SERVICE INFORMATION

eminent model 310 unique

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TECHNISCHER GEGEVENS	TECHNISCHE	TECHNICAL DATA DATEN	
Netfrequentie	Mains frequenc	Netzfrequenz	50/60 Hz
Netspanning*	Mains voltage*	Netzspannung*	220 V (115 V)*
Uitgangsvermogen	Audio output	Ausgangsleistung	26 W
Ingang (input):	*Input connection:*	*Eingang (input):*	
Kristal pickup	Record player (crystal)	Kristal pick-up	
Bandrecorder	Tape recorder	Tonbandrecorder	300 mV
Radio	Radio	Rundfunk	150 kOhm
Rithme box	Rhythm unit	Rhythmik box	
Uitgang (output)	Output connection	Ausgangabnahme	0,7 V eff.
3 kanaals orbitone systeem	3 channels Orbitone system	3 kanälen Orbitone system	100 Ohm
Hoofdtelefoon stereo entree:	*Headphones stereo connection:*	*Kopfhöreranschluss (stereo):*	
Impedantie hoofdtelf.	Impedance headphones	Impedantie kopfhörer	8-16 Ohm
Maximum vermogen	Maximum capacity	Vermögen maximum	0,5 W
Frequentie bereik	Frequency range	Frequenzbereich	25-15000 Hz
Zekeringen:	*Fuses:*	*Sicherungen:*	
Net (traag)	Mains (slow action)	Netz (träge)	1,6 AT
24 V (traag) 2x	24 V. (slow action) 2x	24 V (träge) 2x	2 AT

* *115-127 Volt*

Het orgel is voor 220 Volt uitgevoerd. Voor 110-115-127 Volt omschakeling als volgt te werk te gaan: (zie transformator op de bodem van het orgel).
— De draad op de 220 Volt aansluiting omzetten naar de 115 Volts aansluiting.
— De netzekering verwisselen voor een zekering die twee maal de waarde heeft.

* *115-127 Volt*

Organ is equipped for use with 220 Volt. To change to 115-127 Volt operation do as follows (remove power supply from bottom of cabinet)
— Relocate 220 Volt wire to 115 Volt on transformer.
— Change mains fuse to two times the value of existing one, replace power supply.

* *115-127 Volt*

Die Orgel ist normal für 220 Volt vorgesehen, kann jedoch auch auf 110-115-127 Volt umgeschaltet werden. (siehe Transformator auf dem Boden der Orgel)
— Der Anschlussdraht von 220 Volt ist jeweils auf die gewünschte Voltspannung umzusetzen z. B. auf 115 Volt.
— Netzsicherung ist umzutauschen gegen eine Sicherung mit doppeltem Wert.

EXTRA INSTEL MOGELIJKHEDEN: *(niet draaien aan afgelakte potmeters!!!)*

VIBRATO: De snelheid van het vibrato is instelbaar door middel van een instelpotmeter nr. 62 zie tekening Lower Manual Voicing circuit.

PEDAL: Het pedaal volume is instelbaar door instelpotmeter nr. 50 zie tekening Lower Manual Voicing.

ADDITIONAL ADJUSTMENT POSSIBILITIES: *(do not rotate sealed potentiometer)*

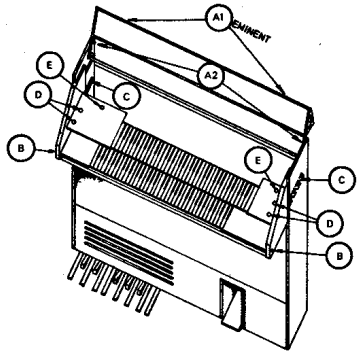
VIBRATO: The vibrato rate is adjustable by means of potentiometer no. 62 see drawing Lower Manual Voicing circuit.

PEDAL: The pedal volume is adjustable by means of potentiometer no. 50 see drawing Lower Manual Voicing.

EXTRA EINSTELLMÜGLCHKEITEN: *(nicht an den mit Lack plombierten Potentiometer drehen)*

VIBRATO: Die Geschindigkeit des Vibrator ist regulierbar durch Potentiometer Nr. 62 siehe Zeichnung Lower Manual Voicing circuit.

PEDAL: Das Pedalvolumen ist mit Hilfe des Potentiometer Nr. 50 regulierbar siehe Zeichnung Lower Manual Voicing.



Demontage Eminent 310 Unique

Demontage Register paneel:

1. Lessenaar verwijderen.
2. eventueel deksel verwijderen.
3. bovenblad opklappen.
4. verwijder schroeven:
   bij Eminent: A1 (voorzijde lijst)
5. registerpaneel is nu opklapbaar.

BOVENKLAVIER:

6. handel als bij 1 t/m 5
7. bovenklaviersysteem is gedeeltelijk bereikbaar.
8. verwijder aan buitenzijde orgel dekplaatjes B.
9. verwijder schroeven welke nu zichbaar zijn.
10. verwijder schroeven C *in* het orgel (e.v. achterschot verwijderen).
11. beide klavieren zijn naar voren omklapbaar.

ONDERKLAVIER:

12. handel als bij 1 t/m 7.
13. verwijder bakstuk links en rechts, zie bij bakstukken.
14. verwijder de zichtbaar gekomen schroeven (links en rechts twee stuks) welke verticaal zijn opgesteld, let op losse moeren. Zie bij D.
15. het bovenklavierdeel is nu los en kan worden opgetild.
16. toetsen van onderklavier zijn nu bereikbaar.

BAKSTUKKEN:

17. *bovenklavier:* verwijder schroeven E (let op losse delen onder het bakstuk). Eventueel klavierlijst los schroeven.
18. *onderklavier:* verwijder twee schroeven achteraan het bakstuk.

Eminent 310

Dismantling Register Panel:

1. Remove Music stand.
2. Remove Cover (if applicable)
3. Fold back top-cover.
4. Remove screws:
   Eminent: A1 (at the front of the frame).
   Solina: A2 (at the sides).
5. Register panel may now be folded back.

UPPER MANUAL:

6. a. As 1 up to 5 inclusive.
7. Upper manual system comes now partly within reach.
8. b. Remove from the outside of the organ cover-plates B.
9. Remove the now visible screws.
10. Remove screws C with are located inside the organ (if applicable remove back cover).
11. Both manuals can now be folded forward.

LOWER MANUAL:

12. As 1 up to 7 inclusive.
13. Remove the left and right hand side keyblock (see keyblocks).
14. Remove the now visible screws (two on the left, two on the right), look out for loose nuts. See D.
15. The part of the upper manual is now loose and can be lifted.
16. Keys of the lower manual are now within reach.

KEYBLOCKS:

17. *Uppermanual:* Remove screws E (look for loose parts under the keyblock). If applicable undo the screws of the keyboard frame.
18. *Lower manual:* Remove two screws at the back of the keyblock.

Eminent 310

Demontage Registerpanel:

1. Notenpult entfernen.
2. eventuell Deckel entfernen.
3. oberen Brett hochklappen.
4. Schrauben entfernen:
   bei Eminent: A1 (vorderseite der Leiste);
   bei Solina: A2 (Seiten).
5. Registerpanel ist jetzt aufzuklappen.

OBERMANUAL:

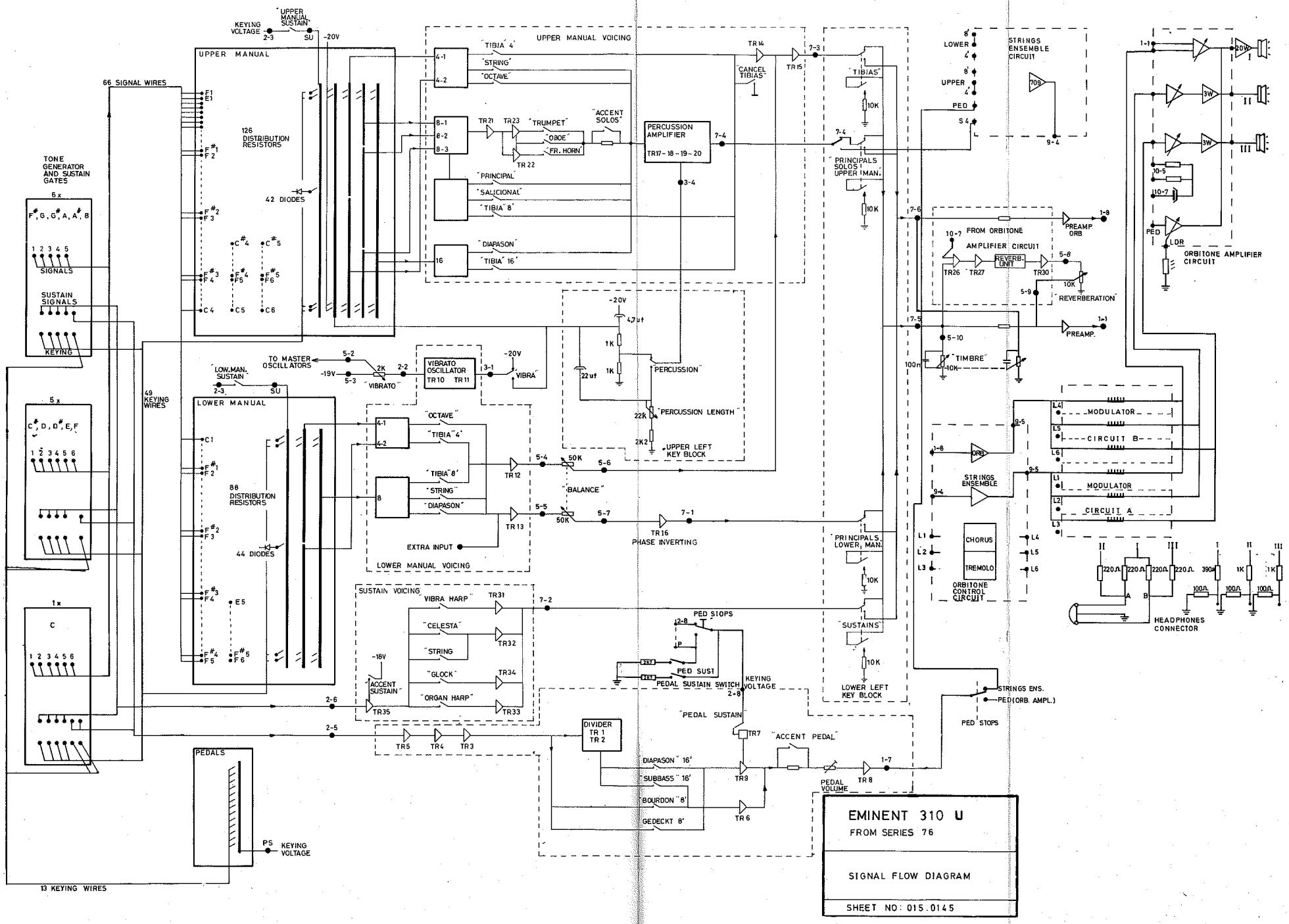
6. a. Handele wie bei 1 bis 5.
7. Obermanualsystem ist teilweise erreichbar.
8. b. Entferne die Bedeckungspanele an der Aussenseite der Orgel. Punkt B.
9. Entferne die Schrauben welche jetzt sichtbar sind.
10. Entferne Schrauben C in der Orgel. (Eventuell Hinterwand entfernen.)
11. Beide Manuale sind jetzt nach vornen umzuklappen.

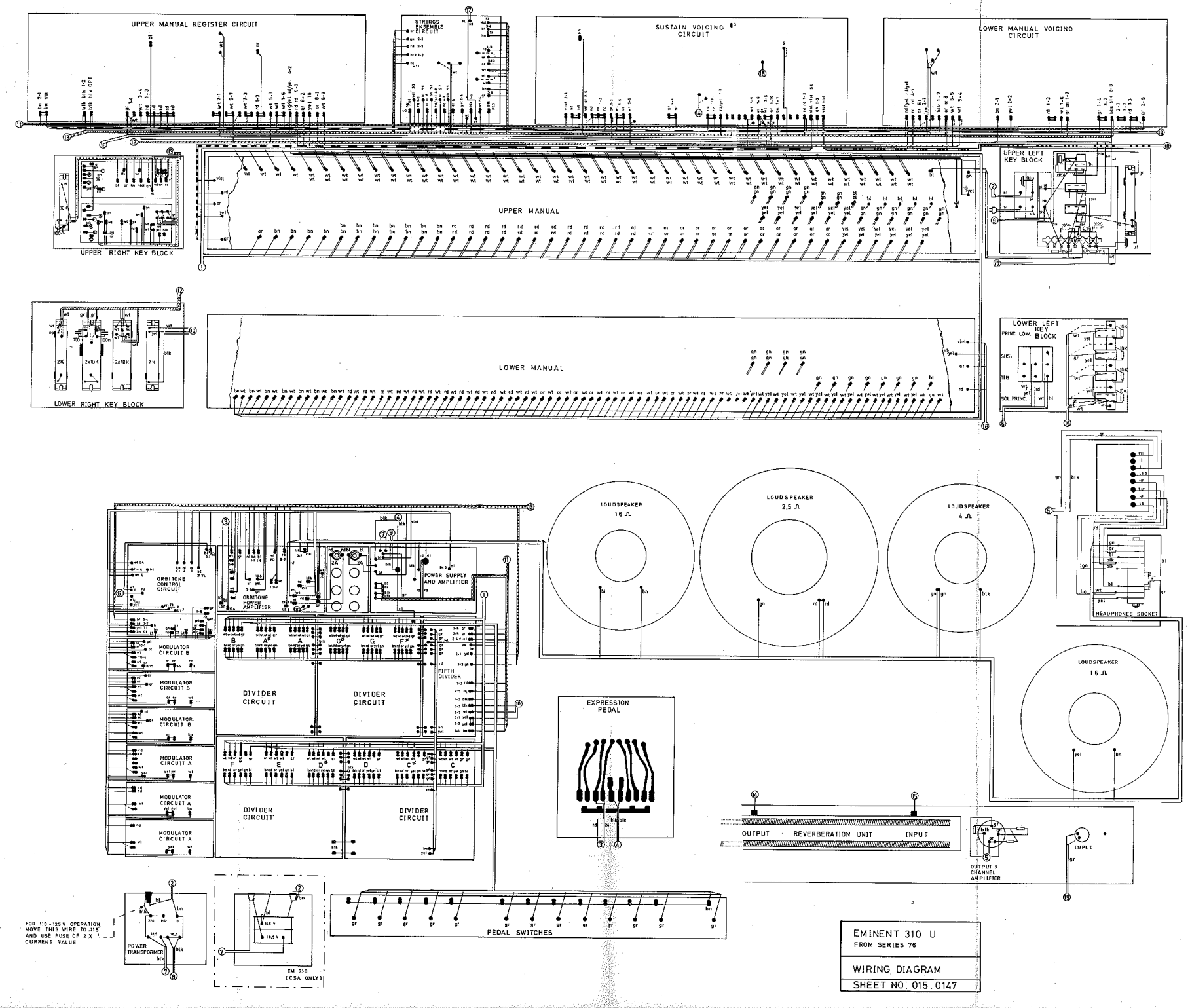
UNTERMANUAL:

12. Handele wie bei 1 bis 7.
13. Entferne die rechten und die linken Backenstücke.
14. Entferne die jetzt sichtbare Schrauben (Links und Rechts 2 Stück) welche waagerecht sind aufgestellt, beachten Sie bitte die Muttern. Sehe D.
15. Das Obermanual Teil ist jetzt lose und kann aufgehoben werden.
16. Tasten vom Untermanual sind jetzt erreichbar.

BACKSTUCKE:

17. *Obermanual:* Entfernen Sie Schrauben E (achten Sie auf die Lose Teile unter das Backenstuck). Eventuell Manualleiste entfernen.
18. *Untermanual:* Entfernen Sie 2 Schrauben hinter dem Backenstück.

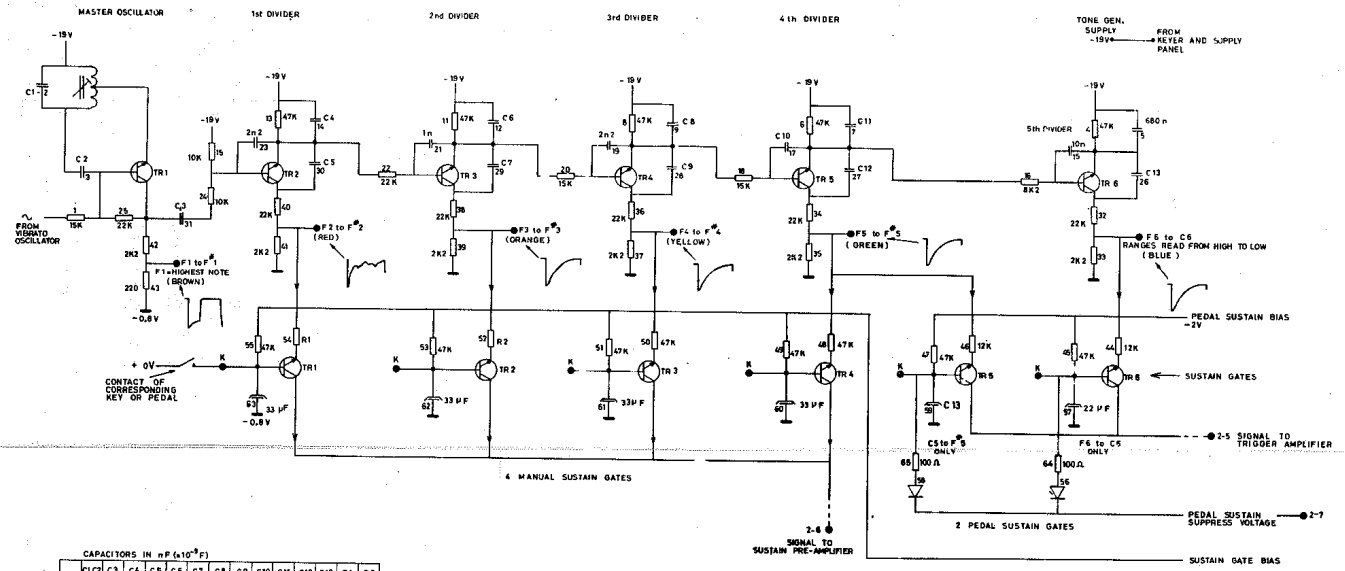

KEYING VOLTAGE
"UPPER MANUAL SUSTAIN"
2-3
SU
-20V
UPPER MANUAL
66 SIGNAL WIRES
126 DISTRIBUTION RESISTORS
42 DIODES
TONE GENERATOR AND SUSTAIN GATES
6x
F#, G, G#, A, A#, B
1 2 3 4 5
SIGNALS
SUSTAIN SIGNALS
KEYING
5x
C#, D, D#, E, F
1x
C
1 2 3 4 5 6
49 KEYING WIRES
13 KEYING WIRES
PEDALS
PS
KEYING VOLTAGE
LOWER MANUAL
88 DISTRIBUTION RESISTORS
44 DIODES
"LOW.MAN. SUSTAIN"
UPPER MANUAL VOICING
"TIBIA 4'"
"STRING"
"OCTAVE"
"TIBIA 8'"
"PRINCIPAL"
"SALICIONAL"
"DIAPASON"
"TIBIA 16'"
"TRUMPET"
"OBOE"
"FR. HORN"
"ACCENT SOLOS"
PERCUSSION AMPLIFIER
TR17 - 18 - 19 - 20
TR14
"CANCEL TIBIAS"
TR15
"TIBIAS"
10K
"PRINCIPALS SOLOS UPPER MAN."
LOWER
UPPER
PED
STRINGS ENSEMBLE CIRCUIT
709
PREAMP ORB
FROM ORBITONE AMPLIFIER CIRCUIT
REVERB. UNIT
TR26
TR27
TR30
"REVERBERATION"
PREAMP.
"TIMBRE"
ORBITONE AMPLIFIER CIRCUIT
TO MASTER OSCILLATORS
-19V
"VIBRATO"
VIBRATO OSCILLATOR
TR10 TR11
"VIBRA"
-20V
47uf
1K
22uf
"PERCUSSION"
"PERCUSSION LENGTH"
22K
2K2
"UPPER LEFT KEY BLOCK"
"BALANCE"
50K
TR12
TR13
TR16
PHASE INVERTING
EXTRA INPUT
LOWER MANUAL VOICING
"PRINCIPALS LOWER, MAN."
"SUSTAINS"
LOWER LEFT KEY BLOCK
MODULATOR
CIRCUIT B
CIRCUIT A
CHORUS
TREMOLO
ORBITONE CONTROL CIRCUIT
HEADPHONES CONNECTOR
SUSTAIN VOICING
"VIBRA HARP"
TR31
"CELESTA"
TR32
"GLOCK"
TR34
"ORGAN HARP"
TR33
TR35
"ACCENT SUSTAIN"
-18V
PED STOPS
PED SUST
PEDAL SUSTAIN SWITCH
KEYING VOLTAGE
"PEDAL SUSTAIN"
TR7
"ACCENT PEDAL"
PEDAL VOLUME
TR8
TR9
TR6
DIVIDER TR 1 TR 2
TR5
TR4
TR3
DIAPASON 16'
SUBBASS 16'
BOURDON 8'
GEDECKT 8'
STRINGS ENS.
PED (ORB. AMPL.)
PED STOPS
EMINENT 310 U
FROM SERIES 76
SIGNAL FLOW DIAGRAM
SHEET NO: 015.0145



EMINENT 310 U
FROM SERIES 76

WIRING DIAGRAM

SHEET NO: 015.0147



CAPACITORS IN nF ($\times 10^{-9}$ F)

	C1,C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	R1	R2
F	39	27	5.6	2.2	18	6.8	68	18	2.2	220	39	82	15K	27K
E	39	2.7	5.6	2.2	27	6.8	68	18	2.2	220	39	82	15K	27K
D#	47	2.7	6.8	2.7	22	8.2	82	22	2.2	220	47	100	15K	27K
D	47	3.3	6.8	2.7	27	8.2	100	22	5.6	220	39	100	15K	33K
C#	56	3.3	8.2	3.3	27	8.2	100	22	5.6	220	47	100	16K	33K
C	56	3.3	8.2	3.3	27	10	100	27	5.6	220	56	120	16K	33K
B	68	3.9	8.2	3.9	27	12	100	33	10	270	68		18K	33K
A#	82	3.9	10	3.9	27	12	100	33	10	270	68		18K	33K
A	82	3.9	10	4.7	27	12	120	33	10	330	68		22K	39K
G#	100	4.7	12	5.6	33	15	120	39	10	330	82		22K	39K
G	100	4.7	15	5.6	33	15	120	39	10	330	82		22K	39K
F#	120	4.7	15	6.8	47	15	120	39	10	330	82		22K	39K

FIGURE B

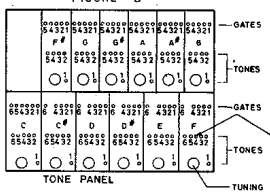
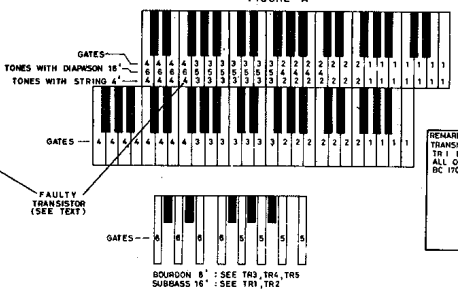


FIGURE A



SIGNAL GROUND = -0.8 V

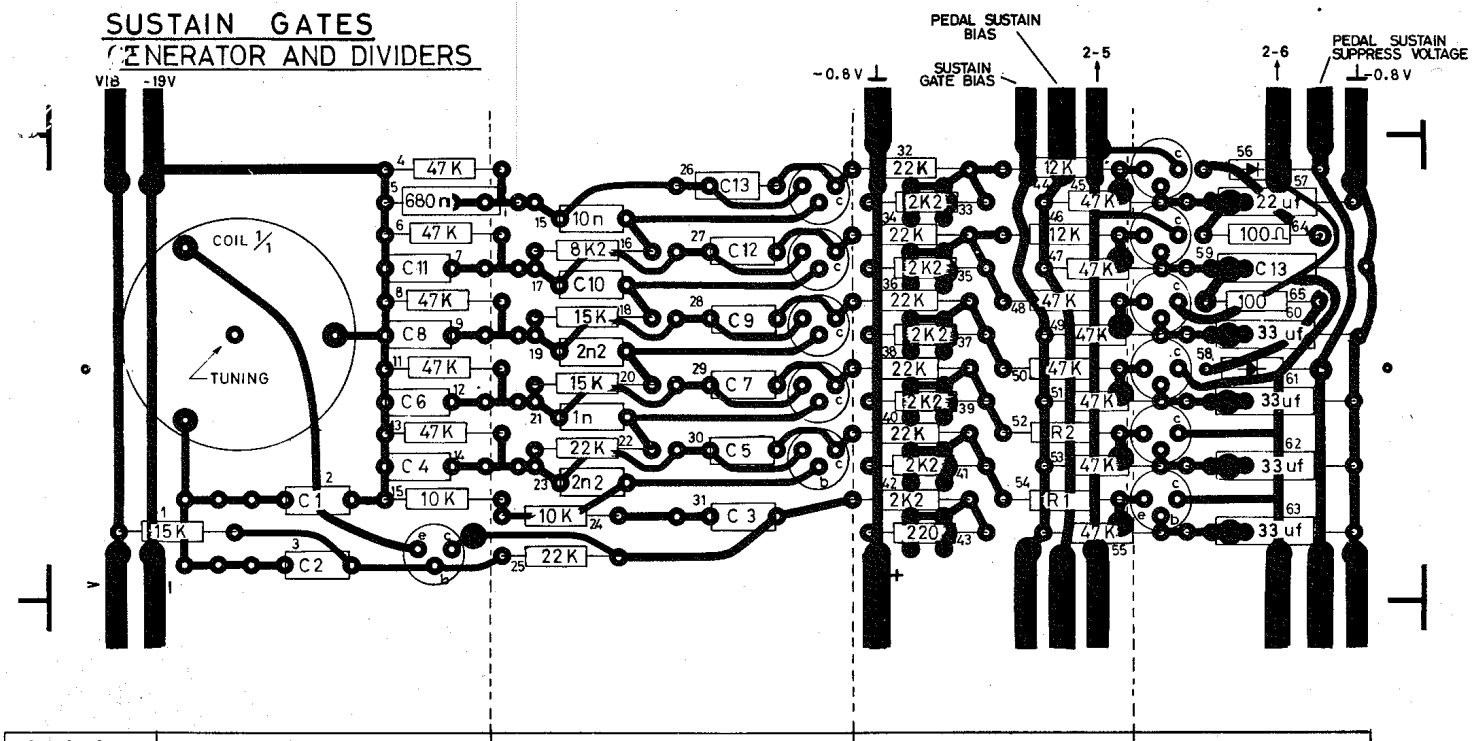
UNLESS OTHERWISE INDICATED : ALL RESISTORS IN OHMS, ALL CAPACITORS IN NANOFARADS. (2K2 = 2.2K, 2n2 = 2.2nF)

REMARKS: TRANSISTORS TR1 BC 170B ALL OTHERS BC 170 C

EMINENT 310 U
FROM SERIES 73
SHEET NO: 015.0144

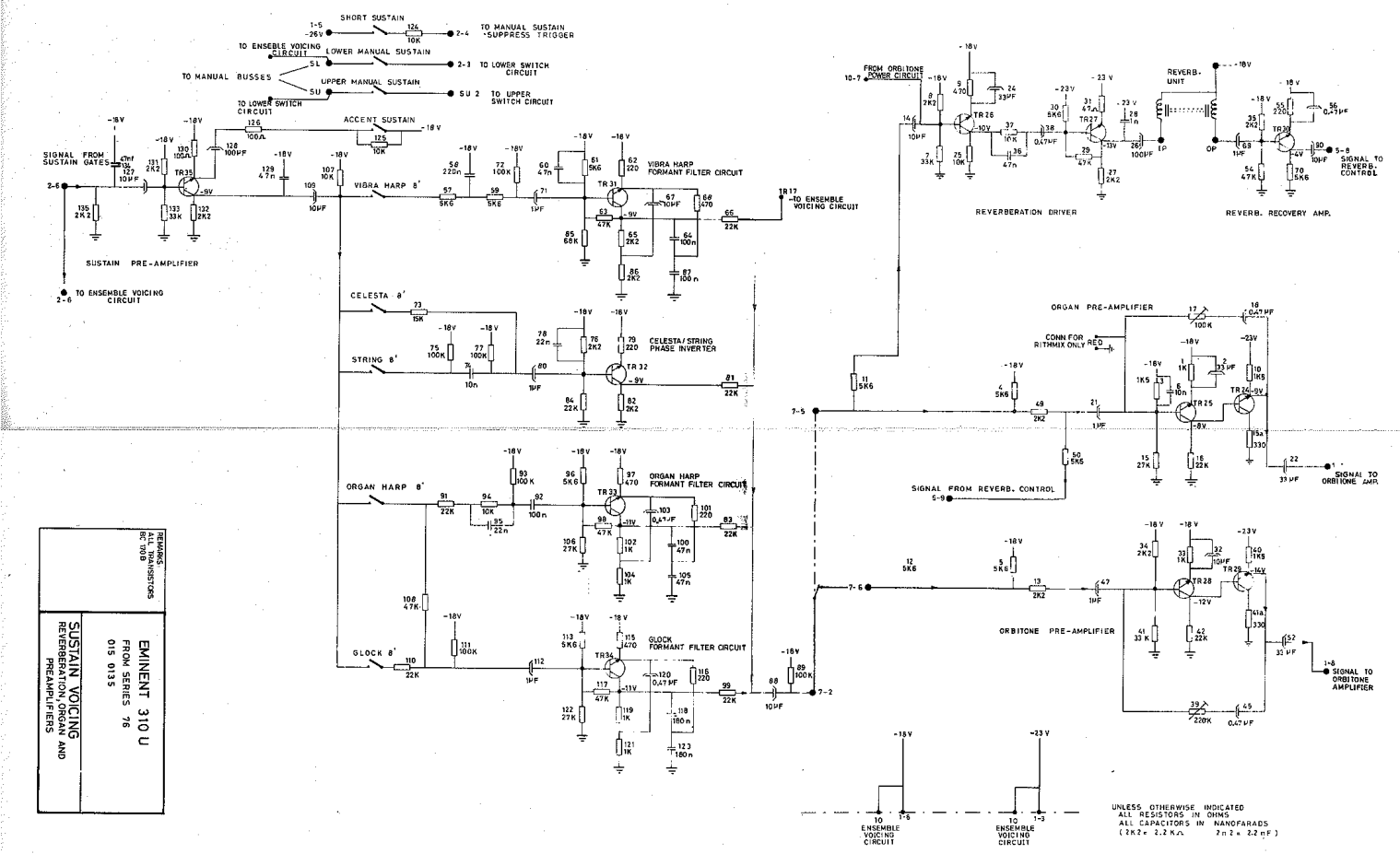
GENERATOR AND DIVIDERS SUSTAIN GATES

SUSTAIN GATES
GENERATOR AND DIVIDERS



R & C NO.	1—14	15—31	32—55	56—65

PART NO. 005-0018

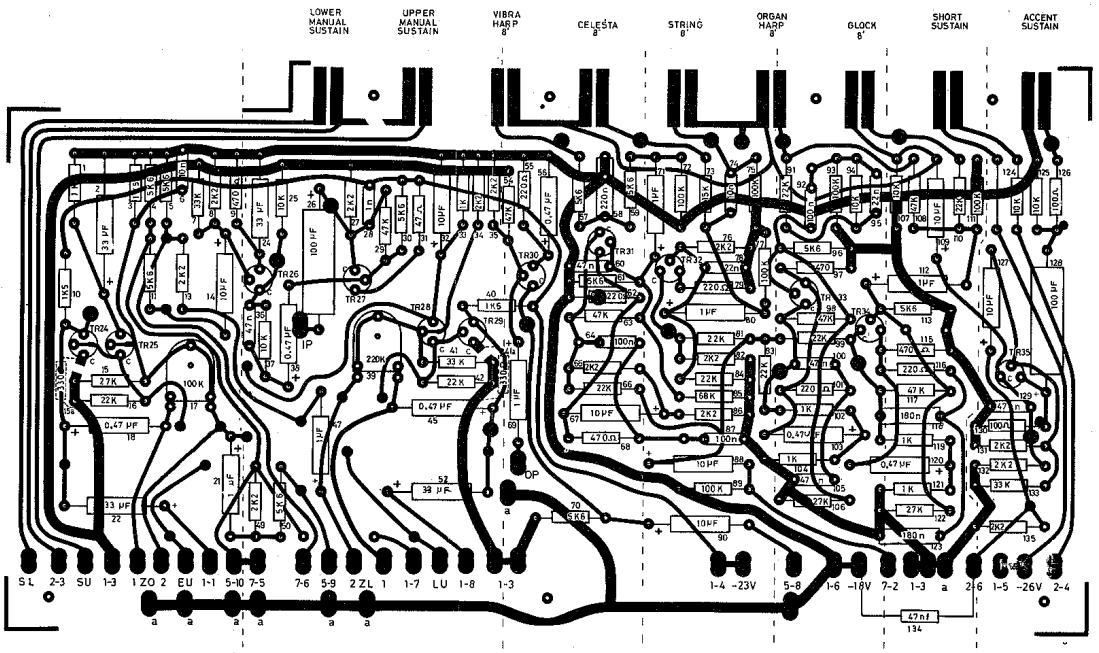


REMARKS
ALL TRANSISTORS BC 109B

EMINENT 310 U
FROM SERIES 76
015 0135

SUSTAIN VOICING
REVERBERATION, ORGAN AND PREAMPLIFIERS

UNLESS OTHERWISE INDICATED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN NANOFARADS
(2K2 = 2.2 KΩ 2n2 = 2.2 nF)



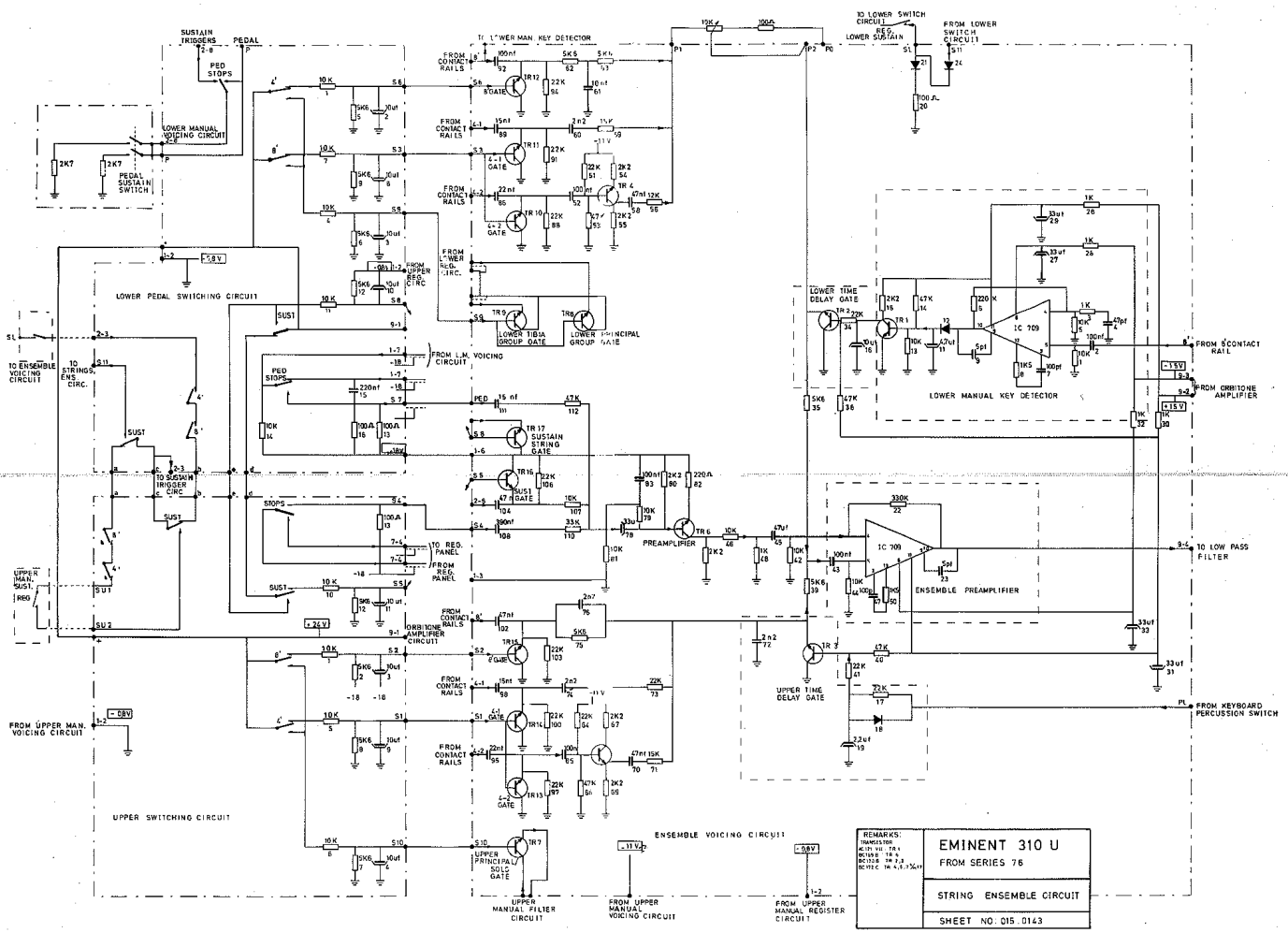
125.0151	TUBING	
411.1692	TRANSISTOR	TR 30
411.1702	"	TR 24 ¾ 29 31 ¾ 35
230.0061	POT. METER	39
230.0080	" "	17
314.7101	EL CAPACITOR	26 126
314.7339	"	2, 22, 24, 52
314.8159	"	21
314.8109	"	14, 32, 67, 88, 90, 109, 127
314.8108	"	47, 69, 71, 80, 112
314.8477	"	18, 38, 45, 56, 103, 120
310.2224	CAPACITOR	58
310.2184	"	118, 123
310.2104	"	64, 87, 92
310.2473	"	36, 60, 100, 105, 129, 134
310.2223	"	78, 85
310.2103	"	6, 74
310.2102	"	28
211.3104	RESISTOR	72, 75, 77, 89, 93, 111
211.3683	"	95
211.3473	"	29, 54, 63, 98, 108, 117
211.3333	"	7, 41, 133
211.3273	"	15, 105, 122
211.3223	"	16, 42, 66, 81, 83, 84, 91, 99, 110
211.3153	"	73
211.3103	"	25, 37, 94, 107, 124, 125
211.3102	"	130, 102, 104, 119, 121,
211.3562	"	4, 5, 11, 30, 50, 57, 59, 68, 70, 86, 113
211.3222	"	013, 27, 36, 39, 49, 65, 76, 82, 85, 131, 132, 135
211.3152	"	3, 10, 40
211.3471	"	88, 97, 9, 115
211.3331	"	15a, 41a
211.3221	"	55, 62, 79, 101, 116
211.3101	"	126, 130
211.3479	"	31
3122	CIRCUIT BOARD	
PART NO.	NAME	POSITION NO:

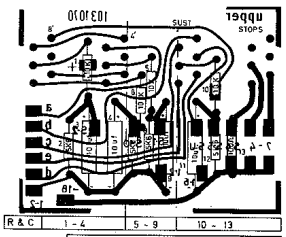
TRANSISTOR NR.	TR24 — TR25	TR26 — TR27, 28, 29	TR30 — TR31	TR32	TR33 — TR34		TR35
RES.& CAP. NR.	1 — 23	24 — 53	54 — 70	71 — 90	91 — 106	107 — 123, 134	124 — 133, 135
	VOLUME CONTROL, ORGAN, NO. 17	VOLUME CONTROL ORBITONE NO. 39					

EMINENT 310U
FROM SERIES 76

SUSTAIN VOICING

SHEET NO: 003.2016


SUSTAIN TRIGGERS
PEDAL
PED STOPS
LOWER MANUAL VOICING CIRCUIT
PEDAL SUSTAIN SWITCH
2K7
LOWER PEDAL SWITCHING CIRCUIT
TO ENSEMBLE VOICING CIRCUIT
10 STRINGS ENS. CIRC.
TO SUSTAIN TRIGGER CIRC
UPPER MAN. SUST.
FROM UPPER MAN. VOICING CIRCUIT
UPPER SWITCHING CIRCUIT
TO LOWER MAN KEY DETECTOR
FROM CONTACT RAILS
TR12
TR11
TR10
TR4
TR9
LOWER TIBIA GROUP GATE
TR8
LOWER PRINCIPAL GROUP GATE
FROM LOWER REG. CIRC.
FROM UPPER REG. CIRC.
FROM L.M. VOICING CIRCUIT
TR17 SUSTAIN STRING GATE
TR16
TO REG. PANEL
FROM REG. PANEL
ARRITONE AMPLIFIER CIRCUIT
TR14
TR13
TR7
UPPER PRINCIPALS SOLO GATE
UPPER MANUAL FILTER CIRCUIT
ENSEMBLE VOICING CIRCUIT
FROM UPPER MANUAL VOICING CIRCUIT
FROM UPPER MANUAL REGISTER CIRCUIT
PREAMPLIFIER
TR6
TR3
UPPER TIME DELAY GATE
IC 709
ENSEMBLE PREAMPLIFIER
TO LOW PASS FILTER
TO LOWER SWITCH CIRCUIT
REG. LOWER SUSTAIN
FROM LOWER SWITCH CIRCUIT
LOWER TIME DELAY GATE
TR1
IC 709
LOWER MANUAL KEY DETECTOR
FROM SCONTACT RAIL
FROM ORRITONE AMPLIFIER
FROM KEYBOARD PERCUSSION SWITCH
REMARKS:
TRANSISTOR
EMINENT 310 U
FROM SERIES 76
STRING ENSEMBLE CIRCUIT
SHEET NO. 015.0143



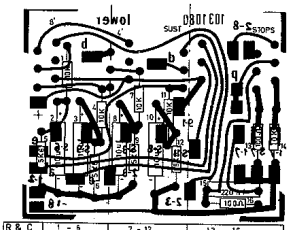
314 - 8105	EL CAPACITOR	3,4,9,11
210 - 3164	RESISTOR	13
210 - 3103	"	1,5,6,10
210 - 3562	"	2,7,8,12
011 2	CIRCUIT BOARD	
CODE NR	NAME	POSITION NO

R & C	1 - 4	5 - 9	10 - 13

EMINENT 310 U
FROM SERIES 73

STRING CONTROL CIRCUIT U.M.

SHEET NO : 003 . 2038



314 - 8109	EL CAPACITOR	2,3,8,10
310 - 2224	CAPACITOR	15
210 - 3562	RESISTOR	5,6,8,12
210 - 3103	"	1,4,7,11,14
210 - 3104	"	13,16
011 3	CIRCUIT BOARD	
CODE NR	NAME	POSITION NO

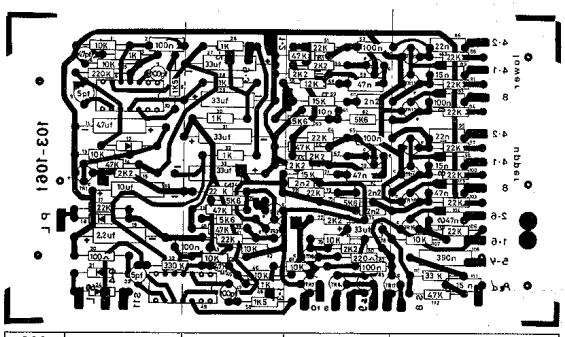
R & C	1 - 6	7 - 12	13 - 16

EMINENT 310 U
FROM SERIES 73

STRING CONTROL CIRCUIT L.M.

SHEET NO : 003 . 2039

210 - 3333	RESISTOR	110
011 7	CIRCUIT BOARD	
210 - 3101	RESISTOR	20
210 - 3221	"	82
210 - 3102	"	3-26-28-30-32-48
210 - 3152	"	8-50
210 - 3222	"	15-55-69-77-80-84-87
210 - 3562	"	35-39-62-63-75
210 - 3103	"	1-5-13-43-44-46-79-81-107
210 - 3123	"	56
210 - 3153	"	59 - 71
210 - 3223	"	17,34,41,51,64,73,88,91,94,97,100,103,106
210 - 3473	"	14-38-60-53-66-112
210 - 3224	"	6
210 - 3334	"	22
310 - 2222	CAPACITOR	60-72-74-76
310 - 2103	"	61
310 - 2153	"	89-90-111
310 - 2223	"	86-95
310 - 2473	"	58-70-102-104
310 - 2394	"	108
310 - 2104	"	2-43-52-65- 83-92
314 - 8228	EL CAPACITOR	19
314 - 8476	"	11
314 - 8108	"	18
314 - 7339	"	27-29-31-33-78
316 - 1479	CAPACITOR	4-45
313 - 1508	"	9-23
313 - 2101	"	7-47
411 - 1723	TRANSISTOR	TR 4,5,7,8,9,10,11,12,13,14,15,16,17
411 - 1702	"	TR 2,3
410 - 1217	"	TR. 1
411 - 1692	"	TR 6
435 - 0709	I.C.	10-49
420 - 0180	DIODE	12-18-21-24
PART NO.	NAME	POSITION NO.

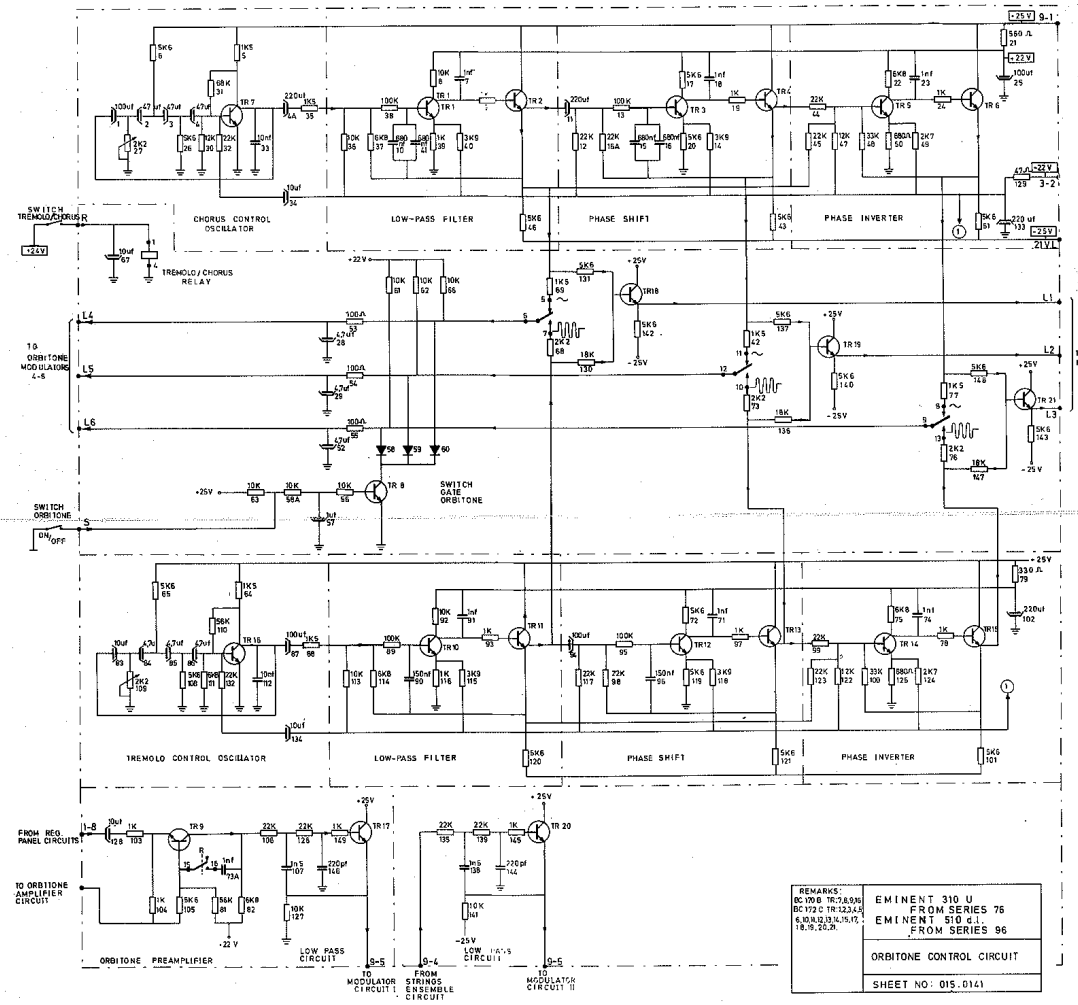


R & C	1 - 24	26 - 50	51 - 85	86 - 112
TRANSISTOR	TR. 1	TR. 2-3	TR 4-5-6-7-8-9	TR. 10-11-12-13-14-15-16-17

EMINENT 310U
FROM SERIES 76

STRING ENSEMBLE CIRCUIT

SHEET NO. 003-2034

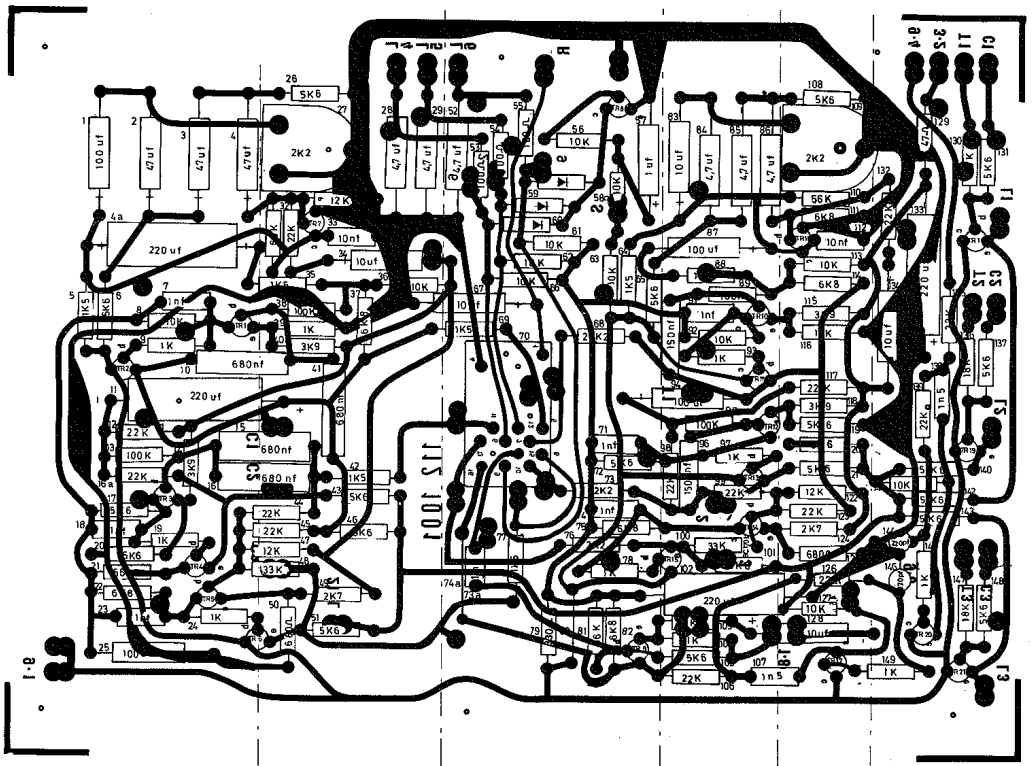


REMARKS:
BC 170 B TR:7,8,9,16
BC 172 C TR:1,2,3,4,5,6,10,11,12,13,14,15,17,18,19,20,21.

EMINENT 310 U
FROM SERIES 76
EMINENT 510 d.l.
FROM SERIES 96

ORBITONE CONTROL CIRCUIT

SHEET NO: 015.0141



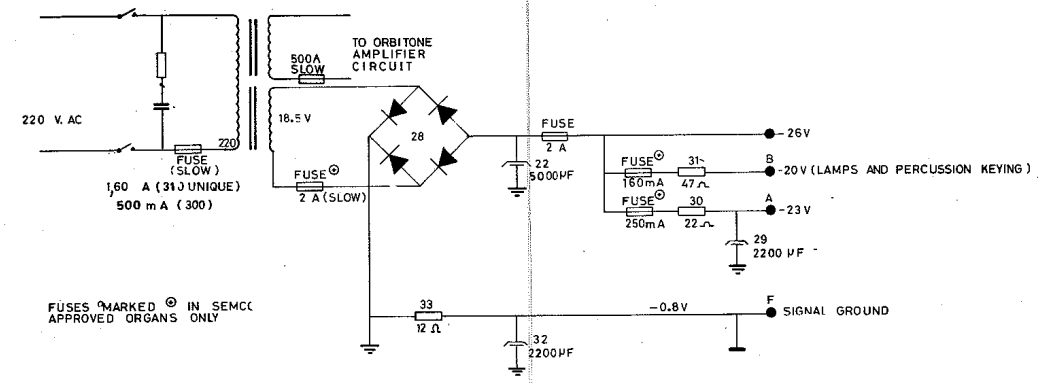
R & C	1 — 25	26 — 51	52 — 82	83 — 107	108 — 128	129 — 149
TRANSISTOR	TR 1,2,3,4,5,6	TR 7	TR 8,9	TR 10,11,12,13,14,15	TR 16,17	TR 18,19,20,21

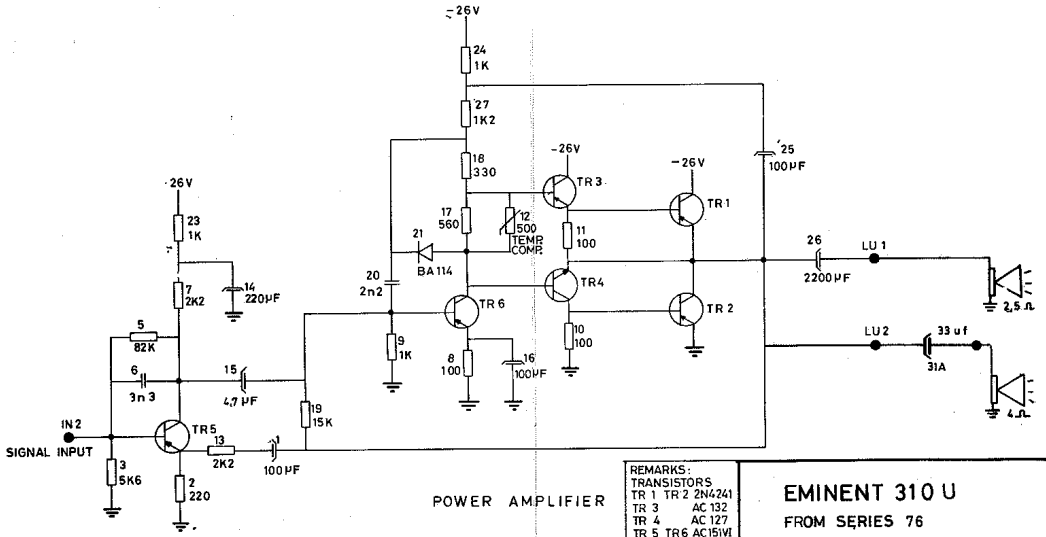
EMINENT 310 u
FROM SERIES 76
EMINENT 510 d.l.
FROM SERIES 96

ORBITONE CONTROL CIRCUIT

SHEET NO : 012.0007

210 . 3561	RESISTOR	21
630 . 0102	RELAYS	70
420 . 0217	DIODE	59-59,60
500 . 0905	JUMPER WIRE	89,74a
230 . 0055	POT. METER	27,109
411 . 1702	TRANSISTOR	TR 7,8,9,16
411 . 1723	„	TR 1,2,3,4,5,6,10,11,12,13,14,15,17,18,19,20,21
314 . 8108	EL CAPACITOR	57
314 . 8478	„	28,29,52,84,85,86
314 . 8109	„	34,67,83,128,134
314 . 7479	„	2,3,4.
314 . 7101	„	1,25,87,94
314 . 6221	„	4a,11,102,133.
310 . 2102	CAPACITOR	7,18,23,71,74,91,73a
310 . 2152	„	107,138
310 . 2103	„	112,33
310 . 2154	„	90,96.
310 . 2684	„	10,15,16,41
210 . 3331	RESISTOR	79
313 . 2221	CAPACITOR	144,146
210 . 3222	RESISTOR	68,73,75
210 . 3562	RESISTOR	6,17,20,26,65,72,105,108,113,131,137,148
211 . 3562	„	43,45,51,101,120,121,140,142,143.
210 . 3583	„	31
210 . 3563	„	110,61
210 . 3333	„	48,100
210 . 3223	„	12,16a,32,44,45,98,99,106,117,123,126,132,135,139
210 . 3183	„	130,136,147
210 . 3101	„	53,54,55
210 . 3123	„	30,47,122
210 . 3103	„	8,36,56,58a,61,62,63,66,92,113,141,127
210 . 3682	„	22,37,75,82,111,114
210 . 3104	„	13,38,95,89
210 . 3392	„	14,40,115,118.
210 . 3272	„	49,124
210 . 3152	„	5,35,42,64,69,77,88
210 . 3102	„	9,19,24,39,78,93,97,103,104,116,145,149
210 . 3681	„	50,125
210 . 3479	RESISTOR	129
112 . 1000	CIRCUIT BOARD	
PART NO	NAME	POSITION NO :





POWER AMPLIFIER

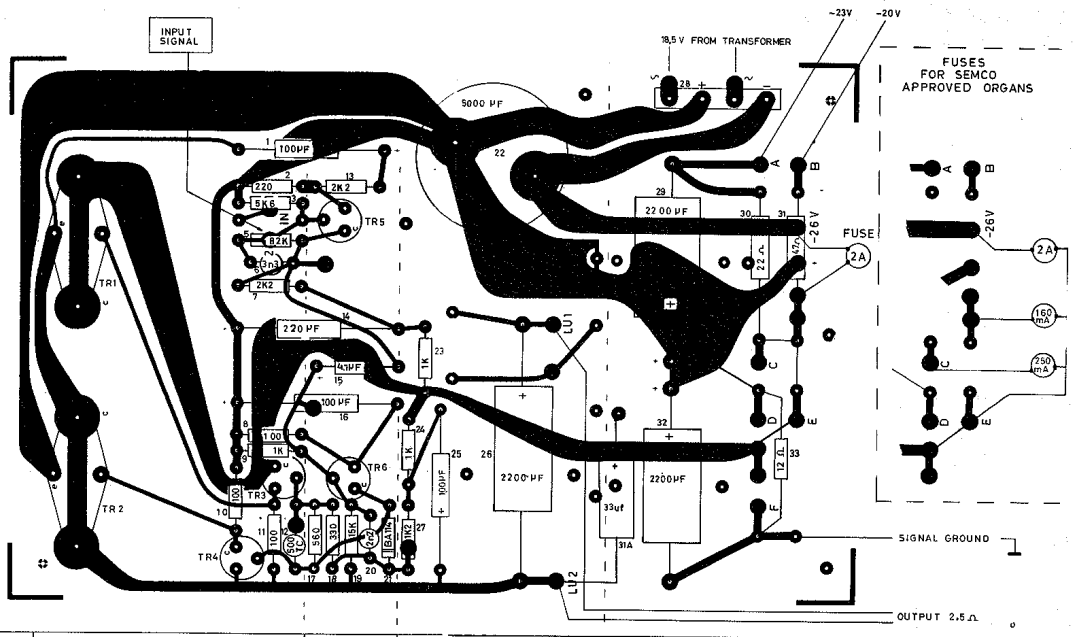
UNLESS OTHERWISE INDICATED:
ALL RESISTORS IN OHMS,
ALL CAPACITORS IN NANOFARADS
(2K2 = 2.2 KΩ, 2n2 = 2.2nF)

REMARKS:
TRANSISTORS
TR 1 TR 2 2N4241
TR 3 AC 132
TR 4 AC 127
TR 5 TR 6 AC151VI

EMINENT 310 U
FROM SERIES 76
015 . 0132

POWER SUPPLY AND AMPLIFIER

125.0151	TUBING	
125.0186	TUBING	
006.0011	COOLING PLATE	
417.0001	COOLING FIN.	
410.1515	POT. METER	TR 5,6
412.1272	" "	TR 3,4
414.4241	" "	TR 1,2
420.0114	DIODE	21
900.0031	INSULATOR	
314.6502	EL CAPACITOR	22
314.6202	"	28,29,32
314.8221	"	14
314.7101	"	1,16,25
314.8478	"	15
314.7339	"	31A
310.2222	CAPACITOR	20
310.2332	"	6
213.3129	RESISTOR	33
213.3479	"	31
213.3229	"	30
211.3823	"	5
211.3153	"	19
211.3562	"	3
211.3222	"	7,13
211.3122	"	27
211.3102	"	9,23,24
211.3561	"	17
211.3331	"	18
211.3221	"	2
211.3101	RESISTOR	8,10,11
	CIRCUIT BOARD	
PART NO	NAME	POSITION NO:

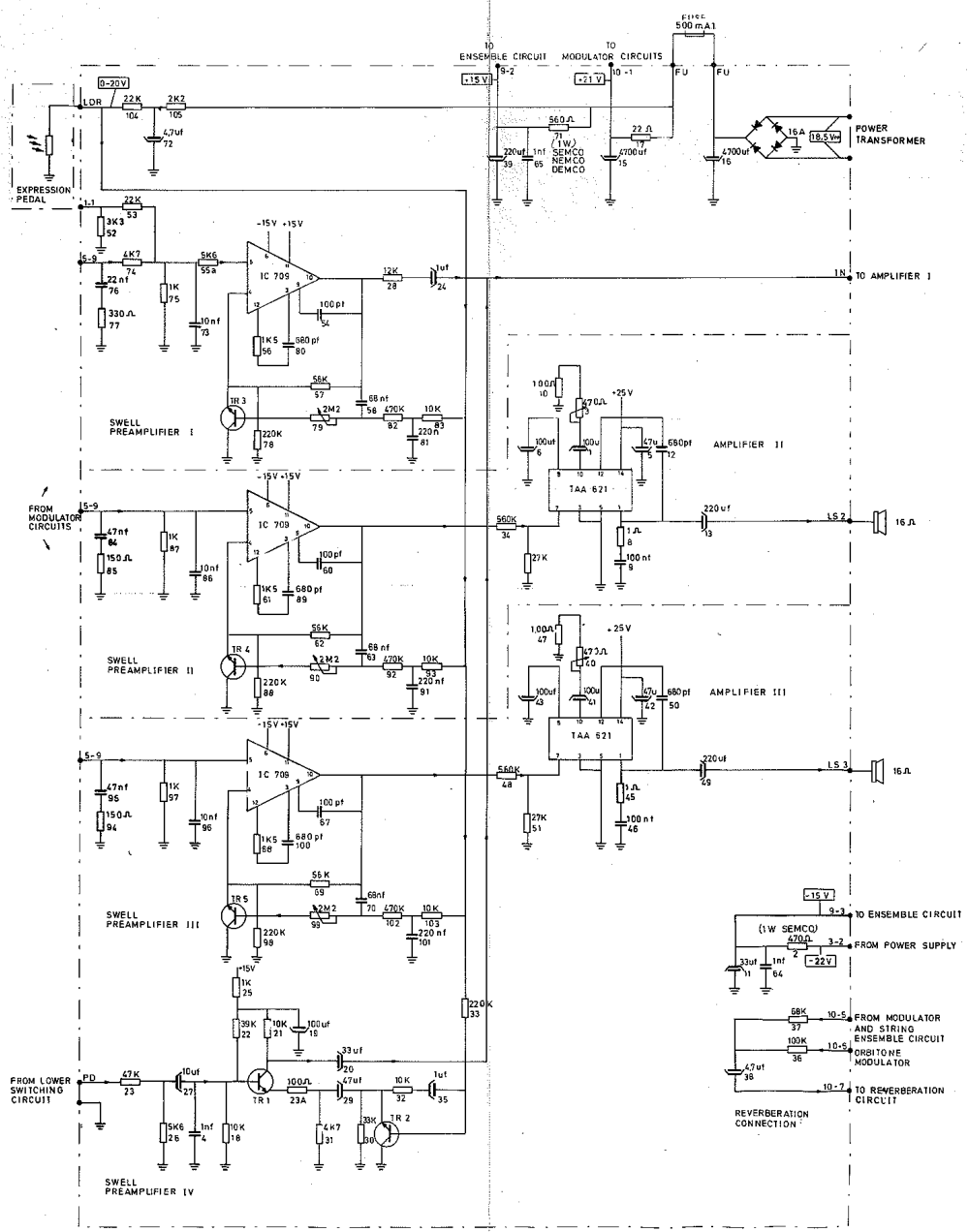


TRANSISTOR NUMBER	1 — 4	5-6		
RES. & COND. NR.	1 — 12	13 — 21	22 —.27	28 —33

EMINENT 310
FROM SERIES 76

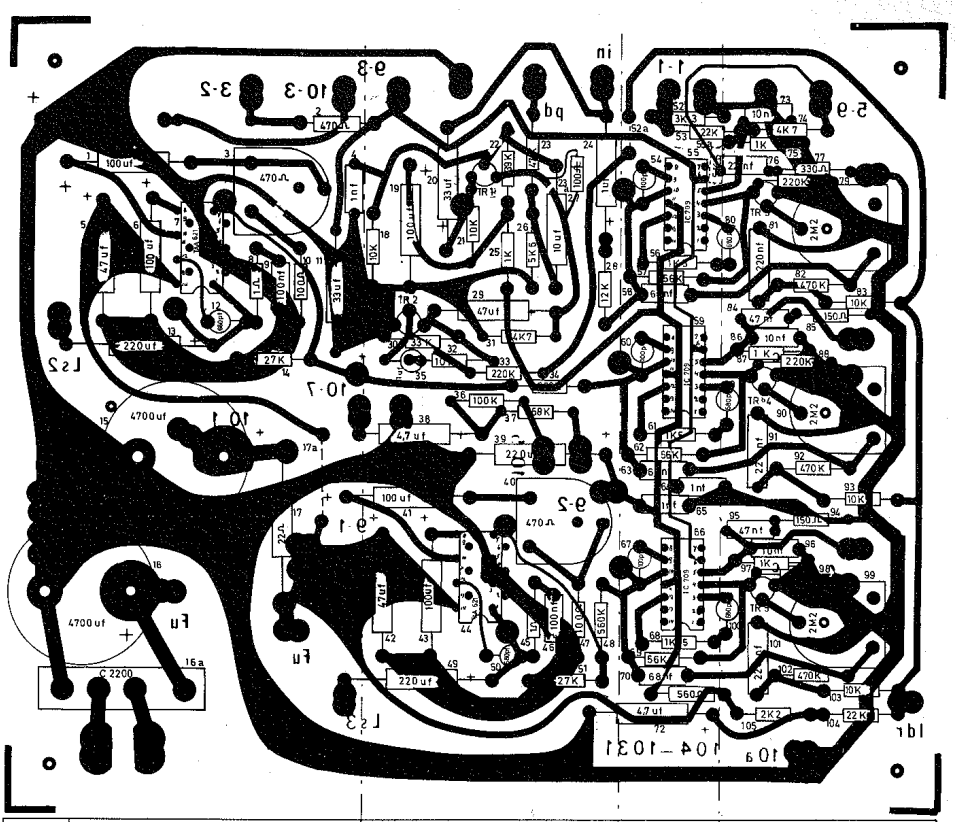
POWER SUPPLY AND AMPLIFIER

SHEET NO: 004.0048



REMARKS: TRANSISTORS BC169 B TR 1 BC173 B TR 2,3,4,5	EMINENT 310U FROM SERIES 76
	ORBITONE AMPLIFIER CIRCUIT
	SHEET NO 015.0142

316.6108	CAPACITOR	35
430.2206	RECTIFIER	16 a
010.0314	COOLING PLATE	7, 44
500.6905	WIRE JUMPER	17a 52a
230.0053	POT. METER	3, 40
230.0064	" "	79, 90, 99
411.1692	TRANSISTOR	TR 1
411.1732	TRANSISTOR	TR 2, 3, 4, 5
436.0709	I.C.	55, 59, 66
436.0621	"	7, 44
314.6472	EL CAPACITOR	15,18
314.6251	"	13,49,39
314.7101	"	1, 6, 19, 41, 43
314.7479	"	5, 29, 42
314.7339	"	11, 20
314.8109	"	27
314.8478	"	38, 72
314.7108	"	24
310.2224	CAPACITOR	81,91,101
310.2104	"	9,46
310.2683	"	58, 63, 70
310.2473	"	84, 95
310.2223	"	76
310.2103	"	73, 86, 96
310.2102	"	4, 64, 85
313.2101	"	54, 60, 67
313.2681	"	12, 50, 80, 89, 100
210.3101	RESISTOR	10, 47 23A
210.3683	"	37
210.3123	"	28
211.3561	"	71
211.3471	"	2
213.3229	"	17
210.3564	"	34, 48
210.3474	"	82, 92, 102
210.3333	"	30
210.3224	"	33, 78, 88, 98
210.3104	"	36
210.3563	"	57, 62, 69
210.3473	"	23
210.3393	"	22
210.3273	"	14, 51
210.3223	"	53, 104
210.3103	"	18, 21, 32, 83, 93, 103
210.3562	"	26, 55a
210.3472	"	31, 74
210.3332	"	52
210.3152	"	56, 61, 68
210.3102	"	25, 75, 87, 97
210.3331	"	77
210.3151	"	85, 94
210.3222	"	105
210.3108	"	8, 45
3125	CIRCUIT BOARD	
PART NO:	NAME	POSITION NO:

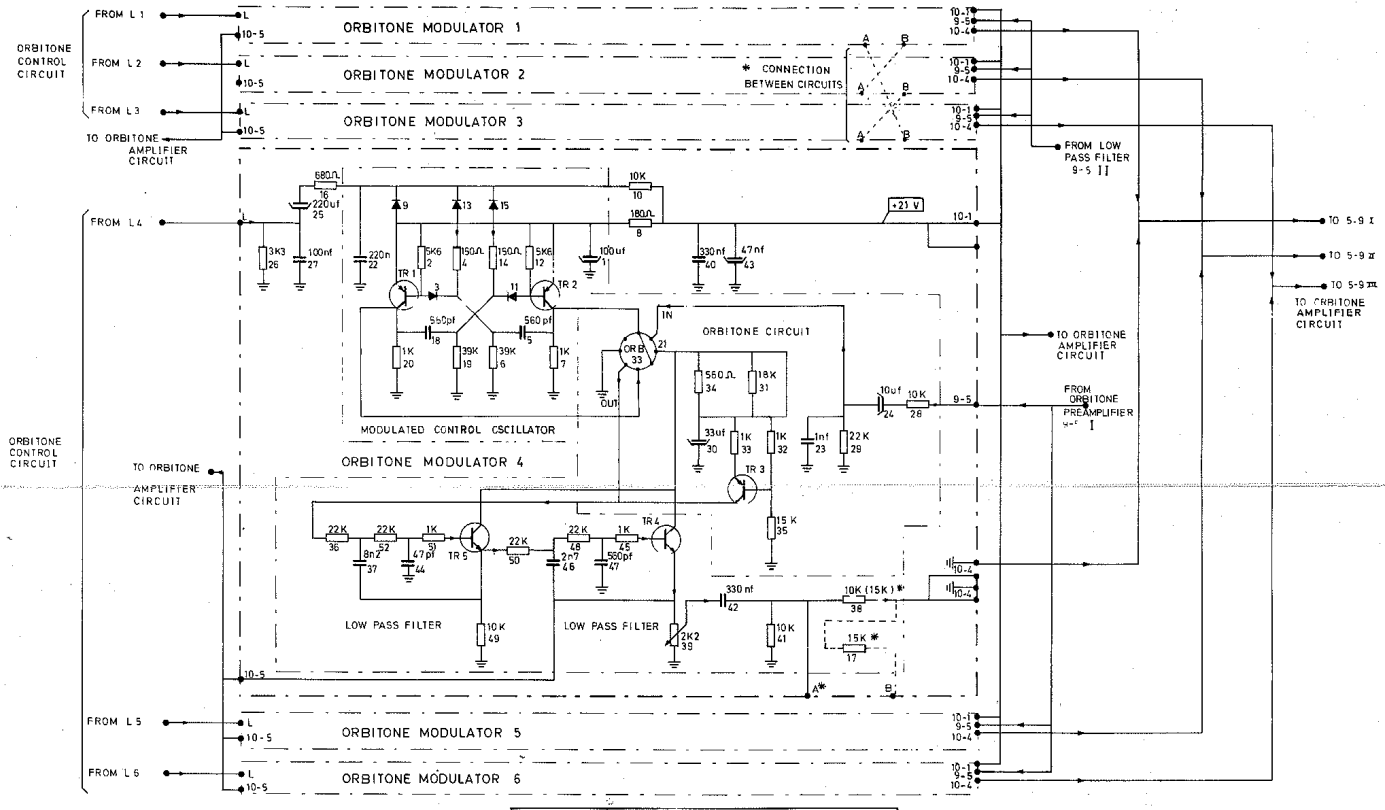


R & C	1 - 17a	18 - 51	52 - 72	73 - 105
TRANSISTOR		TR 1, 2		TR 3, 4, 5

EMINENT 310 U
FROM SERIES 76

ORBITONE AMPLIFIER CIRCUIT

SHEET NO: 012 . 0009



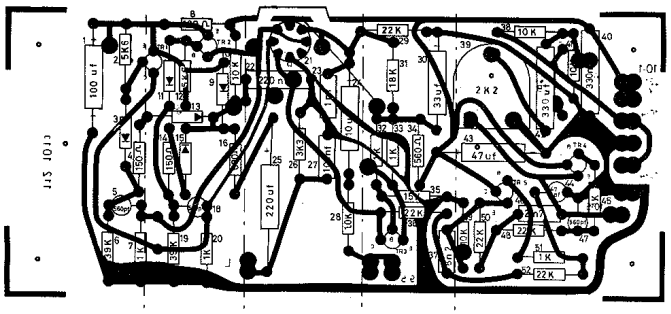
REMARKS:	
BC 169 B TR 4,5	EMINENT 310 U FROM SERIES 76
BC 260 B TR 1,2,3	EMINENT 510 d.l. " " 96
	SOLINA NL 110 " " 12
	SOLINA TL 110 " " 1
	SOLINA SL 110 " " 86

MODULATOR CIRCUIT

SHEET NO 015 . 0136

* STRING ENSEMBLE CIRCUITS ONLY

436 0033	I.C.	21
230 0055	POT. METER	39
420 0217	DIODE	3,9,11,13,15
411 1692	TRANSISTOR	TR 4,5
411 2602	"	TR 1,2,3
314 6221	EL CAPACITOR	25
314 7101	"	1
314 7479	"	43
314 7339	"	30
314 8109	"	24
313 2479	CAPACITOR	44
313 2561	"	5,18,47
310 2272	"	46
310 2822	"	37
310 2102	"	23
310 2104	"	27
310 2224	"	22
310 2334	"	40,42
210 3383	RESISTOR	6,19
210 3223	"	29,31,36,48,50,52
210 3153	"	35
210 3103	"	10,28,41,49,38
210 3102	"	7,20,32,33,45,51
210 3562	"	2,12
210 3332	"	26
210 3681	"	16
210 3561	"	34
210 3182	"	8
210 3151	"	4,14
210 3183	"	31
0120	CIRCUIT BOARD	
PART NO	NAME	POSITION NO



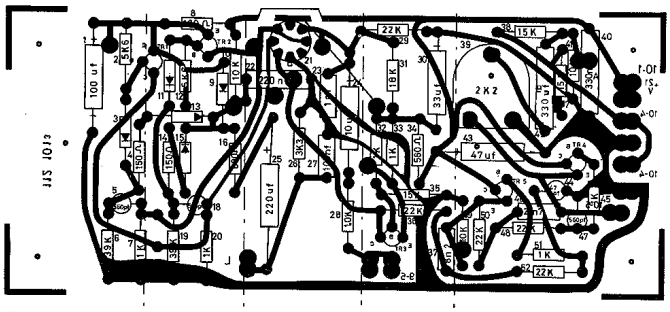
R & C	1 - 7	8 - 20	21 - 28	29 - 37	38 - 52
TRANSISTOR		TR 1,2		TR 3	TR 4,5

EMINENT 310 U FROM SERIES 76
EMINENT 510 d.t. FROM SERIES 96
SOLINA NL 110 FROM SERIES 12
SOLINA TL 110 FROM SERIES 1
SOLINA SL 110 FROM SERIES 86

MODULATOR CIRCUIT A

SHEET NO: 012.0013

436 0033	I.C.	21
230 0055	POT. METER	39
420 0217	DIODE	3,9,11,13,15
411 1692	TRANSISTOR	TR 4,5
411 2902	"	TR 1,2,3
314 6221	EL CAPACITOR	25
314 7101	"	1
314 7479	"	43
314 7339	"	30
314 8109	"	24
313 2479	CAPACITOR	44
313 2561	"	5,18,47
310 2272	"	46
310 2822	"	37
310 2102	"	23
310 2104	"	27
310 2224	"	22
310 2334	"	40,42
210 3393	RESISTOR	6,19
210 3223	"	29,31,36,48,50,52
210 3153	"	17,35,38
210 3103	"	10,28,41,49
210 3102	"	7,20,32,33,45,51
210 3562	"	2,12
210 3332	"	26
210 3681	"	16
210 3561	"	34
210 3182	"	8
210 3151	"	4,14
210 3183	"	31
0120	CIRCUIT BOARD	
PART NO	NAME	POSITION NO

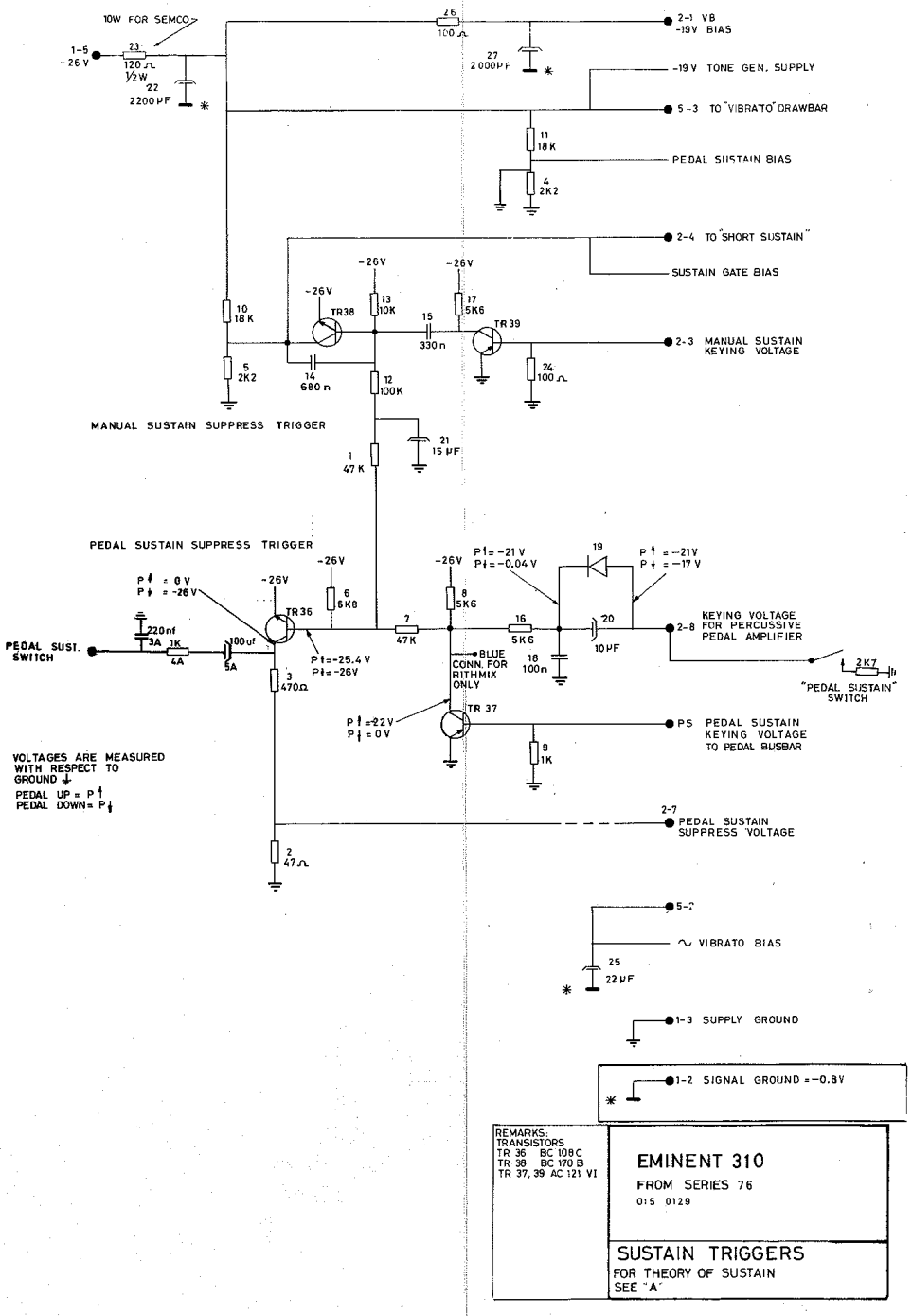


R & C	1 - 7	8 - 20	21 - 28	29 - 37	38 - 52, 17
TRANSISTOR		TR 1,2		TR 3	TR 4,5

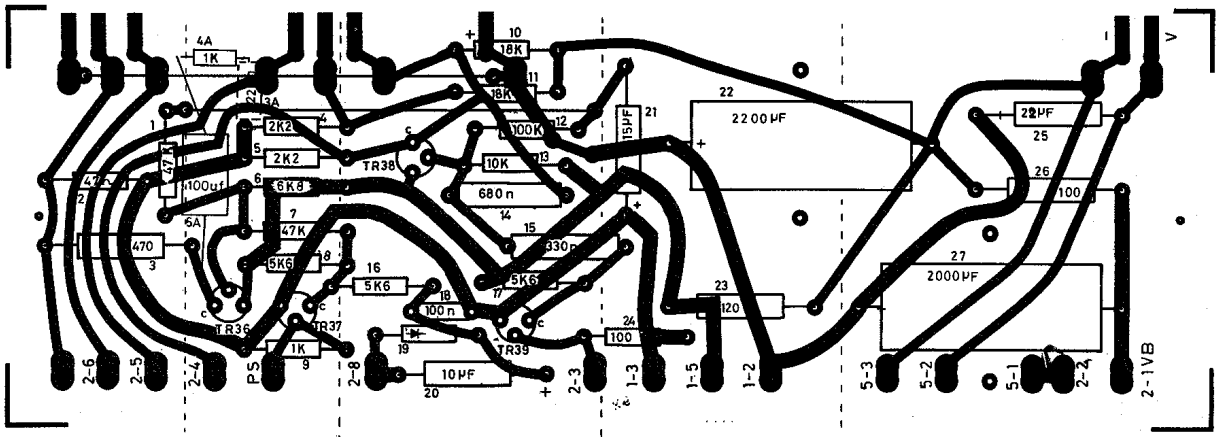
EMINENT 310 U FROM SERIES 76
EMINENT 510 d.t. FROM SERIES 96
SOLINA NL 110 FROM SERIES 12
SOLINA TL 110 FROM SERIES 1
SOLINA SL 110 FROM SERIES 86

MODULATOR CIRCUIT B

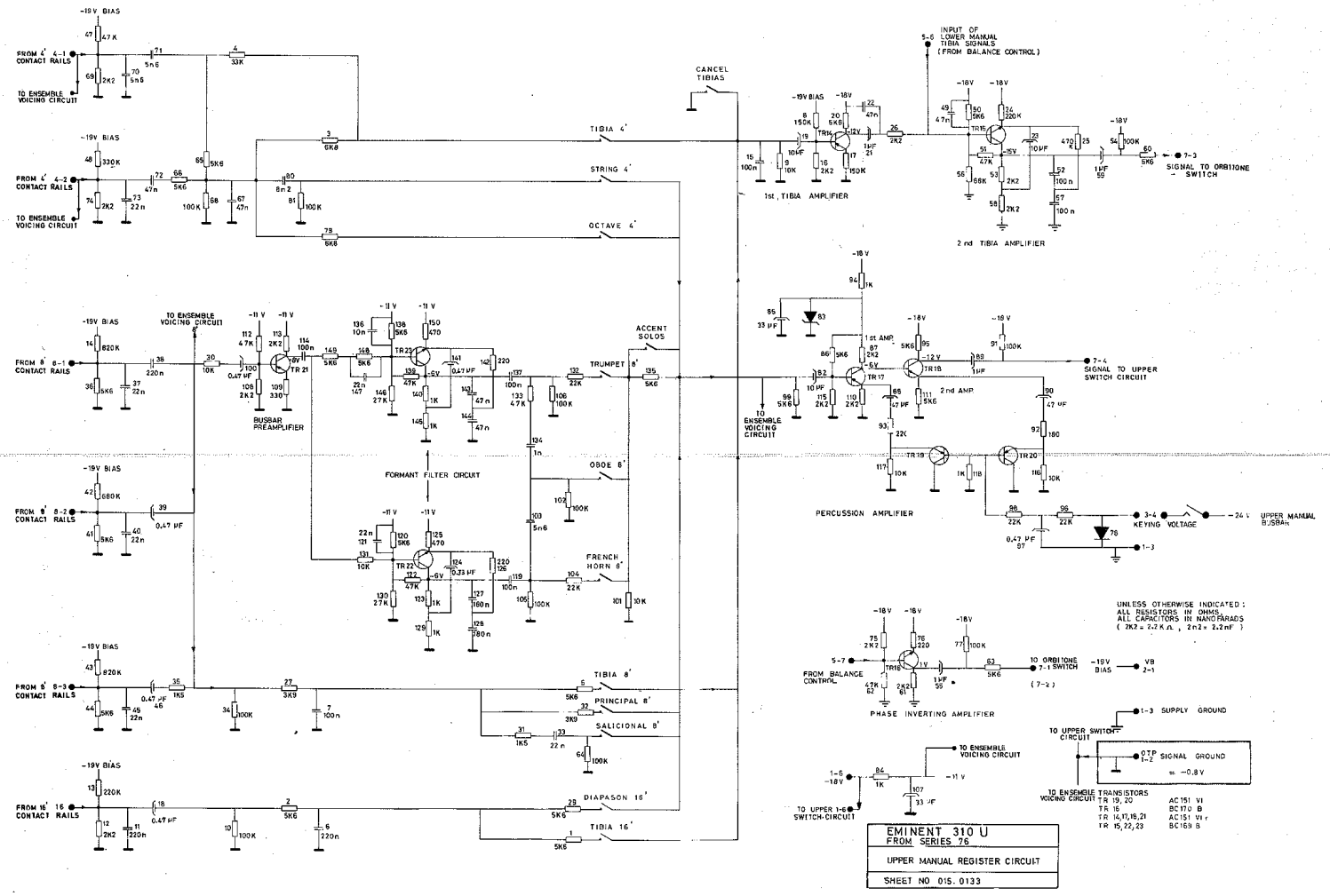
SHEET NO: 012.0014


10W FOR SEMCO
1-5 -26 V
23 120 Ω ½W
22 2200 µF
26 100 Ω
27 2000 µF
2-1 VB -19V BIAS
-19 V TONE GEN. SUPPLY
5-3 TO "VIBRATO" DRAWBAR
11 18K
PEDAL SUSTAIN BIAS
4 2K2
2-4 TO "SHORT SUSTAIN"
SUSTAIN GATE BIAS
-26V
TR38
TR39
10 18K
13 10K
17 5K6
15 330 n
5 2K2
14 680 n
12 100K
24 100 Ω
2-3 MANUAL SUSTAIN KEYING VOLTAGE
MANUAL SUSTAIN SUPPRESS TRIGGER
21 15 µF
1 47 K
PEDAL SUSTAIN SUPPRESS TRIGGER
P↑ = 0 V
P↓ = -26 V
TR36
6 6K8
8 5K6
P↑= -21 V
P↓= -0,04 V
19
P↑ = -21V
P↓ = -17 V
7 47K
16 5K6
20 10µF
2-8 KEYING VOLTAGE FOR PERCUSSIVE PEDAL AMPLIFIER
PEDAL SUST. SWITCH
220nf 3A
1K 4A
100 uf 5A
P↑=-25.4 V
P↓=-26V
3 470Ω
BLUE CONN. FOR RITHMIX ONLY
18 100n
2K7
"PEDAL SUSTAIN" SWITCH
P↑=22V
P↓=0V
TR 37
PS PEDAL SUSTAIN KEYING VOLTAGE TO PEDAL BUSBAR
9 1K
VOLTAGES ARE MEASURED WITH RESPECT TO GROUND ⏚
PEDAL UP = P↑
PEDAL DOWN= P↓
2-7 PEDAL SUSTAIN SUPPRESS VOLTAGE
2 47Ω
5-2
~ VIBRATO BIAS
25 22 µF
1-3 SUPPLY GROUND
1-2 SIGNAL GROUND = -0.8V
REMARKS:
TRANSISTORS
TR 36 BC 108 C
TR 38 BC 170 B
TR 37, 39 AC 121 VI
EMINENT 310
FROM SERIES 76
015 0129
SUSTAIN TRIGGERS
FOR THEORY OF SUSTAIN
SEE "A"

SUSTAIN TRIGGERS



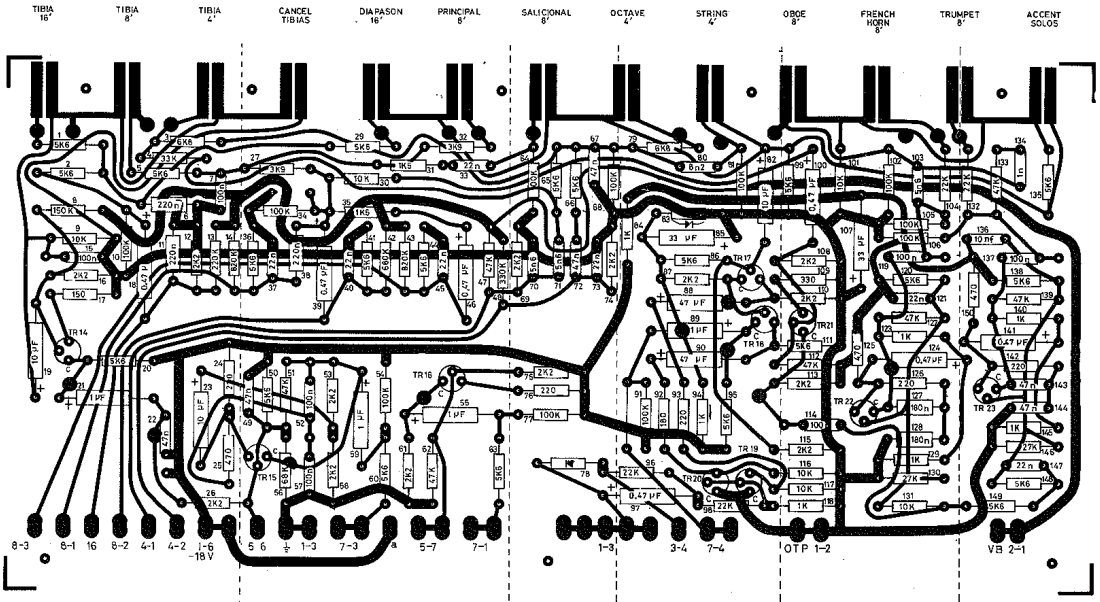
TRANSISTOR NUMBER		TR 36 – TR 37	TR 38 – TR 39		
RES. & COND. NUMBER	1 – 3	4 – 9, 3A	10 – 20	21 – 24	25 – 27



EMINENT 310 U
FROM SERIES 76

UPPER MANUAL REGISTER CIRCUIT

SHEET NO 015.0133



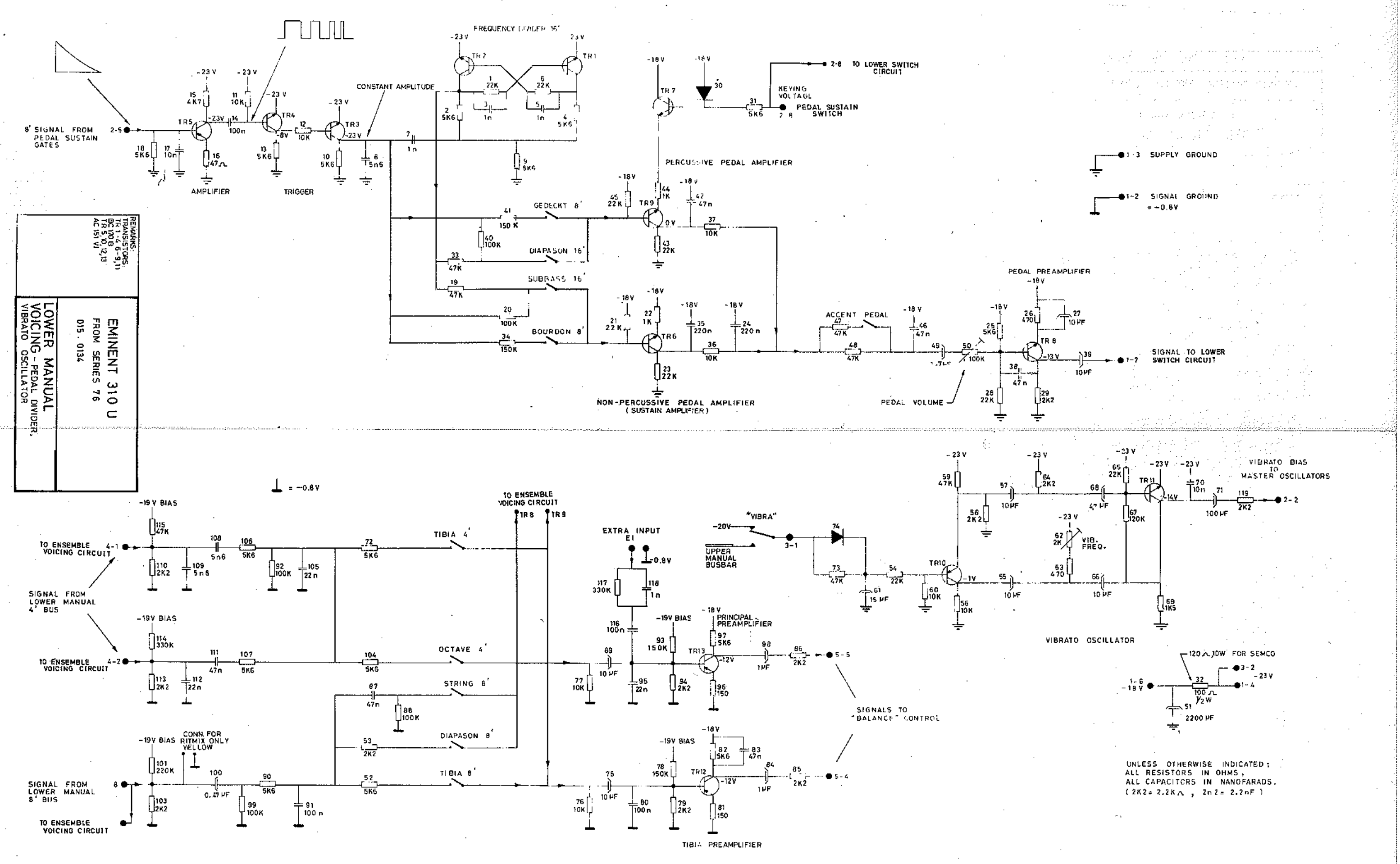
TRANSISTOR NR.	TR 14	TR15 – TR16		TR17 – TR20	TR21 TR22	TR 23
RES.& CAP. NR.	1 – 26	27 – 63	64 – 78	79 – 98	99 – 131	132 – 150

EMINENT 310 U
FROM SERIES 76

UPPER MANUAL REGISTER CIRCUIT

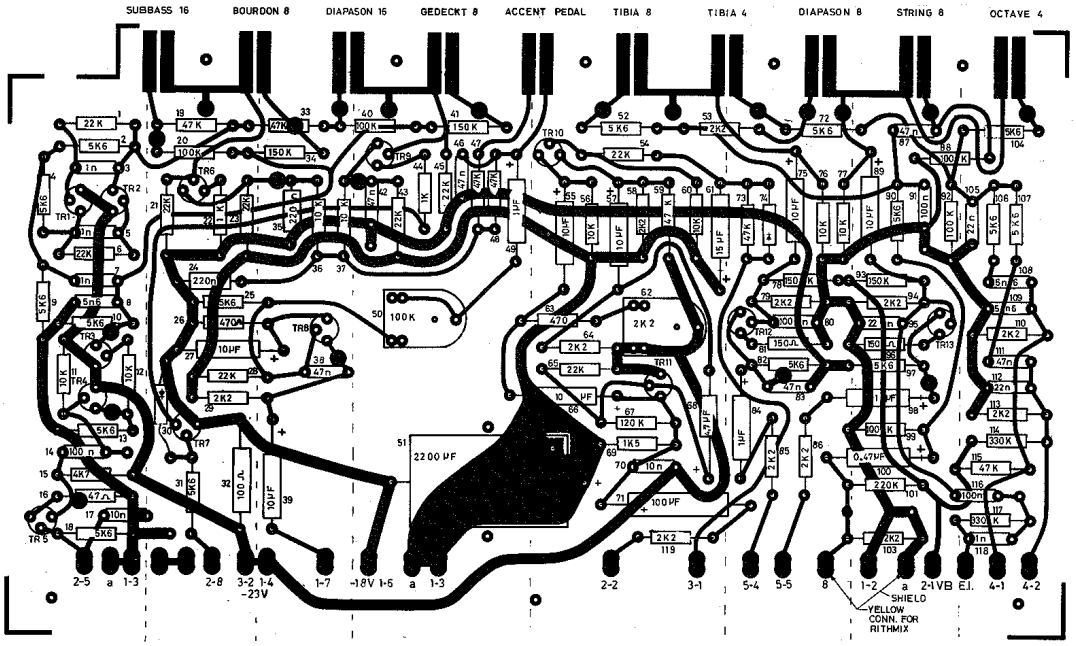
SHEET NO: 003.2017

125.0151	TUBING	
411.1702	TRANSISTOR	TR 16
411.1692	"	TR 15, 22, 23
417.1516	"	TR 14, 17, 18, 21
410.1516	"	TR 19, 20
421.3061	DIODE	83
423.0112	"	78
314.7479	EL CAPACITOR	88, 90
314.7339	" "	85, 107
314.8109	" "	19, 23, 82
314.8108	" "	21, 55, 58, 89
314.8477	" "	18 39 45 97 100 124 141
310.2224	CAPACITOR	6, 11, 38
310.2184	"	127, 128
310.2104	"	7, 15, 52, 57, 114, 119, 137
310.2473	"	22, 49, 87, 92, 143, 144
310.2223	"	33, 37, 40, 45, 73, 121, 147
310.2103	"	136
310.2102	"	134
310.2822	"	80
310.2562	"	70, 71, 103
211.3824	RESISTOR	14, 43
211.3684	"	42
211.3334	"	48
211.3224	"	13
211.3154	"	8
211.3104	"	10, 34, 54, 64, 68, 77, 81, 91, 102, 105, 106
211.3683	"	56
211.3473	"	47, 51, 62, 112, 122, 133, 138
211.3333	"	4
211.3273	"	130, 146
211.3223	"	96, 98, 104, 132
211.3153	"	9, 30, 101, 116, 117, 131, 9
211.3102	"	84, 94, 118, 123, 126, 140, 145
211.3682	"	3, 79
211.3562	"	1, 2, 5, 20, 35, 41, 44, 50, 60, 83, 85, 86, 95, 99, 111, 120, 125, 128, 148, 149, 29
211.3392	"	27, 32
211.3222	"	12, 16, 26, 53, 58, 61, 69, 74, 75, 87, 108, 112, 113, 115
211.3152	"	31, 35
211.3471	"	25, 125, 150
211.3331	"	109
211.3221	"	24, 78, 93, 126, 142
211.3181	"	93
211.3151	"	17
3145	CIRCUIT BOARD	
PART NO:	NAME	POSITION NO:



EMINENT 310 U
FROM SERIES 76
015 . 0134
LOWER MANUAL VOICING - PEDAL DIVIDER, VIBRATO OSCILLATOR
REMARKS: TRANSISTORS: BC 107 B TR 1-6-9-11 TR 5-10-12-13 AC 151 VI
8' SIGNAL FROM PEDAL SUSTAIN GATES
AMPLIFIER
TRIGGER
CONSTANT AMPLITUDE
FREQUENCY DIVIDER 16'
2-8 TO LOWER SWITCH CIRCUIT
KEYING VOLTAGE
PEDAL SUSTAIN SWITCH
PERCUSSIVE PEDAL AMPLIFIER
GEDECKT 8'
DIAPASON 16'
SUBBASS 16'
BOURDON 8'
NON-PERCUSSIVE PEDAL AMPLIFIER (SUSTAIN AMPLIFIER)
ACCENT PEDAL
PEDAL PREAMPLIFIER
PEDAL VOLUME
SIGNAL TO LOWER SWITCH CIRCUIT
1-3 SUPPLY GROUND
1-2 SIGNAL GROUND = -0.8V
= -0.8V
TO ENSEMBLE VOICING CIRCUIT
SIGNAL FROM LOWER MANUAL 4' BUS
SIGNAL FROM LOWER MANUAL 8' BUS
CONN. FOR RITMIX ONLY YELLOW
TIBIA 4'
OCTAVE 4'
STRING 8'
DIAPASON 8'
TIBIA 8'
TO ENSEMBLE VOICING CIRCUIT
EXTRA INPUT E1
PRINCIPAL PREAMPLIFIER
TIBIA PREAMPLIFIER
SIGNALS TO "BALANCE" CONTROL
"VIBRA"
UPPER MANUAL BUSBAR
VIB. FREQ.
VIBRATO OSCILLATOR
VIBRATO BIAS TO MASTER OSCILLATORS
120 Ω 10W FOR SEMCO
UNLESS OTHERWISE INDICATED:
ALL RESISTORS IN OHMS,
ALL CAPACITORS IN NANOFARADS.
(2K2 = 2.2K Ω , 2n2 = 2.2nF)

125 . 0151	TUBING	
230 . 0055	POT. METER	82
230 . 0060		50
423 . 0112	DIODE SFD	30 , 74
430 . 1216	TRANSISTOR	TR 10
430 . 1516	"	TR 5
411 . 1702	"	TR 1,2,3,4,6,7,8,9 ,11
412 . 1516	"	TR 12,13
314 . 6222	EL CAPACITOR	51
314 . 7101	" "	71
314 . 8159	" "	61
314 . 8108	" "	27 , 30 , 55 , 57 , 66 , 75 , 89
314 . 8478	" "	68
314 . 8108	" "	49 , 84 , 98
314 . 8477	" "	100
310 . 2224	CAPACITOR	24 , 35
310 . 2104	"	14 , 80 , 91 , 115
310 . 2473	"	38 , 42 , 46 , 83 , 87 , 111
310 . 2223	"	95 , 105 , 112 ,
310 . 2103	"	17 , 70
310 . 2562	"	8 , 108 , 109
310 . 2102	"	3 , 5 , 7 , 118
2123101	RESISTOR	32
211 . 3334	"	114 , 117
211 . 3224	"	101
211 . 3154	"	34 , 43 , 78 , 93 ,
211 . 3124	"	67
211 . 3104	"	20 , 40 , 88 , 92 , 99 ,
211 . 3473	"	19 , 33 , 47 , 48 , 59 , 73 , 115
211 . 3223	"	1 , 6 , 21 , 23 , 28 , 43 , 45 , 54 , 65
211 . 3103	"	11 , 12 , 35 , 37 , 56 , 60 , 76 , 77 ,
211 . 3562	"	2 , 4 , 9 , 10 , 13 , 18 , 25 , 31 , 52 , 72 , 82 , 90 , 97 , 104 , 106 , 107 ,
211 . 3472	"	15 ,
211 . 3222	"	29 , 53 , 58 , 64 , 70 , 85 , 86 , 94 , 103 , 110 , 113 , 119 ,
211 . 3152	"	69
211 . 3102	"	22 , 44 ,
211 . 3471	"	26 , 63 ,
211 . 3151	"	81 , 96
211 . 3479	RESISTOR	16
3104	CIRCUIT BOARD	
PART NO	NAME	POSITION NO :



TRANSISTOR NUMBER	1 — 5	6 — 7	8	9	10 — 11	12	13	
RES. & CAP. NO.	1 — 18	19 — 32	33 — 39	40 — 51	52 — 71 , 119	72 — 86	87 — 103	104 — 118
				PEDAL CONTROL NO. 50	VIBRATO FREQUENCY CONTROL NO. 62			

EMINENT 310U
FROM SERIES 76

LOWER MANUAL VOICING CIRCUIT

SHEET NO: 003 2015