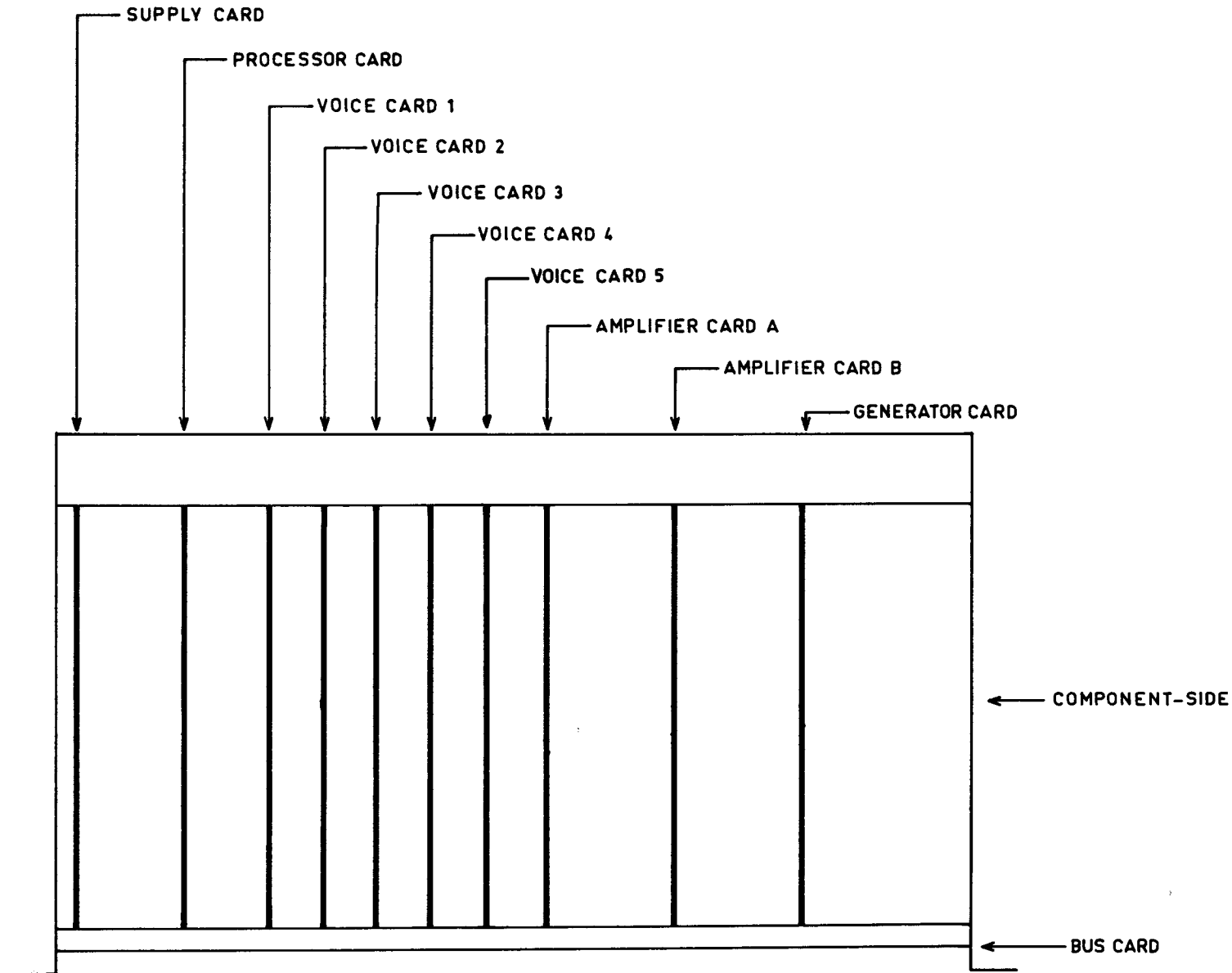


=====  
= S C H E M A T I C D I A G R A M S =  
= J O H A N N U S =  
= O P U S 1 2 0 0 =  
=====  
alterations reserved

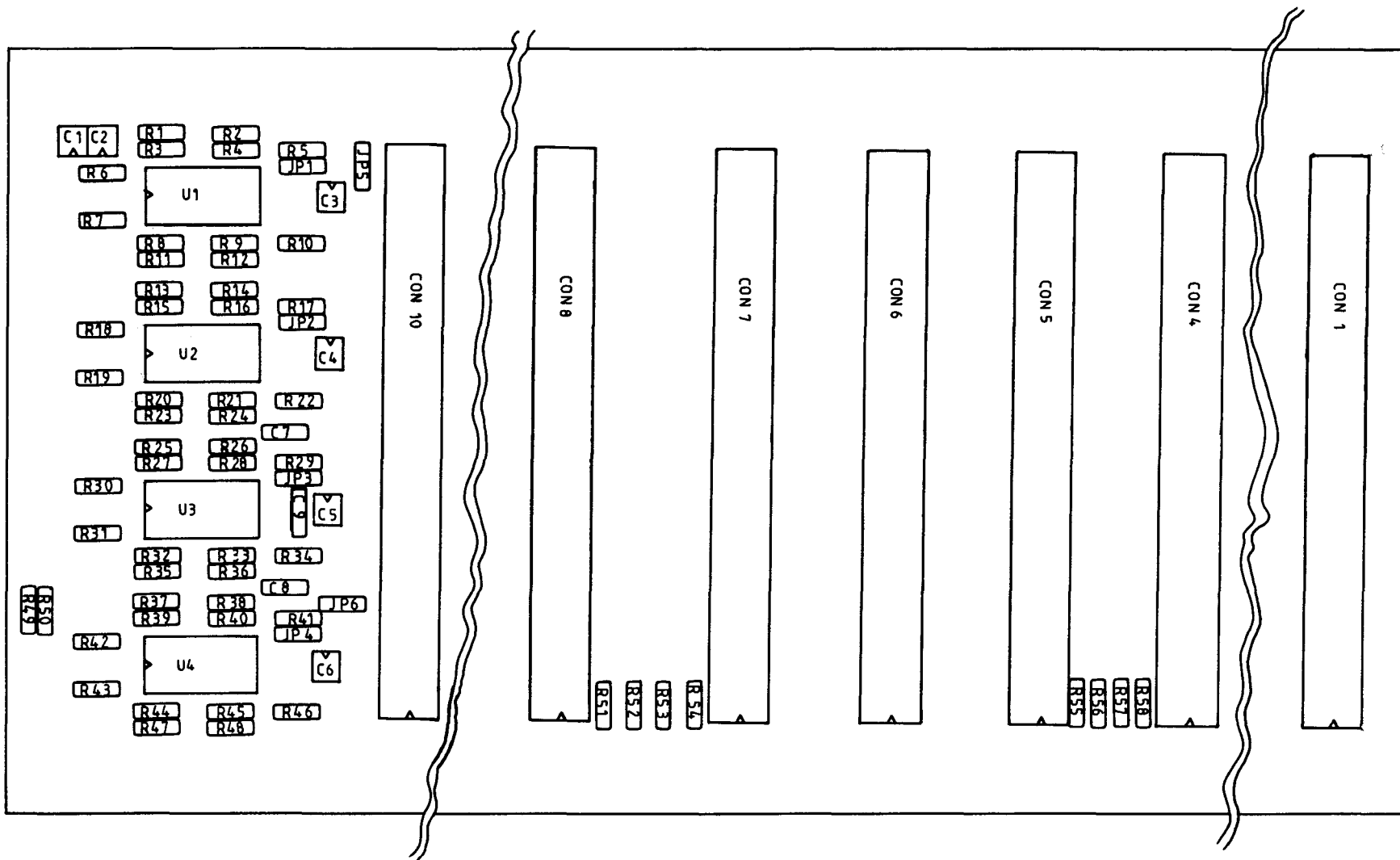
## C O N T E N T S

1. POSITION DIAGRAM CARDS
2. COMPONENT NUMBERING BUS CARD
3. LAY OUT BUS CARD
4. COMPONENT NUMBERING SUPPLY CARD
5. LAY OUT SUPPLY CARD
6. COMPONENT NUMBERING GENERATOR CARD
7. LAY OUT GENERATOR CARD
8. COMPONENT NUMBERING PROCESSOR CARD
9. LAY OUT PROCESSOR CARD
10. COMPONENT NUMBERING VOICE CARD (4x)
11. LAY OUT VOICE CARD (4x)
12. VALUES OF INTONATION-DEPENDENT COMPONENTS ON VOICE CARDS
13. COMPONENT NUMBERING AMPLIFIER CARD (2x)
14. LAY OUT AMPLIFIER CARD (2x)
15. TRANSFORMER CONNECTIONS
16. POWER SUPPLY (supply card)
17. PINNING BUS CARD CONNECTORS
18. EXPRESSION-PEDAL CIRCUIT (bus card)
19. EXTERNAL CONTROLS and INTERFACE ECHO UNIT (generator card)
20. TREMULANT-OSCILLATORS; CHORUS-CIRCUIT and TUNING GENERATORS (generator card)
21. SCANNING KEYING; STOPS & ACCESSORIES
22. INPUTS/OUTPUTS PROCESSOR (processor card)
23. PROCESSOR (processor card)
24. VOICES and PRE-AMP'S (voice card)
25. TONE CONTROLS and INPUT/OUTPUT AMPLIFIERS (amplifier card)
26. POWER AMPLIFIER (amplifier card)
27. GENERAL INFORMATION SEMI-CONDUCTORS (I)
28. GENERAL INFORMATION SEMI-CONDUCTORS (II)



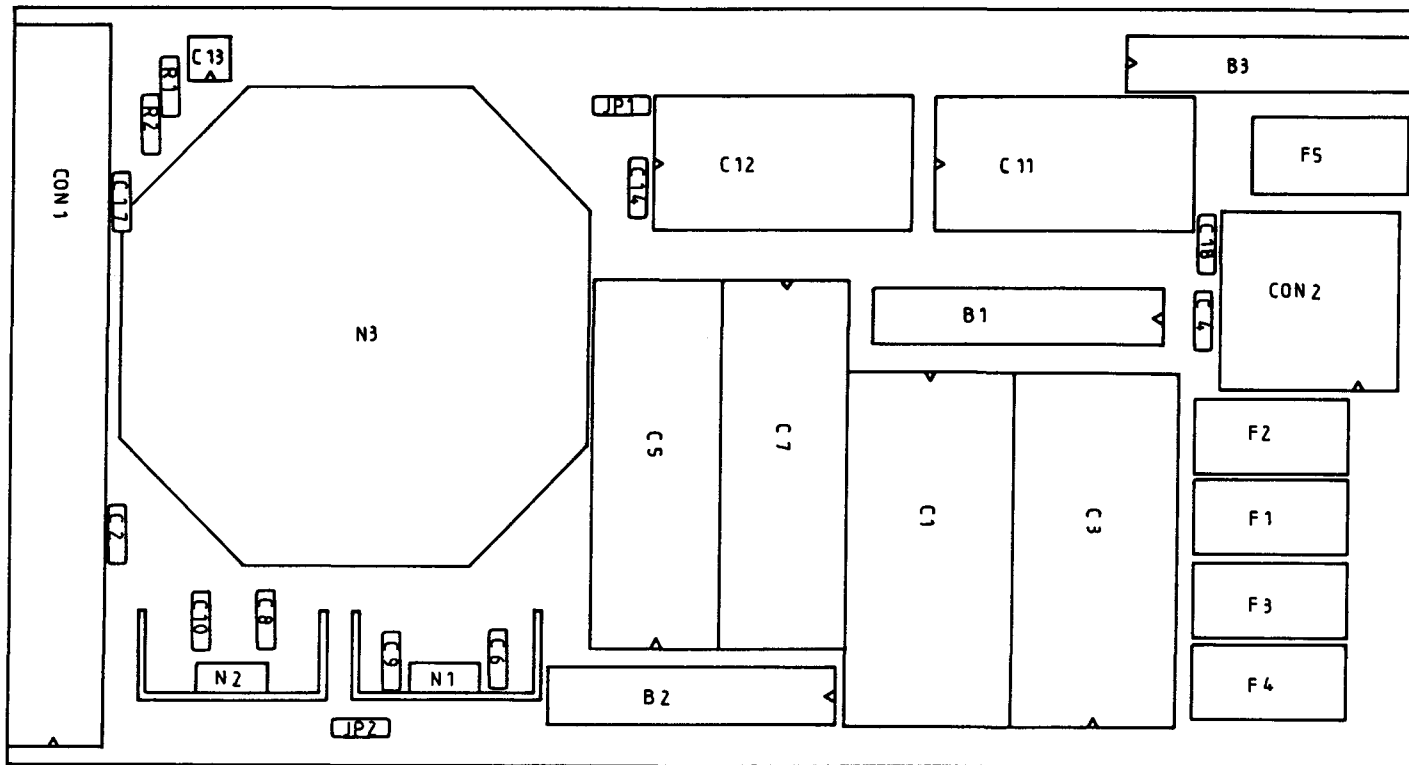
**POSITION DIAGRAM CARDS**

DESIGN:	RB/SvD/MH	01-06-89	<b>JOHANNUS</b> <b>OPUS 1200</b>
DRAWN:	VERSCHOOR	09-01-90	
MODIFIED:			
copyright: <b>JOHANNUS Orgelbouw b.v.</b> Morsestraat 28 6716AH EDE HOLLAND Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238			page <b>1</b>

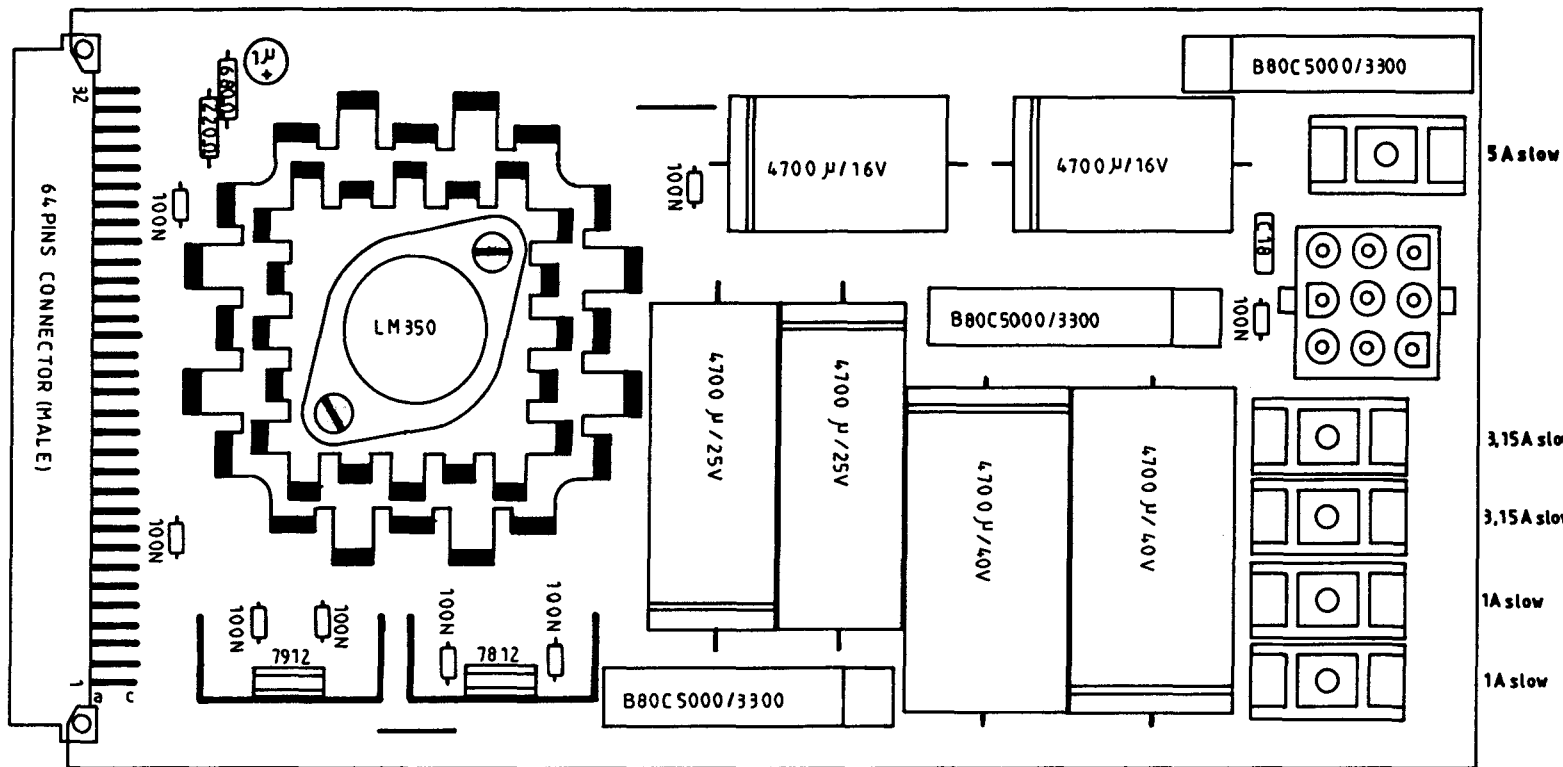


<b>COMPONENT NUMBERING BUS CARD</b>			
DESIGN:	RB/SvD/MH	01 - 06 - 89	<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR	02 - 06 - 89	
MODIFIED:			
copyright: <b>JOHANNUS</b> Orgelbouw b.v. Morsestraat 28 6716AH EDE HOLLAND			page
Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238			2





<b>COMPONENT-NUMBERING SUPPLY CARD</b>			
DESIGN:	RB/SvD/MH	01-08-89	<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR	21-08-89	
MODIFIED:			
copyright: <b>JOHANNUS Orgelbouw b.v.</b> Morsestraat 28 6716AH EDE HOLLAND Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238			page 4

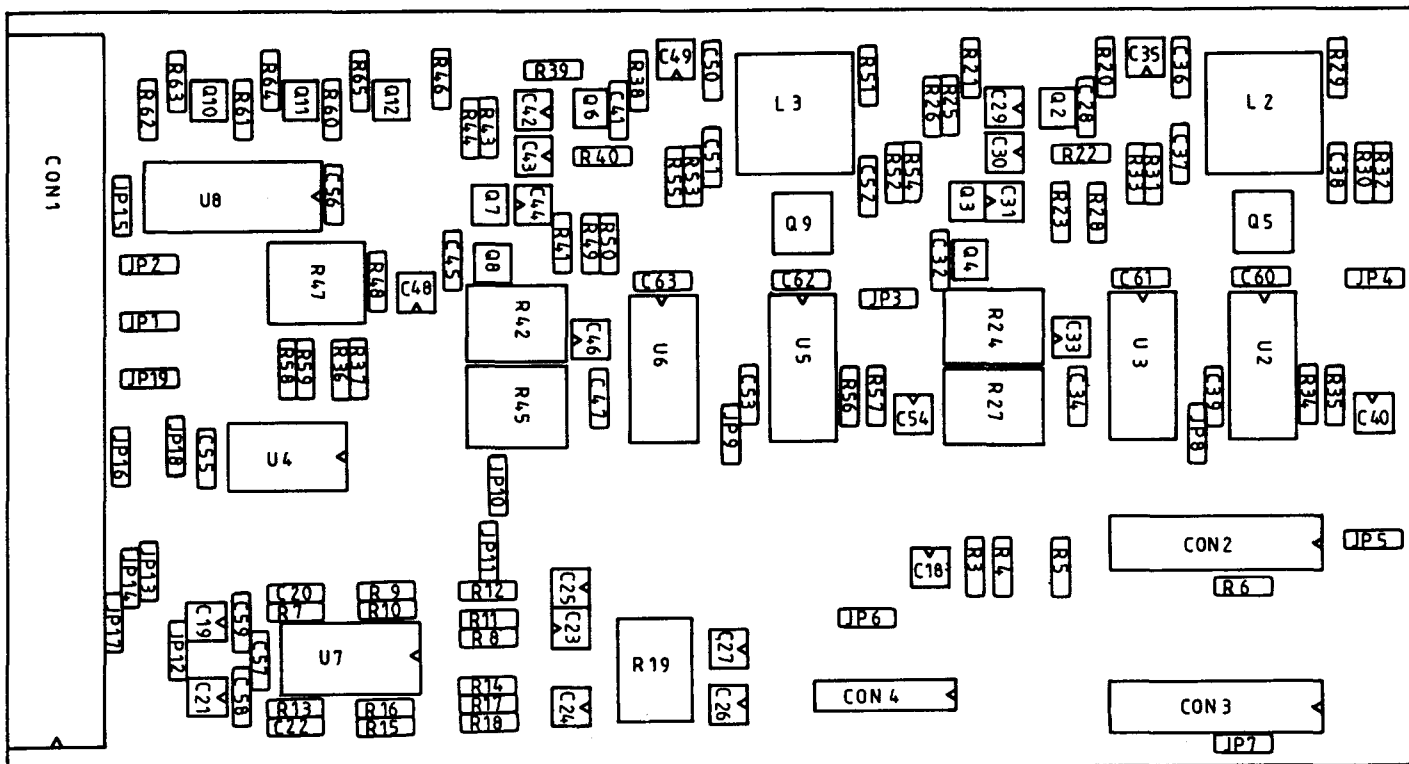


LAY OUT SUPPLY CARD

DESIGN:	RB/SvD/MH	01-08-89
DRAWN:	VERSCHOOR	10-01-90
MODIFIED:		

**JOHANNUS**  
OPUS 1200

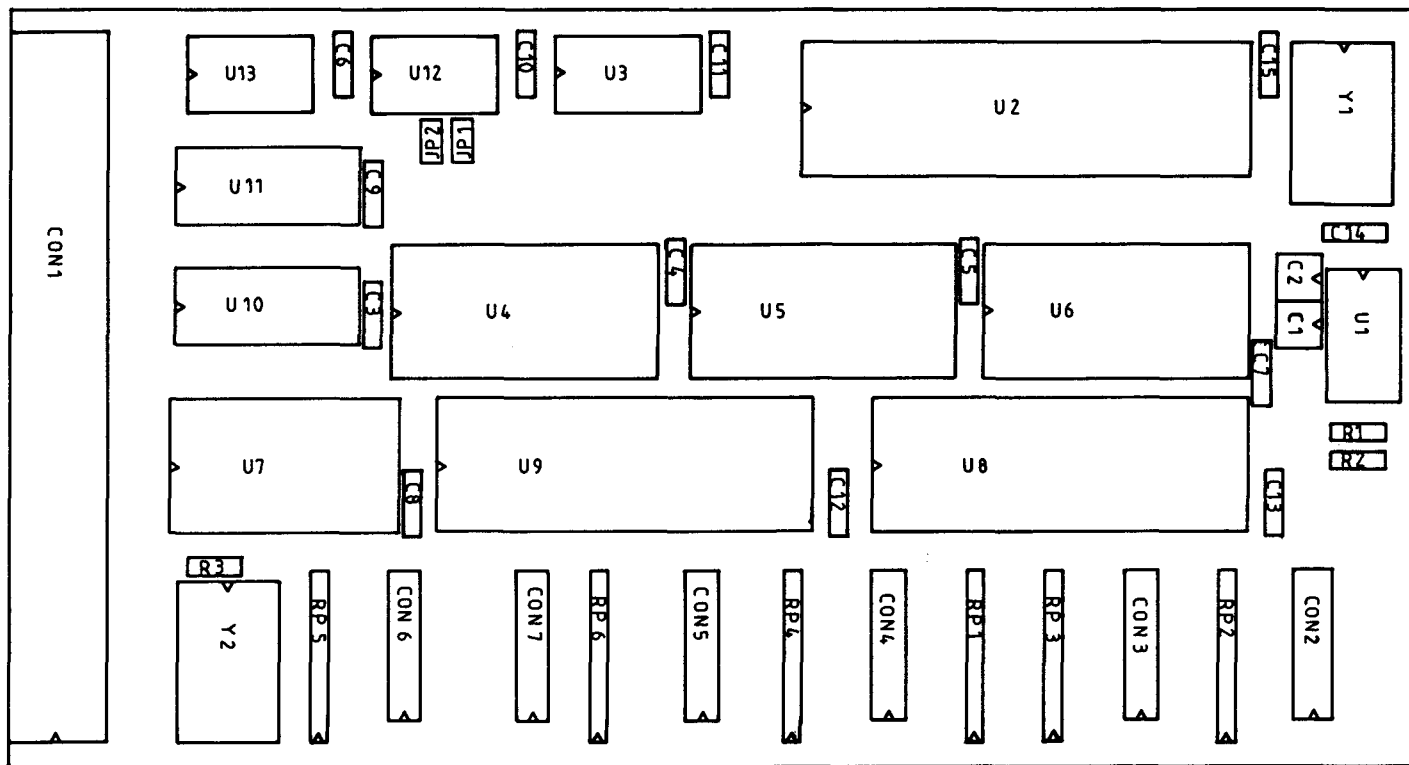
copyright: **JOHANNUS Orgelbouw b.v.**  
Morsestraat 28 6716AH EDE HOLLAND  
Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238



COMPONENT NUMBERING GENERATOR CARD			
DESIGN:	RB/SvD/MH	01-06-89	<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR	22-05-89	
MODIFIED:	VERSCHOOR	21-08-89	
copyright: JOHANNUS Orgelbouw b.v. Morsestraat 28 6716AH EDE HOLLAND			page 6
Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238			







COMPONENT-NUMBERING PROCESSOR-CARD

DESIGN: RB/SvD/MH 01-06-89

DRAWN: VERSCHOOR 21-04-89

MODIFIED:

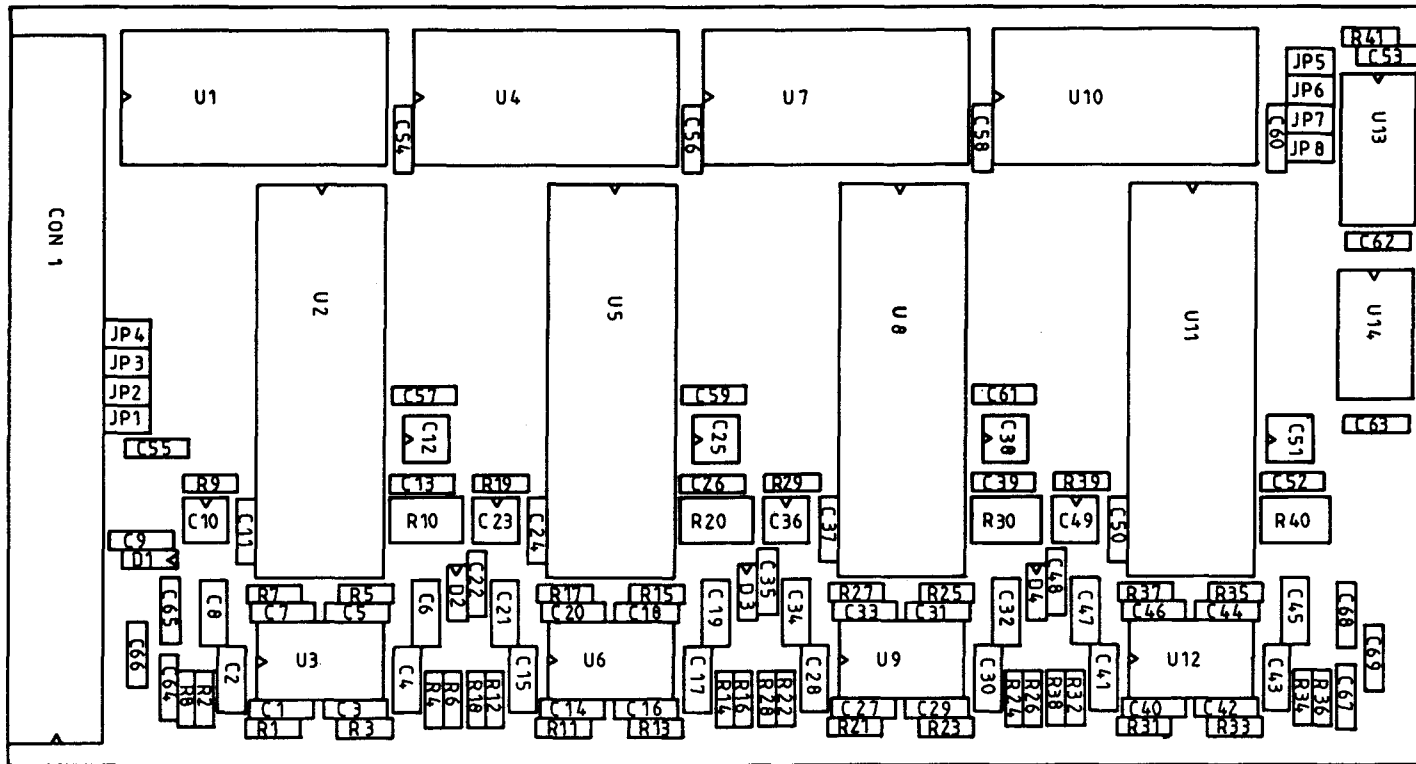
**JOHANNUS**  
OPUS 1200

copyright: **JOHANNUS** Orgelbouw b.v.  
Morsestraat 28 6716AH EDE HOLLAND  
Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238

page

8





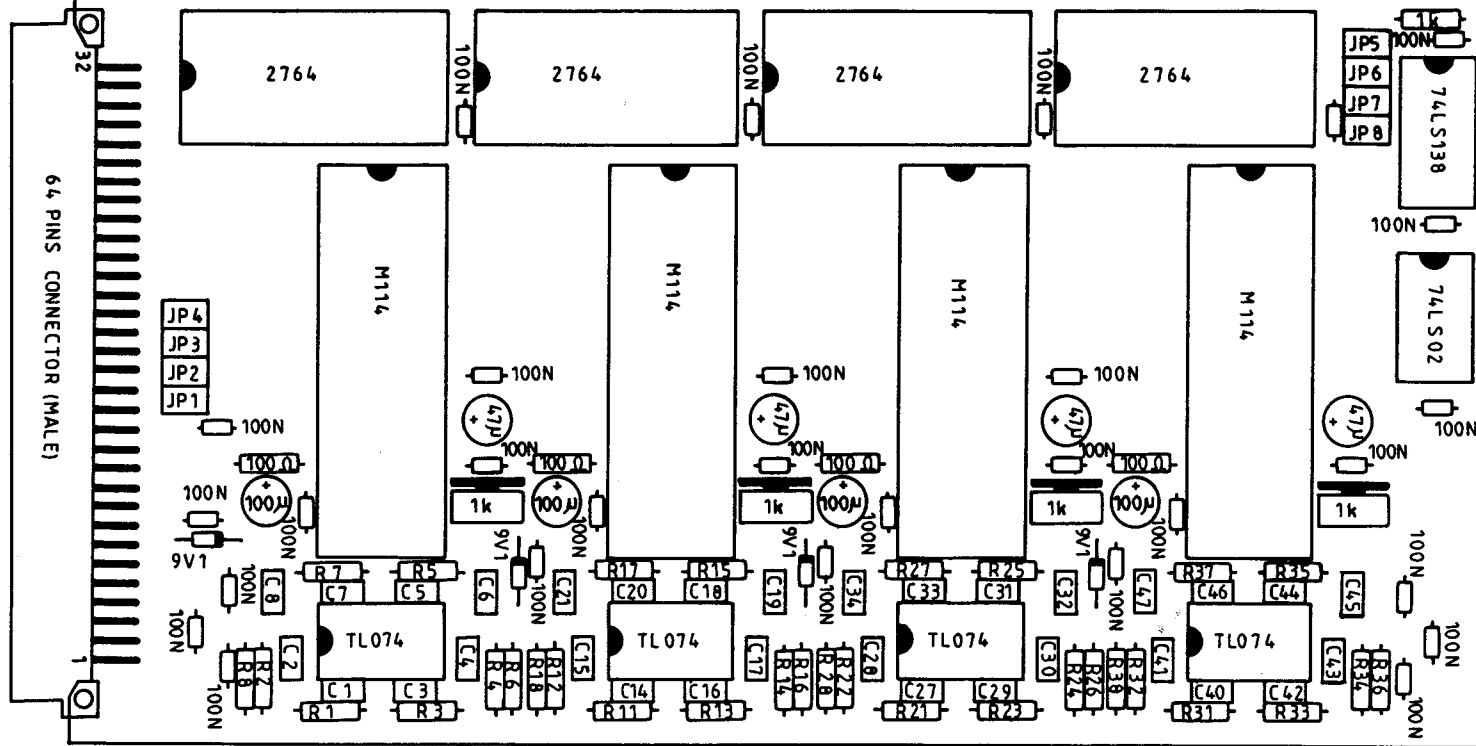
COMPONENT-NUMBERING VOICE-CARD (5x)

DESIGN:	RB/SvD/MH	01-06-89
DRAWN:	VERSCHOOR	21-04-89
MODIFIED:		

**JOHANNUS**  
OPUS 1200

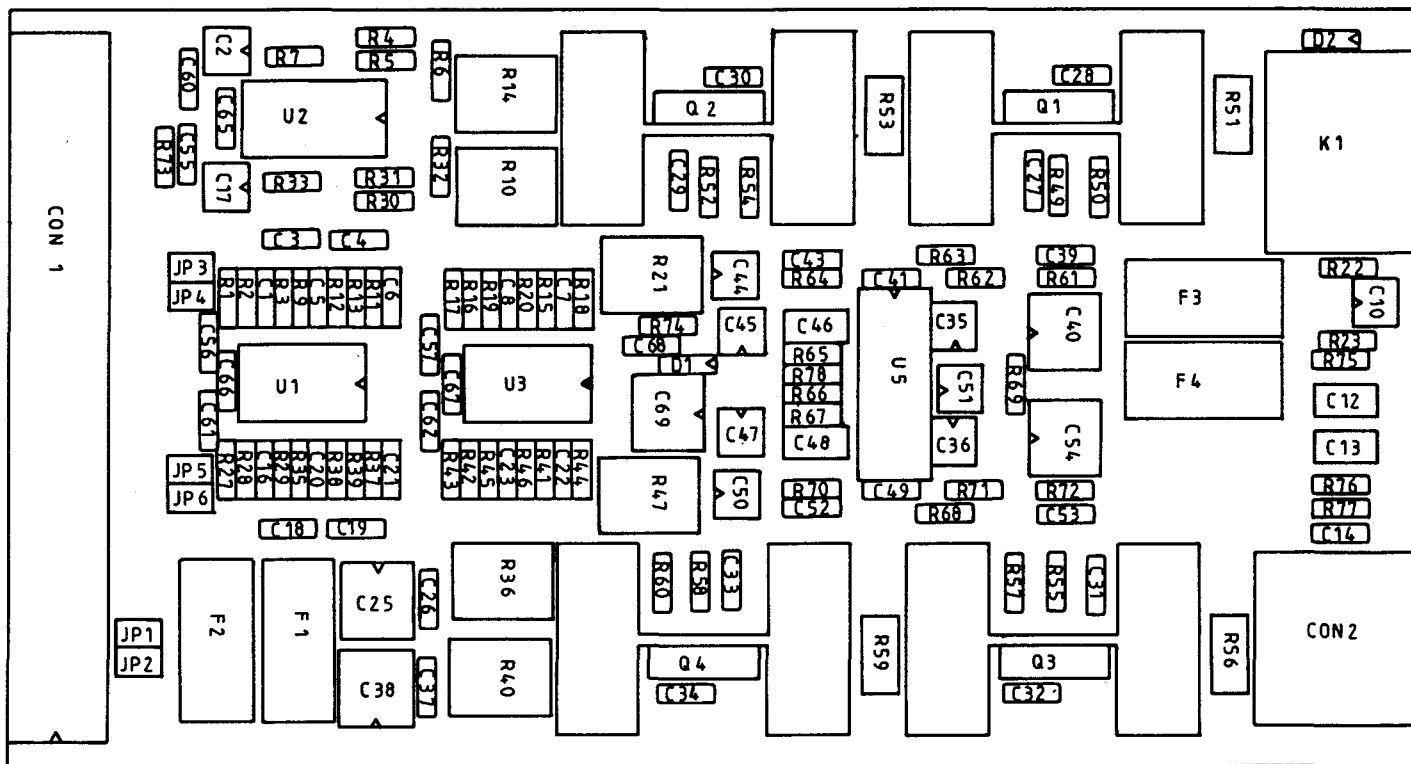
copyright: **JOHANNUS** Orgelbouw b.v.  
Morsestraat 28 6716AH EDE HOLLAND  
Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238

CARD 1	STOPPED FLUTE 8'	VOX CELESTE 8'	WALDFLUTE 2'	VIOLON 4'	VOICES SWELL
	SESQUIALTERA II RKS	VIOLA DA GAMBA 8'	PRINCIPAL 8'	QUINTATON 16'	VOICES SWELL
CARD 2	CROMORNE 8'	OCTAVE 1'	ROHRFLUTE 4'	OCTAVE 4'	VOICES SWELL
	VOX HUMANA 8'	NASARD 1 1/3'	FLUTE TWELFTH 2 2/3'	RAUSCHPFEIFFE IV RKS	VOICES SWELL
CARD 3	TWELFTH 2 2/3'	CONTRA TRUMPET 16'	CORNET IV RKS	BOURDON 16'	VOICES GREAT
	FLUTE 4'		GAMBA 8'	FLUTE 2'	VOICES GREAT
CARD 4	OCTAVE 2'	PRINCIPAL 8'	MIXTURE V - VI RKS	SALICIONAL 4'	VOICES GREAT
	TRUMPET 8'		ROHRFLUTE 8'	OCTAVE 4'	VOICES GREAT
CARD 5	TRUMPET 8'	PRINCIPAL 8'	SUBBASS 16'	CONTRA TRUMPET 16'	VOICES PEDAL
	BOMBARDE 32'	DOUBLE BASS	GEDACKT 8'	OCTAVE 4'	VOICES PEDAL



LAY OUT VOICE CARD (5x)		
DESIGN:	RB/SvD/MH	01-06-89
DRAWN:	VERSCHOOR	10-01-89
MODIFIED:		
copyright: JOHANNUS Orgelbouw b.v. Morsestraat 28 6716AH EDE HOLLAND		page
Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238		11



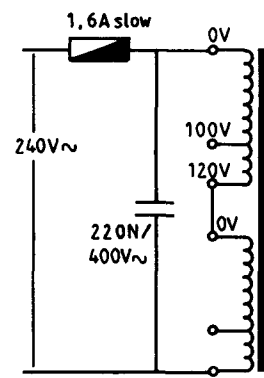
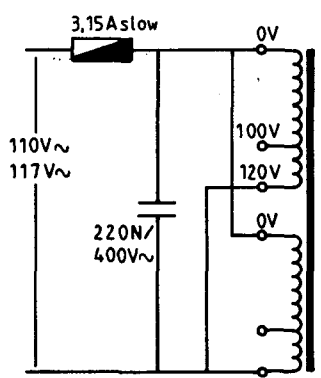
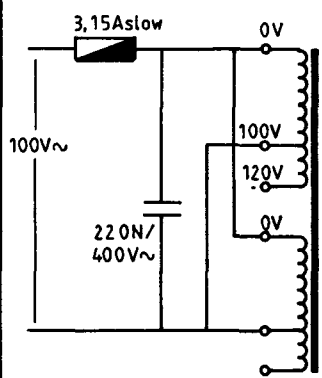
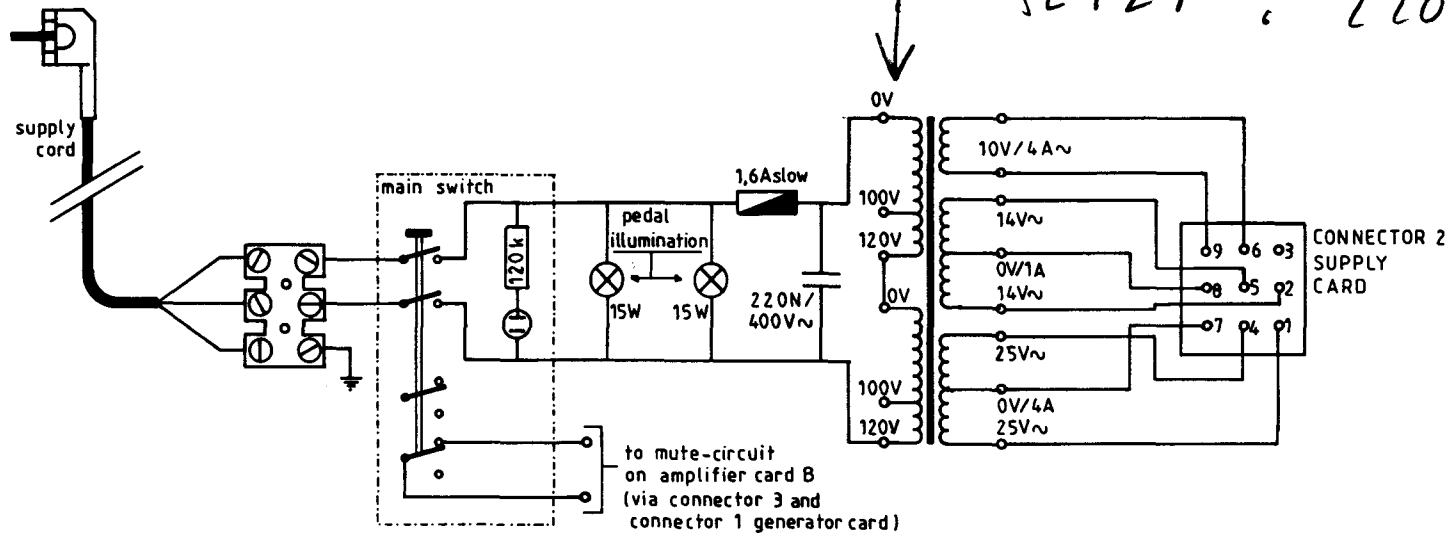


COMPONENT-NUMBERING AMPLIFIER-CARD (2x)			
DESIGN:	RB/SvD/MH	01-06-89	<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR	25-04-89	
MODIFIED:			
copyright: JOHANNUS Orgelbouw b.v. Morsestraat 28 6716AH EDE HOLLAND Tel.08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238			page 13



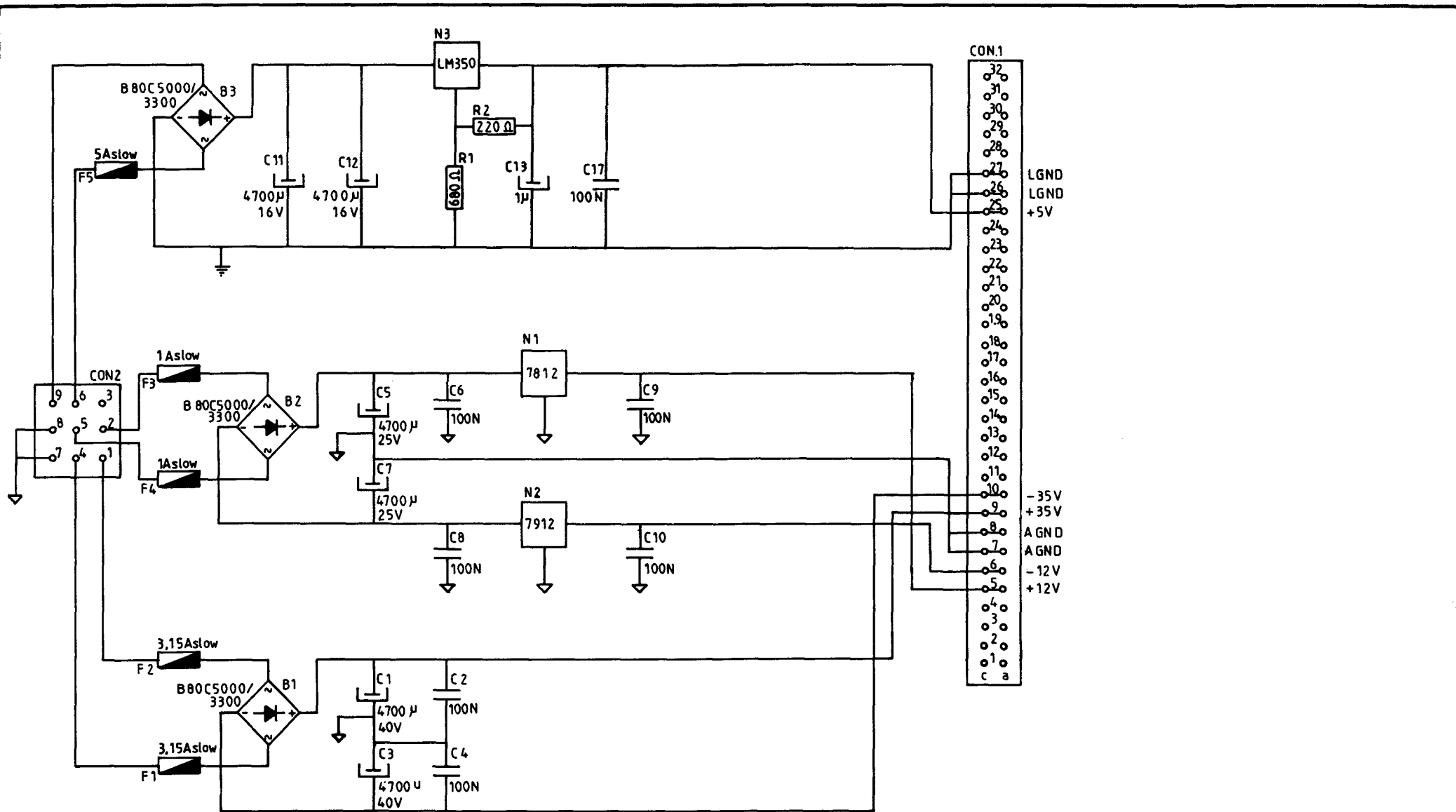


JET2T : 220V



↑ 110V / FÜR USA

TRANSFORMER CONNECTIONS			
DESIGN:	RB/SvD/MH	01-06-89	<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR	20-06-89	
MODIFIED:			
copyright: JOHANNUS Orgelbouw b.v. Morsestraat 28 6716AH EDE HOLLAND Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238			page 15



POWER SUPPLY (supply card)			
DESIGN:	RB/SvD/MH	01 - 06 - 89	<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR	10 - 01 - 90	
MODIFIED:	VERSCHOOR	22 - 08 - 89	
copyright: <b>JOHANNUS Orgelbouw b.v.</b> Morsestraat 28 8716 AH EDE HOLLAND Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238			page 16

CON. 10

SELO	032	SEL1
SEL2	031	SEL3
SEL4	030	SEL5
SEL6	029	SEL7
	028	
LGND	027	LGND
LGND	026	LGND
+5V	025	+5V
	024	
	023	
	022	
	021	
EPROM CHOISE	020	
CLOCK SWELL	019	MIDI OUT
LGND	018	LGND
LGND	017	LGND
CLOCK GREAT	016	CLOCK GREAT
	015	
	014	
EXPR. PED. GREAT	013	
EXPR. PED. SWELL	012	PHONES ON/OFF
MUTE	011	GEN. VOL.
-35V	010	-35V
+35V	09	+35V
AGND	08	AGND
AGND	07	AGND
-12V	06	-12V
+12V	05	+12V
ECHO IN A	04	
ECHO IN B	03	ECHO OUT
POWER-AMP IN4	02	POWER-AMP IN3
POWER-AMP IN2	01	POWER-AMP IN1
	c	a

GENERATOR CARD

CON. 8,9

	032	
	031	
	030	
	029	
	028	
LGND	027	LGND
LGND	026	LGND
+5V	025	+5V
	024	
	023	
	022	
	021	
EPROM CHOISE	020	
CLOCK SWELL	019	MIDI OUT
LGND	018	LGND
LGND	017	LGND
CLOCK GREAT	016	CLOCK GREAT
	015	
	014	
	013	
	012	PHONES ON/OFF
MUTE	011	GEN. VOL.
-35V	010	-35V
+35V	09	+35V
AGND	08	AGND
AGND	07	AGND
-12V	06	-12V
+12V	05	+12V
ECHO IN A	04	
ECHO IN B	03	ECHO OUT
POWER-AMP IN4	02	POWER-AMP IN3
POWER-AMP IN2	01	POWER-AMP IN1
	c	a

AMPLIFIER CARD

CON. 3,4,5,6,7

SELO	032	SEL1
SEL2	031	SEL3
SEL4	030	SEL5
SEL6	029	SEL7
	028	
LGND	027	LGND
LGND	026	LGND
+5V	025	+5V
B1	024	B0
B3	023	B2
B5	022	B4
B7	021	B6
DATA STROBE	020	RESM114
EPROM CHOISE	020	MIDI OUT
CLOCK SWELL	019	LGND
LGND	018	LGND
LGND	017	LGND
CLOCK GREAT	016	CLOCK GREAT
	015	
	014	
	013	
	012	
	011	
-35V	010	-35V
+35V	09	+35V
AGND	08	AGND
AGND	07	AGND
-12V	06	-12V
+12V	05	+12V
	04	
	03	
PRE-AMP OUT4	02	PRE-AMP OUT3
PRE-AMP OUT2	01	PRE-AMP OUT1
	c	a

VOICE CARD

CON. 2

SELO	032	SEL1
SEL2	031	SEL3
SEL4	030	SEL5
SEL6	029	SEL7
	028	
LGND	027	LGND
LGND	026	LGND
+5V	025	+5V
B1	024	B0
B3	023	B2
B5	022	B4
B7	021	B6
DATA STROBE	020	RESM114
EPROM CHOISE	020	MIDI OUT
CLOCK SWELL	019	LGND
LGND	018	LGND
LGND	017	LGND
CLOCK GREAT	016	CLOCK GREAT
	015	
	014	
	013	
	012	
	011	
-35V	010	-35V
+35V	09	+35V
AGND	08	AGND
AGND	07	AGND
-12V	06	-12V
+12V	05	+12V
	04	
	03	
	02	
	01	
	c	a

PROCESSOR CARD

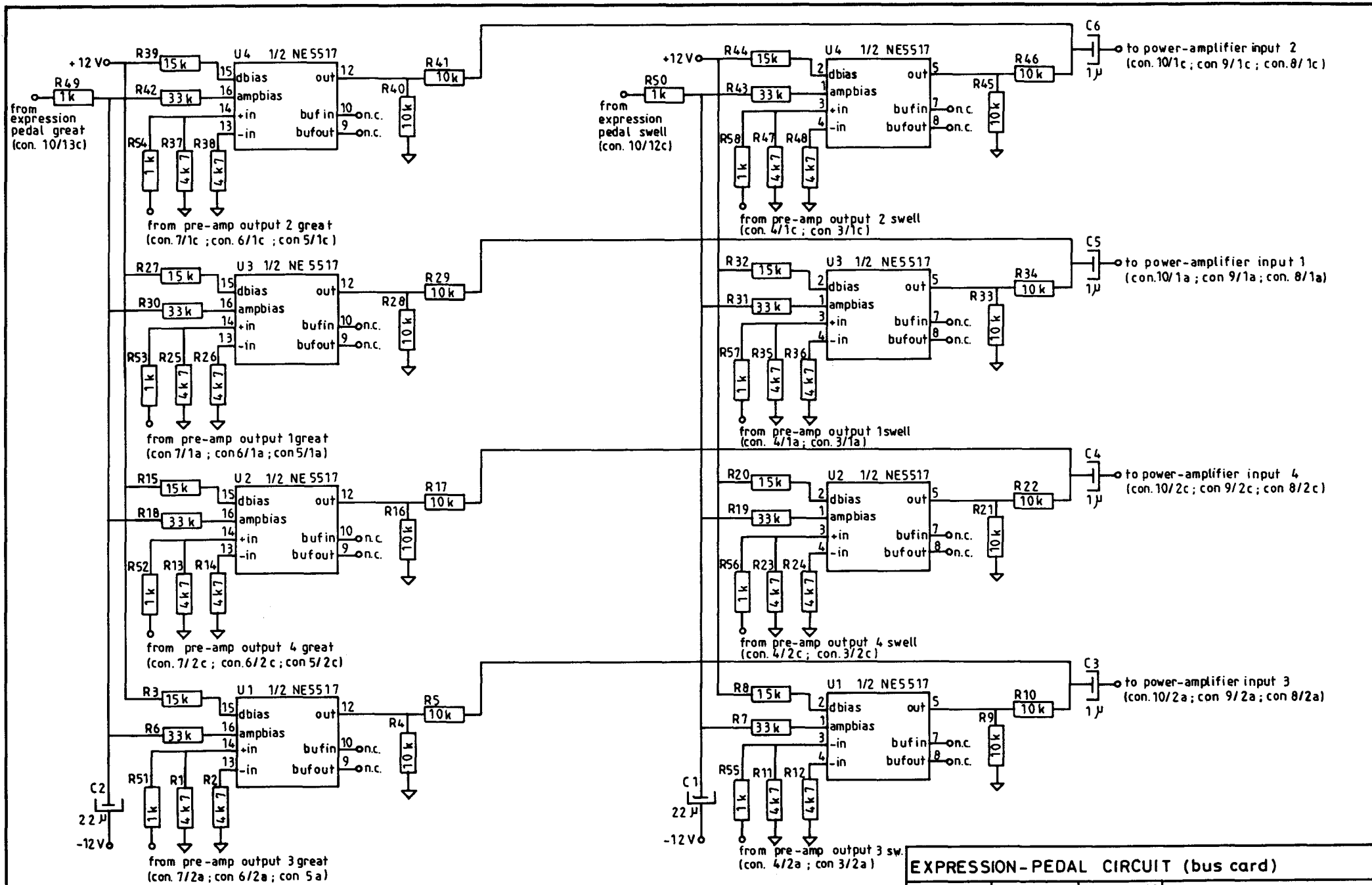
CON. 1

	032	
	031	
	030	
	029	
	028	
LGND	027	LGND
LGND	026	LGND
+5V	025	+5V
	024	
	023	
	022	
	021	
	020	
	019	
	018	
	017	
	016	
	015	
	014	
	013	
	012	
	011	
-35V	010	-35V
+35V	09	+35V
AGND	08	AGND
AGND	07	AGND
-12V	06	-12V
+12V	05	+12V
	04	
	03	
	02	
	01	
	c	a

SUPPLY CARD

PINNING BUS CARD CONNECTORS

DESIGN:	RB/SvD/MH	01-06-89	<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR	26-06-89	
MODIFIED:			
copyright:	JOHANNUS Orgelbouw b.v. Morsestraat 28 6716AH EDE HOLLAND		page 17

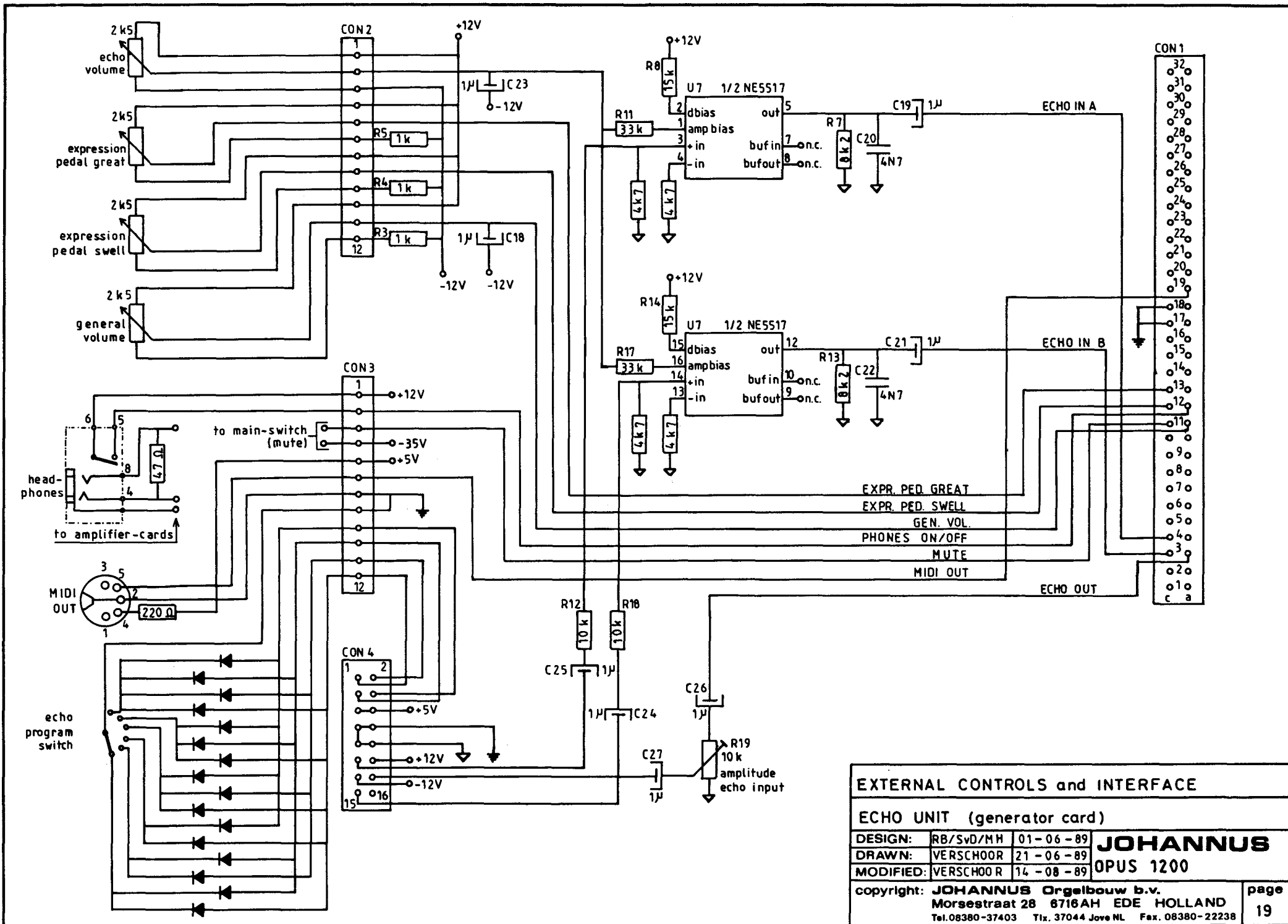


**EXPRESSION-PEDAL CIRCUIT (bus card)**

DESIGN: R B/SvD/MH 01-06-89  
 DRAWN: VERSCHOOR 23-06-89  
 MODIFIED:

**JOHANNUS**  
 OPUS 1200

copyright: **JOHANNUS Orgelbouw b.v.**  
 Morsestraat 28 6716AH EDE HOLLAND  
 Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238

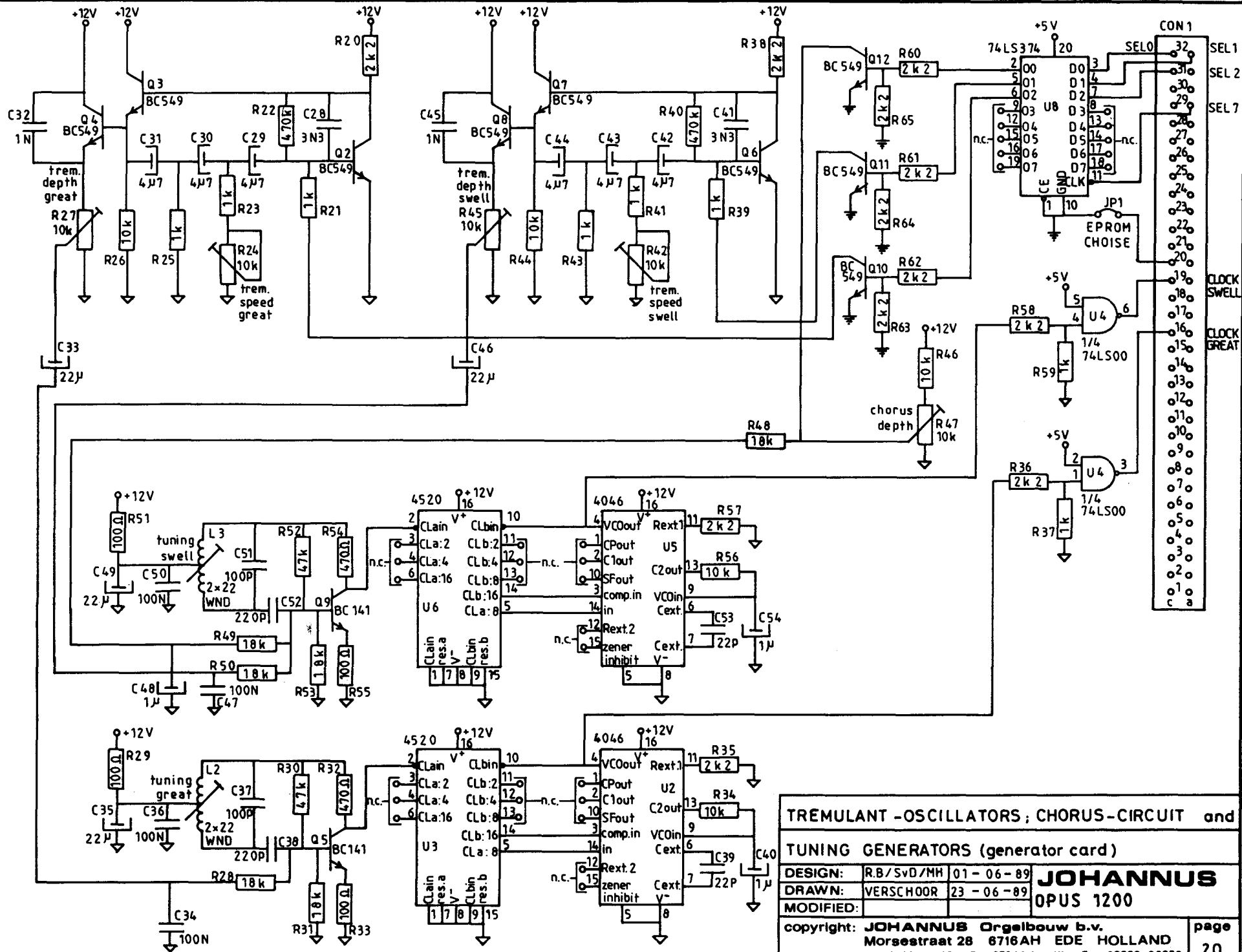


**EXTERNAL CONTROLS and INTERFACE**

**ECHO UNIT (generator card)**

DESIGN:	RB/SvD/MH	01-06-89	<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR	21-06-89	
MODIFIED:	VERSCHOOR	14-08-89	

copyright: **JOHANNUS Orgelbouw b.v.**  
 Morsestraat 28 6716AH EDE HOLLAND  
 Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238

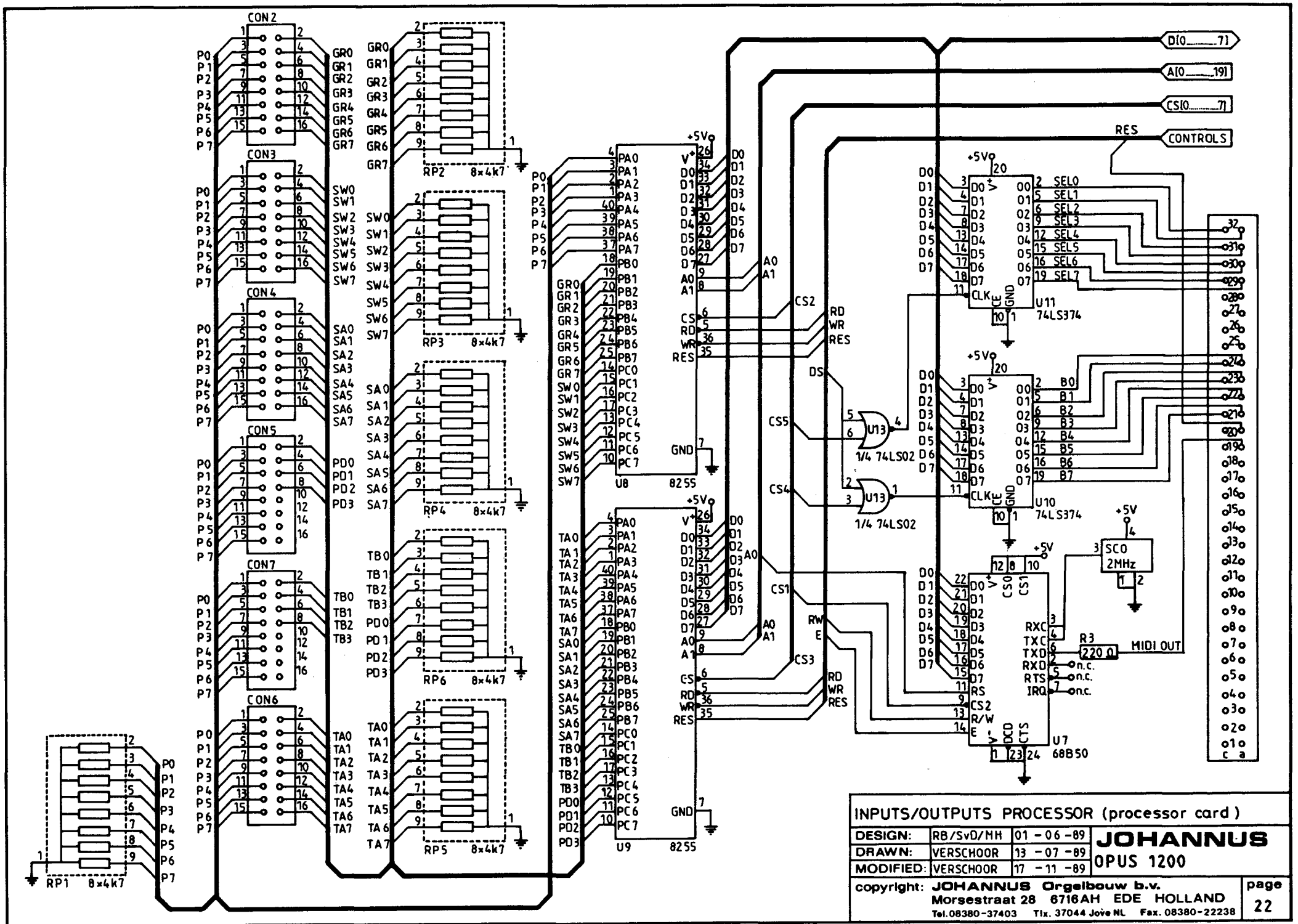


TREMULANT - OSCILLATORS ; CHORUS - CIRCUIT and

TUNING GENERATORS (generator card)

DESIGN:	R.B/SvD/MH	01 - 06 - 89	<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR	23 - 06 - 89	
MODIFIED:			



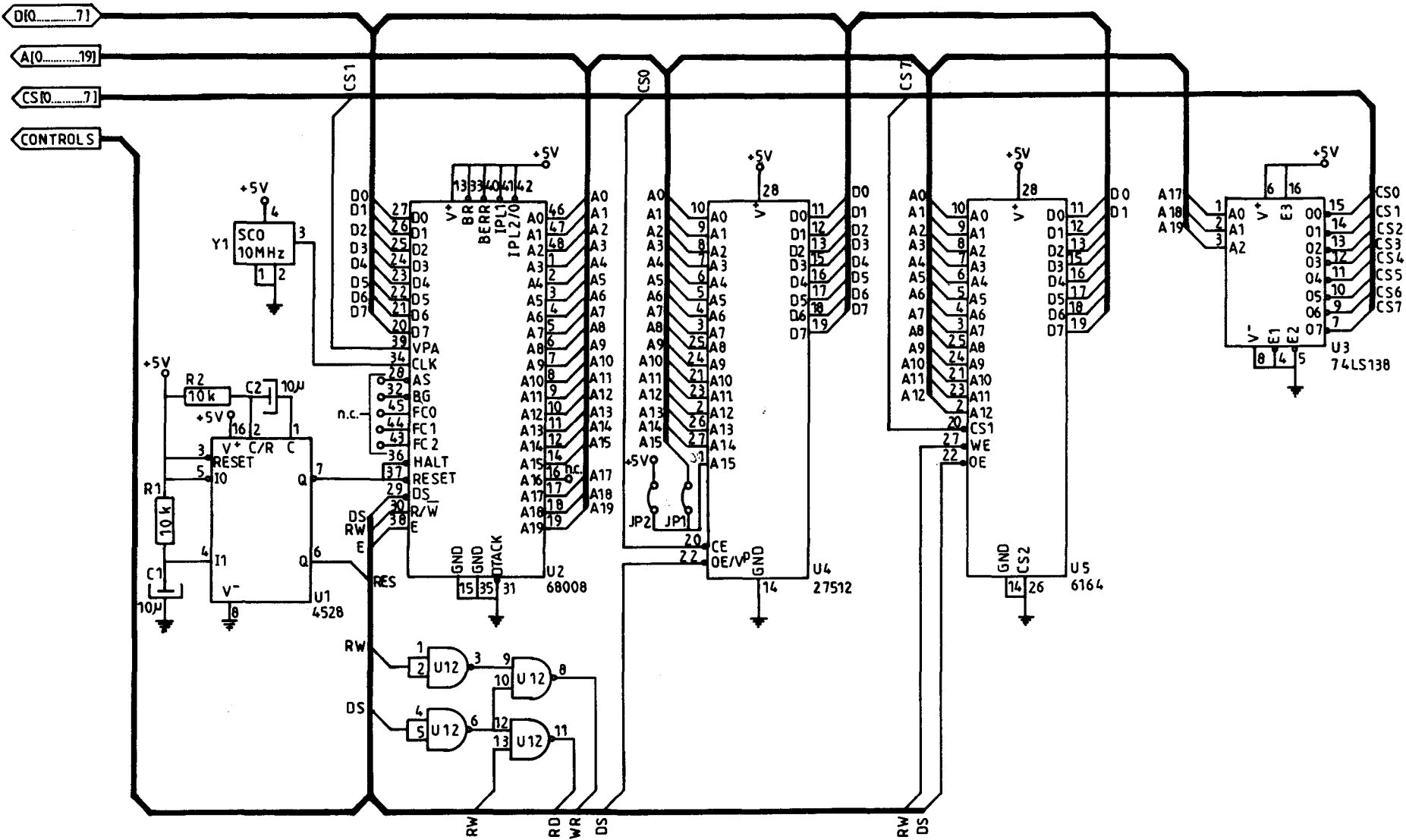


**INPUTS/OUTPUTS PROCESSOR (processor card)**

DESIGN:	RB/SvD/MH	01 - 06 - 89	<b>JOHANNUS</b> <b>OPUS 1200</b>
DRAWN:	VERSCHOOR	13 - 07 - 89	
MODIFIED:	VERSCHOOR	17 - 11 - 89	

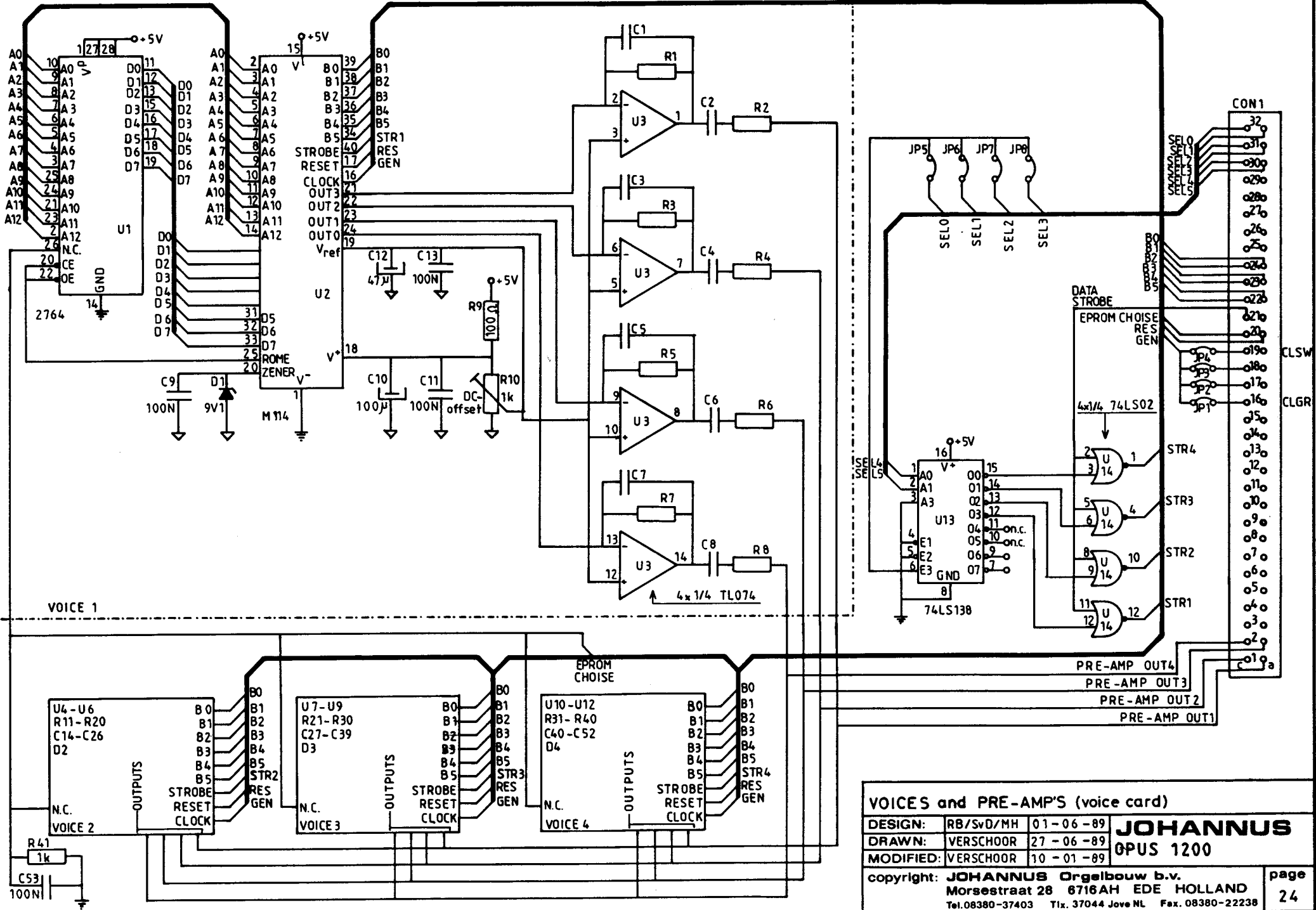
copyright: **JOHANNUS Orgelbouw b.v.**  
 Morsestraat 28 6716AH EDE HOLLAND  
 Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238



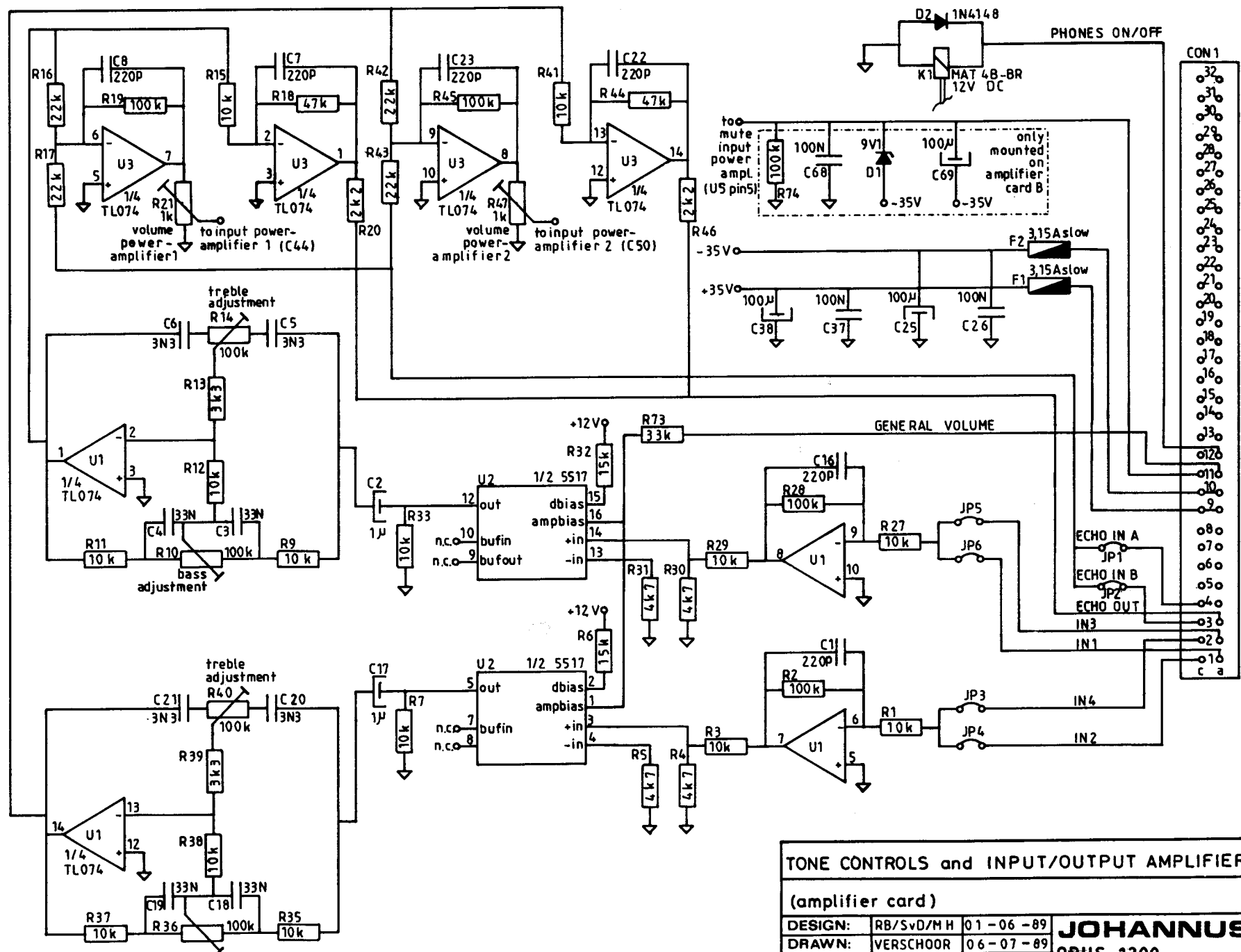


↑ 4x 1/4 74LS00

<b>PROCESSOR (processor card)</b>		
DESIGN:	RB/SvD/MH 01-06-89	<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR 10-01-90	
MODIFIED:		
copyright: JOHANNUS Orgelbouw b.v. Morsestraat 28 6716AH EDE HOLLAND Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238		page 23



VOICES and PRE-AMP'S (voice card)			
DESIGN:	RB/SvD/MH	01-06-89	<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR	27-06-89	
MODIFIED:	VERSCHOOR	10-01-89	
copyright: <b>JOHANNUS Orgelbouw b.v.</b> Morsestraat 28 6716AH EDE HOLLAND			page
Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238			24



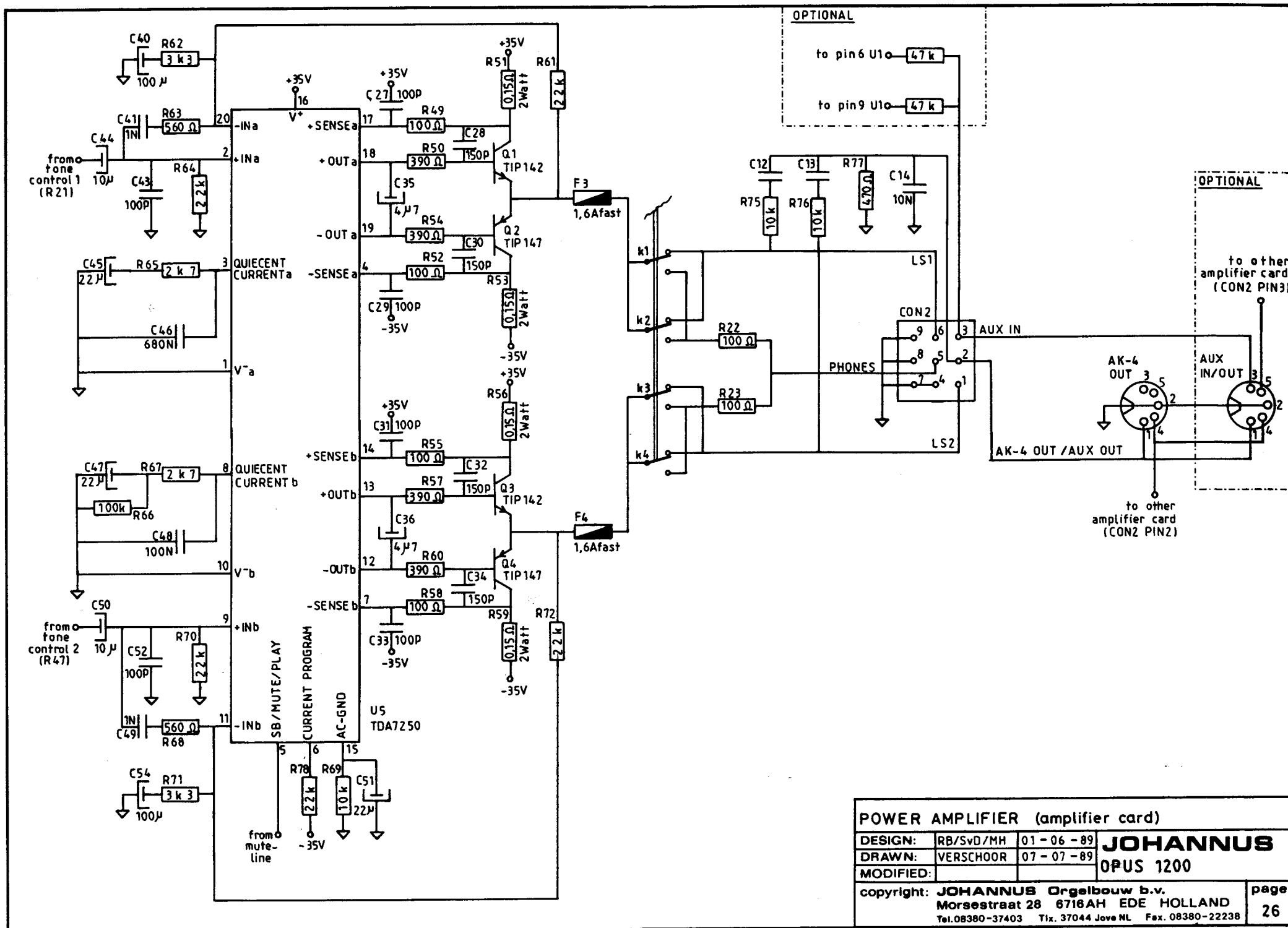
**TONE CONTROLS and INPUT/OUTPUT AMPLIFIERS**

(amplifier card)

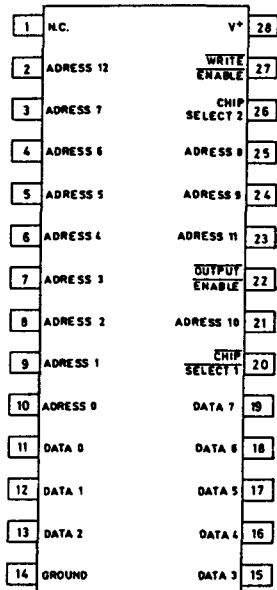
DESIGN: RB/SvD/M H 01-06-89  
 DRAWN: VERSCHOOR 06-07-89  
 MODIFIED:

**JOHANNUS**  
 OPUS 1200

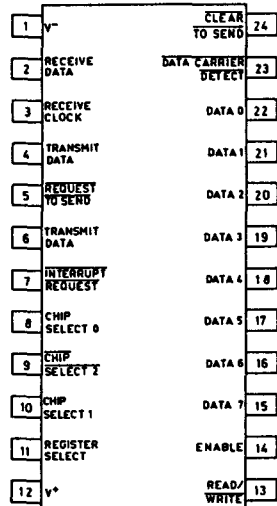
copyright: **JOHANNUS Orgelbouw b.v.**  
 Morsestraat 28 6716AH EDE HOLLAND  
 Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238



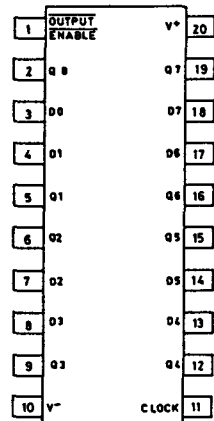
<b>POWER AMPLIFIER (amplifier card)</b>		
DESIGN:	RB/SvD/MH 01-06-89	<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR 07-07-89	
MODIFIED:		
copyright: JOHANNUS Orgelbouw b.v. Morsestraat 28 6716AH EDE HOLLAND Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238		page 26



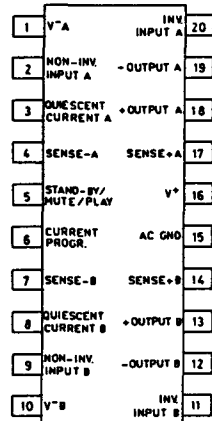
6164: 64k random access memory



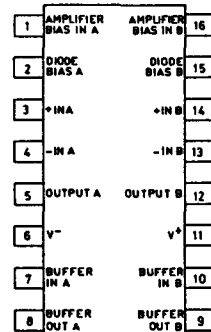
6850: asynchronous communication interface adapter



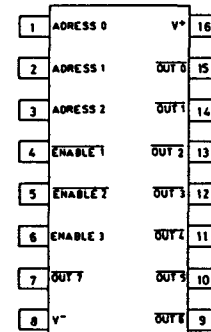
74374: octal D-flip-flop with 3-state outputs



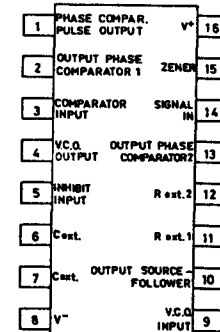
TDA7250: 60W hi-fi dual audio driver



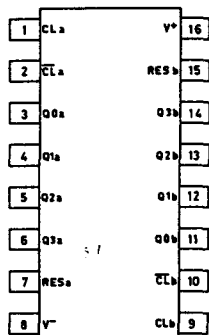
NE5517: dual operational transconductance amplifier



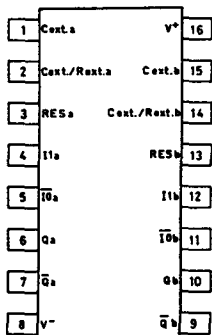
74138: 1-of-8 decoder/demultiplexer



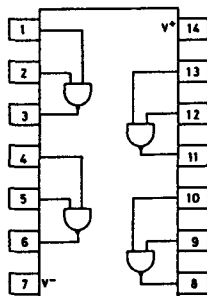
4046 phase locked loop circuit



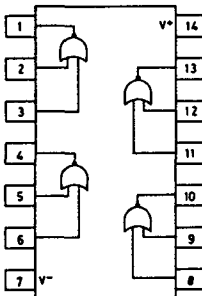
4520 dual binary counter



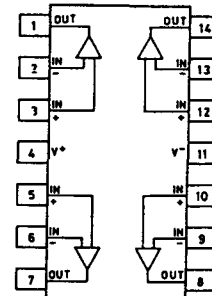
4528: dual monostable multivibrator



7400: quad NAND



7402: quad NOR

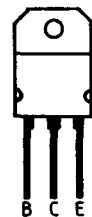
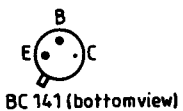
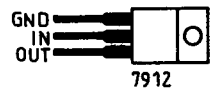
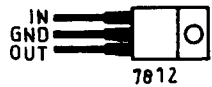
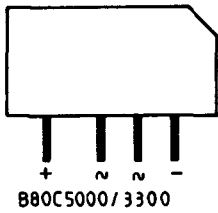
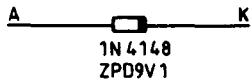


TL074: quad opamp

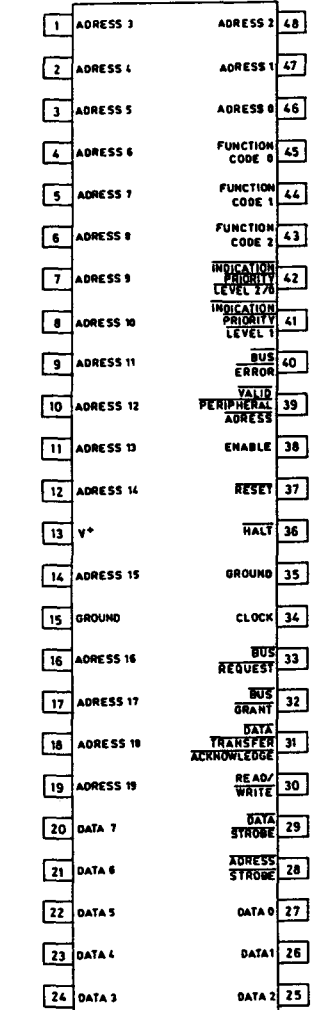
GENERAL INFORMATION SEMI CONDUCTORS (II)

DESIGN:		<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR 17-07-89	
MODIFIED:		

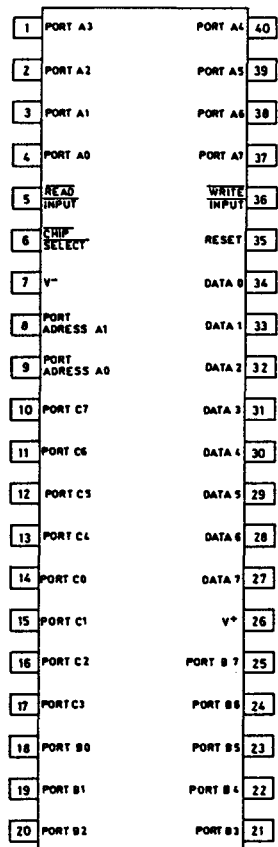
copyright: JOHANNUS Orgelbouw b.v.  
Morsestraat 28 6716AH EDE HOLLAND  
Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238



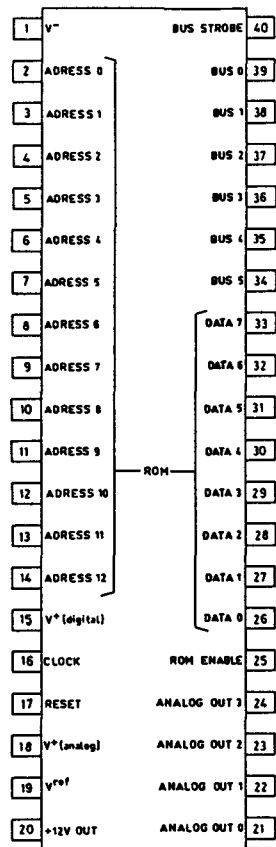
TIP 142  
TIP 147



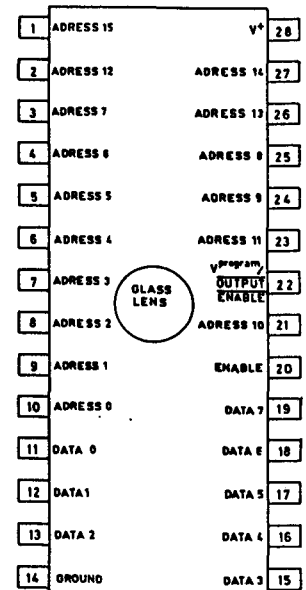
68008: 8-/32-bit micro-processor with 8-bit data bus



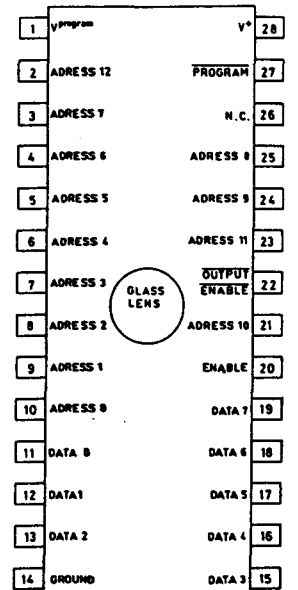
8255: programmable input/output interface



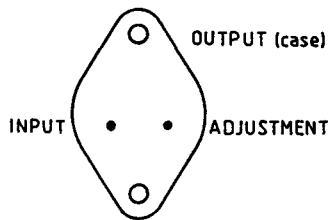
M 1145 digital sound generator



27512: 512k ultraviolet erasable programmable read only memory



2764: 64k ultraviolet erasable programmable read only memory



LM 350

GENERAL INFORMATION SEMI-CONDUCTORS (1)			
DESIGN:			<b>JOHANNUS</b> OPUS 1200
DRAWN:	VERSCHOOR	17-07-89	
MODIFIED:	VERSCHOOR	22-08-89	
copyright:	JOHANNUS Orgelbouw b.v. Morsestraat 28 6716AH EDE HOLLAND		page
Tel. 08380-37403 Tlx. 37044 Jove NL Fax. 08380-22238			27