Technical Manual
for
Universal Type

Z040-A/0

Come programmare il "COSTO dei CREDITI"

Determinare il rapporto che intercorre tra le monete introducibili nelle varie gettoniere dividendo singolarmente i vari tipi di monete per lo stesso "numero" (il numero di massimo possibile*) avendo sempre resto zero.

Ordine crescente delle monete:

1a moneta = moneta di valore inferiore

2a moneta = moneta di valore intermedio, oppure equivalente alla 1a o alla 3a

3a moneta = moneta di valore superiore

ESEMPI:

- 1a Gettoniera - 1a moneta da 100L.
  2a Gettoniera - 2a moneta da 100L.
  3a Gettoniera - 3a moneta da 200L.

  RAPPORTO (R.) = $\frac{100L.-100L.-200L.}{100(*)} = 1-1-2$

  1a moneta=valore 1
  2a moneta=valore 1
  3a moneta=valore 2

- 1a Gettoniera - moneta da 1 Marco... ...=Valore 1
  2a Gettoniera - moneta da 2 Marchi.. R=$\frac{1DM-2DM-5DM}{1(*)}$=1-2-5 ...=Valore 2
  3a Gettoniera - moneta da 5 Marchi.. ...=Valore 5

- 1a Gettoniera - moneta da 5 Dinari... ...=Valore 1
  2a Gettoniera - moneta da10 Dinari..R=$\frac{5D-10D-}{5(*)}$ =1-2 ...=Valore 2
  3a Gettoniera - non usata

- 1a Gettoniera - moneta da 10 Pence... ...=Valore 1
  2a Gettoniera - moneta da 50 Pence..R=$\frac{10P-50P}{10(*)}$ =1-5 ...=Valore 5
  3a Gettoniera - non usata

Fissare il numero di crediti che si danno con la moneta di Valore superiore

Prendere il risultato del RAPPORTO e formulare la seguente "equivalenza":

A = Valore della 1a moneta
B = Valore della 2a moneta
C = Valore della 3a moneta
X = $\frac{Y}{C}$
Y = n° Crediti di C

$$A:(A\cdot X)=B:(B\cdot X)=C:Y$$

Determinare il costo minimo di un credito

N.b.: dalle operazioni "A·X" e "B·X" prendere solamente il numero intero, non considerando quindi i decimali che ne possono risultare.

ESEMPI:

- 100L. - 100L. - 200L.
  R= 1-1-2/1PL.; 1:(1·X)=1:(1·X)=2:1 x=1/2 =0,5

- 1DM-2DM-5DM
  R= 1-2-5/6PL.; x=6/5=1,2

- 1DM-2DM-5DM
  R= 1-2-5/3PL.; x=3/5=0,6

Valore 1 MONETA	Crediti 1 MONETA	Valore 2 MONETA	Crediti 2 MONETA	Valore 3 MONETA	Crediti 3 MONETA
1	0,5	1	0,5	2	1
1	1,5	2	2,5	5	6
1	0,5	2	1,5	5	3

- 1Fr - 5Fr - 10 Fr
  R= 1-5-10/3PL.; x=3/10=0,3

V. 1M.	C. 1M.	V. 2M.	C. 2M.	V. 3M.	C. 3M.
1:0,	X	=5:1,	X	=10:3	

- 1Fr - 5Fr - 10 Fr
  R= 1-5-1P/4PL.; x=4/10=0,4

V. 1M.	C. 1M.	V. 2M.	C. 2M.	V. 3M.	C. 3M.
1:0,	X	=5:2=		10:4	

N.b.: a parità di valore il numero dei crediti che vengono dati non cambia se si introduce una singola moneta oppure più monete di valore inferiore, purchè il loro valore globale sia uguale a quello della singola moneta.

La programmazione deve sempre essere effettuato su ciascuna delle tre gettoniere.

Usando solo due delle tre gettoniere disponibili posizionate la restante come segue:

1) Perchè non abbia alcuna incidenza sulla programmazione fissare valore e crediti uguali alla moneta di valore maggiore.

ESEMPI:

V. 1M.	C. 1M.	V. 2M.	C. 2M.	V. 3M.	C. 3M.

- 2x100L./1PL. - 1x200L./1PL.-N.u.
  R= 1 - 2 - 1:0=2:1=2:1

- 2x5D./1PL. - 1x10D./1PL. - N.u.
  R= 1 - 2 - 1:0=2:1=2:1

2) Per deteminare il costo minimo di un creditò

ESEMPI:

- 3x100L./1PL - 3x100L./1PL. - N.u.
  R= 1 - 1 - 3 1:0=1:0=3:1

- 4x1Fr/1PL. - N.u. - 1x10Fr/3PL.
  R= 1 - 4 - 10 1:0=4:1=10:3

- 3x5D/1PL. - 3x10D/2PL. - N.u.
  R= 1 - 2 - 3 1:0=2:0=3:1

	SW "A" 1	2 3 4	5 6 7	8	SW "B" 1	2 3 4	5 6 7 8	VALUE	CREDIT
Peso monèta 1ª Gettoniera (1ª moneta)	0 -							1 2	
Peso moneta 2ª Gettoniera (2ª moneta)		0 0 0 - 0 0 0 - 0 - - 0 0 0 - - 0 - 0 - - - - -						1 2 3 4 5 6 8 10	
Peso moneta 3ª Gettoniera (3ª moneta)			0 0 0 - 0 0 0 - 0 - - 0 0 0 - - 0 - 0 - - - - -					2 3 4 5 6 8 10 20	
1ª GETTONIERA, Crediti ottenibili per ogni moneta				0 0 - 0 0 - - -					0 1 2 3
2ª GETTONIERA, Crediti ottenibili per ogni moneta					0 0 0 - 0 0 0 - 0 - - 0 0 0 - - 0 - 0 - - - - -				0 1 2 3 4 5 6 7
3ª GETTONIERA, Crediti ottenibili per ogni moneta							0 0 0 0 - 0 0 0 0 - 0 0 - - 0 0 0 0 - 0 - 0 - 0 0 - - 0 - - - 0 0 0 0 - - 0 0 - 0 - 0 - - - 0 - 0 0 - - - 0 - - 0 - - - - - - -		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Usati per determinare il valore della moneta

Usati per determinare i crediti ottenibili con una singola moneta

0 = ON - = OFF

How to adjust "CREDIT COST"

State ratio of coins to be inserted into coin mechanisms, dividing separatly each type of coin by the same'number' (as bigger as possible *) to have remainder zero.

Increasing coin order:

1st coin = lower value coin

2nd coin = medium value coin, or equivalent to 1st and 3rd coin

3rd coin = higher value coin

EXAMPLES:

-1st coin mechanism - 1st 100Lit.coin

2nd coin mechanism - 2nd 100Lit.coin

3rd coin mechanism - 3rd 200Lit.coin

$$\text{RATIO (R.)} = \frac{100\ \text{Lit.} - 100\ \text{Lit.} - 200\ \text{Lit.}}{100\ (*)} = 1\text{-}1\text{-}2$$

1st coin= value 1
2nd coin= value 1
3rd coin= value 2

-1st coin mechanism-1DM coin
2nd coin mechanism-2DM coin
3rd coin mechanism-5DM coin

$$R = \frac{1\text{DM} - 2\text{DM} - 5\text{DM}}{1\ (*)} = 1\text{-}2\text{-}5$$

---= value 1
---= value 2
---= value 5

-1st coin mechanism-5 Dinars coin
2nd coin mechanism-10 Dinars coin
3rd coin mechanism-not used

$$R = \frac{5\text{D} - 10\ \text{D}-}{5\ (*)} = 1\text{-}2$$

= value 1
= value 2

-1st coin mechanism-10 Pence coin
2nd coin mechanism-50 Pence coin
3rd coin mechanism-not used

$$R = \frac{10\text{P} - 50\text{P}}{10(*)} = 1\text{-}5$$

= value 1
= value 5

Fix number of credits for the higher value coin

Consider ratio result and proceed with the following 'equivalence':

A = 1st coin value

B = 2nd coin value

C = 3rd coin value

$$A : (A \cdot X) = B : (B \cdot X) = C : Y$$

$$X = \frac{Y}{C}$$

Y = n° of Credits of 'C'

State minimum cost of a credit

Note: Consider only the whole number from "A X" and "B X",do not consider decimal numbers which could result.

	1coin value 1coin credits	2coin value 2coin credits	3coin value 3coin credits
EXAMPLES:			
-100 Lit. -100 Lit. -200 Lit.			
R= 1-1-2/1PL.;1:(1•X)=1:(1.X)=2:1 x=1/2=0,5	1:0,5	=1:0,5	=2:1
-1DM-2DM-5DM			
R= 1-2-5/6PL.; x=6/5=1,2	1:1,2	=2:2,4	=5:6
-1DM-2DM-5DM			
R= 1-2-5/3PL.; x=3/5ì0,6	1:0,6	=2:1,2	=5:3
-1Fr.-5Fr.-10Fr.			
R=1-5-10/3PL.; x=3/10=0,3	1:0,3	=5:1,5	=10:3
-1Fr.-5Fr.-10Fr.			
R=1-5-1P/4PL.; x=4/10=0,4	1:0,4	=5:2=	10:4

Note: For same value, credit number awarded doesn't change when one or more than one coin of lower value are introduced,provided that total value is the same of the single coin.

Adjustment must be executed on each of the three coin mechanisms. By using only two of the three coin mechanisms available, set the remaining as follows:

1)to avoid any incidence on adjustment, fix the same value and credits of higher value coin.

EXAMPLES:

-2x100L./1PL. - 1x200L./1PL. -N.U.

R= 1 - 2 - 1:0=2:1=2:1

°/°

-2x5D./1PL. - 1x10D./1PL. -N.U.

R= 1 - 2 -

2) To state the minimum cost of a credit:

EXAMPLES:

-3x100Lit./1PL. - 3x100Lit./1PL. - N.U.

R= 1 - 1 - 3

-4x1Fr/1PL. - N.U. - 1x10Fr./3PL.

R= 1 - 4 - 10

-3x5D./1PL. - 3x10D./2PL. - N.U.

R= 1 - 2 - 3

1coin value	1coin credit	2coin value	2coin credit	3coin value	3coin credit
1	0	2	1	2	1
1	0	1	0	3	1
1	0	4	1	10	3
1	0	2	0	3	1

	1	2 3 4	5 6 7	8	1	2 3 4	5 6 7 8	VA	CR	
1st coin mech. coin weight (1st coin)	0 -							1 2		
2nd coin mech. coin weight (2nd coin)		0 0 0 - 0 0 0 - 0 - - 0 0 0 - - 0 - 0 - - - - -						1 2 3 4 5 6 8 10		Used to state coin value
3rd coin mech. coin weght (3rd coin)			0 0 0 - 0 0 0 - 0 - - 0 0 0 - - 0 - 0 - - - - -					2 3 4 5 6 8 10 20		
1st coin mechanism credits per coin				0 0 - 0 0 - - -					0 1 2 3	
2nd coin mechanism credits per coin					0 0 0 - 0 0 0 - 0 - - 0 0 0 - - 0 - 0 - - - - -			0 1 2 3 4 5 6 7		Used to state credits per coin
3rd coin mechanism credits per coin							0 0 0 0 - 0 0 0 0 - 0 0 - - 0 0 0 0 - 0 - 0 - 0 0 - - 0 - - - 0 0 0 0 - - 0 0 - 0 - 0 - - - 0 - 0 0 - - - 0 - - 0 - - - - - - -		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	

0 = ON - = OFF

CREDITS/COIN ADJUSTEMENTS

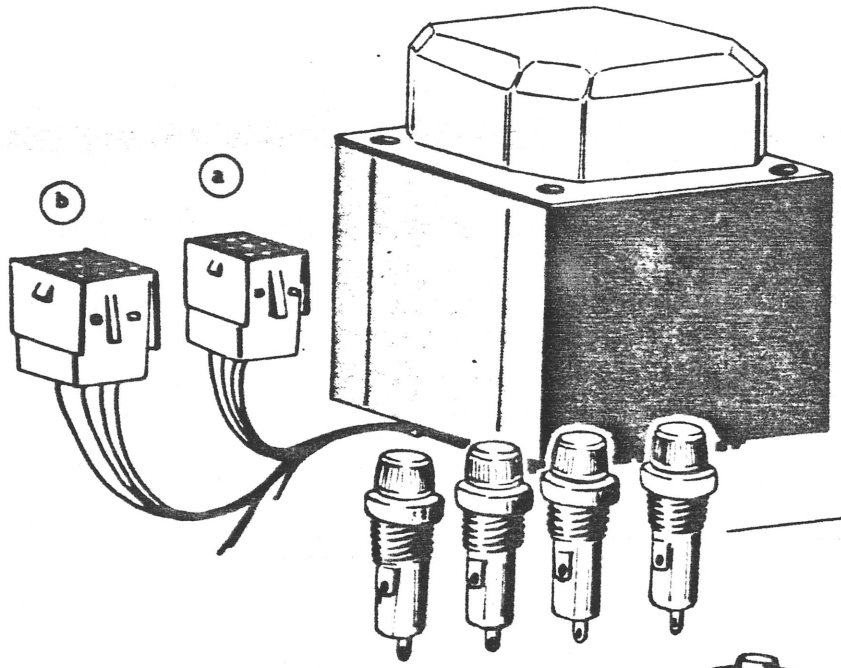
COUNTRY	COIN CHUTE/ COIN	CREDITS	COIN 1		COIN 2		COIN 3		SW A								SW B								COUNTER
			V.	C.	V.	C.	V.	C.	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	
ITALY	1=100 L.	200L.= 1Pl.	1	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	x 100 L.
	2=100 L.	300L. =1Pl.	1	0	1	0	3	1	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	x 100 L.
	1=100 L.	200L. =1Pl.	1	0	2	1	2	1	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0	0	x 100 L.
	2=200 L.	300L. =1Pl.	1	0	2	0	3	1	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	x 100 L.
	1=200 L.	200L. =1Pl.	2	1	2	1	2	1	-	-	0	0	0	0	0	-	0	-	0	0	0	0	0	0	x 100 L.
	2=200 L.	300L. =1PL.	2	0	2	0	3	1	-	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	x 100 L.
GREAT BRITAIN	1= 10 P. 2= 50 P.	20P =1PL. 50P =3Pl.	1	0	5	3	5	3	0	0	0	-	-	-	0	0	0	-	-	0	0	-	0	0	x 10 P.
		10P =1Pl. 50P. =6Pl.	1	1	5	6	5	6	0	0	0	-	-	-	0	-	0	0	-	-	-	0	-	0	x 10 P.
WEST GERMANY	1= 1DM 2= 2DM 3= 5DM	1DM =1PL. 2DM =3Pl. 5DM =7Pl.	1	1	2	3	5	7	0	-	0	0	-	-	0	-	0	-	-	0	0	-	-	0	x 1DM.
SWITZER-LAND		1DM =2Pl. 2DM =5Pl. 5DM =14Pl.	1	2	2	5	5	14	0	-	0	0	-	-	0	0	-	-	0	-	-	0	-	-	x 1DM
JUGOSLA-VIA	1= 5DIN	5DIN =1Pl.	1	1	2	2	2	2	0	-	0	0	0	0	0	-	0	0	-	0	-	0	0	0	x 5 DIN
	2=10DIN	10DIN =1Pl.	1	0	2	1	2	1	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0	0	x 10DIN
FRANCE DENMARK SWEDEN	1= 1Fr. 2= 5Fr. 3=10Fr.	2Fr. =1Pl. 5Fr. =3Pl. 10Fr. =7PL.	1	0	5	3	10	7	0	0	0	-	0	-	-	0	0	-	-	0	0	-	-	0	x 1 F.
BELGIUM	1= 5Frs.	10F =1Pl.	1	0	2	1	2	1	0	-	0	0	0	0	0	0	0	-	0	0	0	0	0	0	x 5 F.
AUSTRIA	2= 10Frs.	15F. =1Pl.	1	0	2	0	3	1	0	-	0	0	-	0	0	0	0	0	0	0	0	0	0	0	x 5 F.
HUNGARY	1= 10F.	10F. =1Pl.	1	1	1	1	2	2	0	0	0	0	0	0	0	-	0	-	0	0	-	0	0	0	x 10 F.
	2= 10F.	15F. =1Pl.	1	0	1	0	3	2	0	0	0	0	-	0	0	0	0	0	0	0	-	0	0	0	x 10 F.

O= ON ; - = OFF; COIN 1 = Coin in coin chute; COIN 2 = Coin in coin chute 2; COIN 3=Coin in coin chute 3.

V.= VALUE ; C. = CREDIT

CEC 197 TELAIO ALIMENTAZIONI

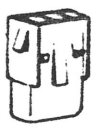
monitor MANTAREX MTC 900



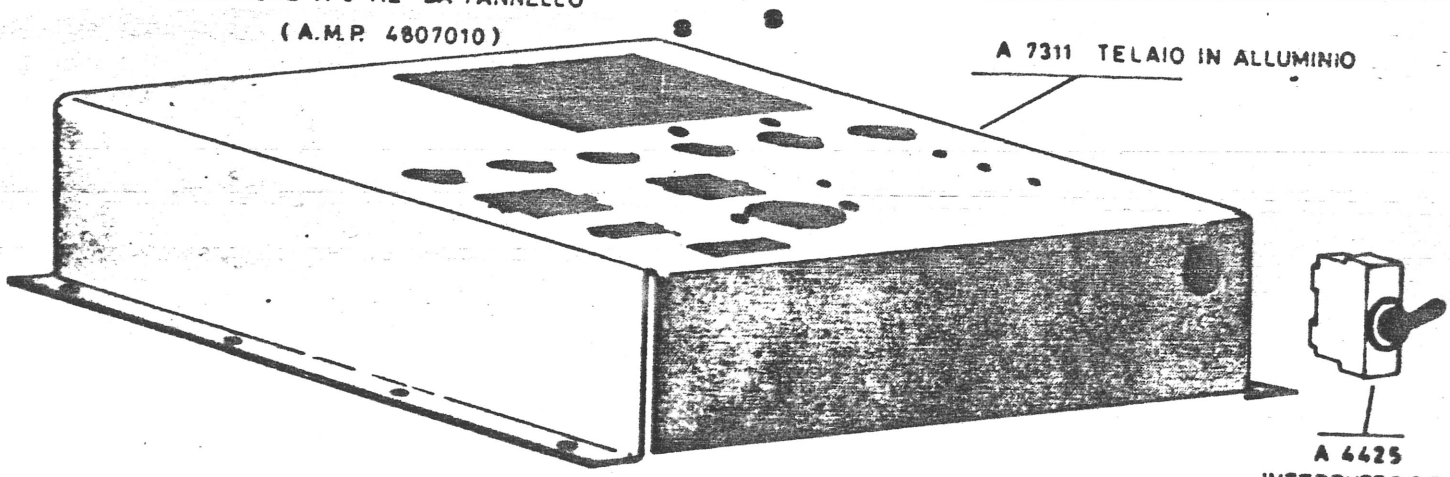


(a) CE 1744 CONNETTORE A 9 VIE DA PANNELLO
(A.M.P. 4807070)

(b) CE 1751 CONNETTORE A 12 VIE
DA PANNELLO
(A.M.P. 4807090)

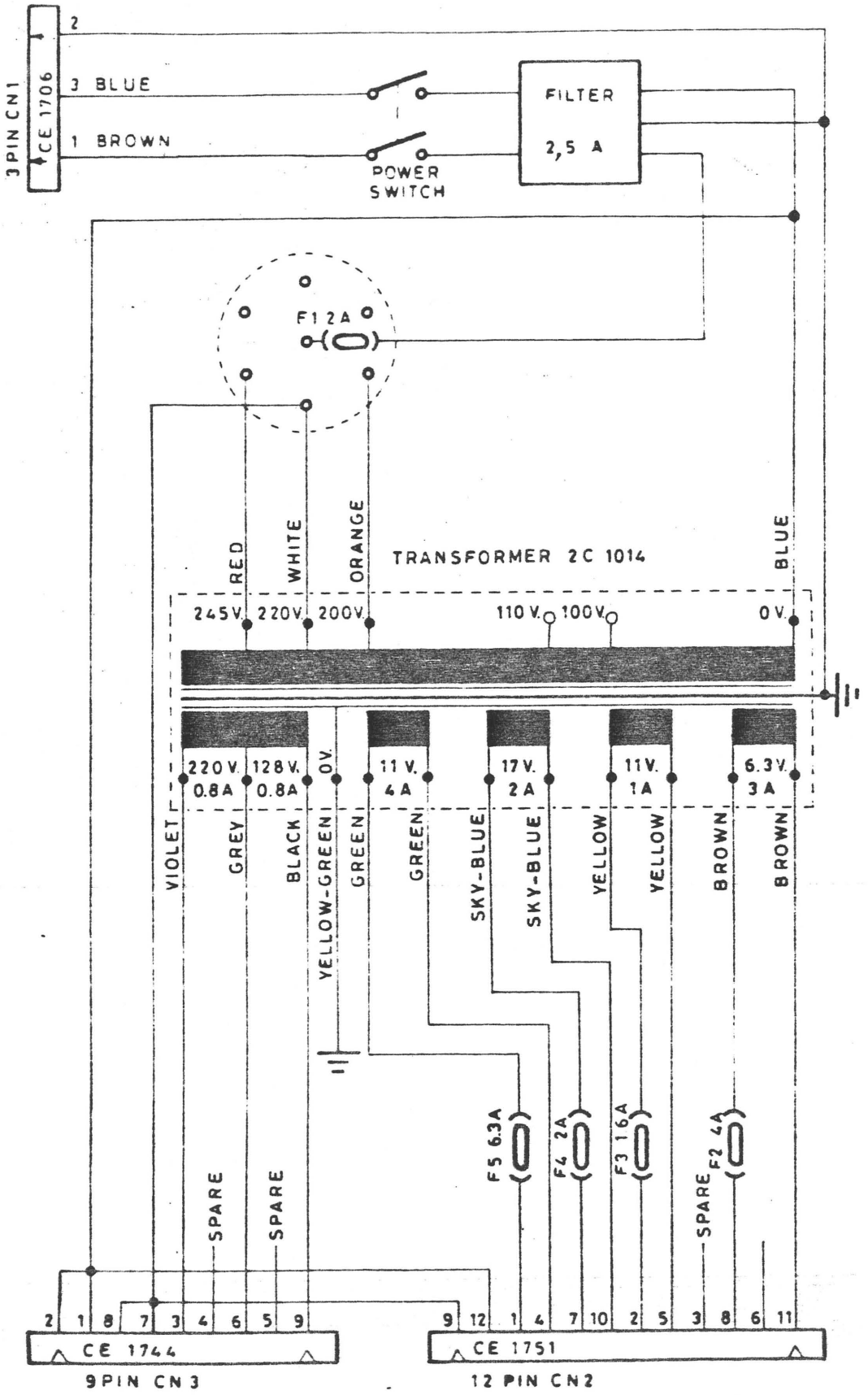


CE 1706 CONNETTORE A 3 VIE DA PANNELLO
(A.M.P. 4807010)



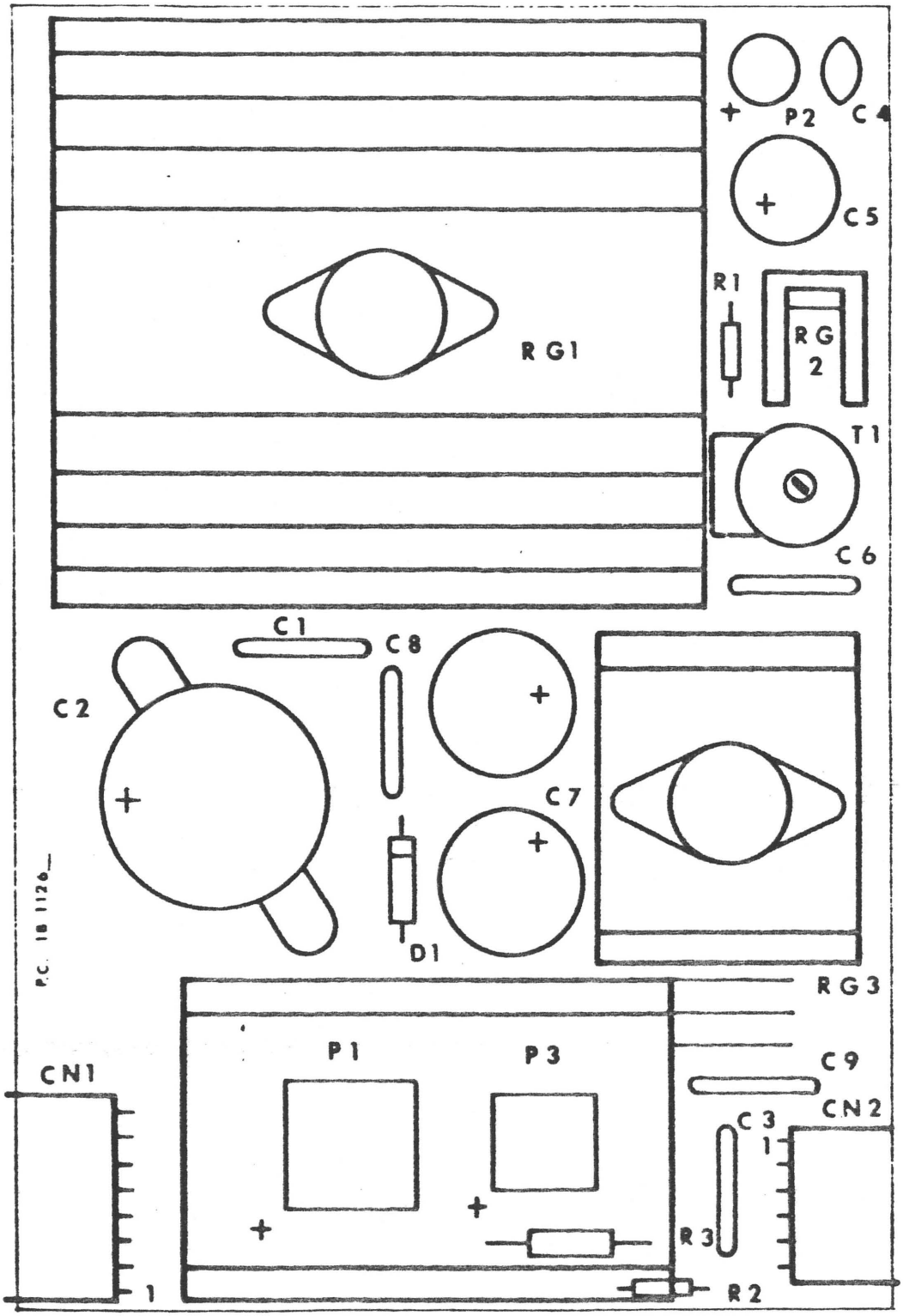


C 8130
FILTRO DI RETE 2,5 AMP



TRASFORMATORE 2C1014
USATO PER MONITOR
HANTAREX MTC 900

Telaio alimentazioni
"
CEC 157 "

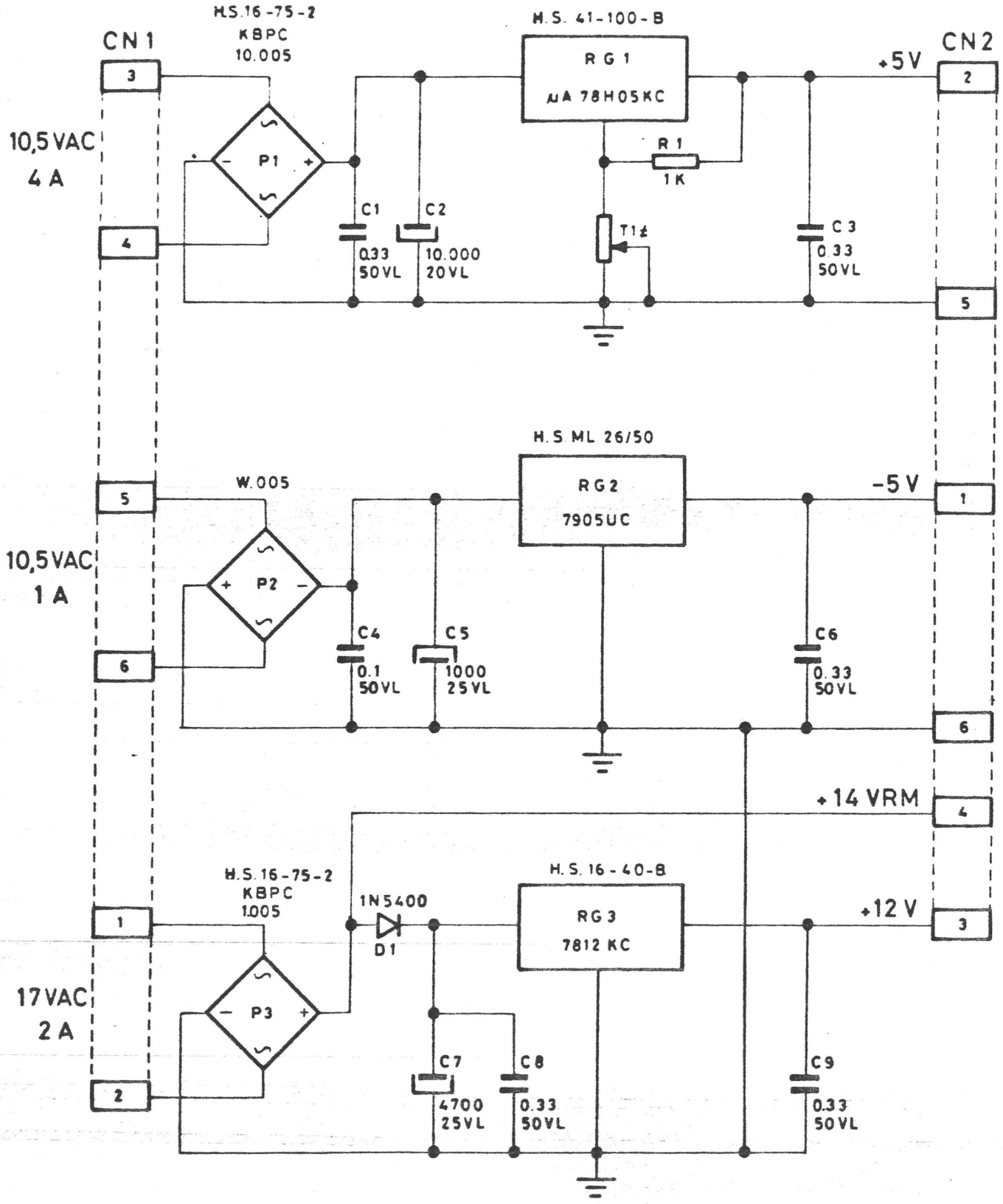


CEC 110 POWER board 1B1126

PC 1B 1126

Component list POWER BOARD ASSEMBLY CBC 110

ITEM No	PART DESIGNATION	CODE PART No	DESCRIPTION	REQD No
1	PC 1	CE 2070	Printed Circuit 1B 1126	1
2	PC 1	CE 1405	50V. 10 AMP Rect.Brid.(KBPC	
			10-005)	1
3	P 2	CE 1233	50V. 1 AMP Rect.Brid.(W-005)	1
4	P 3	CE 1276	50V. 3 AMP Rect.Brid.(KBPC*	
			1-005)	1
5	RG 1	CE 1238	+5V. 5 AMP Voltage Regulator	
			(MA 78H05 KC)	1
6	RG 2	CE 1648	-5V. 1 AMP Voltage Regulator	
			(MA 7905 UC)	1
7	RG 3	CE 1688	+12V.1 AMP Voltage Regulator	
			(MA 7812 KC)	1
8	D 1	CE 1299	1N 5400 Diode	1
9	CN 2	CE 1332	6 Pin Modu 1 Male Connector	1
10	CN 1	CE 1361	8 Pin Modu 1 Male Connector	1
11	HS 1	CE 1566	Heat Sink 16/75/2	1
12	HS 2	CE 1278	Heat Sink 41/100/B	1
13	HS 3	CE 1099	Heat Sink ML 26/50 TO-220	1
14	HS 4	CE 1529	Heat Sink 16/40/B	1
15	C 1-3-6-8-9	CE 1261	0,33 MF 50V. Polies.film Capac.	5
16	C 2	CE 1384	10.000MF 16V. Electr.Cap.Sin.	
			Ended	1
17	C 4	CE 1005	0,1MF 50V. Ceramic Capacitor	1
18	C 5	CE 1026	1.000MF 25V. Elec.Cap.Sin.End.	1
19	C 7	CE 1579	2.200MF 25V. Elec.Cap.Sin.End.	2
20	R 1	CE 1170	1 KOHM 1/4W. 5% Carbon Resistor	1
21	T 1		47 OHM 1 Turn Vertical Trimmer	
			(Commonly mounted 22 OHM 1/4W.5%	
			Carbon Resistor)	1



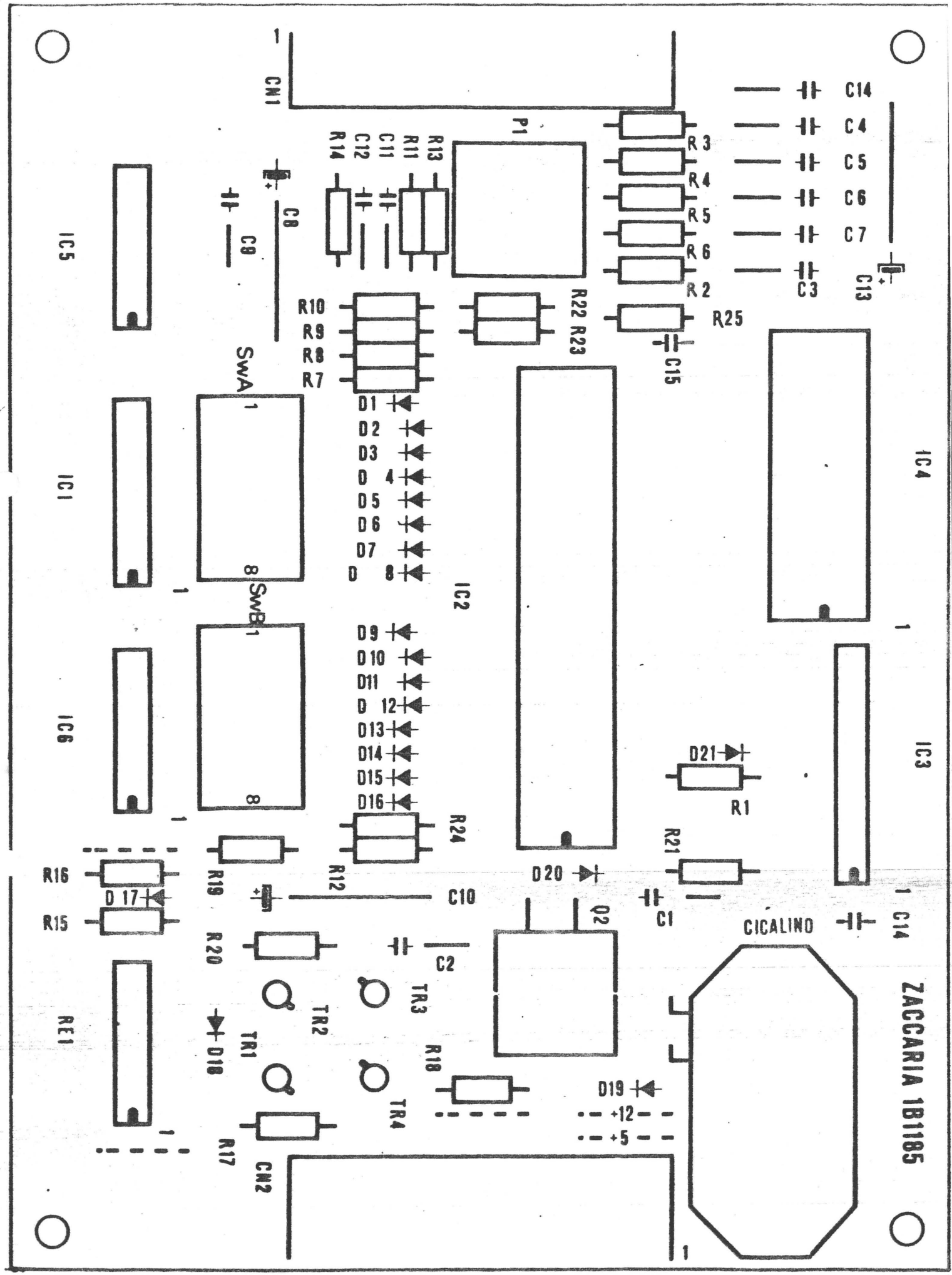
±: 47Δ TRIMMER or 22Δ 1/4W 5% RESISTOR

F.LLI ZACCARIA s.n.c.
Via Armaroli, 15 40012 CALDERARA DI RENO (Bo) Italy

PART NAME	PART NO
POWER BOARD 1B1126 (CEC 110)	1B1326-F

DWN	DATE	REV	DATE REV.	SHEET
	30-8-84			- 1 -

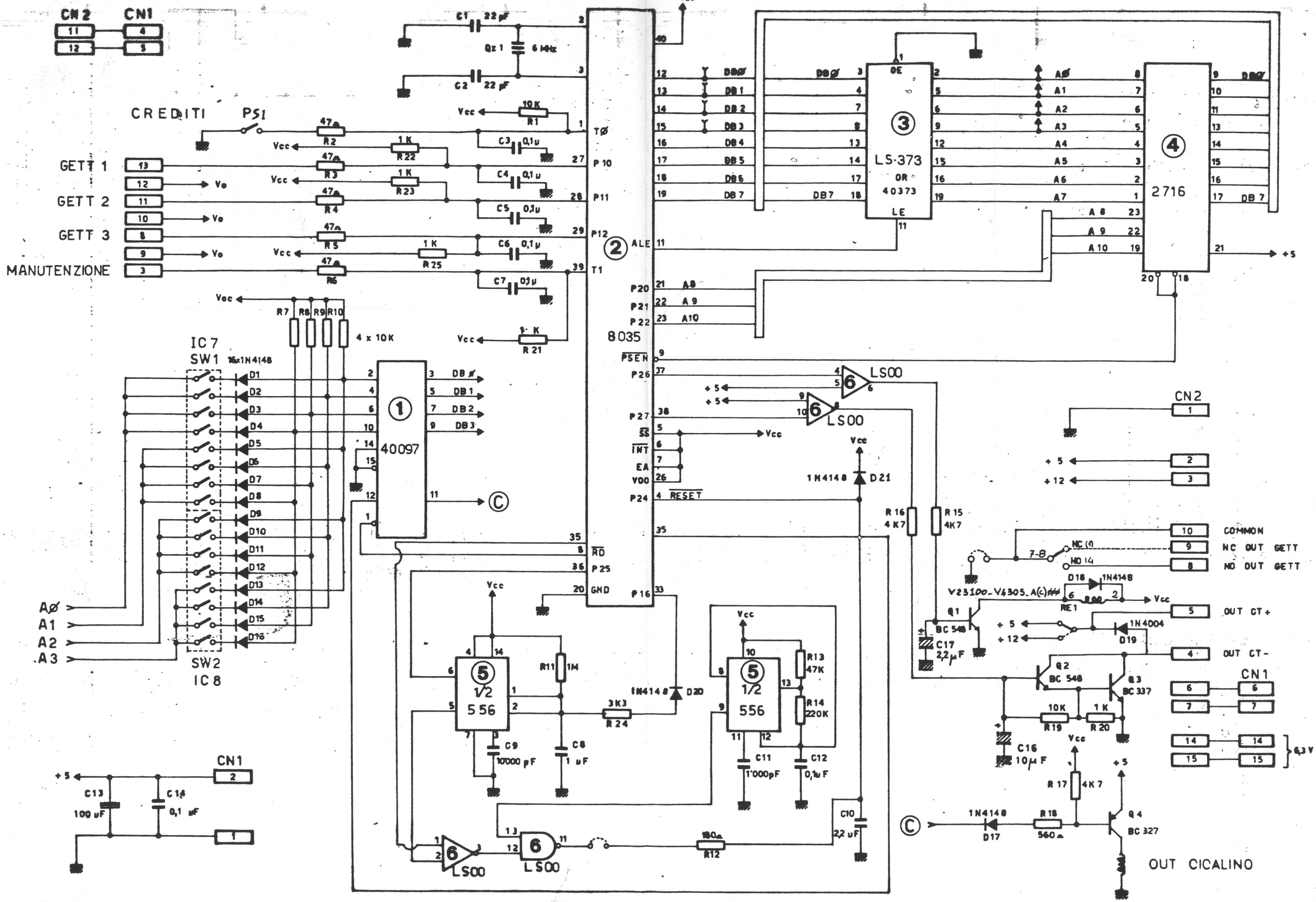
NOTES: UNLESS OTHERWISE SPECIFIED
1) ALL RESISTORS VALUES IN Ω
2) ALL CAPACITORS VALUES IN μF


CN1
P1
R14
C12
C11
R11
R13
C8
C9
IC5
R10
R9
R8
R7
SwA
SwB
IC1
IC6
D1
D2
D3
D 4
D5
D6
D7
D 8
IC2
D9
D10
D11
D 12
D13
D14
D15
D16
R24
R12
R16
D 17
R15
R19
C10
R20
TR2
TR1
D18
RE1
R17
CN2
C2
TR3
TR4
R18
D19
+12
+5
R22 R23
D20
Q2
R3
R4
R5
R6
R2
C15
R25
C14
C4
C5
C6
C7
C3
C13
IC4
D21
R1
R21
C1
CICALINO
IC3
C14
ZACCARIA 1B1185

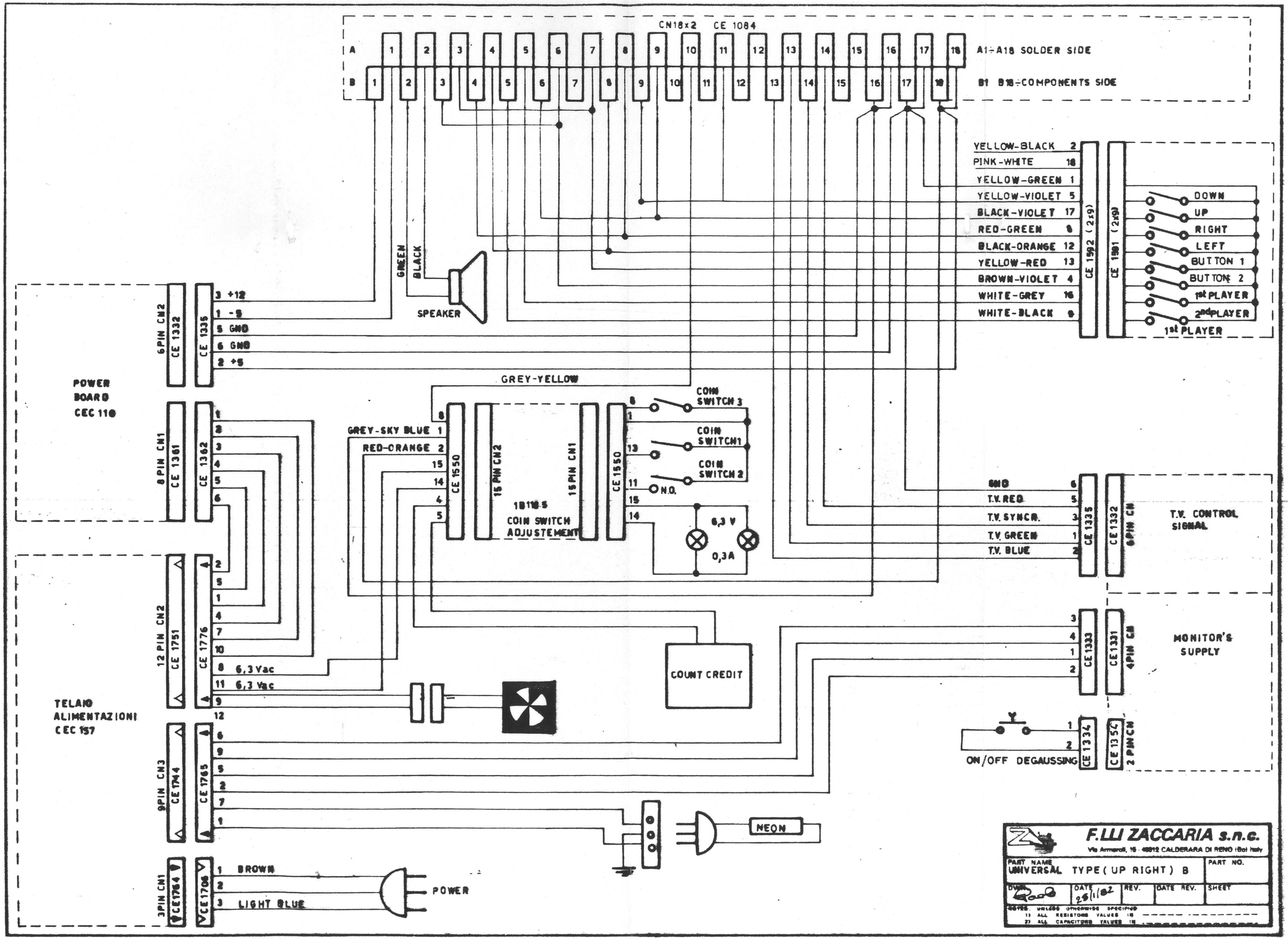
PC 1B 1185

Component list COIN SWS ADJ. WITH MICROPROCESSOR 8035 CEC 182

ITEM No	PART DESIGNATION	CODE PART No	DESCRIPTION	RECD No
1	P.C.	CE 2180	Printed Circuit 1B 1185	1
2	CN1-CN2	CE 1590	Male Connector 15PINS 90°280382	2
3	IC1	CE 1055	Integrated Circuit 40097	1
4	IC2	CE 1729	Microprocessor 8035	1
5	IC3	CE 1681	Integrated Circuit 74LS373	1
6	IC4	CE 1687	Integrated Circuit 2716	1
7	IC5	CE 3008	Integrated Circuit 556	1
8	IC6	CE 1134	Integrated Circuit 74LS00	1
9	IC7-IC8	CE 1480	Dip Switches 8CT	2
10	R12	CE 1078	Carbon Resistor 180 OHM 1/4W.	1
11	R2÷R6	CE 1077	Carbon Resistor 47 OHM 1/4W.	5
12	R18	CE 1039	Carbon Resistor 560 OHM 1/4W.	1
13	R20÷R23-R25	CE 1170	Carbon Resistor 1KOHM 1/4W.	5
14	R24	CE 1024	Carbon Resistor 3,3KOHM 1/4W.	1
15	R15-R16-R17	CE 1165	Carbon Resistor 4,7KOHM 1/4W.	3
16	R1-R7÷R10-R19	CE 1171	Carbon Resistor 10KOHM 1/4W.	7
17	R13	CE 1193	Carbon Resistor 47KOHM 1/4W.	1
18	R14	CE 1252	Carbon Resistor 220KOHM 1/4W.	1
19	R11	CE 1036	Carbon Resistor 1MOHM 1/4W.	1
20	C1-C2	CE 1298	Capacitor Ceramic 22Pf	2
21	C11	CE 1159	Capacitor Ceramic 1.000Pf	1
22	C9	CE 1029	Capacitor Ceramic10.000Pf	1
23	C3÷C7-C12-C14	CE 1005	Capacitor Ceramic 0,1 Mf	7
24	C8	CE 1206	Capacitor Tantalum 1 Mf	1
25	C10 - 17	CE 1189	Capacitor Tantalum 2,2 Mf	1
26	C13	CE 1118	Capacitor Electr.vert. 100 Mf	1
27	D1÷D18-D20-D21	CE 1011	Diode 1N 4148	20
28	D19	CE 1009	Diode 1N 4004	1
29	Q1-Q2	CE 1438	Transistor BC 548	2
30	Q3	CE 1290	Transistor BC 337	1
31	Q4	CE 1814	Transistor BC 327	1
32	PS1	CE 3063	Pulsante	1
33	QZ1	CE 1743	Cristal Oscillator 6 MHZ	1
34	Cicalino		Type	1
35	RE1	CEC 040	Relais V23100-V4005-A000	1
	(RE1)	CEC 161	Relais V23100-V4305-C000)	(1)
	IC 4	RE 260	B 2716 MOS I.C. 2048x8 EPROM	
			Type 1 Coin Sws.Adj.	
N.B.	C16		CAPACITOR TANTALUM 10 µ 10	



ZELCO GAMES P-81 012


CN18x2 CE 1084
A1÷A18 SOLDER SIDE
B1 B18÷COMPONENTS SIDE
YELLOW-BLACK 2
PINK-WHITE 18
YELLOW-GREEN 1
YELLOW-VIOLET 5
BLACK-VIOLET 17
RED-GREEN 9
BLACK-ORANGE 12
YELLOW-RED 13
BROWN-VIOLET 4
WHITE-GREY 16
WHITE-BLACK 8
CE 1992 (2x9)
CE 1991 (2x9)
DOWN
UP
RIGHT
LEFT
BUTTON 1
BUTTON 2
1st PLAYER
2nd PLAYER
1st PLAYER
GREEN
BLACK
SPEAKER
POWER BOARD CEC 110
6PIN CN2
CE 1332
CE 1335
3 +12
1 -5
5 GND
6 GND
2 +5
GREY-YELLOW
COIN SWITCH 3
COIN SWITCH1
COIN SWITCH 2
N.O.
GREY-SKY BLUE 1
RED-ORANGE 2
8PIN CN1
CE 1361
CE 1362
15 PIN CN2
CE 1550
15PIN CN1
1B11B-S
COIN SWITCH ADJUSTEMENT
6,3 V
0,3A
GND
T.V. RED
T.V. SYNCR.
T.V. GREEN
T.V. BLUE
CE 1335
CE 1332
6PIN CN
T.V. CONTROL SIGNAL
12 PIN CN2
CE 1751
CE 1776
8 6,3 Vac
11 6,3 Vac
12
COUNT CREDIT
CE 1333
CE 1331
4PIN CN
MONITOR'S SUPPLY
TELAIO ALIMENTAZIONI CEC 157
9PIN CN3
CE 1744
CE 1765
CE 1334
CE 1354
2 PIN CN
ON/OFF DEGAUSSING
NEON
3PIN CN1
CE 1764
CE 1706
1 BROWN
3 LIGHT BLUE
POWER
F.LLI ZACCARIA s.n.c.
Via Amendola, 16 - 40012 CALDERARA DI RENO (Bo) Italy
PART NAME UNIVERSAL TYPE (UP RIGHT) B
PART NO.
DWN
DATE 25/11/82
REV.
DATE REV.
SHEET
NOTES: UNLESS OTHERWISE SPECIFIED
1) ALL RESISTORS VALUES IN
2) ALL CAPACITORS VALUES IN