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S C H E M A T I C   D I A G R A M S

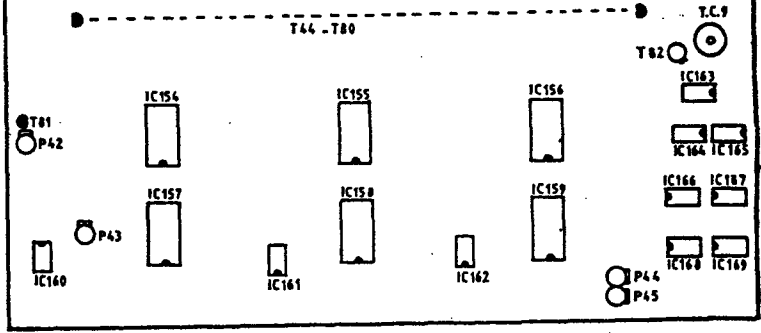
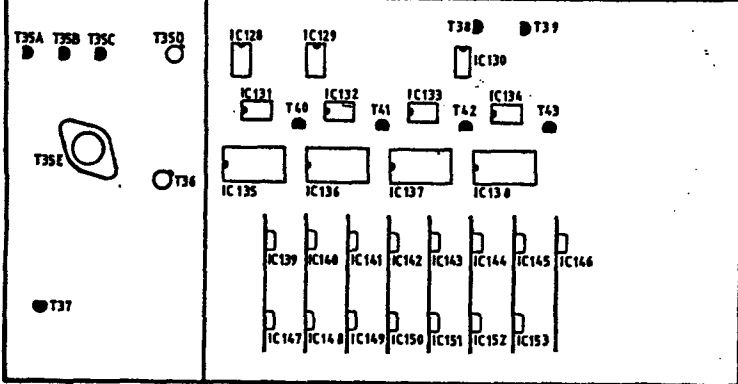
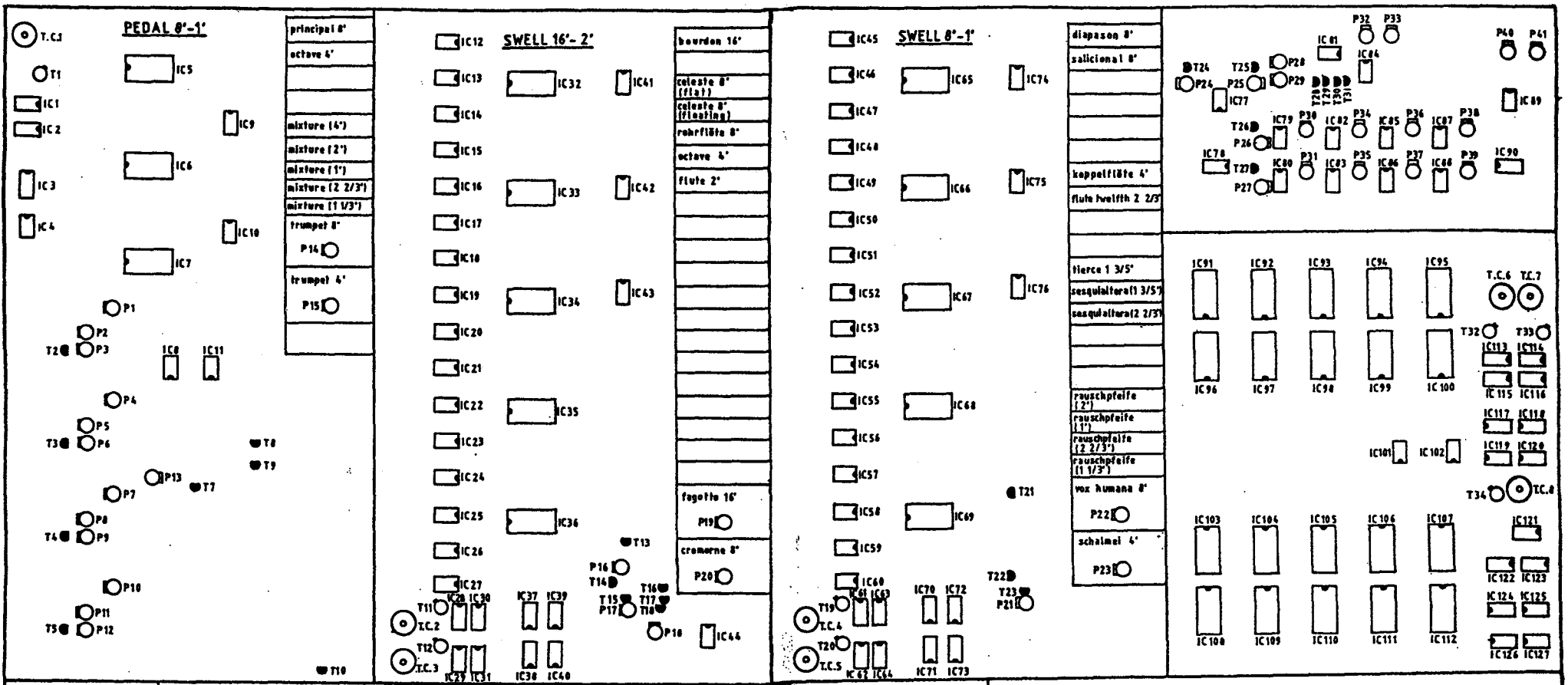
J O H A N N U S

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alterations reserved

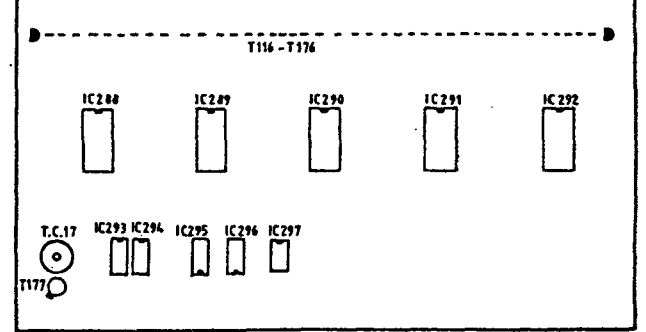
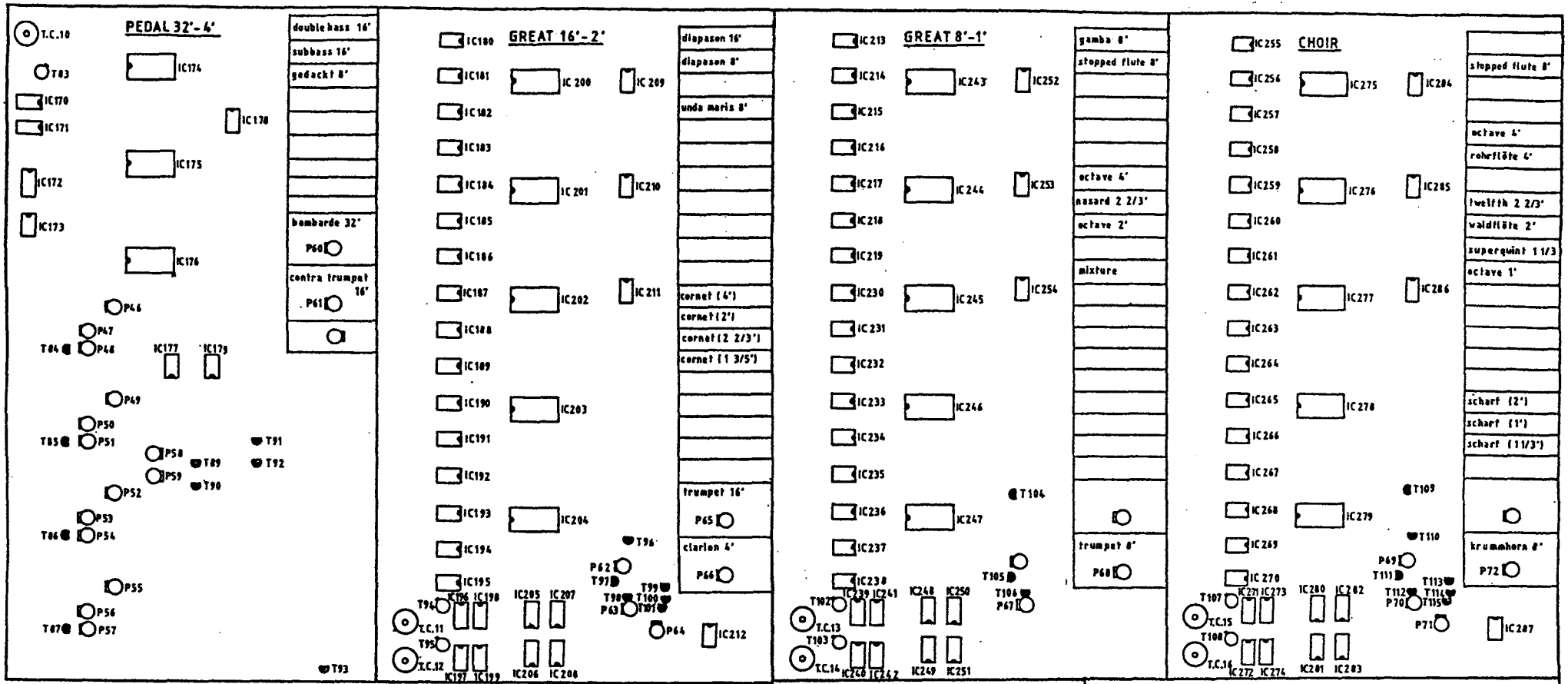
## C O N T E N T S

1. POSITION DIAGRAM (part 1)
2. POSITION DIAGRAM (part 2)
3. LEGEND POSITION DIAGRAM
4. POWER SUPPLY
5. SWITCH-SECTION TRANSPOSER; HICK CIRCUIT; TREMULANT CIRCUIT;  
EXPRESSION PEDAL CIRCUIT; CHORUS & VOLUME
6. COUPLER CIRCUIT
7. GENERATORS/TRANSPOSERS MIXTURE (upper) & PEDAL (2x lower)
8. GENERATORS/TRANSPOSERS MANUALS (2x GREAT; 2x SWELL & 1x CHOIR)
9. GENERATORS/TRANSPOSERS UNDA MARIS & TIERCE GREAT
10. GENERATOR/TRANSPOSER CELESTE (floating part) & TIERCE SWELL
11. GENERATOR/TRANSPOSER & POWER SUPPLY CARILLON
12. KEYING PEDAL (32'-4')
13. KEYING PEDAL (8'-1')
14. KEYING GREAT (16'-2')
15. KEYING SWELL (16'-2')
16. KEYING GREAT (8'-1' & SWELL 8'-1')
17. KEYING CHOIR
18. KEYING CARILLON
19. KEYING & PRE-AMP MIXTURE GREAT
20. KEYING & PRE-AMP'S UNDA MARIS GREAT
21. KEYING & PRE-AMP TIERCE GREAT
22. KEYING & PRE-AMP'S CELESTE SWELL (floating part)
23. KEYING & PRE-AMP'S TIERCE SWELL
24. PRE-AMP'S PEDAL (8'-1' & 32'-4')
25. PRE-AMP'S GREAT (16'-2')
26. PRE-AMP'S GREAT (8'-1')
27. PRE-AMP'S SWELL (16'-2')
28. PRE-AMP'S SWELL (8'-1')
29. PRE-AMP'S CHOIR
30. PRE-AMP'S; RESET/SQUELCH-CIRCUIT & VOICE CARILLON
31. VOICES PEDAL
32. VOICES GREAT
33. VOICES SWELL (part 1)
34. VOICES SWELL (part 2)
35. VOICES CHOIR
36. INPUT/OUTPUT CIRCUIT ECHO UNIT
37. DELAY LINE ECHO UNIT
38. VOICE AMPLIFIERS & HEADPHONES-CIRCUIT (part 1)
39. VOICE AMPLIFIERS & HEADPHONES-CIRCUIT (part 2)
40. POWER AMPLIFIER (8x)
41. LOUDSPEAKER-CIRCUIT
42. POWER SUPPLY; SWITCH-SECTION (presets & generals); RESET-CIRCUIT;  
Uref-CIRCUIT & 1/8 READ IN/READ OUT CARD CAPTURE SYSTEM
43. STOPBANK & MEMORY SECTION CAPTURE SYSTEM
44. GENERAL INFORMATION SEMI CONDUCTORS



T6 IS DISPOSED

POSITION DIAGRAM (part 1)				JOHANNUS ORGAN OPUS 270
Drawn	Date	Modified	Date	
Verschoor	28-04-86			
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LAB.				
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POSITION DIAGRAM (part 2)				JOHANNUS ORGAN OPUS 270
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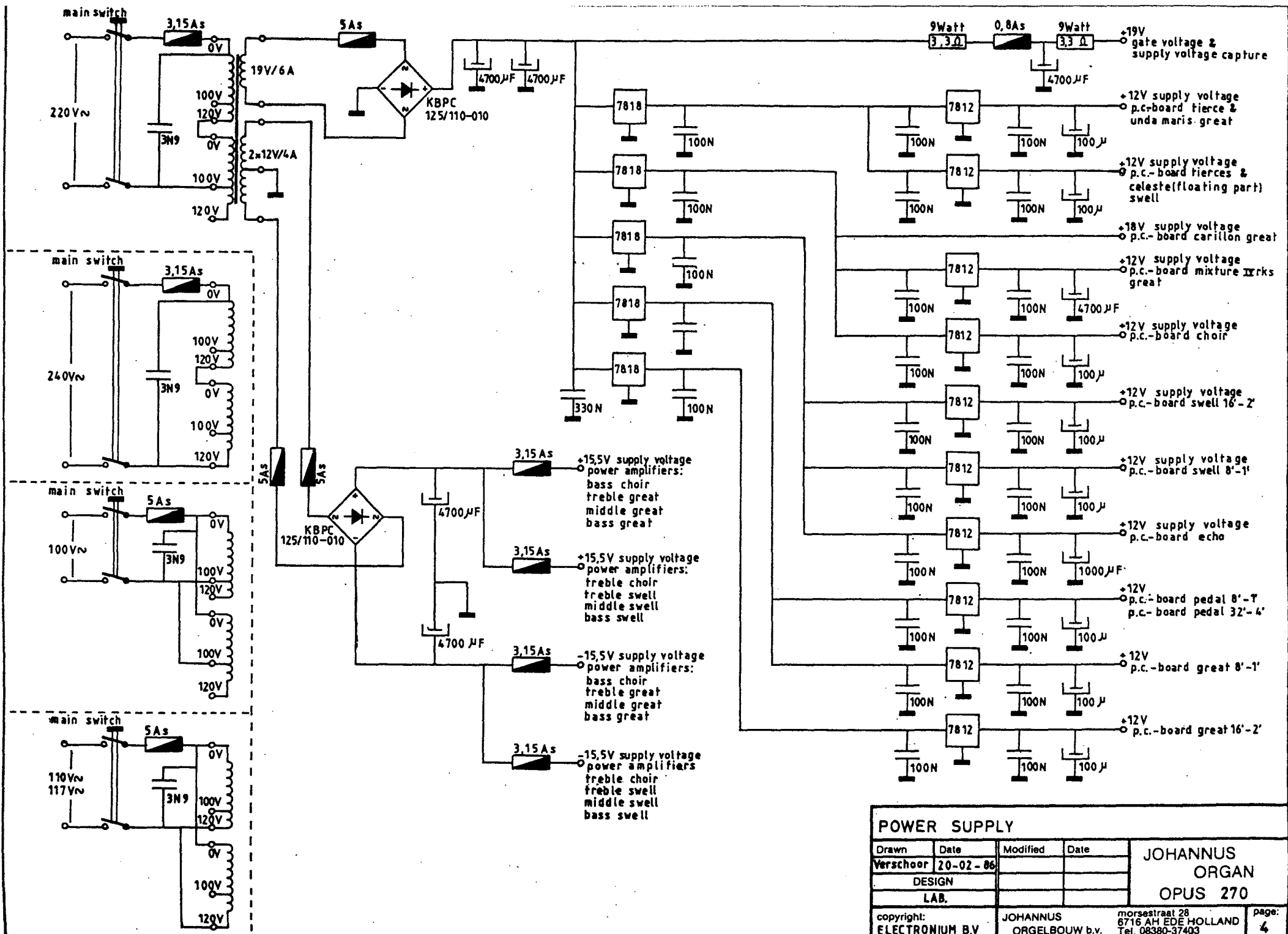
P1: volume treble choir amplifier  
 P2: bass adjustment treble choir amplifier  
 P3: treble adjustment treble choir amplifier  
 P4: volume treble swell amplifier  
 P5: bass adjustment treble swell amplifier  
 P6: treble adjustment treble swell amplifier  
 P7: volume middle swell amplifier  
 P8: bass adjustment middle swell amplifier  
 P9: treble adjustment middle swell amplifier  
 P10: volume bass swell amplifier  
 P11: bass adjustment bass swell amplifier  
 P12: treble adjustment bass swell amplifier  
 P13: linearity expression pedal swell  
 P14: volume trumpet 8' pedal  
 P15: volume trumpet 4' pedal  
 P16: tremulant speed swell  
 P17: hick depth swell 16'-2'  
 P18: tremulant depth swell  
 P19: volume fagotto 16' swell  
 P20: volume cromorne 8' swell  
 P21: hick depth swell 8'-1'  
 P22: volume vox humane 8' swell  
 P23: volume schalmei 4' swell  
 P24: amplitude output channel A echo unit  
 P25: amplitude output channel B echo unit  
 P26: colckripple elimination delay line echo unit channel B  
 P27: clockripple elimination delay line echo unit channel A  
 P28: amplitude feed-back signal channel A to channel B  
 P29: amplitude feed-back signal channel B to channel A  
 P30: DC-offset IC 79  
 P31: DC-offset IC 80  
 P32: colckfrequency -  
 P33: amplitude chorus  
 P34: DC-offset IC 82  
 P35: DC-offset IC 83  
 P36: DC-offset IC 85  
 P37: DC-offset IC 86  
 P38: DC-offset IC 87  
 P39: DC-offset IC 88  
 P40: amplitude input channel B echo unit  
 P41: amplitude input channel A echo unit  
 P42: squelch length carillon  
 P43: volume carillon (intern)  
 P44: sustain length 2'; 2 2/3' & 4' carillon  
 P45: sustain length 6 2/5' carillon  
 P46: volume bass choir amplifier  
 P47: bass adjustment bass choir amplifier  
 P48: treble adjustment bass choir amplifier  
 P49: volume treble pedal/great amplifier  
 P50: bass adjustment treble pedal/great amplifier  
 P51: treble adjustment treble pedal/great amplifier  
 P52: volume middle pedal/great amplifier  
 P53: bass adjustment middle pedal/great amplifier  
 P54: treble adjustment middle pedal/great amplifier  
 P55: volume bass pedal/great amplifier  
 P56: bass adjustment bass pedal/great amplifier  
 P57: treble adjustment bass pedal/great amplifier  
 P58: linearity expression pedal choir  
 P59: linearity expression pedal great  
 P60: volume bombarde 32' pedal  
 P61: volume contra trumpet 16' pedal  
 P62: tremulant speed great  
 P63: hick depth great 16'-2'  
 P64: tremulant depth great  
 P65: volume trumpet 16' great  
 P66: volume clarion 4' great  
 P67: hick depth great 8'-1'  
 P68: volume trumpet 8' great  
 P69: tremulant speed choir  
 P70: hick depth choir  
 P71: tremulant depth choir  
 P72: volume krummhorn 8' choir

T.C. 1: tuning pedal 8'-1'  
 T.C. 2: tuning 2nd & 4th octave swell 16'-2'  
 T.C. 3: tuning 1st; 3rd & 5th octave swell 16'-2'  
 T.C. 4: tuning 2nd; 4th & 5th octave swell 8'-1'  
 T.C. 5: tuning 1st & 3rd octave swell 8'-1'  
 T.C. 6: tuning unda maris great  
 T.C. 7: tuning tierce great  
 T.C. 8: tuning celeste & tierce swell  
 T.C. 9: tuning carillon  
 T.C. 10: tuning pedal 32'-4'  
 T.C. 11: tuning 2nd & 4th octave great 16'-2'  
 T.C. 12: tuning 1st; 3rd & 5th octave great 16'-2'  
 T.C. 13: tuning 2nd; 4th & 5th octave great 8'-1'  
 T.C. 14: tuning 1st & 3rd octave great 8'-1'  
 T.C. 15: tuning 2nd; 4th & 5th octave choir 8'-1'  
 T.C. 16: tuning 1st & 3rd octave choir 8'-1'  
 T.C. 17: tuning mixture great

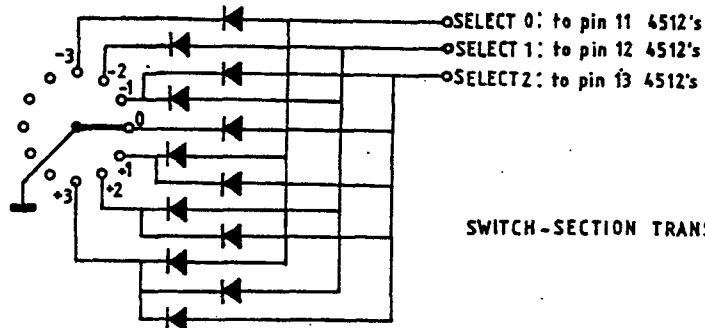
IC 1; 28; 29; 61; 62; 113; 114; 121; 163; 170; 196; 197; 239; 240; 271; 272; 293.....MO 83  
 IC 2; 30; 31; 63; 64; 115; 116; 122; 123; 164; 165; 171; 198; 199; 241; 242; 273; 274; 294.....4512  
 IC 3; 37; 38; 70; 71; 117; 118; 124; 125; 166; 167; 172; 205; 206; 248; 249; 280; 281; 295.....4046  
 IC 4; 39; 40; 72; 73; 119; 120; 126; 127; 168; 169; 173; 207; 208; 250; 251; 282; 283; 297.....4520  
 IC 5-7; 32-36; 65-69; 154-159; 174-176; 200-204; 243-247; 275-279; 288-292.....TMS 3617  
 IC 8-11; 41-44; 74-77; 89; 101; 102; 160; 177-179; 209-212; 252-254; 284-287; 297.....TL 074  
 IC 12-27; 45-60; 180-195; 213-238; 255-270.....LM 339  
 IC 78; 90.....NE 570  
 IC 79; 80; 82; 83; 85-88.....TDA 2108  
 IC 81.....4093  
 IC 84; 139-153; 161; 162.....LM 324  
 IC 91-100; 103-112.....TMS 3615  
 IC 128; 129.....4528  
 IC 130.....4013  
 IC 131-134.....4081  
 IC 135-138.....ER 2051

T 1; 11; 12; 19; 20; 32-34; 36; 82; 83; 94; 95; 102; 103; 107; 108; 177.....BC 141  
 T 2-7; 10; 13-18; 21-27; 29; 30; 35A-35C; 37-80; 84-90; 93; 96-101; 104-106; 109-176.....BC 549  
 T 8; 9; 91; 92.....BC 337  
 T 28; 31.....BC 558  
 T 35D.....BC 161  
 T 53E.....2N3055  
 T 81.....J 174

LEGEND POSITION DIAGRAMS			
Drawn	Date	Modified	Date
Verschoor	28-04-86		
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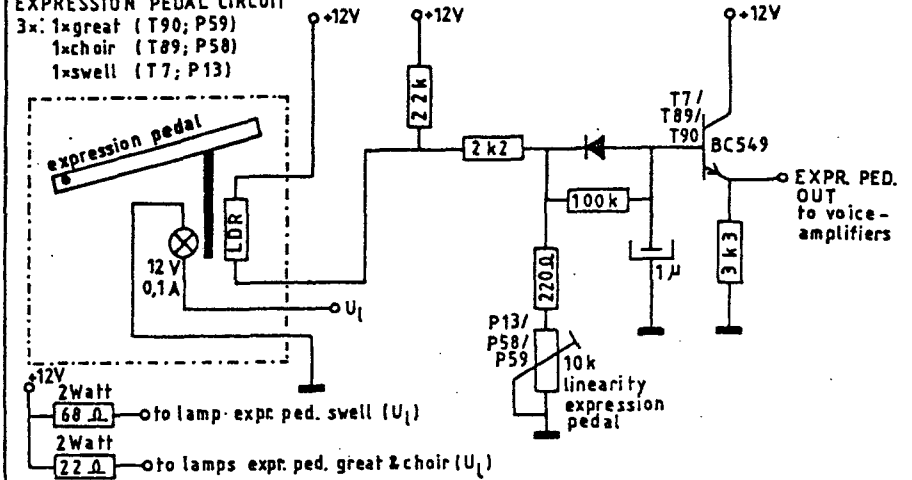
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Drawn	Date	Modified	Date	
Verschoor	20-02-86			
DESIGN				
LAB.				
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SWITCH-SECTION TRANSPOSER

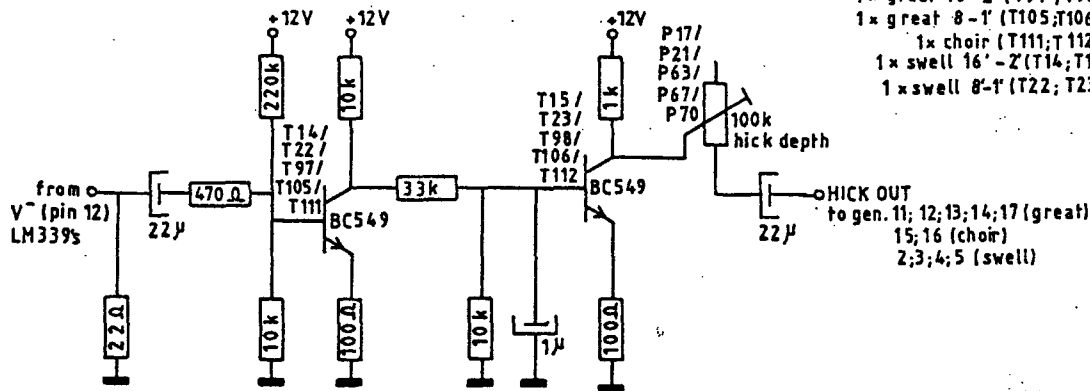
EXPRESSION PEDAL CIRCUIT

- 3x: 1x great (T90; P59)
- 1x choir (T89; P58)
- 1x swell (T7; P13)

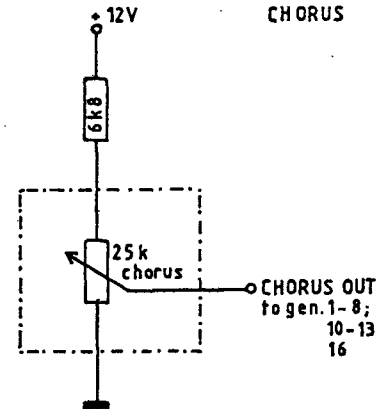


HICK CIRCUIT 5x:

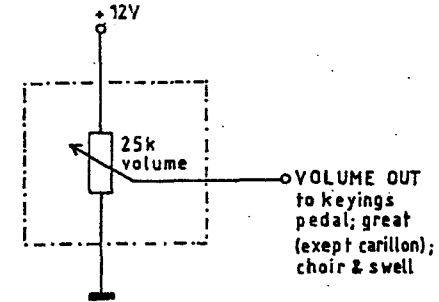
- 1x great 16'-2" (T97; T98; P63)
- 1x great 8'-1" (T105; T106; P67)
- 1x choir (T111; T112; P70)
- 1x swell 16'-2" (T14; T15; P17)
- 1x swell 8'-1" (T22; T23; P21)



CHORUS

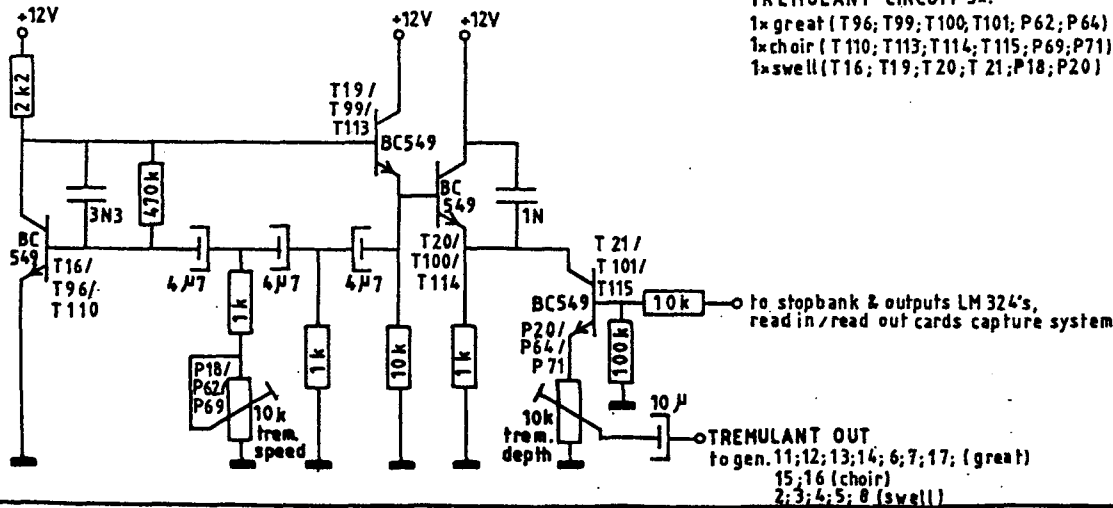


VOLUME



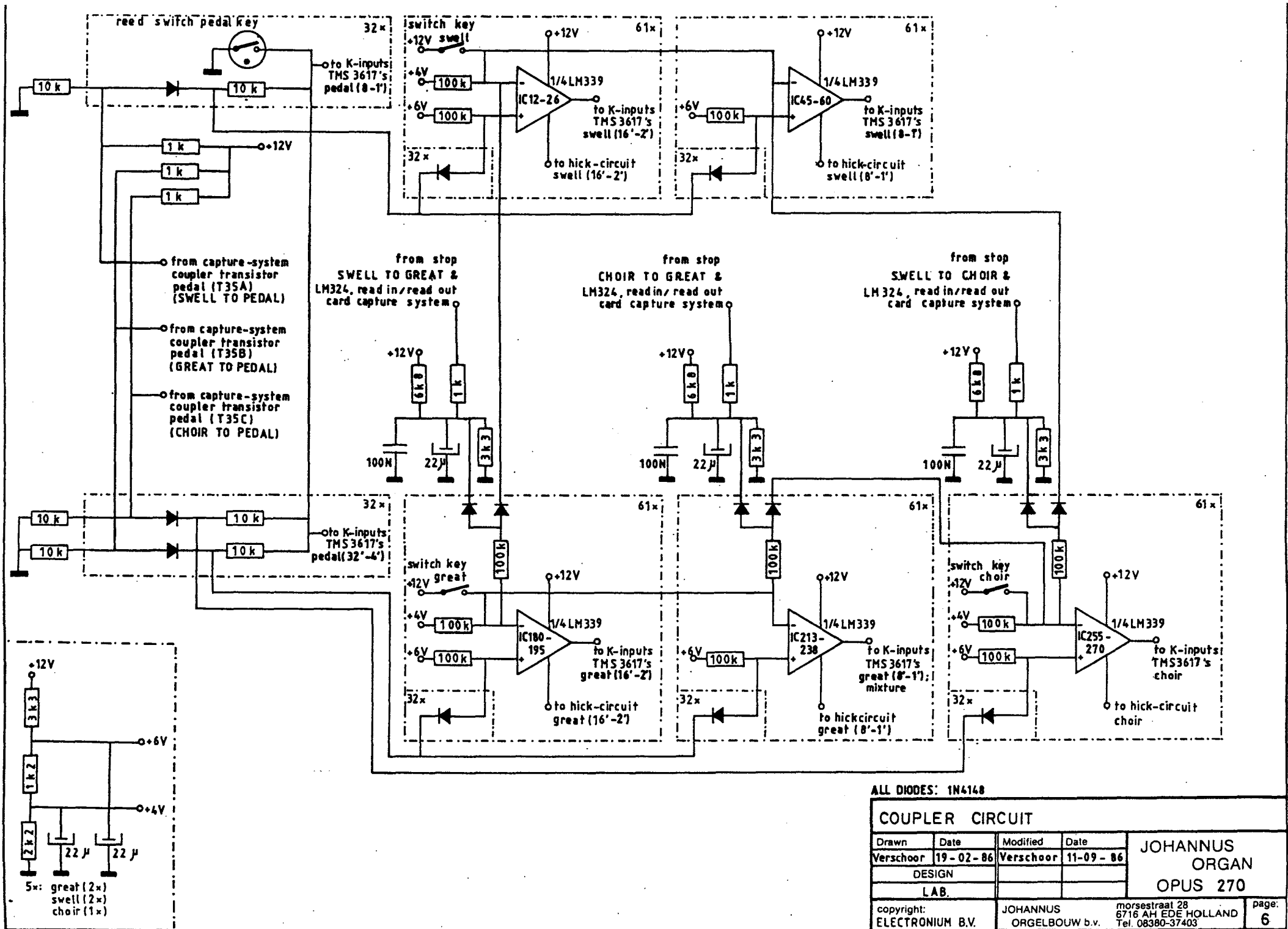
TREMULANT CIRCUIT 3x:

- 1x great (T96; T99; T100; T101; P62; P64)
- 1x choir (T110; T113; T114; T115; P69; P71)
- 1x swell (T16; T19; T20; T21; P18; P20)



ALL DIODES: 1N4148

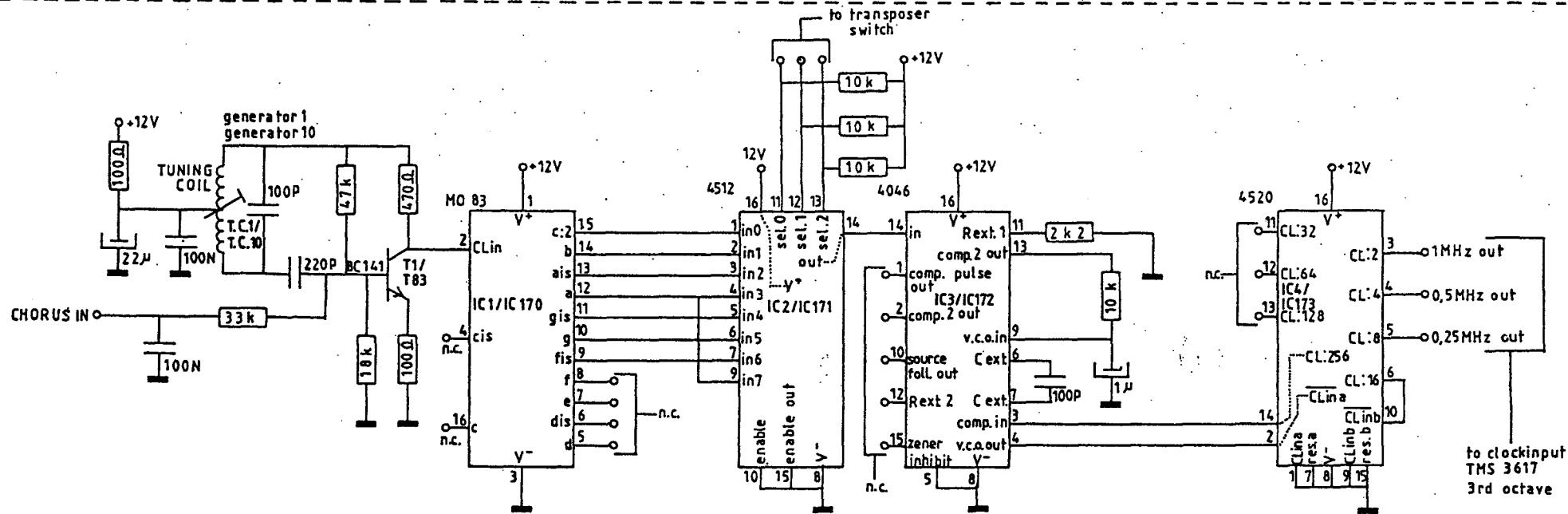
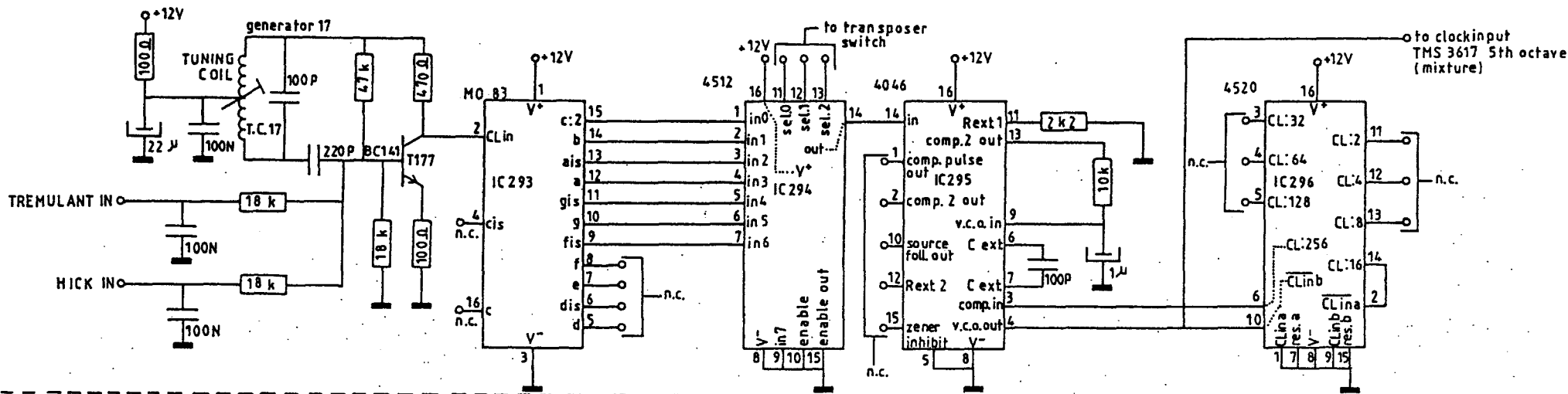
SWITCH-SECTION TRANSPOSER;			
HICK CIRCUIT ; TREMULANT CIRCUIT ;			
EXPRESSION PEDAL CIRCUIT ; CHORUS & VOLUME			
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DESIGN			
LAB.			
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COUPLER CIRCUIT

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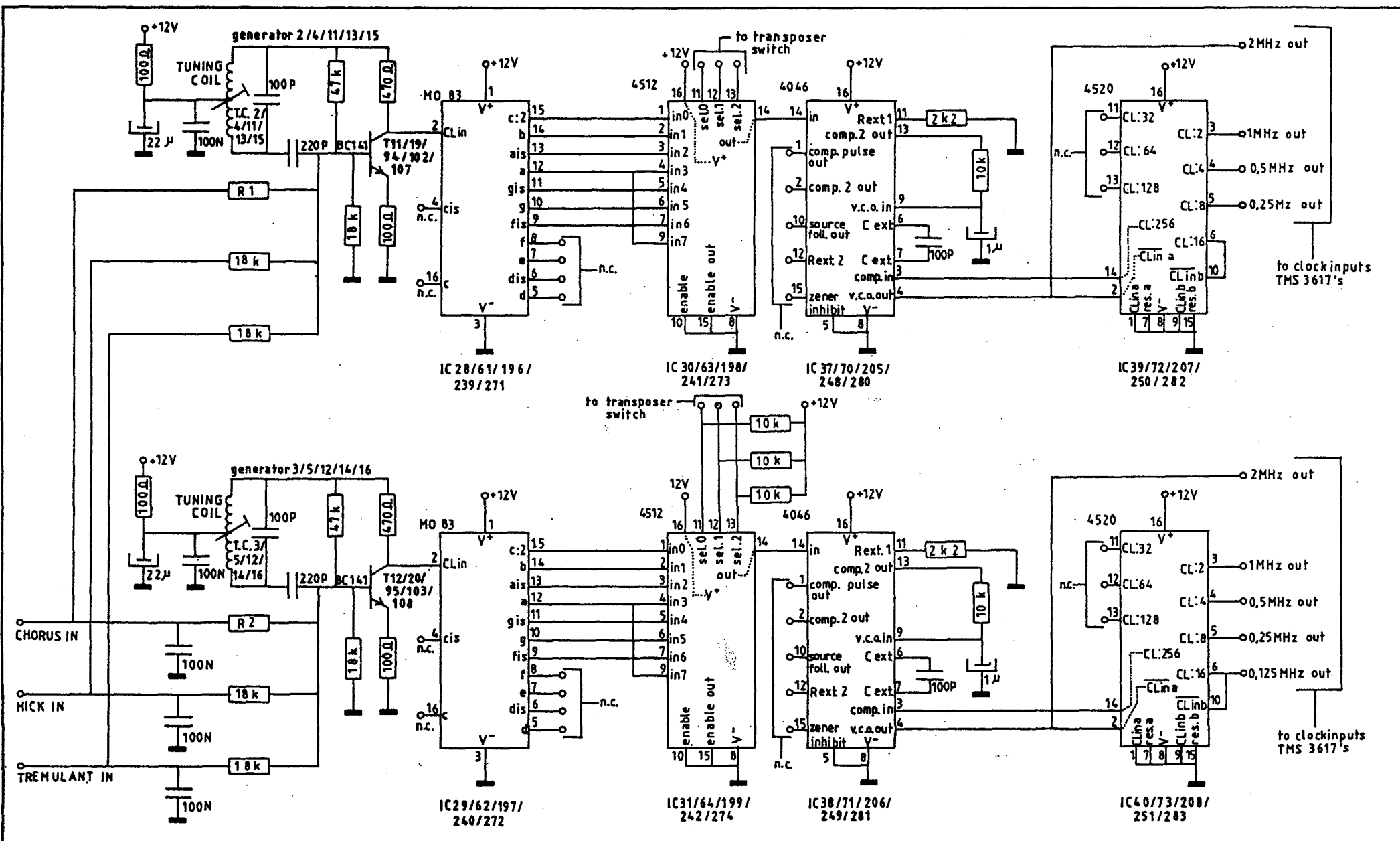




GENERATORS/TRANSPOSERS MIXTURE (upper) &

PEDAL (2x lower)

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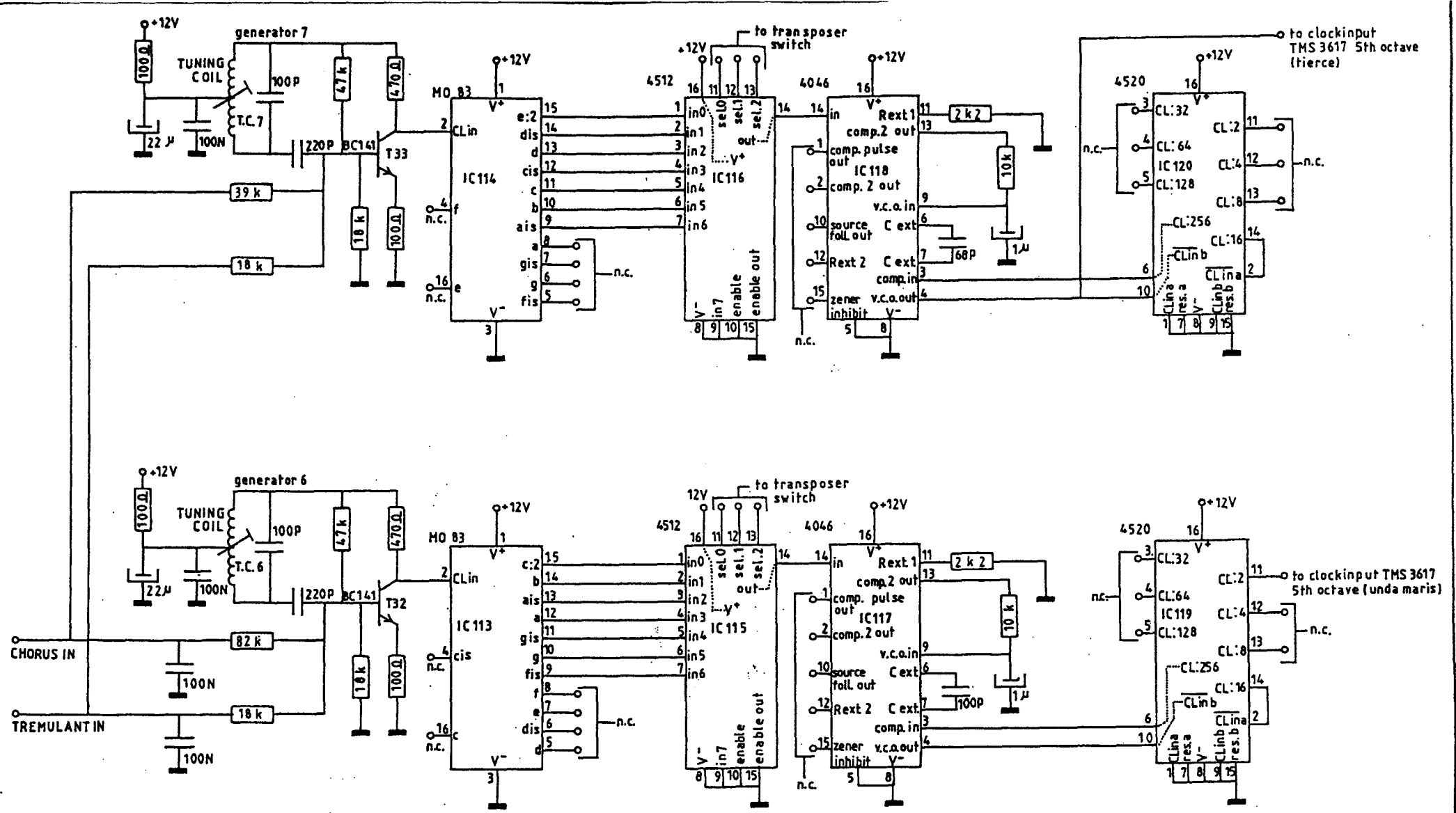


- generator 2: R1=27k  
 4: R1=60k  
 11: R1=39k  
 13: R1=150k  
 15: R1=—  
 3: R2=33k  
 5: R2=82k  
 12: R2=47k  
 14: R2=—  
 15: R2=120k

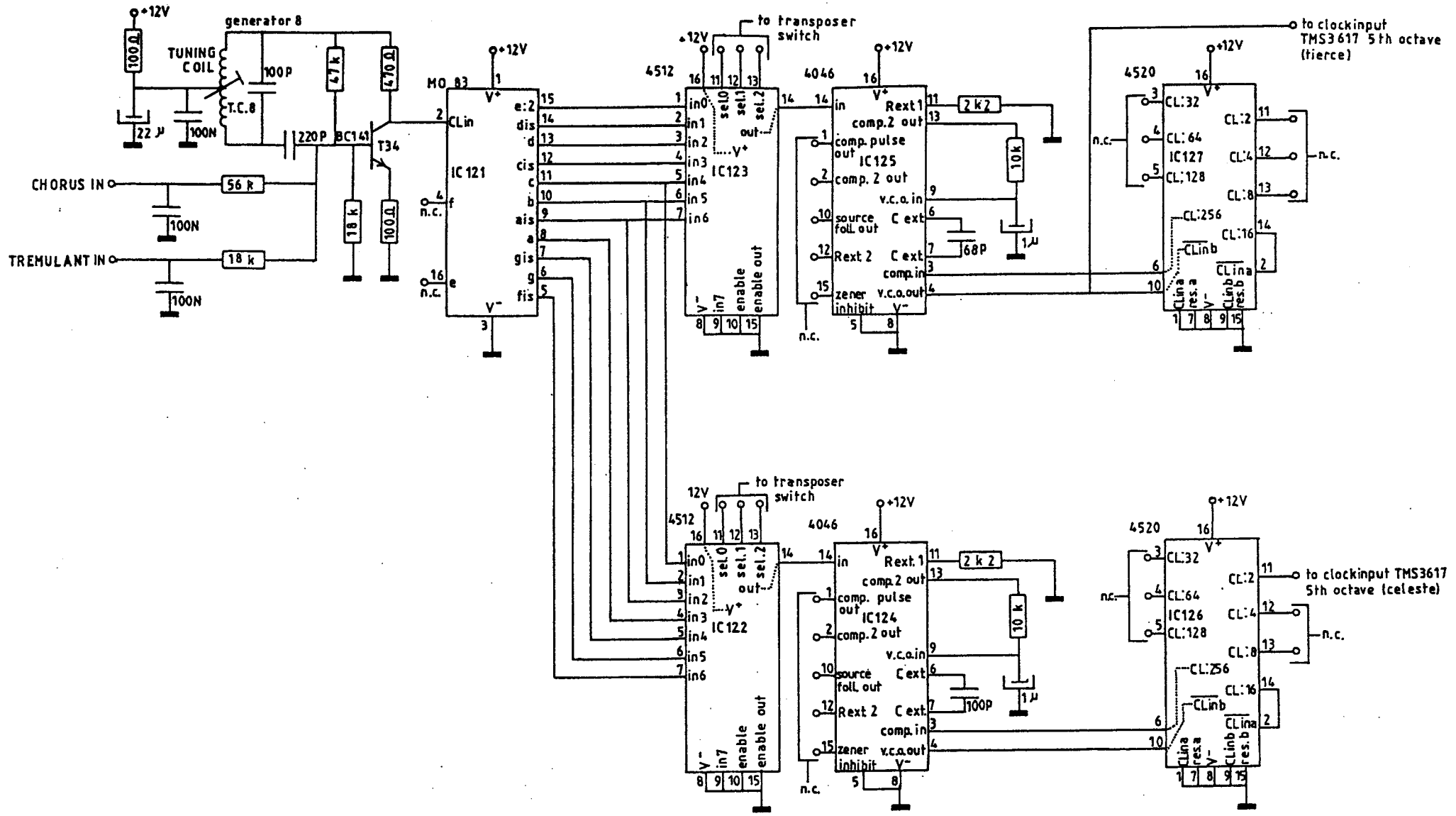
GENERATORS/TRANSPOSERS MANUALS

(2x GREAT; 2x SWELL & 1x CHOIR)

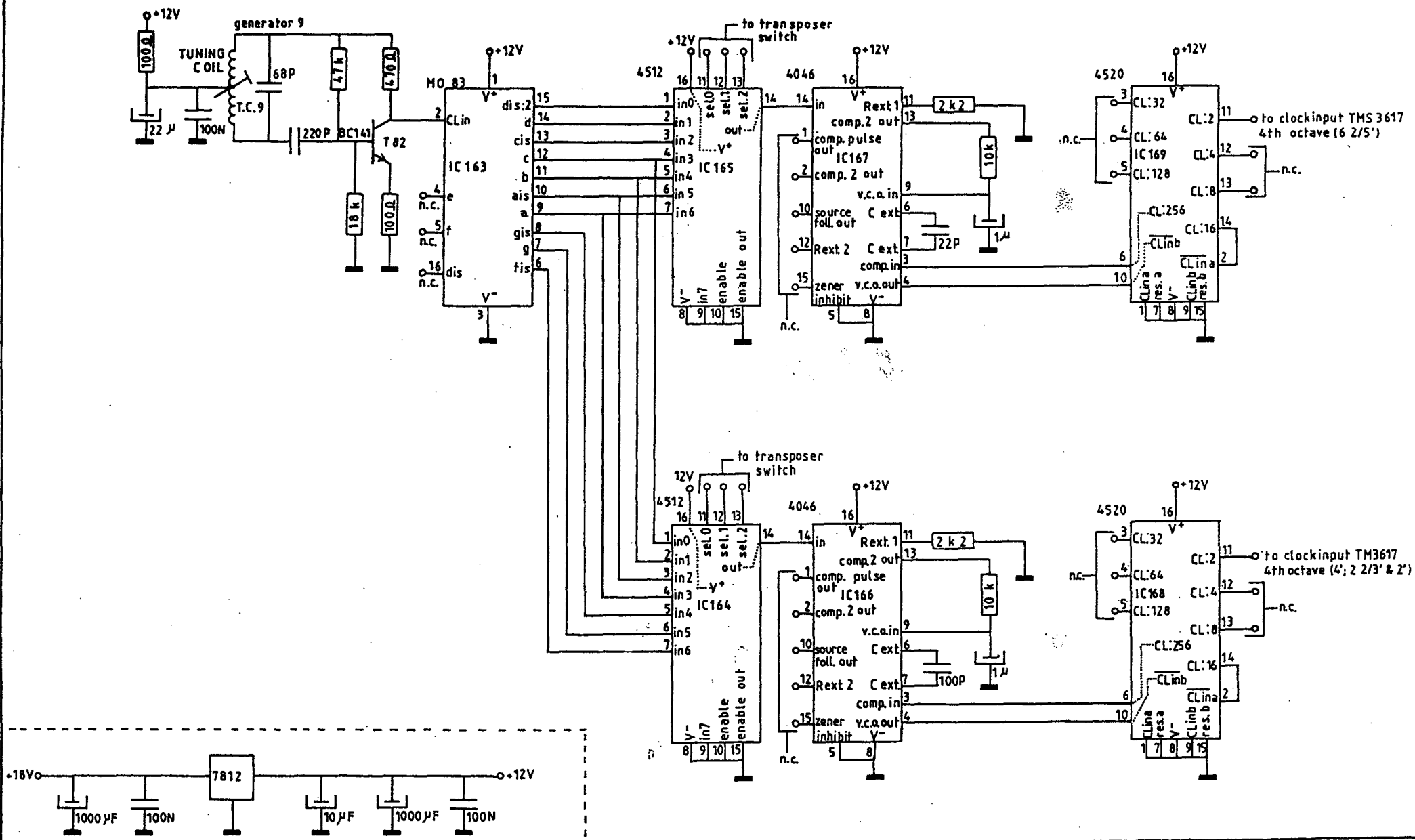
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GENERATORS / TRANSPOSERS UNDA MARIS &			
TIERCE GREAT			
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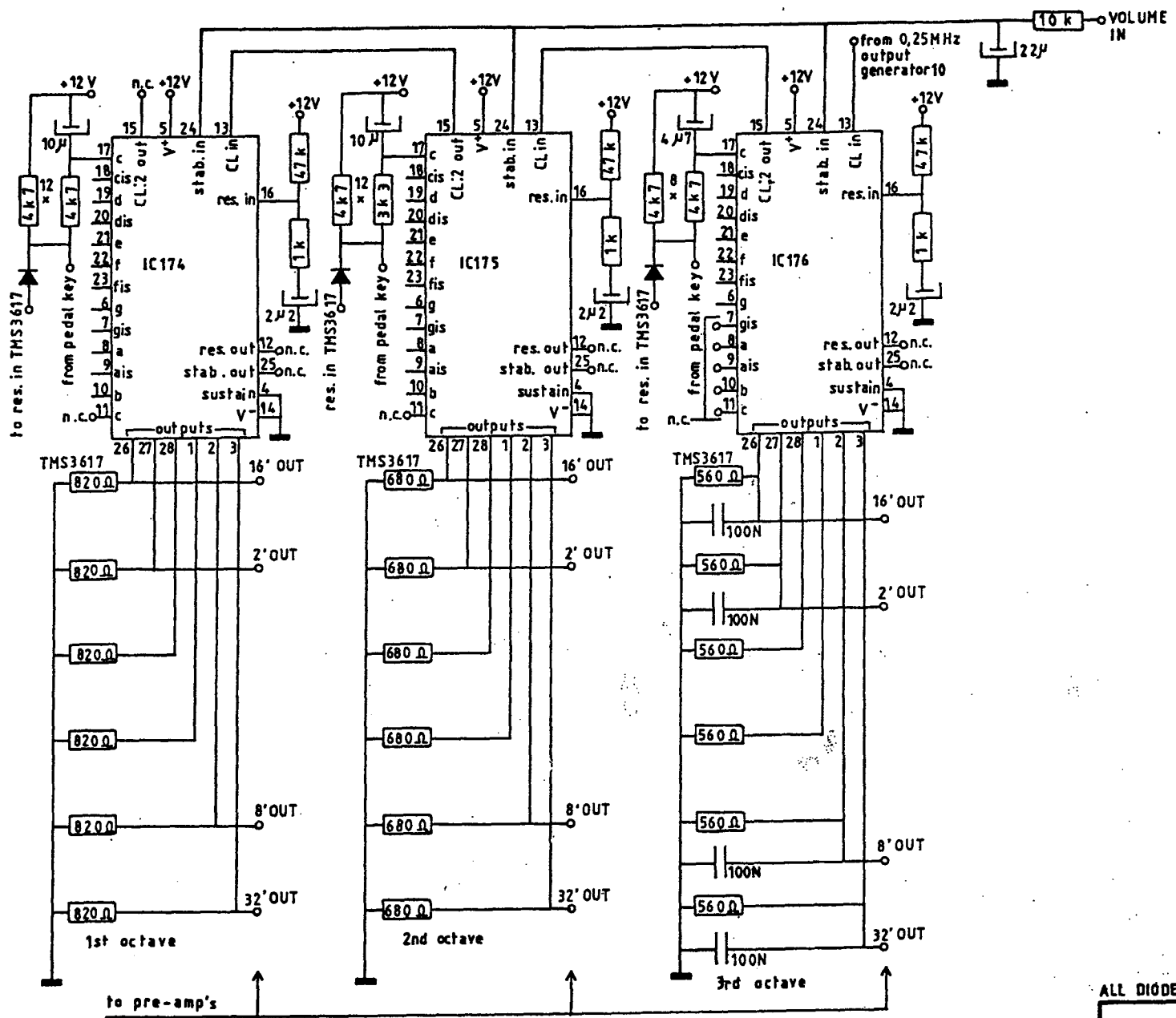
GENERATOR/ TRANSPOSER CELESTE (floating part) & TIERCE SWELL			
Drawn	Date	Modified	Date
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GENERATOR/TRANSPOSER &			
POWER SUPPLY CARILLON			
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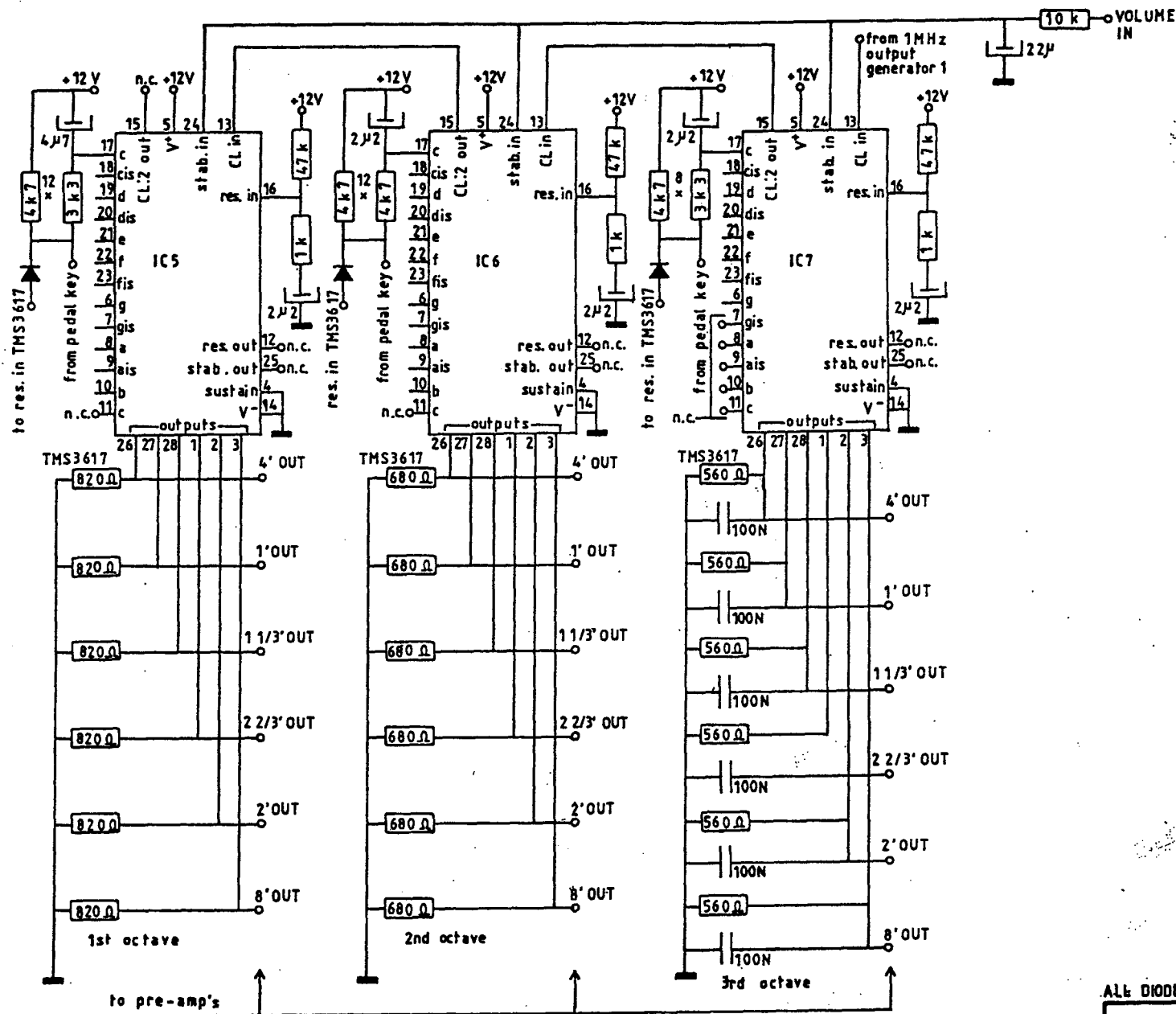
POWER SUPPLY

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ORGAN  
OPUS 270



ALL DIODES M4148

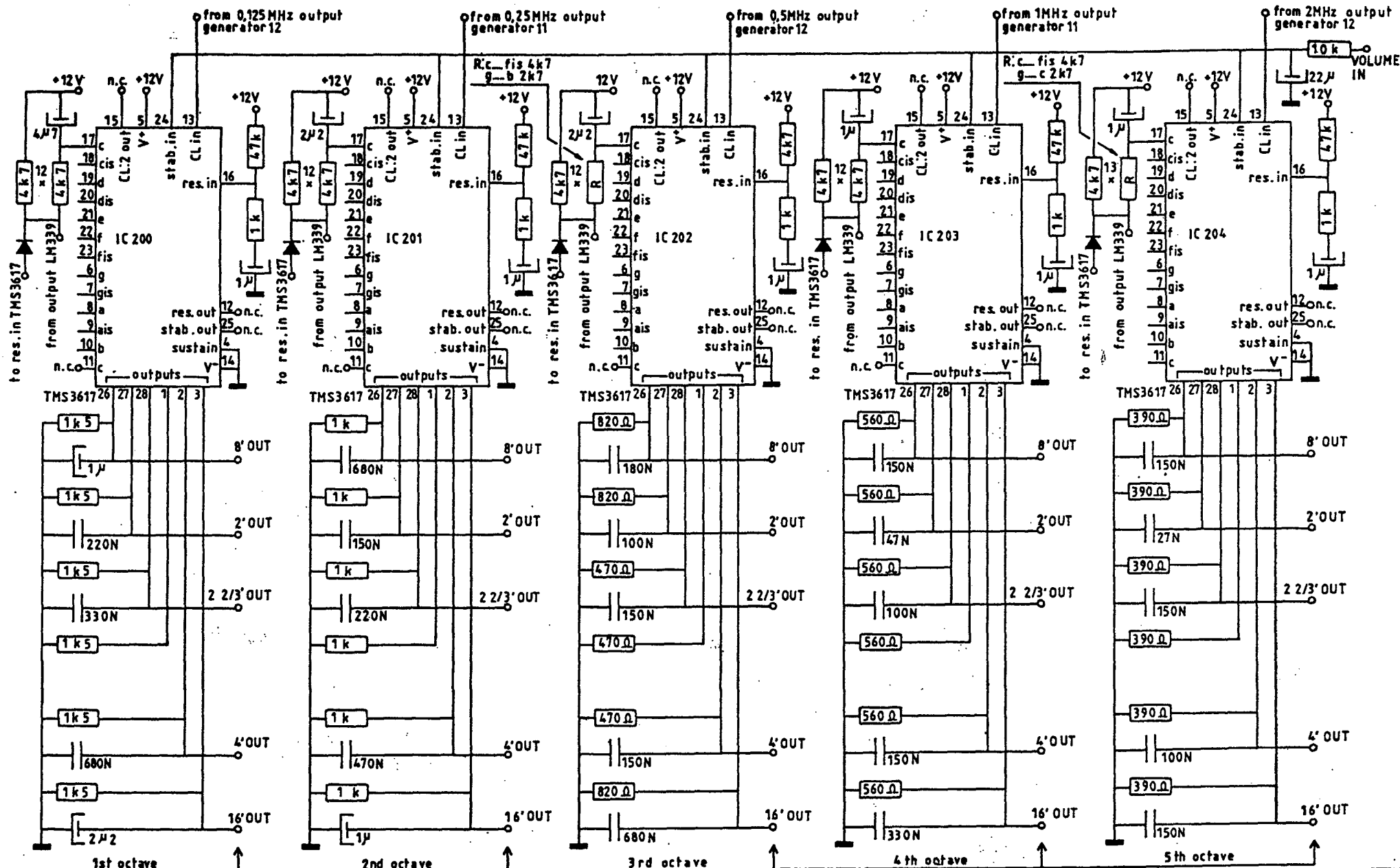
KEYING PEDAL (32'-4')			
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KEYING PEDAL (8'-1')

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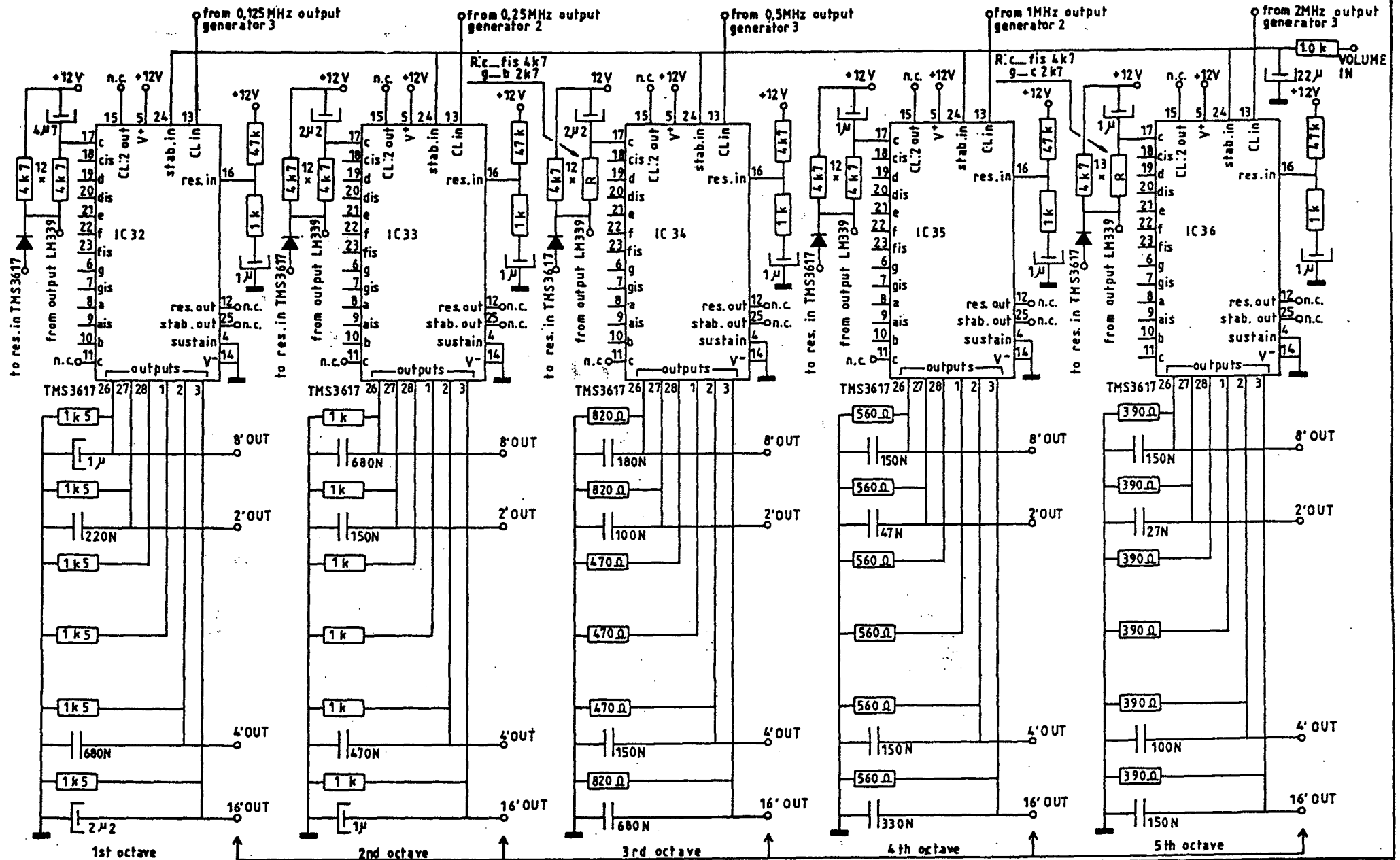
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**KEYING GREAT (16'-2')**

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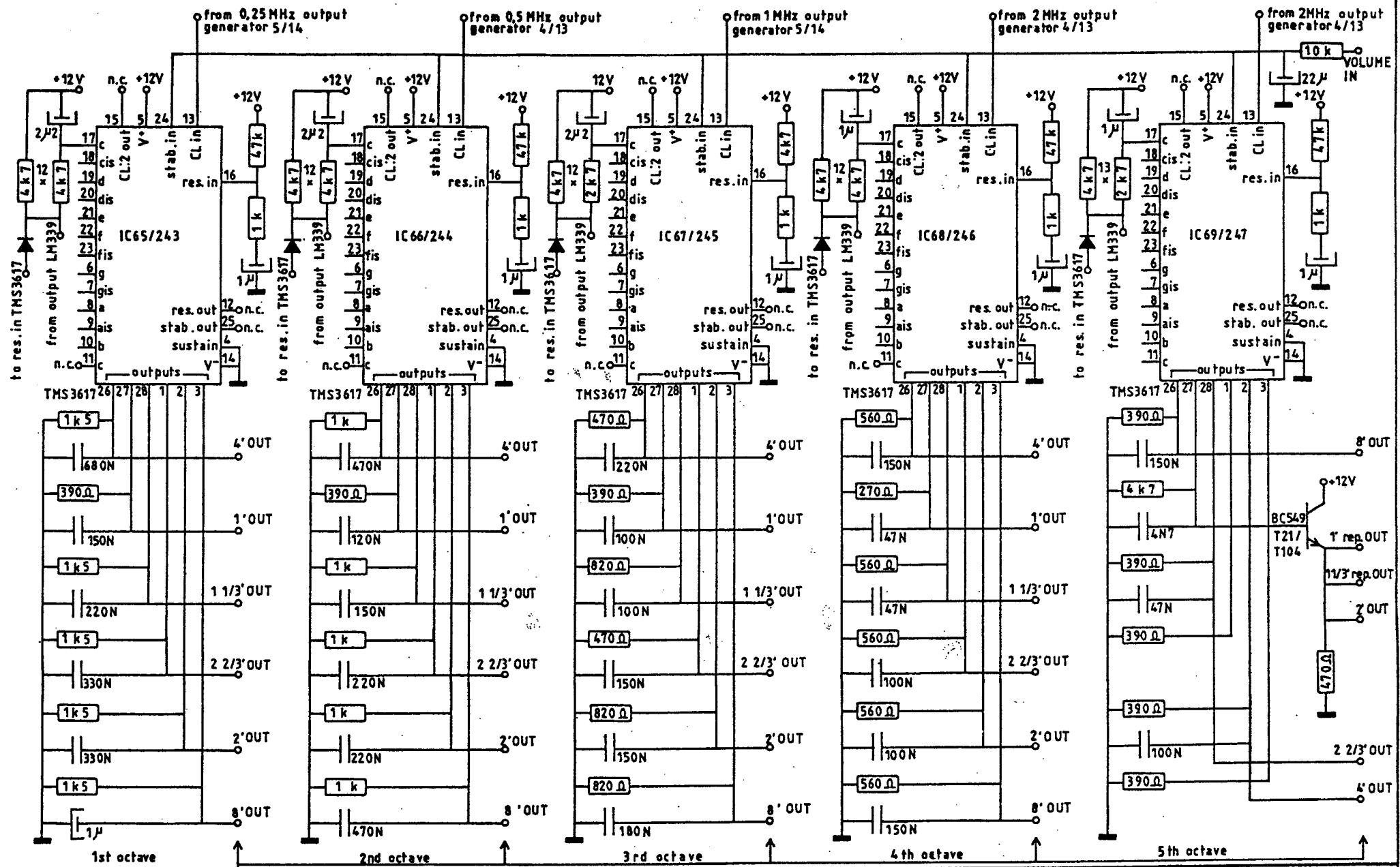


to pre-amp's

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KEYING SWELL (16'-2')

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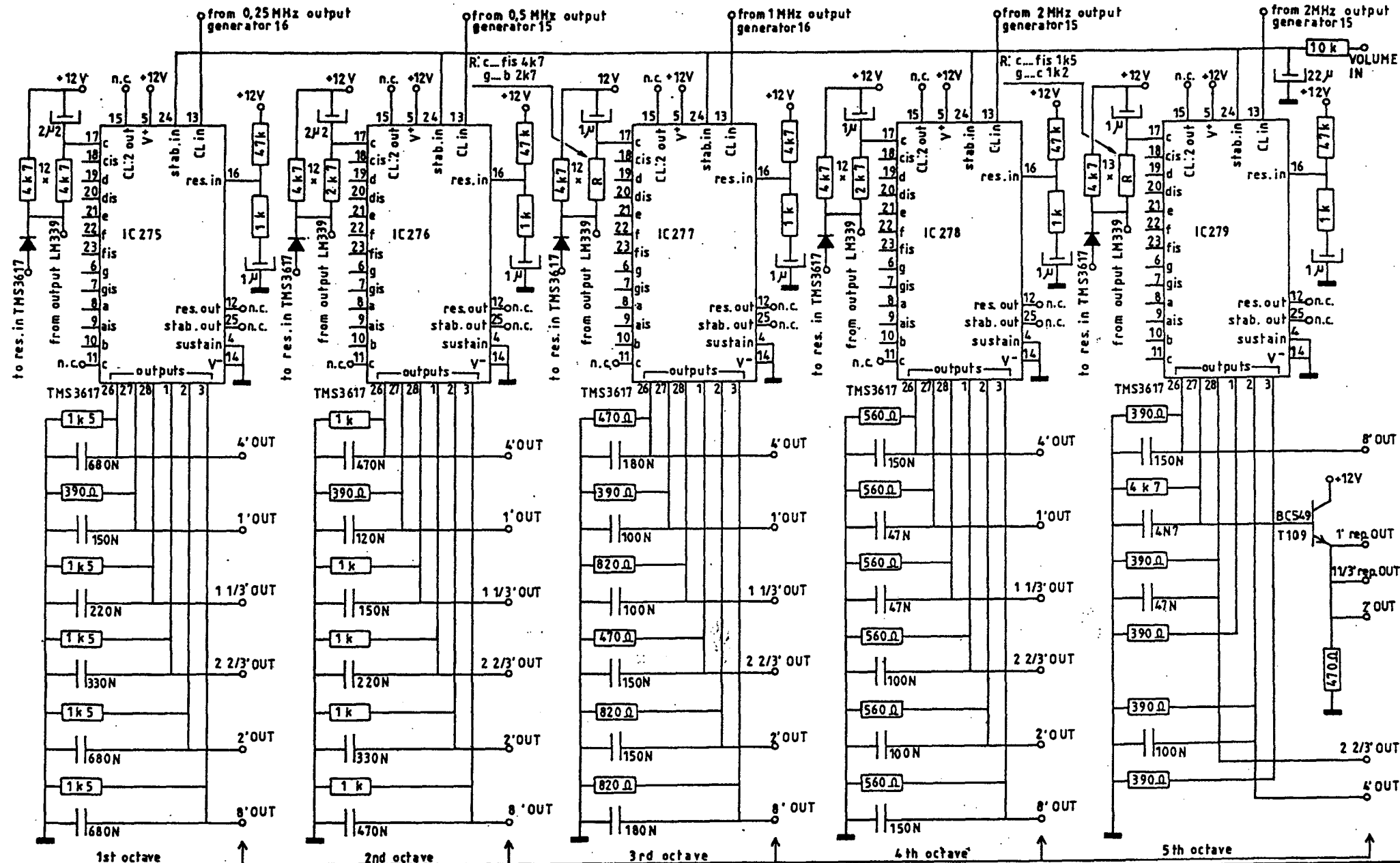
to pre-amp's

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KEYING GREAT (8'-1') & SWELL (8'-1')

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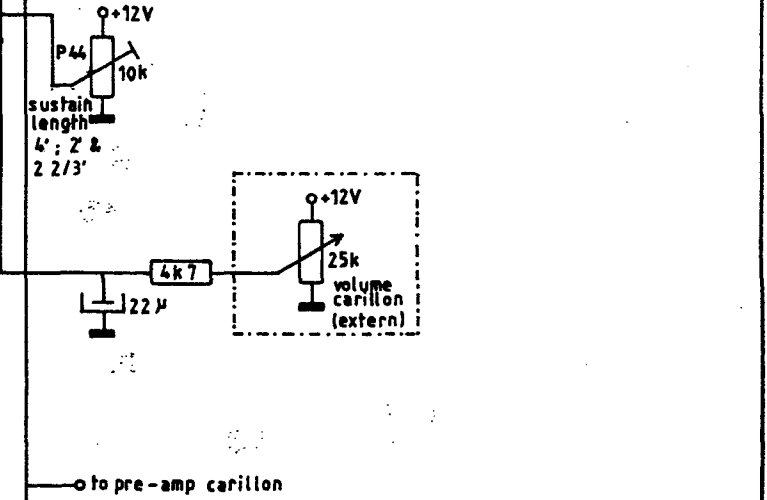
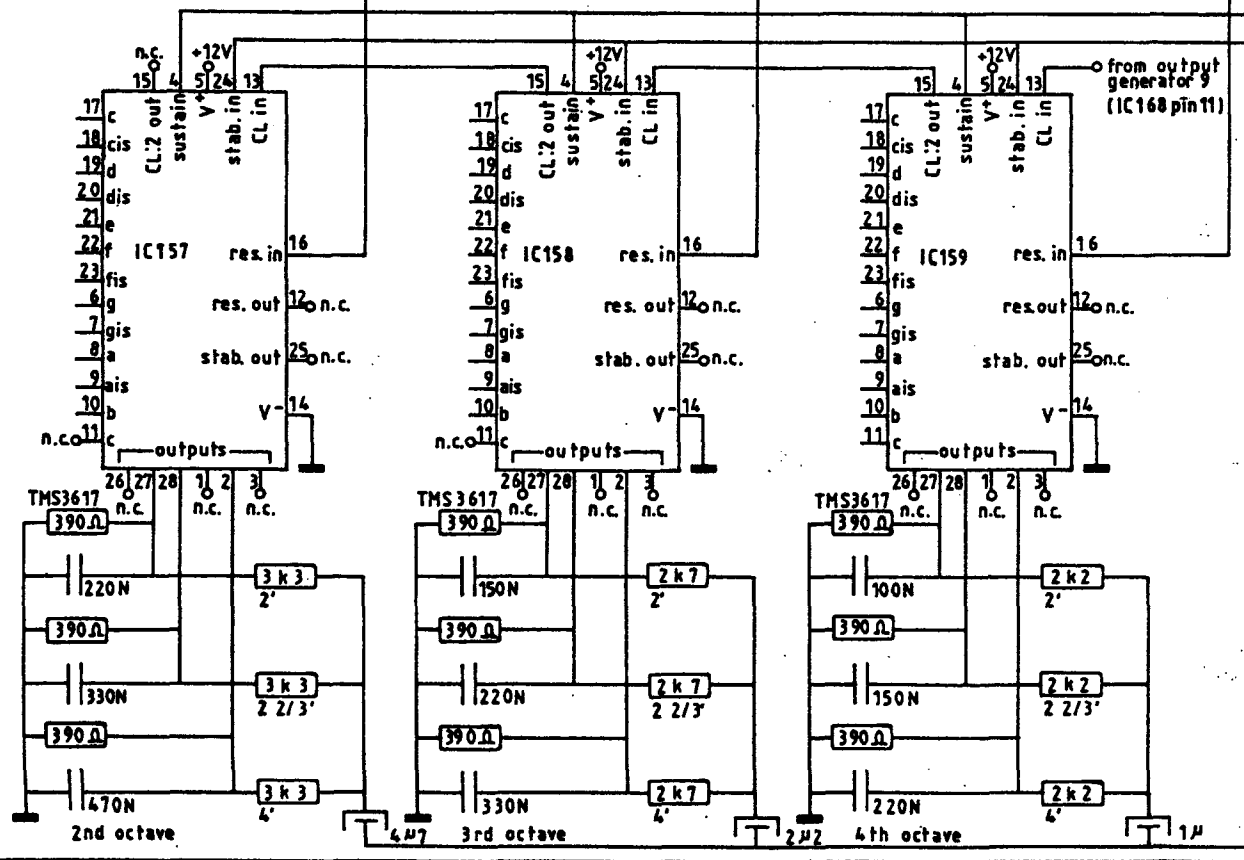
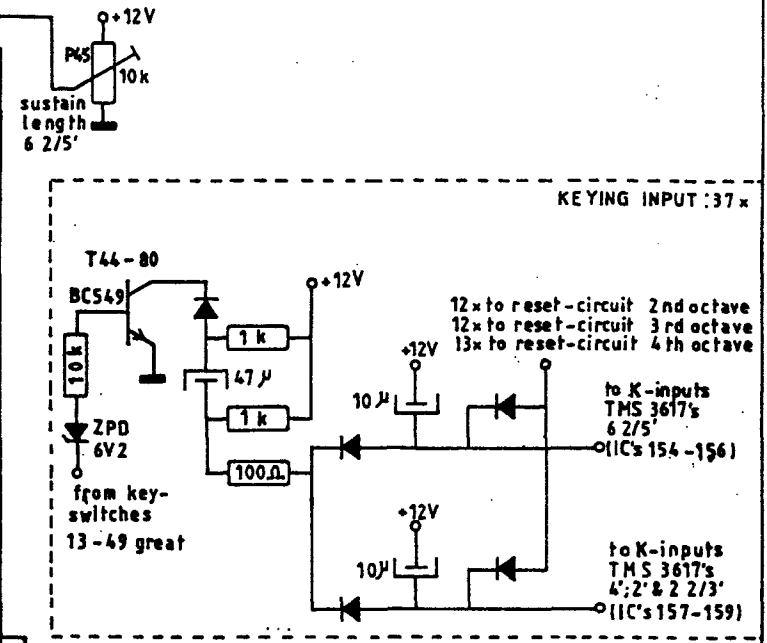
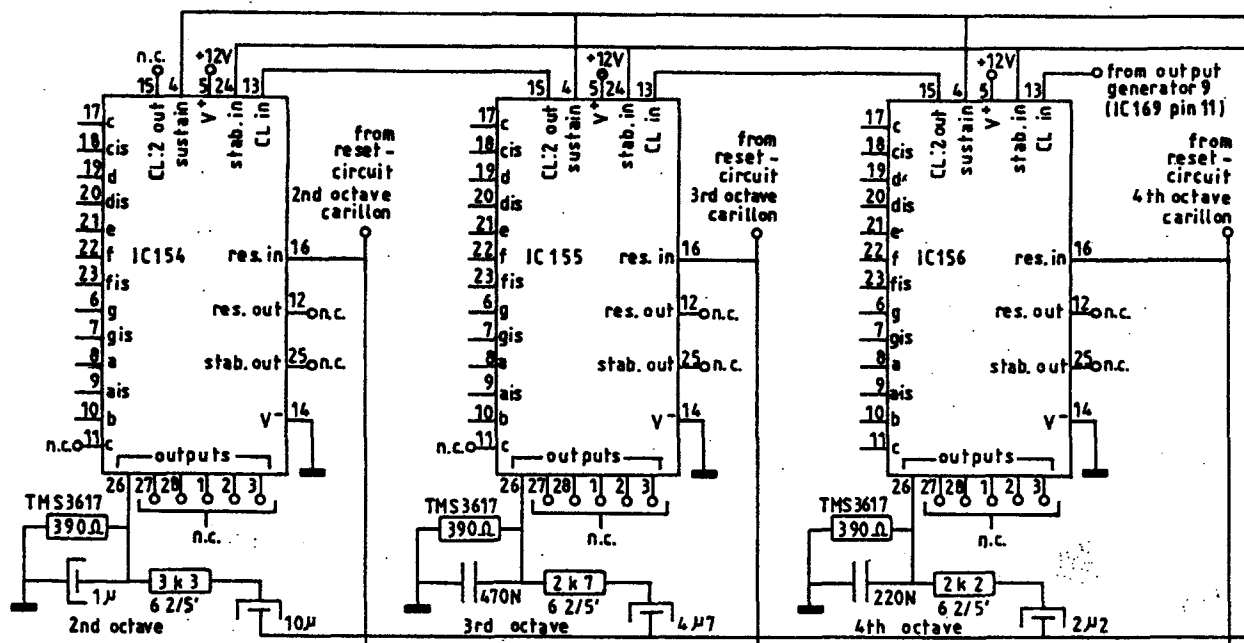
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to pre-amp's

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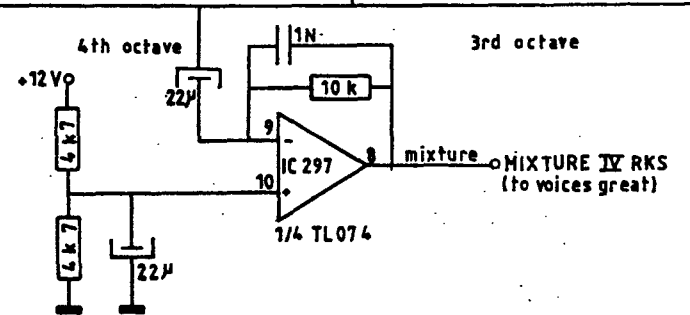
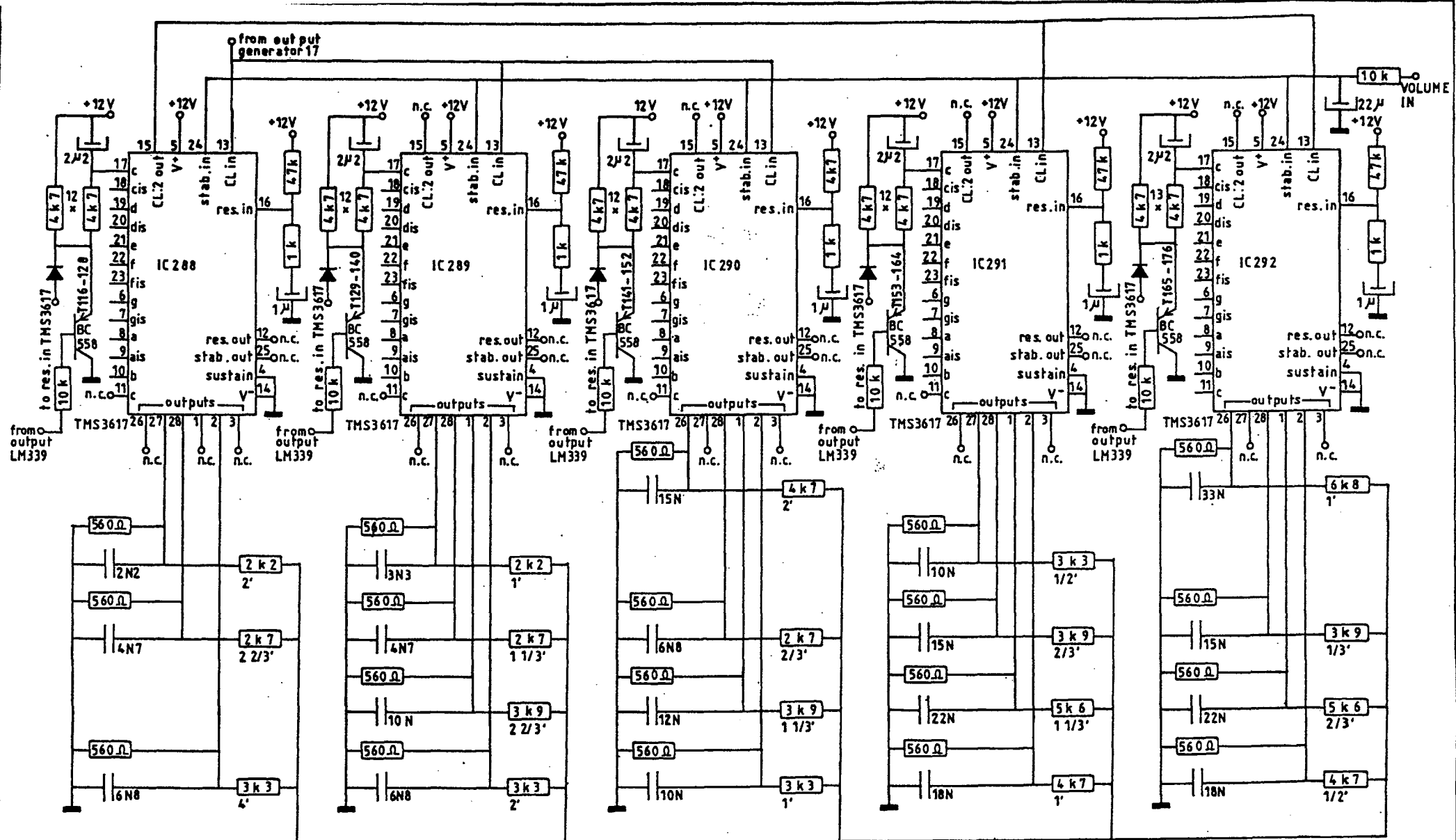


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KEYING CARILLON

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LAB.			

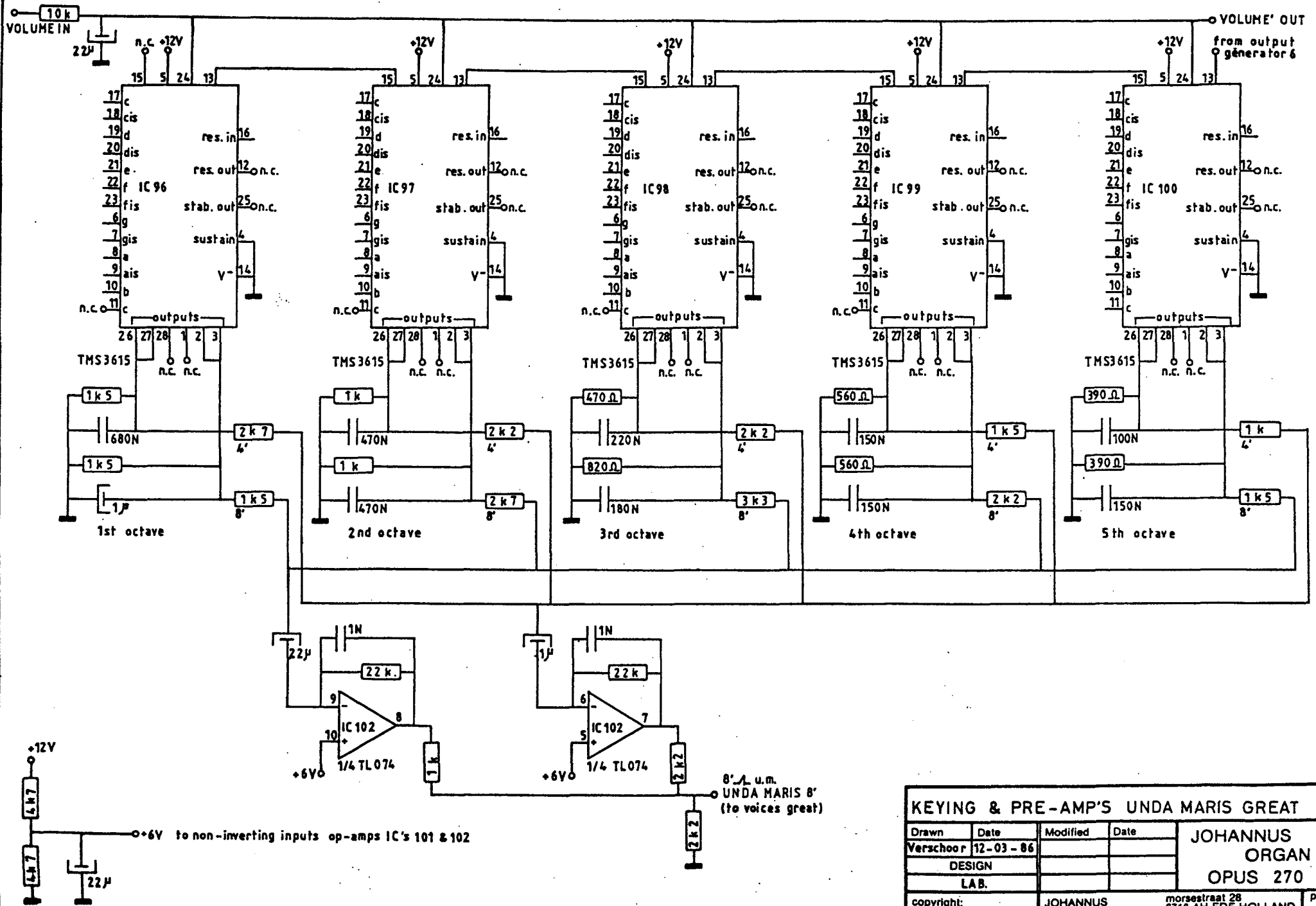
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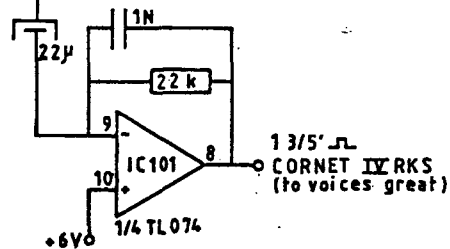
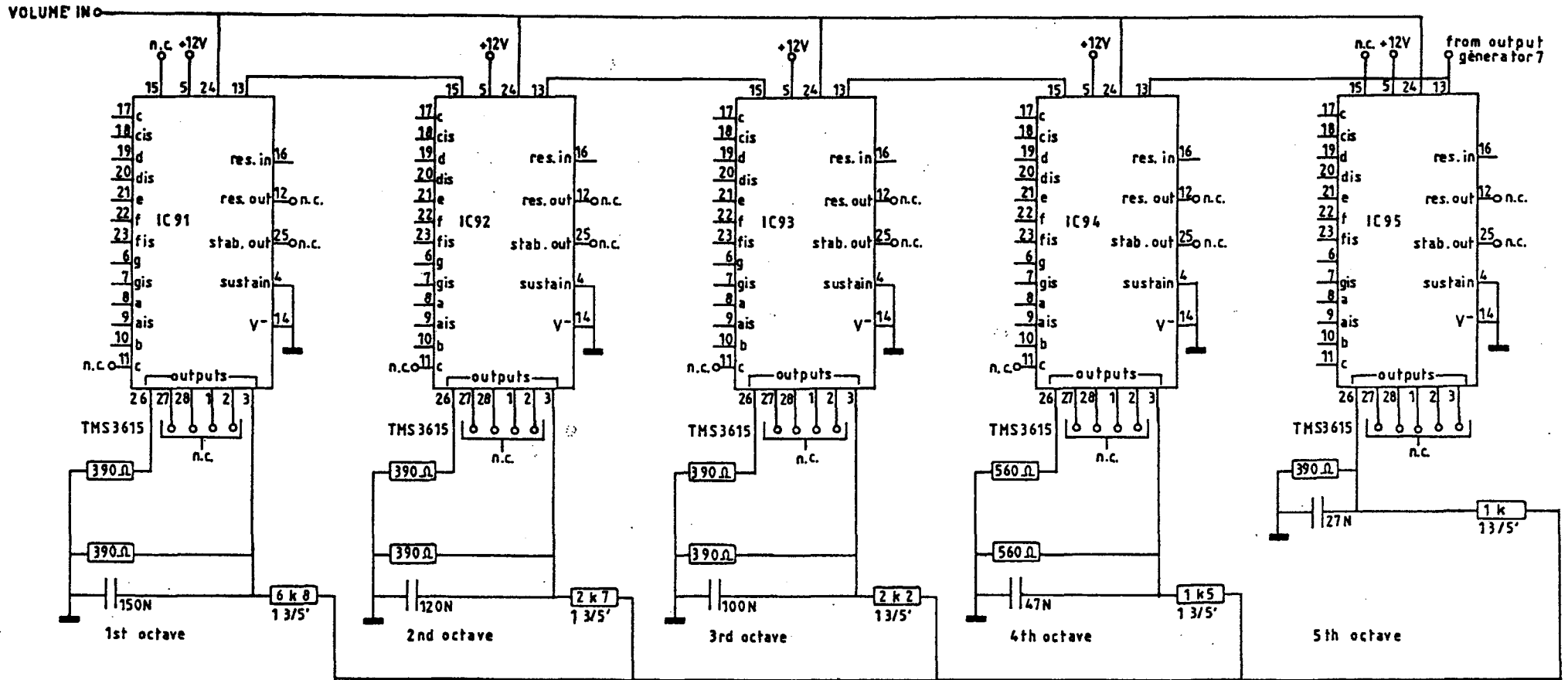
KEYING & PRE-AMP MIXTURE GREAT				JOHANNUS ORGAN	
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NOTE: the K -inputs (pin 6-11 and pin 17-23) and the reset-input (pin 16) of the LC's TMS 3615 are connected with the corresponding pins of the TMS3617's on the P.C.-board of great 8'



KEYING & PRE-AMP'S UNDA MARIS GREAT			
Drawn	Date	Modified	Date
Verschuur	12-03-86		
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ELECTRONIUM B.V.	ORGELBOUW b.v.	6716 AH EDE HOLLAND	20
		Tel. 08380-37403	

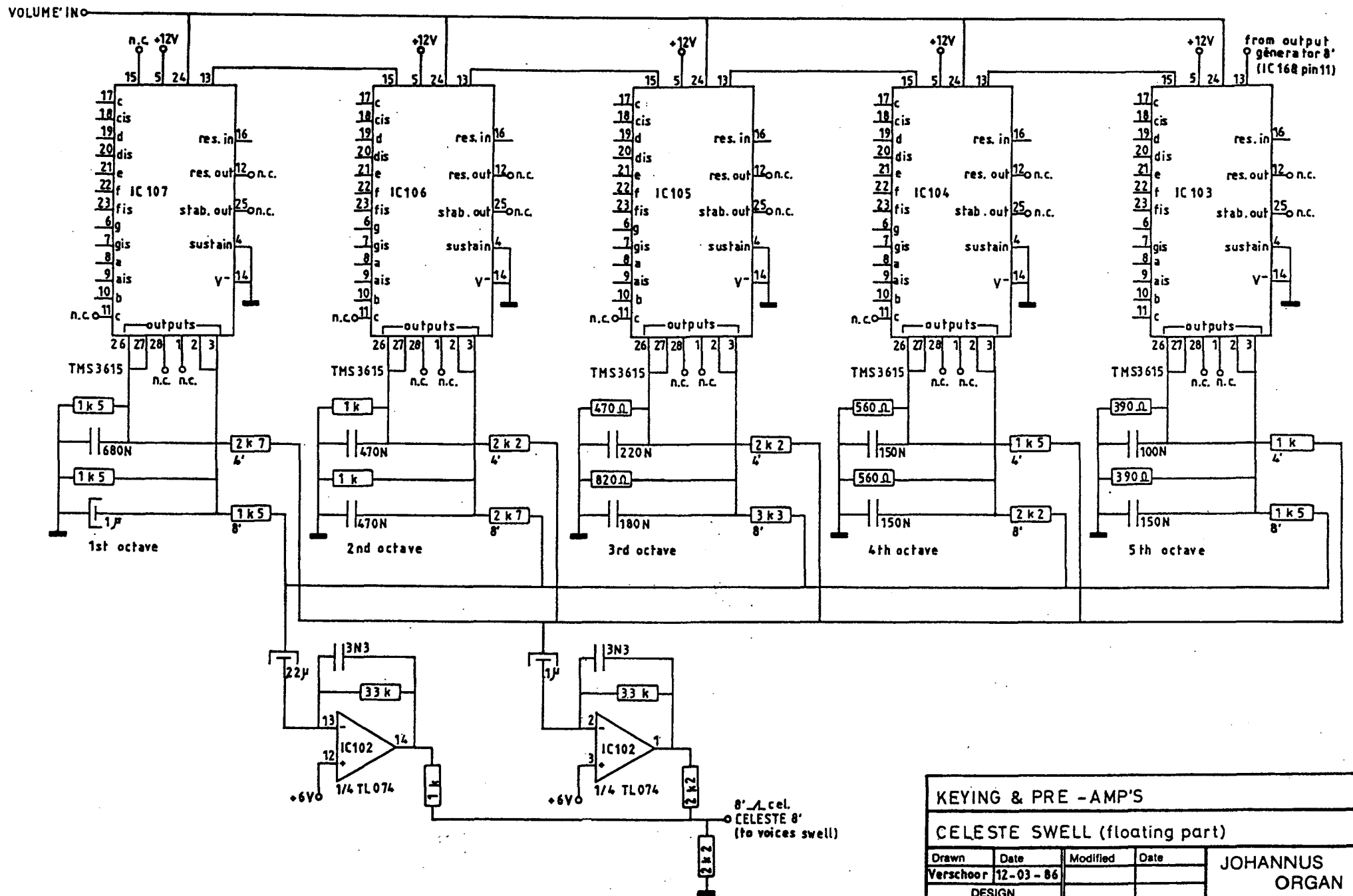
NOTE: The K-inputs (pin 6-11 and pin 17-23) and the reset-input (pin 16) of the I.C.'s TMS 3615 are connected with the corresponding pins of the TMS3617's on the P.C.-board of great 8'



KEYING & PRE-AMP TIERCE GREAT

Drawn	Date	Modified	Date	JOHANNUS ORGAN OPUS 270
Verschuur	12-03-86			
DESIGN				
LAB.				
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ELECTRONIUM B.V.				page: 21

NOTE: the K-inputs (pin 6-11 and pin 17-23) and the reset-input (pin 16) of the I.C.'s TMS 3615 are connected with the corresponding pins of the TMS3617's on the P.C.-board of swell 8'



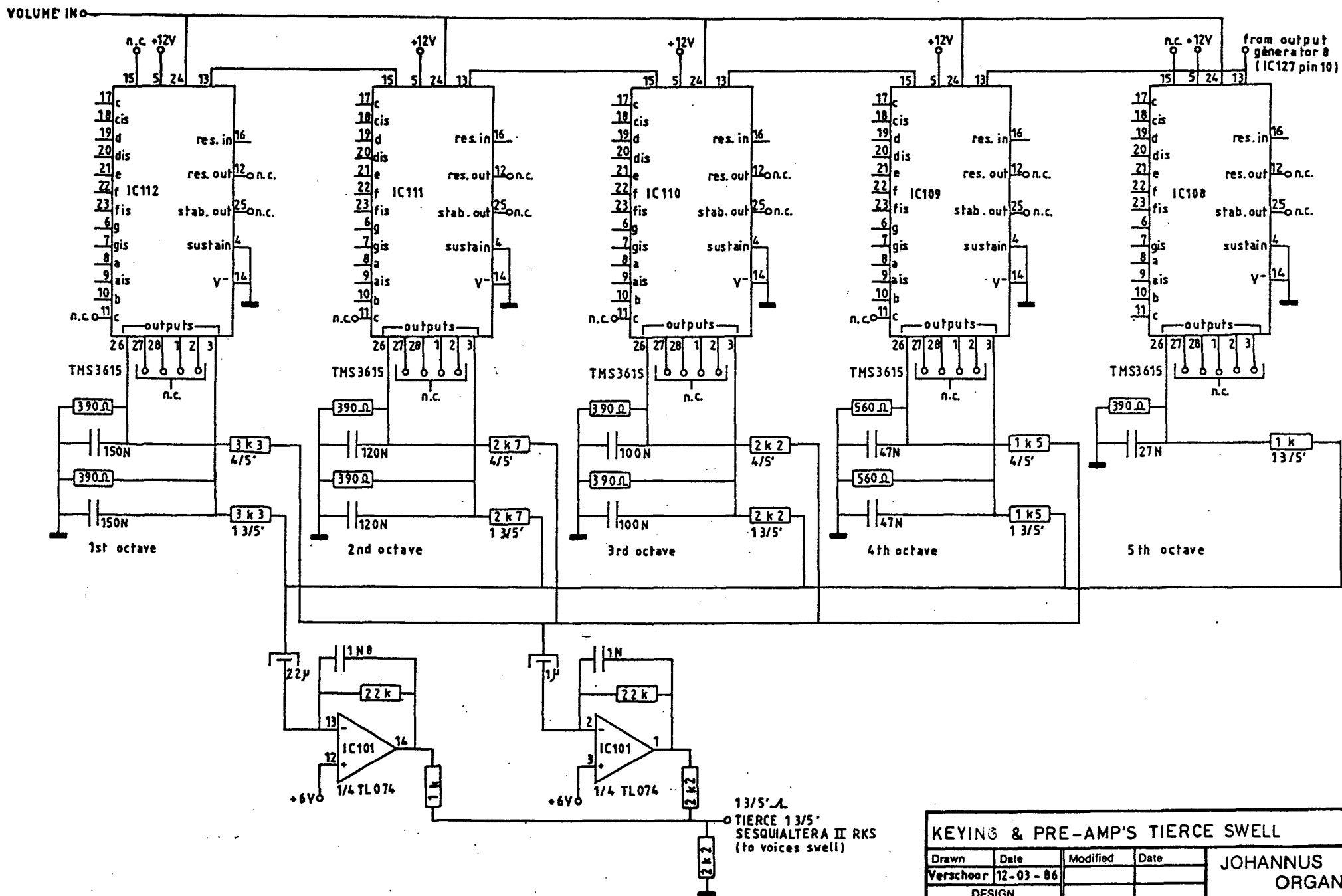
KEYING & PRE - AMP'S

CELESTE SWELL (floating part)

Drawn	Date	Modified	Date	JOHANNUS ORGAN OPUS 270
Verschoor	12-03-86			
DESIGN				
LAB.				
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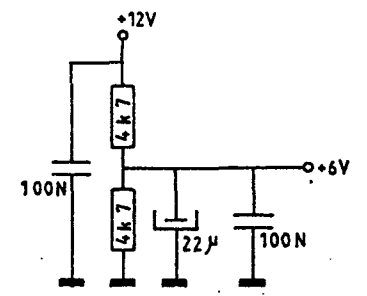
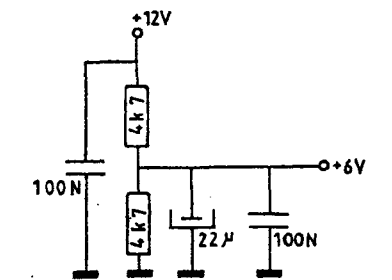
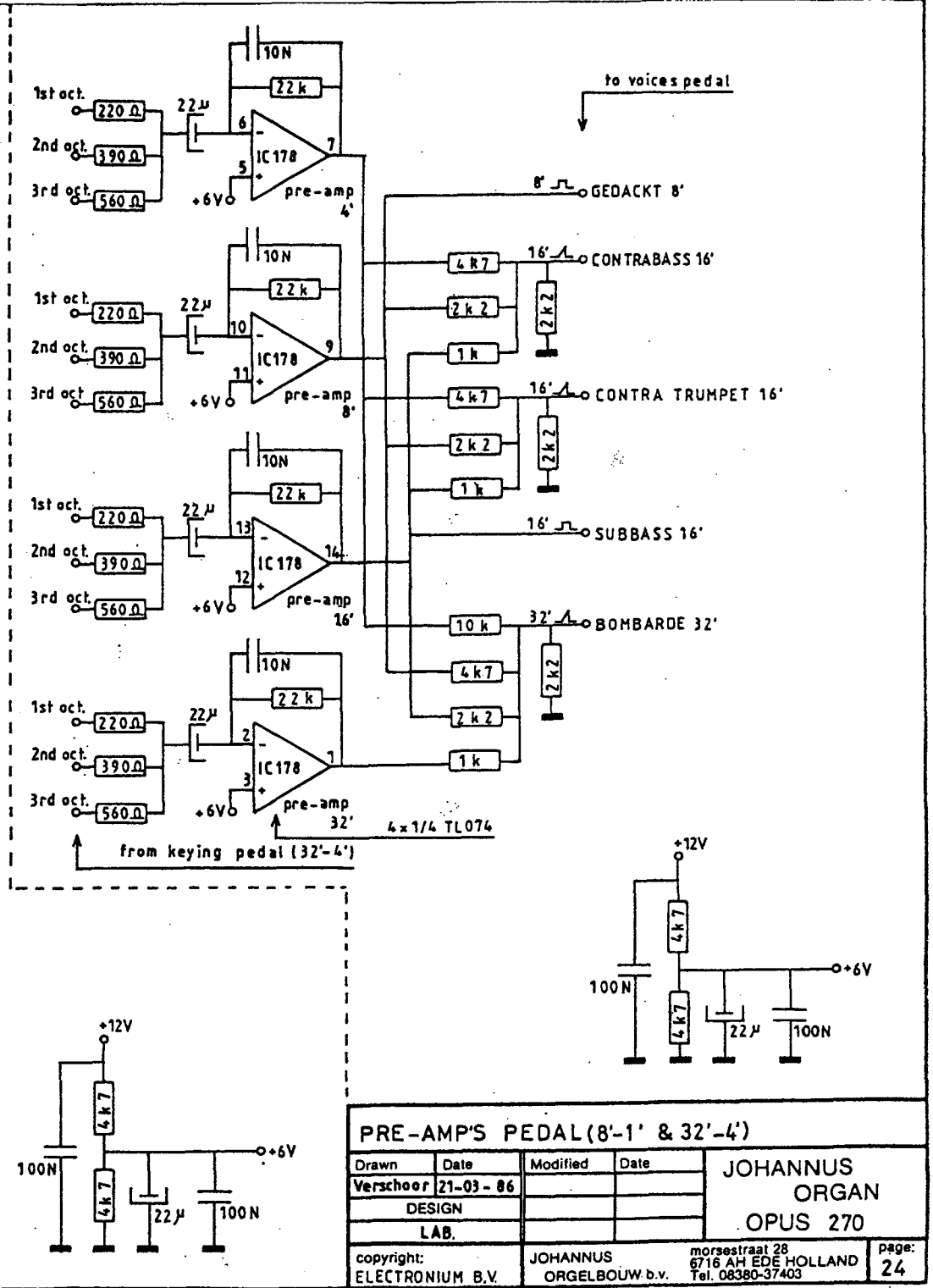
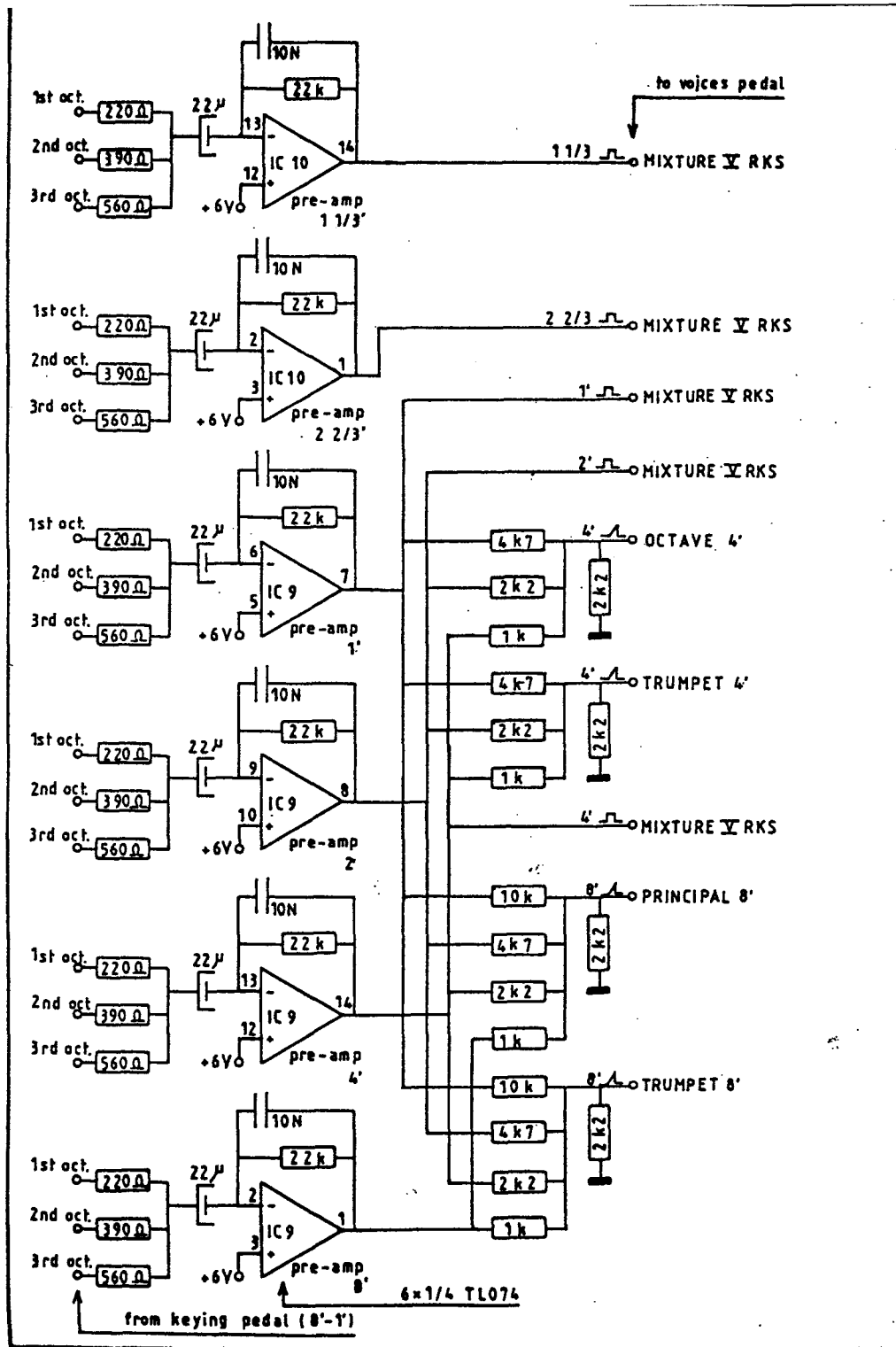


NOTE: the K-inputs (pin 6-11 and pin 17-23) and the reset-input (pin 16) of the I.C.'s TMS 3615 are connected with the corresponding pins of the TMS3617's on the P.C.-board of swell 8'



KEYING & PRE-AMP'S TIERCE SWELL

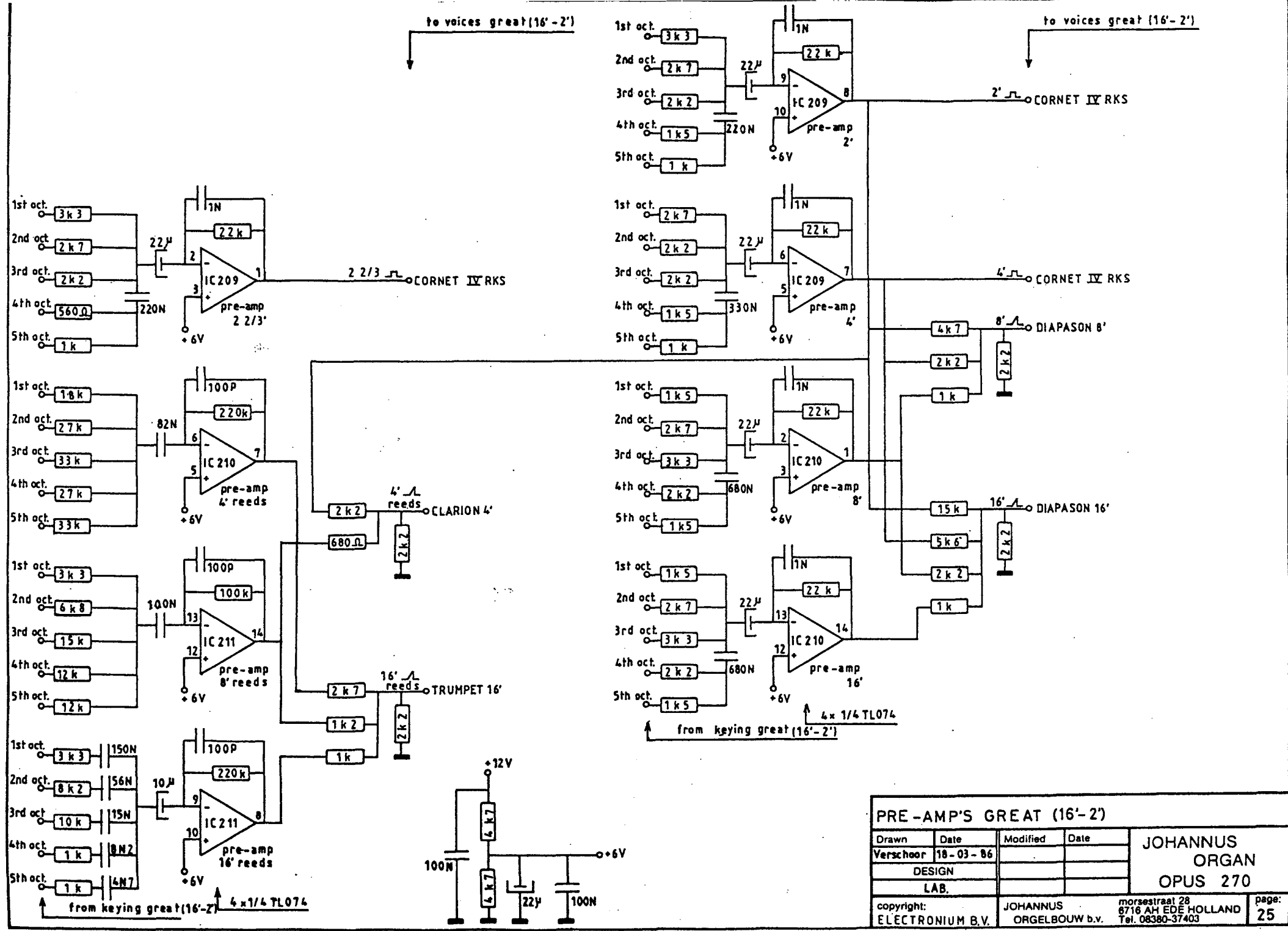
Drawn	Date	Modified	Date	JOHANNUS ORGAN OPUS 270
Verschoor	12-03-86			
DESIGN				
LAB.				
copyright: ELECTRONIUM B.V.	JOHANNUS ORGELBOUW b.v.	morsestraat 28 8716 AH EDE HOLLAND Tel. 08380-37403		page: 23



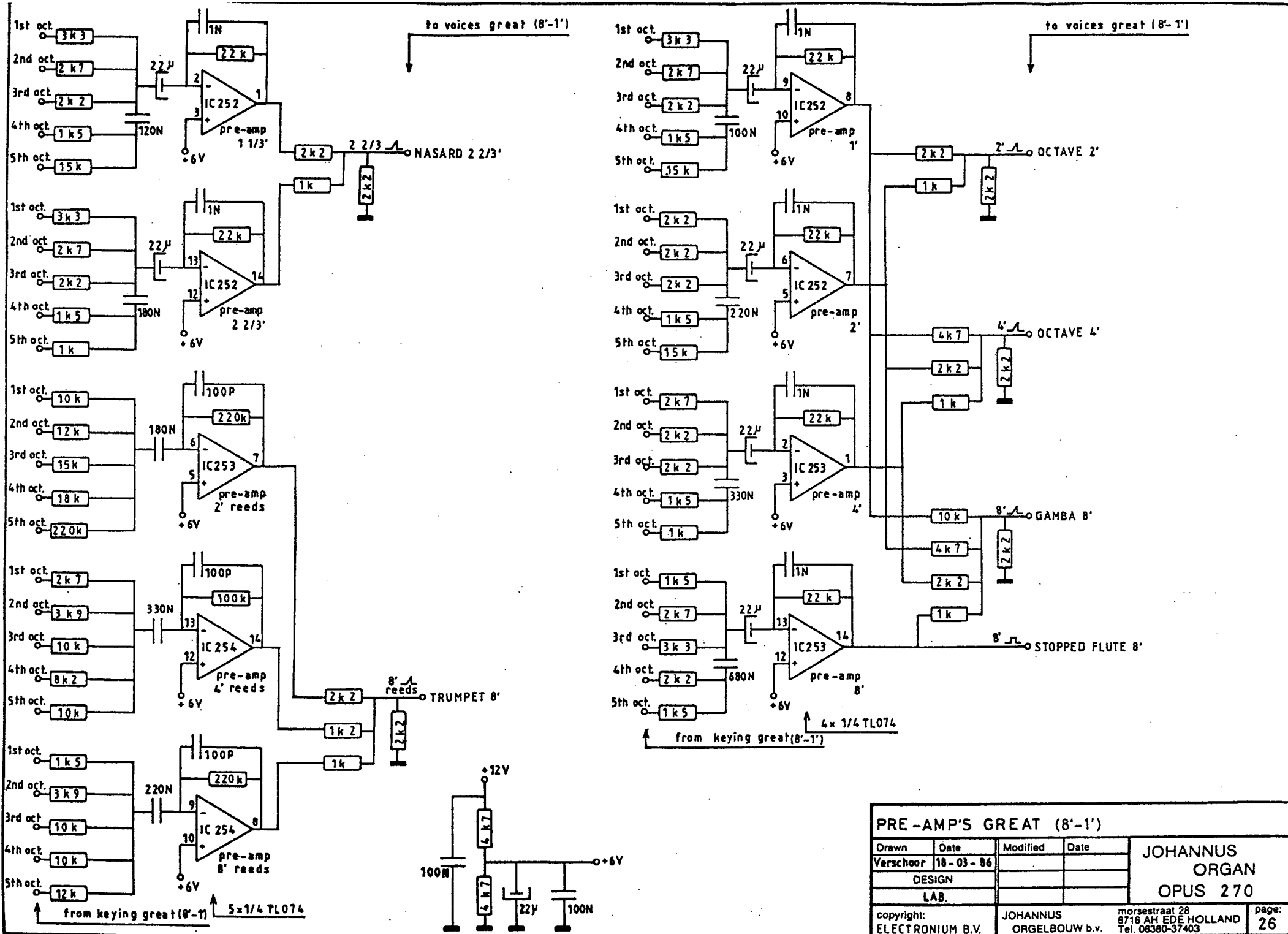
PRE-AMP'S PEDAL (8'-1' & 32'-4')			
Drawn	Date	Modified	Date
Verschoor	21-03-86		
DESIGN			
LAB.			
copyright:	JOHANNUS ORGELBOUW b.v.		
ELECTRONIUM B.V.	morsestraat 28 6716 AH EDE HOLLAND Tel. 08380-37403		
			page: 24

to voices great (16'-2')

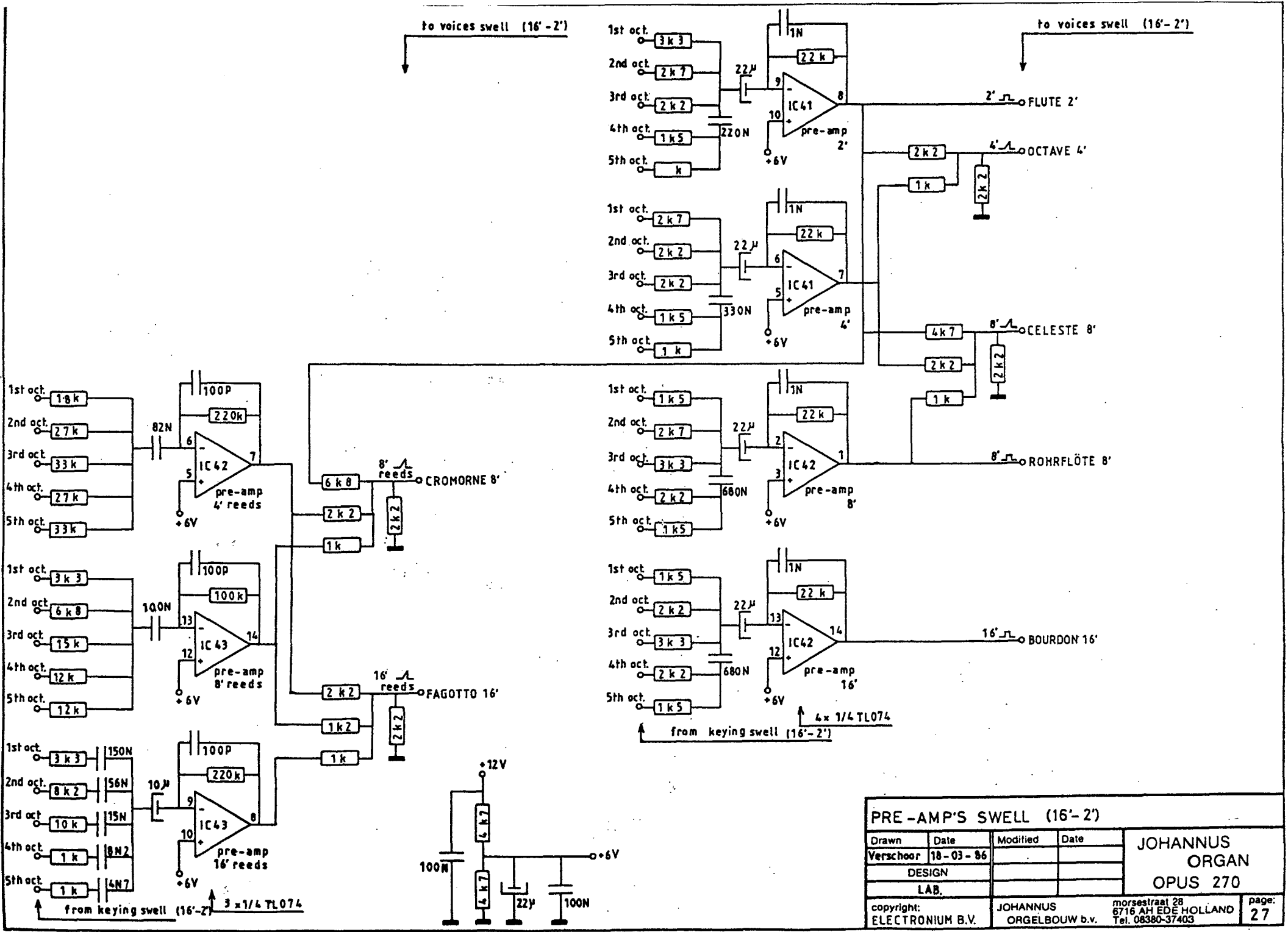
to voices great (16'-2')



PRE-AMP'S GREAT (16'-2')			
Drawn	Date	Modified	Date
Verschoor	18-03-86		
DESIGN			
LAB.			
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		morsestraat 28 8716 AH EDE HOLLAND Tel. 08380-37403	
			page: 25

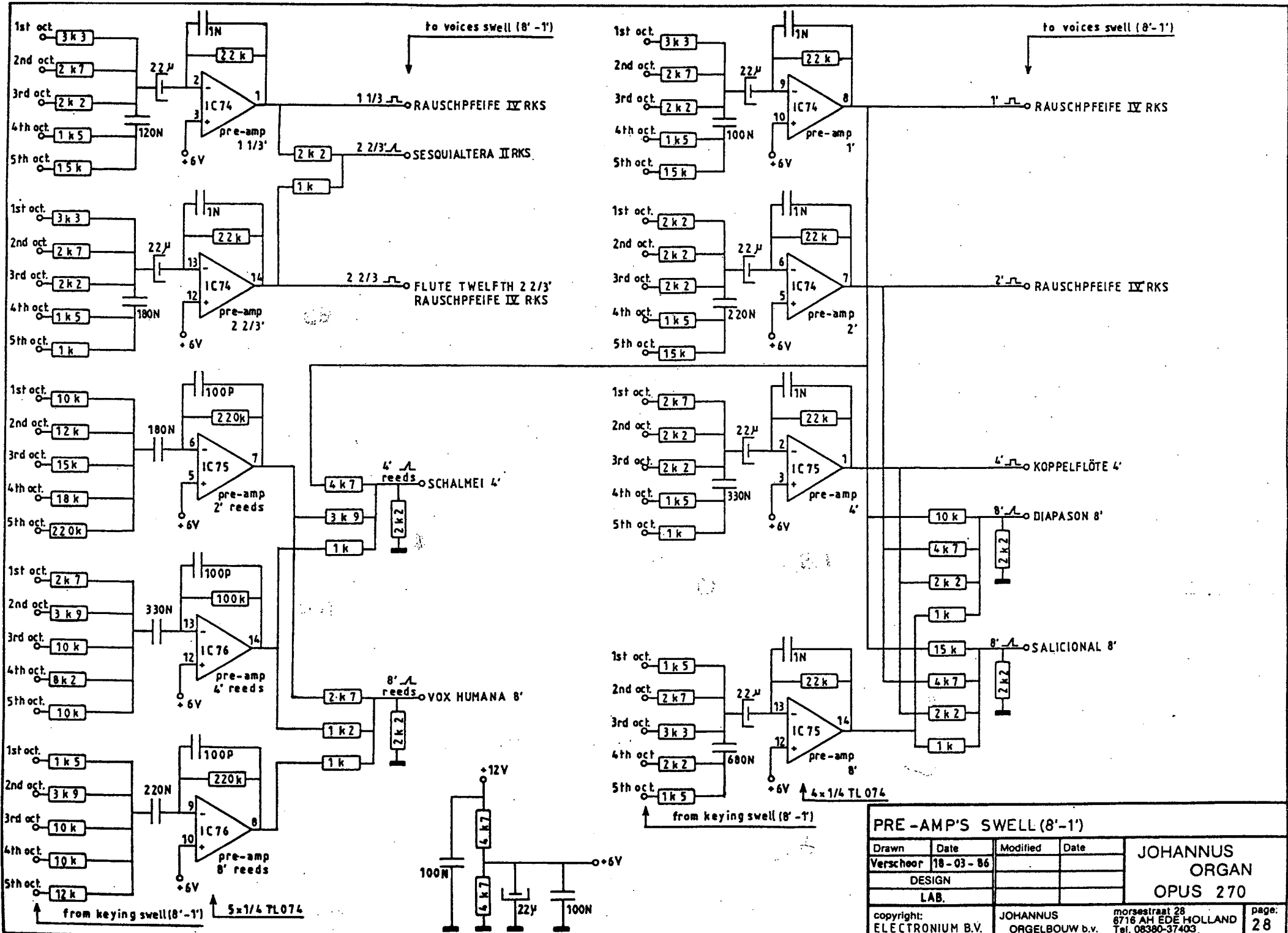


PRE-AMP'S GREAT (8'-1')			
Drawn	Date	Modified	Date
Verschuur	18-03-86		
DESIGN			
LAB.			
copyright:	JOHANNUS		morsestraat 28
ELECTRONIUM B.V.	ORGELBOUW b.v.	6716 AH EDE HOLLAND	
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			page: 26

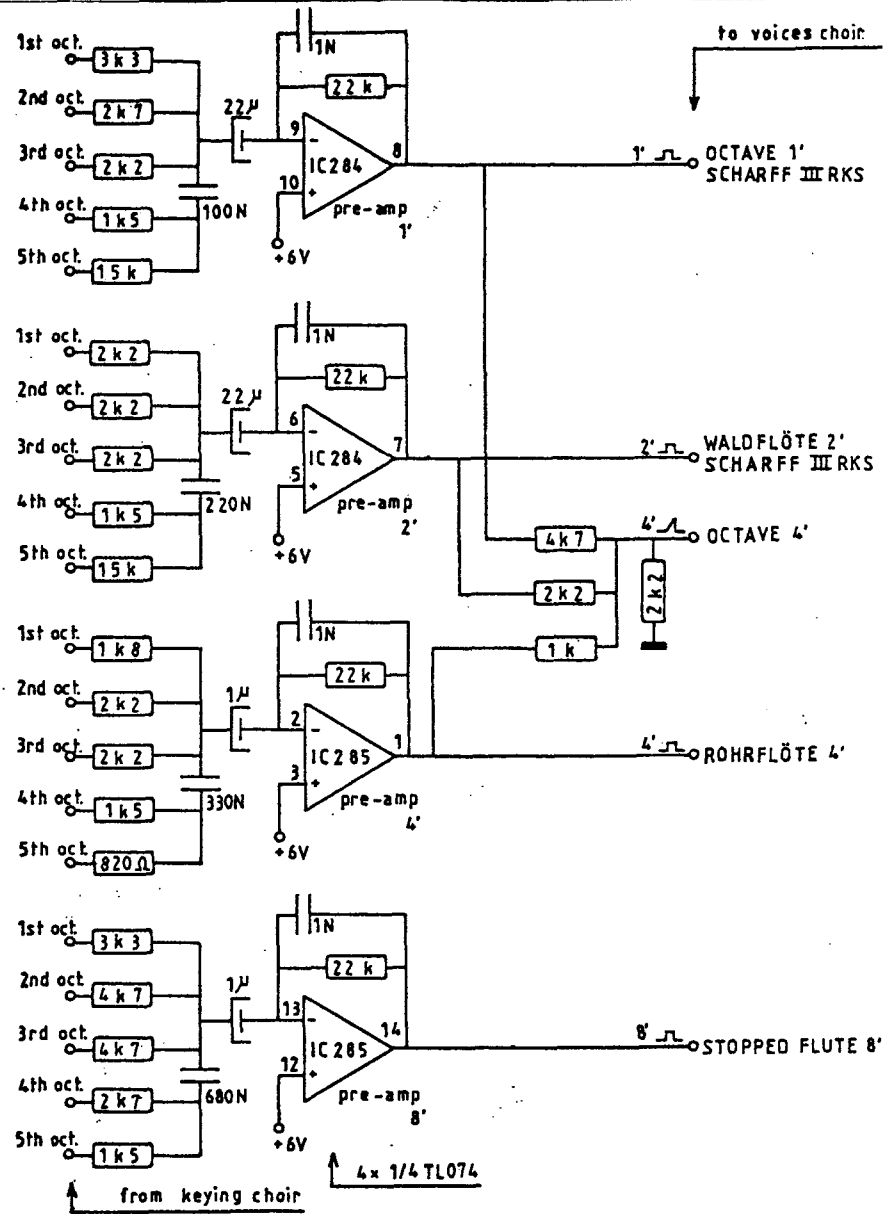
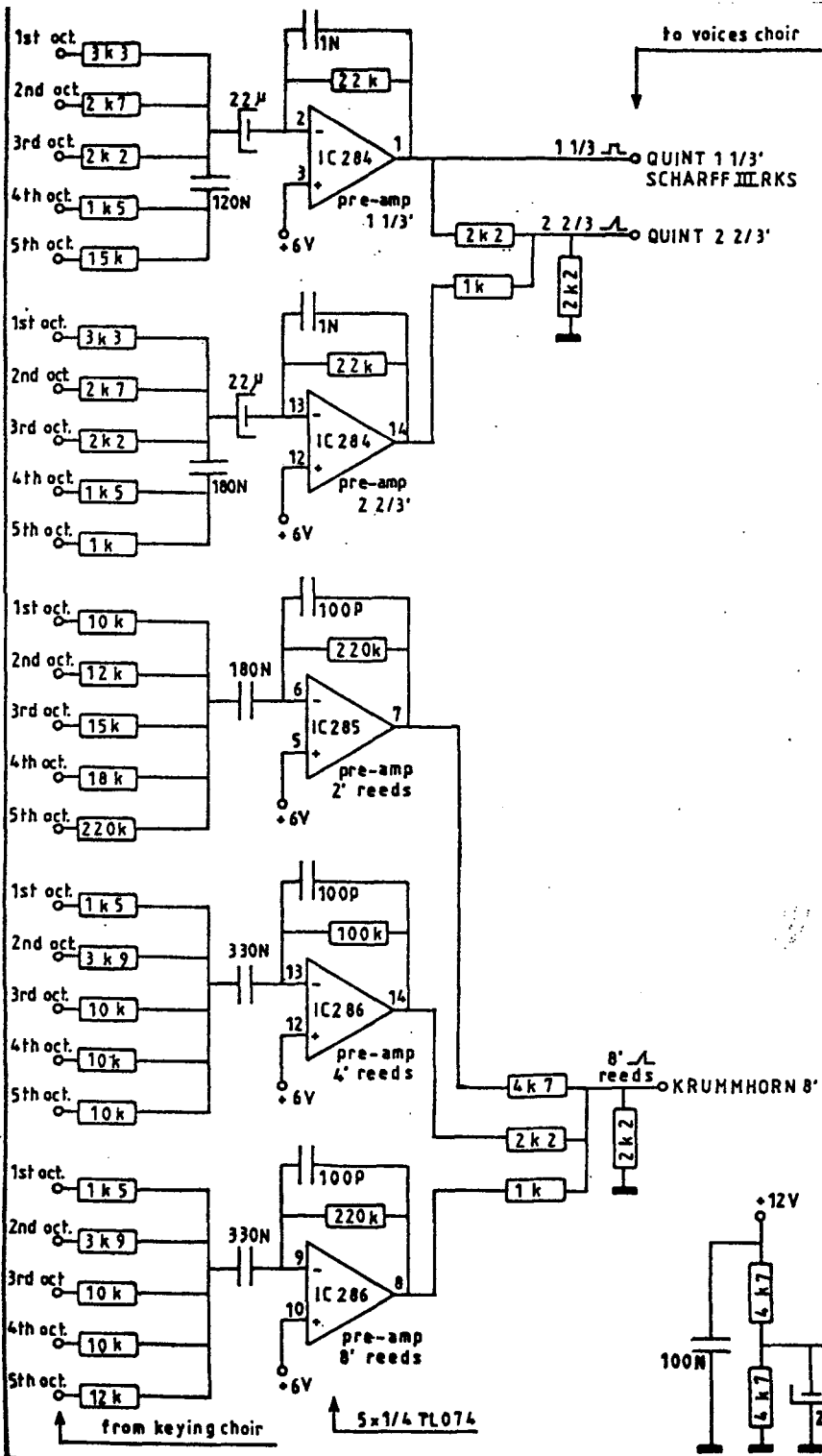


PRE-AMP'S SWELL (16'-2')

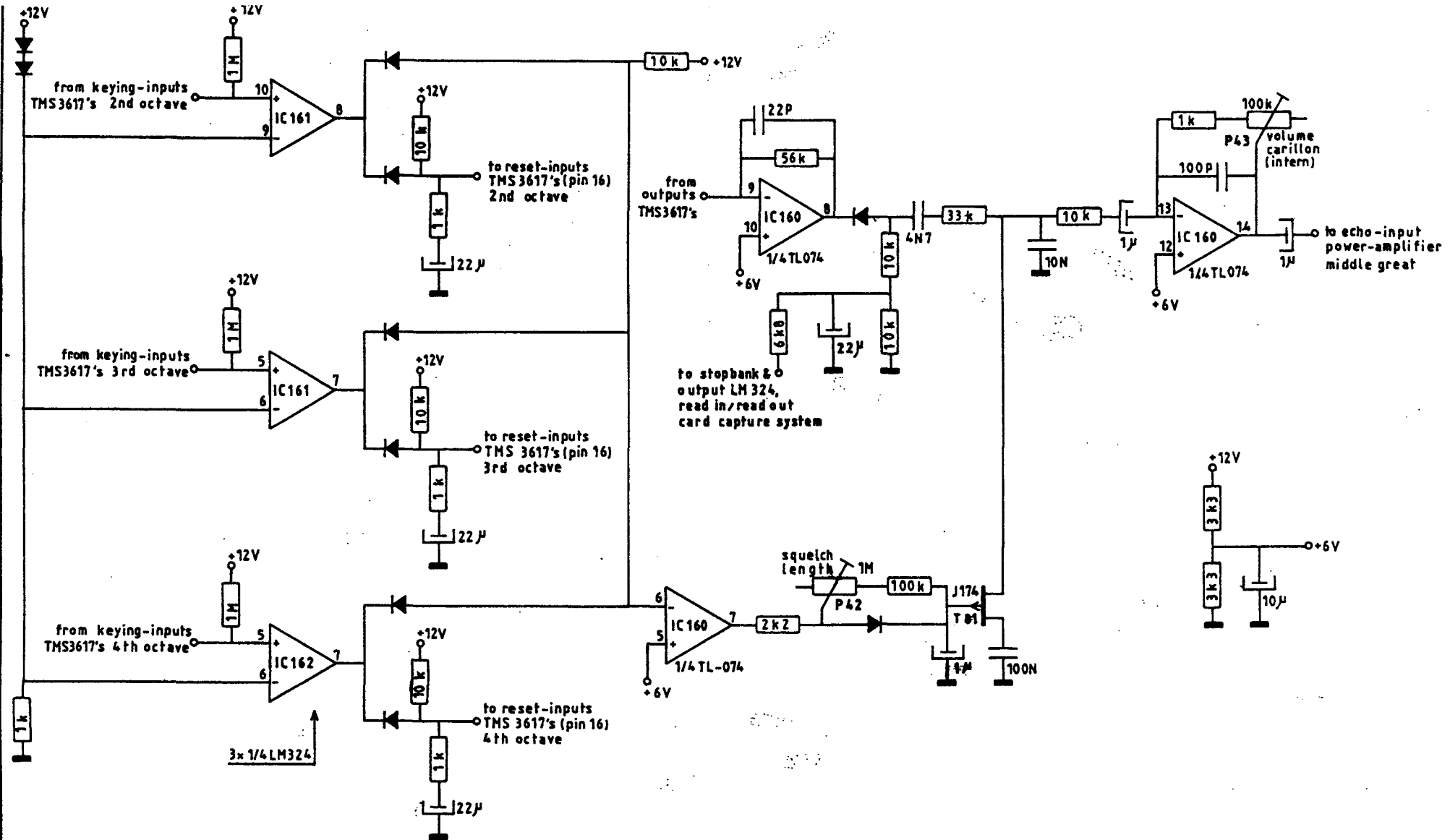
Drawn	Date	Modified	Date	JOHANNUS ORGAN OPUS 270
Verschoor	18-03-86			
DESIGN				
LAB.				
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PRE-AMP'S SWELL (8'-1')				JOHANNUS ORGAN	
Drawn	Date	Modified	Date	OPUS 270	
Verscheur	18-03-86				
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LAB.				copyright: JOHANNUS ORGELBOUW b.v. morsestraat 28 6716 AH EDE HOLLAND Tel. 08380-37403	
ELECTRONIUM B.V.					



PRE-AMP'S CHOIR				JOHANNUS ORGAN OPUS 270	
Drawn	Date	Modified	Date		
Verschoor	18-03-86				
DESIGN					
LAB.					
copyright: ELECTRONIUM B.V.		JOHANNUS ORGELBOUW b.v.		morsestraat 28 6716 AH EDE HOLLAND Tel. 08380-37403	
					page: 29

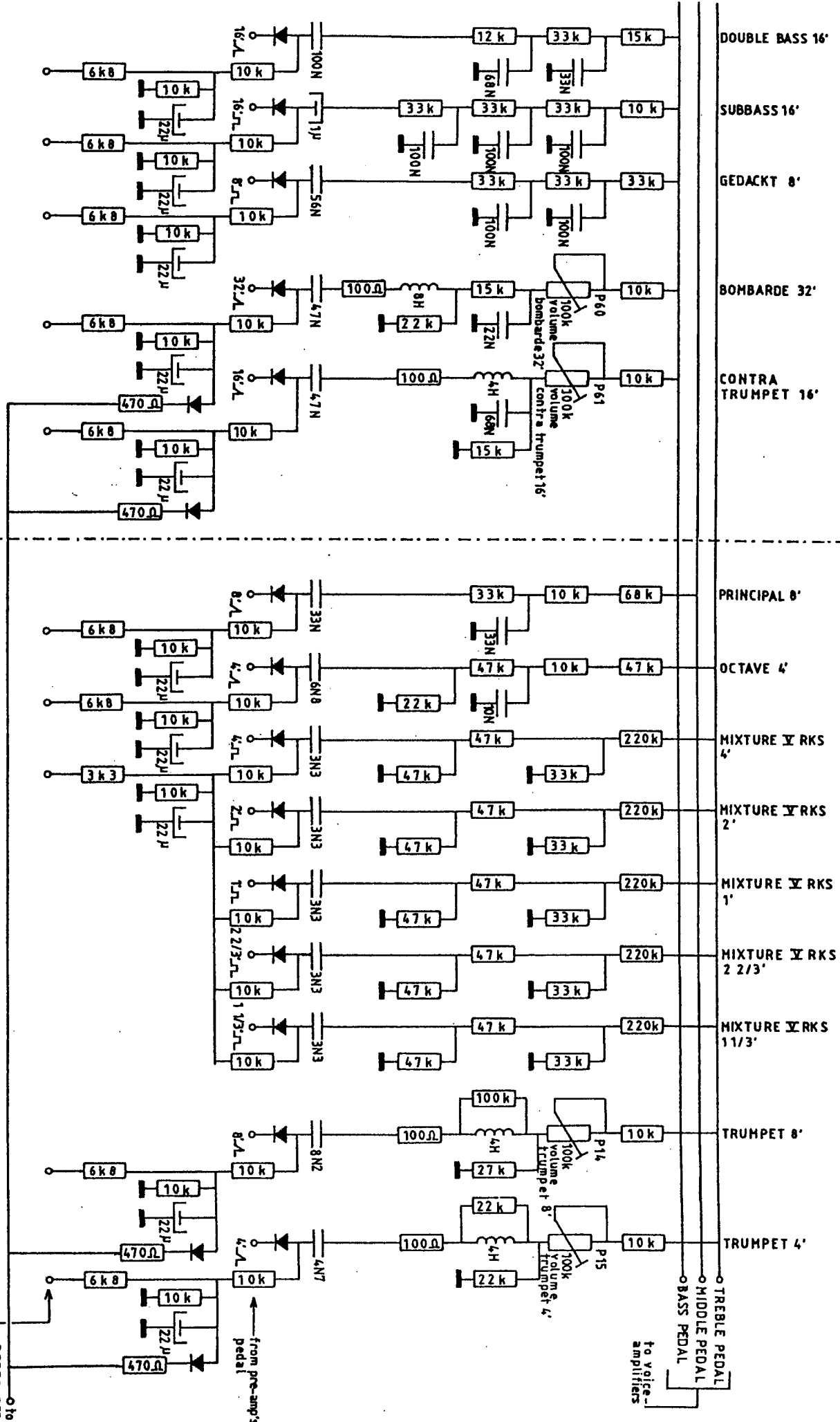


ALL DIODES: 1N4148

**PRE-AMPS; RESET/SQUELCH-CIRCUIT & VOICE CARILLON**

Drawn	Date	Modified	Date	JOHANNUS ORGAN OPUS 270
Verschoor	17-03-06			
DESIGN				
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				page: <b>30</b>





to stopbank & outputs LM324's, read in/read out cards capture system

ALL DIODES: 1N4148

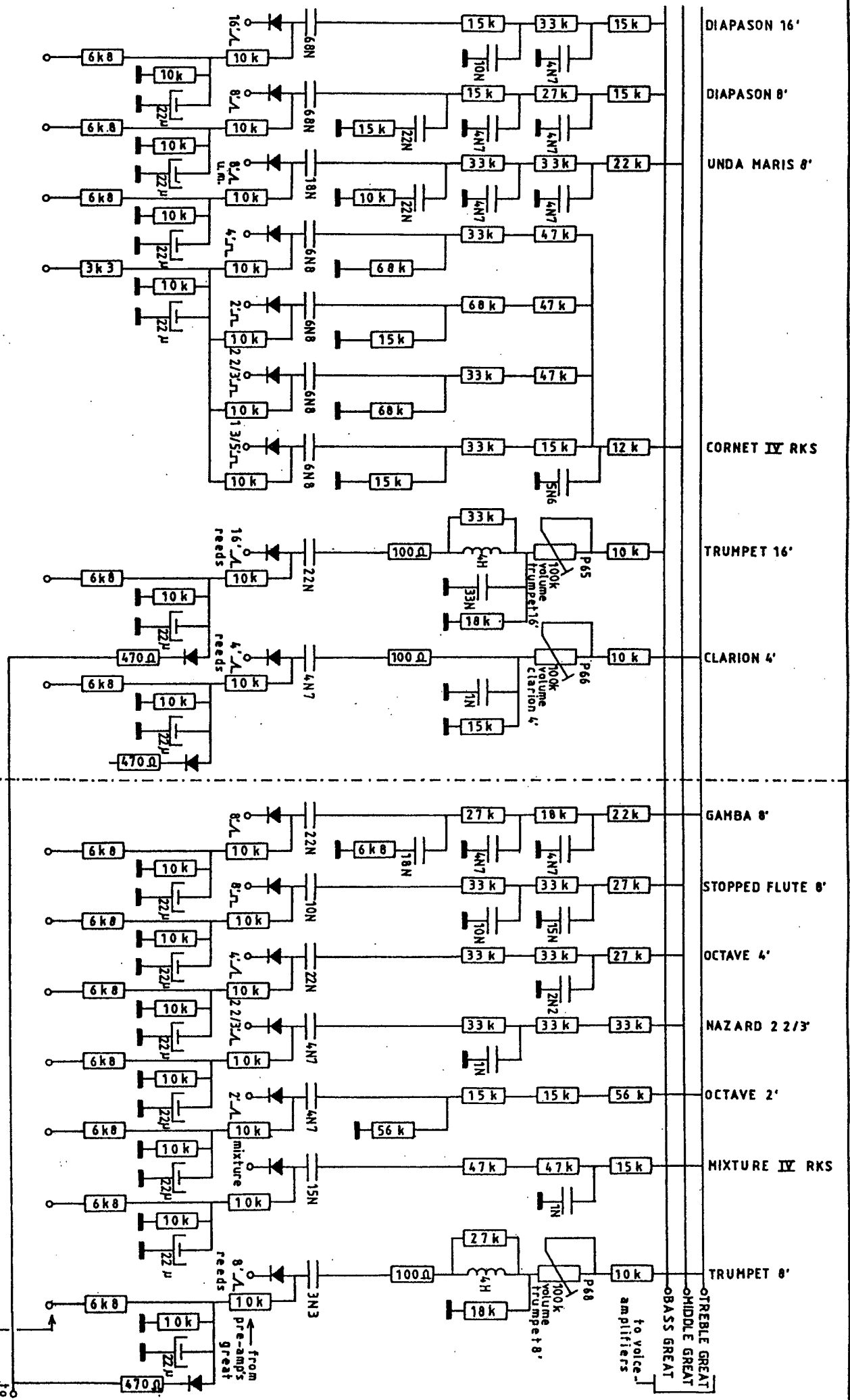
**VOICES PEDAL**

JOHANNUS

ORGAN

OPUS 270

Drawn	Date	Modified	Date
Verschoor	27-03-86		
DESIGN			
LAB			
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		Tel. 08380-37403	



ALL DIODES: 1N4148

to stopbank & outputs LM324's, read in/read out cards capture system REEDS OFF switch

**VOICES GREAT**

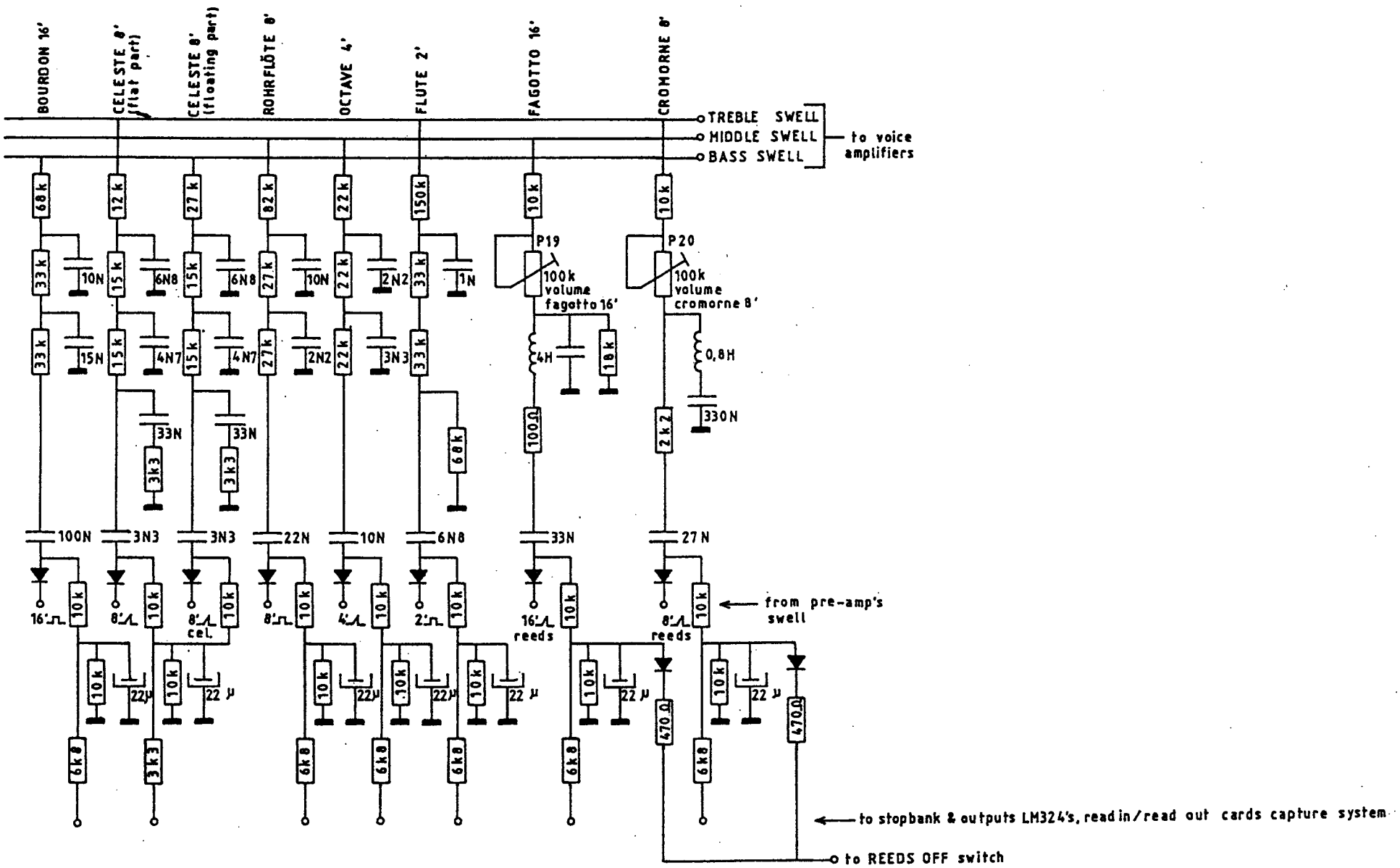
**JOHANNUS ORGAN**

**OPUS 270**

Drawn	Date	Modified	Date
Verschuur	01-06-86		
DESIGN			
LAB.			

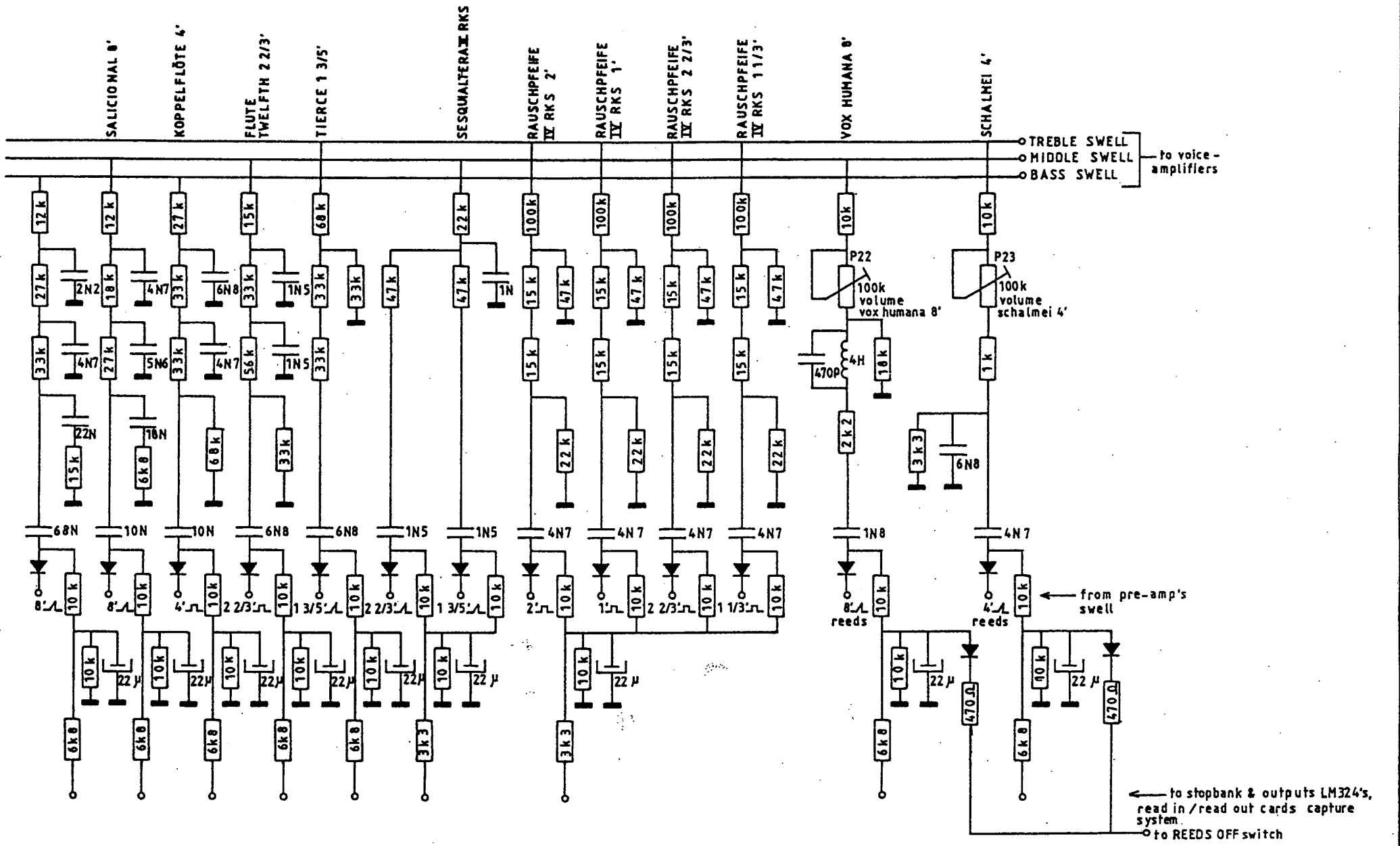
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 tel: 085360-57403

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ALL DIODES: 1N4148

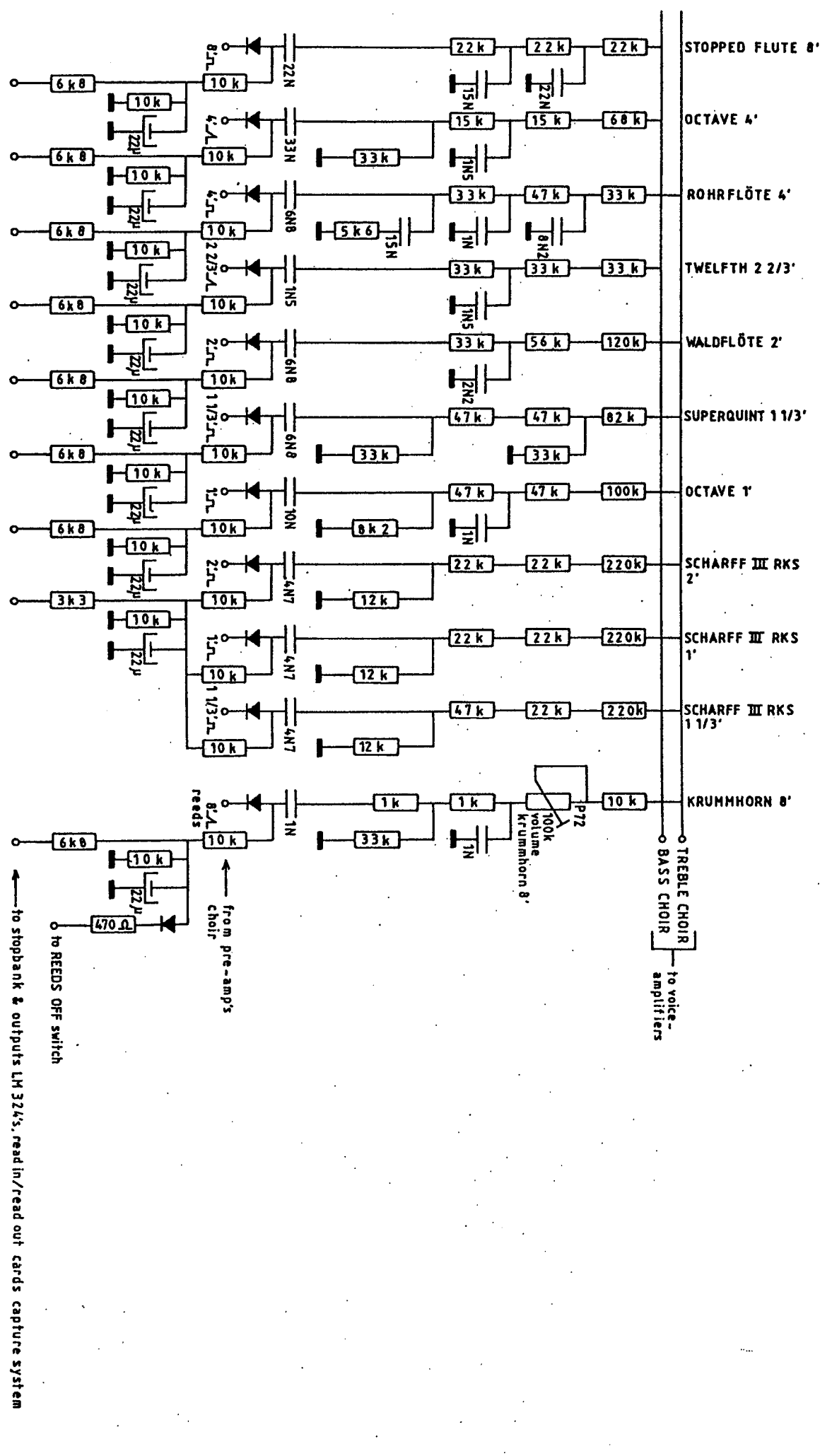
VOICES SWELL (part 1)				JOHANNUS ORGAN OPUS 270
Drawn	Date	Modified	Date	
Verschuur	01-04-86			
DESIGN				
LAB.				
copyright: ELECTRONIUM B.V.	JOHANNUS ORGELBOUW b.v.	morsestraat 28 6716 AH EDE HOLLAND Tel. 08380-37403		page: 33



ALL DIODES: 1N4148

**VOICES SWELL (part 2)**

Drawn	Date	Modified	Date	JOHANNUS ORGAN OPUS 270
Verschoor	01-04-86			
DESIGN				
LAB.				
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ALL DIODES: 1N4148

**VOICES CHOIR**

Drawn	Date	Modified	Date
Verschuur	27-03-86		
DESIGN			
LAB.			

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ORGAN  
OPUS 270**

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 tel. 08390-37403  
 page: 35

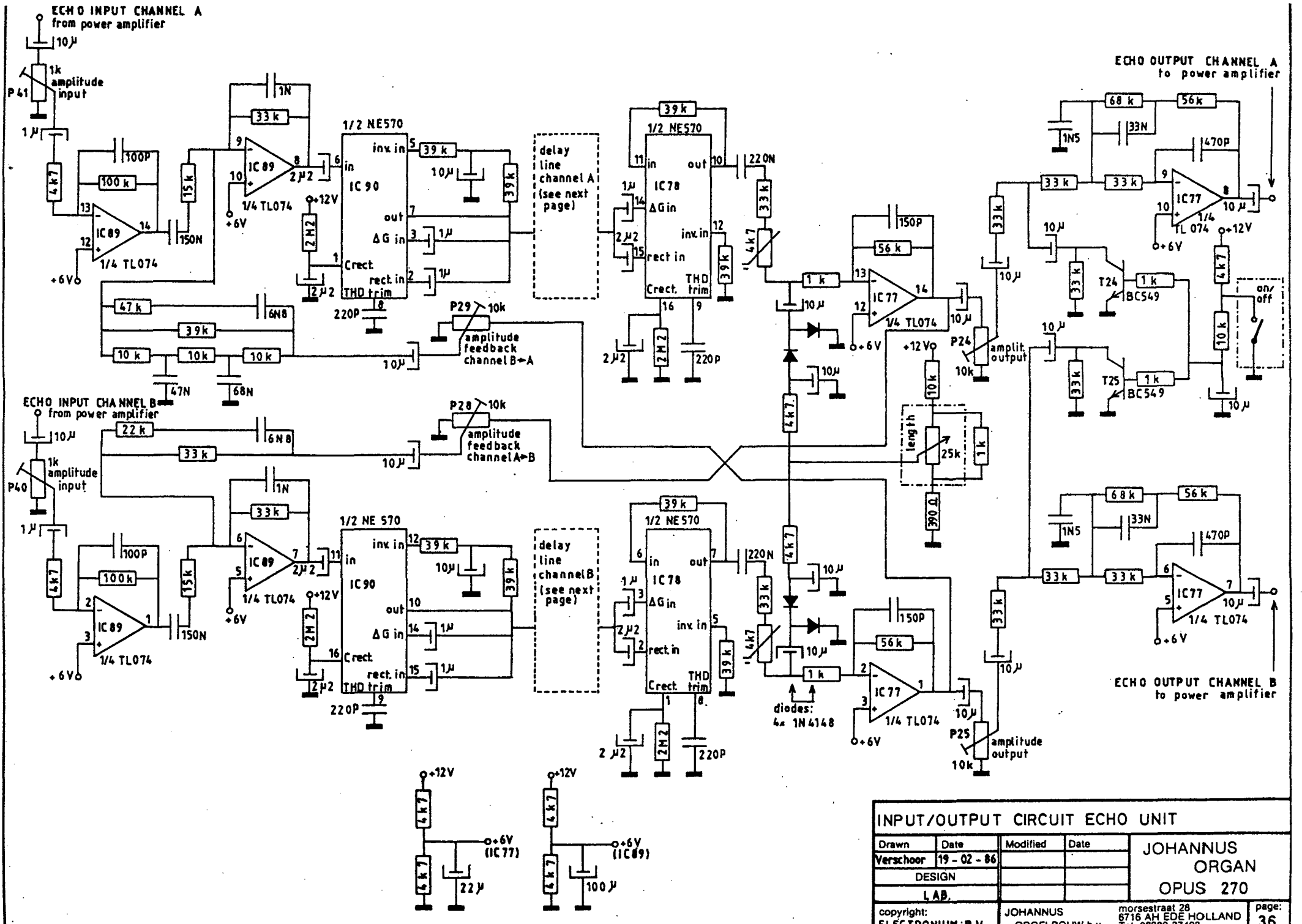
to stopbank & outputs LH 324's, read in/read out cards capture system

from pre-amps

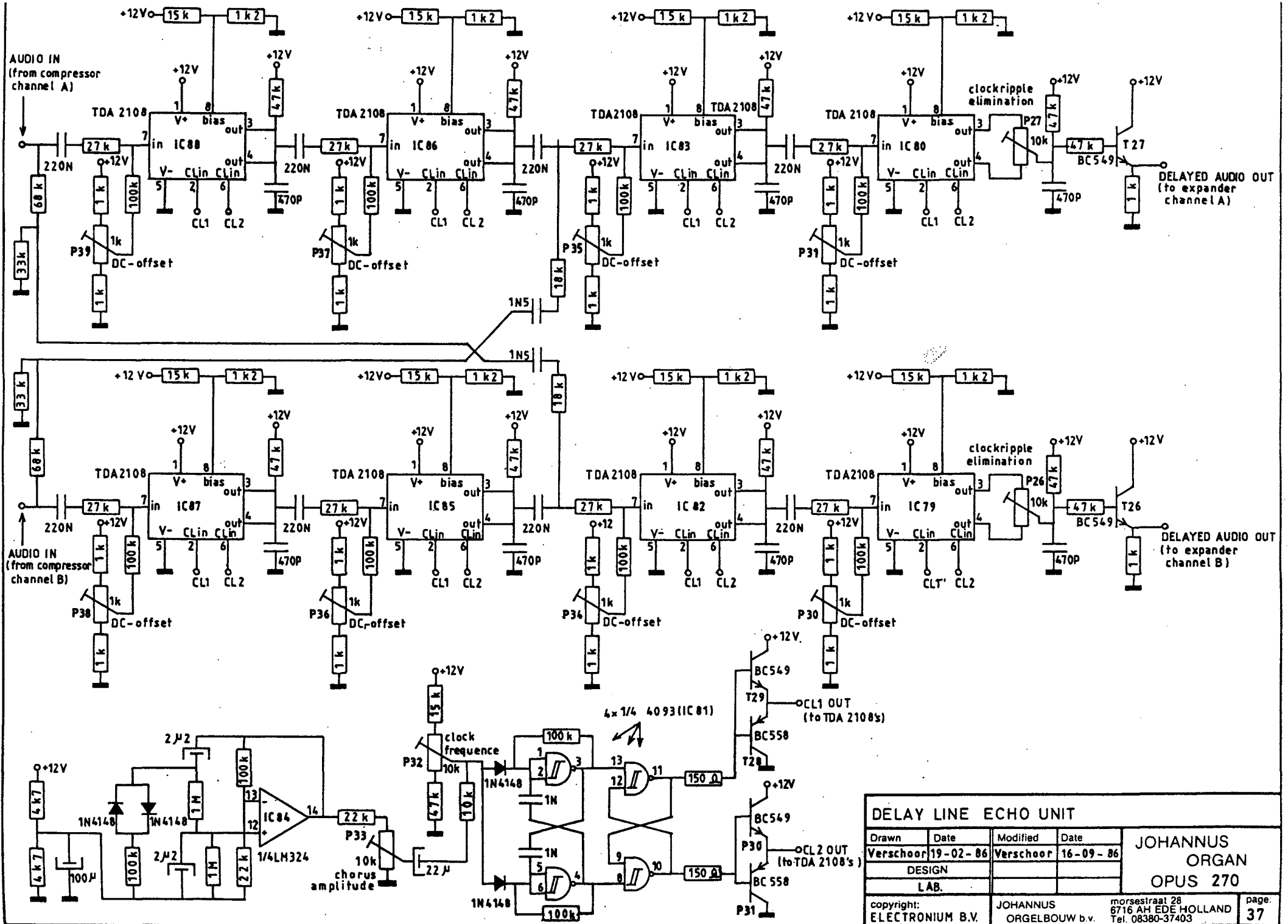
to REEDS OFF switch

Krummhorn 8' volume

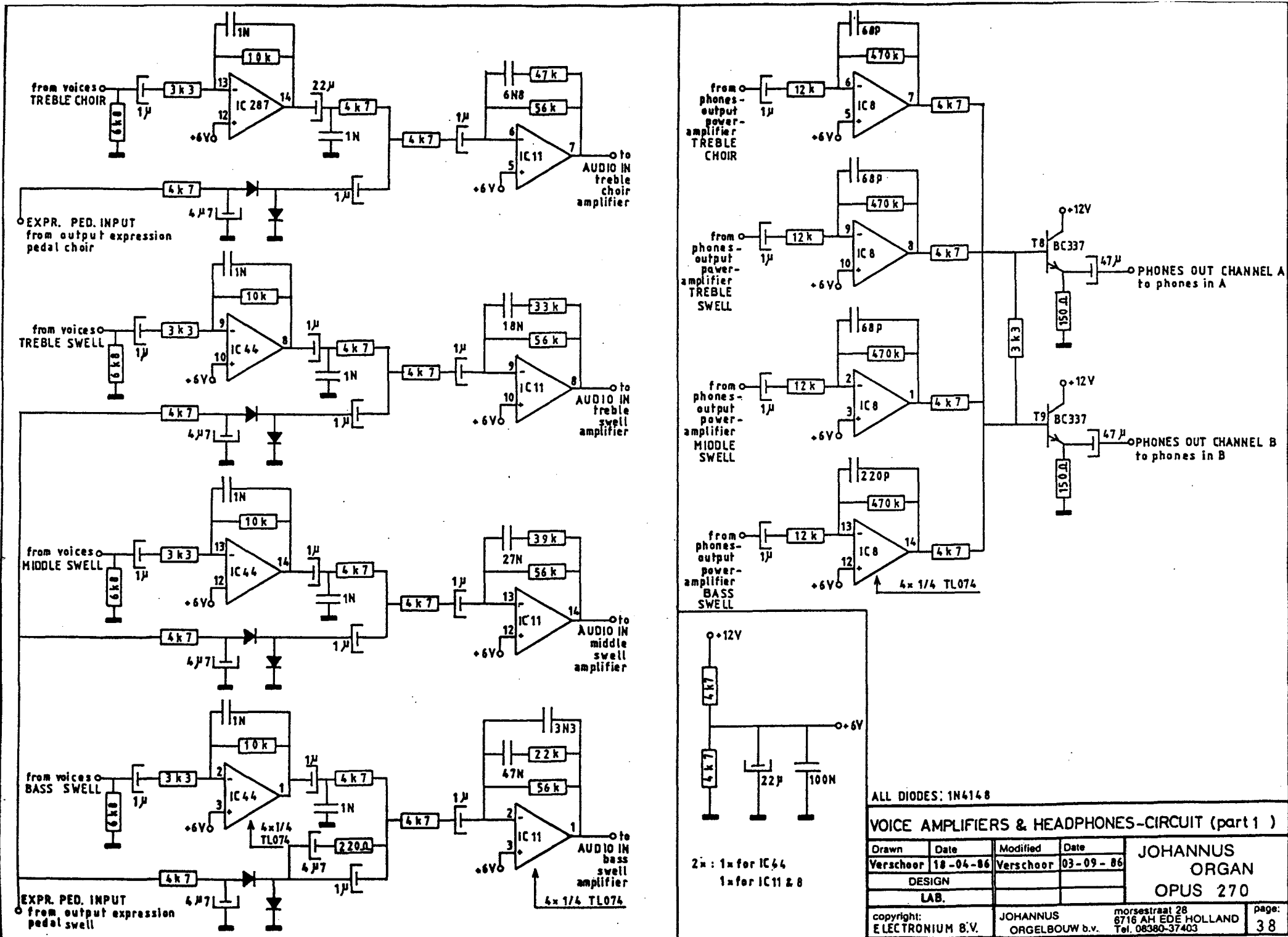
BASS CHOIR  
to voice amplifiers



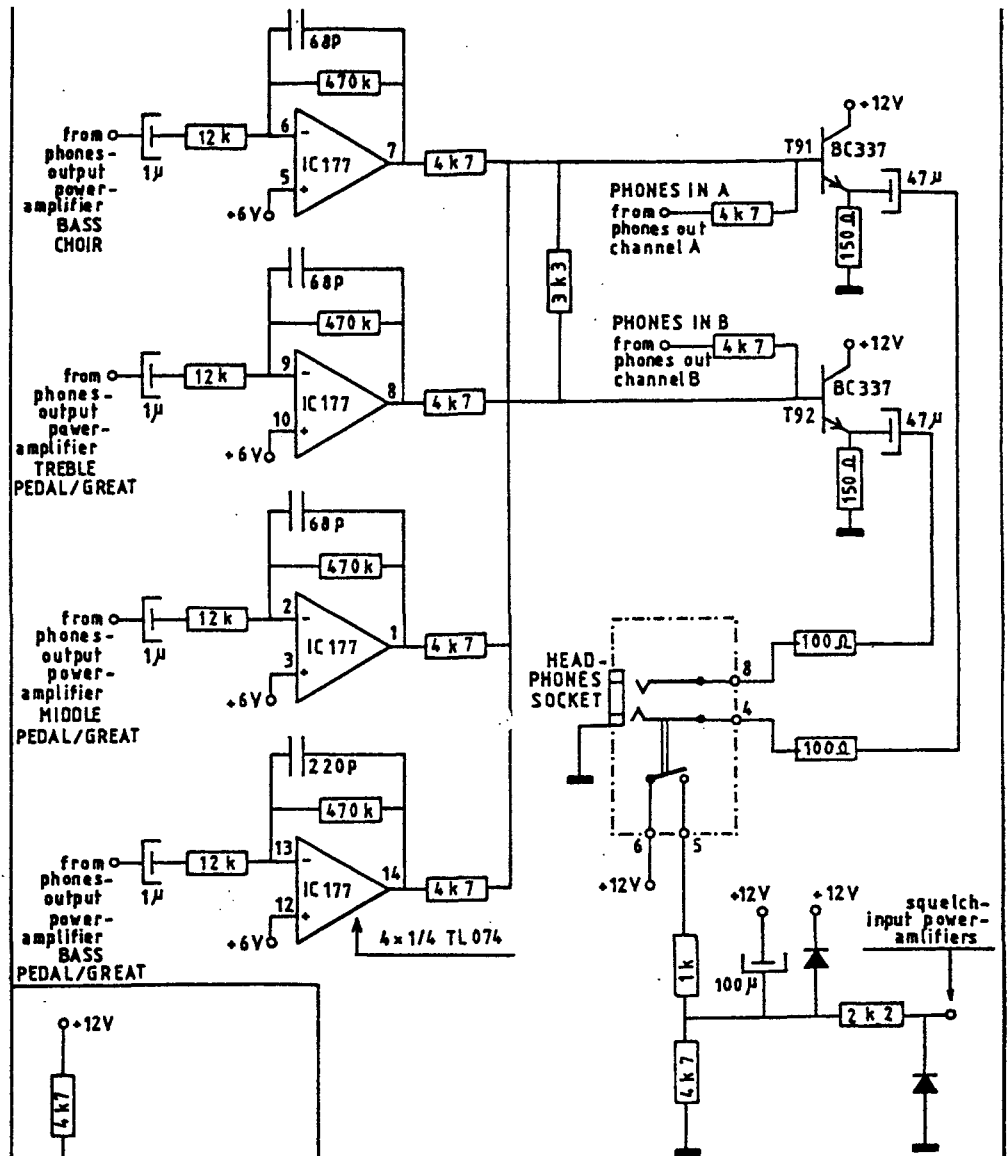
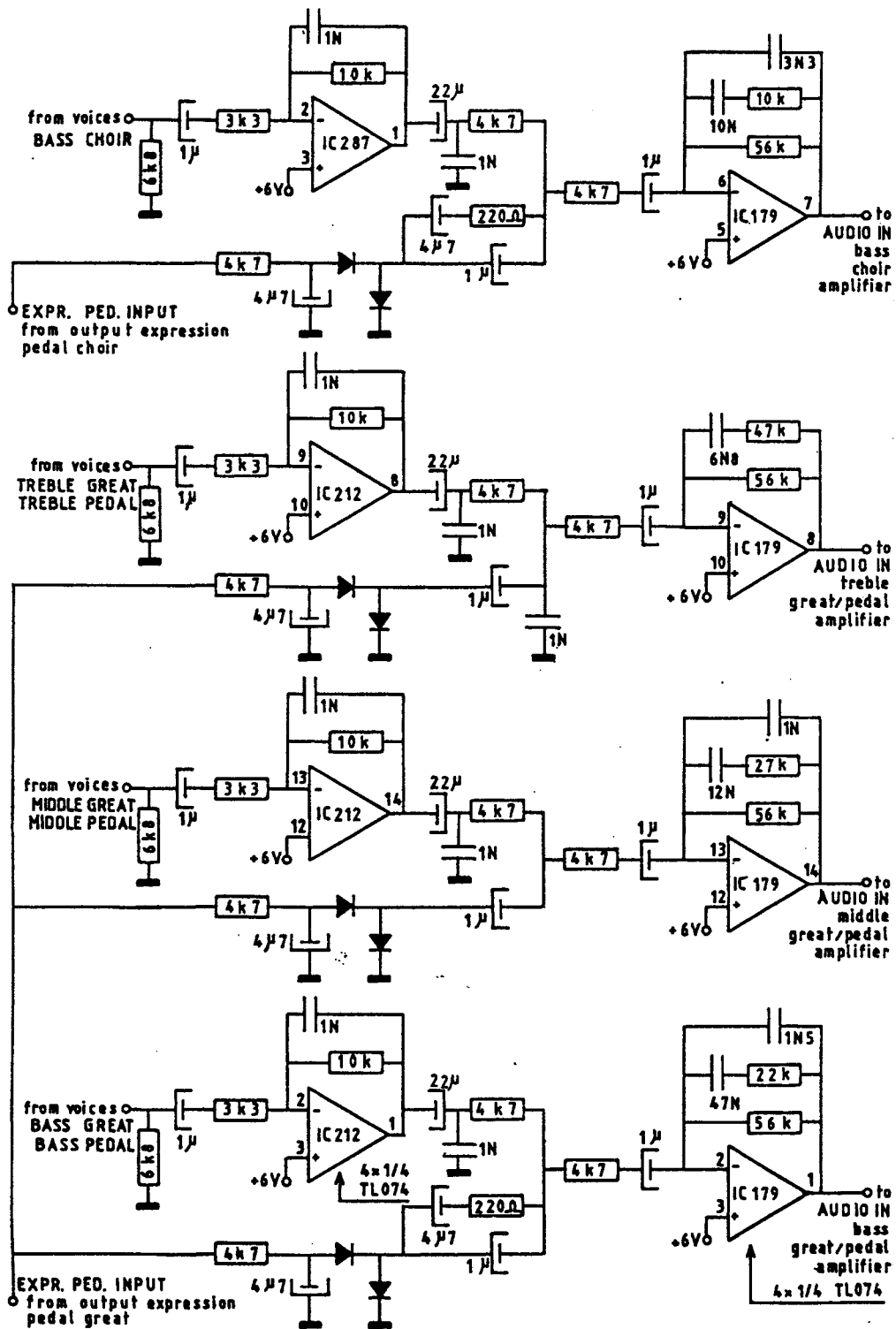
INPUT/OUTPUT CIRCUIT ECHO UNIT					
Drawn	Date	Modified	Date	JOHANNUS ORGAN OPUS 270	
Verschuur	19-02-86				
DESIGN					
LAB.					
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DELAY LINE ECHO UNIT			
Drawn	Date	Modified	Date
Verschoor	19-02-86	Verschoor	16-09-86
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LAB.			
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		morsestraat 28 6716 AH EDE HOLLAND Tel. 08380-37403	
			page: 37





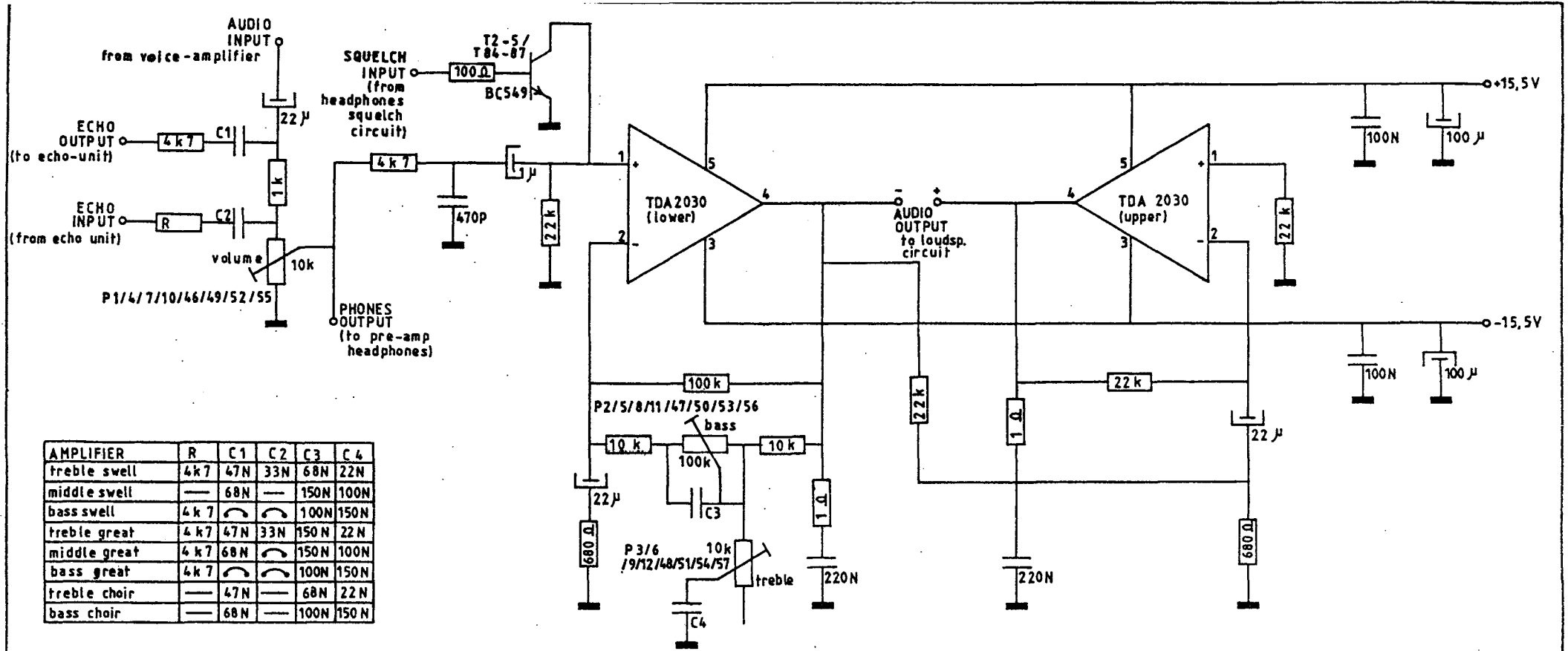


ALL DIODES: 1N4148

VOICE AMPLIFIERS & HEADPHONES-CIRCUIT (part 2)

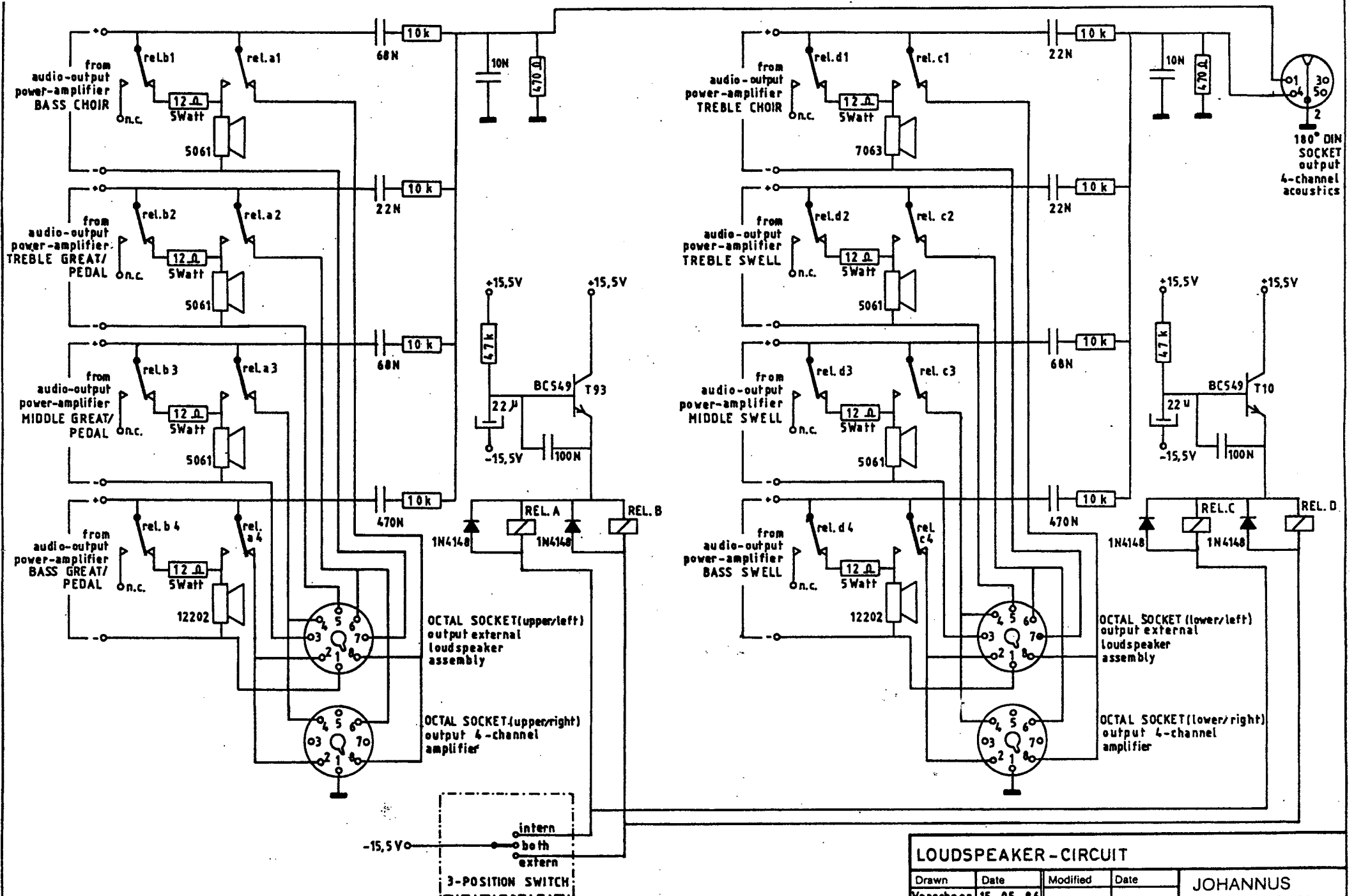
Drawn	Date	Modified	Date	JOHANNUS ORGAN OPUS 270
Verschoor	18-04-86	Verschoor	03-09-86	
DESIGN				
LAB.				
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3x : 1x for IC 212  
1x for IC 287  
1x for IC 179 & 177



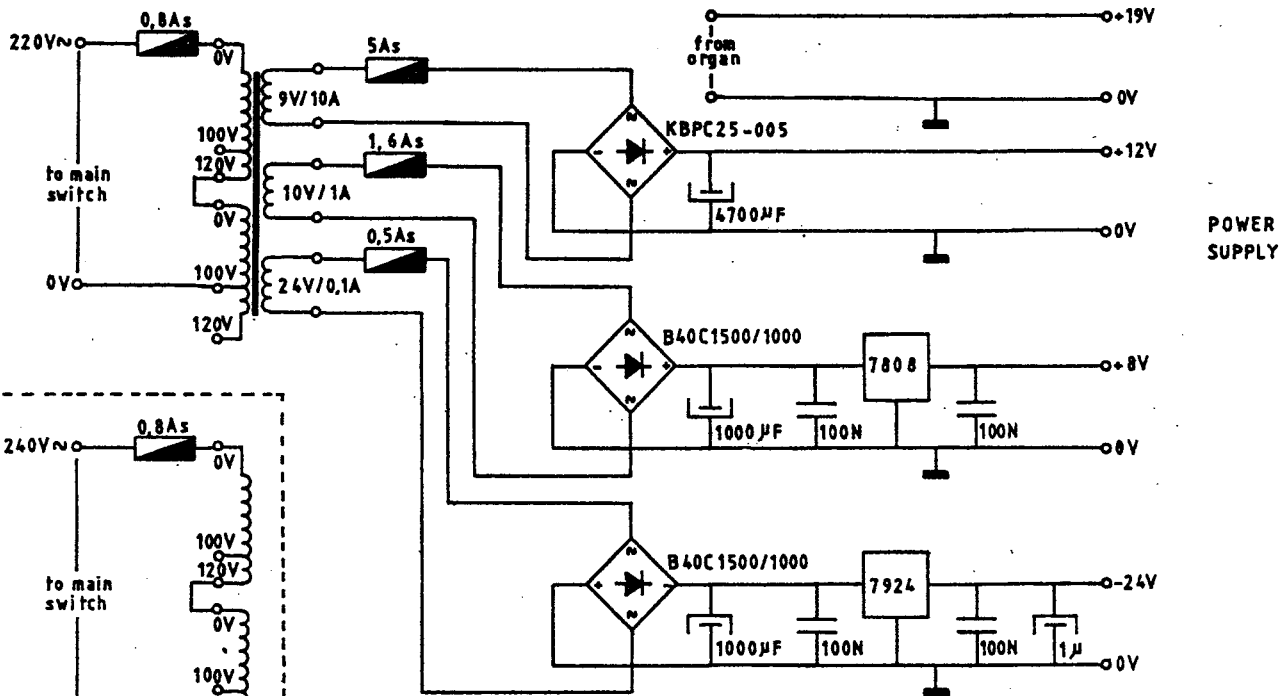
AMPLIFIER	R	C1	C2	C3	C4
treble swell	4k7	47N	33N	68N	22N
middle swell	—	68N	—	150N	100N
bass swell	4k7	—	—	100N	150N
treble great	4k7	47N	33N	150N	22N
middle great	4k7	68N	—	150N	100N
bass great	4k7	—	—	100N	150N
treble choir	—	47N	—	68N	22N
bass choir	—	68N	—	100N	150N

POWER - AMPLIFIER ( 8 x )			
Drawn	Date	Modified	Date
Verschoor	19-02-86		
DESIGN			
LAB			
copyright:		JOHANNUS	morsestraat 28
ELECTRONIUM B.V.		ORGELBOUW b.v.	6716 AH EDE HOLLAND
			Tel. 08380-37403.
			page: 40

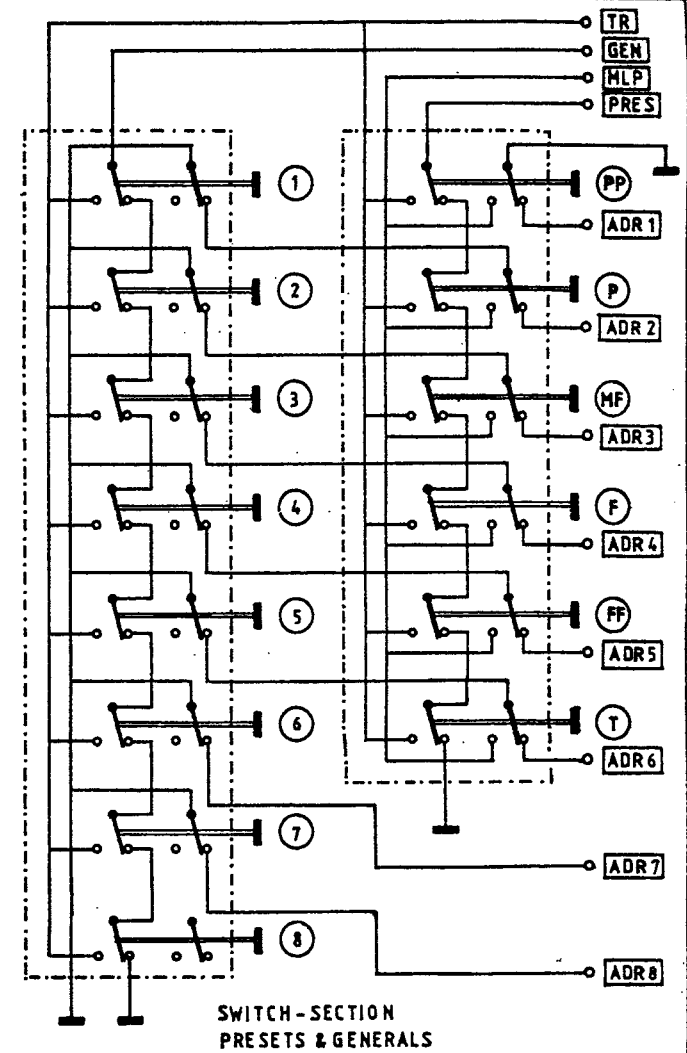


**LOUDSPEAKER - CIRCUIT**

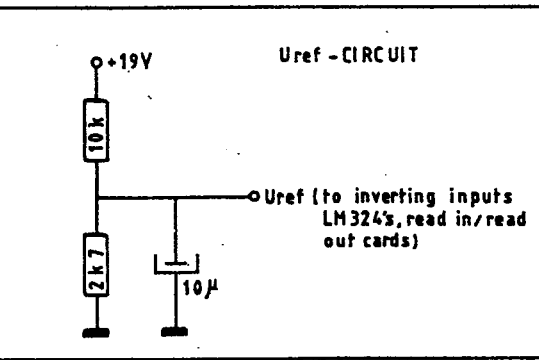
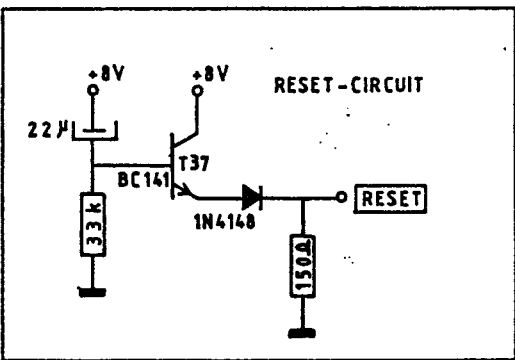
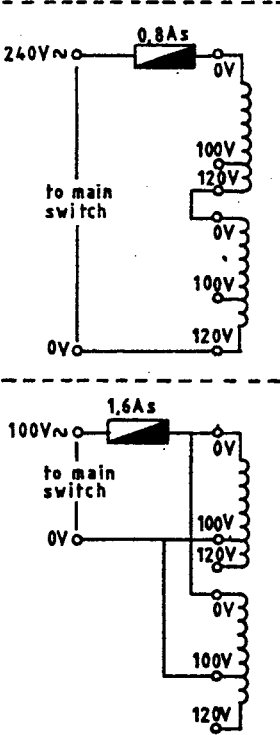
Drawn	Date	Modified	Date	<b>JOHANNUS ORGAN OPUS 270</b>
Verschoor	15-05-86			
DESIGN				
LAB.				
copyright: ELECTRONIUM B.V.	JOHANNUS ORGELBOUW b.v.	morsestraat 28 6716 AH EDE HOLLAND Tel. 08380-37403		page: 41



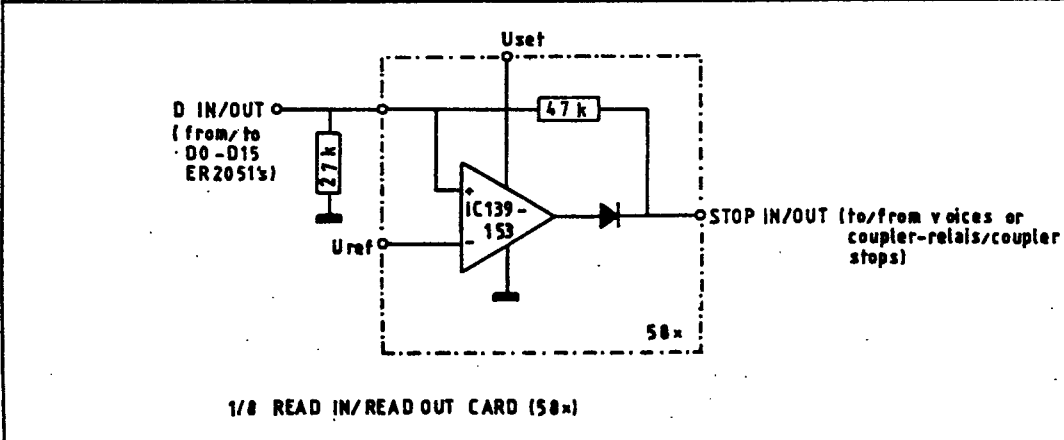
POWER SUPPLY



SWITCH-SECTION  
PRESETS & GENERALS



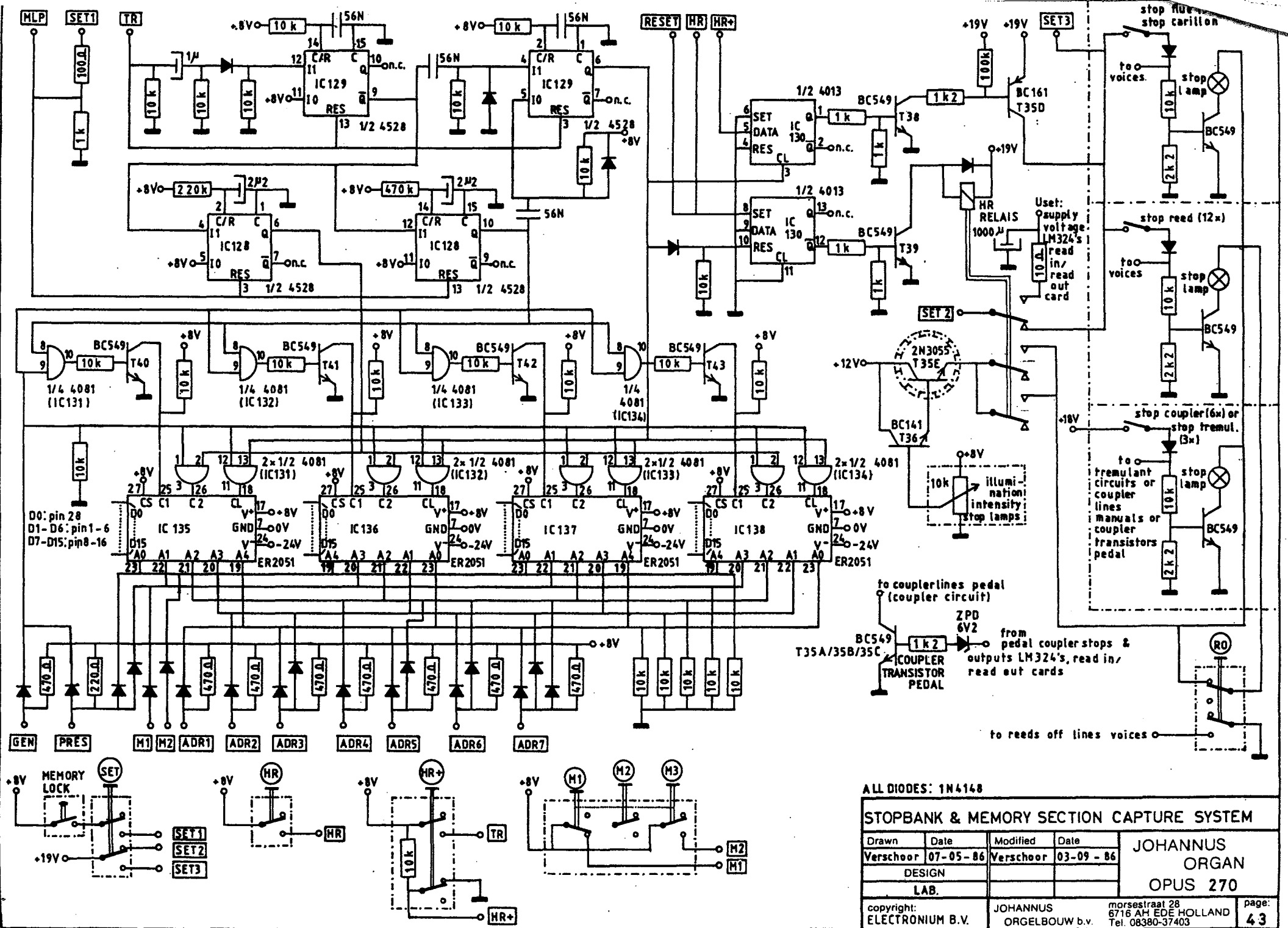
Uref-CIRCUIT



1/8 READ IN/READ OUT CARD (58x)

POWER SUPPLY; SWITCH-SECTION (presets & generals), RESET-CIRCUIT; Uref-CIRCUIT & 1/8			
READ IN/READ OUT CARD CAPTURE SYSTEM			
Drawn	Date	Modified	Date
Verschuur	05-05-86		
DESIGN			
LAB.			
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			page: 42

JOHANNUS  
ORGAN  
OPUS 270



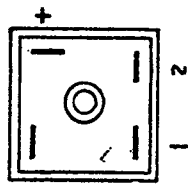
ALL DIODES: 1N4148

**STOPBANK & MEMORY SECTION CAPTURE SYSTEM**

Drawn	Date	Modified	Date	JOHANNUS ORGAN OPUS 270
Verschoor	07-05-86	Verschoor	03-09-86	
DESIGN				
LAB.				
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A K

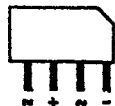
1N4148  
ZPD 6Y2



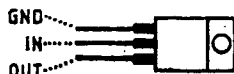
KBPC25-005



B80 C5000/3300



B40 C1500/1000



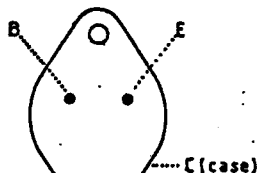
MA7924



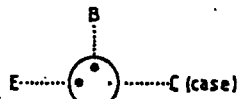
MA7800  
MA7812  
MA7818



1=non-inverting input  
2=inverting input  
3=V-  
4=output  
5=V+ TDA 2030



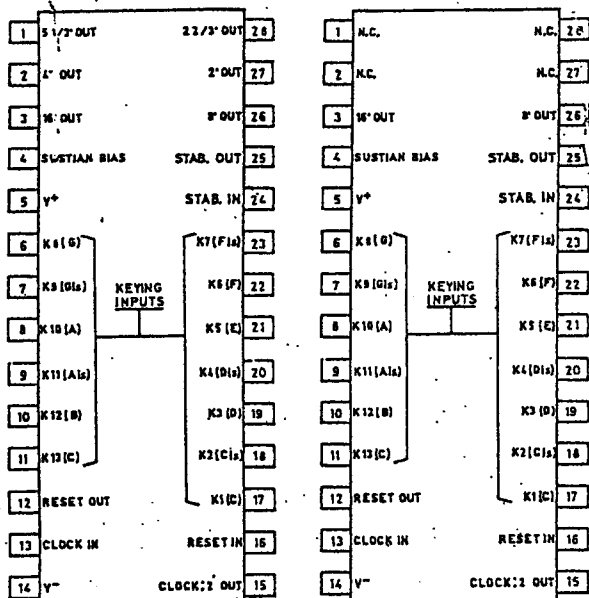
ZN3055(bottom view)



BC147  
BC161 (bottom view)

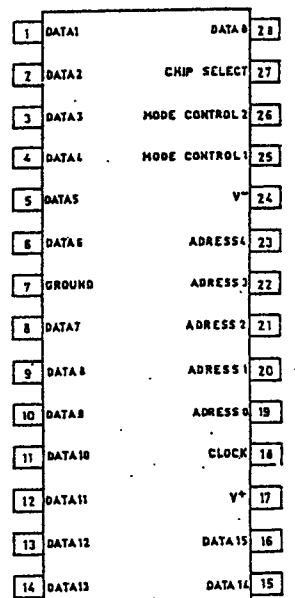


BC337  
BC549  
BC558 (bottom view)

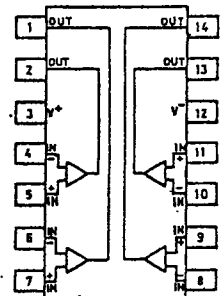


TMS 3617: top octave synthesizer with dividers and keyings

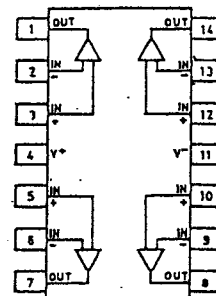
TMS 3615: top octave synthesizer with dividers and keyings



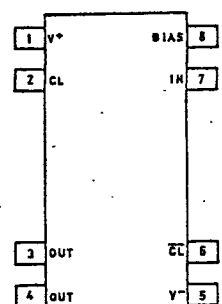
ER 2051: 512 bit (32x16) electrically alterable read only memory



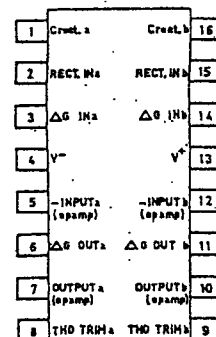
LM339: quad opamp



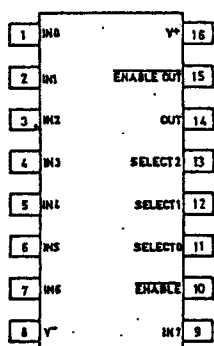
TL074: quad opamp  
LM324: quad opamp



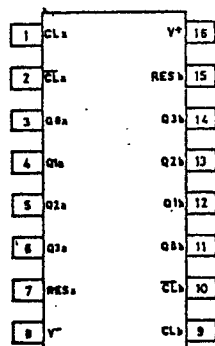
TDA2108: delay line



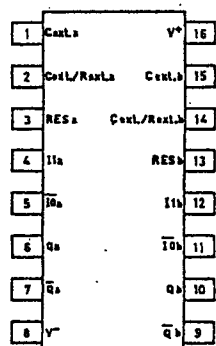
NE 570: dual comparator



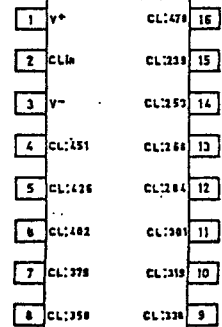
4512 8-input multiplexer with 3-stage output



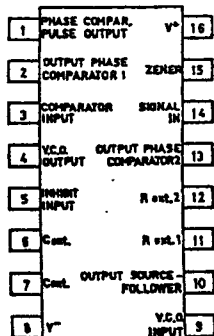
4520 dual binary counter



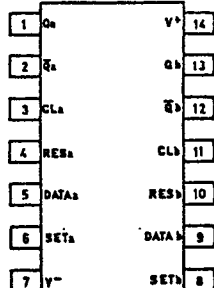
4528: dual monostable multivibrator



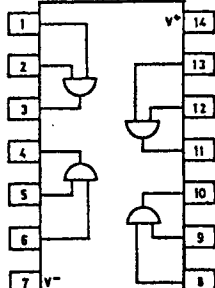
MO 83: top octave synthesizer



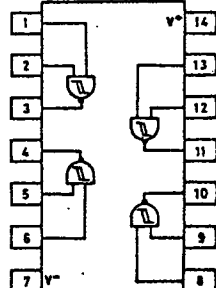
4046 phase locked loop circuit



4013: dual D-flip-flop



4081: quad and



4093: quad Schmitt trigger

### GENERAL INFORMATION SEMI-CONDUCTORS

Drawn	Date	Modified	Date	JOHANNUS ORGAN OPUS 270
Verschoor	07-05-86			
DESIGN				