

ELKA

X 705

//

schematic diagrams

- ① 410CST0771 - Matrix for flutes filters
- ② 410CST0757 - Upper drawbars
- ③ 410CST0730 - Solo variations
- ④ 410CST0760 - Percussion register
- ⑤ 410CST0761 - Upper manual register
- ⑥ 410CST0748 - Upper keyboard contacts assembly

⑦ 410CST0783 - Matrix

⑧ 410CST0735 A

⑨ 410CST0735 B

⑩ 410CST0735 C

⑪ 410CST0736

⑫ 410CST0737

⑬ 410CST0738

⑭ 410CST0739

⑮ 410CST0740

⑯ F000576

⑰ F000577

⑱ 410CST0741

⑲ 410CST0742

⑳ 410CST0722 - Encoder

㉑ 410CST0723 - Decoder

㉒ 410CST0724 - Wave form generator

㉓ 410CST0725 - Vibrato telstar pitch bend

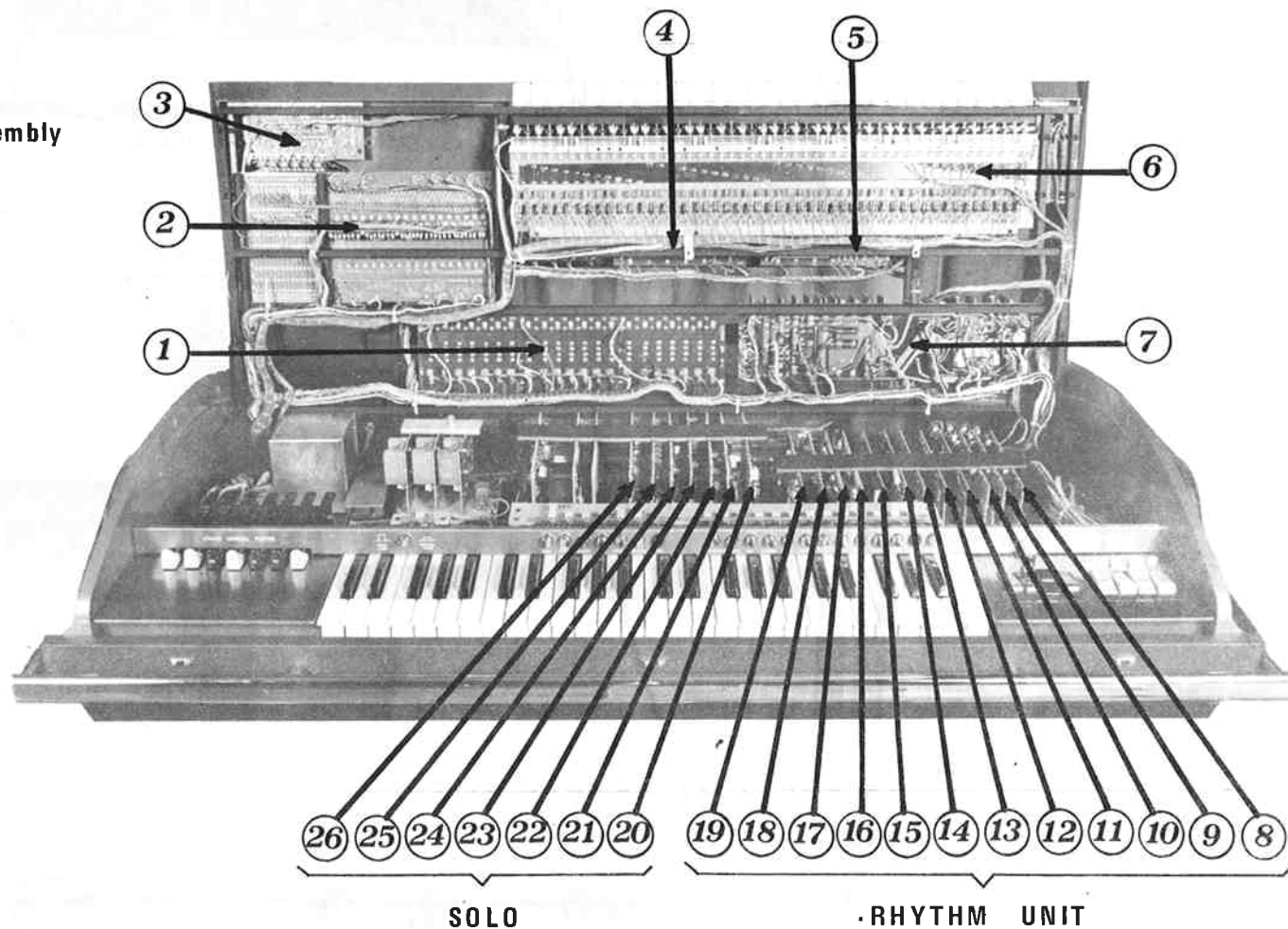
㉔ 410CST0726 - VCA - VCF controls

㉕ 410CST0727 - Timbre control

㉖ 410CST0728 - VCA - VCF

R
H
Y
T
H
M

U
N
I
T



SOLO

RHYTHM UNIT



① 410CST0750 - Lower drawbars

② Transformer

④ F000627 - Power supply + 12V

⑤ 410CST0751 - Pedal bass-Manual bass

⑥ F000627 - Power supply - 12V

⑦ F000627 - Power supply - 27V

⑧ 410CST0770 - Matrix for power supply

⑨ 410CST0753 - Presets push-button assembly

⑩ 410CST0753 - Solo push-button assembly

⑪ 410CST0748 - Lower keyboard contacts assembly

⑫ 410CST0756 - Elkatone and vibrato register

⑬ 410CST0717 - Strings memorization
Sheet 27-60

⑭ CST0934- Master oscillator and dividers

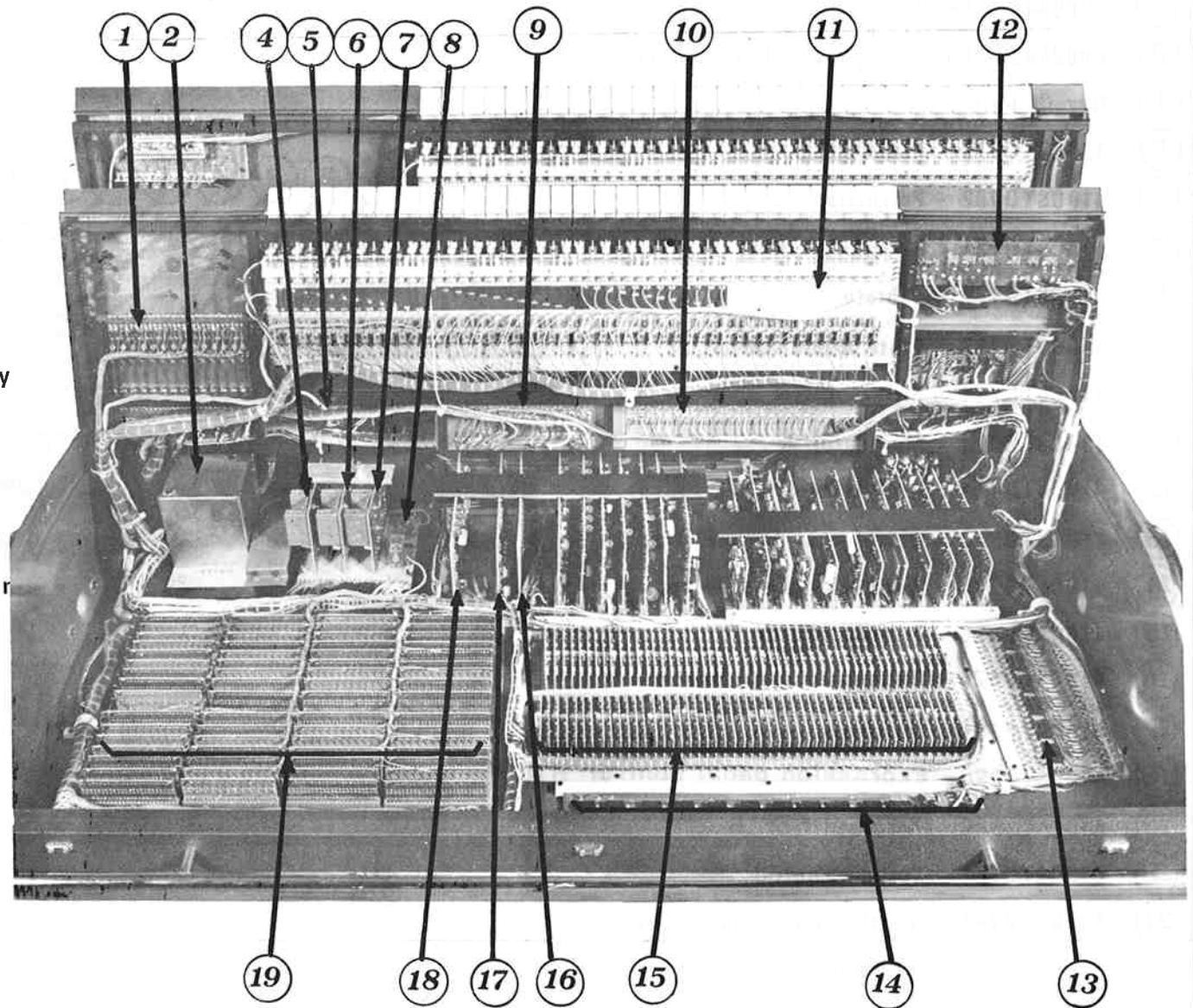
⑮ F000589 - Piano strings switches

⑯ 410CST0871

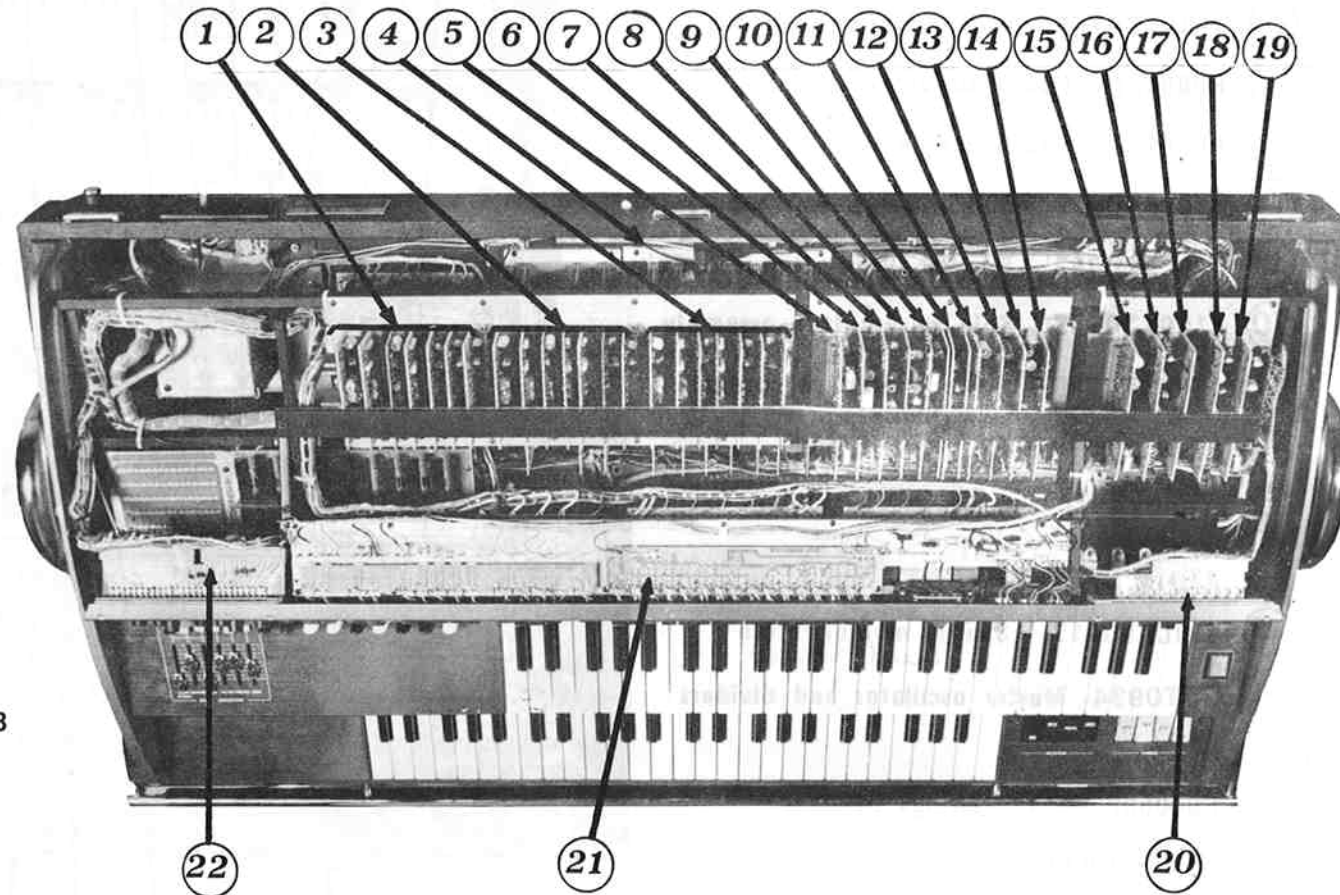
⑰ 410CST0718 - Bass selector

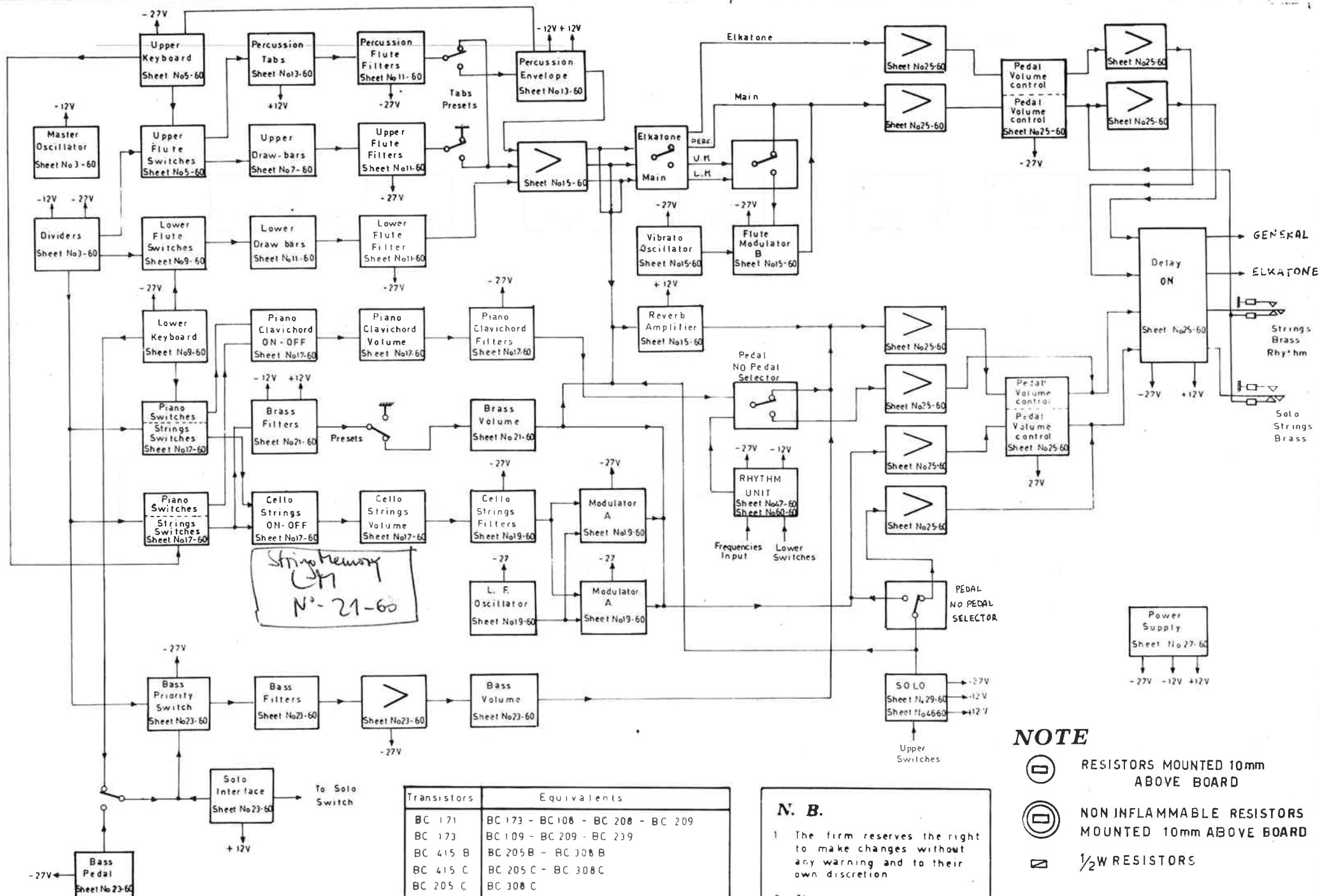
⑱ 410CST0720 - Brass

⑲ Flutes switches



- ① F000445 - Upper keyboard flutes filters
- ② F000445 - Percussion and presets filters
- ③ F000445 - Lower keyboard flutes filters
- ④ Reverb unit
- ⑤ 410CST0779 - Preamplifier
- ⑥ 410CST0782 - Percussion
- ⑦ 410CST0781 - Reverb amplifier
- ⑧ 410CST0774 - Vibrato
- ⑨ 410CST0773 - Flute Modulator B
- ⑩ 410CST0776 - Strings filters
- ⑪ 410CST0773 - Modulator A
- ⑫ 410CST0773 - Modulator A
- ⑬ 410CST0772 - Low frequency oscillator
- ⑭ 410CST0775 - Piano clavichord filters
- ⑮ 410CST0896 - Preamplifier B ?
- ⑯ 410CST0926 - Expression pedal control A
- ⑰ 410CST0777 - Delay on
- ⑱ 410CST0926 - Expression pedal control B
- ⑲ 410CST0896 - Preamplifier B ?
- ⑳ 410CST0762 - Sustain controls
- ㉑ 410CST0744 - Rhythm an automatic on-off
- ㉒ 410CST0765 - Volumes





String Memory ON
N° 21-60

Transistors	Equivalents
BC 171	BC 173 - BC 108 - BC 208 - BC 209
BC 173	BC 109 - BC 209 - BC 239
BC 415 B	BC 205 B - BC 308 B
BC 415 C	BC 205 C - BC 308 C
BC 205 C	BC 308 C
BC 308 C	BC 205 C

N. B.

- The firm reserves the right to make changes without any warning and to their own discretion.
- The tensions are measured when the instrument is turned on but not played.

- NOTE**
- RESISTORS MOUNTED 10mm ABOVE BOARD
 - NON INFLAMMABLE RESISTORS MOUNTED 10mm ABOVE BOARD
 - 1/2W RESISTORS

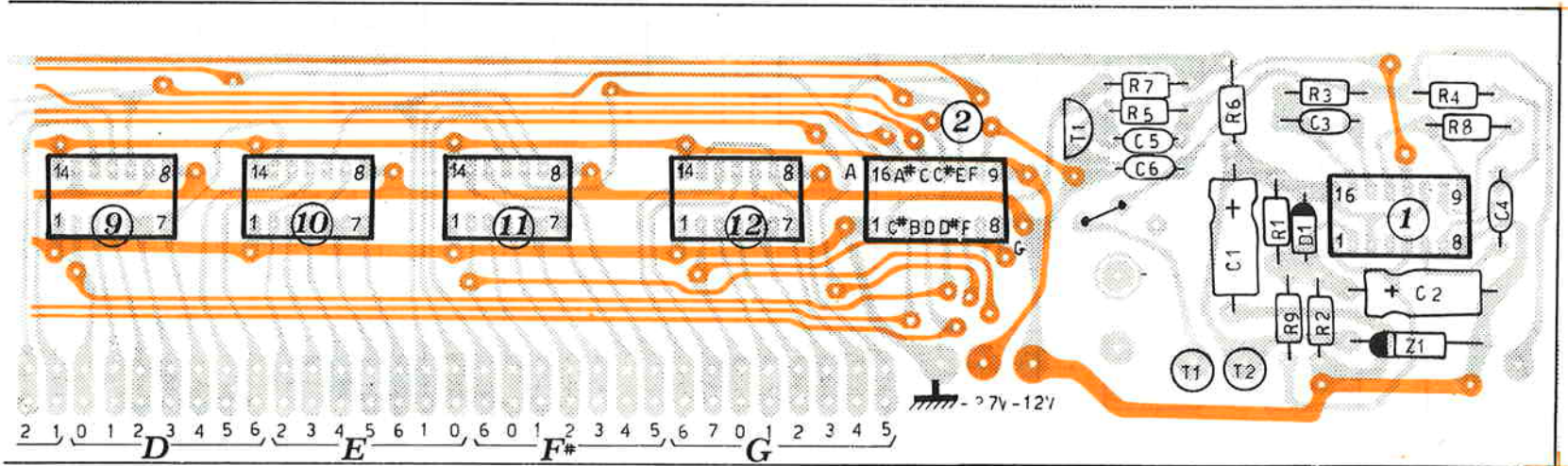
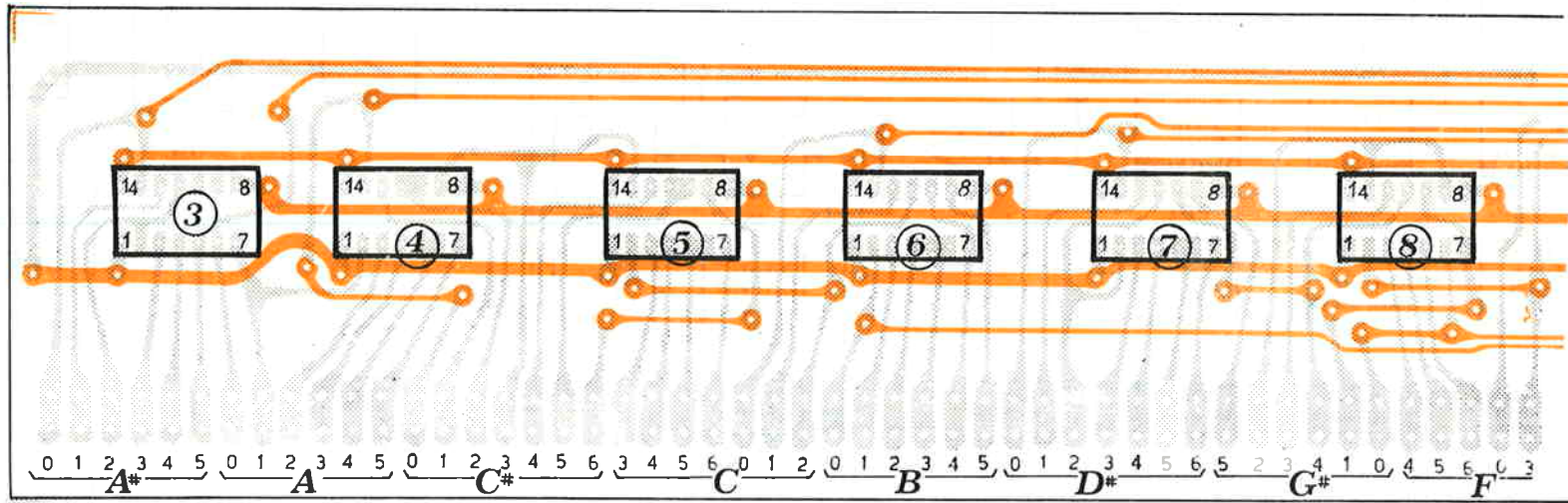
Designed by *Ferruccio Blarini*
 Drawn by *Wlad Gromo*
 Checked by *Roberto Pato*

All diodes are FDH9439 Fairchild or BA 130

	Model	Object	Sheet No 1-60
	X 705	Block Diagram	Date 10-10-77

410CST0934

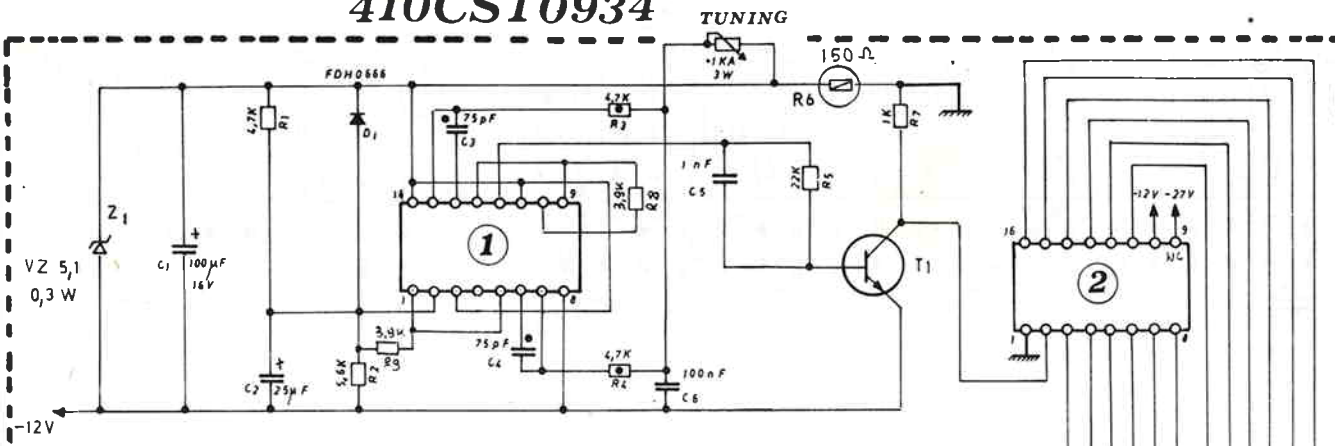
(427GR05843)



	Model	Object	Sheet No 2-60
	X 705	Assembly of Printed Circuit	Date 8-9-78

THE NUMBERS IN BRACKETS REPRESENT THE ELKA CODES OF THE ASSEMBLED BOARDS WHILST THE OTHERS REPRESENT THE ELKA CODES OF THE NON ASSEMBLED BOARDS

410CST0934

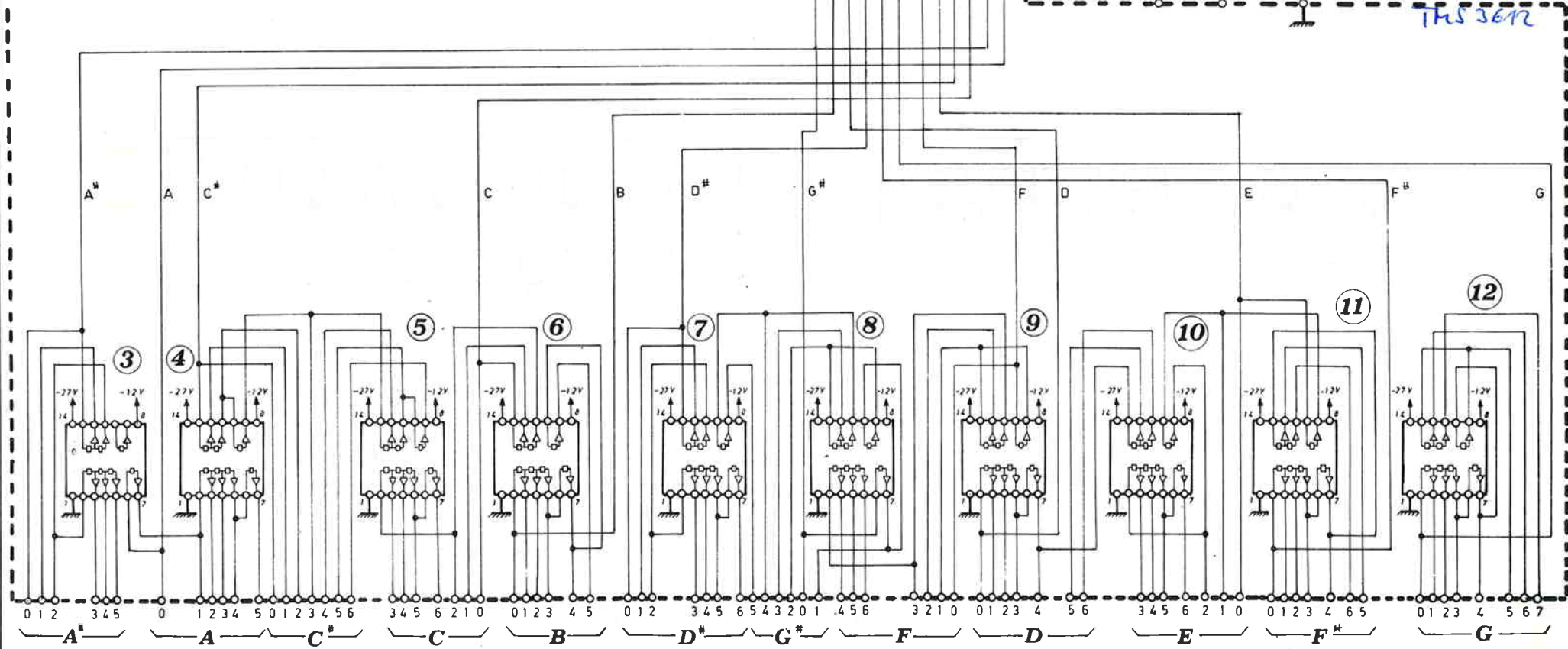


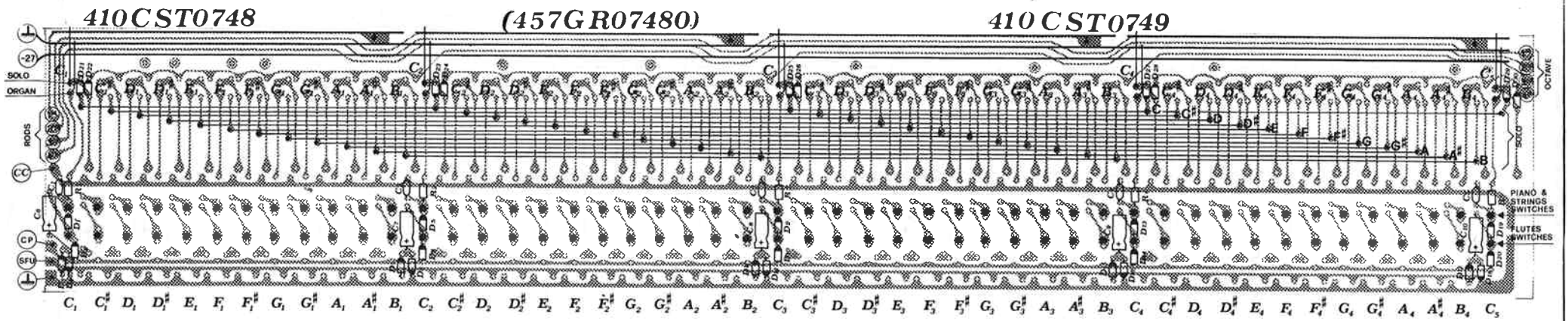
Code	Type	Transistors
T ₁	NPN	BC 173

Integrated circuit		
Code	Type	Manufactured
1	74221	Texas
2	MK 50242	Mostek
3 - 12	HBF1740AE	SGS

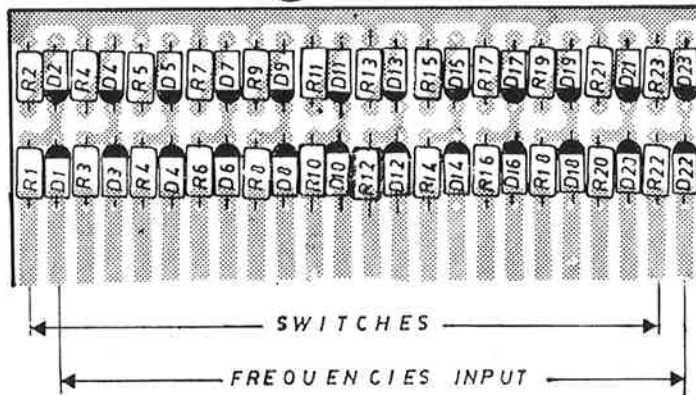
- 1) All resistors marked by a point • must be metal film 2% tolerance
- 2) All capacitors marked by a point • must be polistirolo 2% tolerance

(Handwritten notes)
 (AK-5000)
 SAJ 180
 THS 3848
 SFF 5002
 EL 444
 THS 3612

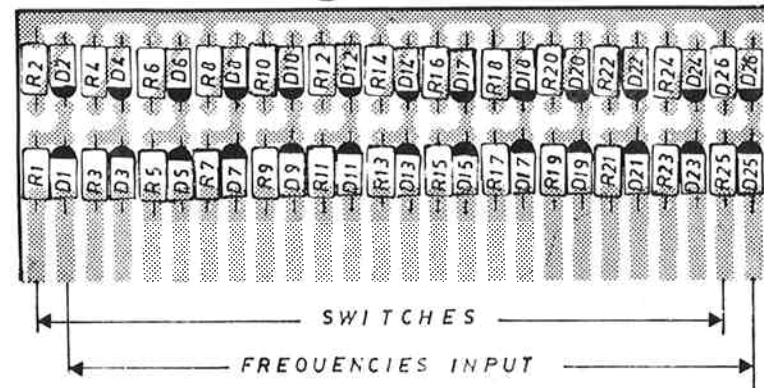




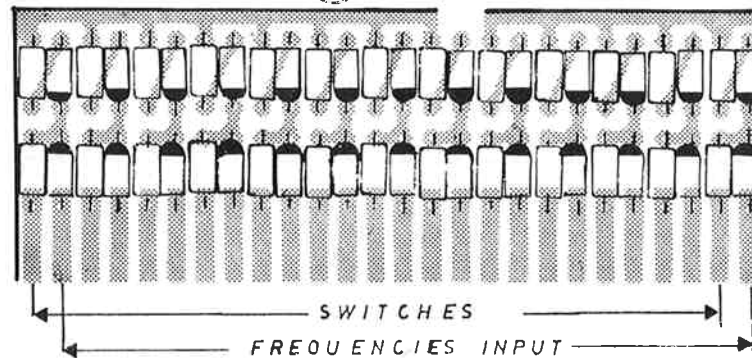
M000489 (31) (427GR0489A)



M000487 (12) (427GR0487B)



M000488 (4) (427GR0488E)



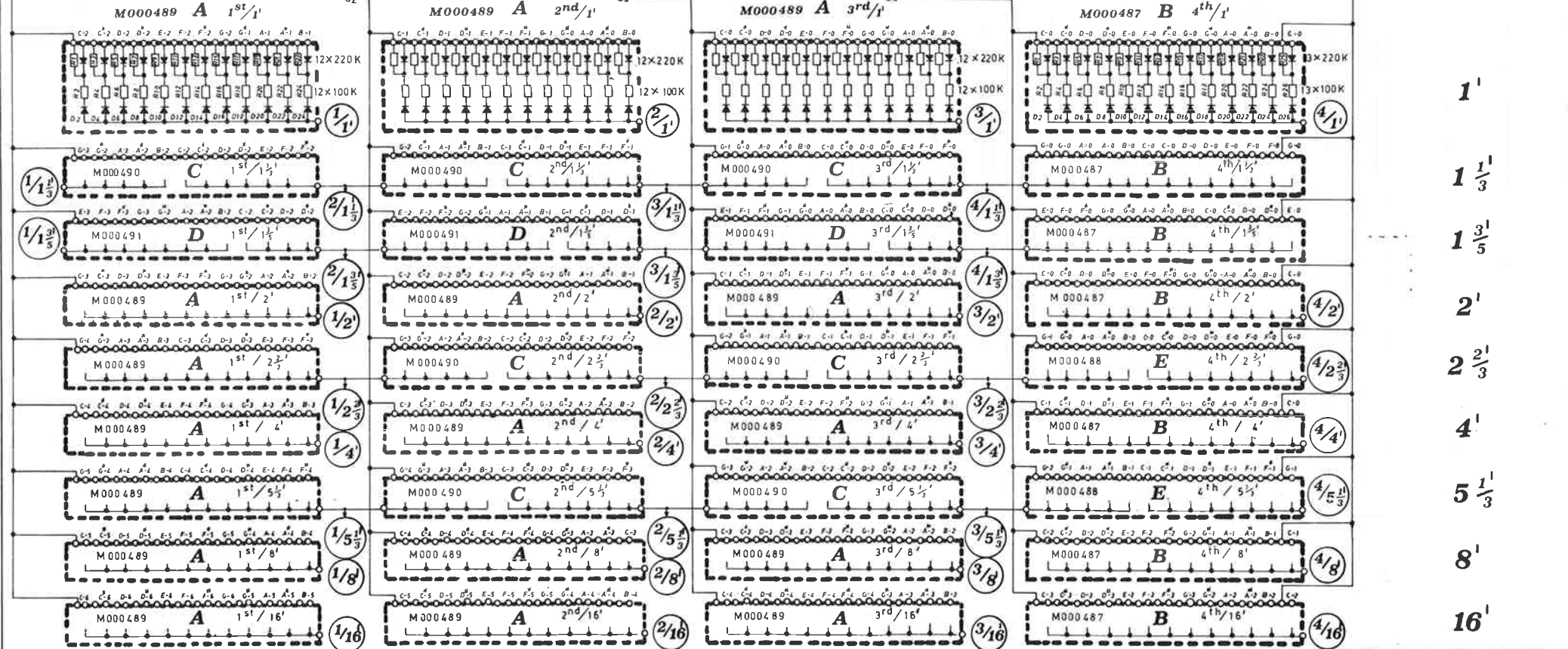
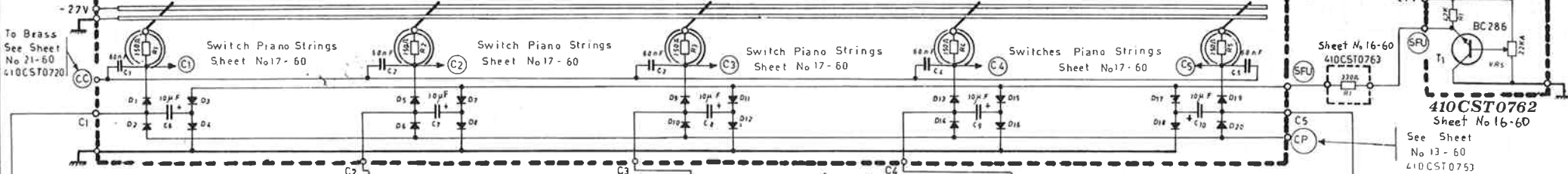
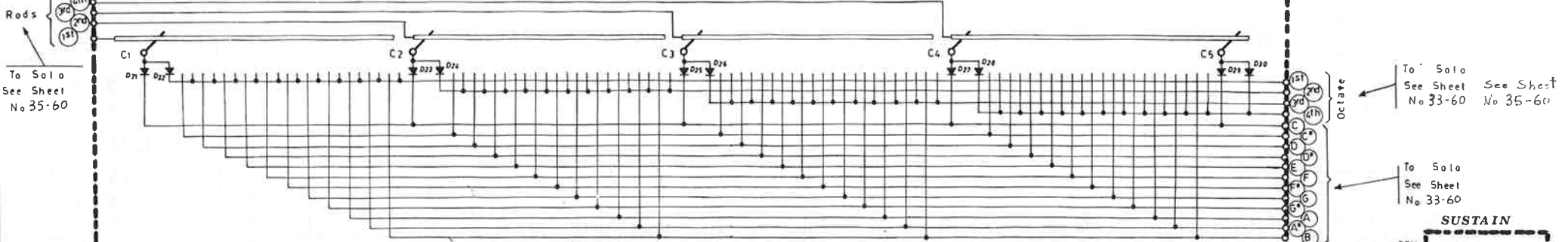
THE NUMBERS IN BRACKETS REPRESENT THE ELKA CODES OF THE ASSEMBLED BOARDS WHILST THE OTHERS REPRESENT THE ELKA CODES OF THE NON-ASSEMBLED BOARDS.



Model
X-705

Object:
Assembly of
Printed Circuit

Sheet No 4-60
Date 19-7-77



Note: 1) The outputs 1/16', 2/16', etc.... should be connected to board F000512 Sheet No 7-60

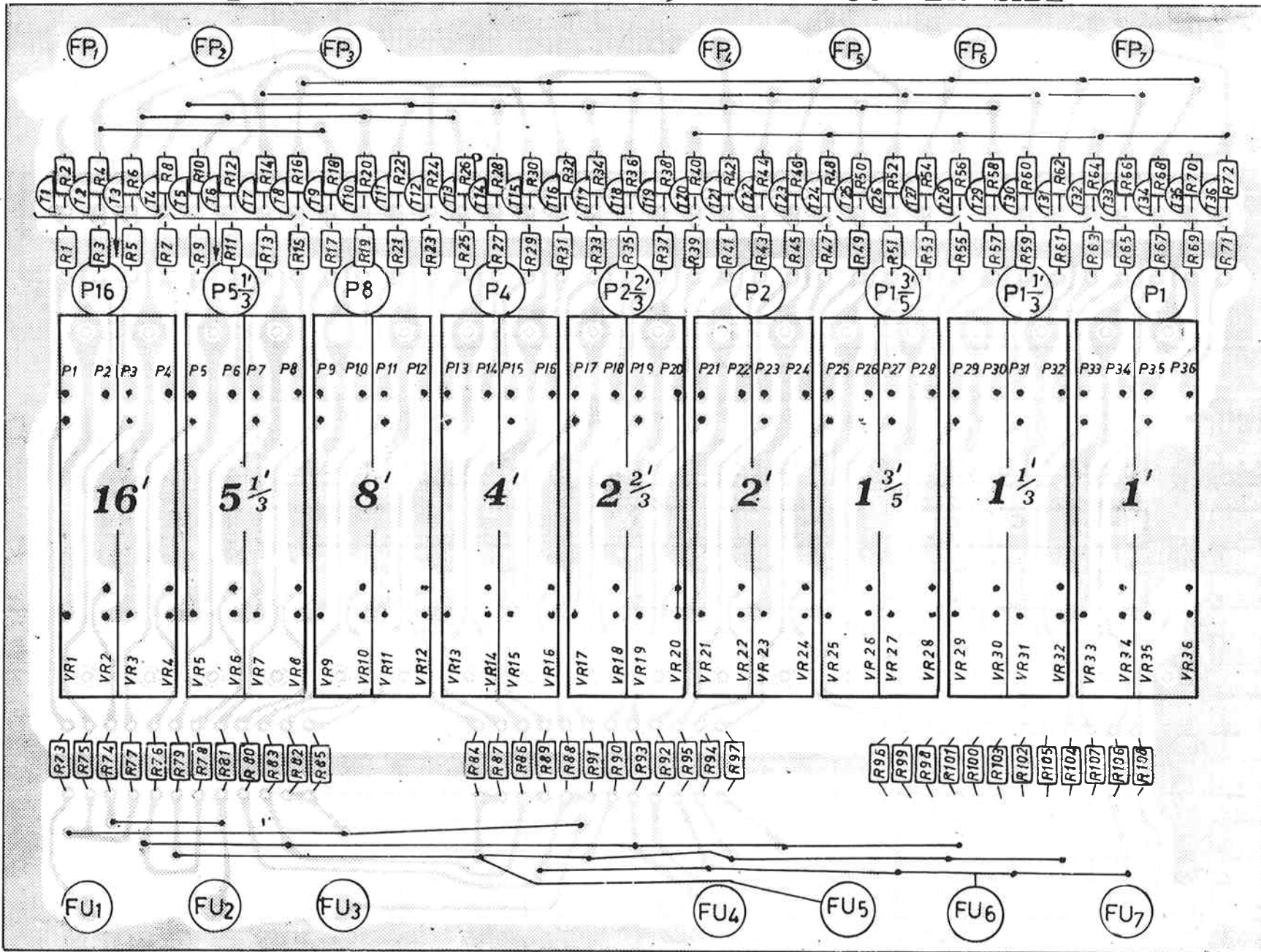
Model X 705	Object Upper Keyboard	Sheet No 5-60
		Date 25-8-77

1/2 410CST0757

(457GR07570)

COPPER SIDE

F000512
(427GR05120)



- P1 - D1 (1/16) C1
- P2 - D2 (2/16) C2
- P3 - D3 (3/16) C3
- P4 - D4 (4/16) C4
- P5 - D5 (5/16) C5
- P6 - D6 (6/16) C6
- P7 - D7 (7/16) C7
- P8 - D8 (8/16) C8
- P9 - D9 (1/8) C9
- P10 - D10 (2/8) C10
- P11 - D11 (3/8) C11
- P12 - D12 (4/8) C12
- P13 - D13 (1/4) C13
- P14 - D14 (2/4) C14
- P15 - D15 (3/4) C15
- P16 - D16 (4/4) C16
- P17 - D17 (2/3) C17
- P18 - D18 (2/3) C18
- P19 - D19 (2/3) C19
- P20 - D20 (2/3) C20
- P21 - D21 (1/2) C21
- P22 - D22 (2/2) C22
- P23 - D23 (3/2) C23
- P24 - D24 (4/2) C24
- P25 - D25 (1/2) C25
- P26 - D26 (1/2) C26
- P27 - D27 (1/2) C27
- P28 - D28 (1/2) C28
- P29 - D29 (1/3) C29
- P30 - D30 (1/3) C30
- P31 - D31 (1/3) C31
- P32 - D32 (1/3) C32
- P33 - D33 (1/1) C33
- P34 - D34 (1/1) C34
- P35 - D35 (1/1) C35
- P36 - D36 (1/1) C36

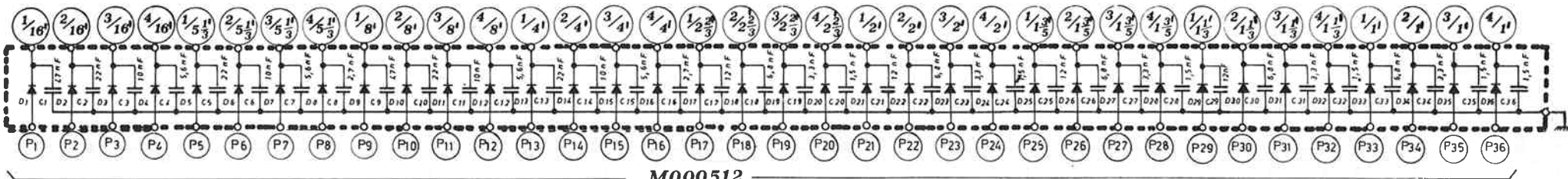


Model
X 705

Object
Assembly of
Printed Circuit

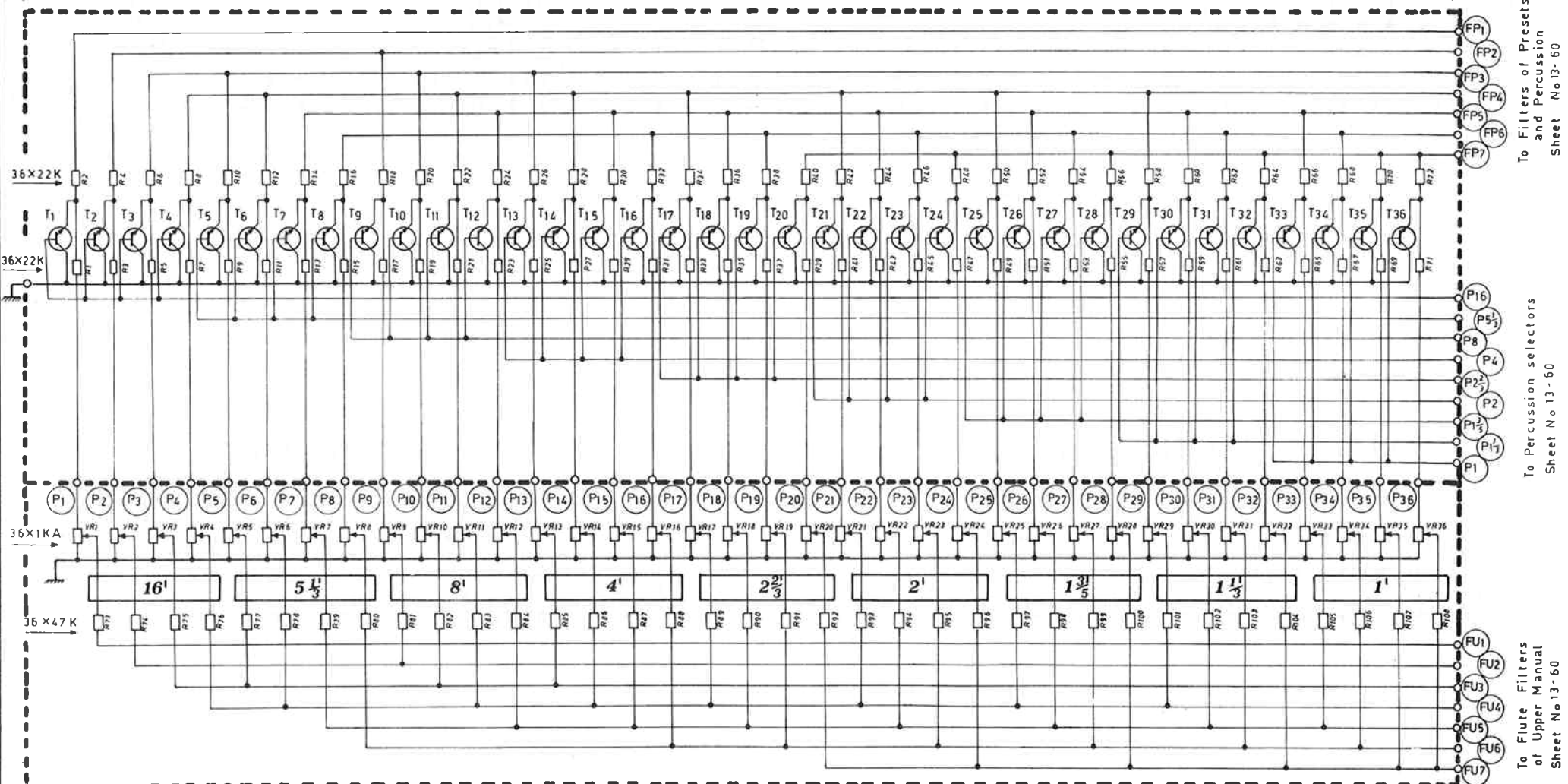
Sheet No 6-60
Date 1-9-77

THE NUMBERS IN BRACKETS
REPRESENT THE ELKA CODES OF
THE ASSEMBLED BOARDS WHILST
THE OTHERS REPRESENT THE ELKA
CODES OF THE NONASSEMBLED
BOARDS



M000512

410CST0757



To Filters of Presets and Percussion
Sheet No 13-60

To Percussion selectors
Sheet No 13-60

To Flute Filters of Upper Manual
Sheet No 13-60

Code	Type	Transistors
T1 ÷ T36	NPN	BC 171

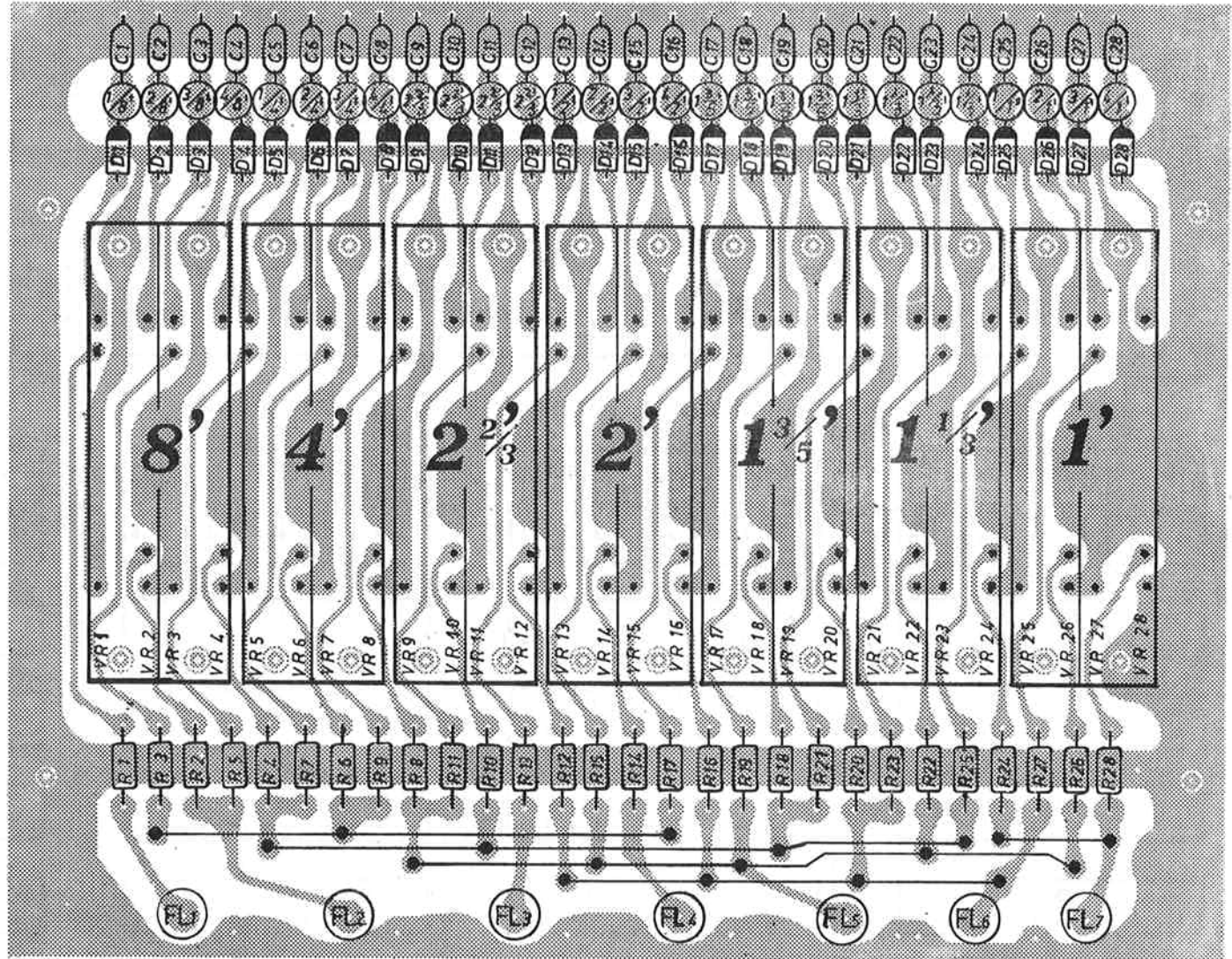
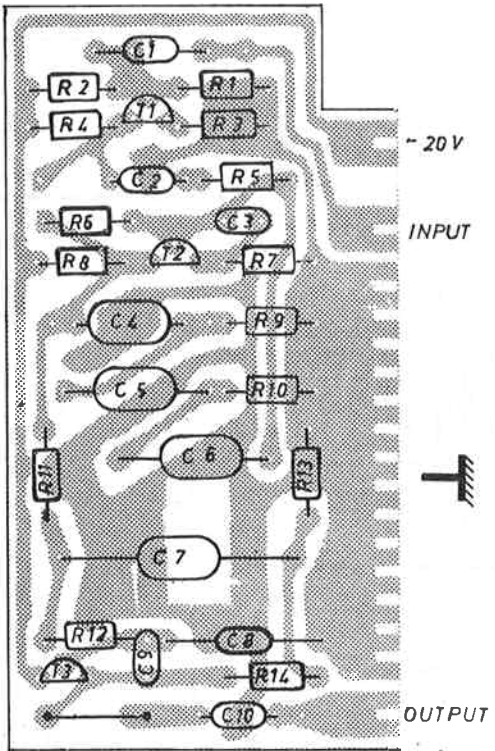
	Model	Object	Sheet No 7-60
	X 705	Upper Keyboard Drawbars	

410CST0750 (457GRO7500)

Copper Side

(427GRO4451-2-3-4-5-6-7)

F000445



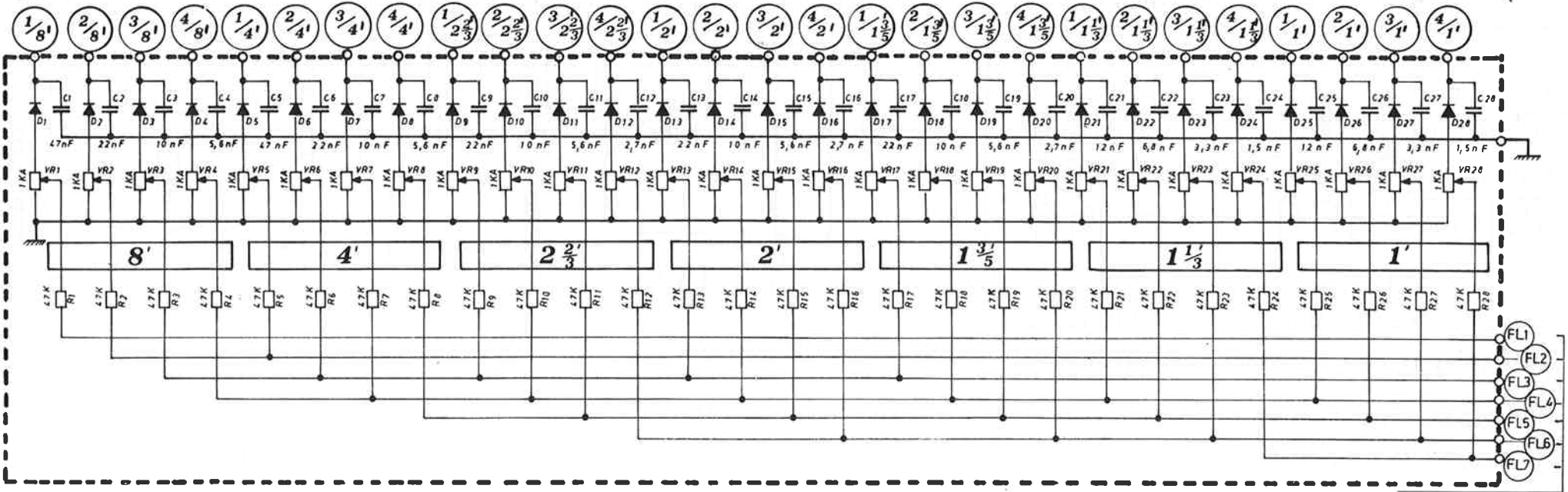
THE NUMBERS IN BRACKETS REPRESENT THE ELKA CODES OF THE ASSEMBLED BOARDS WHILST THE OTHERS REPRESENT THE ELKA CODES OF THE NON ASSEMBLED BOARDS



Model
X 705

Object:
Assembly of
Printed Circuit

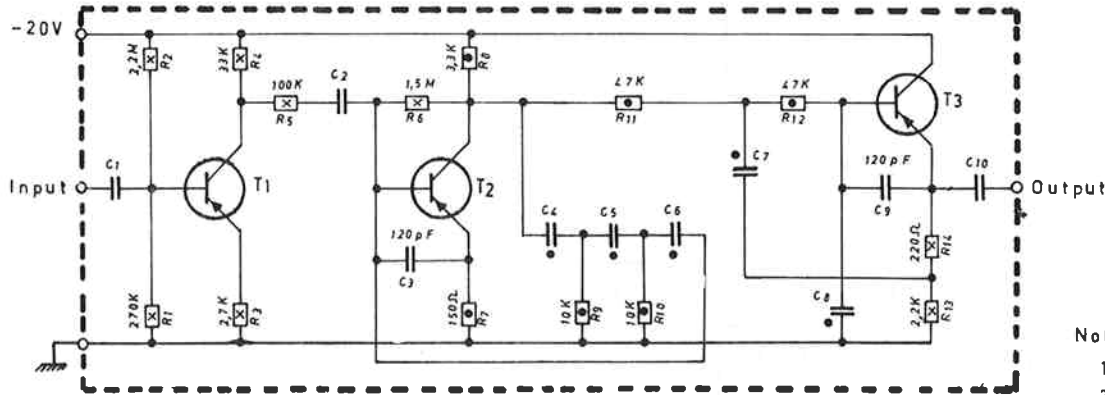
Sheet No10-60
Date 1-9-77



410CST0750

To Flute Filters
of Lower Manual
Sheet No 13 - 60

FILTERS F000445



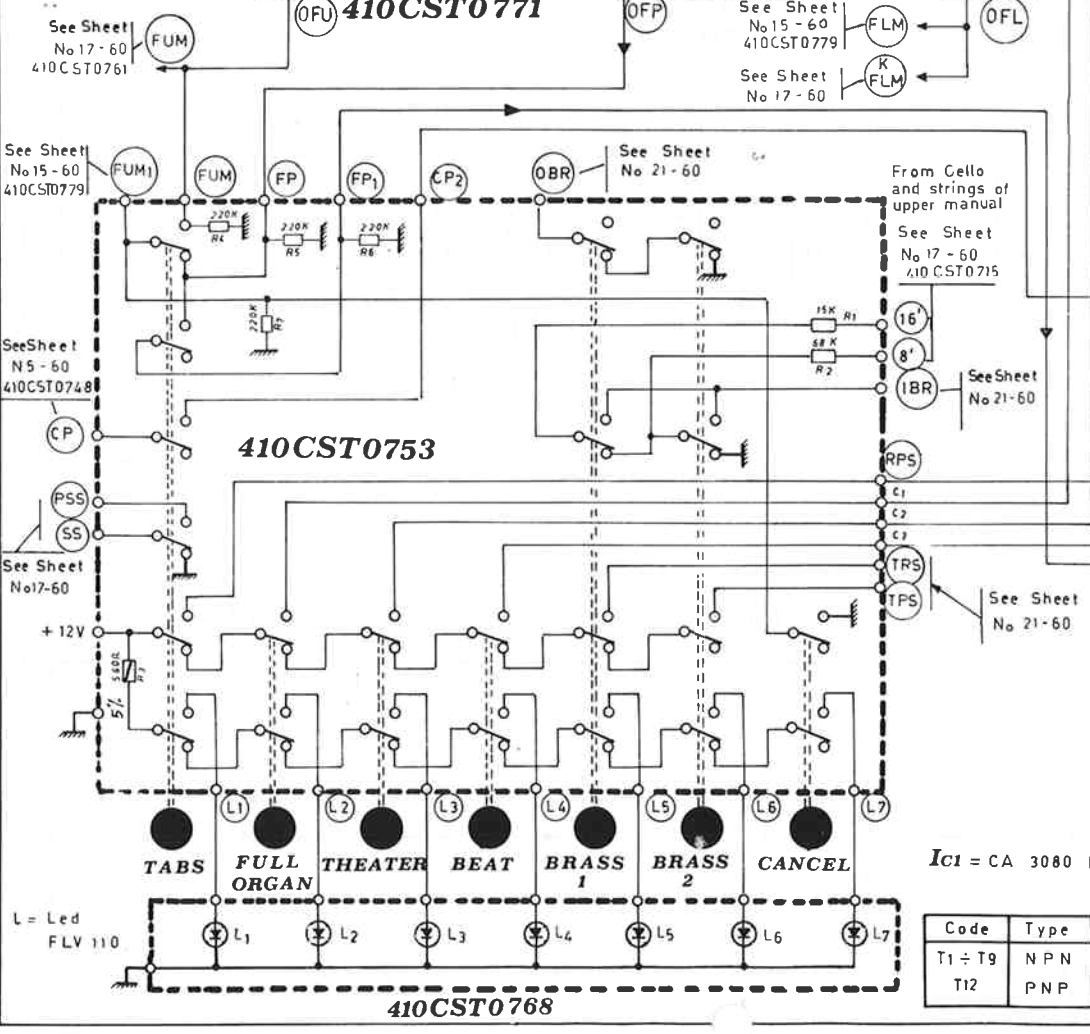
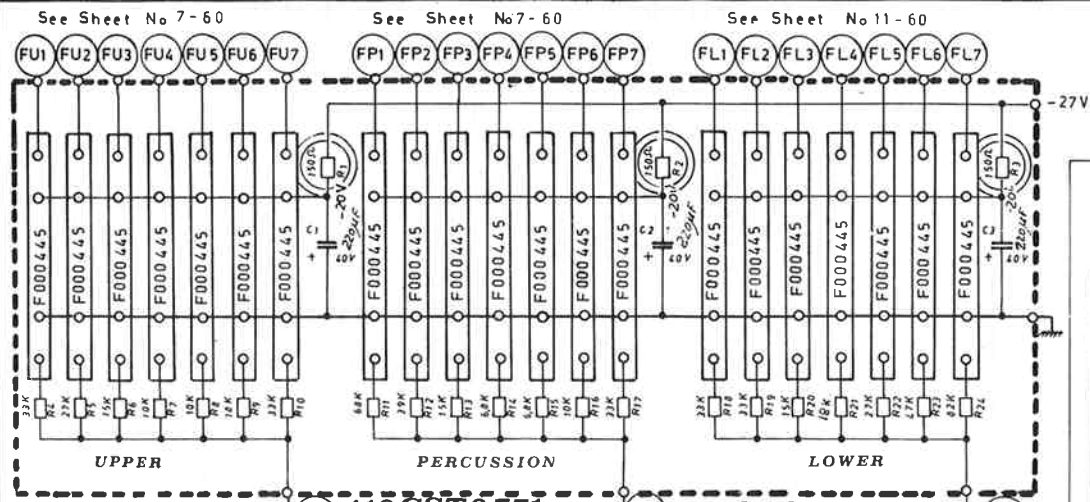
Code	Type	Transistors
T1 - T3	PNP	BC 415
T2	PNP	BC 415C yellow point or green point

	Upper Lower and Percussion Filters						
	FU1	FU2	FU3	FU4	FU5	FU6	FU7
	FL1	FL2	FL3	FL4	FL5	FL6	FL7
	FP1	FP2	FP3	FP4	FP5	FP6	FP7
C1	330nF	220nF	100nF	47nF	27nF	12nF	6,8nF
C2	82nF	47nF	22nF	10nF	5,6nF	2,7nF	1,2nF
C4	47,2nF	23,6nF	11,8nF	5,9nF	2,95nF	1475pF	737pF
C5	47,2nF	23,6nF	11,8nF	5,9nF	2,95nF	1475pF	737pF
C6	47,2nF	23,6nF	11,8nF	5,9nF	2,95nF	1475pF	737pF
C7	176nF	88nF	44nF	22nF	11nF	5,5nF	2750pF
C8	16nF	8nF	4nF	2nF	1nF	500pF	250pF
C10	100nF	100nF	100nF	47nF	22nF	10nF	4,7nF

Note

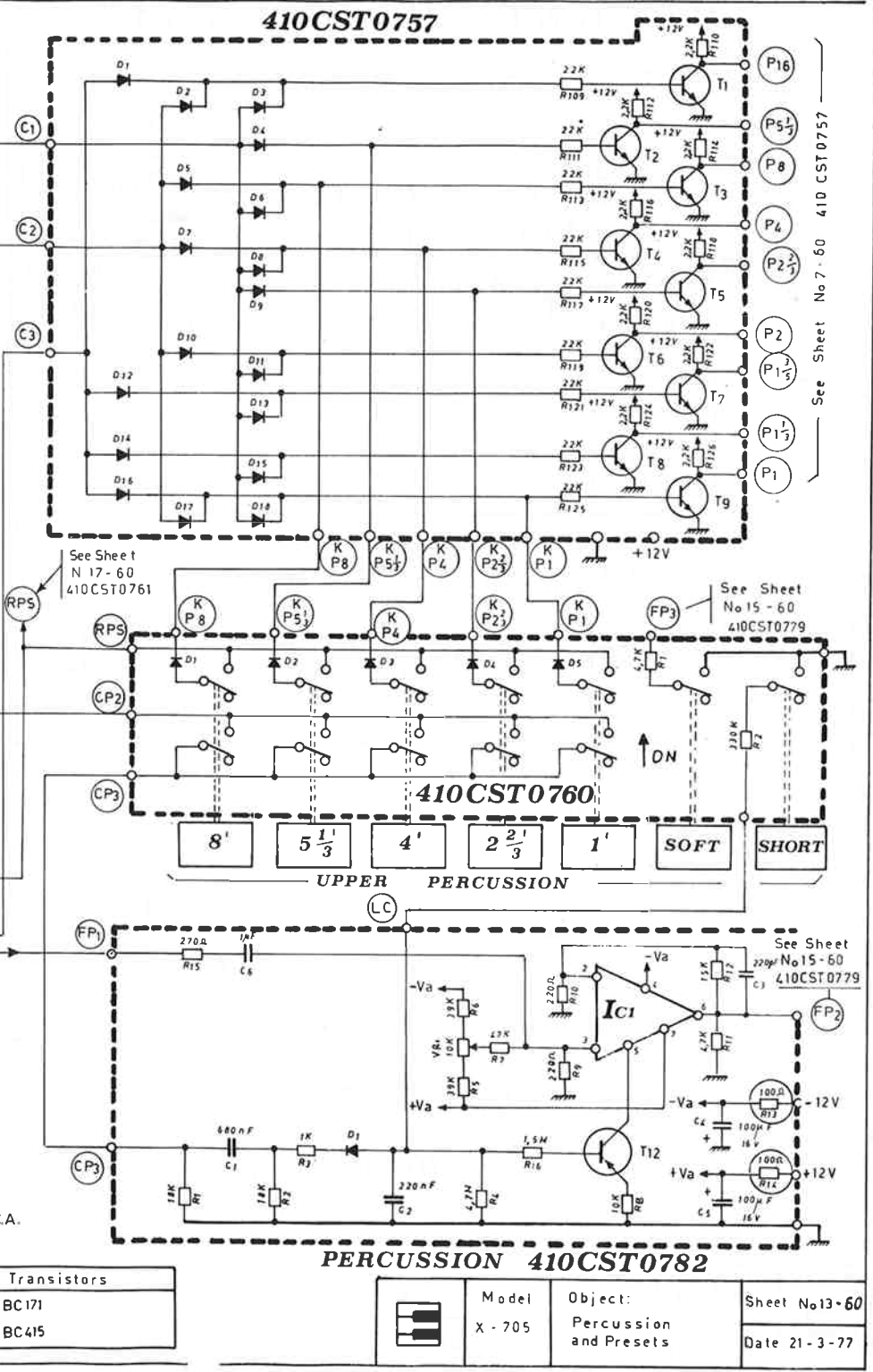
- 1) All resistors marked by a point • must be metal film ones 2% tolerance
- 2) All resistors marked by asterisk * must be carbon film ones 5% tolerance
- 3) All capacitors marked by a point • are polycarbonate 2% tolerance

	Model	Object:	Sheet No 11-60
	X 705	Lower Manual Draw Bars and Filters	



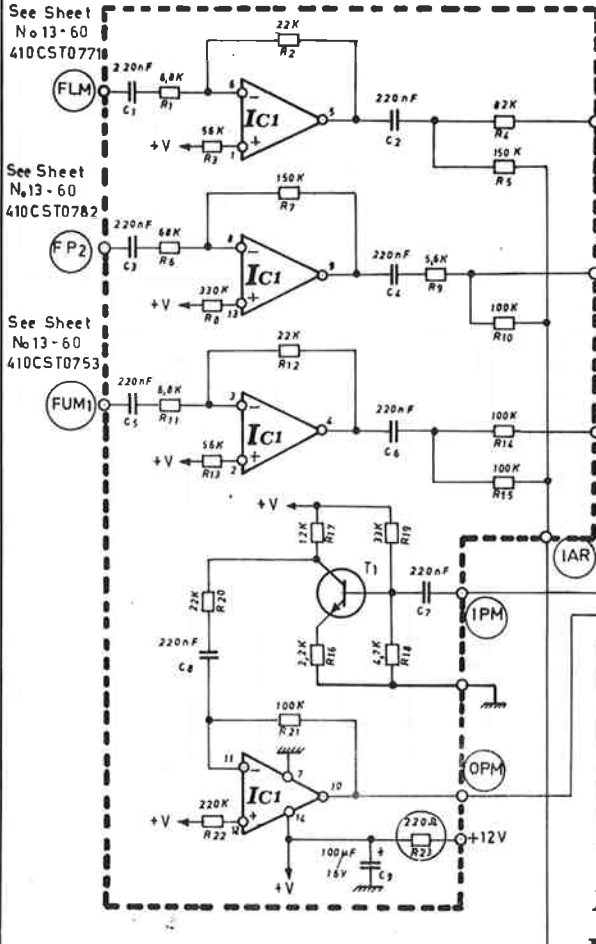
IC1 = CA 3080 R.C.A.

Code	Type	Transistors
T1 ÷ T9	NPN	BC171
T12	PNP	BC415



See Sheet No 7-60 410CST0757

PREAMPLIFIER 410CST0779



See Sheet No 13-60 410CST0771

See Sheet No 13-60 410CST0782

See Sheet No 13-60 410CST0753

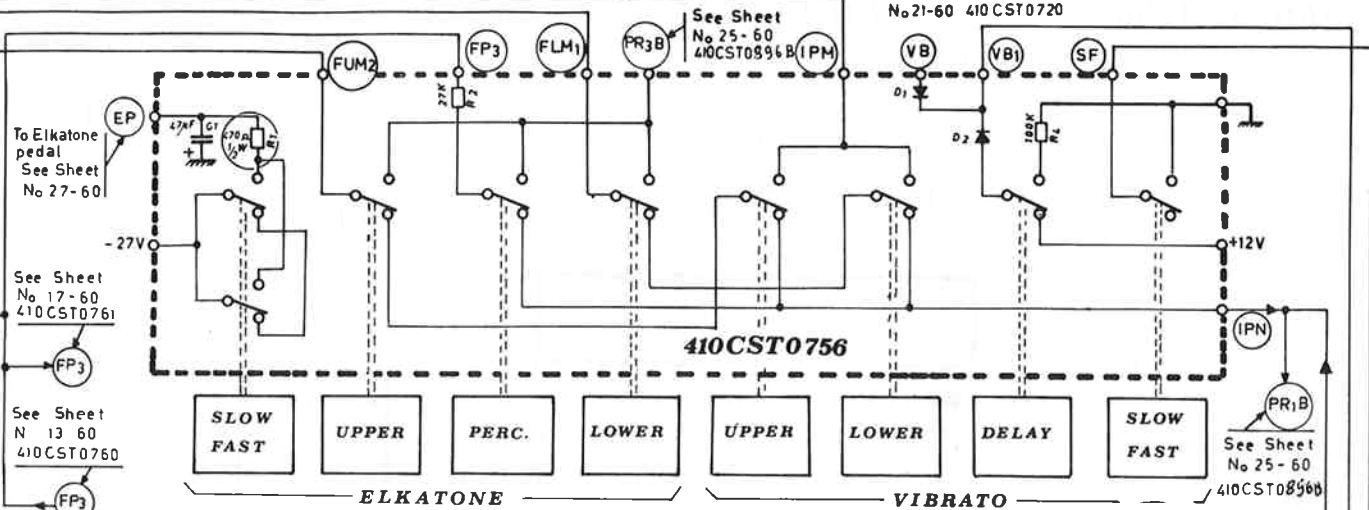
See Sheet No 17-60 410CST0761

See Sheet No 13-60 410CST0760

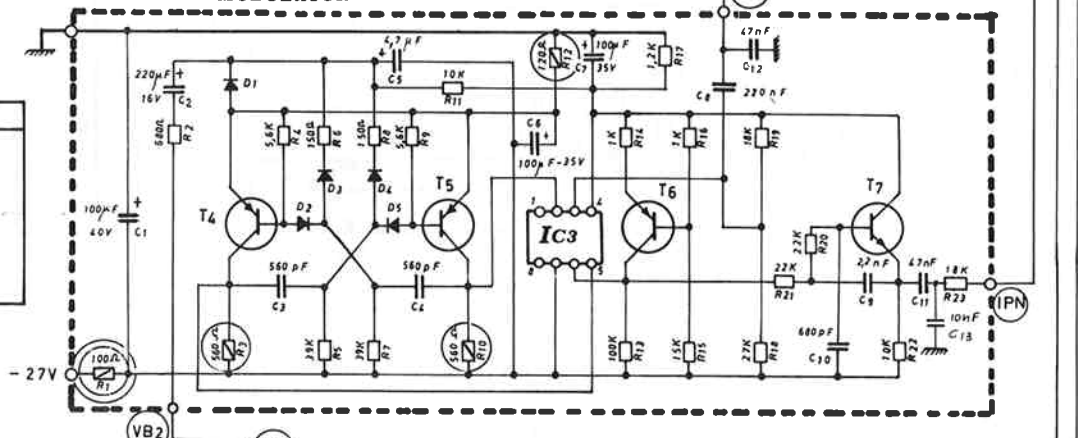
Code	Type	Transistors
T ₁ - T ₂] NPN	BC 173B
T ₇		
T ₄ - T ₅	PNP	BC 205 Mistral
T ₃ - T ₆] PNP	BC 415C
T ₈ - T ₁₂		

IC1 = 3301
 IC2 = TAA 611 A12 SGS
 IC3 = 350Y TCA ITT

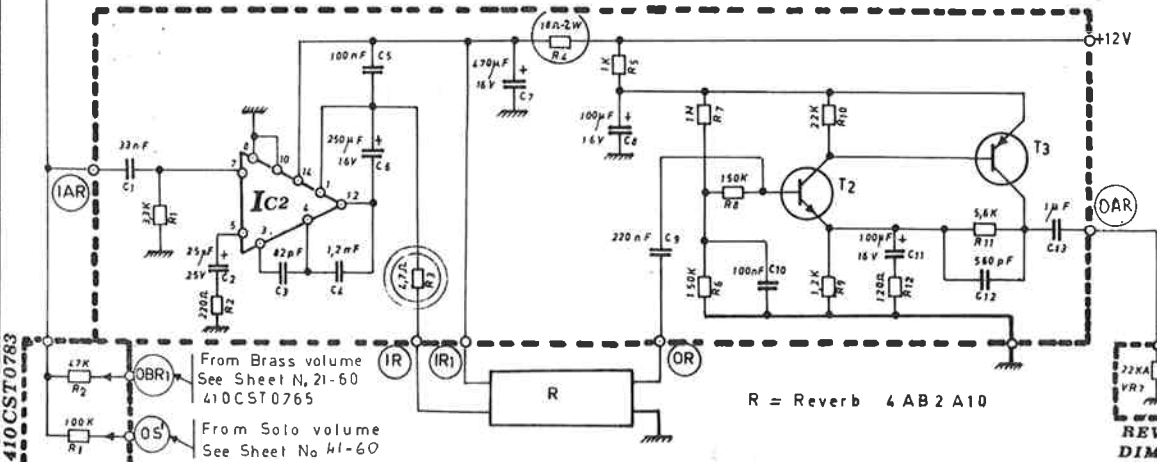
410CST0756



FLUTE MODULATOR 410CST0773(B)



REVERB AMPLIFIER 410CST0781

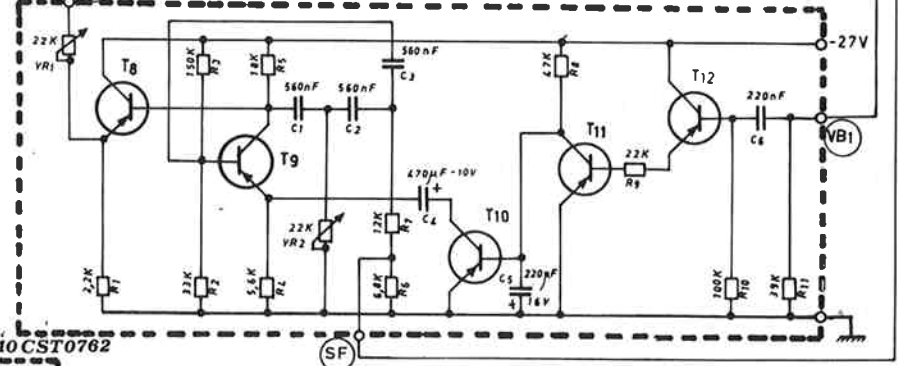


410CST0783

From Brass volume See Sheet N, 21-60 410CST0765
 From Solo volume See Sheet No 41-60

R = Reverb 4 AB 2 A10

VIBRATO 410CST0774



410CST0762

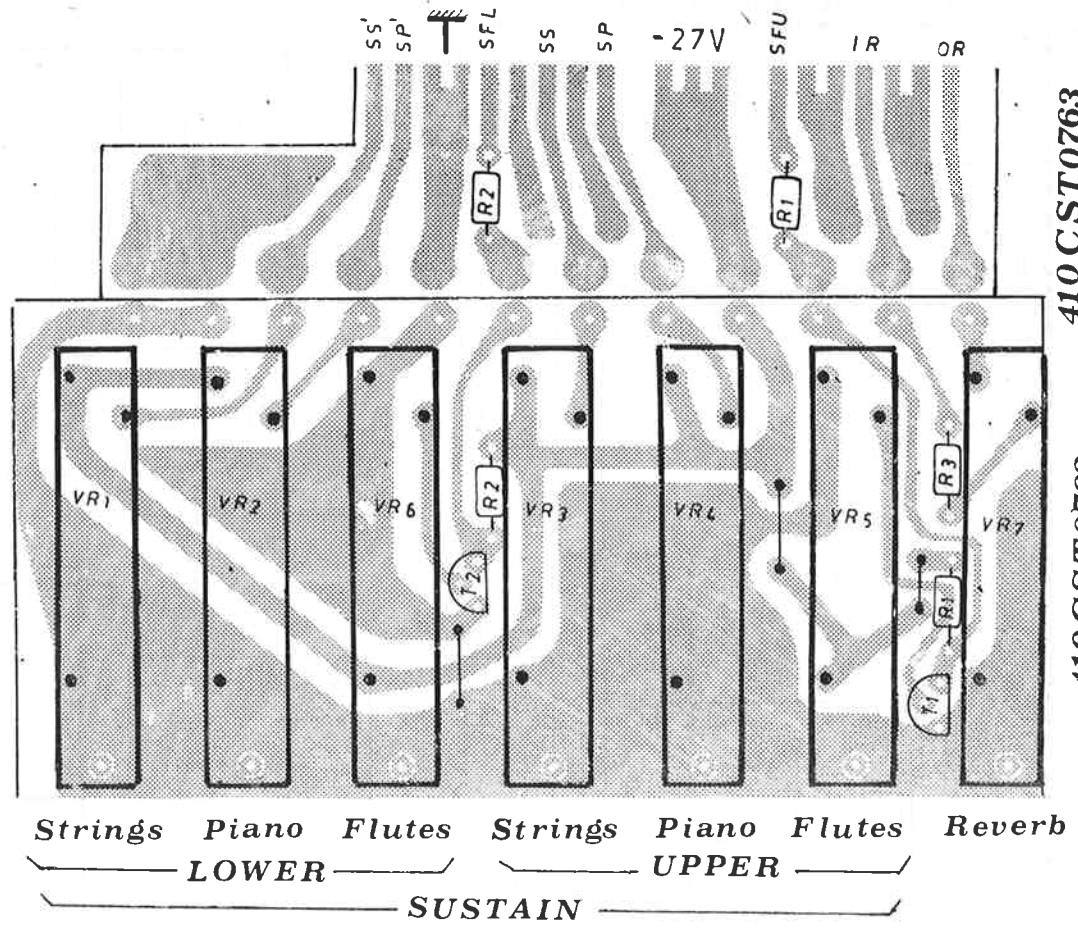
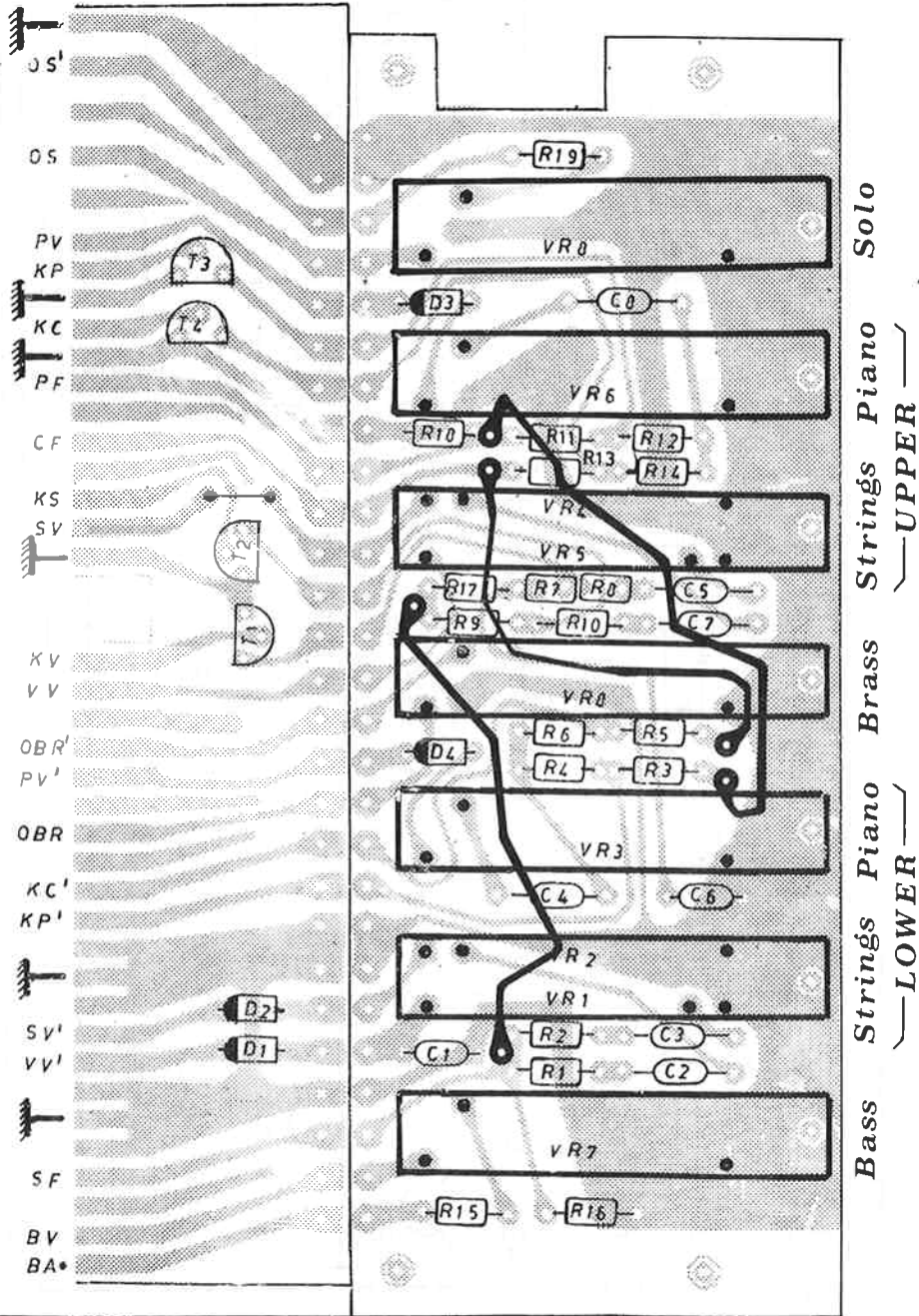
REVERB DIMENSION

To Preamplifier PR1A See Sheet No 25-60 410CST0835A

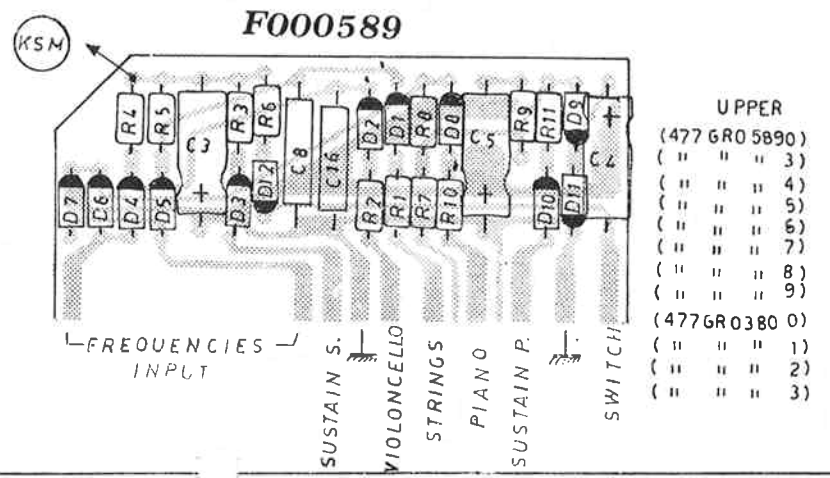


Model	Object
X 705	Preamplifier Vibrato and Reverb amplifier

Sheet No 15-60
 Date 17-3-77



410 CST0763
410CST0762
(457GR07630)

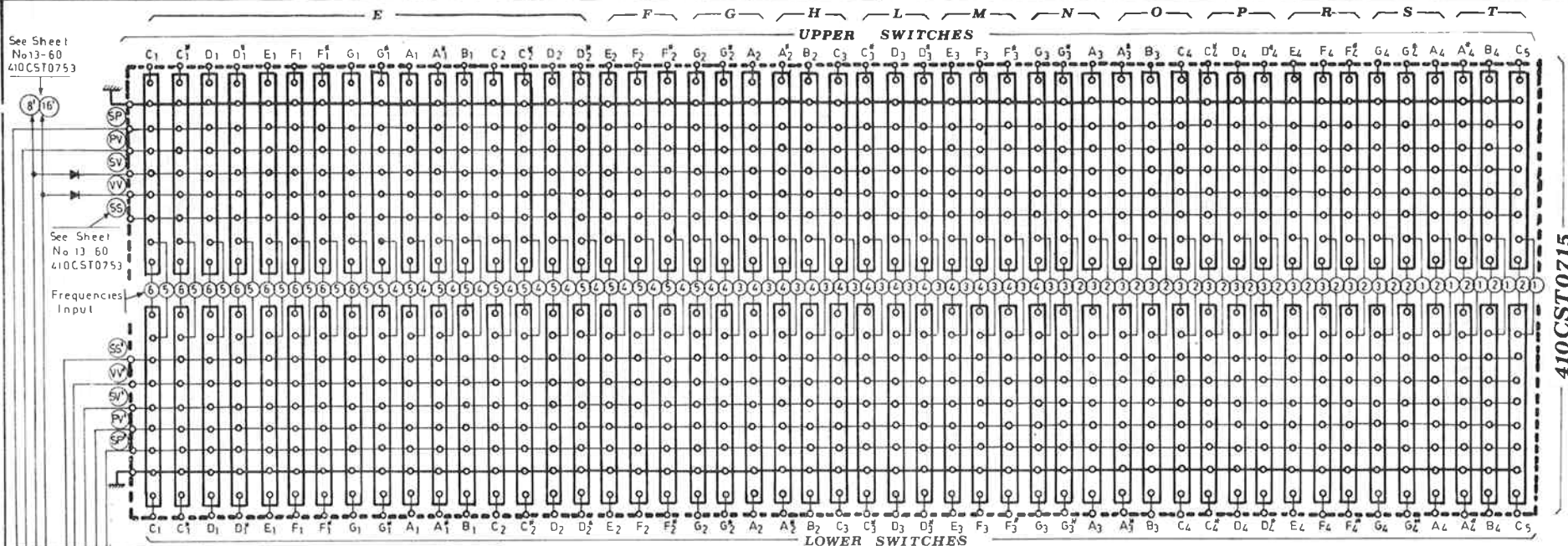


- LOWER
- (477 GR0589 E)
 - (" " " F)
 - (" " " G)
 - (" " " H)
 - (" " " L)
 - (" " " M)
 - (" " " N)
 - (" " " O)
 - (" " " P)
 - (" " " R)
 - (" " " S)
 - (" " " T)

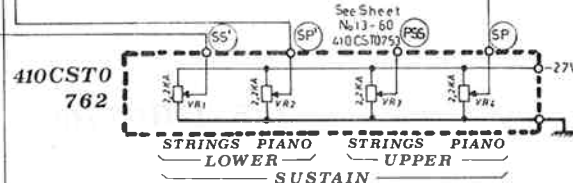
- UPPER
- (477 GR0589 O)
 - (" " " 3)
 - (" " " 4)
 - (" " " 5)
 - (" " " 6)
 - (" " " 7)
 - (" " " 8)
 - (" " " 9)
 - (477 GR0380 O)
 - (" " " 1)
 - (" " " 2)
 - (" " " 3)

THE NUMBERS IN BRACKETS REPRESENT THE ELKA CODES OF THE ASSEMBLED BOARDS WHILE THE OTHERS REPRESENT THE ELKA CODES OF THE NON-ASSEMBLED BOARDS.

See Sheet No 13-60 410CST0753

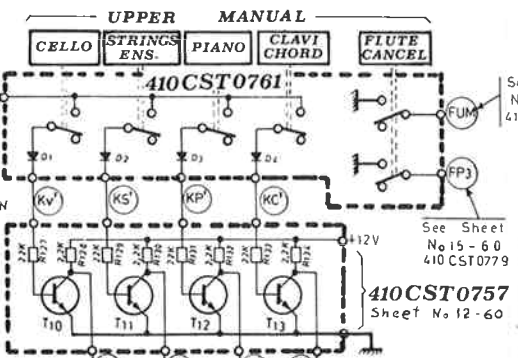
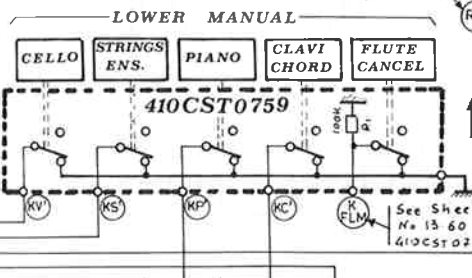


410CST0715

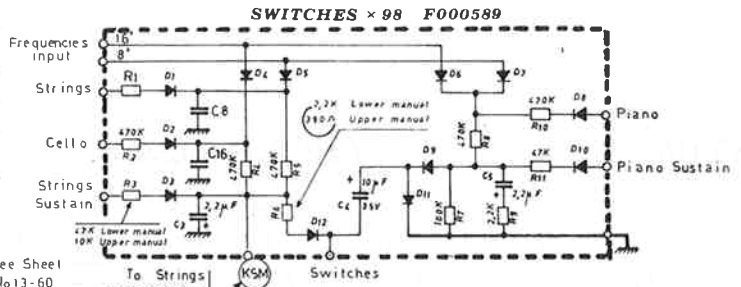


	E	F	G	H	L	M	N	O	P	R	S	T
C8	6,8 nF	5,6 nF	4,7 nF	3,9 nF	3,3 nF	2,7 nF	2,2 nF	1,8 nF	1,5 nF	1,2 nF	1 nF	820 pF
C16	12 nF	10 nF	8,2 nF	6,8 nF	5,6 nF	4,7 nF	3,9 nF	3,3 nF	2,7 nF	2,2 nF	1,8 nF	1,5 nF
R1	470 K	470 K	470 K	470 K	470 K	470 K	560 K	580 K	820 K	820 K	1 K	

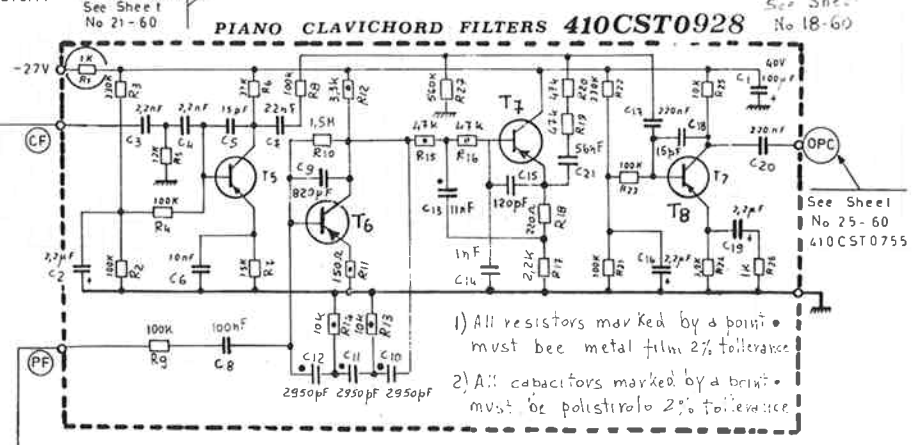
See Sheet No 13-60 410CST0760



See Sheet No 15-60 410CST0779



See Sheet No 13-60 410CST0771

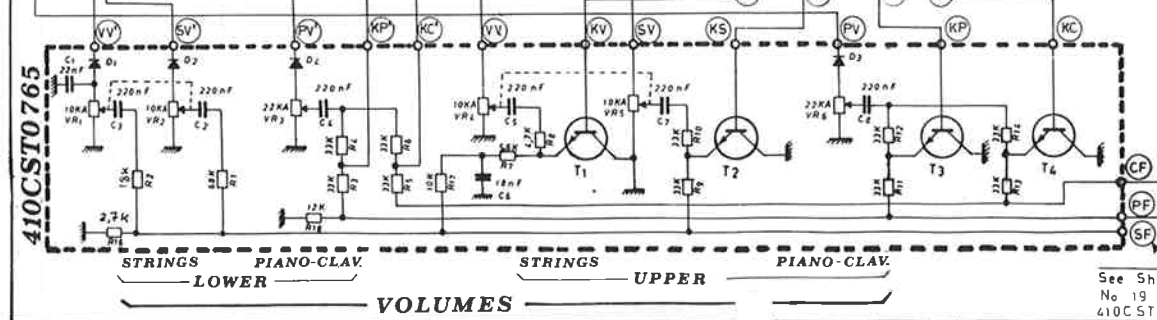


See Sheet No 18-60

See Sheet No 25-60 410CST0755

- 1) All resistors marked by a point must be metal film 2% tolerance
- 2) All capacitors marked by a point must be polystyrene 2% tolerance

410CST0765



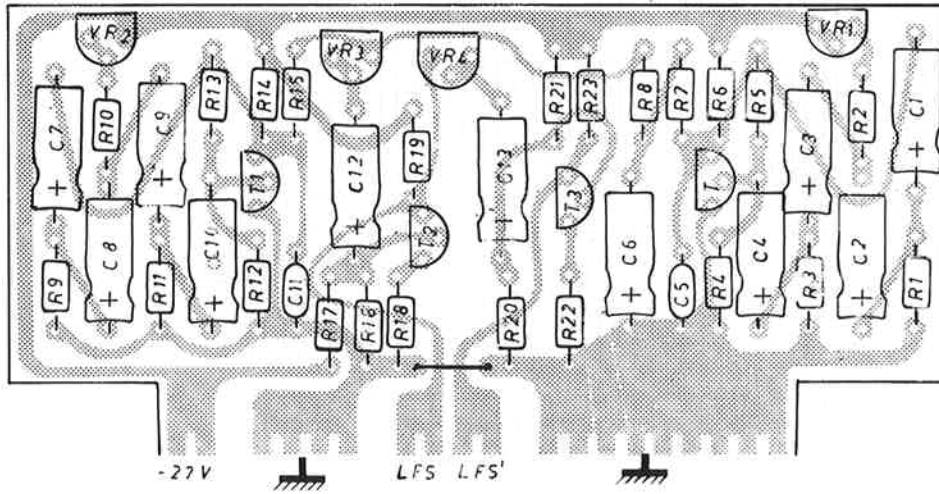
See Sheet No 19-60 410CST0776

Code	Type	Transistors
T1-T4	NPN	BC 173
T5-T8	PNP	BC 415 C
T10-T13	NPN	BC 173

	Model	Object:	Sheet No 17-60
	X-705	Piano Strings switches and Piano Filters	Date 8-9-77

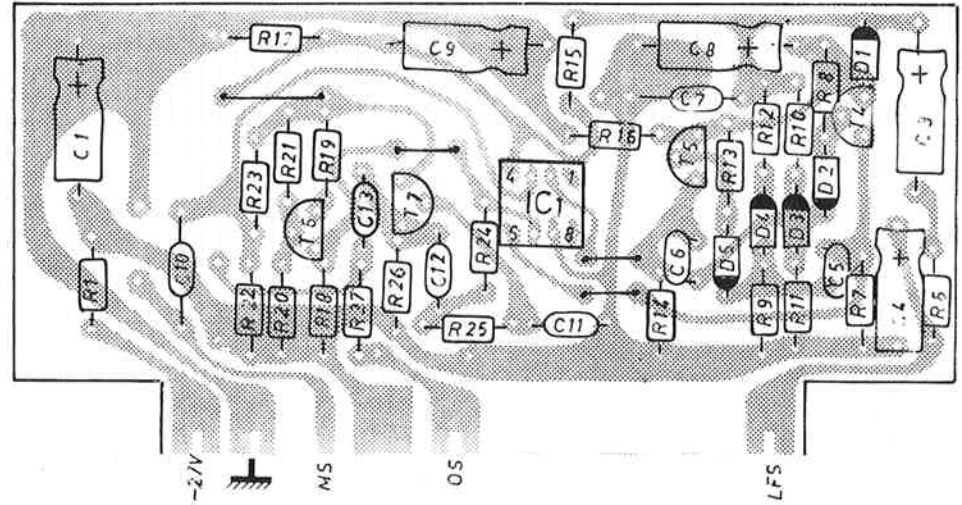
410CST0772

(457GR07720)



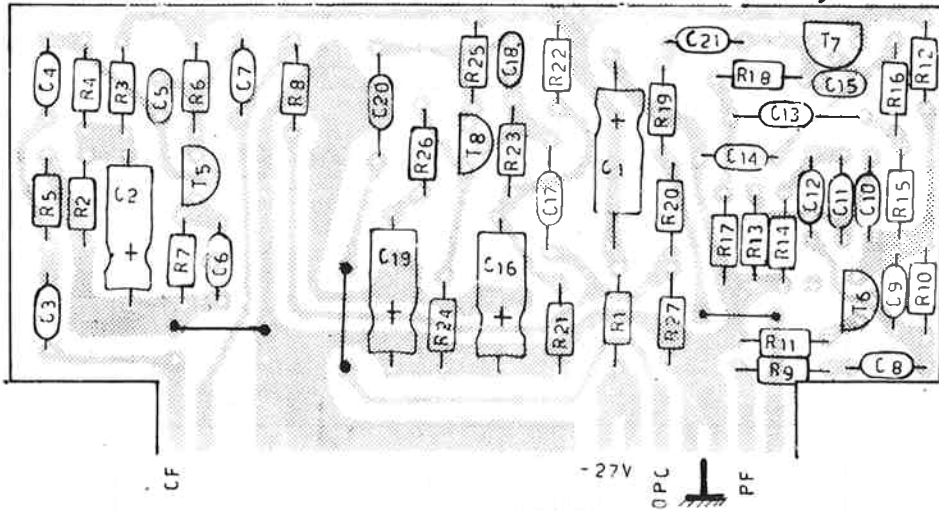
410CST0773

(457GR0773 A)



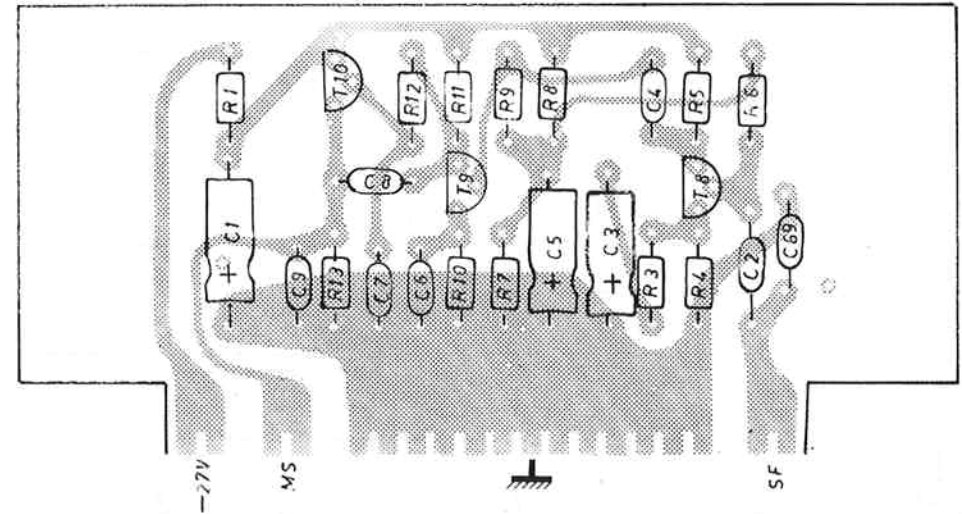
410CST0928

(427GR09280)



410CST0776

(457GR07760)



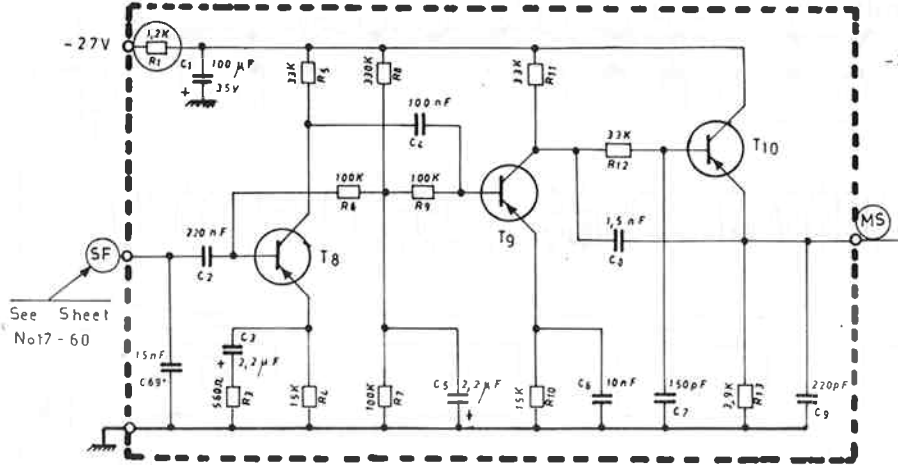
Model
X 705

Object:
Assembly of
Printed Circuit

Sheet No 18-60
Date 22-9-77

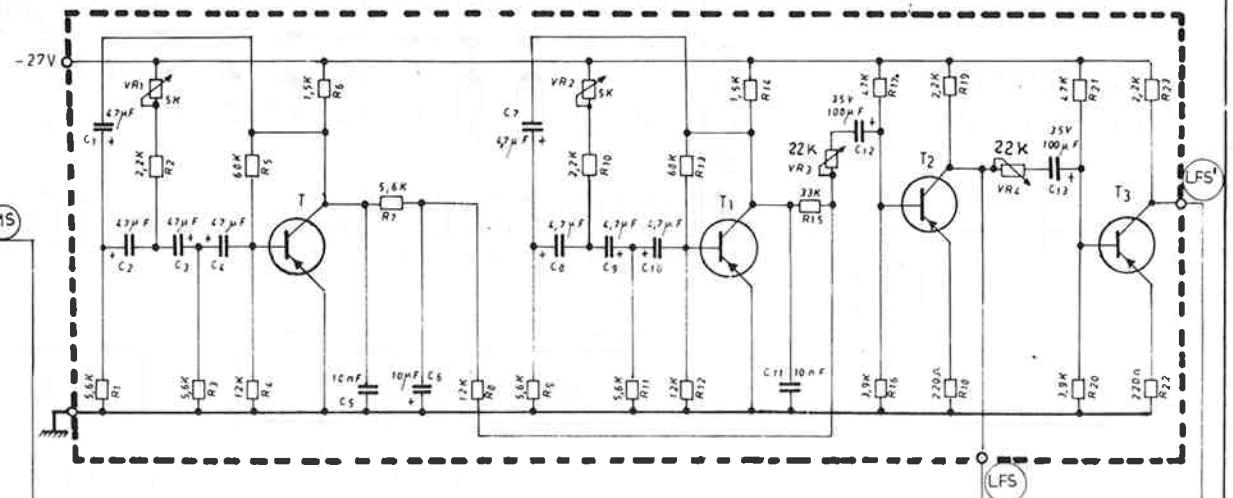
THE NUMBERS IN BRACKETS
REPRESENT THE ELKA CODES IN
THE ASSEMBLED BOARDS WHILE
THE OTHERS REPRESENT THE ELKA
CODES OF THE NON-ASSEMBLED
BOARDS

STRINGS FILTERS 410CST0776

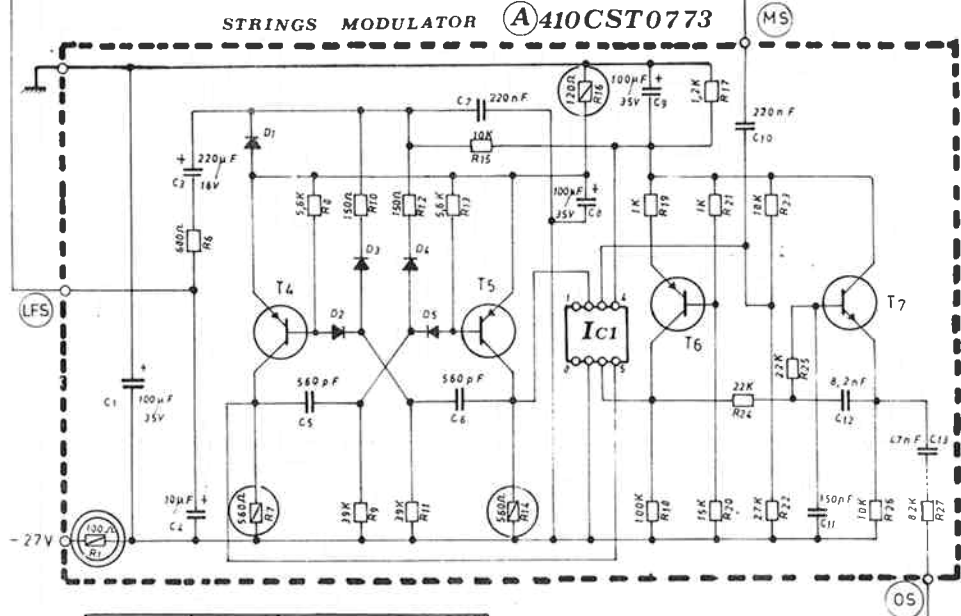


See Sheet No17-60

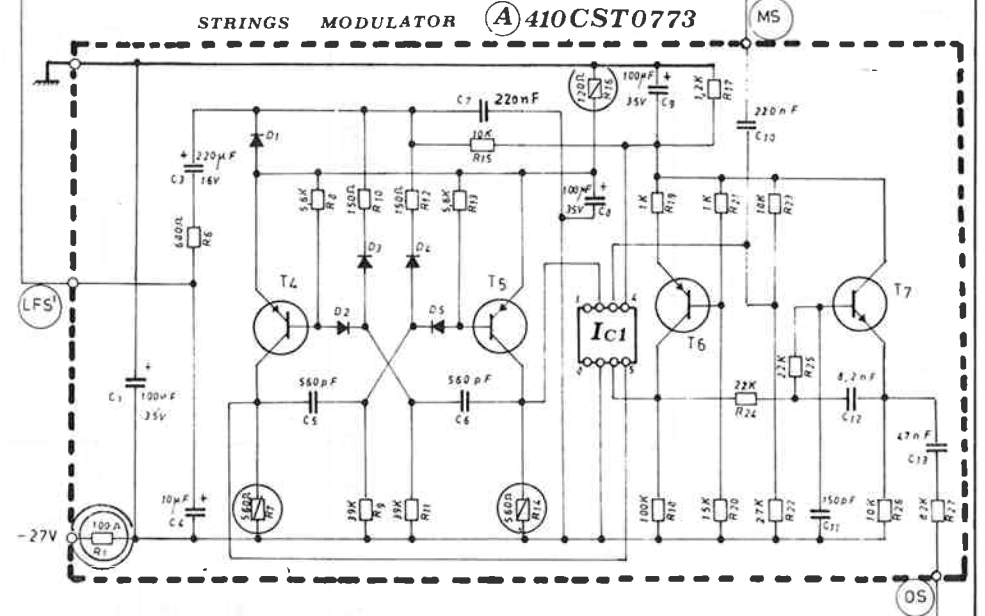
LOW FREQUENCY OSCILLATOR 410CST0772



STRINGS MODULATOR A410CST0773



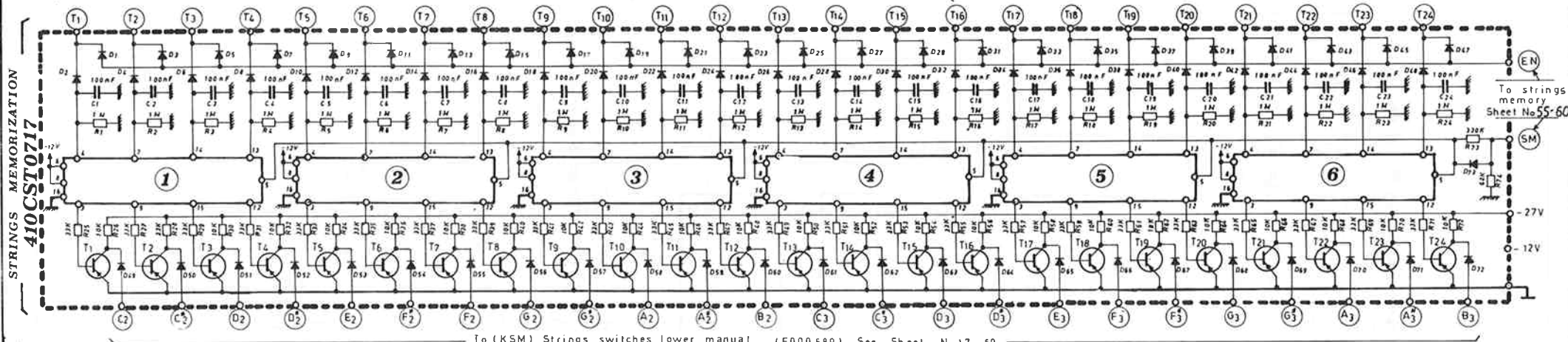
STRINGS MODULATOR A410CST0773



Code	Type	Transistors
T7	NPN	BC 173
T4 - T5	PNP	BC 205
T - T3	PNP	BC 415 C
T6 - T8	PNP	BC 415 B
T9 - T10		

IC1 = TCA 350E ITT

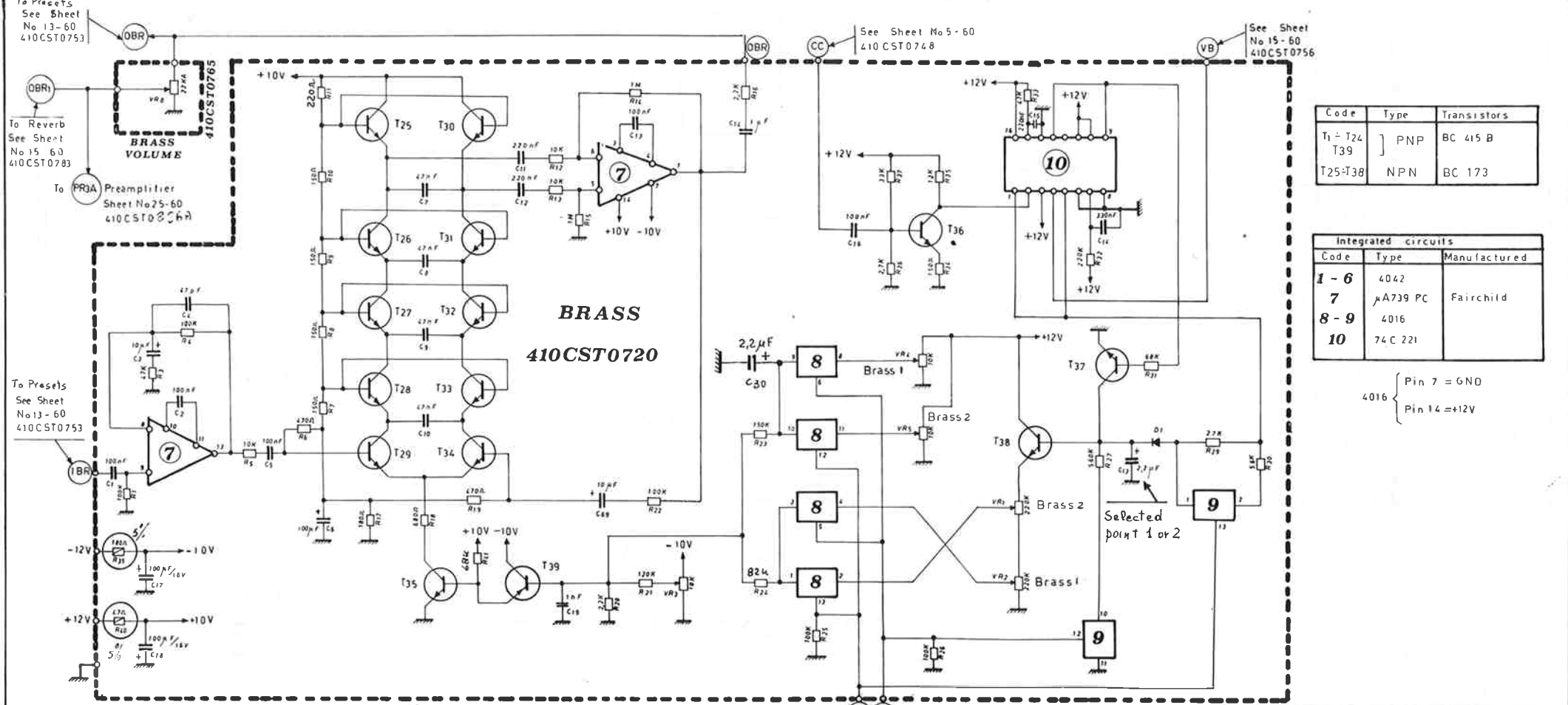
To Preamplifier PR3A (410CST0396R)
See Sheet No 25 - 60



To Presets See Sheet No 13 - 60 410CST0753

To Reverb See Sheet No 15 - 60 410CST0783

To Presets See Sheet No 13 - 60 410CST0753



See Sheet No 13 - 60 410CST0753

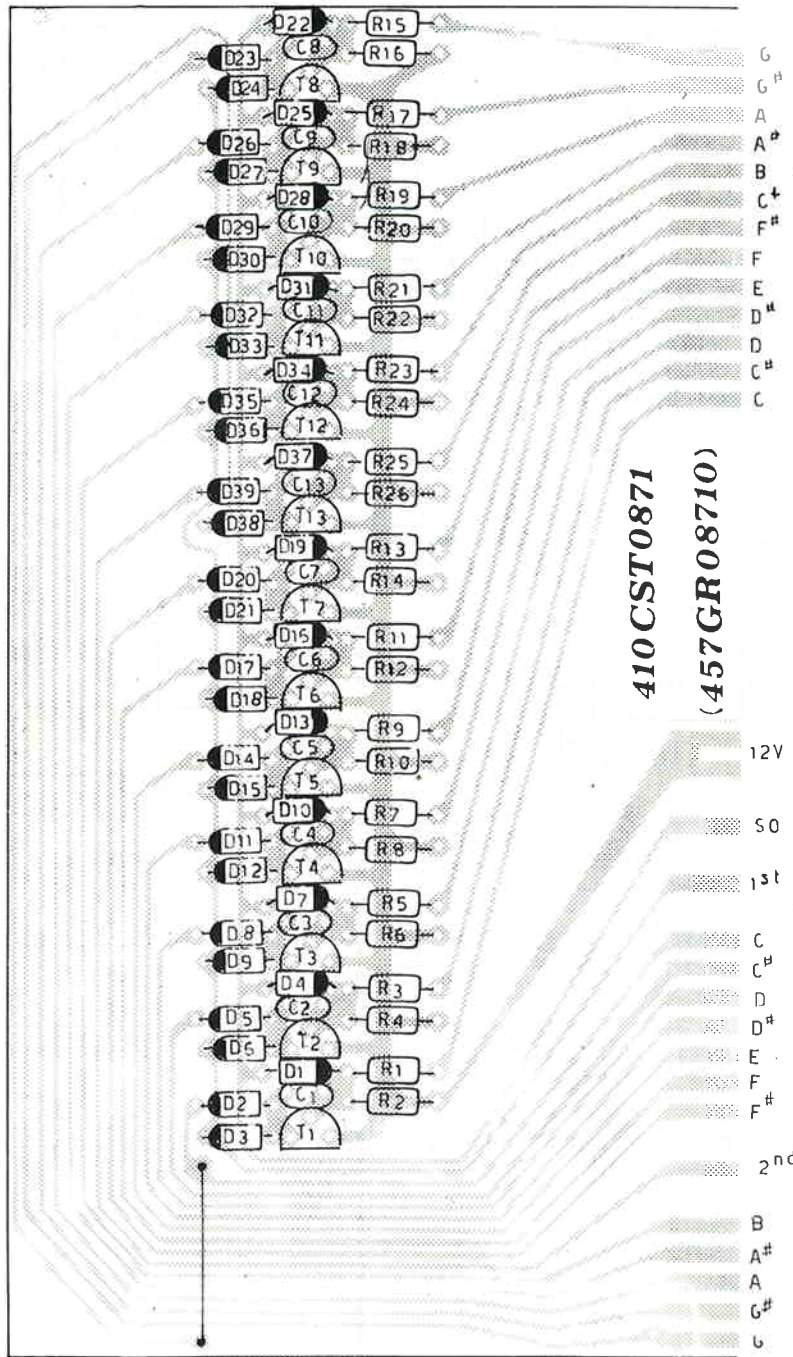


Model X 705	Object: Strings memorization and Brass	Sheet No 21 - 60 Date 19 - 9 - 77
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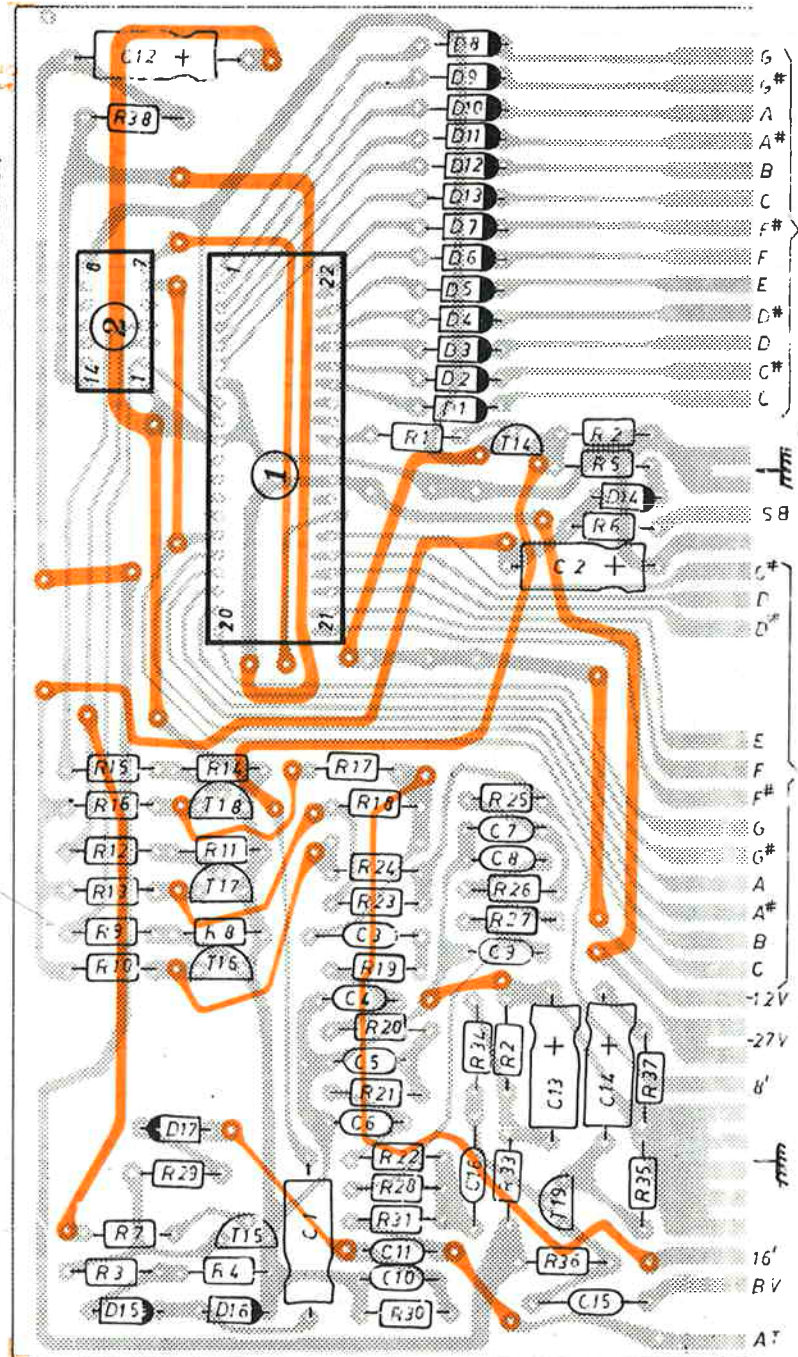
Code	Type	Transistors
T1 - T24 T39	PNP	BC 415 B
T25-T38		BC 173

Integrated circuits		
Code	Type	Manufactured
1 - 6	4042	Fairchild
7	μA739 PC	
8 - 9	4016	
10	74C 221	

4016 { Pin 7 = GND
Pin 14 = +12V

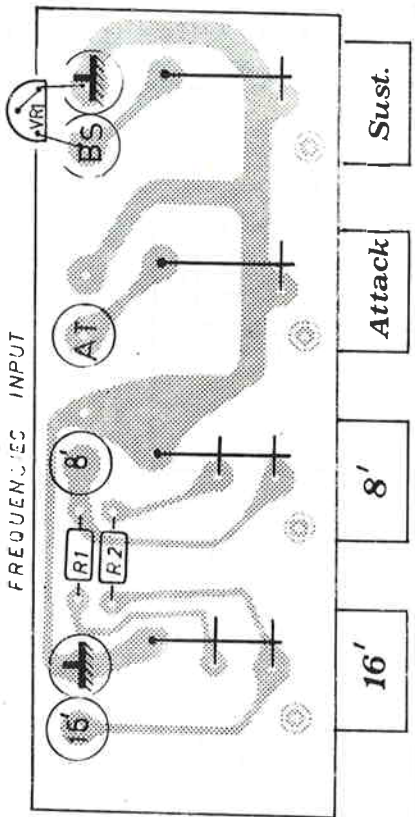


(457GR07180)



SWITCHES

FREQUENCIES INPUT



Model	Object:	Sheet No 22-60
X-705	Assembly of Printed Circuit	Date 24-9-77

(1) NUMBERS IN BRACKETS REPRESENT THE ELKA CODES OF THE ASSEMBLED BOARDS WHILST THE OTHERS REPRESENT THE ELKA CODES OF THE NON ASSEMBLED BOARDS

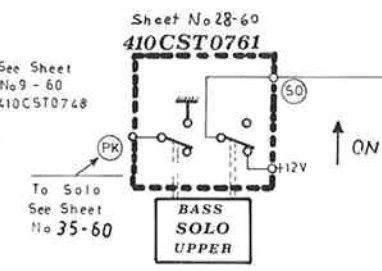
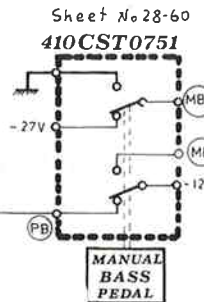
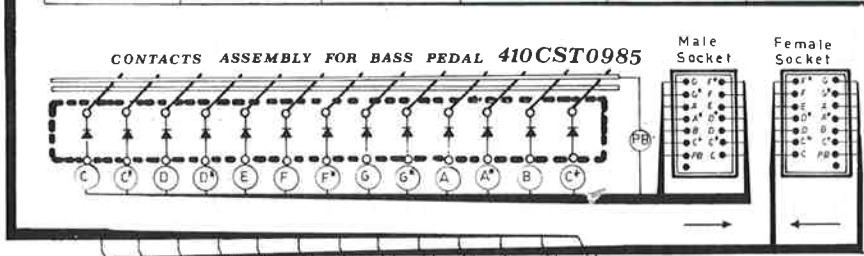
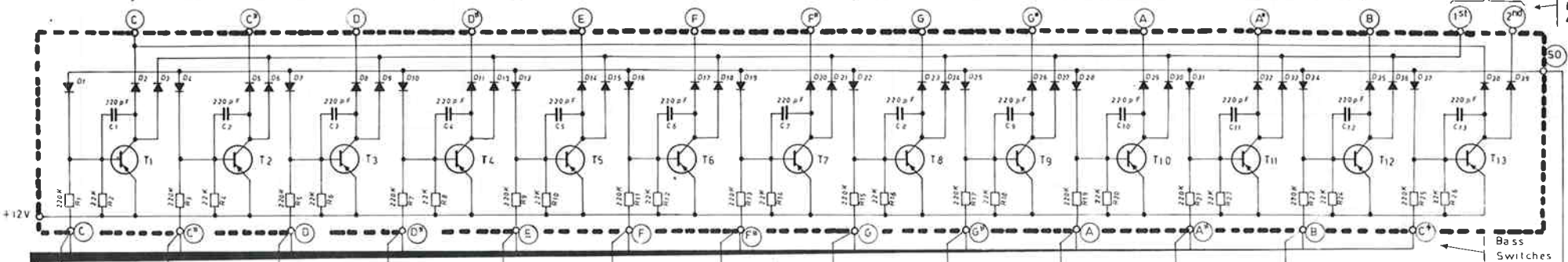
410CST0758
(457PR07581)

410CST0871

Switches for Solo See Sheet No 33-60 410CST0722

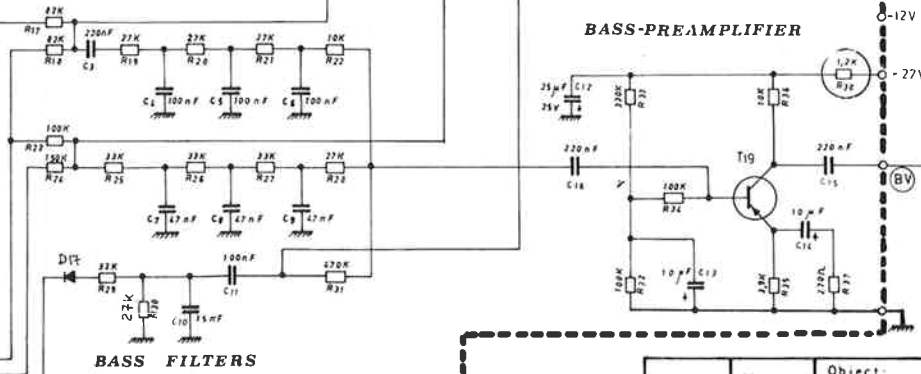
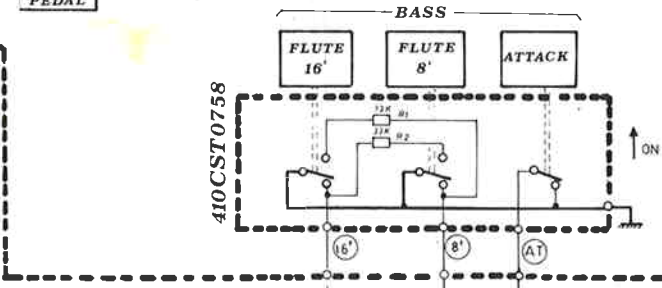
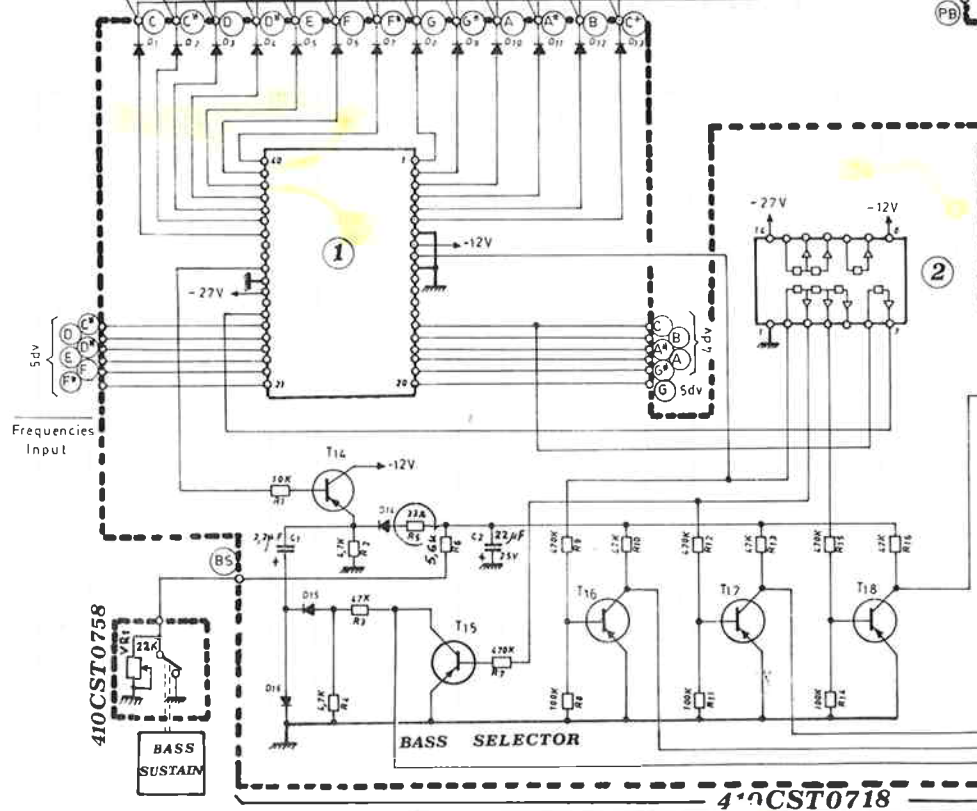
Octave

See Sheet No 33-60 410CST0722

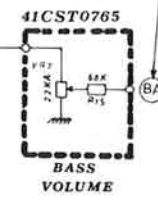


Code	Type	Transistors
T1 - T19	PNP	BC 415 B

Integrated Circuits		
Code	Type	Manufactured
1	AY 13-13	G I E
2	EL 444 NC	Texas
	HBF 4740AE	S. G. S.



To Preamplifier P1A See Sheet No 25-60 410CST0696A

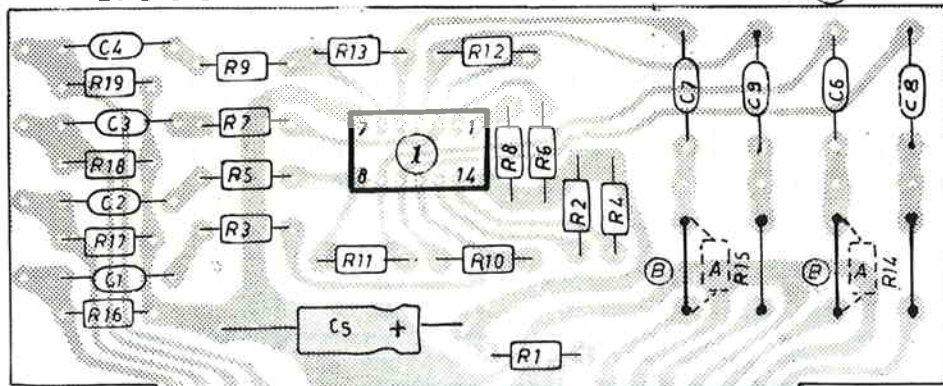


	Model	Object:	Sheet No 23-60
	X 705	Bass selector and filters	Date 13-9-77

410CST0718

410CST0896

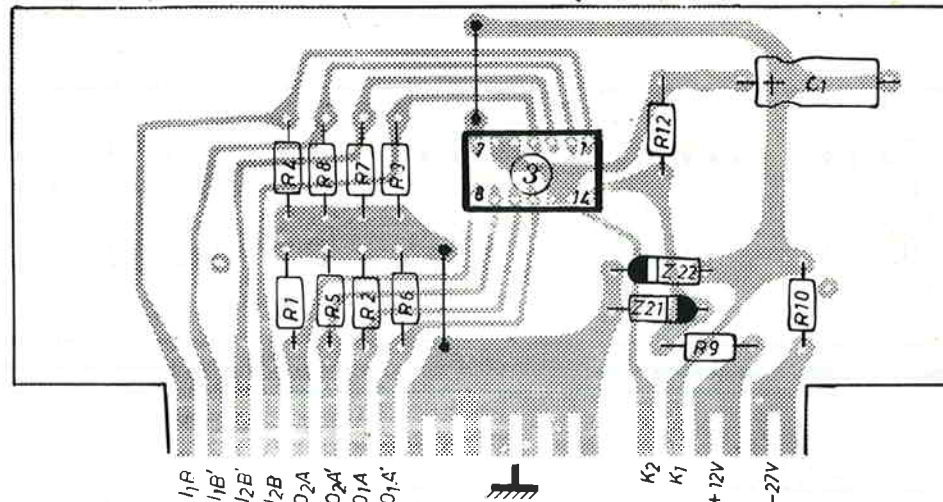
(457GR08960)A
(457GR08961)B



B PR1B PR2B PR3B PR4B
A PR1A PR2A PR3A PR4A
 +12V I1B IN1 I2B IN2
 I1A I2A

410CST0777

(457GR07770)



I1A I1B I2A I2B O2A O2A' O1A O1A' K2 K1 +12V -27V

1/2

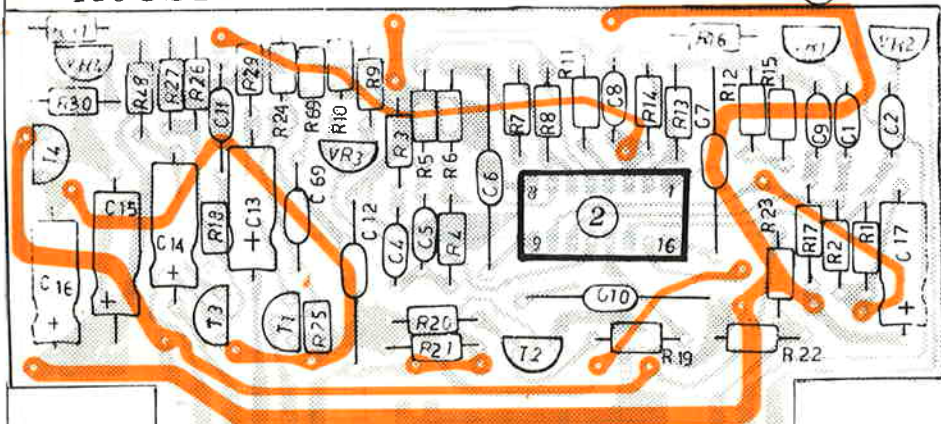
410CST0783

(457GR07830)

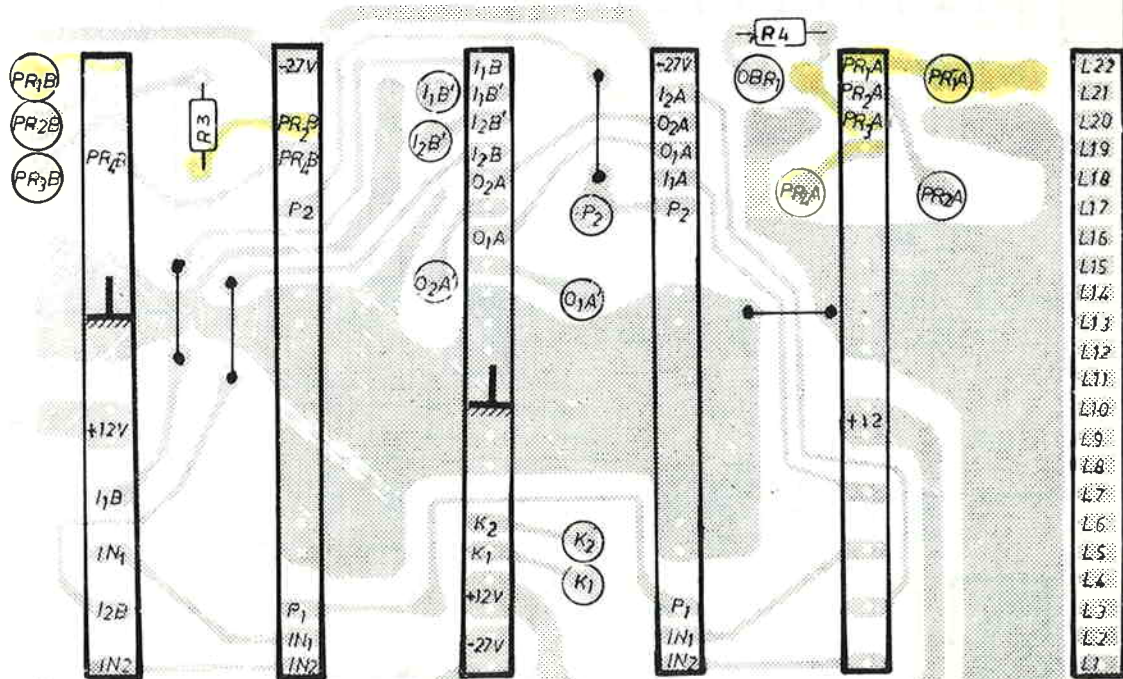
COPPER SIDE

410CST0926

(457GR09260)A
(457GR09261)B



B -27V PR1B PR2B PR3B P2
A I2A O2A O1A I1A
 +12V I1B IN1 IN2 P1 P2



0896 B 0926 B 0777 0926 A 0896 A 0769



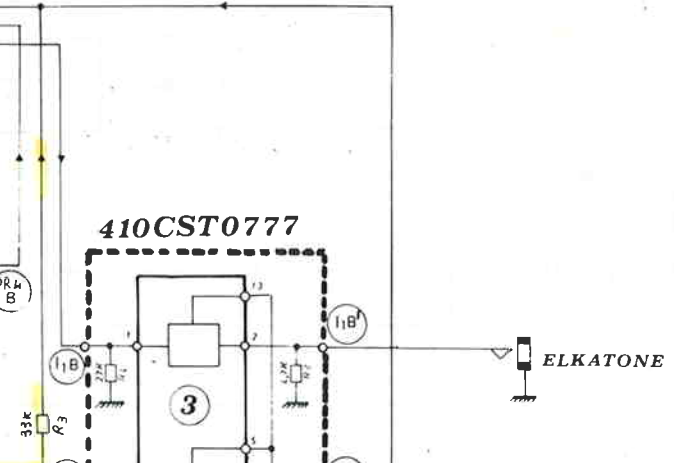
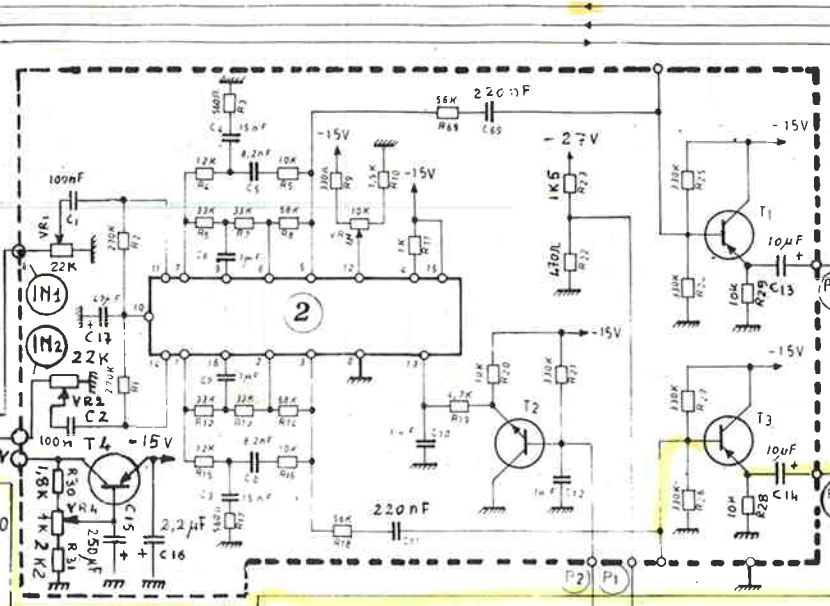
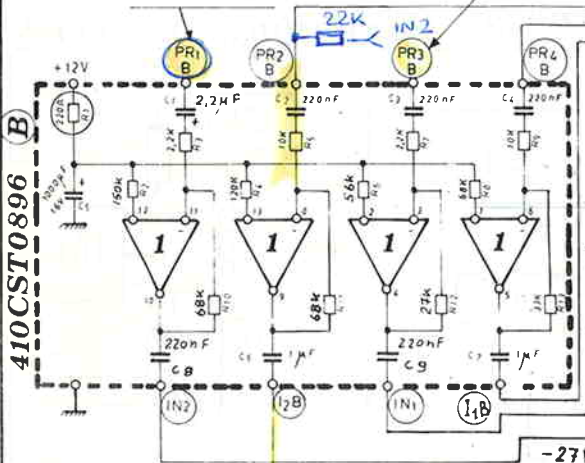
Model X705
 Object: Assembly of Printed Circuit
 Sheet No.24-60
 Date 11-10-77

THE NUMBERS IN BRACKETS REPRESENT THE ELKA CODES OF THE ASSEMBLED BOARDS WHILST THE OTHERS REPRESENT THE ELKA CODES OF THE NON ASSEMBLED BOARDS

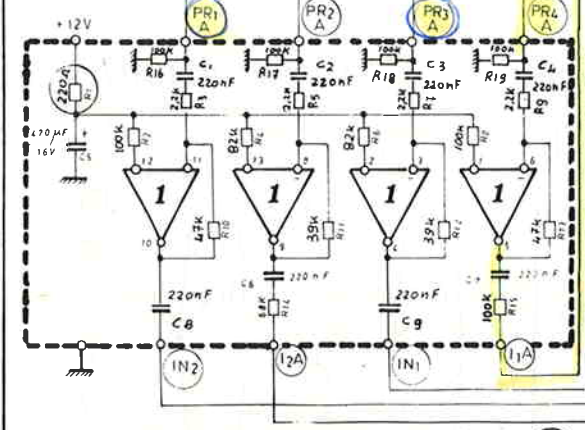
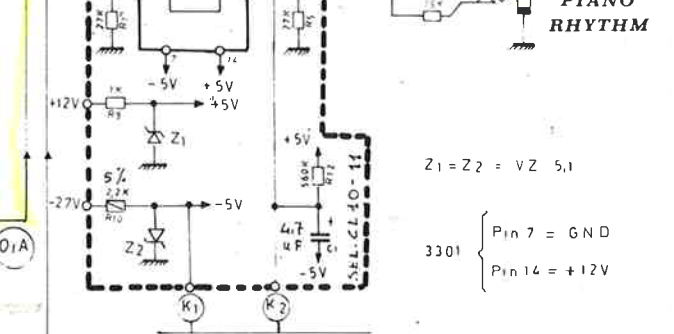
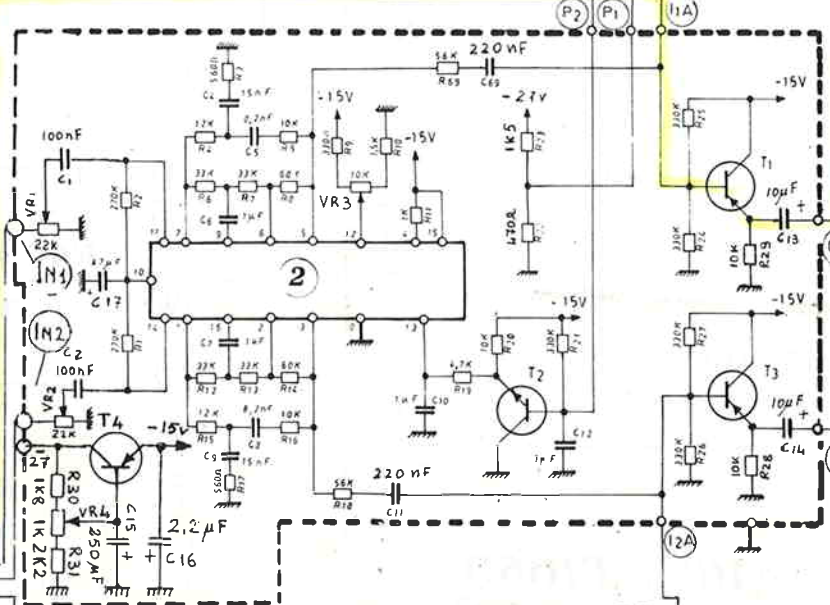
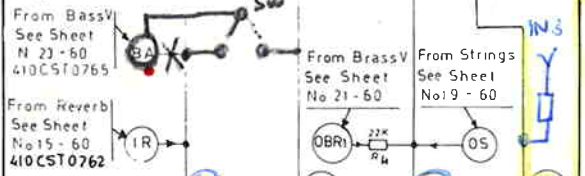
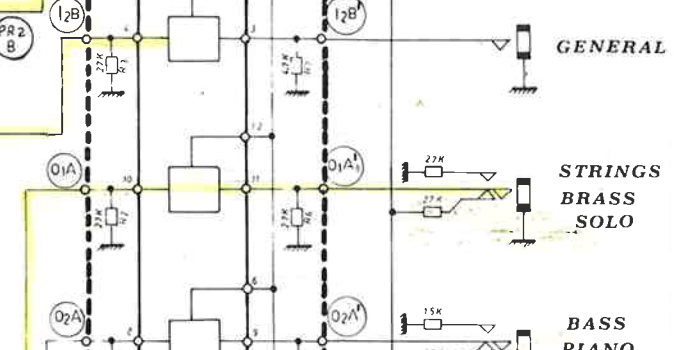
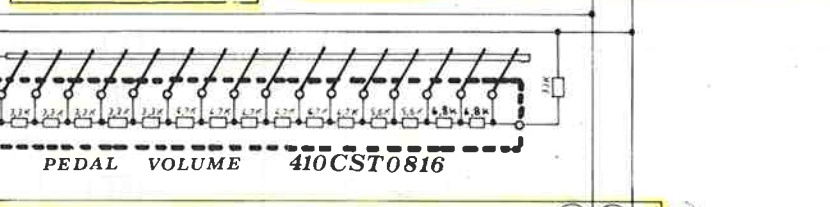
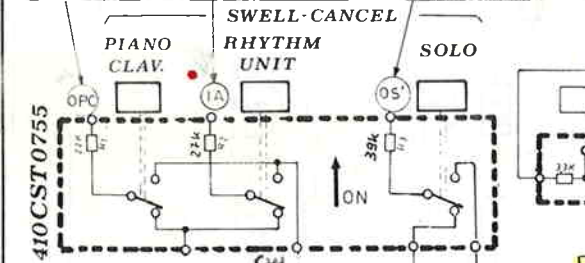
See Sheet No 15-60
410CST0756

See Sheet No 15-60
410CST0756

410CST0926



From Piano See Sheet N 17-60 410CST1063
From Rhythm Unit See Sheet N 59-60 410CST1063
From Solo Vol See Sheet No 41-60 410CST0765



PREAMPLIFIER 410CST0896 (A)

PEDAL CONTROL 410CST0926

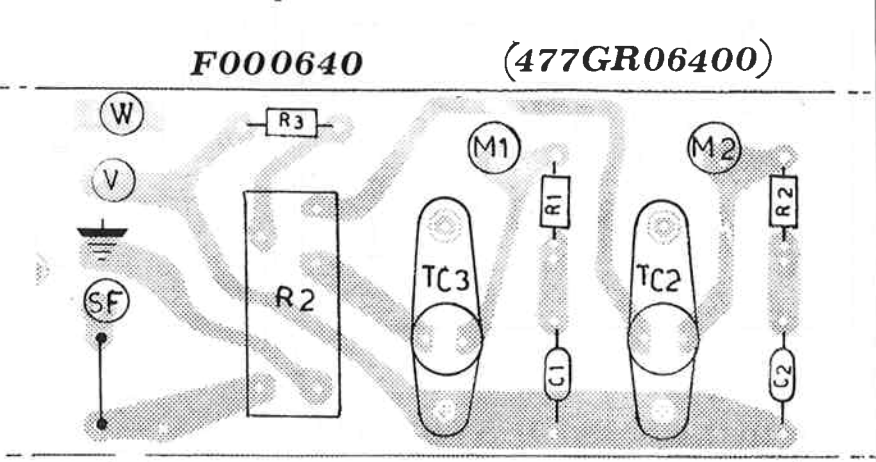
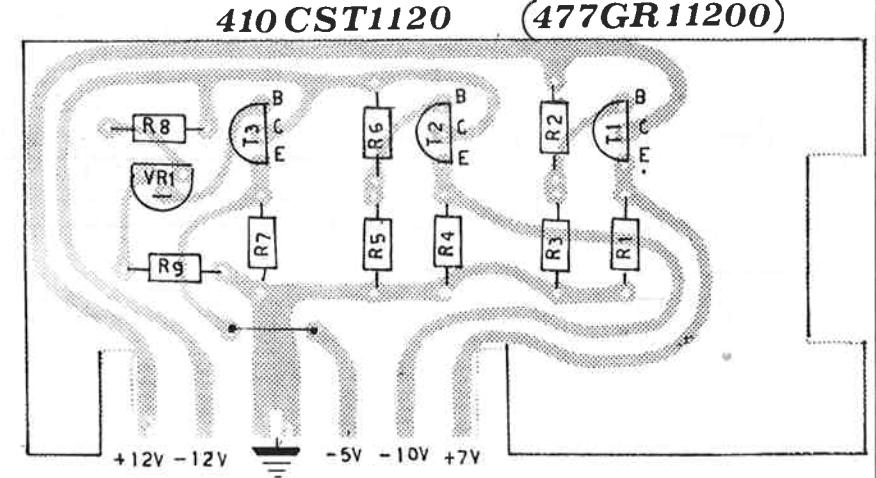
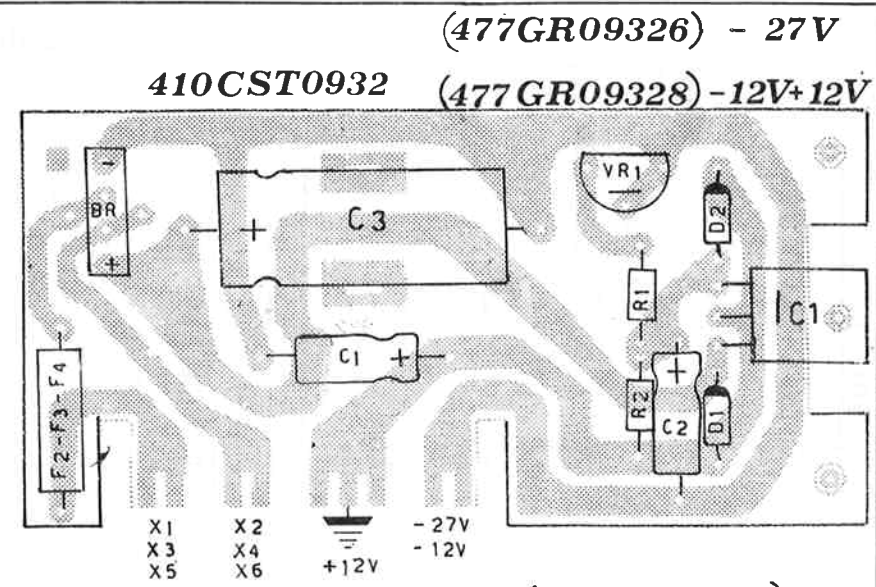
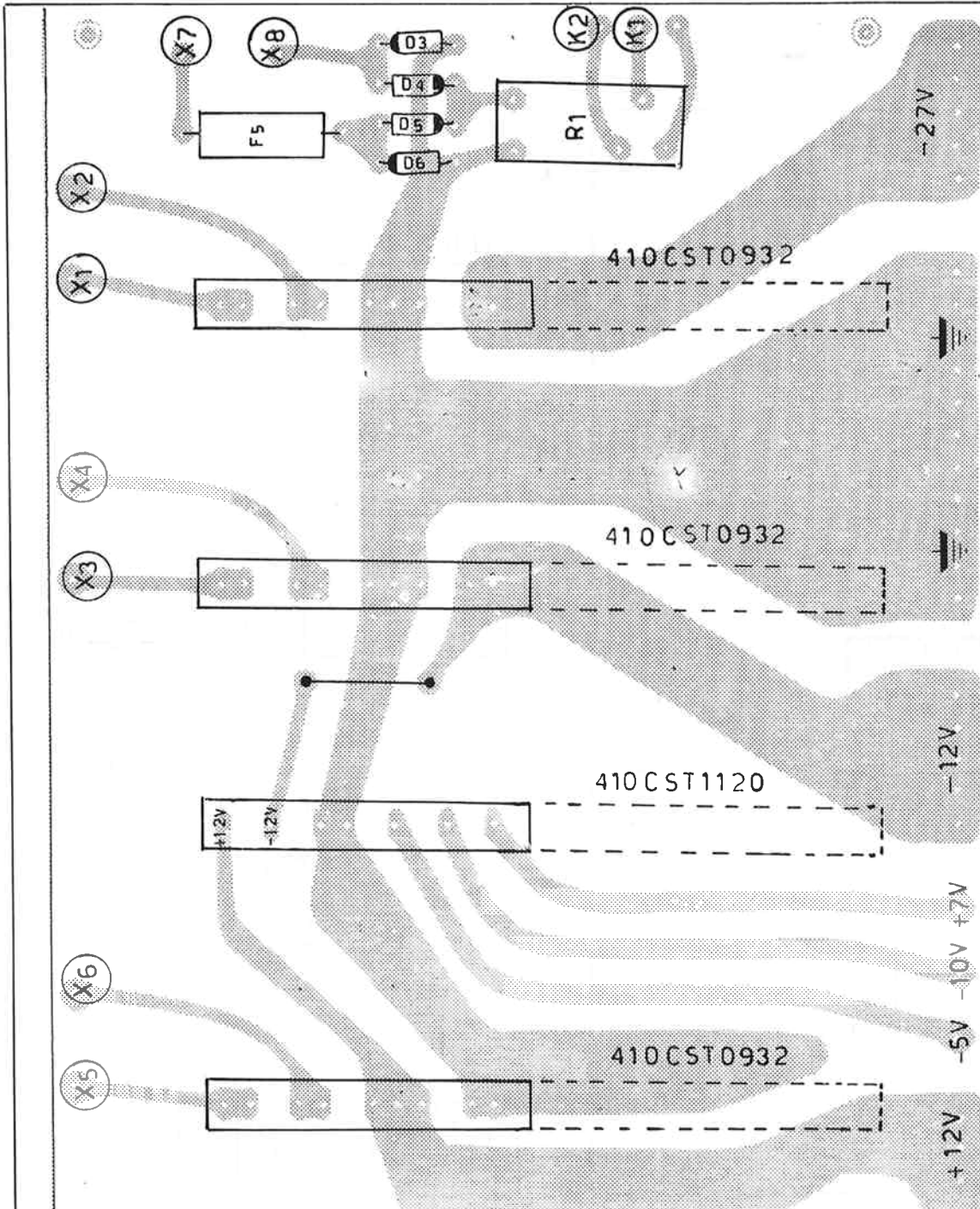
Integrated Circuits		
Code	Type	Manufactured
1	3301	
2	TCA 730	
3	4016	RCA only

Code	Type	Transistors
T1 - T3	PNP	BC 415 C
T2	NPN	BC 173 B
T4	PNP	BC 287 F

Z1 = Z2 = VZ 5.1
3301 { Pin 7 = GND
Pin 14 = +12V

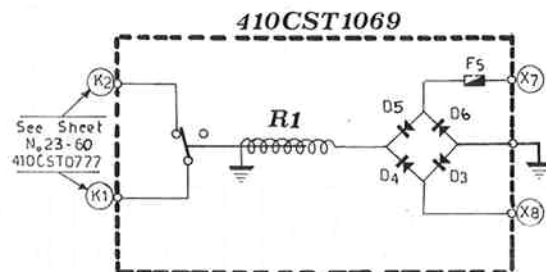
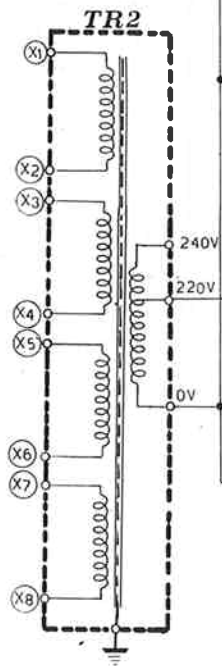
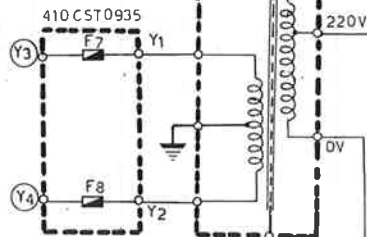
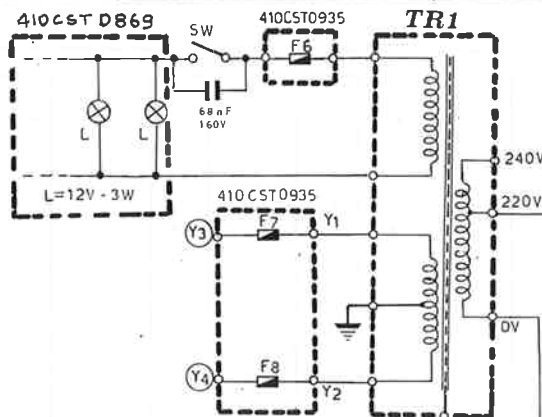
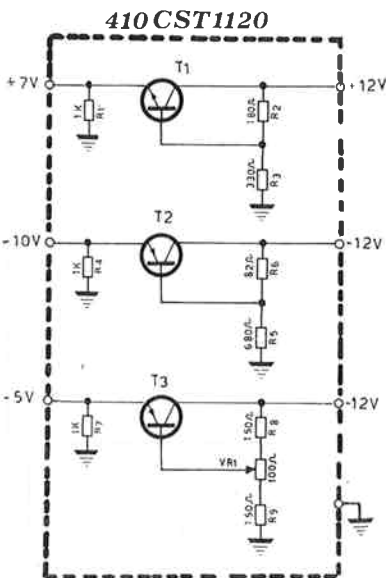
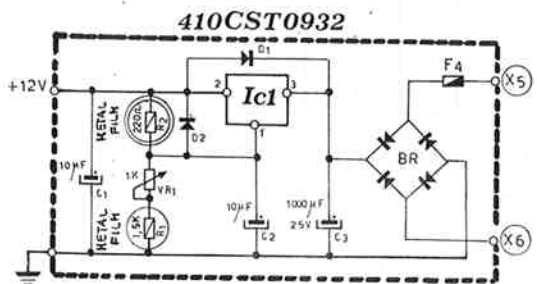
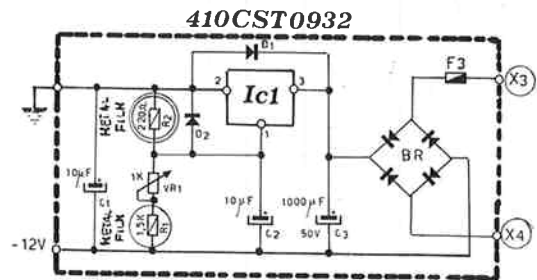
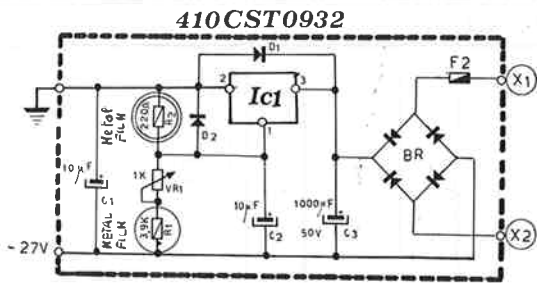


Model X 705
Object: Pre-amplifier Pedal volume and Outputs
Sheet No 25-60
Date 22-9-77



410CST1069
(477GR10691)

	Model	Object: Inside view of the organ	Sheet No 26-60
	X705		Date 17-7-80



Code	Type	Transistors
T1	NPN	2N 6122
T2-T3	PNP	2N 6125

Ic1 = LM317 NATIONAL

TC3 = IC4 = Triac RE 509 R.C.A.

F1 = Fuse 2AT

F2 = F3 = F4 = Fuse 1,25 AT

F5 = Fuse 125 mA

F6 = Fuse 3AT

F7-F8 = Fuse 5AT

BR = BSB2 - KBL04 - KBL02

R1 = R2 = Relais R10 - 12V - 5A

D3 = D6 = 1N 4003

D1 = D2 = 10 D2

TR1 = Transformer T 096N

TR2 = Transformer T 094N

SW+L = 2W-1-XII/03

