

**SCHEMATIC  
DIAGRAM**

**C|R|U|M|R**

*Musical Instruments*

*mod.*  
*T3*



FEMALE CONNECTOR SYMBOL (es.J 2/1)



PLUG IN CONNECTOR SYMBOL



WIRE SOLDERING POINT



TEST POINT ( T P... )



CONNECTING POINT (ON p.c.b. )



METALLIC FILM RESISTOR 1%

ALL resistors 1/4w unless otherwise indicated

ALL tabs switches shown in OFF position

ALL keyswitches shown in OFF position

See part list for component part numbers

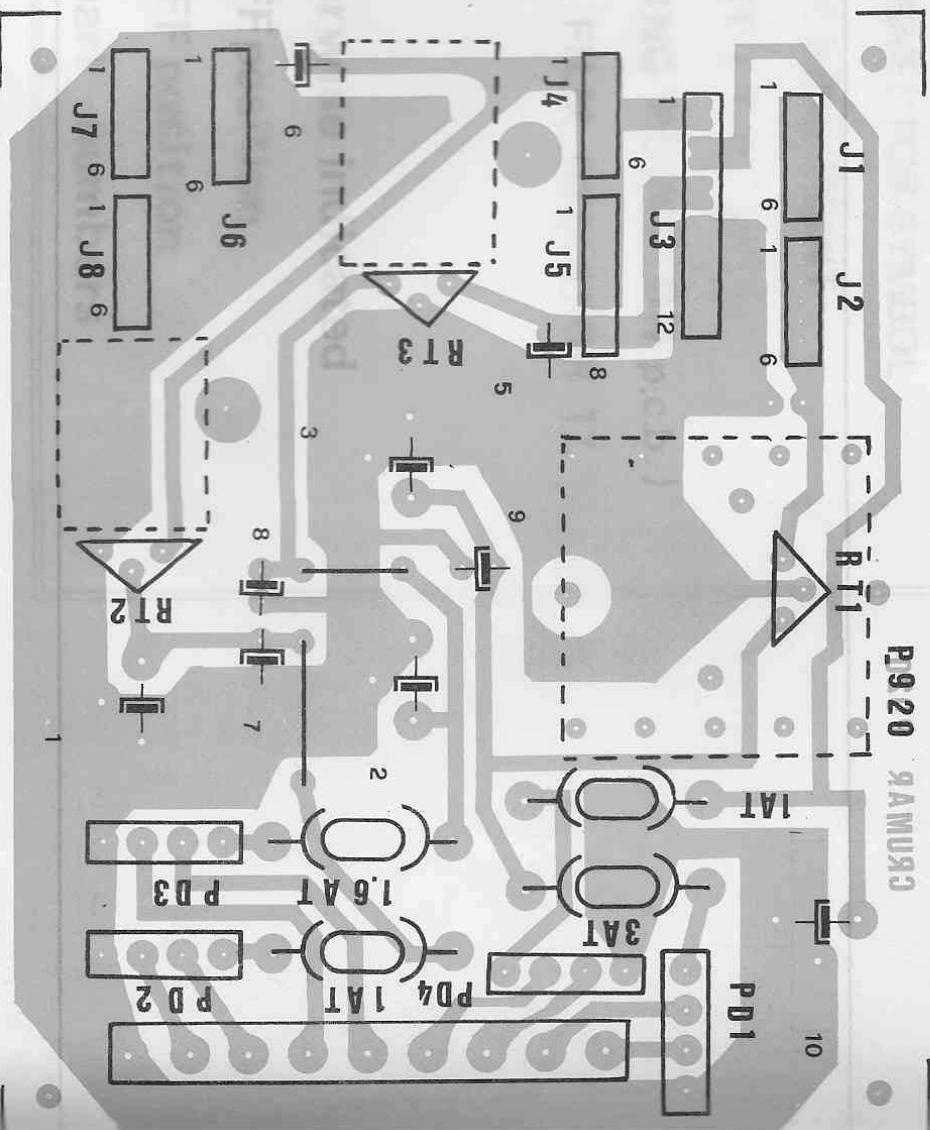
CRUMAR RESERVES THE RIGHT TO CHANGE  
SPECIFICATIONS AND DESIGNS, WITHOUT  
NOTICE AND LIABILITY.

**SCHEMATIC  
DIAGRAM**

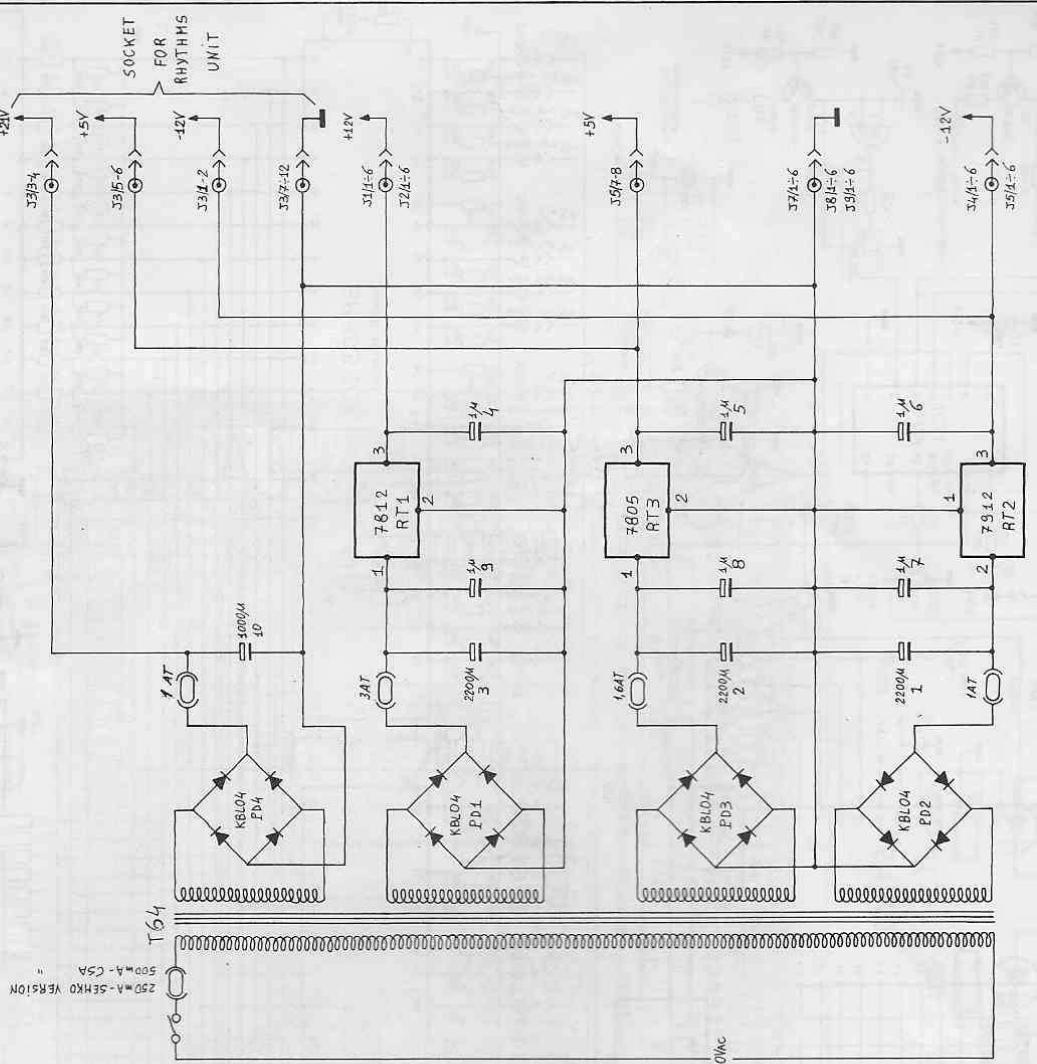
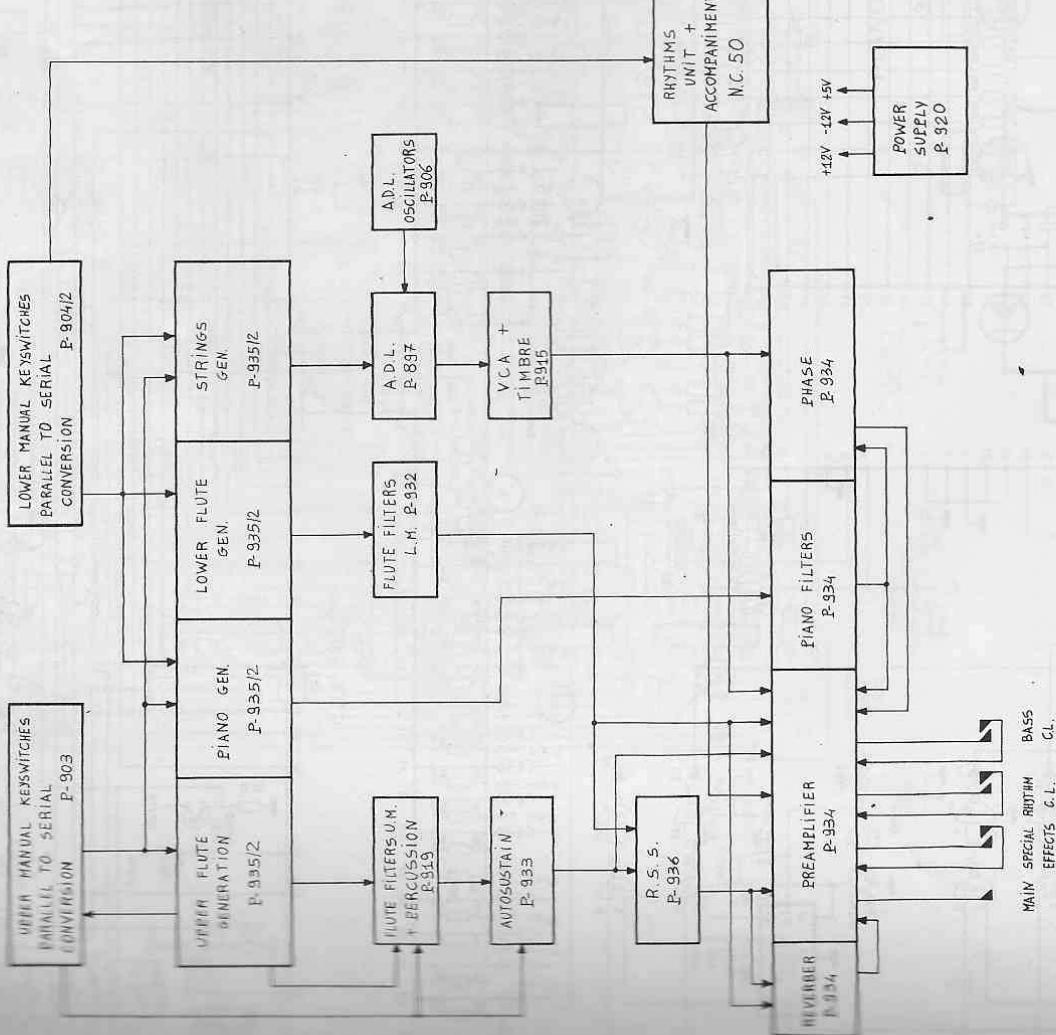
*mod.*  
**T 3**

# INDEX

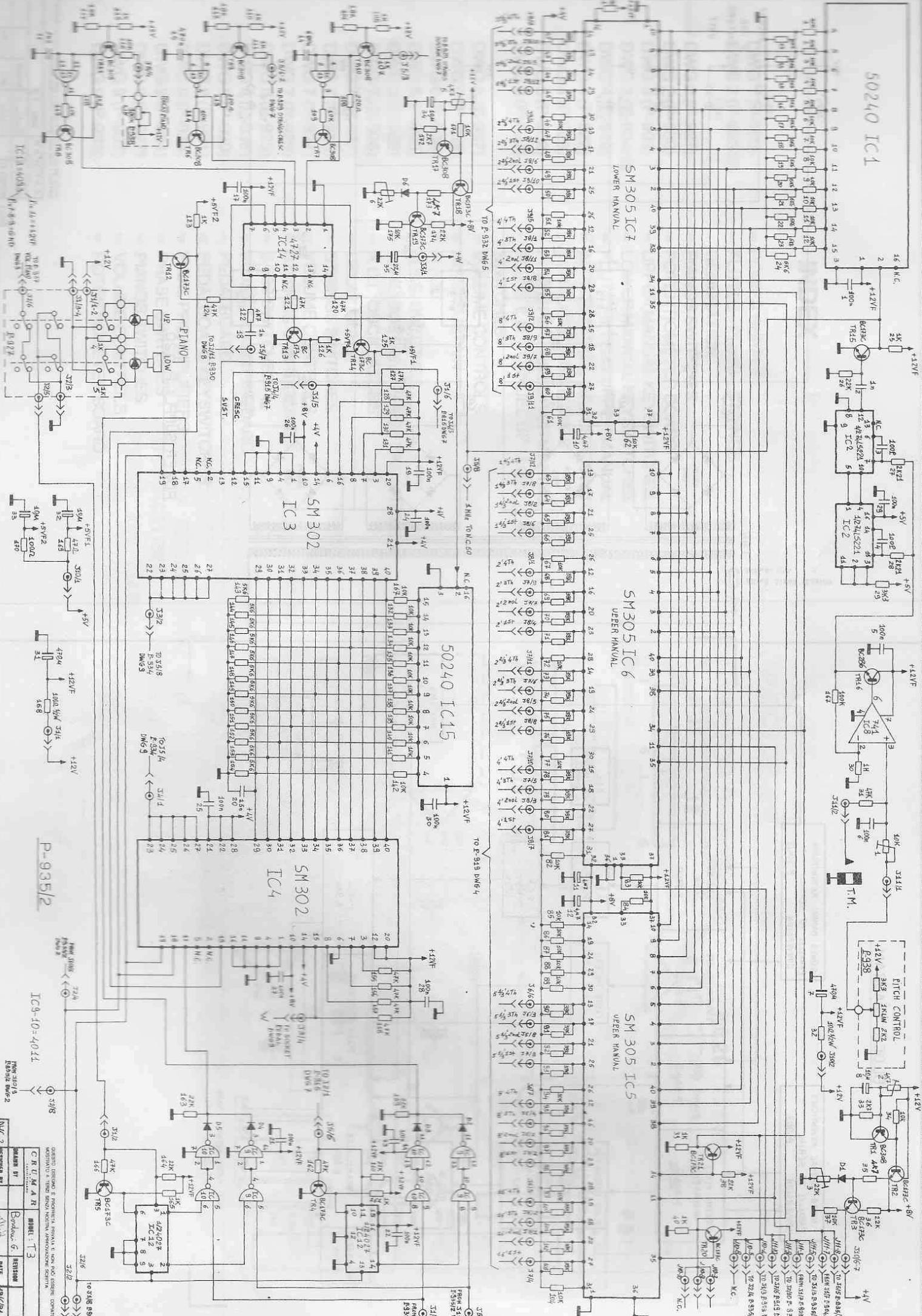
- DWG 1 (P-920) = POWER SUPPLY
- DWG 2 (P-935/2) = FLUTES - PIANO - STRINGS
- = GENERATION
- = PIANOS SWITCHES
- = POTENTIOMETER BOARD
- = UPPER MANUAL KEYSWITCHES
- = LOWER MANUAL KEYSWITCHES
- = FLUTE FILTERS UPPER MANUAL
- = AUTO SUSTAIN - PRESSETS SWITCHES
- = PERCUSSION SWITCHES
- = FLUTE FILTERS LOWER MANUAL
- = FLUTE L.M. - CANCEL UP - LOW
- = SWITCHES
- = VOLUME CONTROLS
- = AUTO SUSTAIN
- = R.S.S.
- = R.S.S. SWITCHES
- = AUTO SUSTAIN - PRESSETS SWITCHES
- = A.D.L. OSCILLATORS
- = DELAY LINES
- = STRINGS SWITCHES
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- = BASS SWITCHES
- = POTENTIOMETER BOARD
- = PEDALBOARD
- = PEDALBOARD KEYSWITCHES
- = FINAL PREAMPLIFIERS
- = PHASE SWITCHES
- = PIANOS SWITCHES
- = VOLUME CONTROLS
- = POTENTIOMETER BOARD



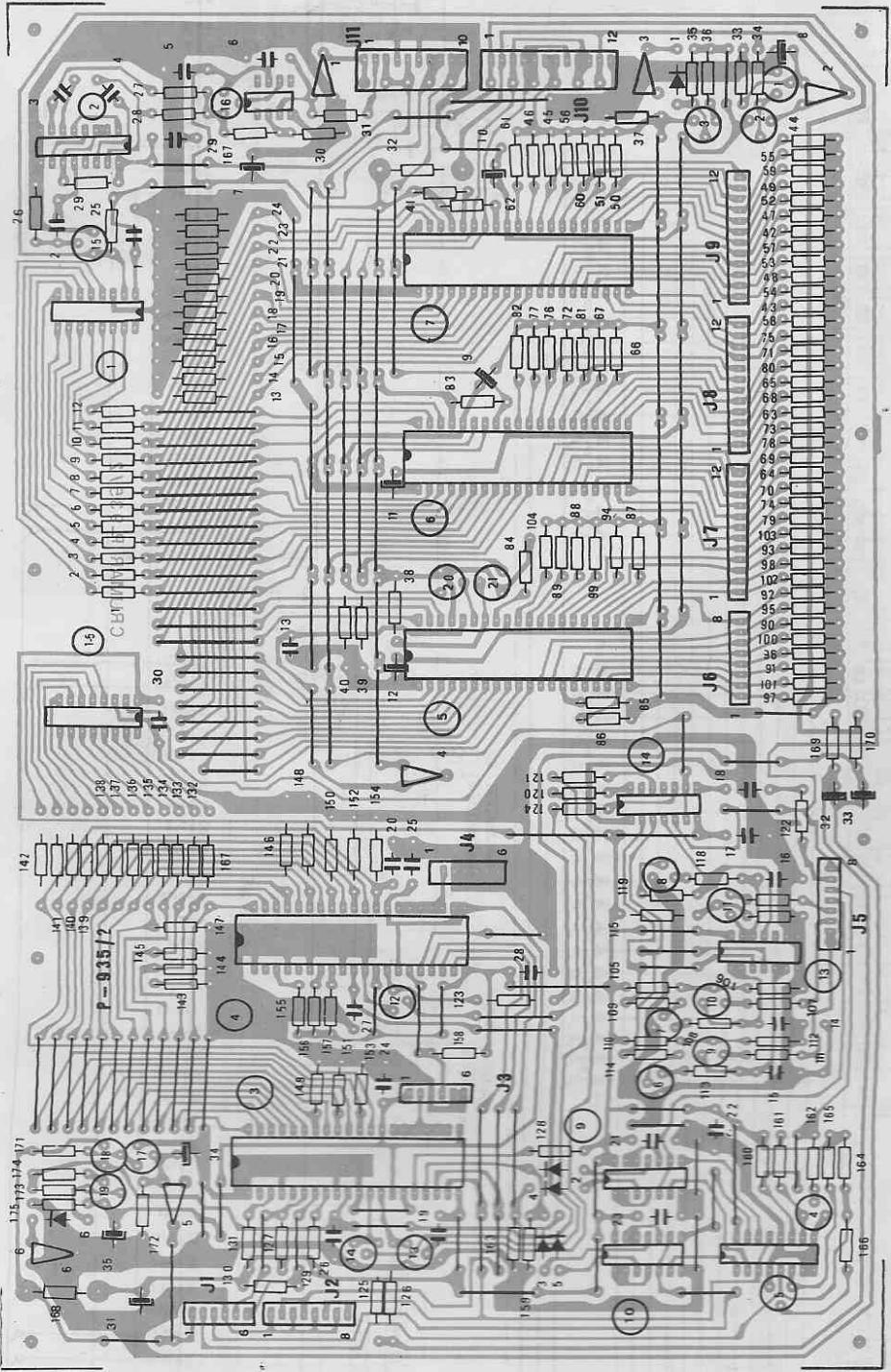
BLOCK DIAGRAM



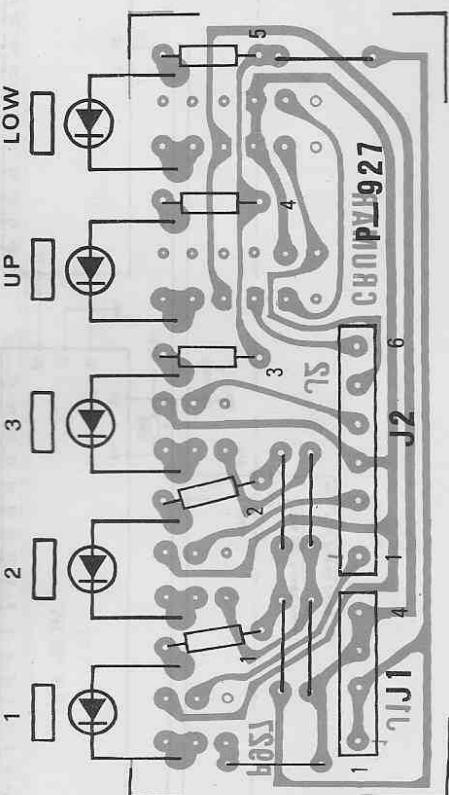
POWER SUPPLY P-920



CIRCUITO DESENCRADO		35/8
MOTOCROSS A TRES BIRLAZAS		35/9
C.U.M.A.R		35/10
MANANTIAL		35/11
BOLIVIA		35/12
REVISIÓN		35/13
NAME	ADDRESS	TELEGRAM

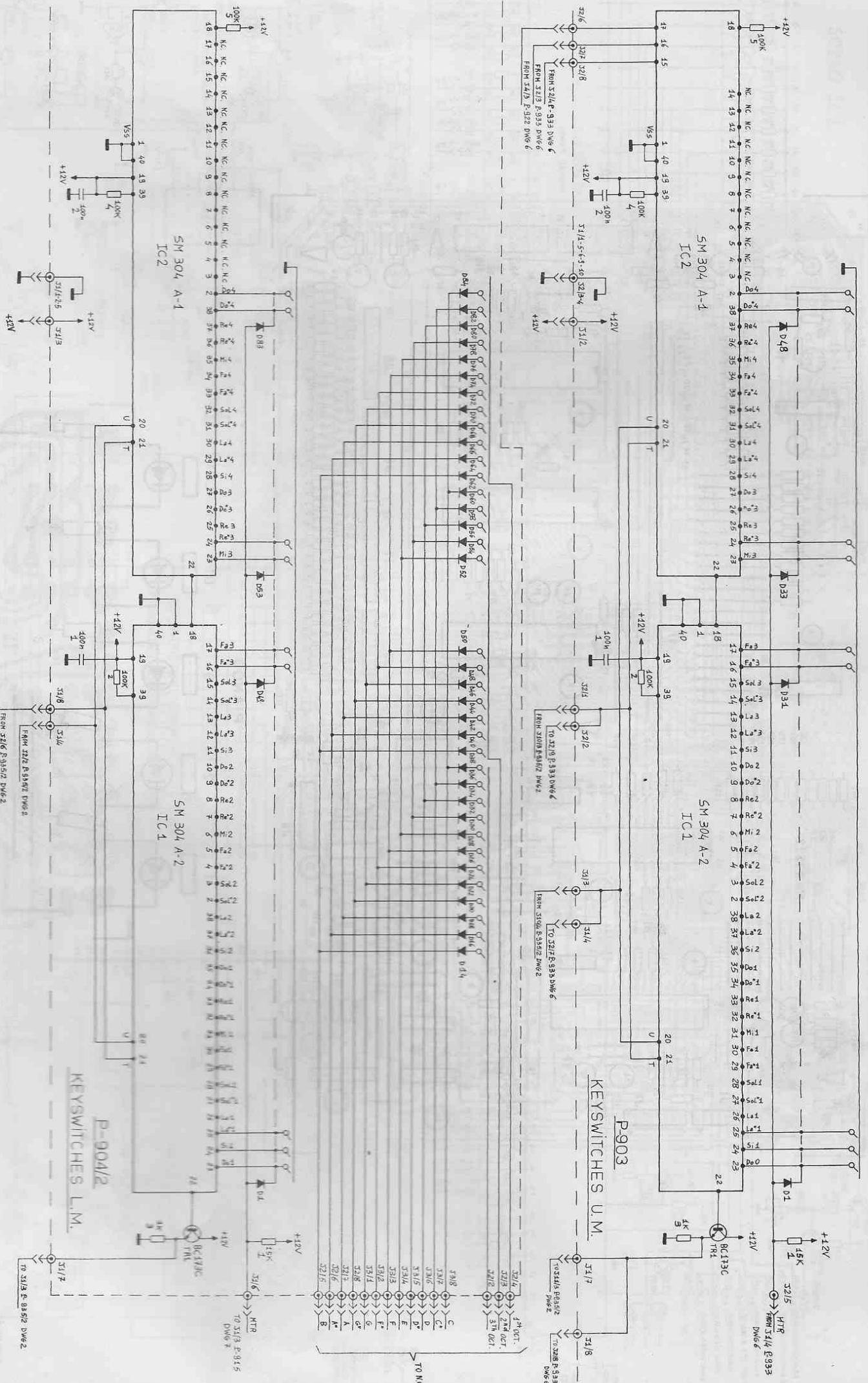


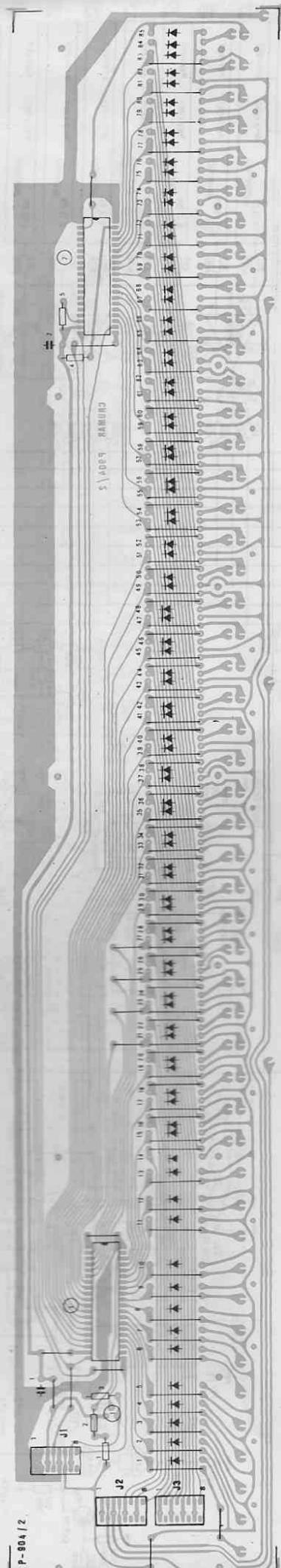
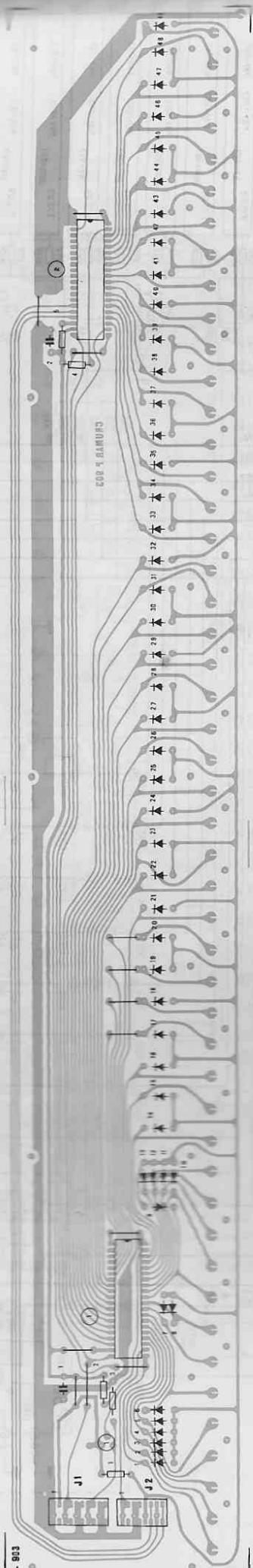
PIANOS



CLAUDIO RAVASI, *La poesia di Cesare Pascarella. Il suo percorso poetico*, Forma Nuova, MONDADORI, 1990.

### C H A R M A N M E M B E R S

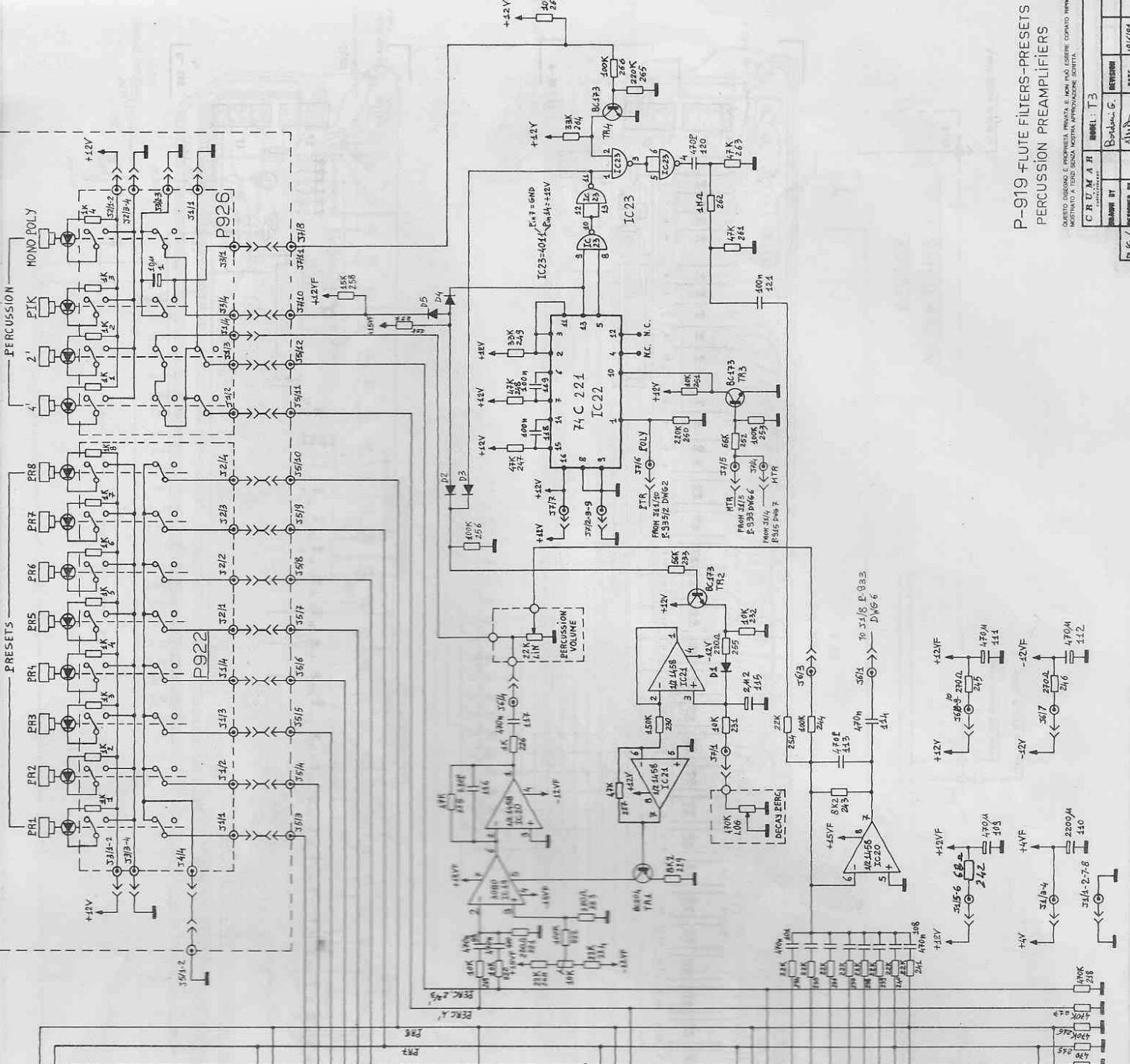




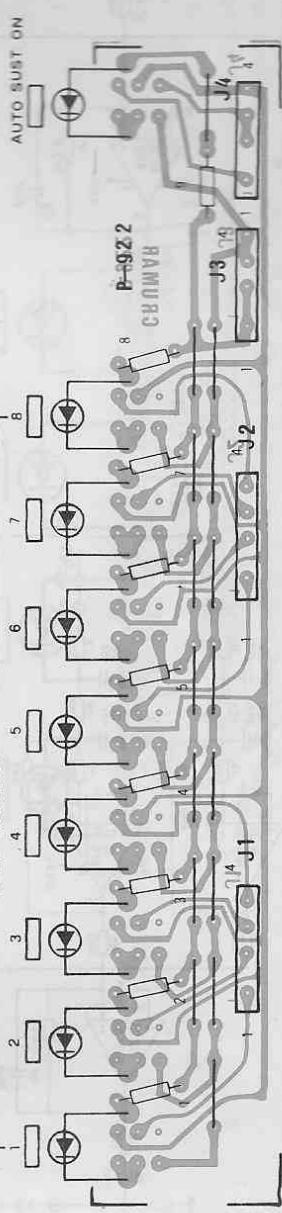
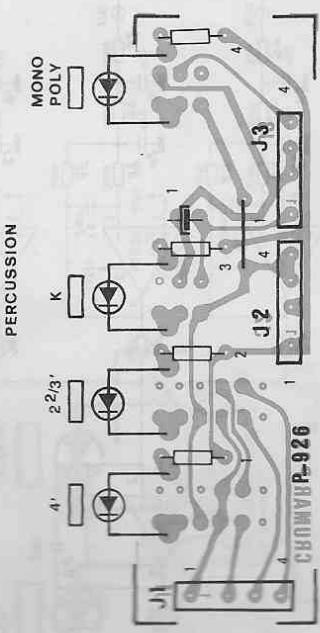
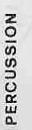
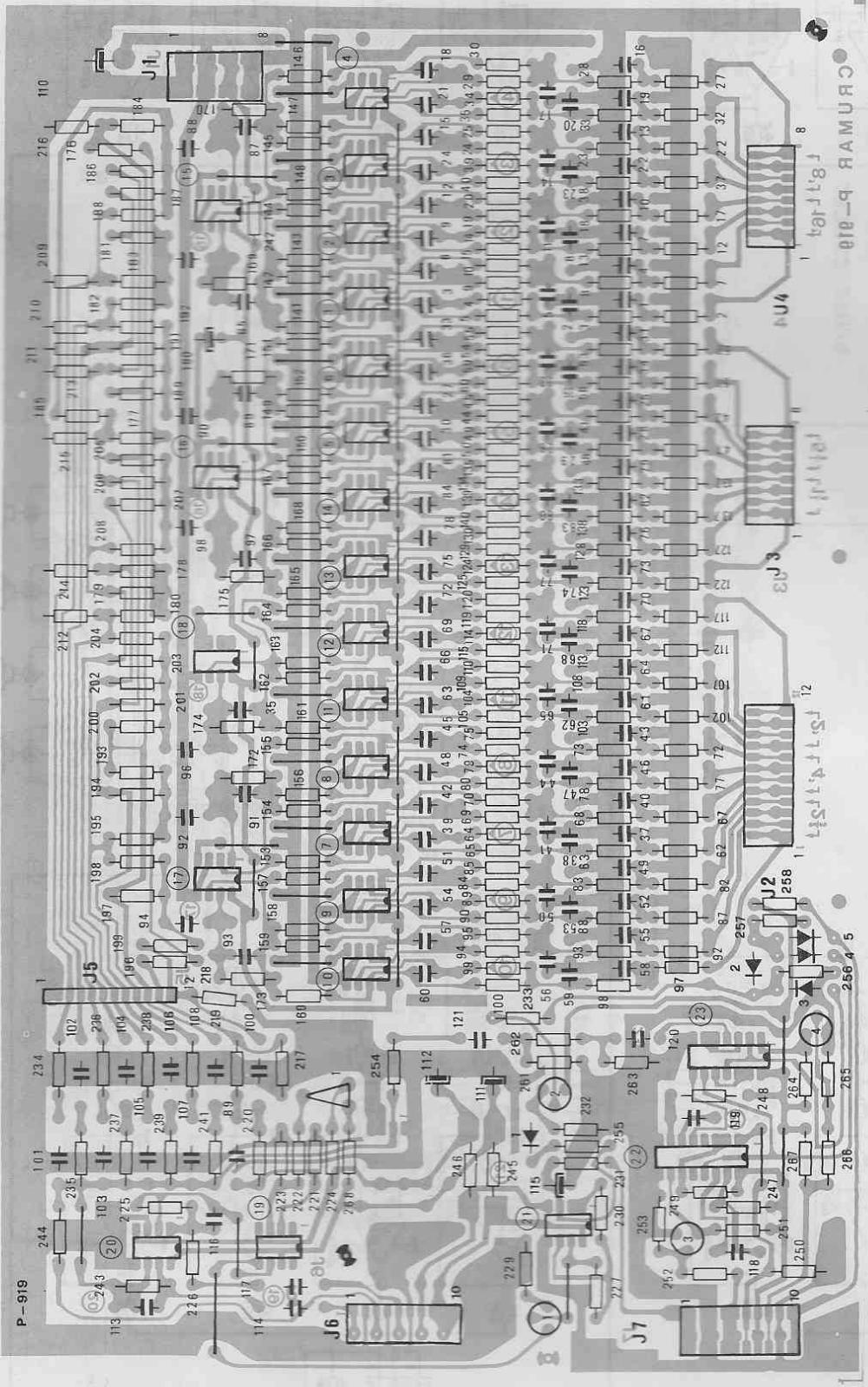
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MODIFICATO SENZA IL PREMIO DI CRUMAR S.p.A. NESSUNA PARTE  
DI QUESTO DOCUMENTO PUÒ ESSERE TRASFERITA A TUTTI I  
TREDICI

CRUMAR S.p.A.  
SOCIETÀ ITALIANA  
D'INDUSTRIE ELETTRICHE  
SOCIETÀ ITALIANA  
D'INDUSTRIE ELETTRICHE

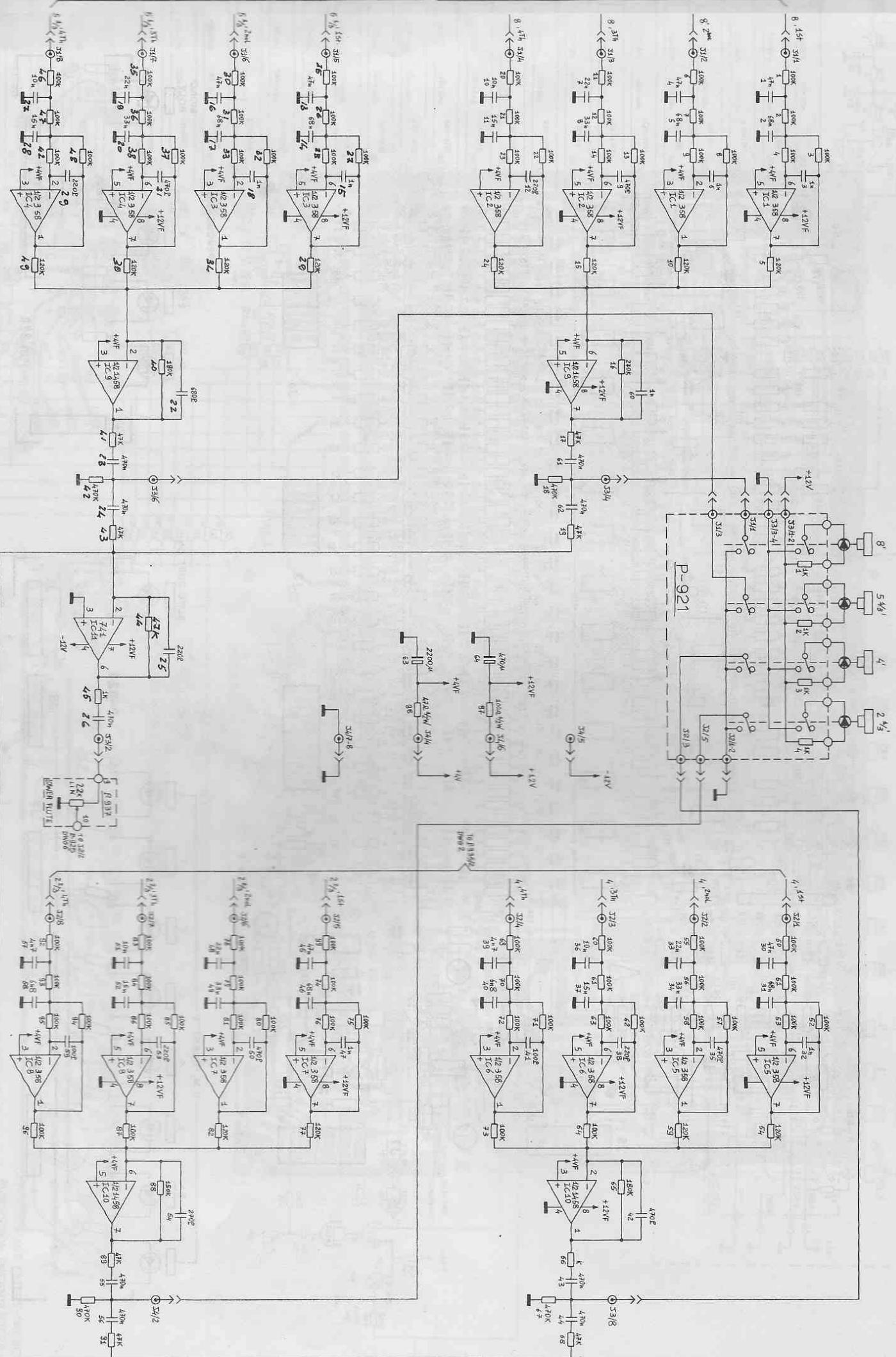
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SIZE: 13



P-919 FLUTE FILTERS-PRESETS  
PERCUSSION PREAMPLIFIERS



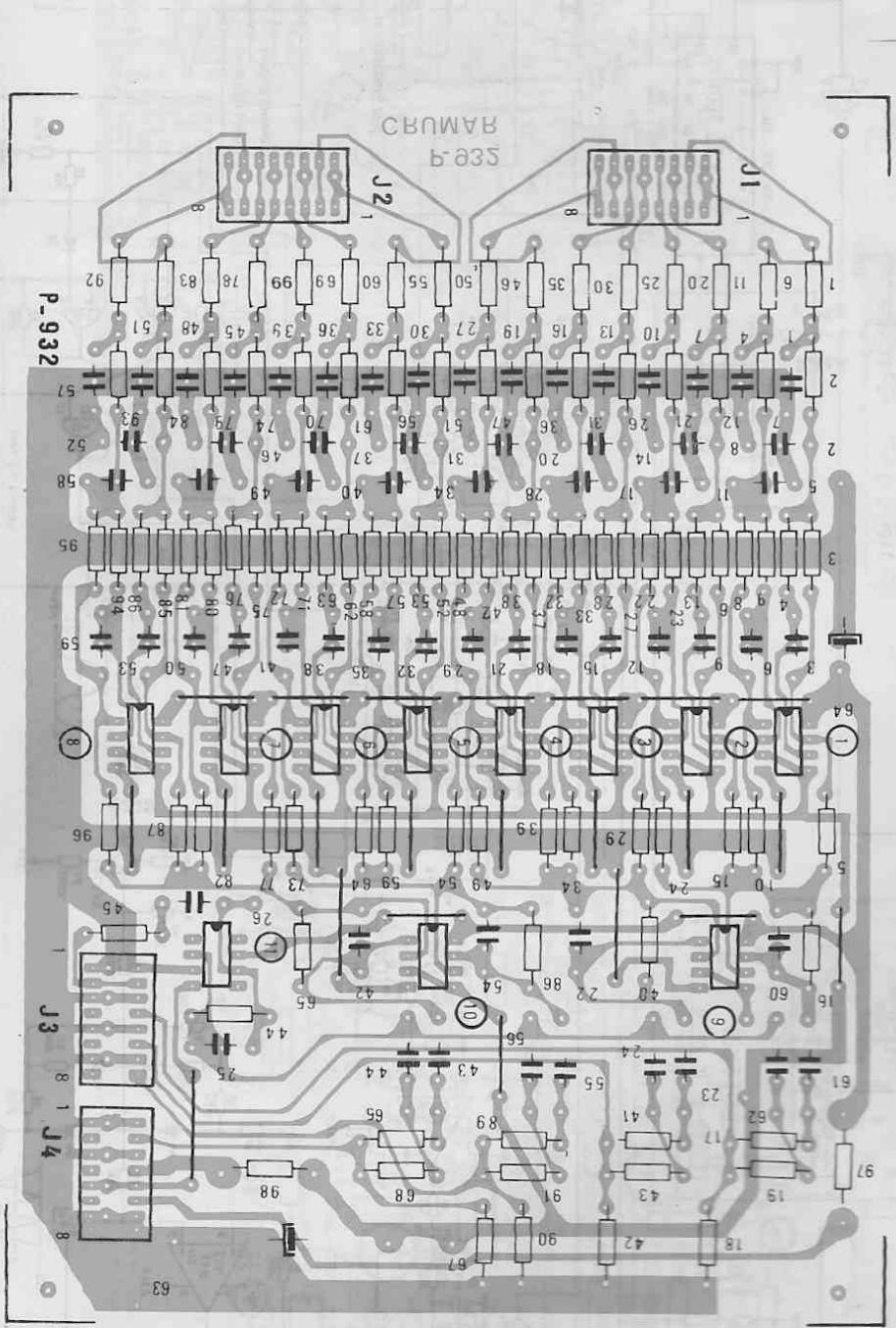
QUESTO DOCUMENTO E' PROPRIO DELLA PIAVOLA A TENDA NOSTRA APPROVATA	
MIGRATORI A TENDA SECONDO I CRITERI APPROVATI DALLA C.R.U.M.A.R.	
NOME: T3	
NUMBER BY	B. BONALDO G. NEGRONI
RECORDED BY	<i>A. Sardella</i>
DATE 19/6/81	



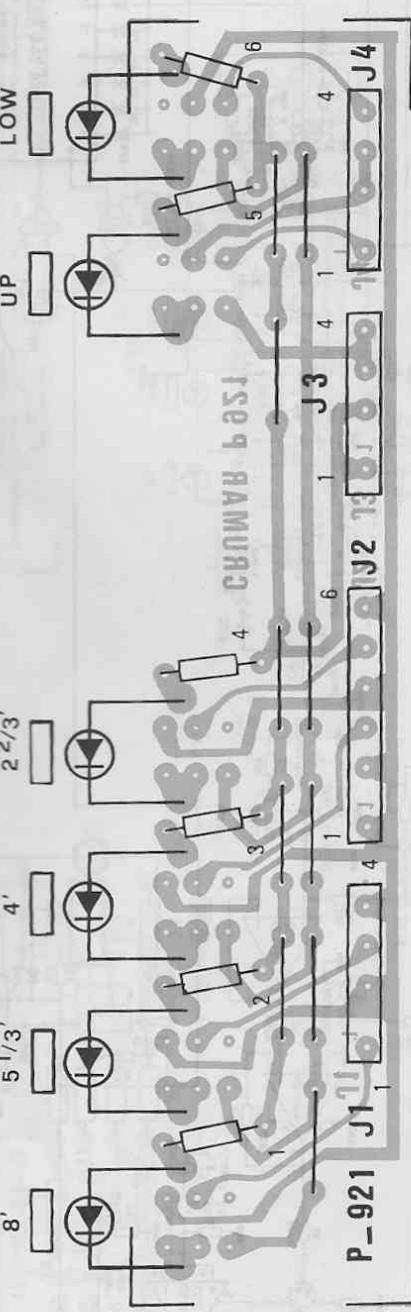
P-932

C.R.U.M.A.R.			
MANUFACTURED BY	C. Rodano S.p.A.	REVISION	
DESIGNED BY	A. Lanza	DATE	15/6/84

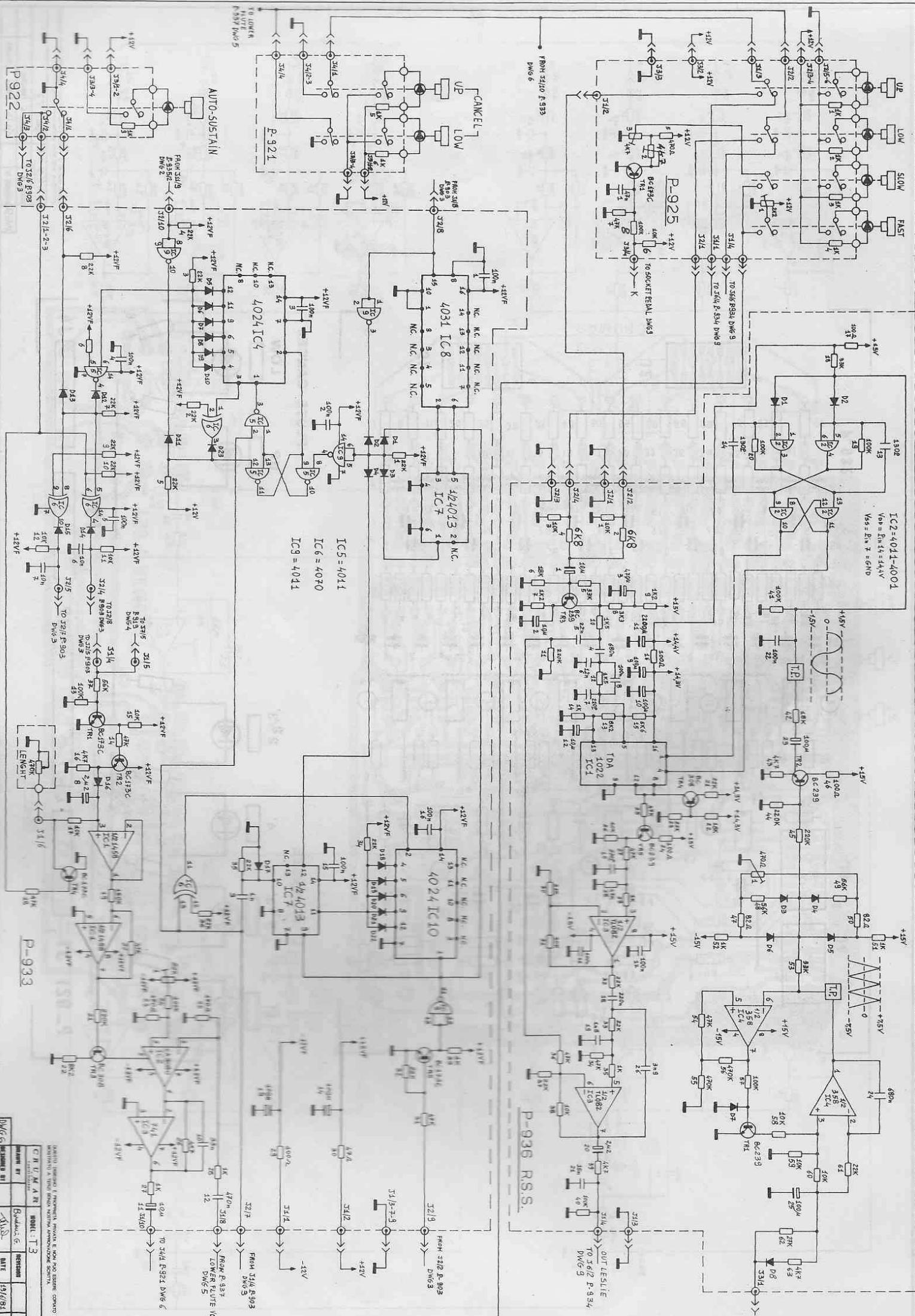
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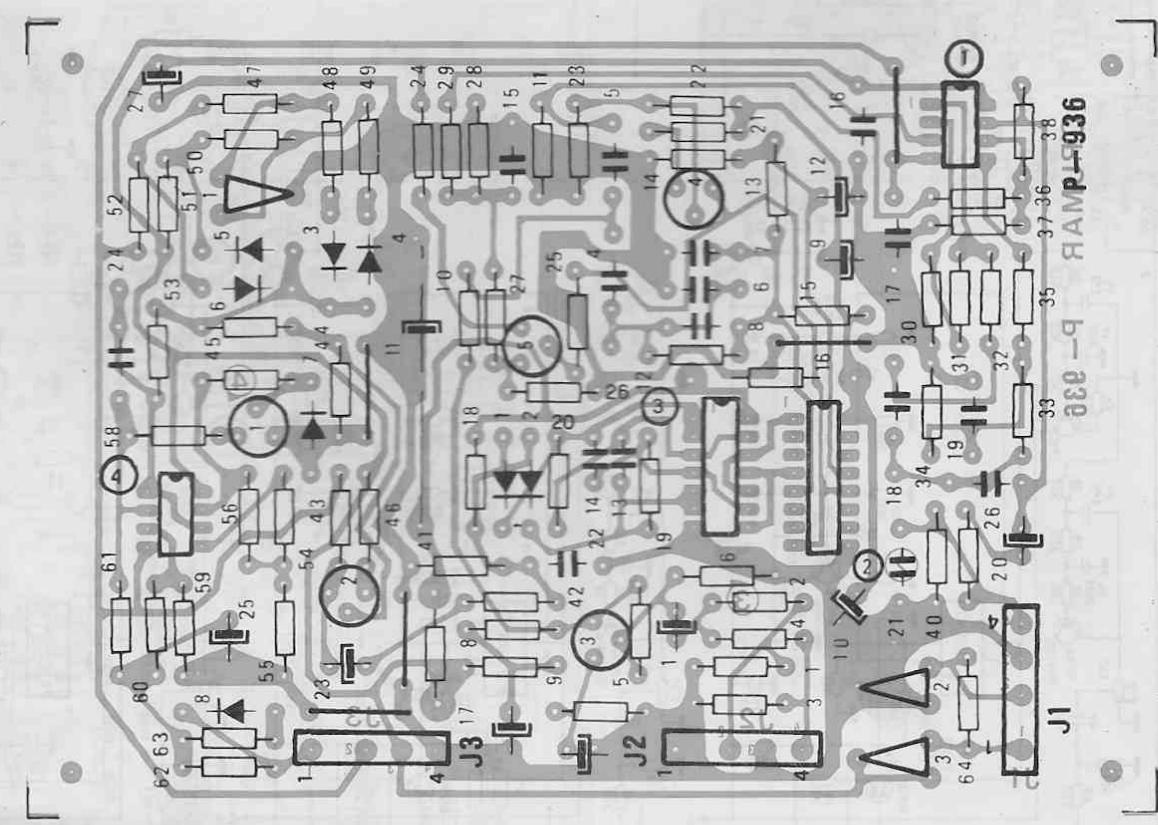
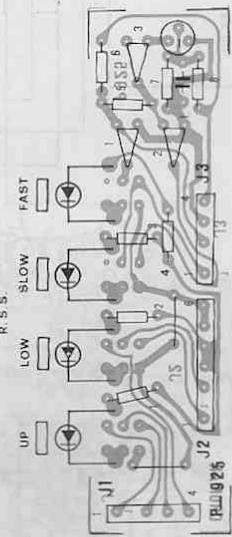
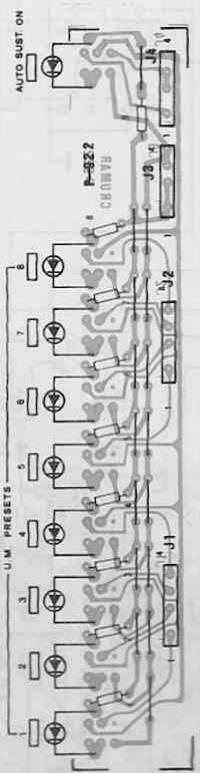
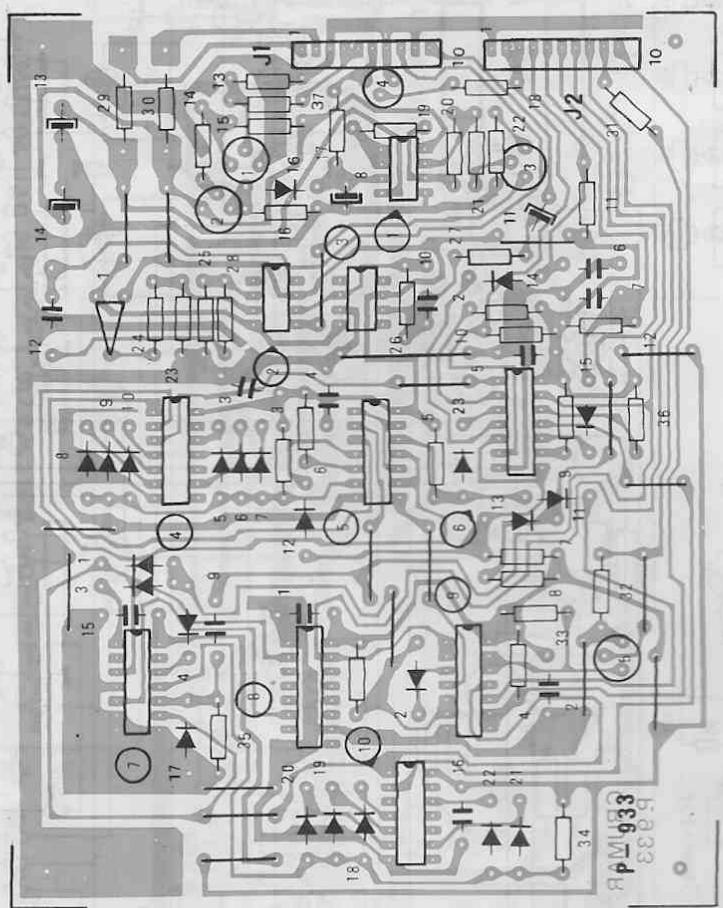
FLUTE CANCEL

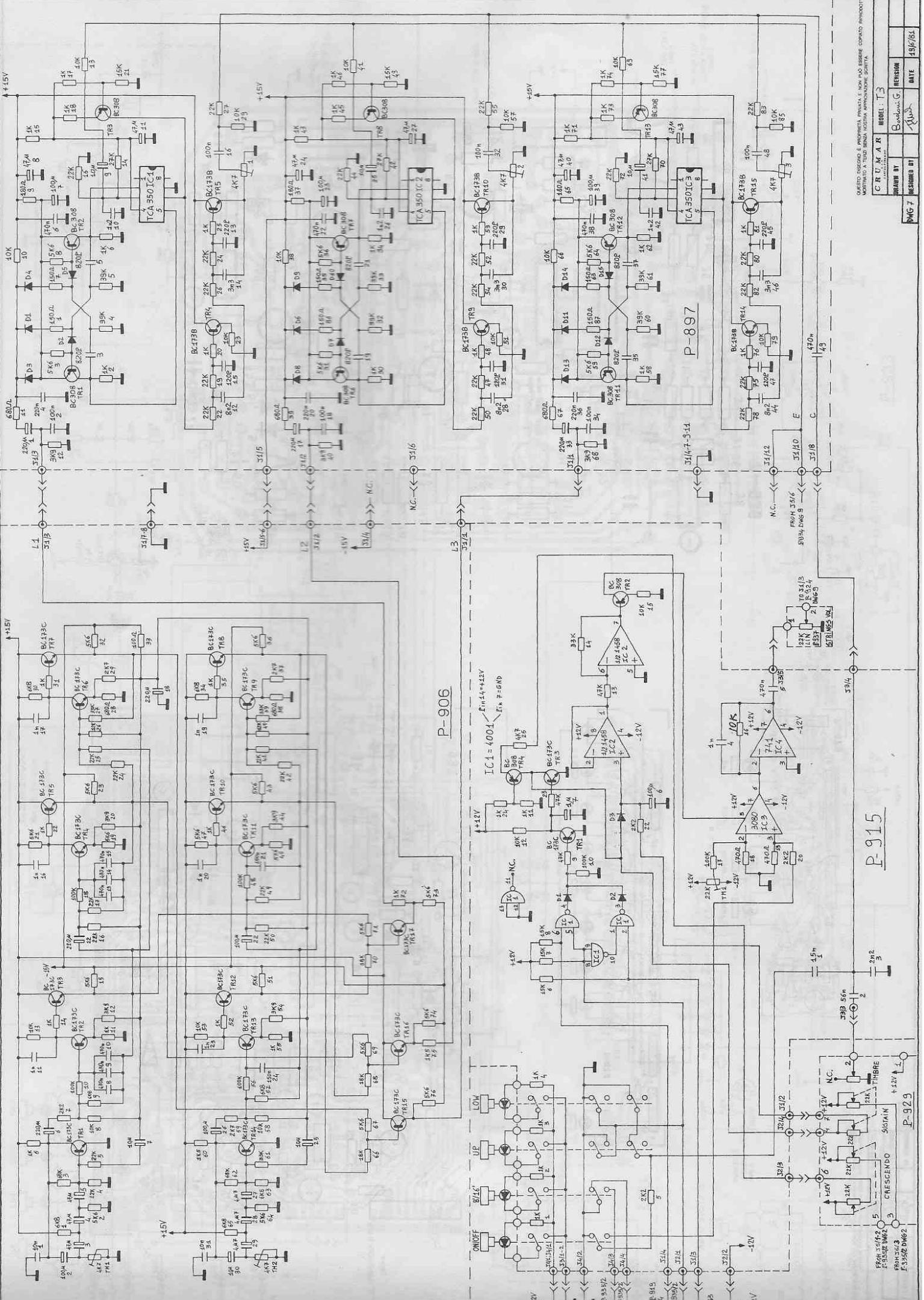


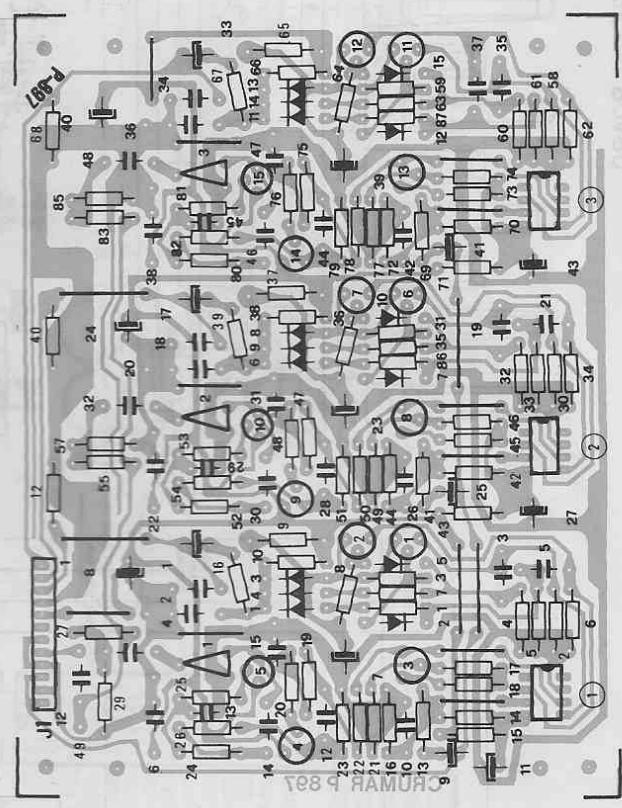
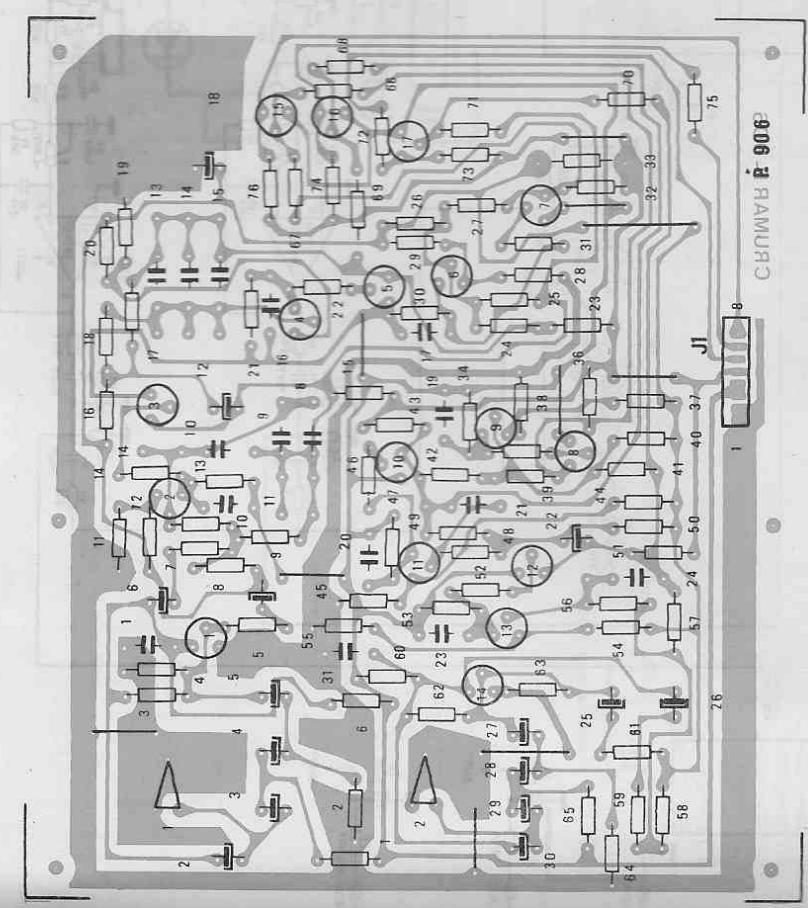
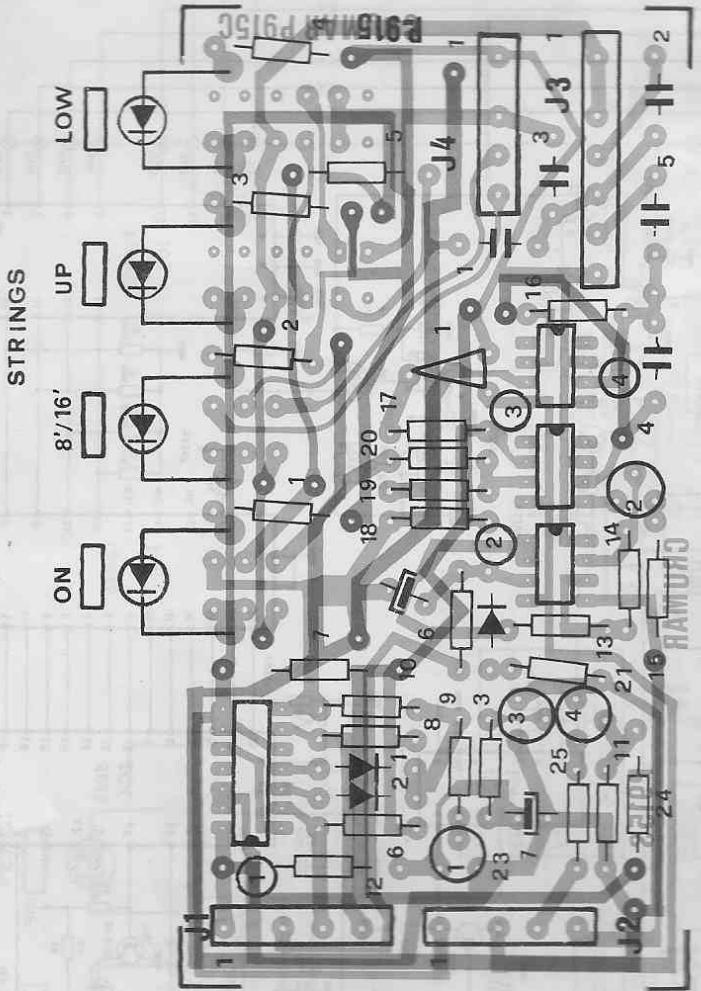
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 DRAWN BY: G.  
 REVISED BY: MATE  
 DATE: 1/6/64  
 DA65A

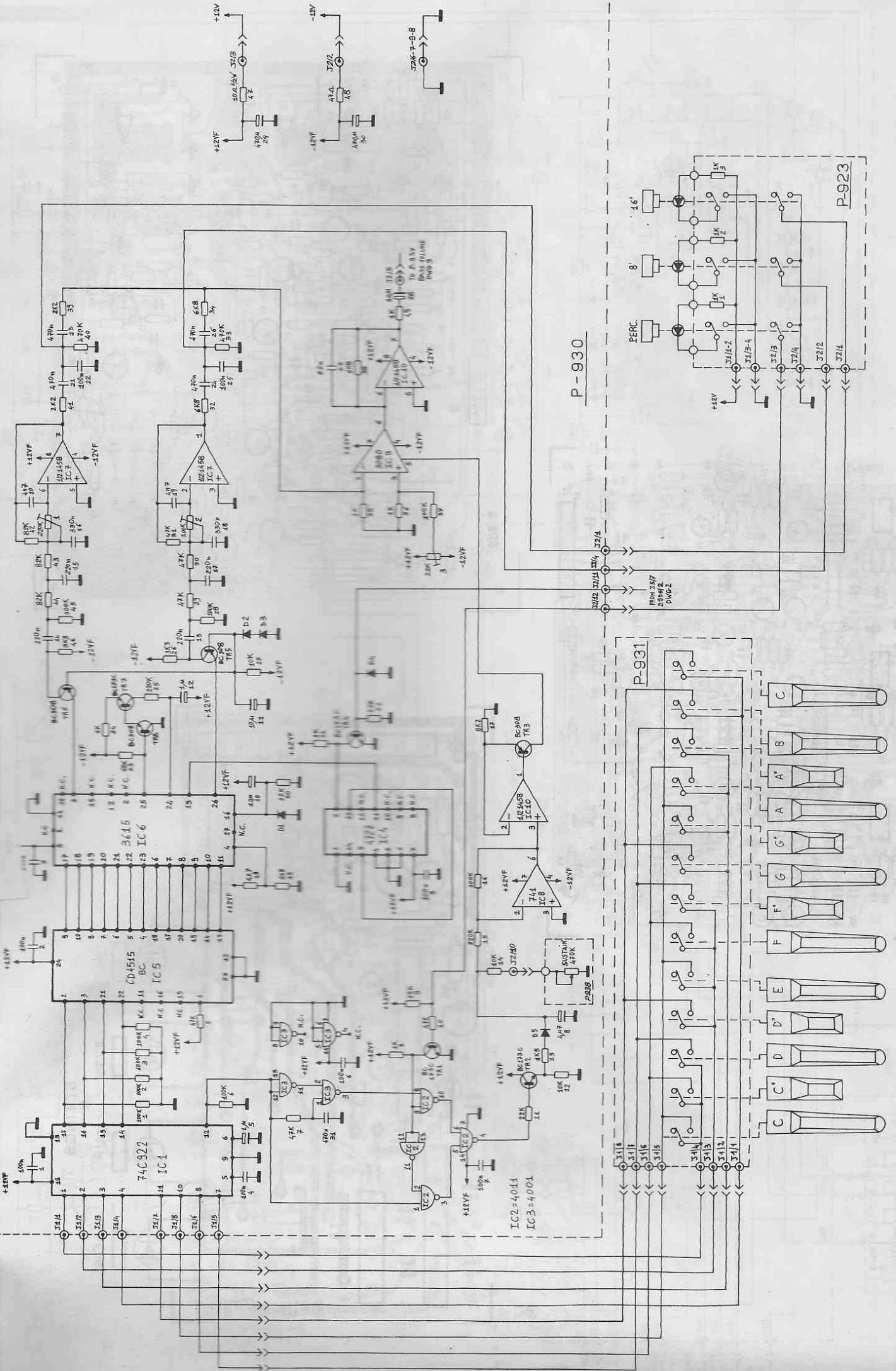


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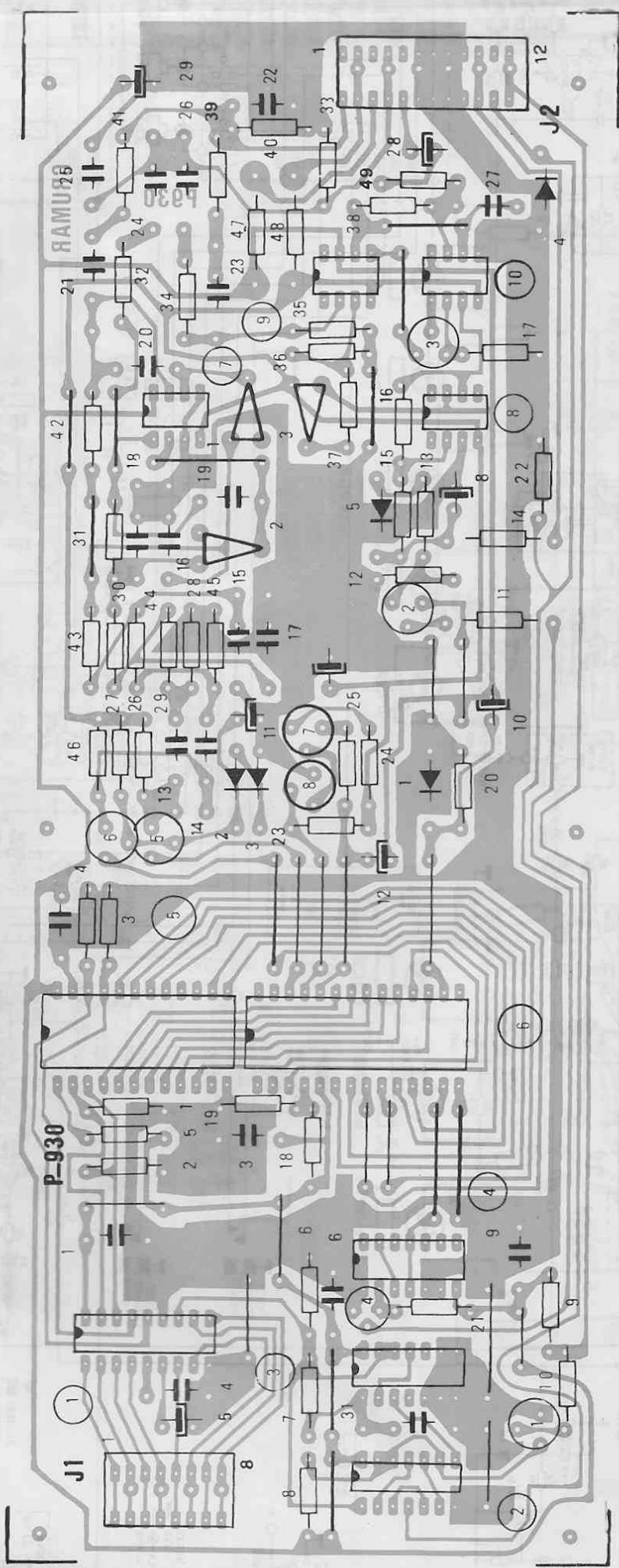
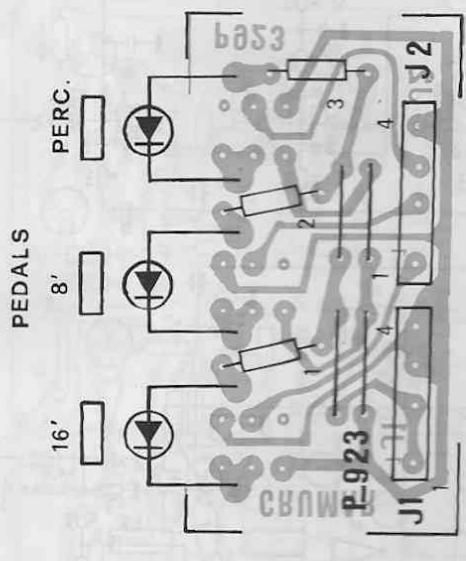


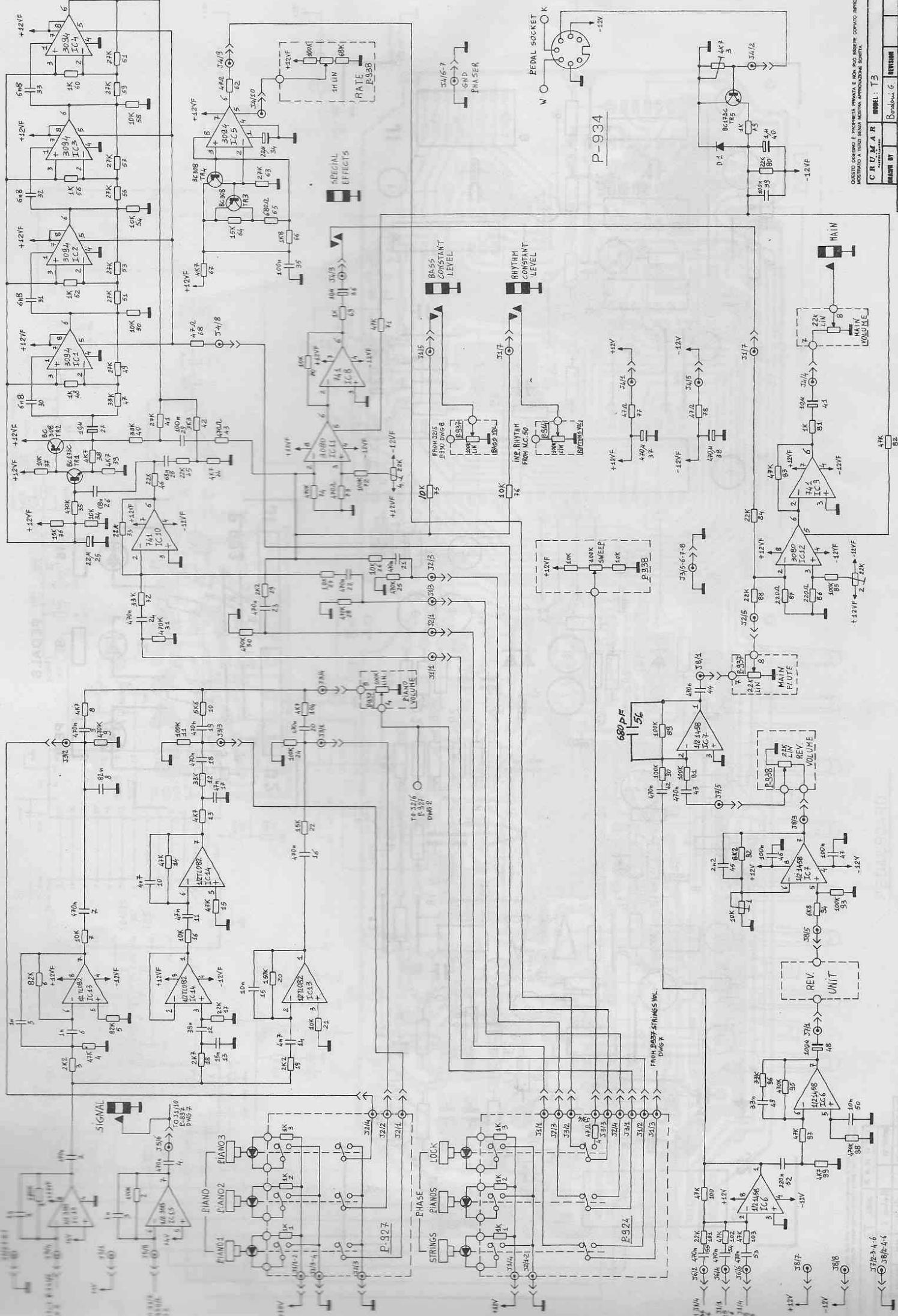


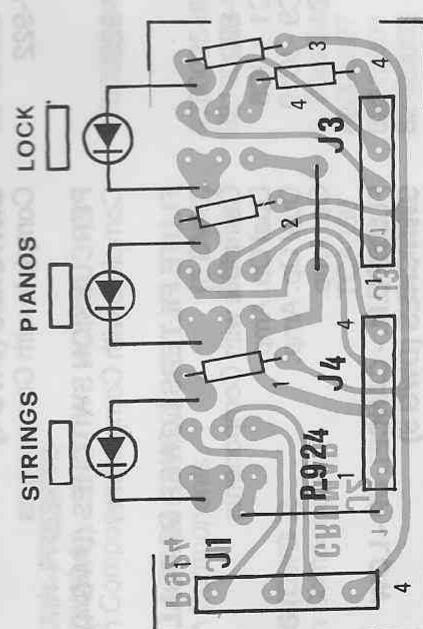
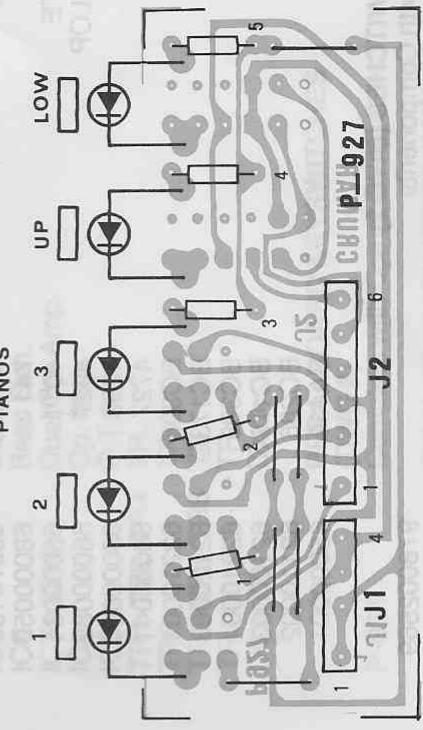
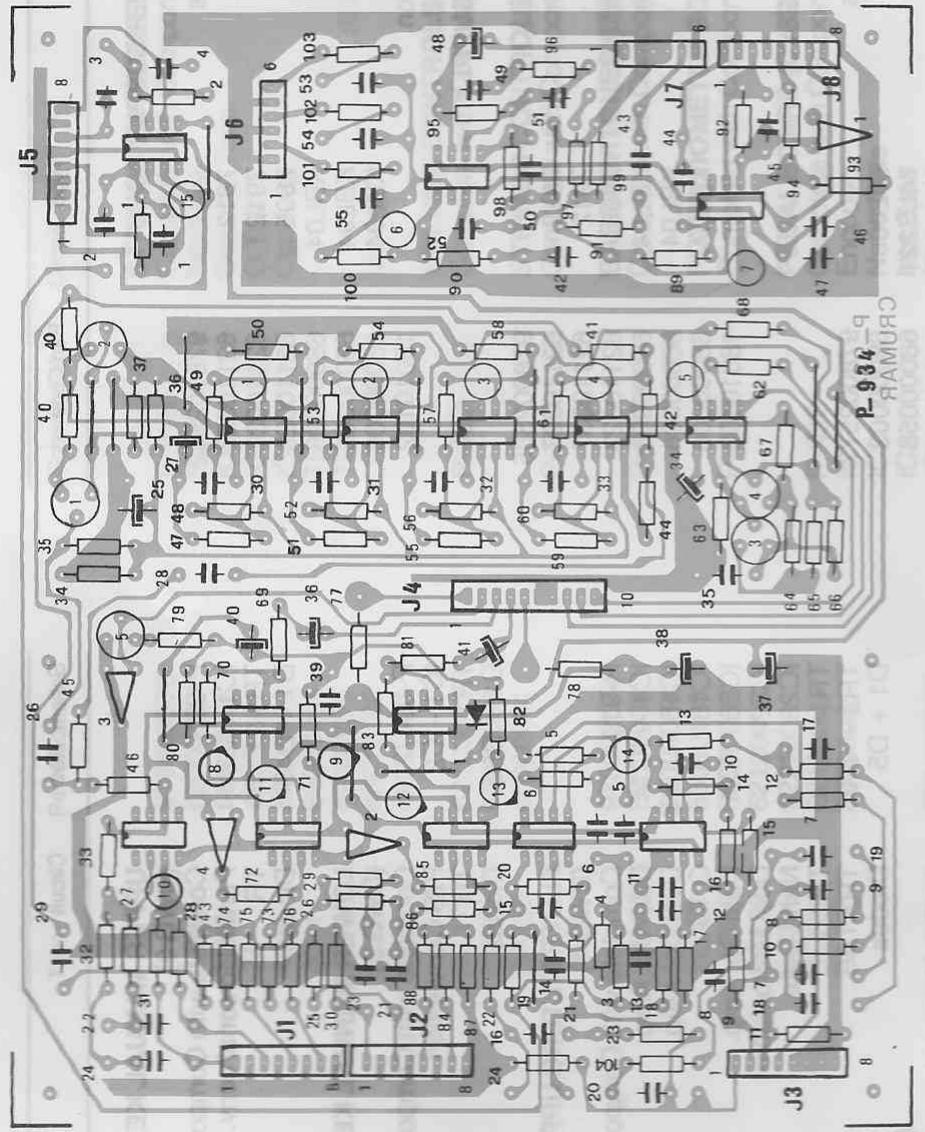
PEDAL BOARD

QUESTO DISSEGAIO È PROPRIETÀ PRIVATA E NON PUÒ ESSERE COPIATO, RIPRODUCITO O MOSTRATO A TERZI SENZA NOSTRA APPROVAZIONE SCRITTA.

MODEL: T3







# MODEL T3

## ELECTRONIC COMPONENT LIST

## MODEL T3

## ELECTRONIC COMPONENT LIST

Schem. Ref.	Circuit	Type	Part Code	Schem. Ref.	Circuit	Type	Part Code
P-920	<b>SEMKO VERSION - POWER SUPPLY (DWG 1)</b>			P-903	<b>UPPER MANUAL KEYSWITCHES (DWG 3)</b>		
RT1	Complete with Components		978002562	Complete with Components			978002545
RT2	Voltage Regulator	7812	62110027	Parallel to serial conv.		SM304A	68070134
RT3	Voltage Regulator	7912	62110037	TR		BC173C	62120003
PD1	Voltage Regulator	7805	62110023	D1 ÷ D49		BA130	65000001
PD2	Rectifier Bridge	KBL04	66000006	Diodes			
PD3	Rectifier Bridge	KBL04	66000006				
T64	Rectifier Bridge	KBL04	66000006				
	Transformer SEMKO Version						
P-920	<b>CSA VERSION - POWER SUPPLY (DWG 1)</b>			P-904/2	<b>LOWER MANUAL KEYSWITCHES (DWG 3)</b>		
RT1	Complete with Components		18010102	Complete with Components			978002546
RT2	Voltage Regulator	7812	62110027	P/S Conversion		SM304A	68070134
RT3	Voltage Regulator	7912	62110037	TR		BC173C	62120003
PD1	Rectifier Bridge	7805	62110023	D1 ÷ D85		BA130	65000001
PD2	Rectifier Bridge	KBL04	66000006				
PD3	Rectifier Bridge	KBL04	66000006				
T64	Transformer CSA Version		18010103				
P-935/2	<b>FLUTES - PIANO - STRINGS GENERATION (DWG 2)</b>			P-919	<b>FLUTE FILTERS UPPER MANUAL (DWG 4)</b>		
IC1 - IC15	Complete with Components		978002577	Complete with Components			978002561
IC2	T.O.S.	50240	68000009	Dual Op. Amp.		LM358	68030174
IC3 - IC4	Master Oscillator	74LS221	68000058	Dual Op. Amp.		1458	68000053
IC5 ÷ IC7	Strings - Piano - Gen.	SM302	68070165	O.T.A.		3080	68000066
IC8	Flutes Gen.	SM305	68070135	Dual Op. Amp.		1458	68000053
IC9 - IC10	Op. Amp.	741	68000059	Dual Monostable		74C221	68000099
IC12	NAND GATE	4011	68000034	Nand Gate		4011	68000034
IC13	J-K FLIP-FLOP	4027	68000089	TR.		BC308	6221001
IC14	Trigger	4093	68000050	TR.		BC173C	62120003
TR1 - TR17	Divider	4727	68000041	Diodes		BA130	65000001
TR2 ÷ TR5	TR.	BC308	62210001				
TR6 ÷ TR11	TR.	BC173C	62120003				
TR12 ÷ TR15	TR.	BC308	62210001				
TR16	TR.	BC173C	62120003				
D1 ÷ D6	Diodes	BC286	62110002				
		BA130	65000001				
P-927	<b>PIANOS SWITCHES (DWG 2)</b>						
	Complete with Components		978002569				
P-938	<b>POTENTIOMETER BOARD (DWG 2)</b>			P-921	<b>FLUTE L.M. - CANCEL UP - LOW SWITCHES (DWG 5)</b>		
	Complete with Components		978002581	Complete with Components			
P-937				P-937	<b>VOLUME CONTROLS (DWG 5)</b>		
					Complete with Components		978002563

## MODEL T3

## ELECTRONIC COMPONENT LIST

Schem. Ref.	Circuit	Type	Part Code
P-933	<b>AUTO-SUSTAIN (DWG 6)</b> Complete with Components	978002575	P-915
IC1	Dual Op. Amp.	1458	IC1
IC2	O.T.A.	3080	IC2
IC3	Op. Amp.	741	IC3
IC4 - IC10	Binary Counter	4024	IC4
IC5 - IC9	Nand Gate	4011	TR1
IC6	Exclusive Or	4070	TR2
IC7	D Flip-Flop	4013	D1 ÷ D3
IC8	Static Shift Register	4031	Diodes
TR1-TR2-		BC173C	BC173C
TR3-TR5		BC308	BC308
TR1 ÷ D23	Diodes	BA130	BA130
P-936	<b>R.S.S. (DWG 6)</b> Complete with Components	978002578	P-937
IC1	ADL	68000084	IC1
IC2	Nand Gate	68000034	IC2
IC3	Dual Op. Amp.	4011	IC3
IC4	Dual Op. Amp.	TL082	IC4
TR1 ÷ TR3		LM358	TR1
TR4		BC239	TR2
TR5		BC308	TR3
D1 ÷ D8	Diodes	BC239	TR4
P-925	<b>R.S.S. SWITCHES (DWG 6)</b> Complete with Components	65000001	TR5
TR1		BA130	TR6
P-922	<b>AUTO-SUSTAIN-PRESETS SWITCHES (DWG 6)</b> Complete with Components	978002567	TR7
P-906	<b>A.D.L. OSCILLATORS (DWG 7)</b> Complete with Components	62120003	TR8
TR1 ÷ TR17		BC173C	TR9
P-007	<b>DELAY LINES (DWG 7)</b> Complete with Components	978002586	TR10
IC1 + IC3	ADDL	68000007	TR11 ÷ TR13
TR1 + TR9		TCA350	TR14 - TR15
TR4 - TR5		BC308	D1 ÷ D15
TR6 ÷ TR8		BC173C	Diodes
TR9 - TR10		BC308	
TR11 ÷ TR13		BC173C	
TR14 - TR15		BC308	
D1 ÷ D15		BC173C	
		BA130	

## MODEL T3

## ELECTRONIC COMPONENT LIST

Schem. Ref.	Circuit	Type	Part Code
P-931	<b>PEDALBOARD KEYSWITCHES (DWG 8)</b> Complete with Components	978002573	P-934
IC1 ÷ IC5	Complete with Components	978002576	IC1 ÷ IC5
IC6 - IC7	O.T.A.	68000098	IC6 - IC7
IC8 ÷ IC10	Dual Op. Amp.	68000053	Op. Amp.
		68030141	