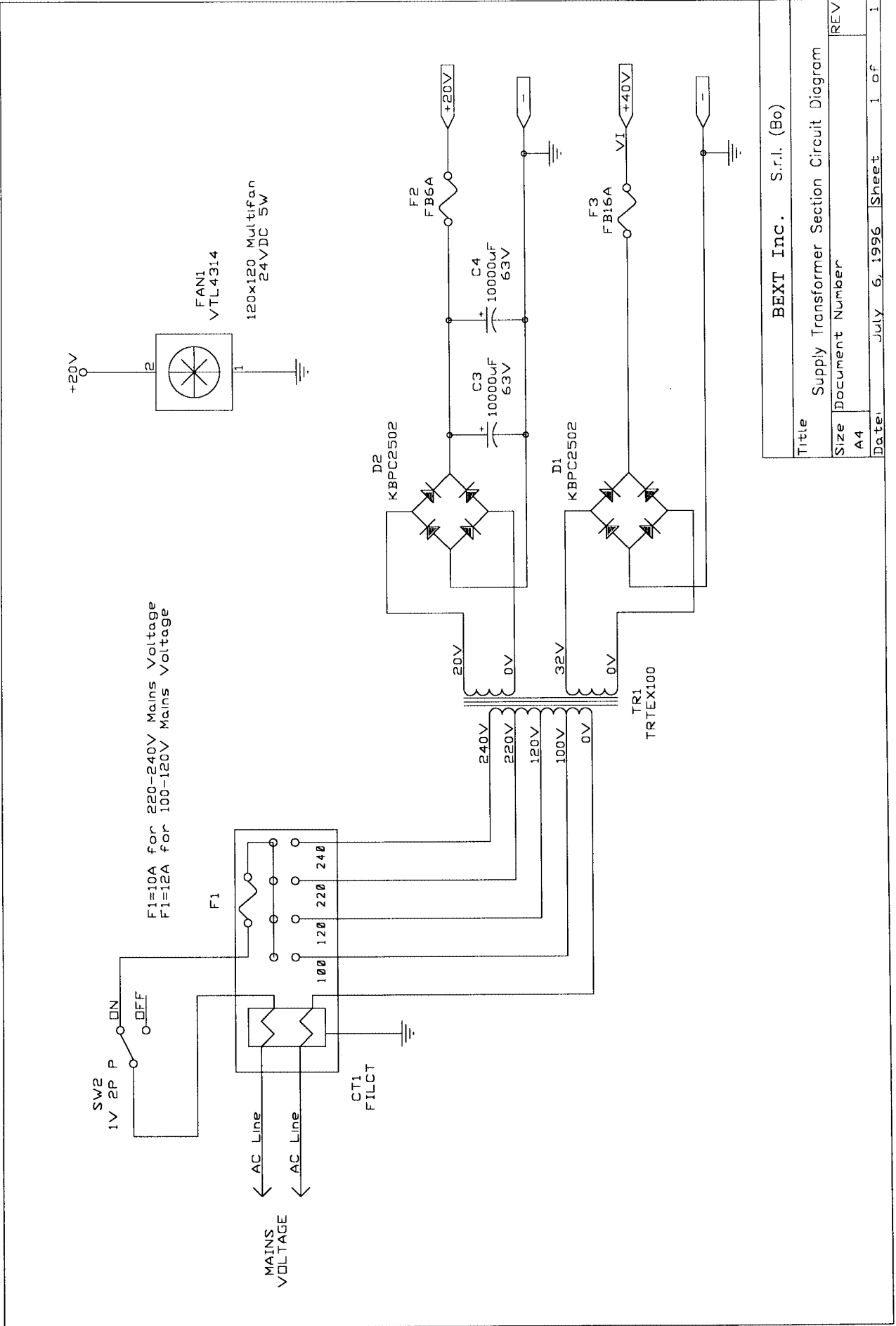
DISEGNATO
D'Alessio D. II

SCALA

TAVOLA n. di

TRANSFORMER SUPPLY SECTION

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 89</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 90</i>

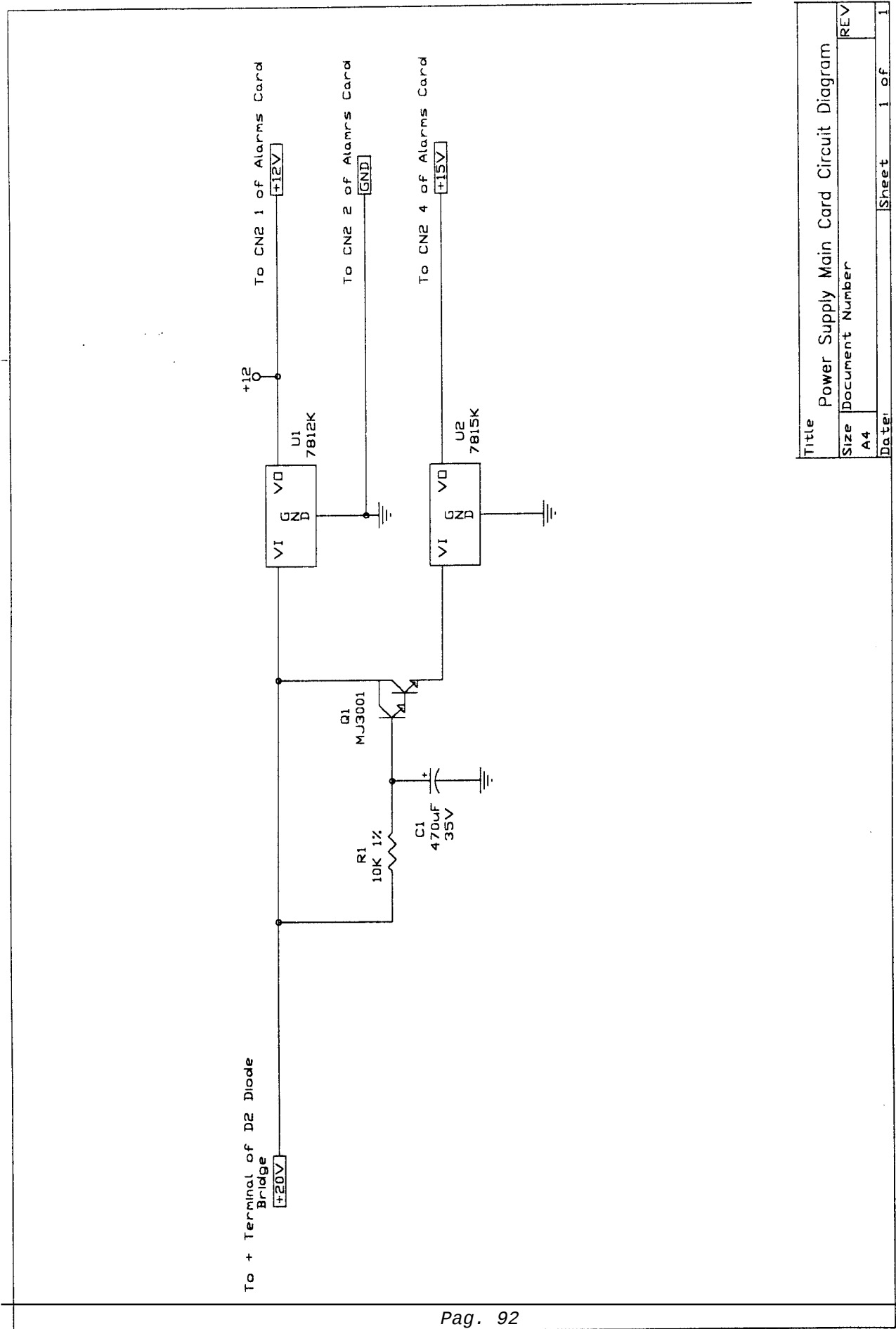


BEXT Inc. S.r.l. (Bo)		
Title		
Supply Transformer Section Circuit Diagram		
Size	Document Number	REV
A4		
Date	July 6, 1996	Sheet 1 of 1

<i>Transformer Supply Section</i>			<i>Bill Of Materials</i>		<i>Page 1</i>
<i>Item</i>	<i>Quantity</i>	<i>Reference</i>	<i>Part</i>	<i>Description</i>	<i>Part Order Code</i>
1	2	C3, C4	10000µF	ELECTROLYTIC CAPACITOR	CEA109PM630
2	1	F1	F10A	FAST FUSIBILE	FUS5X20RP10
3	1	F2	FB6A	FAST FUSIBLE	FUS6X30RP6
4	1	F3	FB16A	FAST FUSIBILE	FUS6X30RP16
5	1	CT1	FILCT	FILTRO VDE CON C. TENS.	CNTVDEMPCT
6	1	SW2	1V 2P P	DEV. 1 VIA 2 POS PANN.	DEV1V1103
7	2	D1, D2	KBPC2502	DIODE BRIDGE 25A	PNRKBPC2502
8	1	TR1	TRTEX100	TRASFORMATORE TEX 100	TRFTEX100
9	1	FAN1	VTL4314	VENT. 120x120 24VDC 5W	VTL4314

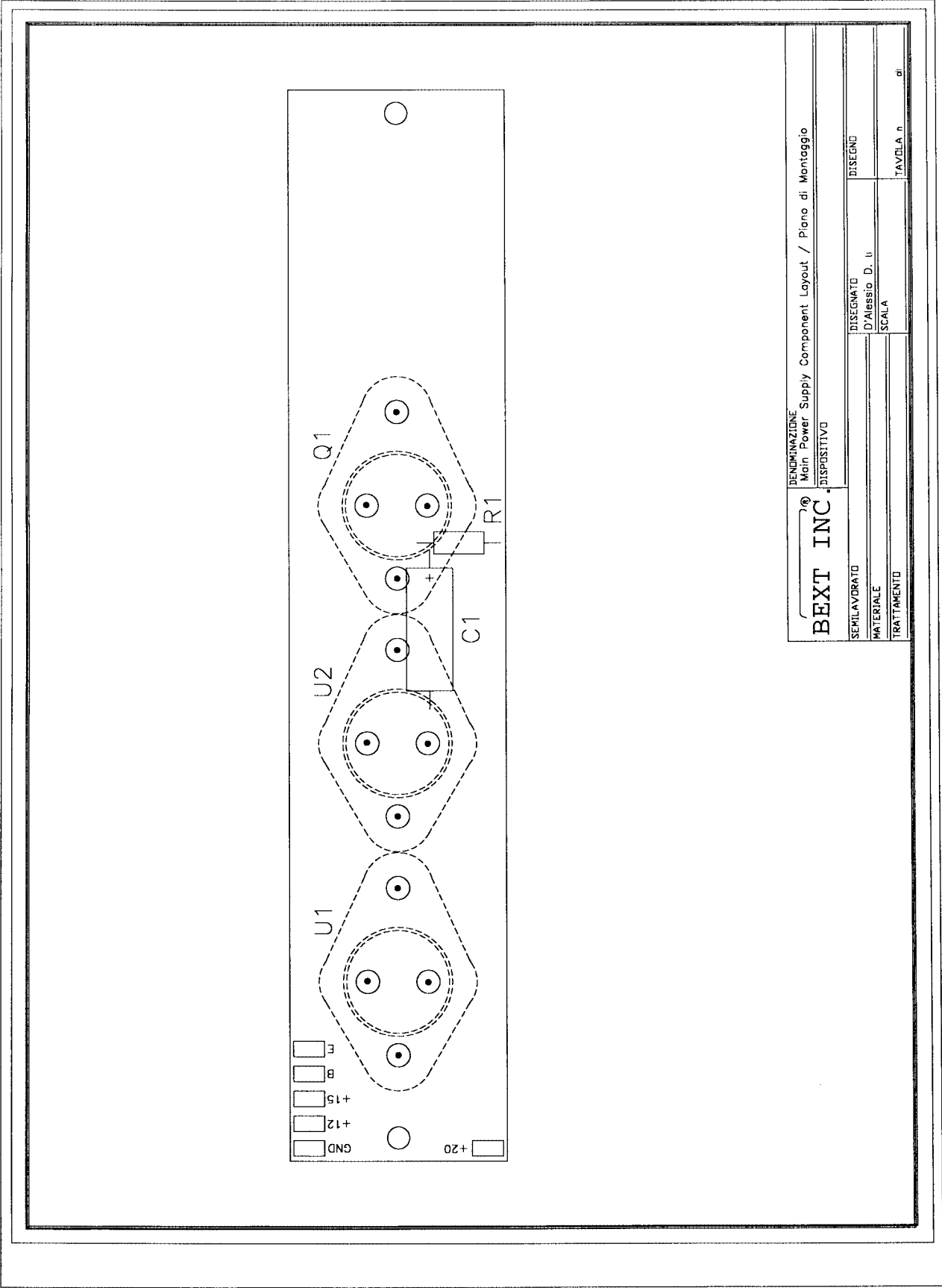
MAIN POWER SUPPLY

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 92</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 93</i>
<i>3</i>	<i>Component Layout</i>	<i>Pag. 94</i>



Title			
Power Supply Main Card Circuit Diagram			
Size	Document Number		REV
A4			
Date:		Sheet	1 of 1

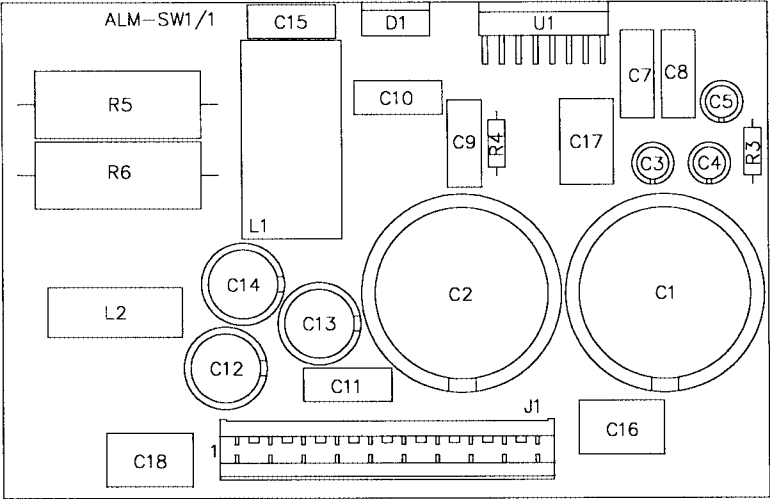
Main Power Supply			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	1	R1	10K 1%	RESISTOR 1/4W 1%	RSM1/4FK0010
2	1	C1	470 μ F	ELECTROLYTIC CAPACITOR	CEA477BM350
3	1	U1	7812K	POS. STABILIZER 1.5A	CIL7812K
4	1	U2	7815K	POS. STABILIZER 1.5A	CIL7815K
5	1	Q1	MJ3001	POWER TRANSISTOR	TRNMJ3001



SWITCHING 1 POWER SUPPLY

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 96</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 97</i>
<i>3</i>	<i>Component Layout</i>	<i>Pag. 98</i>

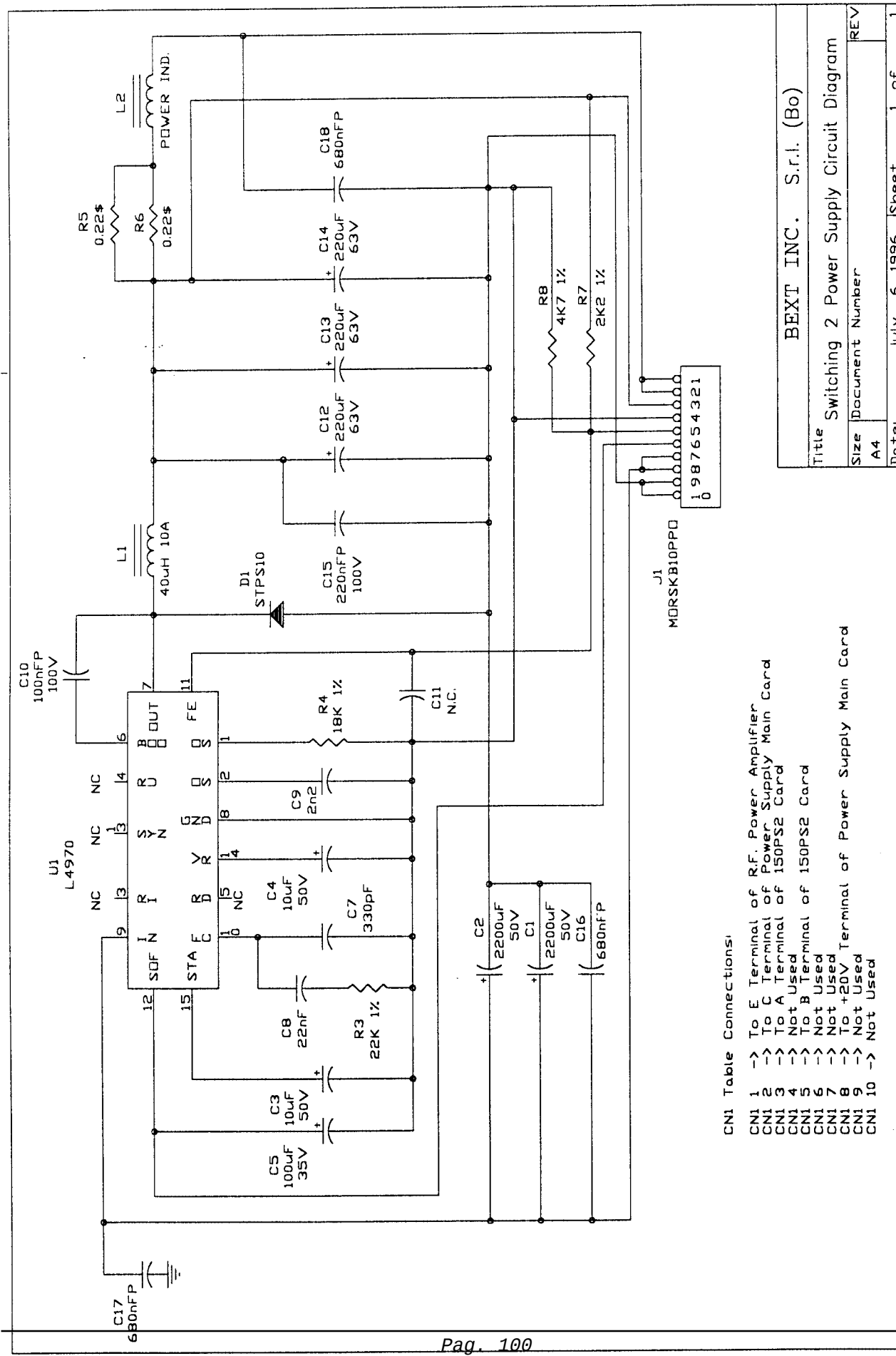
Switching 1 Power Supply			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	2	R5, R6	0.22\$	RESISTOR 5W	RAF005JH0, 22
2	1	R4	18K 1%	RESISTOR 1/4W 1%	RSM1/4FK0018
3	1	R3	22K 1%	RESISTOR 1/4W 1%	RSM1/4FK0022
4	1	C7	330pF	CERAMIC CAPACITOR	CKM331BK600P
5	1	C9	2n2	CERAMIC CAPACITOR	CKM222BK600P
6	1	C8	22nF	CERAMIC CAPACITOR	CKM223BK600P
7	1	C10	100nFP	POLYESTER CAPACITOR	CPE104DK101
8	1	C15	220nFP	POLYESTER CAPACITOR	CPE224DK101
9	3	C16, C17, C18	680nFP	POLYESTER CAPACITOR	CPE684DK101
10	2	C3, C4	10µF	ELECTROLYTIC CAPACITOR	CEA106AM350
11	1	C5	100µF	ELECTROLYTIC CAPACITOR	CEA107BM350
12	3	C12, C13, C14	220µF	ELECTROLYTIC CAPACITOR	CEA227BM350
13	2	C1, C2	2200µF	ELECTROLYTIC CAPACITOR	CEA228CM350
14	1	L1	40µH 10A	TOROIDAL RF CHOKE 10A	IMP40U10A
15	1	L2	POWER IND.	RF BINOC. CHOCKE	
16	1	J1	MORSKB10PP0	MORS. LUMBERG F. CS 10P	MORSKB10PP0
17	1	D1	STPS10	RECTIFIER DIODE	DIDSTPS10
18	1	U1	L4970	SWITCHING REGULATOR	CILL4970
19	1	C11	N.C.	NOT CONNECTED	



BEXT INC.®	DENOMINAZIONE Switching 1 Power Supply Component Layout / Piano di Montaggio		
	DISPOSITIVO		
SEMILAVORATO	DISEGNATO D'Alessio D. li	DISEGNO	
MATERIALE	SCALA	TAVOLA n 1 di 1	
TRATTAMENTO			

SWITCHING 2 POWER SUPPLY

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 100</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 101</i>
<i>3</i>	<i>Component Layout</i>	<i>Pag. 102</i>



BEXT INC. S.r.l. (Bo)

Switching 2 Power Supply Circuit Diagram

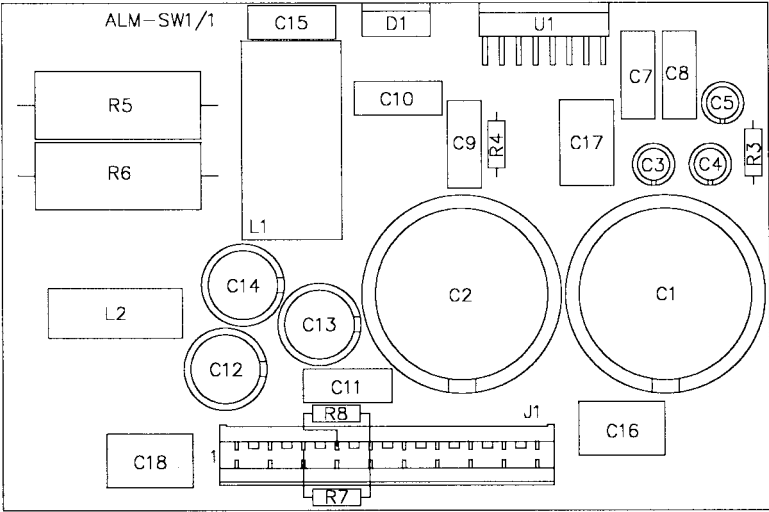
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Date: July 6, 1996 Sheet 1 of 1

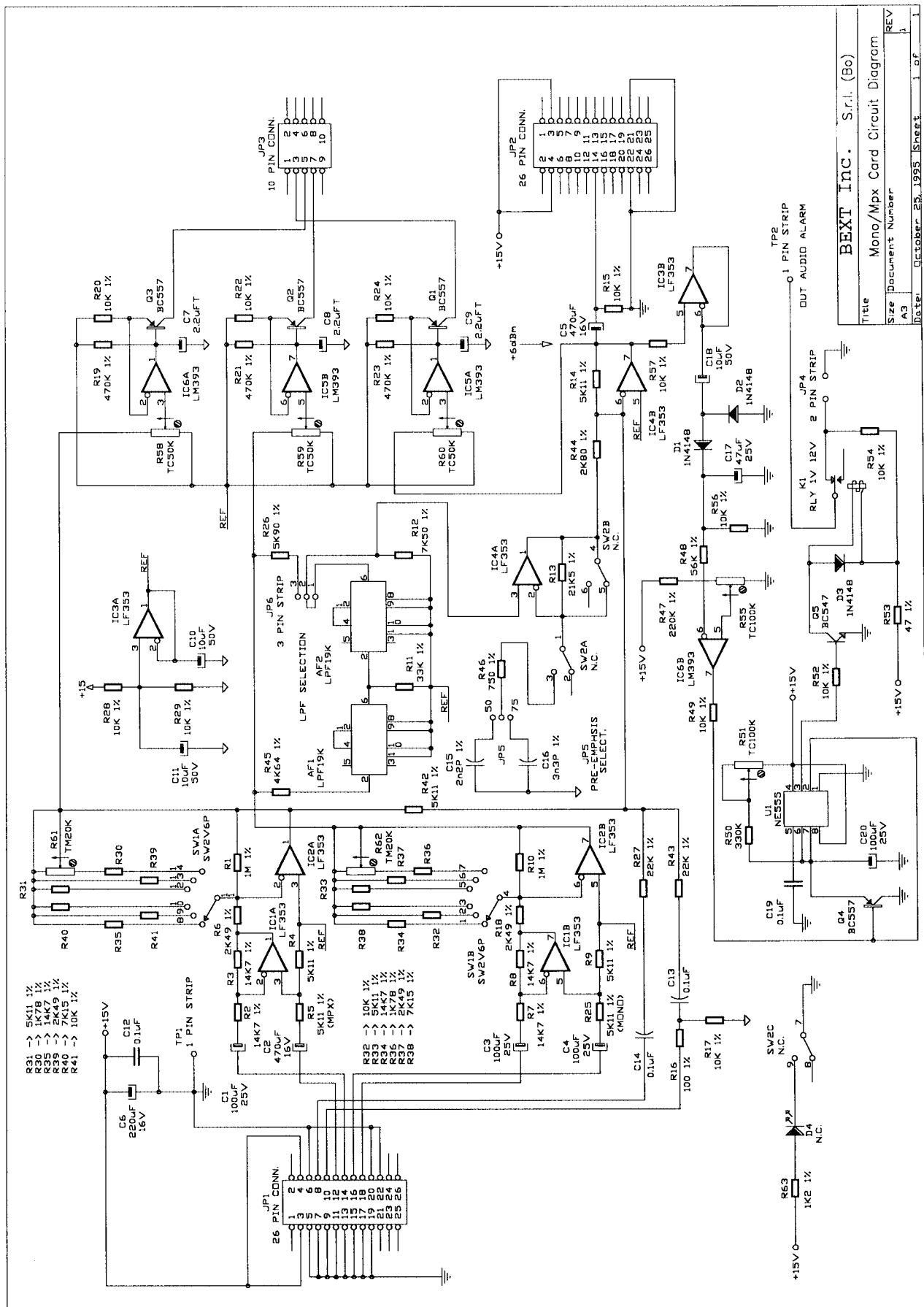
Switching 2 Power Supply			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	2	R5, R6	0.22\$	RESISTOR 5W	RAF005JH0, 22
2	1	R7	2K2 1%	RESISTOR 1/4W 1%	RSC1/4FK02, 2
3	1	R8	4K7 1%	RESISTOR 1/4W 1%	RSM1/4FK04, 7
4	1	R4	18K 1%	RESISTOR 1/4W 1%	RSM1/4FK0018
5	1	R3	22K 1%	RESISTOR 1/4W 1%	RSM1/4FK0022
6	1	C7	330pF	CERAMIC CAPACITOR	CKM331BK600P
7	1	C9	2n2	CERAMIC CAPACITOR	CKM222BK600P
8	1	C8	22nF	CERAMIC CAPACITOR	CKM223BK600P
9	1	C10	100nFP	POLYESTER CAPACITOR	CPE104DK101
10	1	C15	220nFP	POLYESTER CAPACITOR	CPE224DK101
11	3	C16, C17, C18	680nFP	POLYESTER CAPACITOR	CPE684DK101
12	2	C3, C4	10µF	ELECTROLYTIC CAPACITOR	CEA106AM350
13	1	C5	100µF	ELECTROLYTIC CAPACITOR	CEA107BM350
14	3	C12, C13, C14	220µF	ELECTROLYTIC CAPACITOR	CEA227BM350
15	2	C1, C2	2200µF	ELECTROLYTIC CAPACITOR	CEA228CM350
16	1	L1	40µH 10A	TOROIDAL RF CHOKE 10A	IMP40U10A
17	1	L2	POWER IND.	RF BINOC. CHOCKE	
18	1	J1	MORSKB10PP0	MORS. LUMBERG F. CS 10P	MORSKB10PP0
19	1	D1	STPS10	RECTIFIER DIODE	DIDSTPS10
20	1	U1	L4970	SWITCHING REGULATOR	CILL4970
21	1	C11	N.C.	NOT CONNECTED	



BEXT INC. ®	DENOMINAZIONE Switching 1 Power Supply Component Layout / Piano di Montaggio		
	DISPOSITIVO		
SEMILAVORATO	DISEGNATO	DISEGNO	
MATERIALE	D'Alessio D. li		
TRATTAMENTO	SCALA	TAVOLA n 1 di 1	

MONO/MPX CARD

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 104</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 105</i>
<i>3</i>	<i>Component Layout</i>	<i>Pag. 108</i>

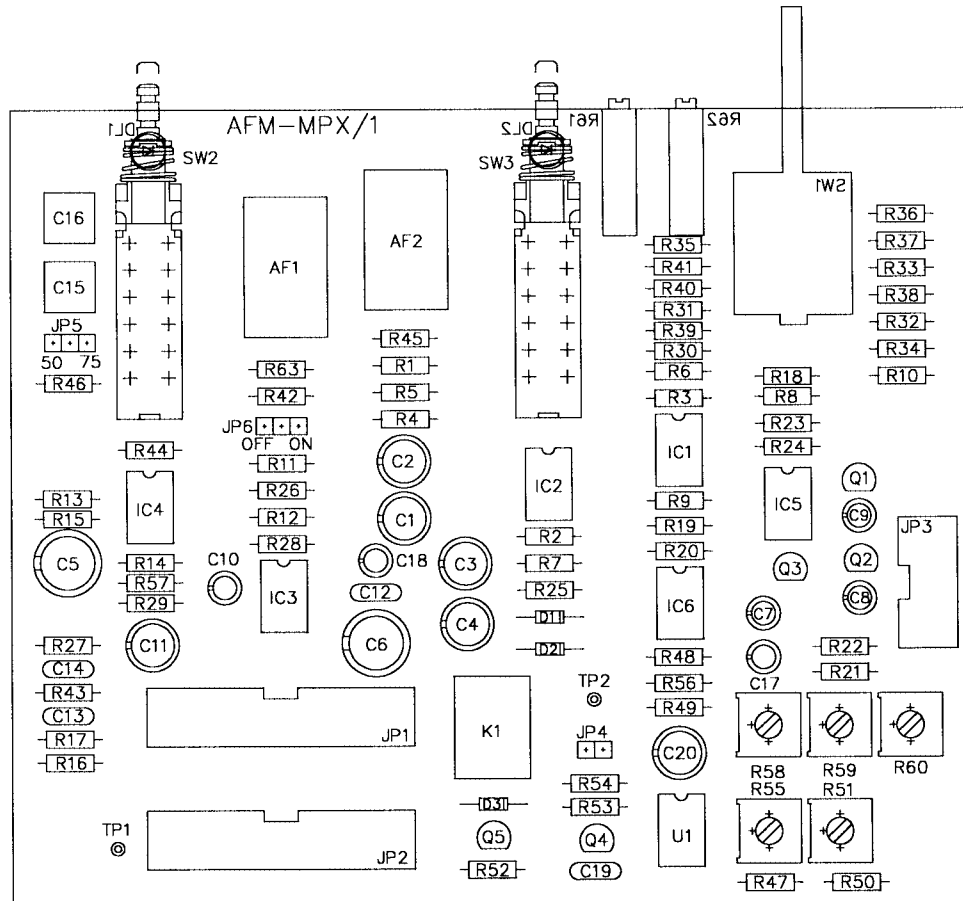


BEXT Inc. S.r.l. (Bo)	
Title	Mono/Mpx Card Circuit Diagram
Size	Document Number
REV	REV
Date	October 25, 1995 Sheet 1 of 1

Mono/MPX Card			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	1	R53	47 1%	RESISTOR 1/4W 1%	RSM1/4FH0047
2	1	R16	100 1%	RESISTOR 1/4W 1%	RSM1/4FH0100
3	1	R46	750 1%	RESISTOR 1/4W 1%	RSM1/4FH0750
4	1	R63	1K2 1%	RESISTOR 1/4W 1%	RSM1/4FK01, 2
5	2	R30, R36	1K78 1%	RESISTOR 1/4W 1%	RSM1/4FK1, 78
6	4	R6, R18, R37, R39	2K49 1%	RESISTOR 1/4W 1%	RSM1/4FK2, 49
7	1	R44	2K80 1%	RESISTOR 1/4W 1%	RSM1/4FK2, 80
8	1	R45	4K64 1%	RESISTOR 1/4W 1%	RSM1/4FK4, 64
9	8	R4, R5, R9, R14, R25, R31, R33, R42	5K11 1%	RESISTOR 1/4W 1%	RSM1/4FK5, 11
10	1	R26	5K90 1%	RESISTOR 1/4W 1%	RSM1/4FK5, 90
11	2	R38, R40	7K15 1%	RESISTOR 1/4W 1%	RSM1/4FK7, 15
12	1	R12	7K50 1%	RESISTOR 1/4W 1%	RSM1/4FK7, 50
13	14	R15, R17, R20, R22, R24, R28, R29, R32, R41, R49, R52, R54, R56, R57	10K 1%	RESISTOR 1/4W 1%	RSM1/4FK0010
14	6	R2, R3, R7, R8, R34, R35	14K7 1%	RESISTOR 1/4W 1%	RSM1/4FK14, 7
15	1	R13	21K5 1%	RESISTOR 1/4W 1%	RSM1/4FK21, 5
16	2	R27, R43	22K 1%	RESISTOR 1/4W 1%	RSM1/4FK0022
17	1	R11	33K 1%	RESISTOR 1/4W 1%	RSM1/4FK0033
18	1	R48	56K 1%	RESISTOR 1/4W 1%	RSM1/4FK0056
19	1	R47	220K 1%	RESISTOR 1/4W 1%	RSM1/4FK0220
20	1	R50	330K	RESISTOR 1/4W 5%	RSC1/4JK0330
21	3	R19, R21, R23	470K 1%	RESISTOR 1/4W 1%	RSC1/4FK0470
22	2	R1, R10	1M 1%	RESISTOR 1/4W 1%	RSM1/4FM0001

Mono/MPX Card			Bill Of Materials		Page 2
Item	Quantity	Reference	Part	Description	Part Order Code
23	3	R58, R59, R60	TC50K	TRIM. REG. VERT. CERMET	RVTCERVK0050
24	2	R51, R55	TC100K	TRIM. REG. VERT. CERMET	RVTCERVK0100
25	2	R61, R62	TM20K	TRIM. MULT. REG. VERT.	RVTMULVK0020
26	1	C15	2n2P 1%	POLYESTER CAPACITOR	CPE222BF63
27	1	C16	3n3P 1%	POLYESTER CAPACITOR 1%	CPE332BF101
28	4	C12, C13,	0.1μF	CERAMIC CAPACITOR	CKM104BK600P
29	3	C7, C8, C9	2.2μFT	TANTALIUM CAPACITOR	CET225AM350
30	3	C10, C11, C18	10μF	ELECTROLYTIC CAPACITOR	CEA106AM350
31	1	C17	47μF	ELECTROLYTIC CAPACITOR	CEA476BM630
32	4	C1, C3, C4, C20	100μF	ELECTROLYTIC CAPACITOR	CEA107BM350
33	1	C6	220μF	ELECTROLYTIC CAPACITOR	CEA227BM350
34	2	C2, C5	470μF	ELECTROLYTIC CAPACITOR	CEA477BM350
35	2	AF1, AF2	LPF19K	19KHZ LOW PASS FILTER	FLP19KHZ
36	2	TP1, TP2	1 PIN STRIP	STRIP M 1 PIN	CNTSTRIPMCS
37	1	JP4	2 PIN STRIP	STRIP M P 2.54 2 PIN	CNTSTRIPMCS
38	2	JP5, JP6	3 PIN STRIP	STRIP M P 2.54 3 PIN	CNTSTRIPMCS
39	1	JP3	10P CONN.	CONN. M 2*5 P 2.54	CNTMCSFC10P
40	2	JP1, JP2	26P CONN.	CONN. M 2*13 P 2.54	CNTMCSFC26P
41	1	K1	RLY 1V 12V	RELAY 1 VIA 12V	RLD112
42	1	SW1	SW2V6P	COMM. 2 VIE 6 POS FEME	COMR2V6PCS
43	3	D1, D2, D3	1N4148	SILICON DIODE	DIS1N4148
44	1	Q5	BC547	NPN TRANSISTOR	TRNBC547
45	4	Q1, Q2, Q3, Q4	BC557	PNP TRANSISTOR	TRNBC557
46	2	IC5, IC6	LM393	DOUBLE COMPARATOR	CILLM393

<i>Mono/MPX Card</i>			<i>Bill Of Materials</i>		<i>Page 3</i>
<i>Item</i>	<i>Quantity</i>	<i>Reference</i>	<i>Part</i>	<i>Description</i>	<i>Part Order Code</i>
47	4	IC1, IC2, IC3, IC4	LF353	DOUBLE OP. AMP.	CILLF353
48	1	U1	NE555	TIMER	CIL555
49	2	SW2, D4	N.C.	NOT CONNECTED	



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DENOMINAZIONE
Mono/MPX Card Component Layout / Piano di Montaggio
DISPOSITIVO

SEMILAVORATO

MATERIALE

TRATTAMENTO

DISEGNATO
D'Alessio D. li

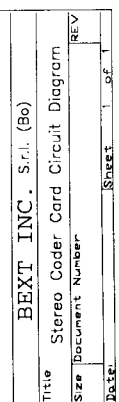
SCALA

DISEGNO

TAVOLA n di

STEREO CODER CARD

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 110</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 111</i>
<i>3</i>	<i>Component Layout</i>	<i>Pag. 115</i>

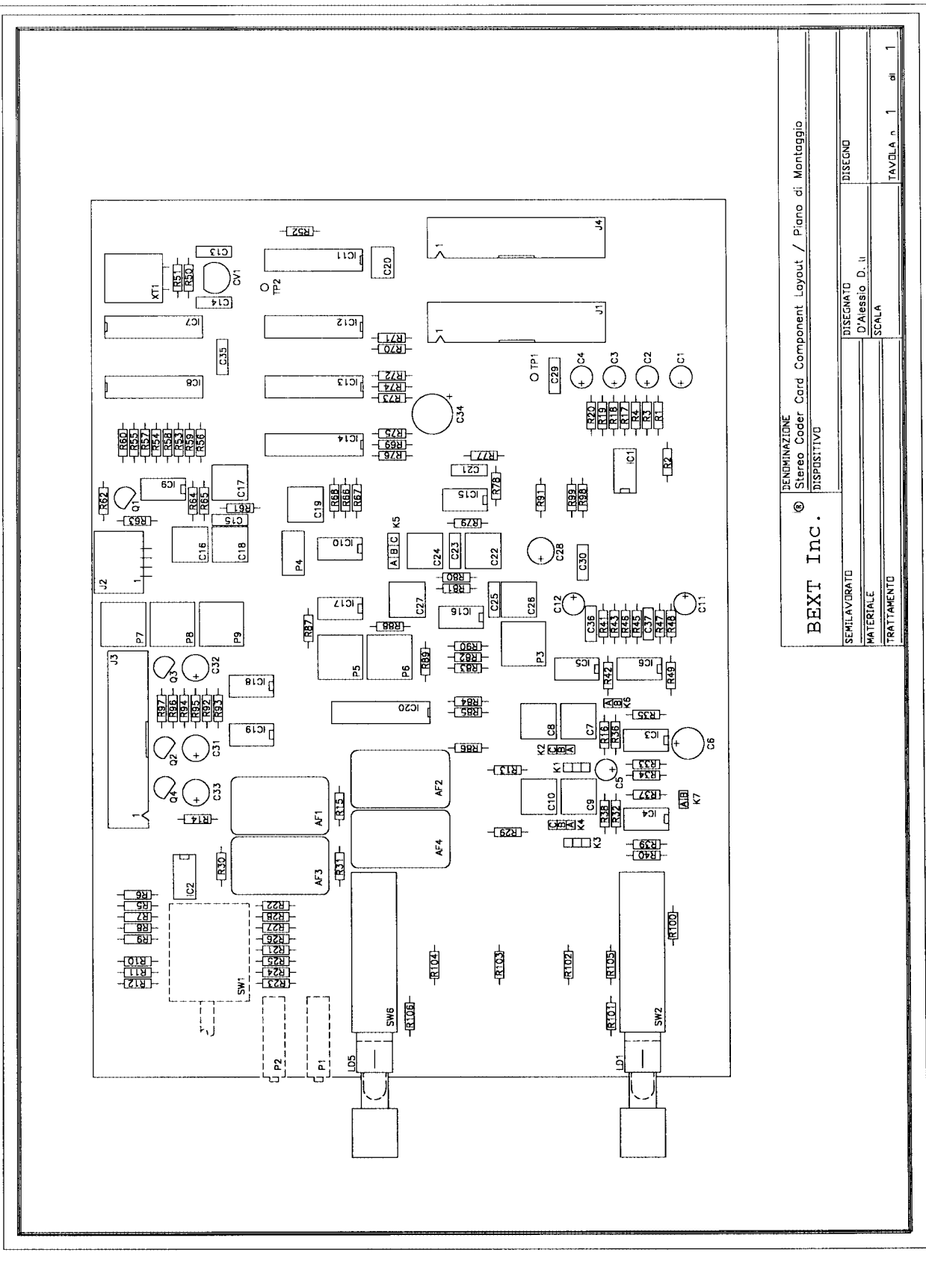


Stereo Coder Card			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	1	R98	100	RESISTOR 1/4W 5%	RSC1/4JH0100
2	5	R46, R47, R101, R105, R106	200 1%	RESISTOR 1/4W 1%	RSC1/4FH0200
3	1	R51	330	RESISTOR 1/4W 5%	RSC1/4JH0330
4	2	R78, R79	464 1%	RESISTOR 1/4W 1%	RSM1/4FH0464
5	1	R87	499 1%	RESISTOR 1/4W 1%	RSM1/4FH0499
6	2	R36, R38	750 1%	RESISTOR 1/4W 1%	RSM1/4FH0750
7	1	R100	1K	RESISTOR 1/4W 5%	RSC1/4JK0001
8	1	R45	1K13 2%	RESISTOR 1/4W 2%	RSM1/4GK1, 13
9	4	R12, R28, R80, R81	1K78 1%	RESISTOR 1/4W 1%	RSM1/4FK1, 78
10	5	R5, R11, R21, R27, R85	2K49 1%	RESISTOR 1/4W 1%	RSM1/4FK2, 49
11	6	R62, R63, R64, R65, R66, R67	3K83 1%	RESISTOR 1/4W 1%	RSC1/4FK3, 83
12	1	R84	4K42 1%	RESISTOR 1/4W 1%	RSM1/4FK4, 42
13	2	R14, R30	4K64 1%	RESISTOR 1/4W 1%	RSM1/4FK4, 64
14	10	R3, R4, R10, R19, R20, R26, R39, R40, R86, R90	5K11 1%	RESISTOR 1/4W 1%	RSM1/4FK5, 11
15	2	R13, R29	5K90 1%	RESISTOR 1/4W 1%	RSM1/4FK5, 90
16	2	R9, R25	7K15 1%	RESISTOR 1/4W 1%	RSM1/4FK7, 15
17	2	R16, R32	7K50 1%	RESISTOR 1/4W 1%	RSM1/4FK7, 50
18	1	R88	9K09 1%	RESISTOR 1/4W 1%	RSM1/4FK9, 09
19	9	R8, R24, R33, R34, R41, R48, R92, R94, R96	10K0 1%	RESISTOR 1/4W 1%	RSC1/4FK10, 0
20	1	R99	10K	RESISTOR 1/4W 5%	RSC1/4JK0010
21	1	R77	12K7 1%	RESISTOR 1/4W 1%	RSM1/4FK12, 7

Stereo Coder Card			Bill Of Materials		Page 2
Item	Quantity	Reference	Part	Description	Part Order Code
22	6	R1, R2, R7, R17, R18, R23	14K7 1%	RESISTOR 1/4W 1%	RSM1/4FK14, 7
23	1	R52	15K	RESISTOR 1/4W 5%	RSC1/4JK0015
24	2	R42, R49	17K8 1%	RESISTOR 1/4W 1%	RSC1/4FK17, 8
25	1	R68	20K0 1%	RESISTOR 1/4W 1%	RSM1/4FK20, 0
26	2	R35, R37	21K5 1%	RESISTOR 1/4W 1%	RSM1/4FK21, 5
27	2	R82, R83	24K9 1%	RESISTOR 1/4W 1%	RSM1/4FK24, 9
28	2	R15, R31	33K	RESISTOR 1/4W 5%	RSC1/4JK0033
29	1	R89	40K2 1%	RESISTOR 1/4W 1%	RSM1/4FK40, 2
30	1	R91	47K	RESISTOR 1/4W 5%	RSC1/4JK0047
31	4	R56, R57, R72, R73	64K9 1%	RESISTOR 1/4W 1%	RSM1/4FK64, 9
32	4	R55, R58, R71, R74	75K0 1%	RESISTOR 1/4W 1%	RSM1/4FK75, 0
33	1	R50	100K	RESISTOR 1/4W 5%	RSC1/4JK0100
34	4	R54, R59, R70, R75	115K 1%	RESISTOR 1/4W 1%	RSM1/4FK0115
35	2	R43, R61	150K	RESISTOR 1/4W 5%	RSC1/4JK0150
36	4	R53, R60, R69, R76	324K 1%	RESISTOR 1/4W 1%	RSM1/4FK0324
37	3	R93, R95, R97	470K	RESISTOR 1/4W 5%	RSC1/4JK0470
38	2	R6, R22	1M	RESISTOR 1/4W 5%	RSC1/4JM0001
39	1	P5	TC1K	TRIMM.REG.VERT. CERMET	RVTCERVK0001
40	2	P3, P6	TC20K	TRIMM.REG.VERT. CERMET	RVTVERVK0020
41	3	P7, P8, P9	TC50K	TRIMM.REG. VERT. CERMET	RVTCERVK0050
42	2	P1, P2	M20K	TRIMMER MULTIGIRI	RVTMULAK0020
43	1	P4	TM5K	TRIMM.MULT.REG. VERT.	RVTMULVK0005
44	1	CV1	T8pF	TRIMMER CAPACITOR	CVC080CK600
45	1	C14	8p2	CERAMIC CAPACITOR NP0	CKM8, 2BJ600C

Stereo Coder Card			Bill Of Materials		Page 3
Item	Quantity	Reference	Part	Description	Part Order Code
46	1	C23	27pF	CERAMIC CAPACITOR NP0	CKM270BJ600C
47	3	C13, C21, C25	47PF	CERAMIC CAPACITOR NP0	CKM470BJ600C
48	2	C36, C37	68pF	CERAMIC CAPACITOR NP0	CKM680BJ600C
49	1	C27	100pFP 1%	POLYESTER CAPACITOR 1%	CPE101BF63
50	2	C18, C19	150pFP 1%	POLYESTER CAPACITOR 1%	CPE151BF63
51	3	C16, C24, C26	1nFP 1%	POLYESTER CAPACITOR 1%	CPE102BF63
52	1	C22	1n5FP 1%	POLYESTER CAPACITOR 1%	CPE152BF63
53	2	C7, C9	2n2P 1%	POLYESTER CAPACITOR	CPE222BF63
54	1	C17	2n7P 1%	POLYESTER CAPACITOR 1%	CPE272BF63
55	2	C8, C10	3n3P 1%	POLYESTER CAPACITOR 1%	CPE332BF101
56	4	C15, C20, C29, C30	0.1uF	CERAMIC CAPACITOR	CKM104BK600P
57	1	C35	0.47uF	POLYESTER CAPACITOR	CPE474EK101
58	3	C31, C32, C33	2.2uF	ELECTROLYTIC CAPACITOR	CEA225AM630
59	1	C5	10uF	ELECTROLYTIC CAPACITOR	CEA106AM350
60	7	C1, C2, C3, C4, C6, C11, C12	100uF	ELECTROLYTIC CAPACITOR	CEA107BM350
61	2	C28, C34	220uF	ELECTROLYTIC CAPACITOR	CEA227BM350
62	4	AF1, AF2, AF3, AF4	LPF19K	LOW PASS FILTER 19KHZ	FLP19KHZ
63	2	TP1, TP2	1 P STRIP	STRIP M 1 PIN	CNTSTRIPMCS
64	2	K6, K7	2 P STRIP	STRIP M P 2.54 2 PIN	CNTSTRIPMCS
65	5	K1, K2, K3, K4, K5	3 P STRIP	STRIP M P 2.54 3 PIN	CNTSTRIPMCS
66	1	J2	4 P STRIP	STRIP M P 2.54 4 PIN	CNTSTRIPMCS
67	3	J1, J4, J6	26 P CONN.	CONN. M 2*13 P 2.54	CNTMCSFC26P
68	1	XT1	Q9.728MHZ	CRYSTAL	QRZ9, 728HC18

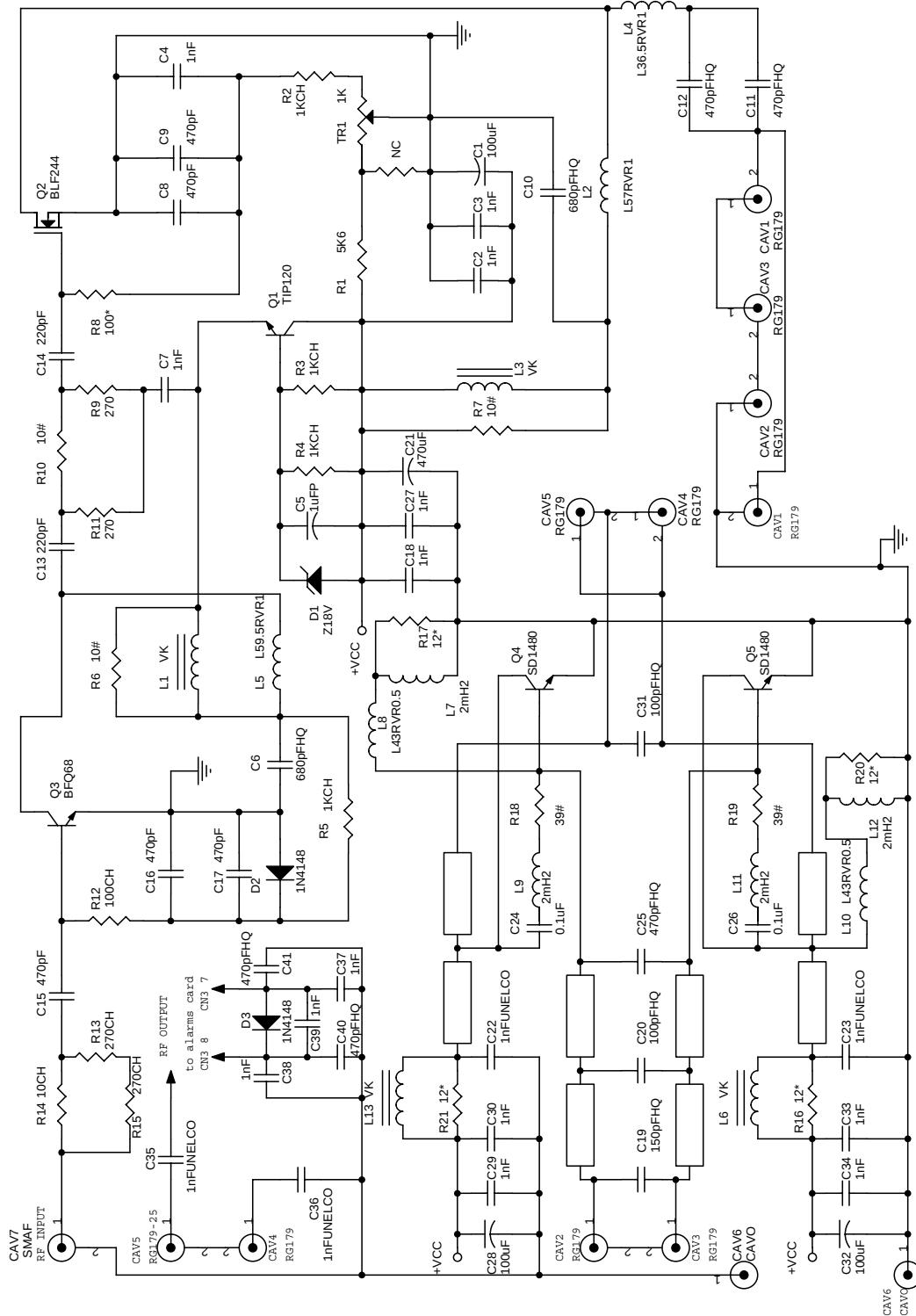
Stereo Coder Card			Bill Of Materials		Page 4
Item	Quantity	Reference	Part	Description	Part Order Code
69	1	SW1	SW2V6P	COMMUTATORE 2V 6P FEME	COMR2V6PCS
70	2	SW2, SW6	SWSPDT-4	COMMUTATORE 4V 2P	COMR4V2PCS
71	2	LD1, LD5	LED-G5	GREEN LED DIODE	LEDVE05
72	3	Q2, Q3, Q4	BC557	PNP TRANSISTOR	TRNBC557
73	1	Q1	MPF4393	JFET SWITCH. N-CHANNEL	TRNMPF4393
74	2	IC18, IC19	LM393	DOUBLE COMPARATOR	CILLM393
75	8	IC1, IC2, IC3, IC4, IC9, IC10, IC15, IC16	LF353	DOUBLE OP. AMP.	CILLF353
76	3 IC17	IC5, IC6,	LF356	JPFET IN. OP. AMPLIFIER	CILLF356
77	2	IC8, IC11	4015	SHIFT REGISTER	CID4015
78	4	IC12, IC13, IC14, IC20	4053	TRIPLE 2CH ANAL.MULTIP.	CID4053
79	1	IC7	4060	CMOS BIN DIVIDER	CID4060
80	3	R102, R103, R104	WIRE	COLLEGAMENTO A FILO	FILO



BEXT Inc.		DENOMINAZIONE Stereo Coder Card Component Layout / Piano di Montaggio	
SEMILAVORATO		DISPOSITIVO	
MATERIALE		DISEGNATO D'Alessio D. II	
TRATTAMENTO		SCALA	
		TAVOLA n. 1 di 1	

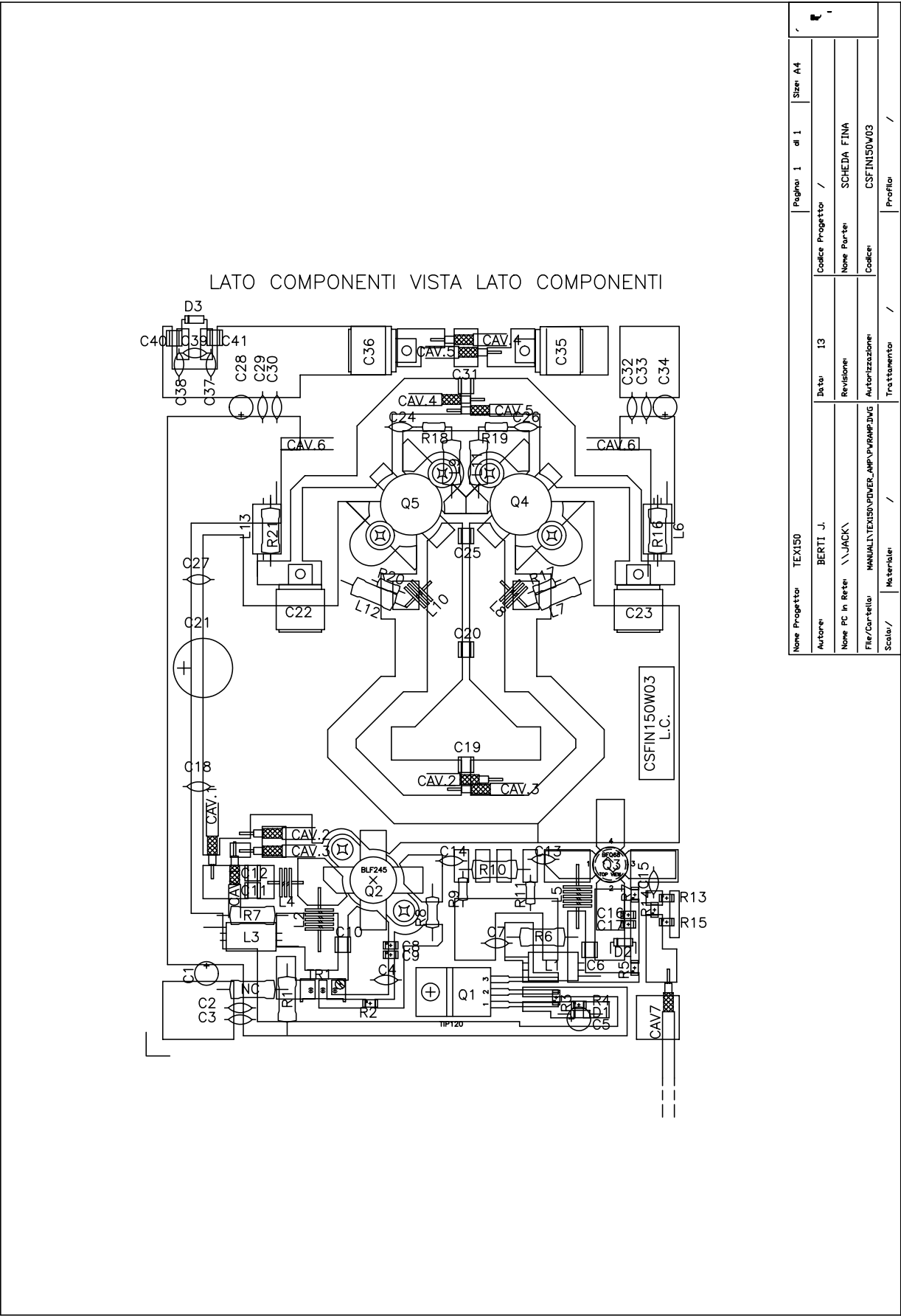
R.F. POWER AMPLIFIER

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 117</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 118</i>
<i>3</i>	<i>Coponent Layout</i>	<i>Pag. 119</i>



Nome Progetto: TEX150		Pagina: 1 di 1		Size: A4
Autore:	BERTI J.	Data:	23/01/01	Codice Progetto: /
Nome PC in Rete: ILJACKI		Revisione:	1.0	Nome Parte: SCHEDA FINALE TEX150
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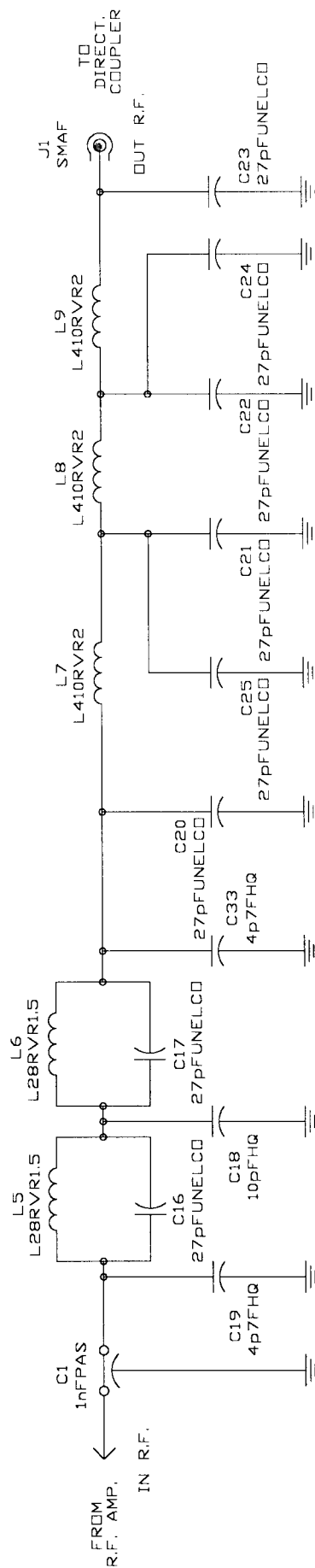
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1	1	CAV1	RG179	CAVO SCHERMATO 250hm 23cm	
2	2	CAV2, CAV3	RG179	CAVO SCHERMATO 250hm 13cm	
3	2	CAV4, CAV5	RG179	CAVO SCHERMATO 250hm 24cm	
4	1	CAV6	CAVO	CAVO DIA 1.5 11.5cm	
5	1	CAV7	SMAF	CONN. SMA F TELAIO	
7	3	C1, C28, C32	100UF	ELECTROLYTIC CAPACITOR	
8	13	C2, C3, C4, C7, C18, C27, C29, C30, C33, C34, C37, C38, C39	1nf	CERAMIC CAPACITOR	
9	1	C5	1uFT	TANATALIUM CAPACITOR	
10	2	C6, C10	680pFHQ	HIGH Q CAPACITOR ATC	
11	4	C8, C9, C16, C17	470pF		
13	5	C11, C12, C25, C40, C41	470pFHQ	HIGH Q CAPACITOR ATC	
14	2	C13, C14	220pF	CERAMIC CAPACITOR NP0	
16	1	C15	470pF	CERAMIC CAPACITOR	
17	1	C19	150pFHQ	HIGH Q CAPACITOR ATC	
18	2	C20, C31	100pFHQ	HIGH Q CAPACITOR ATC	
19	1	C21	470uF	ELECTROLYTIC CAPACITOR	
20	4	C22, C23, C35, C36	1nFUNELCO	SILVER MICA CAPACITOR	
21	2	C26, C24	0.1uF	CERAMIC CAPACITOR	
24	1	D1	Z18V	ZENER DIODE 18V 0.4W	
25	2	D2, D3	1N4148	SILICON DIODE	
26	4	L1, L3, L6, L13	VK	RF CHOKE	
27	1	L2	L57RVR1	5SP DIA7 RAME AR 1mm	
28	1	L4	L36.5RVR1	3SP DIA6.5 RAME AR 1mm	
29	1	L5	L59.5RVR1	5SP DIA9.5 RAME AR 1mm	
30	4	L7, L9, L11, L12	2mH2	IMPEDENZA	
31	2	L10, L8	L43RVR0.5	4 SP DIA3 RAME SM 0.5mm	
32	1	NC	N.C.	NON CONNESSO	
33	1	Q1	TIP120	NPN DARLINGTON	
34	1	Q2	BLF244	TRANSISTOR BLF244	
35	1	Q3	BFQ68	NPN RF TRANSISTOR	
36	2	Q4, Q5	SD1480	RF POWER TRANSISTOR	
37	1	R1	5K6	RESISTOR 1/4W 5%	
38	4	R2, R3, R4, R5	1KCH	CHIP RESISTOR	
39	3	R6, R7, R10	10#	RESISTOR 2W	
40	1	R8	100*	RESISTOR 1/2W 5%	
41	2	R11, R9	270	RESISTOR 1/4W 5%	
42	1	R12	100CH	CHIP RESISTOR	
43	2	R15, R13	270CH	CHIP RESISTOR	
44	1	R14	10CH	CHIP RESISTOR	
45	4	R16, R17, R20, R21	12*	RESISTOR 1/2W 5%	
46	2	R19, R18	39#	RESISTOR 2W	
47	1	TR1	1K		



Nome Progetto	TEX150	Pagina	1	di	1	Size	A4
Autore	BERTI J.	Data	13	Codice Progetto	/	Nome Parte	SCHEDA FINA
Nome PC in Rete	\\JACK\	Revisione		Codice		Codice	CSFIN150W03
File/Caricella	MANUAL\TEX150\POWER_AMP\PRAMP.DWG	Autore		Trattamento	/	Profilo	/
Scala							

LOW PASS FILTER

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 121</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 122</i>
<i>3</i>	<i>Component Layout</i>	<i>Pag. 123</i>



BEXT Inc. S.r.l. (Bo)

Title Low Pass Filter Circuit Diagram

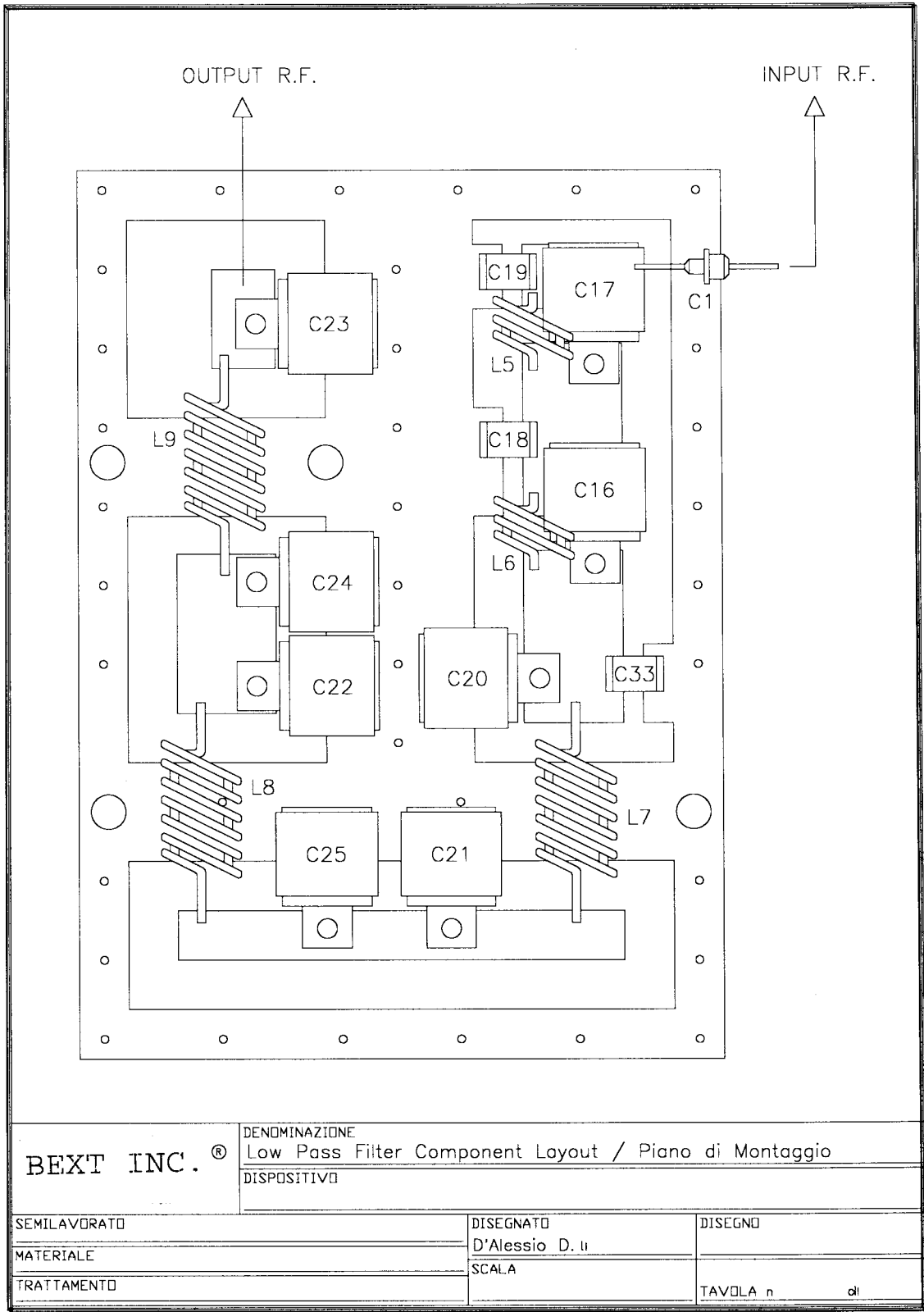
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Date: October 31, 1995 Sheet 1 of 1

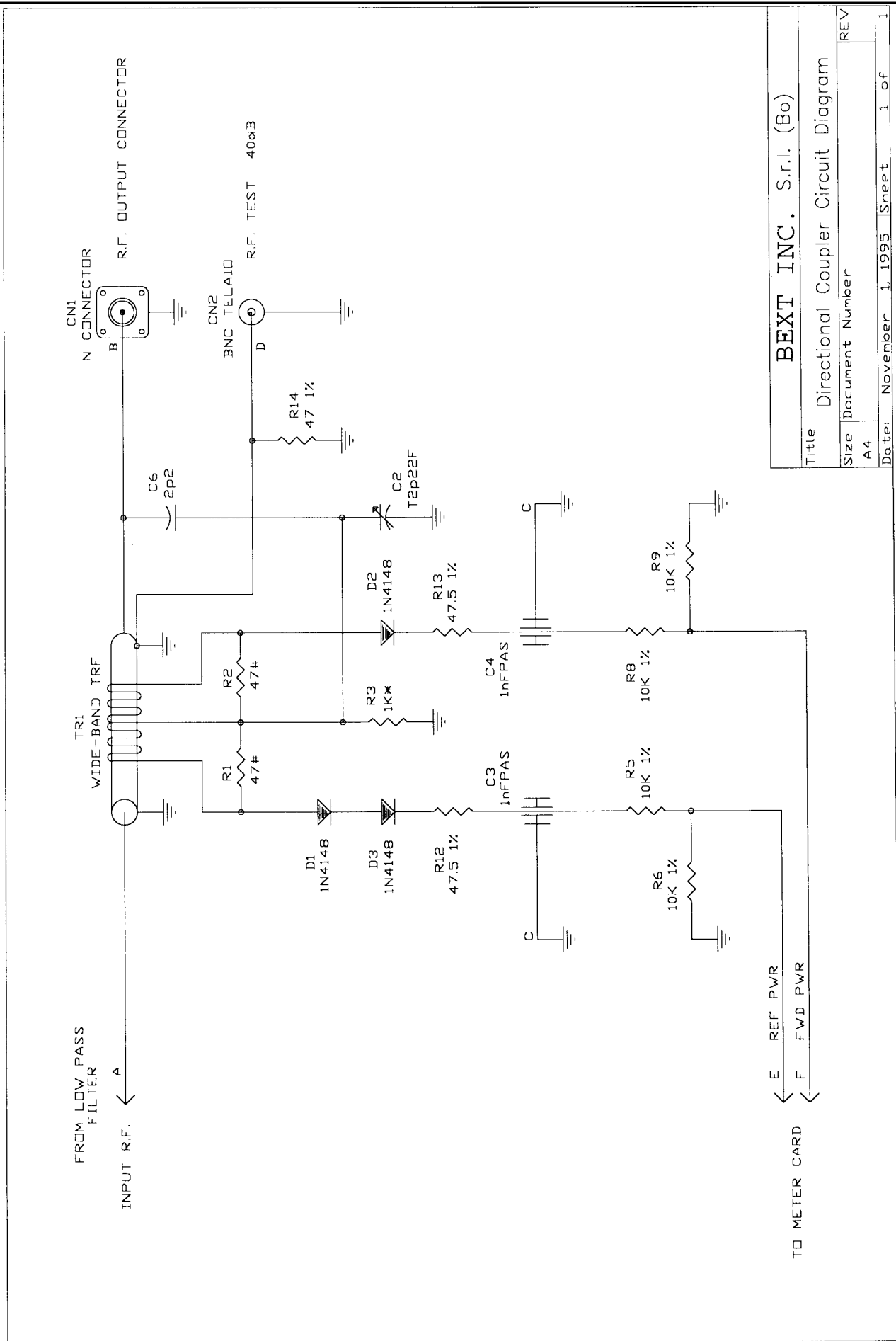
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Low Pass Filter			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	2	C19, C33	4p7FHQ	HIGHT Q CAPACITOR	CHQ4, 7AJ500
2	1	C18	10pFHQ	HIGHT Q CAPACITOR	CHQ100AJ500
3	8	C16, C17, C20, C21, C22, C23, C24, C25	27pFUNELCO	SILVER MICA CAPACITOR	CSM270XK351
4	1	C1	1nFPAS	CERAMIC THROUGH CAPAC.	CDP102XK500
5	2	L5, L6	L28RVR1.5	2SP D8 RAME ARG. 1.5mm	BFS15000208
6	3	L7, L8, L9	L410RVR2	4SP D10 RAME ARG. 2.0mm	BFS20000410
7	1	J1	SMAF	CONN. SMA F TELAI0	CNTSMAF



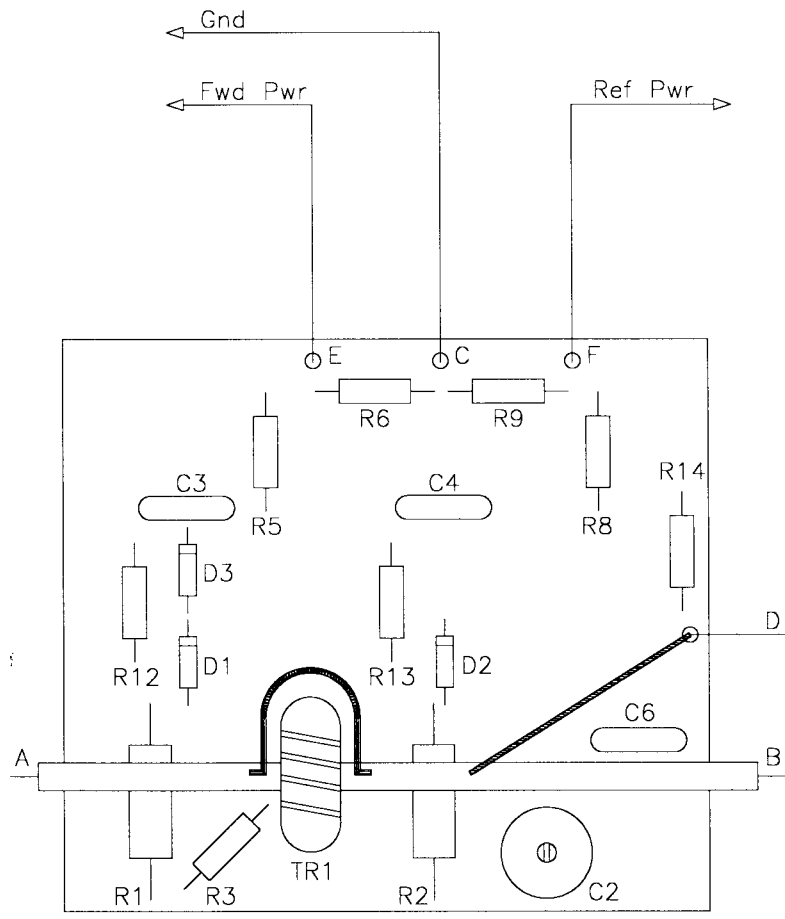
DIRECTIONAL COUPLER

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 125</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 126</i>
<i>3</i>	<i>Component Layout</i>	<i>Pag. 127</i>



BEXT INC. S.r.l. (Bo)	
Title Directional Coupler Circuit Diagram	
Size A4	Document Number REV
Date: November 1, 1995	Sheet 1 of 1

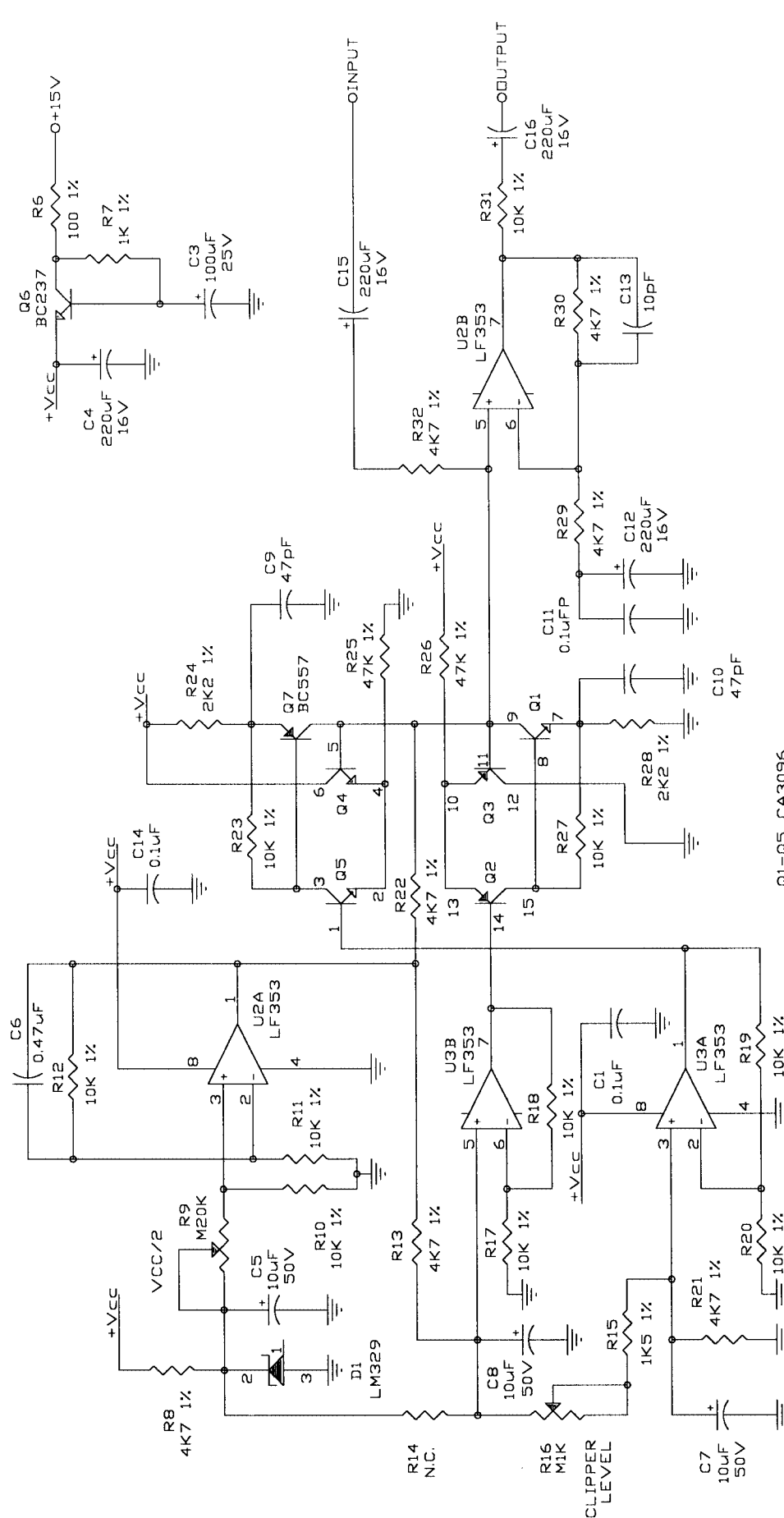
Directional Coupler			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	1	R14	47 1%	RESISTOR 1/4W 1%	RSM1/4FH0047
2	2	R1,R2	47#	RESISTOR 2W	RSC002JH0047
3	2	R12,R13	47.5 1%	RESISTOR 1/4W 1%	RSM1/4FH47.5
4	1	R3	1K*	RESISTOR 1/2W 5%	RSC1/2JK0001
5	4	R5,R6,R8,R9	10K 1%	RESISTOR 1/4W 1%	RSM1/4FK0010
6	1	C6	2p2	CERAMIC CAPACITOR NP0	CKM2,2BJ600C
7	1	C2	T2p22F	TRIMMER CAPACITOR	CVC2,22CK600
8	2	C3,C4	1nFPAS	CERAMIC THROUGH CAPAC.	CDP102XK500
9	1	CN2	BNC TELAI0	CONN. BNC A TELAI0	CNTBNCFPV
10	1	CN1	N CONNECTOR	CONN. N A TELAI0	CNTNFPFL
11	3	D1,D2,D3	1N4148	SILICON DIODE	DIS1N4148
12	1	TR1	WIDE-BAND TRF	WIDE-BAND TRANSFORMER	TRFWIDEBAND



BEXT INC.®	DENOMINAZIONE Directional Coupler Component Layout / Piano di Montaggio		
	DISPOSITIVO		
SEMILAVORATO	DISEGNATO D'Alessio D.11	DISEGNO	
MATERIALE	SCALA		
TRATTAMENTO		TAVOLA n	di

CLIPPER CARD

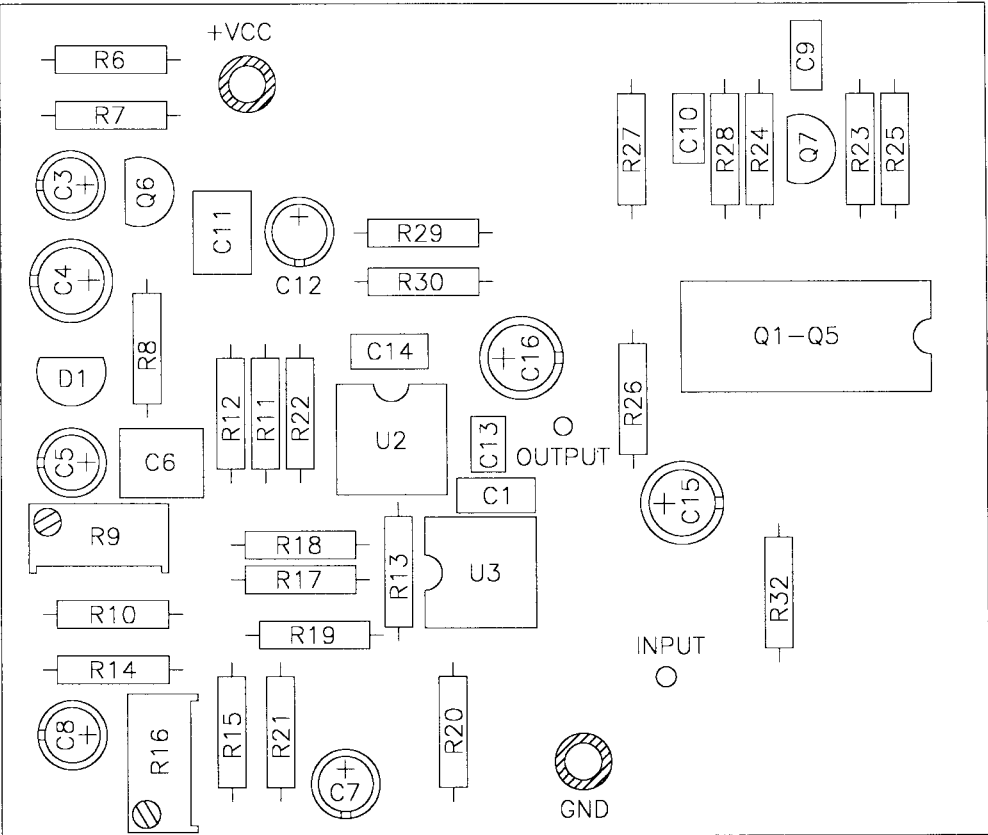
<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 129</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 130</i>
<i>3</i>	<i>Coponent Layout</i>	<i>Pag. 131</i>



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BEXT Inc. S.r.l. (Bo)	
Title	
Clipper Card Circuit Diagram	
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Date	October 17, 1994
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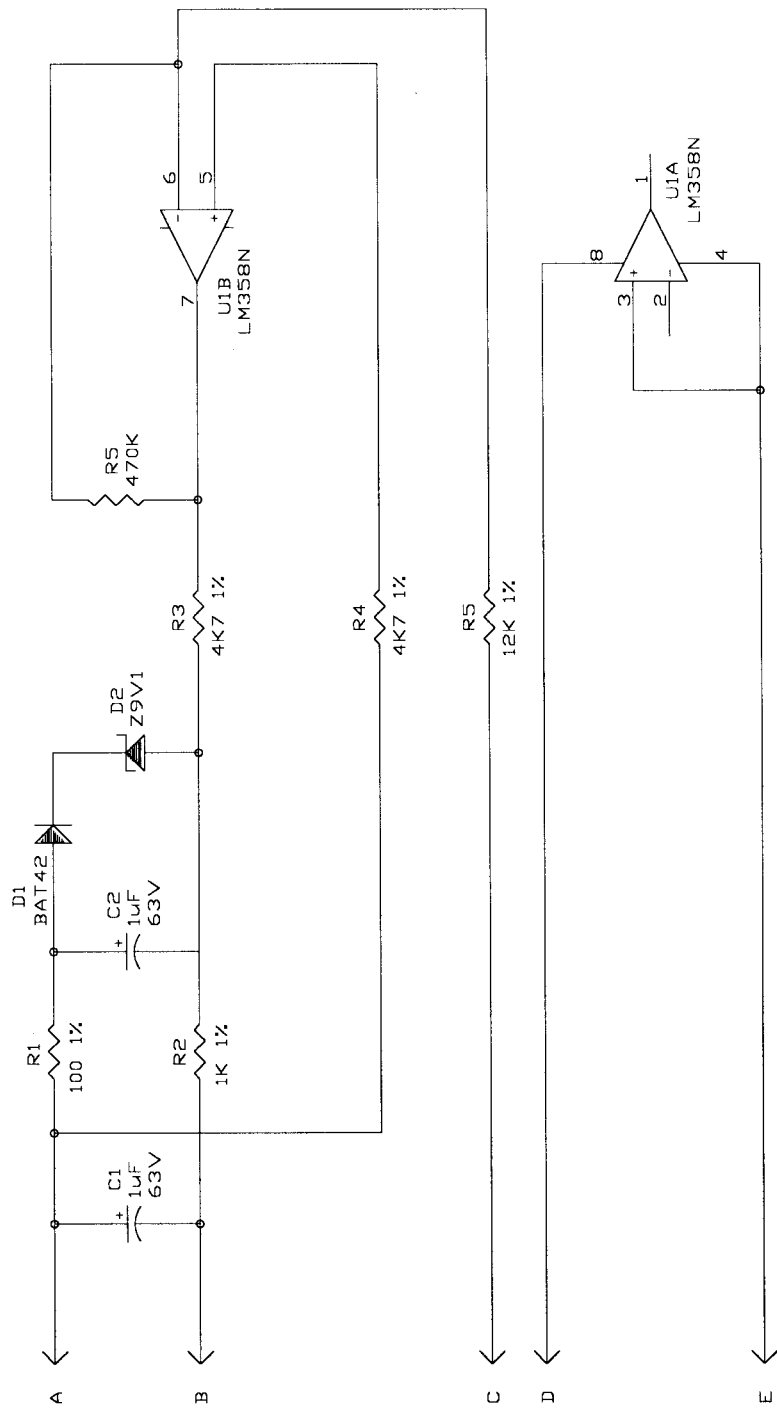
Clipper Card			Bill Of Materials		Page 2
Item	Quantity	Reference	Part	Description	Part Order Code
1	1	R6	100 1%	RESISTOR 1/4W 1%	RSM1/4FH0100
2	1	R7	1K 1%	RESISTOR 1/4W 1%	RSM1/4FK0001
3	1	R15	1K5 1%	RESISTOR 1/4W 1%	RSC1/4FK01, 5
4	2	R24, R28	2K2 1%	RESISTOR 1/4W 1%	RSC1/4FK02, 2
5	7	R8, R13, R21, R22, R29, R30, R32	4K7 1%	RESISTOR 1/4W 1%	RSM1/4FK04, 7
6	10	R10, R11, R12, R17, R18, R19, R20, R23, R27, R31	10K 1%	RESISTOR 1/4W 1%	RSM1/4FK0010
7	2	R25, R26	47K 1%	RESISTOR 1/4W 1%	RSM1/4FK0047
8	1	R16	M1K	TRIMMER MULTIGIRI	RVTMULAK0001
9	1	R9	M20K	TRIMMER MULTIGIRI	RVTMULAK0020
10	1	C13	10pF	CERAMIC CAPACITOR NP0	CKM100BJ600C
11	2	C9, C10	47pF	CERAMIC CAPACITOR NP0	CKM470BJ600C
12	2	C1, C14	0.1uF	CERAMIC CAPACITOR	CKM104BK600P
13	1	C11	0.1uFP	POLYESTER CAPACITOR	CPE104DK101
14	1	C6	0.47uF	POLYESTER CAPACITOR	CPE474EK101
15	3	C5, C7, C8	10uF	ELECTROLYTIC CAPACITOR	CEA106AM350
16	1	C3	100uF	ELECTROLYTIC CAPACITOR	CEA107BM350
17	4	C4, C12, C15, C16	220uF	ELECTROLYTIC CAPACITOR	CEA227BM350
18	5	Q1, Q2, Q3, Q4, Q5	CA3096	NPN/PNP TRANSIST. ARRAY	CILCA3096
19	1	D1	LM329	VOLT. PRECISION REFER.	CILLM329
20	1	Q6	BC237	NPN TRANSISTOR	TRNBC237
21	1	Q7	BC557	PNP TRANSISTOR	TRNBC557
22	2	U2, U3	LF353	DOUBLE OP. AMP.	CILLF353
23	1	R14	N.C.	NOT CONNECTED	



BEXT Inc.®	DENOMINAZIONE		
	Clipper Card Component Layout / Piano di Montaggio		
	DISPOSITIVO		
SEMILAVORATO	DISEGNATO		DISEGNO
MATERIALE	D'Alessio D. U		
TRATTAMENTO	SCALA		
	TAVOLA n		di

150PS2 CARD

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 133</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 134</i>
<i>3</i>	<i>Component Layout</i>	<i>Pag. 135</i>



BEXT Inc. S.r.l. (Bo)

Title

150PS2 Card Circuit Diagram

Size

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Document Number

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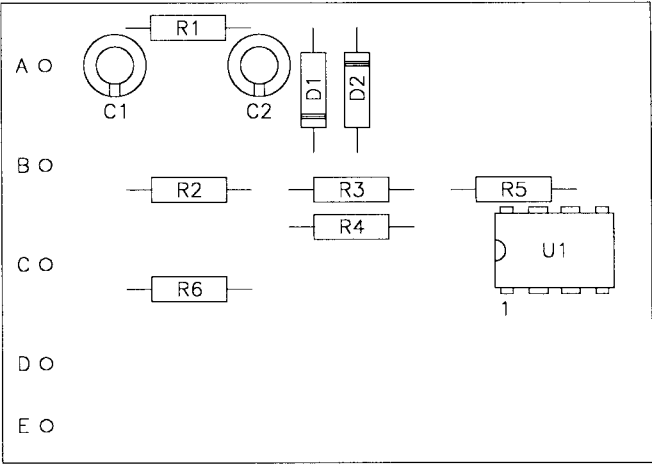
Date

July 6, 1996

Sheet

of

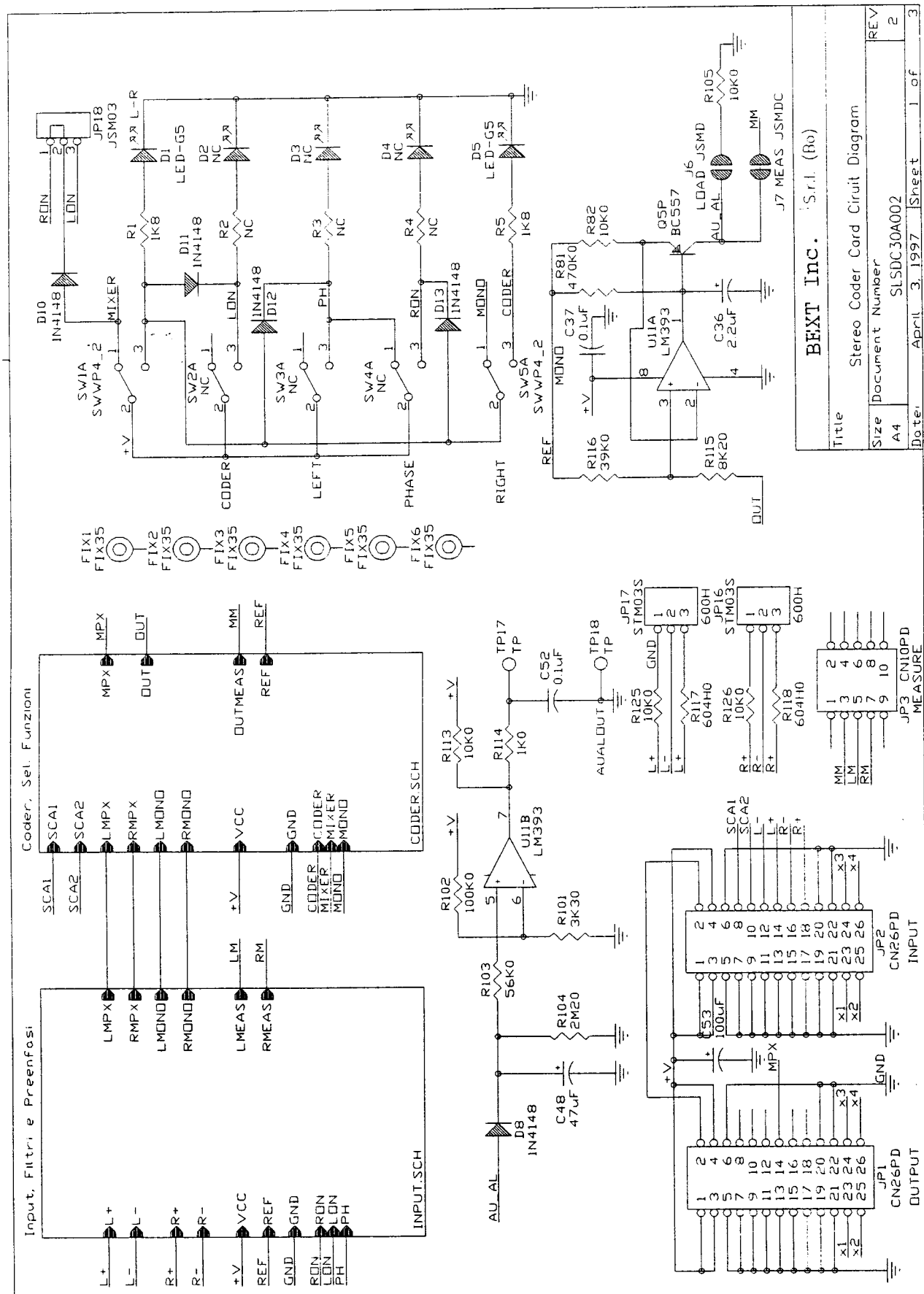
150PS2 Card			Bill Of Materials		Page 1
Item	Quantity	Reference	Part	Description	Part Order Code
1	1	R1	100 1%	RESISTOR 1/4W 1%	RSM1/4FH0100
2	1	R2	1K 1%	RESISTOR 1/4W 1%	RSM1/4FK0001
3	2	R3,R4	4K7 1%	RESISTOR 1/4W 1%	RSM1/4FK04, 7
4	1	R5	12K 1%	RESISTOR 1/4W 1%	RSM1/4FK0012
5	1	R5	470K	RESISTOR 1/4W 5%	RSC1/4JK0470
6	2	C1,C2	1μF	ELECTROLYTIC CAPACITOR	CEA105AM630
7	1	D1	BAT42	HOT CARRIER DIODE	DHCBAT42
8	1	D2	Z9V1	ZENER DIODE 9.1V 0.4W	DIZ9V10W4
9	1	U1	LM358N	DOUBLE OP. AMP.	CILLM358N

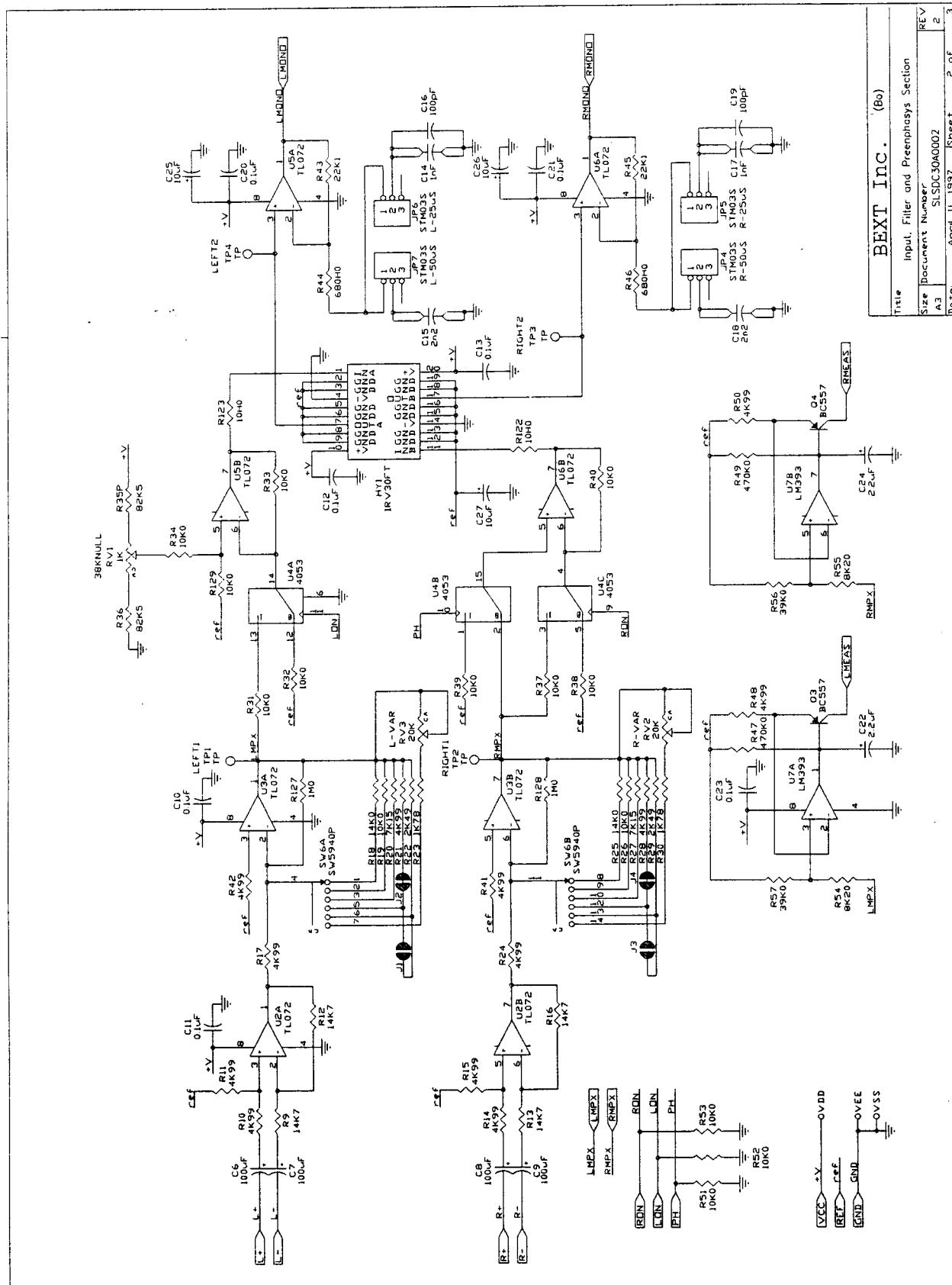


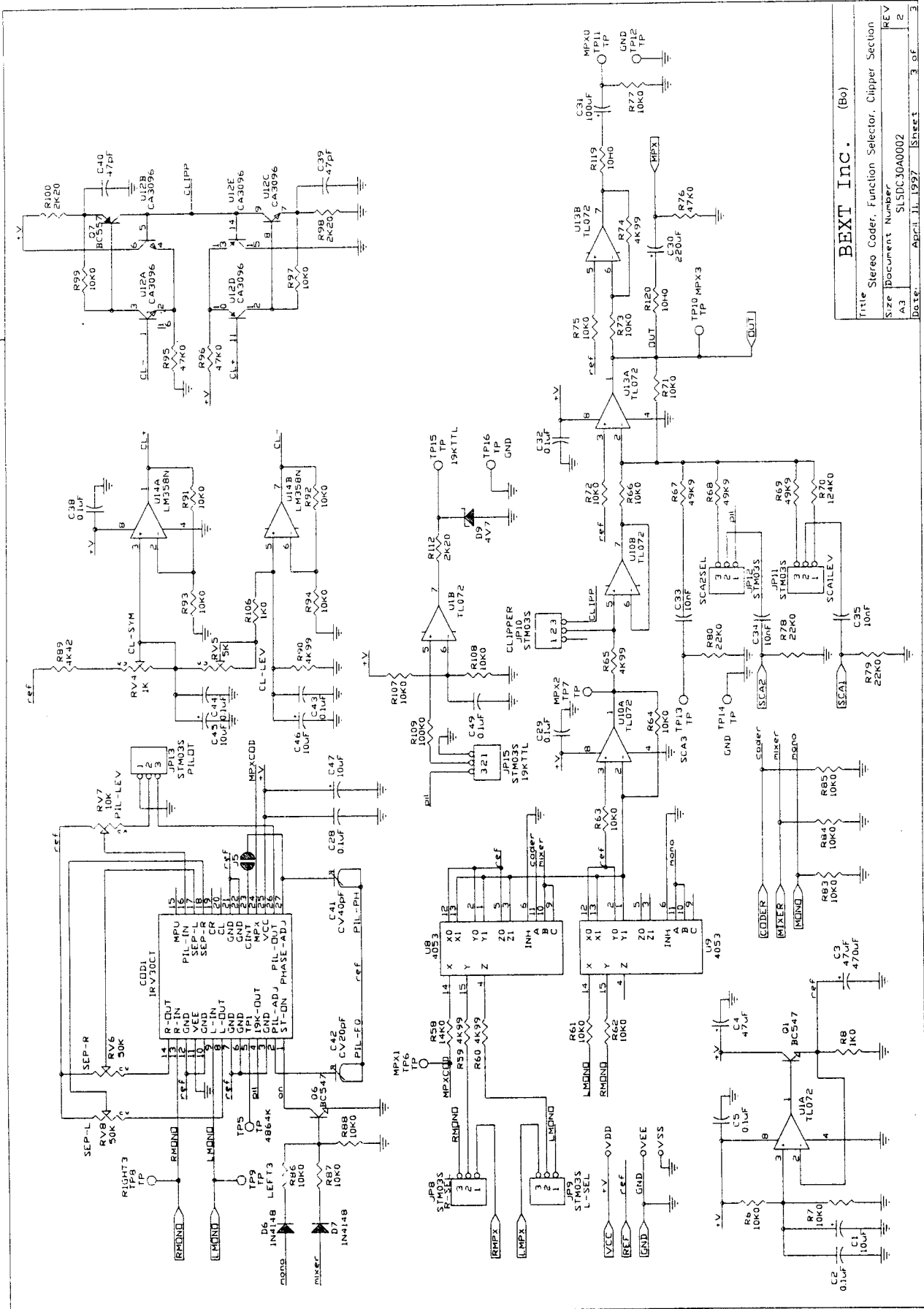
	DENOMINAZIONE 150PS2 Card Component Layout / Piano di Montaggio		
	DISPOSITIVO		
SEMILAVORATO	DISEGNATO D'Alessio D. ti	DISEGNO	
MATERIALE	SCALA	TAVOLA n di	
TRATTAMENTO			

STEREO CODER CARD (Mod. SDC30A002)

<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 137</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 140</i>
<i>3</i>	<i>Component Layout</i>	<i>Pag. 150</i>







BEXT INC. (Bo)	
Title	Stereo Decoder, Function Selector, Clipper Section
Size	Document Number
A3	SLSDC30A0002
Date	April 11, 1997
Sheet	3 of 3

Stereo Coder			Bill Of Materials	Page 1
Item	Reference	Part	Description	Part Order Code
1	CS1	CS	PC Board	CSSDC30A0002
2	R1	1K8	Res. 1/4 W 1%	RSM1/4FK01,8
3	R5	1K8	Res. 1/4 W 1%	RSM1/4FK01,8
4	R117	604H0	Res. 1/4 W 1%	RSM1/4FH0604
5	R118	604H0	Res. 1/4 W 1%	RSM1/4FH0604
6	D1	LED-G5	Led Green dia. 5mm	LEDVE05
7	D5	LED-G5	Led Green dia. 5mm	LEDVE05
8	D8	1N4148	Silicon Diode	DIS1N4148
9	C48	47uF	Electrolitic Cap.16V p. 2.5mm	CEA476AM160
10	R104	2M20	Res. 1/4 W 1%	RSM1/4FM02,2
11	R103	56K0	Res. 1/4 W 1%	RSM1/4FK0056
12	R114	1K0	Res. 1/4 W 1%	RSM1/4FK0001
13	R125	10K0	Res. 1/4 W 1%	RSM1/4FK0010
14	R126	10K0	Res. 1/4 W 1%	RSM1/4FK0010
15	JP17	STM03S	Strip M 2.54 3 pin.	CNTSTM03S
16	JP16	STM03S	Strip M 2.54 3 pin.	CNTSTM03S
17	JP2	CN26PD	Conn. M cs 2x2.54mm 26 pin.	CNTMCSFC26P
18	JP3	CN10PD	Conn. M cs 2x2.54mm 10 pin.	CNTMCSFC10P
19	JP1	CN26PD	Conn. M cs 2x2.54mm 26 pin.	CNTMCSFC26P
20	C52	0.1uF	Ceramic Capacitor p. 5mm P100	CKM104BK600P
21	SW1	SWWP4_2	Rotary Switch	SWWP4_2
22	SW5	SWWP4_2	Rotary Switch	SWWP4_2
23	C53	100uF	Electrolitic Cap 25V p. 2.5mm	CEA107AM250
24	SW2	NC	Not connected	
25	R2	NC	Not connected	
26	D2	NC	Not connected	
27	D3	NC	Not connected	

Stereo Coder			Bill Of Materials	Page 2
Item	Reference	Part	Description	Part Order Code
28	R3	NC	Not connected	
29	SW3	NC	Not connected	
30	SW4	NC	Not connected	
31	R4	NC	Not connected	
32	D4	NC	Not connected	
33	D10	1N4148	Silicon Diode	DIS1N4148
34	D11	1N4148	Silicon Diode	DIS1N4148
35	D12	1N4148	Silicon Diode	DIS1N4148
36	D13	1N4148	Silicon Diode	DIS1N4148
37	C37	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
38	R81	470K0	Res. 1/4 W 1%	RSM1/4FK0470
39	R82	10K0	Res. 1/4 W 1%	RSM1/4FK0010
40	R116	39K0	Res. 1/4 W 1%	RSM1/4FK0039
41	R115	8K20	Res. 1/4 W 1%	RSM1/4FK08, 2
42	R105	10K0	Res. 1/4 W 1%	RSM1/4FK0010
43	U11	LM393	IC linear	CILLM393
44	ZOC11	ZOC8	Socket 8 pin	ZIN08
45	R102	100K0	Res. 1/4 W 1%	RSM1/4FK0100
46	R101	3K30	Res. 1/4 W 1%	RSM1/4FK03, 3
47	C36	2.2uF	Electrolitic Cap.16V p. 2.5mm	CEA225AM160
48	R113	10K0	Res. 1/4 W 1%	RSM1/4FK0010
49	Q5P	BC557	Tr. in T0 92	TRNBC557
50	U2	TL072	IC linear	CILTTL072
51	ZOC2	ZOC8	Socket 8 pin	ZIN08
52	U5	TL072	IC linear	CILTTL072
53	ZOC5	ZOC8	Socket 8 pin	ZIN08
54	U6	TL072	IC linear	CILTTL072
55	ZOC6	ZOC8	Socket 8 pin	ZIN08

Stereo Coder			Bill Of Materials	Page 3
Item	Reference	Part	Description	Part Order Code
56	U3	TL072	IC linear	CILTL072
57	Z0C3	Z0C8	Socket 8 pin	ZIN08
58	U7	LM393	IC lineare	CILLM393
59	Z0C7	Z0C8	Socket 8 pin	ZIN08
60	C6	100uF	Electrolitic Cap.25V p. 2.5mm	CEA107AM250
61	C7	100uF	Electrolitic Cap.25V p. 2.5mm	CEA107AM250
62	R9	14K7	Res. 1/4 W 1%	RSM1/4FK14, 7
63	R10	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
64	R11	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
65	R12	14K7	Res. 1/4 W 1%	RSM1/4FK14, 7
66	C11	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
67	C10	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
68	R31	10K0	Res. 1/4 W 1%	RSM1/4FK0010
69	R33	10K0	Res. 1/4 W 1%	RSM1/4FK0010
70	C27	10uF	Electrolitic Cap.35V p. 2.5mm	CEA106AM350
71	C13	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
72	R44	680H0	Res. 1/4 W 1%	RSM1/4FH0680
73	R43	22K1	Res. 1/4 W 1%	RSM1/4FK22, 1
74	C14	1nF	Capacitor 1% p. 7mm	CPS102CF630
75	C16	100pF	Ceramic Cap. p. 5mm NP0	CKM101BK600C
76	C20	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
77	C25	10uF	Electrolitic Cap.35V p. 2.5mm	CEA106AM350
78	C26	10uF	Electrolitic Cap.35V p. 2.5mm	CEA106AM350
79	C21	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
80	R45	22K1	Res. 1/4 W 1%	RSM1/4FK22, 1
81	R46	680H0	Res. 1/4 W 1%	RSM1/4FH0680
82	C18	2.2nF	Capacitor 1% p. 7mm	CPS222CF630
83	C15	2.2nF	Capacitor 1% p. 7mm	CPS222CF630

Stereo Coder			Bill Of Materials	Page 4
Item	Reference	Part	Description	Part Order Code
84	C17	1nF	Capacitor 1% p. 7mm	CPS102CF630
85	C19	100pF	Ceramic Cap. p. 5mm NP0	CKM101BK600C
86	R40	10K0	Res. 1/4 W 1%	RSM1/4FK0010
87	R37	10K0	Res. 1/4 W 1%	RSM1/4FK0010
88	R39	10K0	Res. 1/4 W 1%	RSM1/4FK0010
89	R14	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
90	R15	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
91	R13	14K7	Res. 1/4 W 1%	RSM1/4FK14, 7
92	R16	14K7	Res. 1/4 W 1%	RSM1/4FK14, 7
93	C9	100uF	Electrolitic Cap.25V p. 2.5mm	CEA107AM250
94	C8	100uF	Electrolitic Cap.25V p. 2.5mm	CEA107AM250
95	R51	10K0	Res. 1/4 W 1%	RSM1/4FK0010
96	R52	10K0	Res. 1/4 W 1%	RSM1/4FK0010
97	R53	10K0	Res. 1/4 W 1%	RSM1/4FK0010
98	R57	39K0	Res. 1/4 W 1%	RSM1/4FK0039
99	R54	8K20	Res. 1/4 W 1%	RSM1/4FK08, 2
100	C22	2.2uF	Electrolitic Cap.16V p. 2.5mm	CEA225AM160
101	R47	470K0	Res. 1/4 W 1%	RSM1/4FK0470
102	C23	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
103	Q3	BC557	Tr. in T0 92	TRNBC557
104	R55	8K20	Res. 1/4 W 1%	RSM1/4FK08, 2
105	R56	39K0	Res. 1/4 W 1%	RSM1/4FK0039
106	R49	470K0	Res. 1/4 W 1%	RSM1/4FK0470
107	Q4	BC557	Tr. in T0 92	TRNBC557
108	C24	2.2uF	Electrolitic Cap.16V p. 2.5mm	CEA225AM160
109	R19	10K0	Res. 1/4 W 1%	RSM1/4FK0010
110	R20	7K15	Res. 1/4 W 1%	RSM1/4FK7, 15
111	R22	2K49	Res. 1/4 W 1%	RSM1/4FK2, 49

Stereo Coder			Bill Of Materials	Page 5
Item	Reference	Part	Description	Part Order Code
112	R23	1K78	Res. 1/4 W 1%	RSM1/4FK1, 78
113	R26	10K0	Res. 1/4 W 1%	RSM1/4FK0010
114	R27	7K15	Res. 1/4 W 1%	RSM1/4FK7, 15
115	R29	2K49	Res. 1/4 W 1%	RSM1/4FK2, 49
116	R30	1K78	Res. 1/4 W 1%	RSM1/4FK1, 78
117	C12	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
118	RV1	1K	Multi Turn Pot. 3296W rg V	RVTMTJVK0001
119	JP4	STM03S	Strip M 2.54 3 pin.	CNTSTM03S
120	JP5	STM03S	Strip M 2.54 3 pin.	CNTSTM03S
121	JP7	STM03S	Strip M 2.54 3 pin.	CNTSTM03S
122	R127	1M0	Res. 1/4 W 1%	RSM1/4FM0001
123	R128	1M0	Res. 1/4 W 1%	RSM1/4FM0001
124	SW6	SW5940P	Rotary Switch	SW5940P
125	U4	4053	IC digital	CID4053
126	Z0C4	Z0C16	Socket 16 pin	ZIN16
127	R38	10K0	Res. 1/4 W 1%	RSM1/4FK0010
128	R32	10K0	Res. 1/4 W 1%	RSM1/4FK0010
129	R17	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
130	R24	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
131	R41	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
132	R42	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
133	R21	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
134	R18	14K0	Res. 1/4 W 1%	RSM1/4FK0014
135	R25	14K0	Res. 1/4 W 1%	RSM1/4FK0014
136	R28	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
137	R48	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
138	R50	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
139	R123	10H0	Res. 1/4 W 1%	RSM1/4FH0010

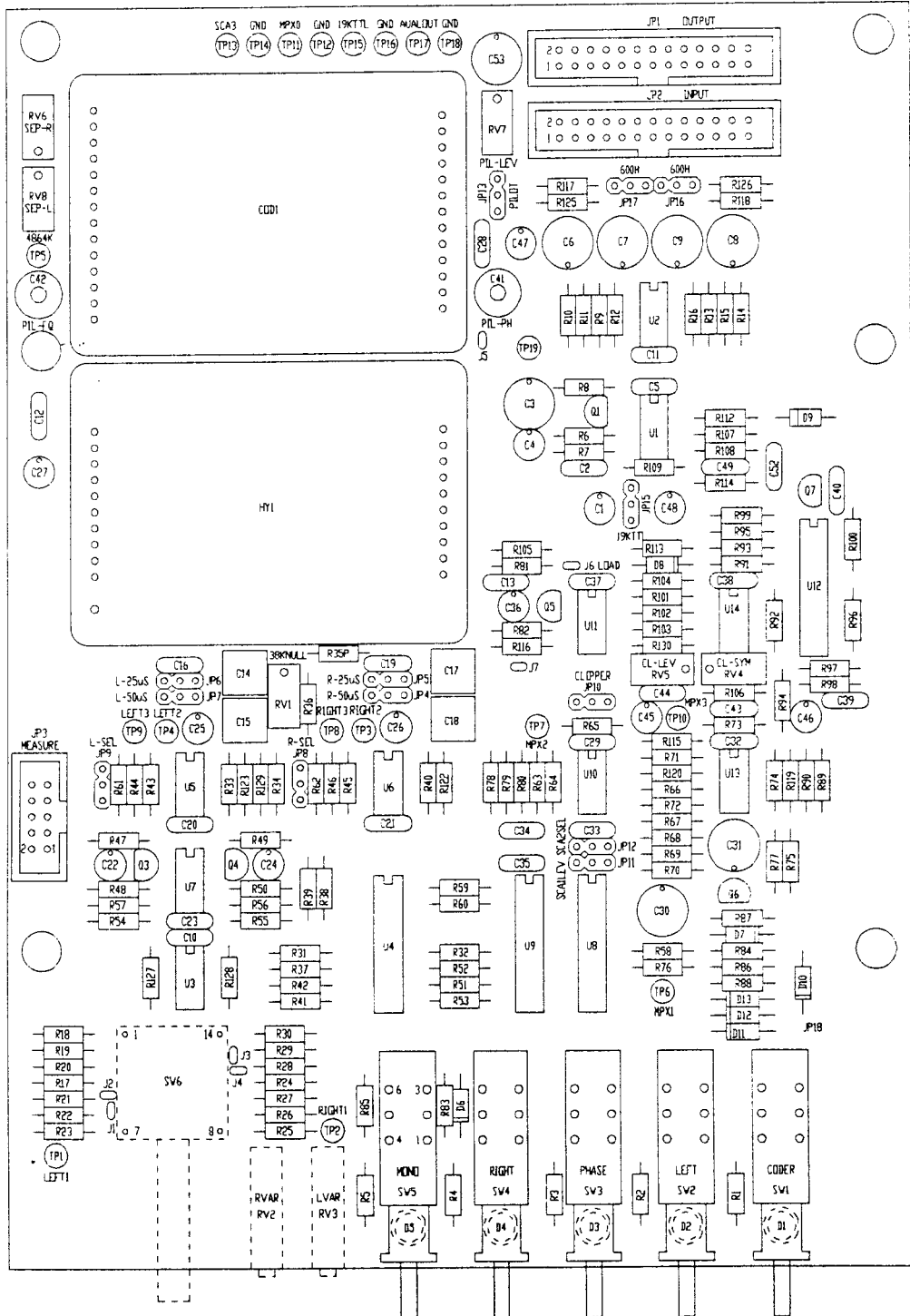
Stereo Coder			Bill Of Materials	Page 6
Item	Reference	Part	Description	Part Order Code
140	R122	10H0	Res. 1/4 W 1%	RSM1/4FH0010
141	JP6	STM03S	Strip M 2.54 3 pin.	CNTSTM03S
142	RV2	20K	Multi Turn Pot. rg H	RVTMTDHK0020
143	RV3	20K	Multi Turn Pot. rg H	RVTMTDHK0020
144	R34	10K0	Res. 1/4 W 1%	RSM1/4FK0010
145	R129	10K0	Res. 1/4 W 1%	RSM1/4FK0010
146	R36	82K5	Res. 1/4 W 1%	RSM1/4FK82,5
147	R35P	82K5	Res. 1/4 W 1%	RSM1/4FK82,5
148	HY1	IRV30FT	Code Filter IRV30FT	MIBIRV30FT
149	U8	4053	IC digital	CID4053
150	ZOC8	ZOC16	Socket 16 pin	ZIN16
151	U9	4053	IC digital	CID4053
152	ZOC9	ZOC16	Socket 16 pin	ZIN16
153	C30	220uF	Electrolitic Cap.16V p. 2.5mm	CEA227AM160
154	U12	CA3096	IC linear	CILCA3096
155	ZOC12	ZOC16	Socket 16 pin	ZIN16
156	U10	TL072	IC linear	CILTL072
157	ZOC10	ZOC8	Socket 8 pin	ZIN08
158	U13	TL072	IC linear	CILTL072
159	ZOC13	ZOC8	Socket 8 pin	ZIN08
160	U14	LM358N	IC linear	CILLM358N
161	ZOC14	ZOC8	Socket 8 pin	ZIN08
162	C47	10uF	Electrolitic Cap.35V p. 2.5mm	CEA106AM350
163	C28	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
164	Q6	BC547	Tr. in T0 92	TRNBC547
165	R88	10K0	Res. 1/4 W 1%	RSM1/4FK0010
166	R87	10K0	Res. 1/4 W 1%	RSM1/4FK0010
167	R86	10K0	Res. 1/4 W 1%	RSM1/4FK0010

Stereo Coder			Bill Of Materials	Page 7
Item	Reference	Part	Description	Part Order Code
168	D6	1N4148	Silicon Diode	DIS1N4148
169	D7	1N4148	Silicon Diode	DIS1N4148
170	R59	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
171	R60	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
172	R61	10K0	Res. 1/4 W 1%	RSM1/4FK0010
173	R62	10K0	Res. 1/4 W 1%	RSM1/4FK0010
174	R63	10K0	Res. 1/4 W 1%	RSM1/4FK0010
175	R64	10K0	Res. 1/4 W 1%	RSM1/4FK0010
176	C29	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
177	R65	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
178	R72	10K0	Res. 1/4 W 1%	RSM1/4FK0010
179	R66	10K0	Res. 1/4 W 1%	RSM1/4FK0010
180	C32	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
181	R71	10K0	Res. 1/4 W 1%	RSM1/4FK0010
182	R73	10K0	Res. 1/4 W 1%	RSM1/4FK0010
183	R75	10K0	Res. 1/4 W 1%	RSM1/4FK0010
184	R74	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
185	R119	10H0	Res. 1/4 W 1%	RSM1/4FH0010
186	C31	100uF	Electrolitic Cap.25V p. 2.5mm	CEA107AM250
187	R77	10K0	Res. 1/4 W 1%	RSM1/4FK0010
188	R120	10H0	Res. 1/4 W 1%	RSM1/4FH0010
189	R79	22K0	Res. 1/4 W 1%	RSM1/4FK0022
190	R78	22K0	Res. 1/4 W 1%	RSM1/4FK0022
191	R80	22K0	Res. 1/4 W 1%	RSM1/4FK0022
192	R67	49K9	Res. 1/4 W 1%	RSM1/4FK49, 9
193	R68	49K9	Res. 1/4 W 1%	RSM1/4FK49, 9
194	R69	49K9	Res. 1/4 W 1%	RSM1/4FK49, 9
195	R70	124K0	Res. 1/4 W 1%	RSM1/4FK0124

Stereo Coder			Bill Of Materials	Page 8
Item	Reference	Part	Description	Part Order Code
196	R83	10K0	Res. 1/4 W 1%	RSM1/4FK0010
197	R84	10K0	Res. 1/4 W 1%	RSM1/4FK0010
198	R85	10K0	Res. 1/4 W 1%	RSM1/4FK0010
199	C39	47pF	Ceramic Cap. p. 5mm NP0	CKM470BK600C
200	R98	2K20	Res. 1/4 W 1%	RSM1/4FK02, 2
201	R97	10K0	Res. 1/4 W 1%	RSM1/4FK0010
202	R96	47K0	Res. 1/4 W 1%	RSM1/4FK0047
203	R95	47K0	Res. 1/4 W 1%	RSM1/4FK0047
204	Q7	BC557	Tr. in TO 92	TRNBC557
205	C40	47pF	Ceramic Cap. p. 5mm NP0	CKM470BK600C
206	R100	2K20	Res. 1/4 W 1%	RSM1/4FK02, 2
207	C38	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
208	R91	10K0	Res. 1/4 W 1%	RSM1/4FK0010
209	R93	10K0	Res. 1/4 W 1%	RSM1/4FK0010
210	R92	10K0	Res. 1/4 W 1%	RSM1/4FK0010
211	R94	10K0	Res. 1/4 W 1%	RSM1/4FK0010
212	R90	4K99	Res. 1/4 W 1%	RSM1/4FK4, 99
213	C43	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
214	C46	10uF	Electrolitic Cap.35V p. 2.5mm	CEA106AM350
215	C45	10uF	Elecrtolitic Cap.35V p. 2.5mm	CEA106AM350
216	C44	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
217	R106	1K0	Res. 1/4 W 1%	RSM1/4FK0001
218	R89	4K42	Res. 1/4 W 1%	RSM1/4FK4, 42
219	R109	100K0	Res. 1/4 W 1%	RSM1/4FK0100
220	C49	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
221	R108	10K0	Res. 1/4 W 1%	RSM1/4FK0010
222	D9	4V7	Zener Diode 0.4 W	DIZ4V70W4
223	R76	47K0	Res. 1/4 W 1%	RSM1/4FK0047

Stereo Coder			Bill Of Materials	Page 9
Item	Reference	Part	Description	Part Order Code
224	JP13	STM03S	Strip M 2.54 3 pin.	CNTSTM03S
225	JP15	STM03S	Strip M 2.54 3 pin.	CNTSTM03S
226	JP10	STM03S	Strip M 2.54 3 pin.	CNTSTM03S
227	JP12	STM03S	Strip M 2.54 3 pin.	CNTSTM03S
228	JP11	STM03S	Strip M 2.54 3 pin.	CNTSTM03S
229	R99	10K0	Res. 1/4 W 1%	RSM1/4FK0010
230	R107	10K0	Res. 1/4 W 1%	RSM1/4FK0010
231	R112	2K20	Res. 1/4 W 1%	RSM1/4FK02, 2
232	R6	10K0	Res. 1/4 W 1%	RSM1/4FK0010
233	R7	10K0	Res. 1/4 W 1%	RSM1/4FK0010
234	C1	10uF	Electrolitic Cap.35V p. 2.5mm	CEA106AM350
235	C2	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
236	C5	0.1uF	Ceramic Cap. p. 5mm P100	CKM104BK600P
237	C4	47uF	Electrolitic Cap.16V p. 2.5mm	CEA476AM160
238	C3	47uF	Electrolitic Cap.16V p. 2.5mm	CEA476AM160
239	U1	TL072	IC linear	CILTTL072
240	ZOC1	ZOC8	Socket 8 pin	ZIN08
241	C33	10nF	Ceramic Cap. p. 5mm P100	CKM103BK600P
242	C34	10nF	Ceramic Cap. p. 5mm P100	CKM103BK600P
243	C35	10nF	Ceramic Cap. p. 5mm P100	CKM103BK600P
244	JP9	STM03S	Strip M 2.54 3 pin.	CNTSTM03S
245	JP8	STM03S	Strip M 2.54 3 pin.	CNTSTM03S
246	RV8	50K	Multi Turn Pot. 3296W rg V	RVTMTJVK0050
247	RV6	50K	Multi Turn Pot. 3296W rg V	RVTMTJVK0050
248	RV7	10K	Multi Turn Pot. 3296W rg V	RVTMTJVK0010
249	C41	40pF	Ceramic Cap. var. dia. 7mm	CVC400BK600
250	C42	20pF	Ceramic Cap. var. dia. 7mm	CVC200BK600

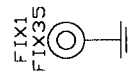
Stereo Coder		Bill Of Materials		Page	10
Item	Reference	Part	Description	Part Order Code	
251	RV4	1K	Multi Turn Pot.3296W rg V	RVTMTJVK0001	
252	RV5	5K	Multi Turn Pot.3296W rg V	RVTMTJVK0005	
253	Q1	BC547	Tr. in T0 92	TRNBC547	
254	R8	1K0	Res. 1/4 W 1%	RSM1/4FK0001	
255	R58	14K0	Res. 1/4 W 1%	RSM1/4FK0014	
256	COD1	IRV30CT	Stereo Coder IRV30CT	MIBIRV30CT	



BEXT Inc.®	DENOMINAZIONE Component Layout / Piano di Montaggio	
	DISPOSITIVO SDC30A002 (Stereo Coder Card)	
SEMILAVORATO	DISEGNATO D'Alessio D. li 02/05/97	DISEGNO
MATERIALE	SCALA	TAVOLA n. _____ di _____
TRATTAMENTO		

TCX0 CARD

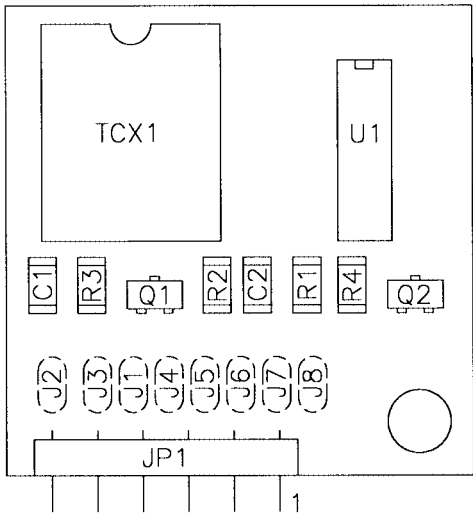
<i>1</i>	<i>Circuit Diagram</i>	<i>Pag. 152</i>
<i>2</i>	<i>Bill of Materials</i>	<i>Pag. 153</i>
<i>3</i>	<i>Coponent Layout</i>	<i>Pag. 154</i>

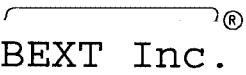


F Out	J1	J2	J3	J4	J5	J6	J7	J8
10WHz	X							
4MHz		X	X		X			
2MHz		X	X	X				
1MHz		X	X			X		
500KHz		X	X				X	
100KHz		X	X					X

BEXT Inc. S.r.l. (Bo)	
Title	
TCXO Card Circuit Diagram	
Size	REV
A4	Document Number
	TCXO10MHz
Date:	1 of
April 18, 1997	Sheet
	1

TCX0 Card			Bill Of Materials	Page 1
Item	Quantity	Reference	Part	
1	2	C1, C2	0.1uF	
2	1	FIX1	FIX35	
3	1	JP1	STM06S0	
4	8	J1, J2, J3, J4, J5, J6, J7, J8	JSMD	
5	1	Q1	MMBFJ310	
6	1	Q2	BC857	
7	1	R1	4K7	
8	1	R2	270	
9	1	R3	150K	
10	1	R4	470	
11	1	TCX1	TCX0S	
12	1	U1	74HC390SMD	



 BEXT Inc.	DENOMINAZIONE TCXO Card Component Layout / Piano di Montaggio		
	DISPOSITIVO		
SEMILAVORATO	DISEGNATO D'Alessio D. li	DISEGNO	
MATERIALE	SCALA		
TRATTAMENTO		TAVOLA n	di