Technical Manual

for

ASTRO WARS



F.LLI ZACCARIA S.n.c.

TECHNICAL MANUAL "ASTRO WARS"

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SPECIFICATIONS

Power Supply	AC 100, 115, 200, 220, 240V ± 10%
Power Consuption	120W (AC 220)
CRT	20" Colour

INSTALLAZIONE

- Poiché il CRT usato é dello stesso tipo dei comuni televisori, evitare di danneggiarlo nel trasporto e durante la installazione.

- Non installare all'esterno poiché l'apparecchio va usato solo in ambienti chiusi.

MANUTENZIONE

- Se sullo schermo non compare nessuna immagine quando la macchina é accesa, controllare se il cavo é correttamente inserito o se il fusibile dello alimentatore é intatto.

- Se lo schermo é illuminato ma non compare nessuna immagine, controllare se il PC Board é correttamente inserito.

- Se l'immagine si sposta lateralmente, ciò é provocato da un forte magnete posto troppo vicino alla macchina.

- Se il suono é troppo alto o troppo basso, regolarlo girando il controllo volume montato sulla piastra del suono.

INSTALLATION

- As the CRT used is the same as that in home TVS care must be taken to avoid damage during transportation and installation.

- As this set is for indoor use do not install outdoors.

MAINTENANCE

- If the screen is blank. When the machine is ON.
  Check to see if the cord is plugged in firmly or if the power supply fuse is intact.

- If the screen lights up but no image appears, check to see if the PC Board is plugged firmly.

- If the image shifts to the side, this will be caused by a strong magnet placed too close to the machine.

- If the sound is too high or too low, adjust it by turning the volume control mounted on sound Board.

COME GIOCARE

1. Inserire la moneta.
2. Premere il pulsante di selezione 1 giocatore o 2 giocatori come desiderato.
3. Ci sono 4 diversi gruppi di navicelle nemiche e quando il giocatore distrugge 1 gruppo, quello successivo apparirà ed attaccherà.
4. Usare la leva per spostare la navicella sullo schermo.
5. Premere il pulsante del fuoco quando si desidera attaccare il nemico o distruggere una meteorite.
6. Quando una formazione nemica é stata distrutta, il gruppo successivo avanzerà sullo schermo ed attaccherà.
   ° Ma se una navicella nemica va oltre la navicella del giocatore e raggiunge la linea sul fondo, il gruppo originale si ricostituirà ed attaccherà di nuovo senza tener conto di quanti sono stati distrutti in precedenza.
   La navicella del giocatore si avvicina ai nemici. La navicella nemica sparerà i razzi a destra e a sinistra a caso.
7. Quando tutti e quattro i gruppi delle navicelle nemiche sono stati distrutti, apparirà sullo schermo il capo ed attaccherà.
   ° Quando il capo é stato distrutto, il giocatore può fare rifornimento di carburante.
8. Dopo essersi rifornito di carburante il giocatore può iniziare nuovamente il gioco.
9. Se la navicella del giocatore e una navicella nemica vengono a collisione sono entrambe distrutte.
10. Quando giocano 2 giocatori e la partita del primo é finita, il gioco si riassetta per il secondo giocatore.
11. Il giocatore non può rifornirsi di carburante fino a quando non ha distrutto il capo. Se il giocatore rimane senza carburante prima, il gioco finisce.
12. Se tutte le navicelle del giocatore sono distrutte, il gioco finisce.
13. Se il giocatore raggiunge un certo punteggio ottiene una navicella

HOW TO PLAY

1. Insert coin.
2. Push single player or pair selection button as desired to start.
3. There are four different groups of enemy craft and when the player destroys one group, the next group will appear and attack.
4. Use the lever to move your rocket across the screen.
5. Push the fireing button when you wish to attack the enemy or to destroy a meteorite.
6. When one formation of enemy has been destroyed, the next group will come on screen and attack.
   ° But, if one enemy craft gets past the player's rocket and reaches the bottom line, the original group will reform and attack again irrespective of how many had previously been destroyed. Player's rocket approaches to the enemies.
   Enemy craft will fire rockets forward or to the left or right at random.
7. When all four groups of enemy craft have been destroyed, the master will appear on screen and attack.
   ° When the master is destroyed, the player is able to refuel.
8. After refueling the player can begin the game again.
9. If the player's rocket and enemy craft collide both will be destroyed.
10. When 2 players are playng and the first player game is over, the game will reset for the second player to commence.
11. The player cannot refuel untill he has destroyed the master. If the player runs out of fuel before, then the game is over.
12. If all of the player's rockets are destroyed the game is over.
13. If the player achieves a certain score he may be awarded an extra rocket

5A e 6A Con SW 7A in OFF, allo inizio della partita, si presenta un HIGH SCORE RANDOM, il cui valore é compreso fra 5000 punti e 12.500 punti. E' possibile favorire l'uscita di un gruppo di punteggi rispetto agli altri posizionando gli switches 5A e 6A.

5A and 6A At the beginning of the play, if SW 7A is OFF, there is an HIGH SCORE RANDOM from 5000 to 12.500 points. Adjusting swithches 5A and 6A it is possible to facilitate the exit of a certain group of points instead of another one.

SW 5A SW 6A	ON ON	ON OFF	OFF ON	OFF OFF
Score ranges	70% 5000 7000	70% 7000 9000	70% 8500 10500	70% 10500 12500

7A Programmazione del tipo di HIGH SCORE RANDOM o NORMALE

7A HIGH SCORE RANDOM programming or NORMAL SCORE RANDOM programming.

OFF	HIGH SCORE RANDOM
ON	HIGH SCORE NORMAL

Switches B (3 N)
1B e 8B non usati
2B e 3B si possono programmare 4 diversi gradi di difficoltà di gioco.

Swithches B (3N)
1B and 8B not used
2B and 3B can program 4 different levels of game difficulties.

SW 2B	ON	ON	OFF	OFF
SW 3B	ON	OFF	ON	OFF
Diff.	Easy	Med.	Diff.	Very Diff.

4B Si programma il n° delle navicelle per partita.

4B The number of the rockets for each play is programmed.

ON	= 3 (2)+ rockets
OFF	= 5 (3)+ rockets

+ I numeri fra parentesi sono validi per il programma versione 03.

+ The numbers in brackets are used in programming 03.

5B Programmazione gettoniera n°1 (sinistra)

5B Coin chute n°1 (on the left hand) programming.

ON	2 coins	1 play
OFF	1 coin	1 play

6B e 7B Programmazione gettoniera n°2 (destra)

6B and 7B Coin chute n°2 (on the right hand) programming.

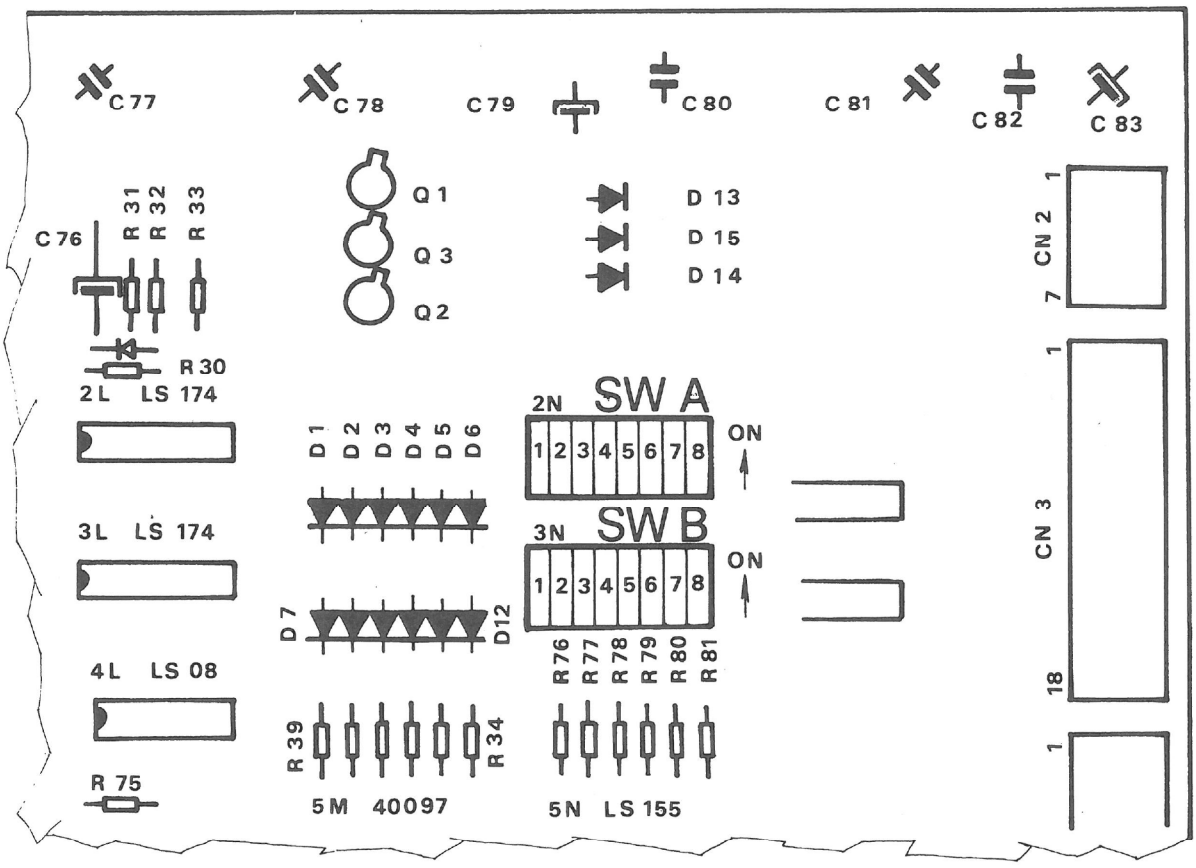
SW 6B	ON	ON	OFF	OFF
SW 7B	ON	OFF	ON	OFF
plays for coin	1 coin 1 play	1 coin 2 plays	1 coin 3 plays	1 coin 5 plays

Prima di inserire il cavo della alimentazione controllare che la tensione della macchina sia conforme alla tensione di rete disponibile.

Before plugging in the Power Cord, check if the voltage of the machine is in accordance with the available voltage.

Usare gli SWITCHES per programmare la macchina. Sono collocati in basso a destra sul PC Board come indicato nello schema.

Use the Switches to set your machine. They are located in the lower right on PC Board as shown in the diagram.



REGOLAZIONE INTERRUTORI

Switches A (2 N)
1A e 8A non usati
2A Programmazione della possibilità di replay al superamento dello high Score solo con SW 7A in OFF.

SWITCHES ADJUSTMENT

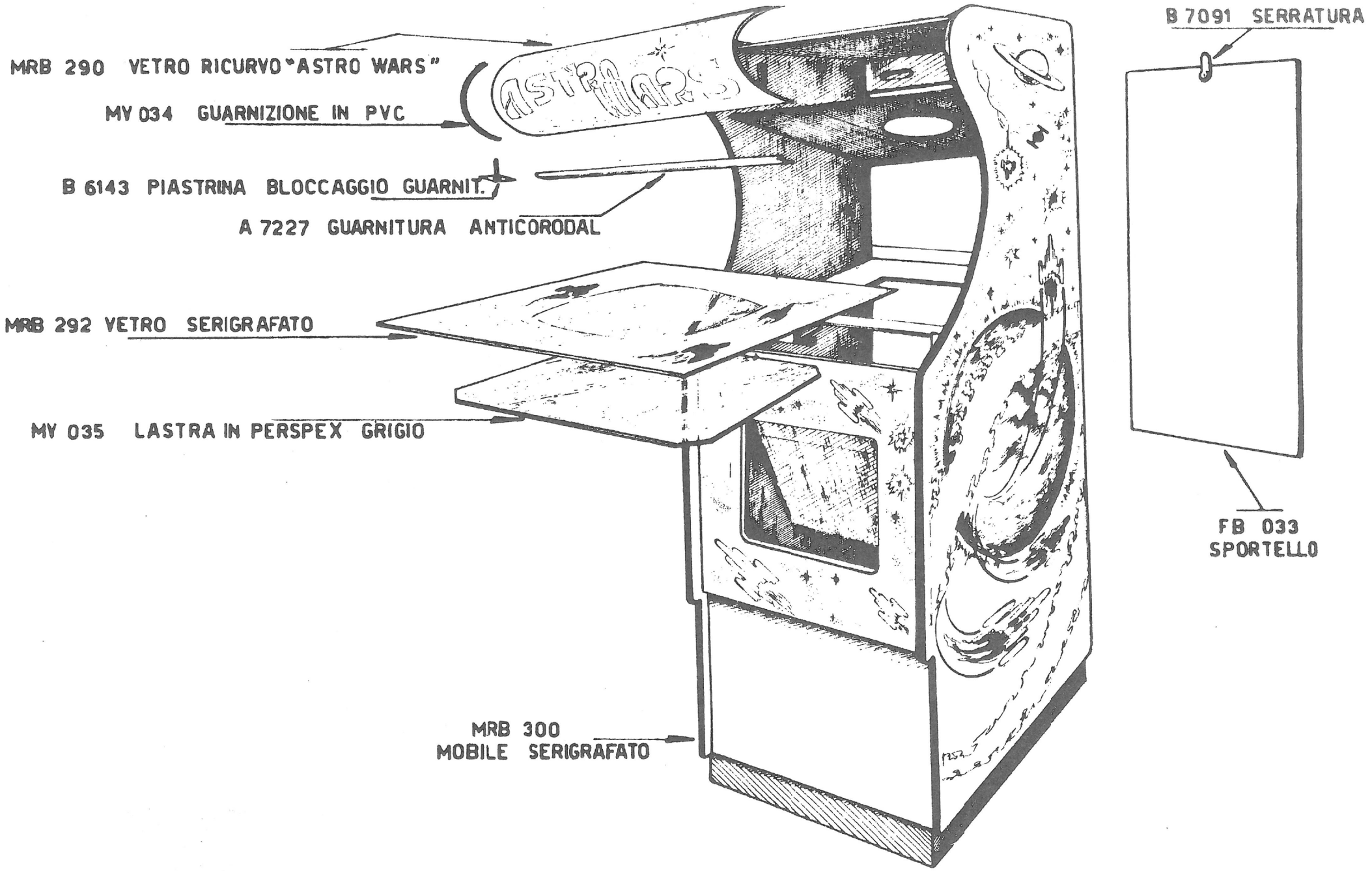
Switches A (2 N)
1A and 8A not used
2A Replay possibilities programming getting over the HIGH SCORE only with SW 7A when OFF.

OFF	=	FREE PLAY
ON	=	NOT FREE PLAY

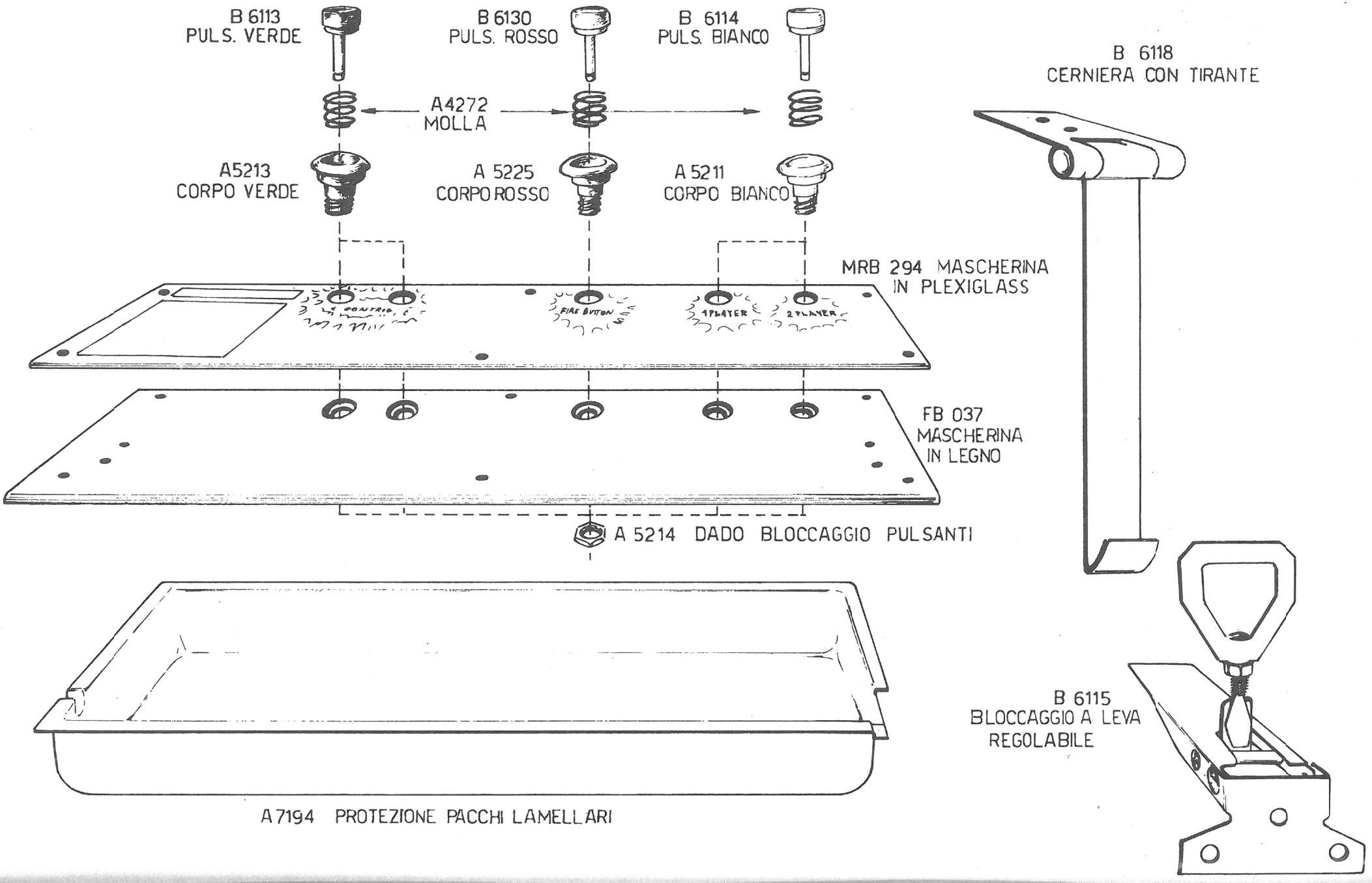
3A e 4A Programmazione dei punteggi ai quali si vince una navicella.

3A and 4A Score programming to win a rocket Extended play.

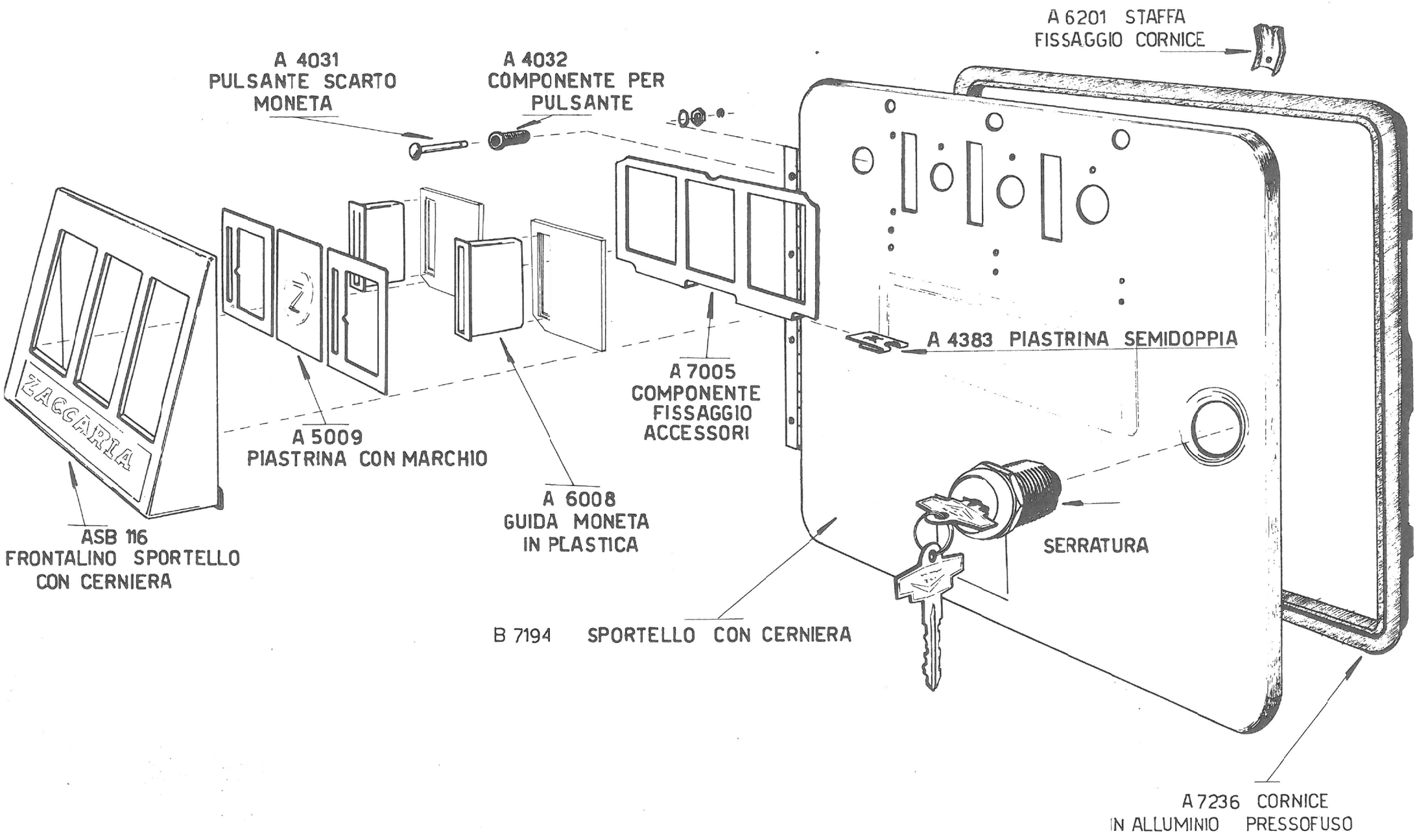
SW 3A	ON	ON	OFF	OFF
SW 4A	ON	OFF	ON	OFF
Points	not ext.	3000 p.	5000 p.	7000 p.

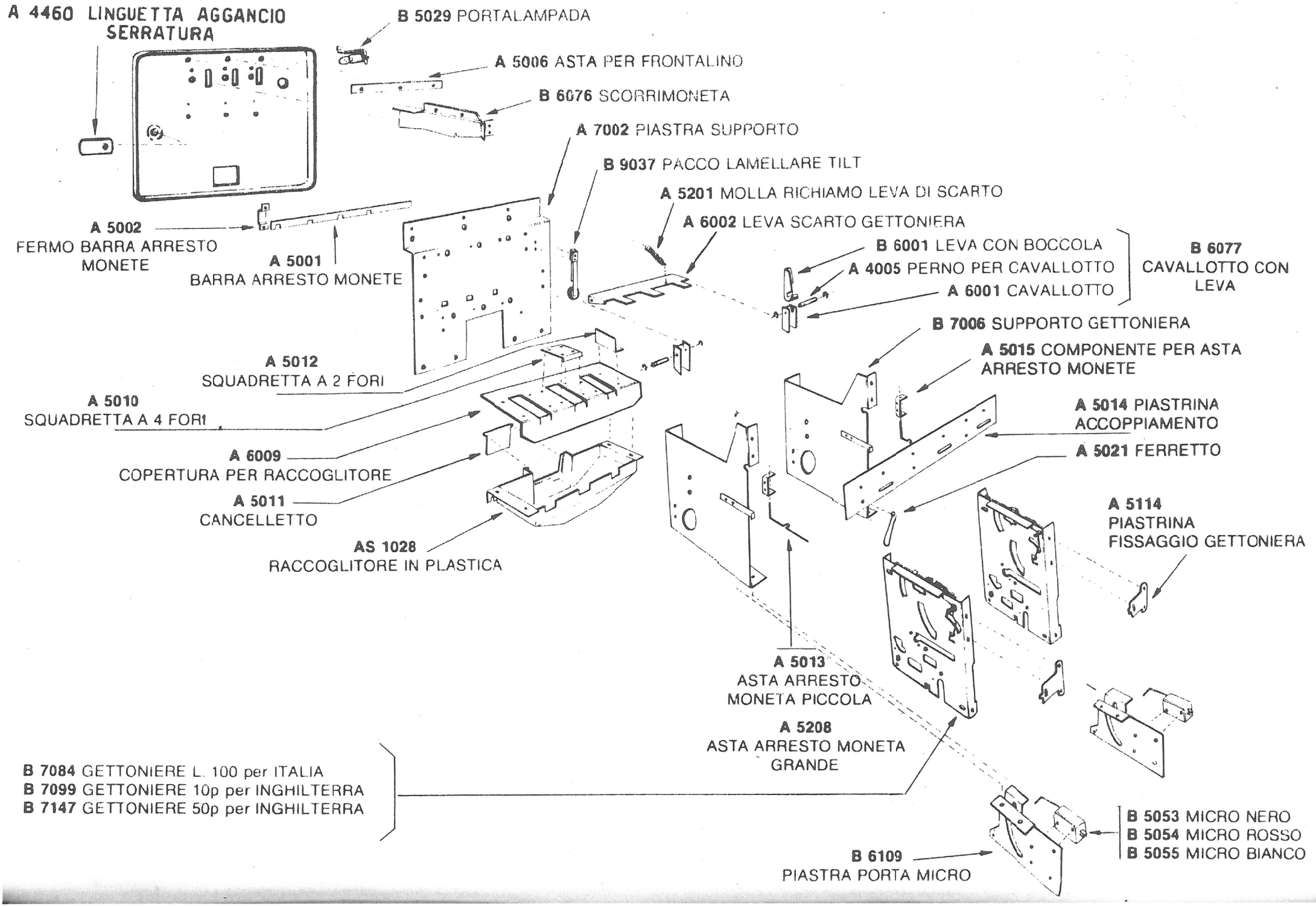

MRB 290 VETRO RICURVO "ASTRO WARS"
MV 034 GUARNIZIONE IN PVC
B 6143 PIASTRINA BLOCCAGGIO GUARNIT.
A 7227 GUARNITURA ANTICORODAL
MRB 292 VETRO SERIGRAFATO
MV 035 LASTRA IN PERSPEX GRIGIO
MRB 300
MOBILE SERIGRAFATO
B 7091 SERRATURA
FB 033
SPORTELLO

C 8104 MASCHERINA COMANDO



C 8109 SPORTELLO MONTATO

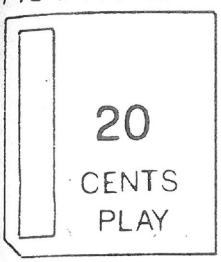



A 4460 LINGUETTA AGGANCIO SERRATURA
B 5029 PORTALAMPADA
A 5006 ASTA PER FRONTALINO
B 6076 SCORRIMONETA
A 7002 PIASTRA SUPPORTO
B 9037 PACCO LAMELLARE TILT
A 5201 MOLLA RICHIAMO LEVA DI SCARTO
A 6002 LEVA SCARTO GETTONIERA
A 5002 FERMO BARRA ARRESTO MONETE
A 5001 BARRA ARRESTO MONETE
B 6001 LEVA CON BOCCOLA
A 4005 PERNO PER CAVALLOTTO
A 6001 CAVALLOTTO
B 6077 CAVALLOTTO CON LEVA
B 7006 SUPPORTO GETTONIERA
A 5015 COMPONENTE PER ASTA ARRESTO MONETE
A 5012 SQUADRETTA A 2 FORI
A 5010 SQUADRETTA A 4 FORI
A 5014 PIASTRINA ACCOPPIAMENTO
A 5021 FERRETTO
A 6009 COPERTURA PER RACCOGLITORE
A 5011 CANCELLETTO
A 5114 PIASTRINA FISSAGGIO GETTONIERA
AS 1028 RACCOGLITORE IN PLASTICA
A 5013 ASTA ARRESTO MONETA PICCOLA
A 5208 ASTA ARRESTO MONETA GRANDE
B 7084 GETTONIERE L. 100 per ITALIA
B 7099 GETTONIERE 10p per INGHILTERRA
B 7147 GETTONIERE 50p per INGHILTERRA
B 5053 MICRO NERO
B 5054 MICRO ROSSO
B 5055 MICRO BIANCO
B 6109 PIASTRA PORTA MICRO

PIASTRINE SERIGRAFATE

& Introduzioni Monete

AUSTRALIA

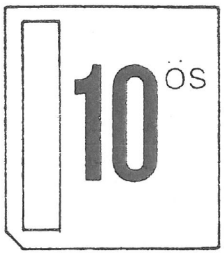


p.ser. B 5056
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AUSTRIA

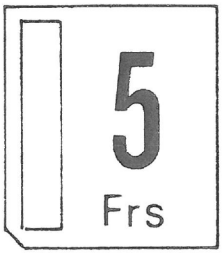


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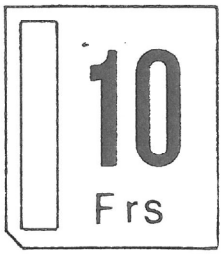


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BELGIO



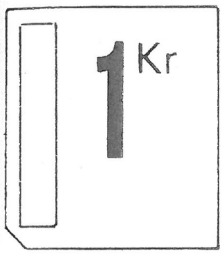
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p.ser. B5034
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p. ser. =
PIASTRINA
serigrafata

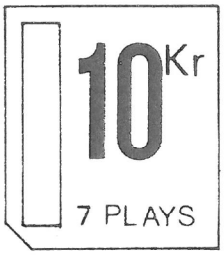
DANIMARCA & SVEZIA



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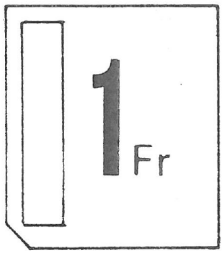


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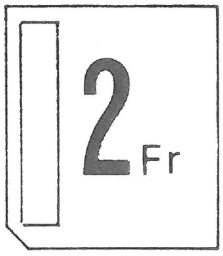


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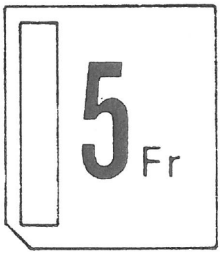
FRANCIA & SVIZZERA



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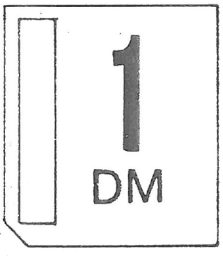


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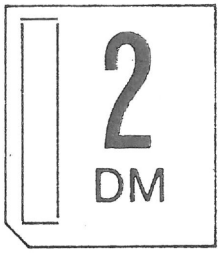


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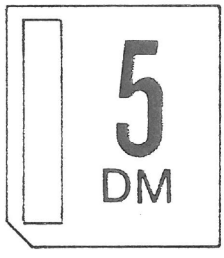
GERMANIA



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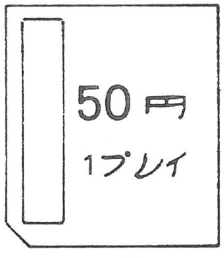


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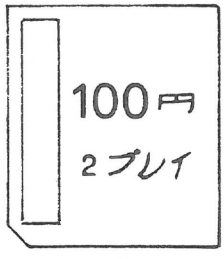


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GIAPPONE



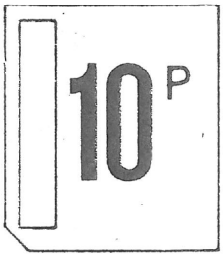
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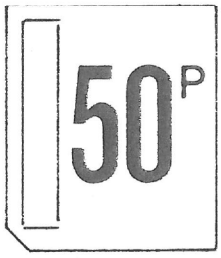
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in. m. =
PIASTRINA
introduzione
moneta

INGHILTERRA

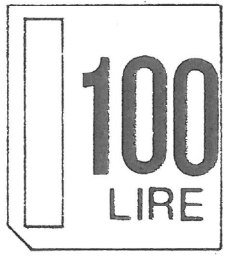


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ITALIA

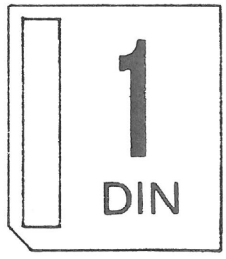


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in. m. A 5242

JUGOSLAVIJA



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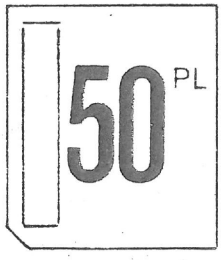


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LIBANO

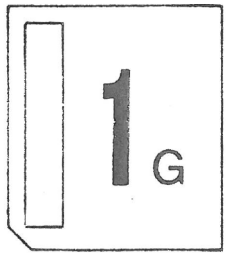


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OLANDA



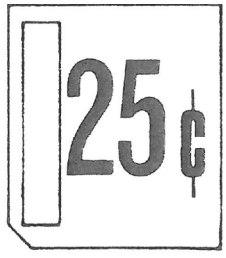
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UNGHERIA



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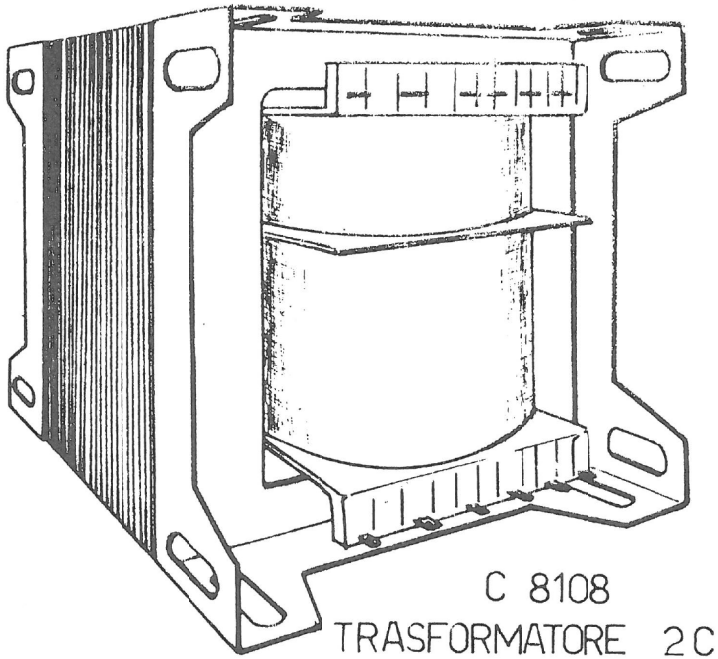
U.S.A. & CANADA



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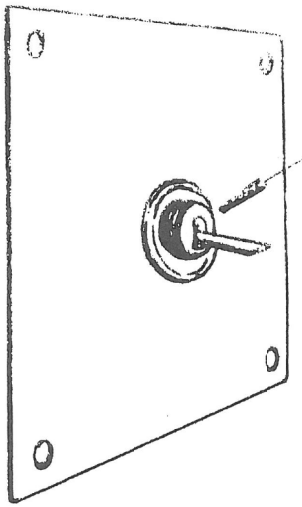


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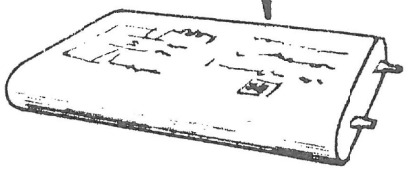
C 8108
TRASFORMATORE 2C1005

A 5171
PIASTRINA PER INTERRUTTORE DI RETE

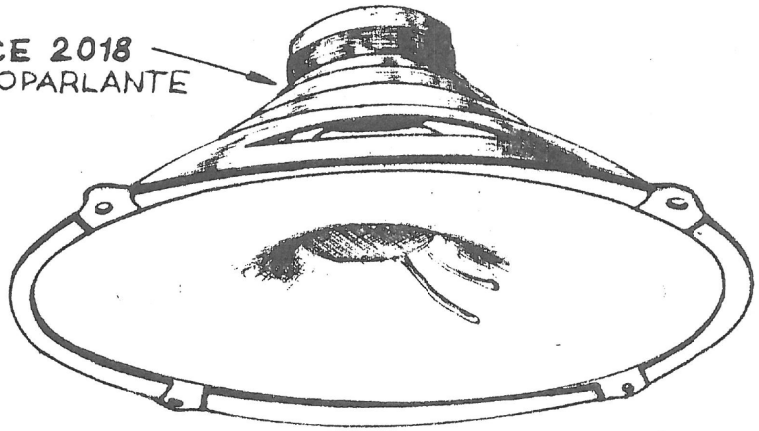


A 4425
INTERRUTTORE RETE 6. AMP.

C 8076
FILTRO RETE 1 AMP.

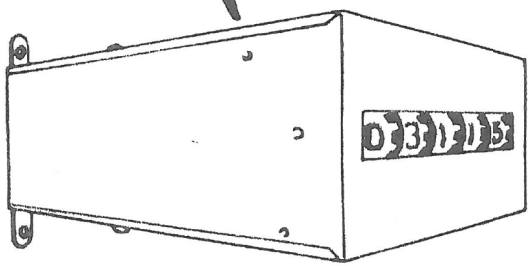


CE 2018
ALTOPARLANTE

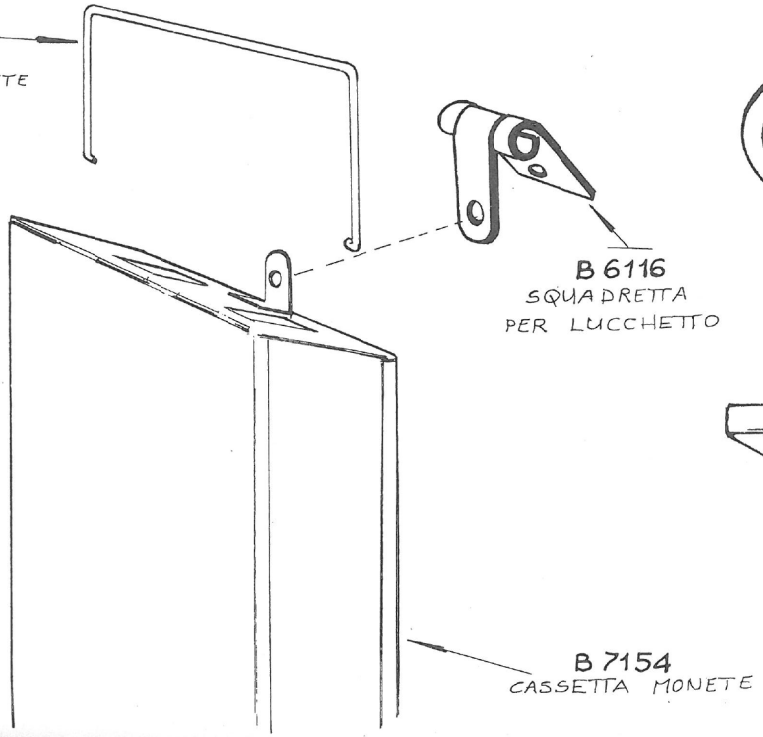


A 7160
MANICO PER CASSETTA MONETE

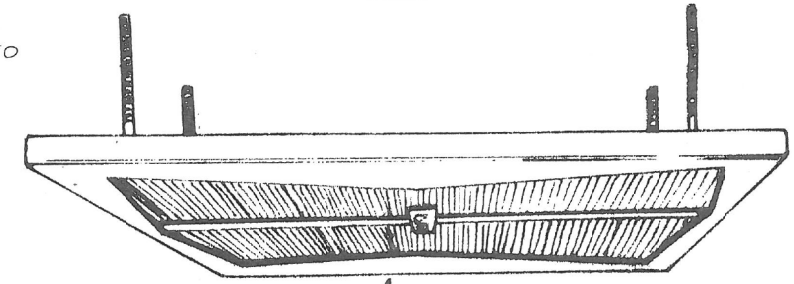
B 6110
CONTATORE 6 V. d. C.



B 6116
SQUADRETTA PER LUCCHETTO



B 7154
CASSETTA MONETE

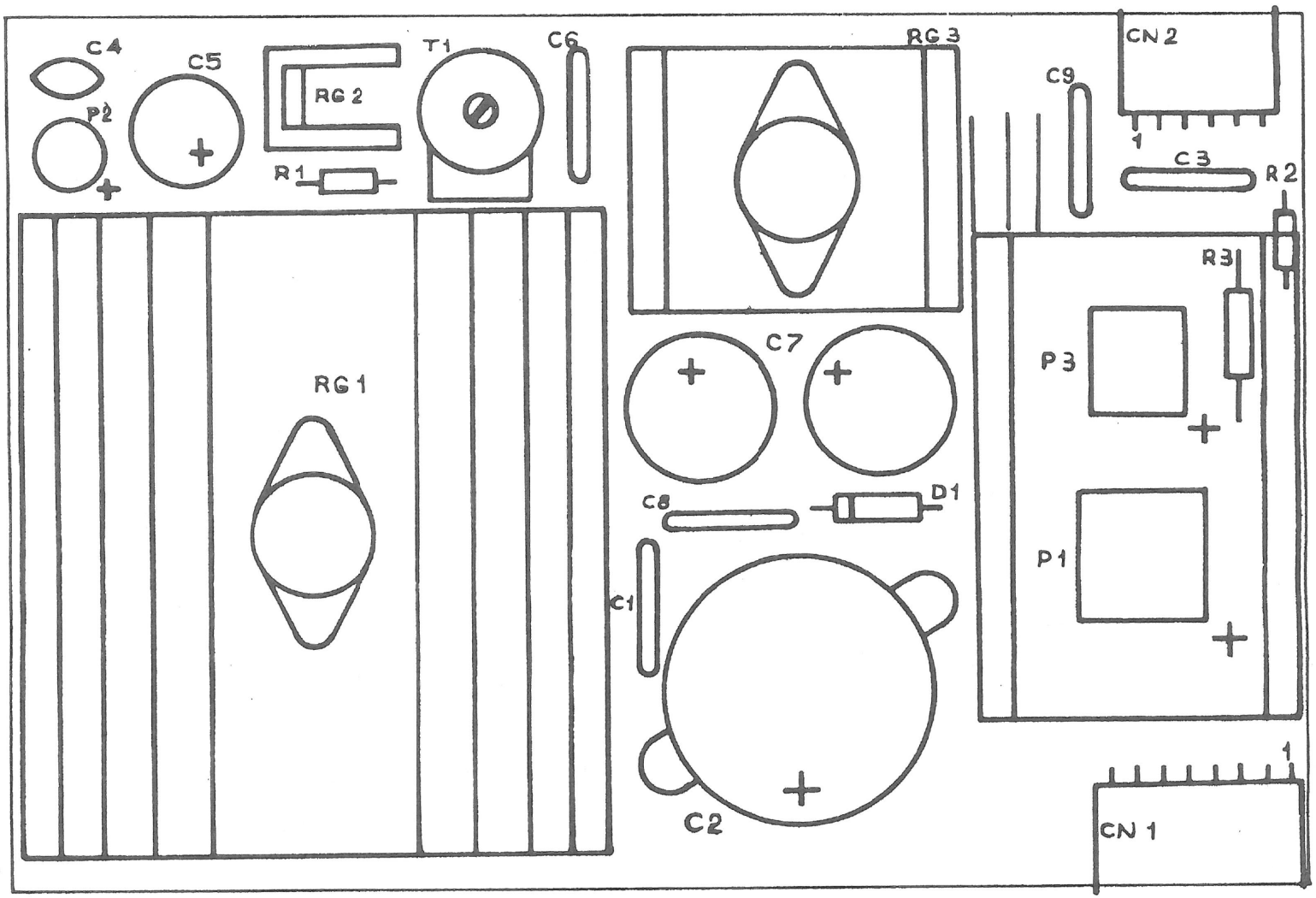


ASB 118
MASCHERINA ALTOPARLANTE

56	R1-2-40÷45 R84÷86	CE 1163	470 OHM 1/4W 5% Carbon Resistors	11
57	R31÷33	CE 1170	1K OHM 1/4W 5% Carbon Resistors	3
58	R5-R17÷29- R34÷39	CE 1164	2,2K OHM 1/4W 5% Carbon Resistors	20
59	R3-4-6÷16- 30-59-68÷75 82-83-87-88	CE 1165	4,7K OHM 1/4W 5% Carbon Resistors	27
60	R60÷67	CE 1408	27K OHM 1/4W 5% Carbon Resistors	8
61	2N-3N	CE 1480	8 SWITCH DIP	2
62	8A-8F	CE 1494	40 Pin Sochet for I.C.	2
63	1D-3D-8H-8I 10H-10I-11H 11I-11L-13H 13I-13L	CE 1495	24 Pin Sochet for I.C.	12
64	CN3-CN4-CN5	CE 1336	18 Pin "CIS" Receptacle connectors	3
65	CN2-CN6	CE 1337	7 Pin "CIS" Receptacle connectors	2
66	CN1	CE 1361	8 Pin "MODU1" Male connectors	1
67	12C	CE 1053	14 Pin Sochet for I.C.	1

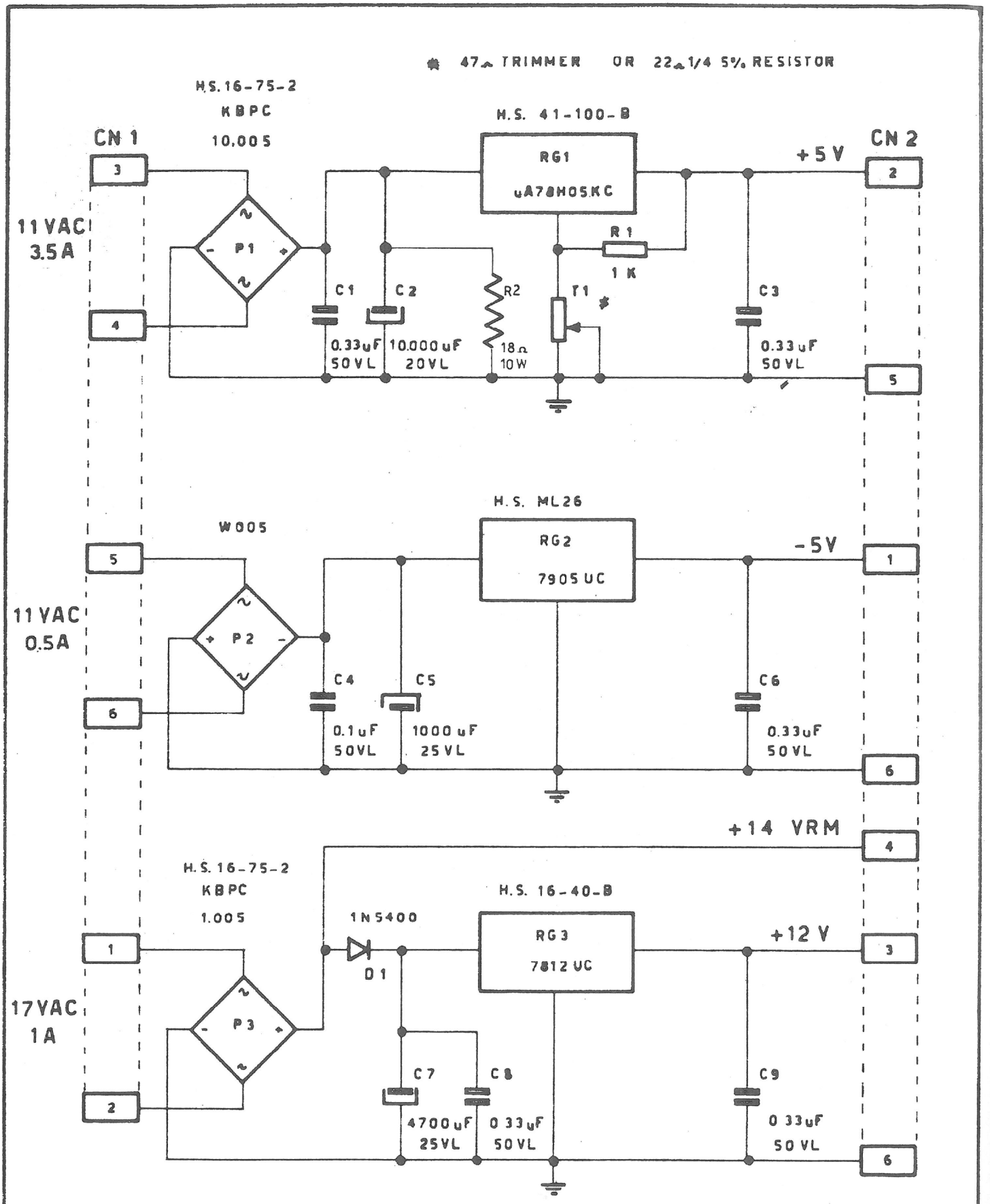
CEC 043

POWER BOARD VIDEO GAME ZACCARIA



OWER BOARD ASSEMBLY CEC 043

'EM).	PART Designation	CODE Part NO.	DESCRIPTION	REQ'D NO.
	PC 1	CE 2070	Printed Circuit 1B 1126	1
	P 1	CE 1405	50V. 10 AMP Rectifier Bridge (KBPC 10-005)	1
	P 2	CE 1233	50V. 1 AMP Rectifier Bridge (W - 005)	1
	P 3	CE 1276	50V. 3 AMP Rectifier Bridge (KBPC 1-005)	1
	RG 1	CE 1238	+5V. 5 AMP Voltage Regulator(µA 78H05KC)	1
	RG 2	CE 1648	-5V. 1 AMP Voltage Regulator(µA 7905 UC)	1
	RG 3	CE 1688	+12V. 1 AMP Voltage Regulator(µA 7812 UC)	1
	D 1	CE 1299	1N 5400 Diode	1
	CN 1	CE 1332	6 Pin Modu 1 Male Connector	1
)	CN 2	CE 1361	8 Pin Modu 1 Male Connector	1
.	HS 1	CE 1566	Heat Sink 16/75/2	1
:	HS 2	CE 1278	Heat Sink 41/100/B	1
3	HS 3	CE 1099	Heat Sink ML 26 TO-220	1
4	HS 4	CE 1529	Heat Sink 16/40/B	1
5	C 1-3-6-8-9	CE 1261	0,33µF 50V. Poliester Film Capacitors	5
6	C 2	CE 1384	10.000µF 16V. Electr. Cap. Single Ended	1
7	C 4	CE 1005	0,1µF 50V. Ceramic Capacitor	1
8	C 5	CE 1026	1.000µF 25V. Electr. Cap. Single Ended	1
9	C 7	CE 1579	2.200µF 25V. Electr. Cap. Single Ended	2
0	R 1	CE 1170	1 KOHM 1/4W. 5% Carbon Resistor	1
1	R 2	CE 1701	18 OHM 20W. 10% Wire Resistor	1
2	T 1		47 OHM 1 Turn Vertical Trimmer (Commonly mounted 22 OHM 1/4W. 5% carbon resistor)	1

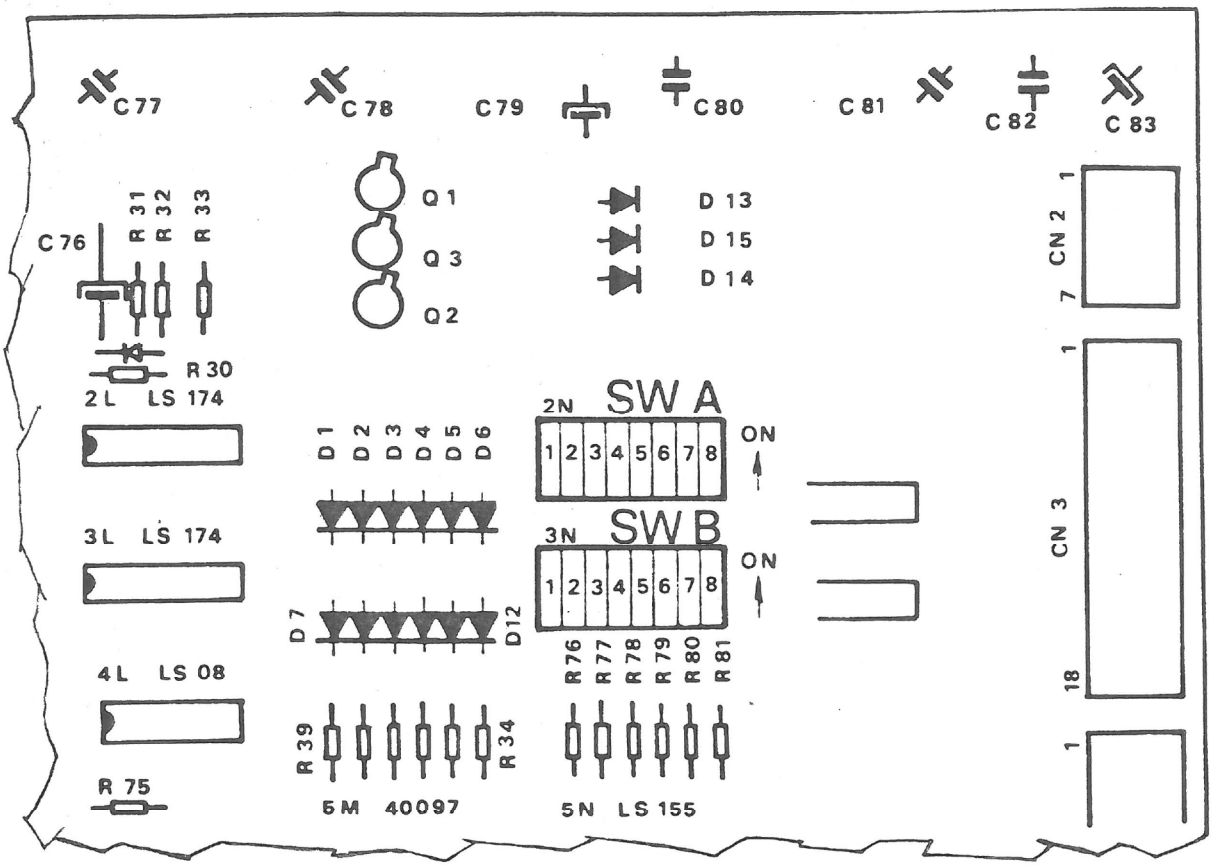


ZACCARIA

CEC-043	ELECTRICAL DIAGRAM for POWER SUPPLY (1B1126)

Electrical diagram

ASTRO WARS
EINSTELLMÖGLICHKEITEN



Schalterpaket 3 N

Schalter 1 + 8 sind nicht gesetzt

Schalter 2 + 3 Einstellung der Schwierigkeitsgrade für feindliche Objekte (Geschwindigkeit)

sehr leicht	=	Schalter 2 ein (ON) Schalter 3
leicht	=	Schalter 2 ein (ON) Schalter 3 aus (OFF)
schwer	=	Schalter 2 aus (OFF) Schalter 3 ein (ON)
sehr schwer	=	Schalter 2 aus (OFF) Schalter 3 aus (OFF)

Schalter 4 ON = 3 Raketen OFF = 5 Raketen

Schalter 5 linker Geldeinwurf
2 x 1 Münze 1 Spiel ein (ON)
1 x 1 Münze 1 Spiel aus (OFF)

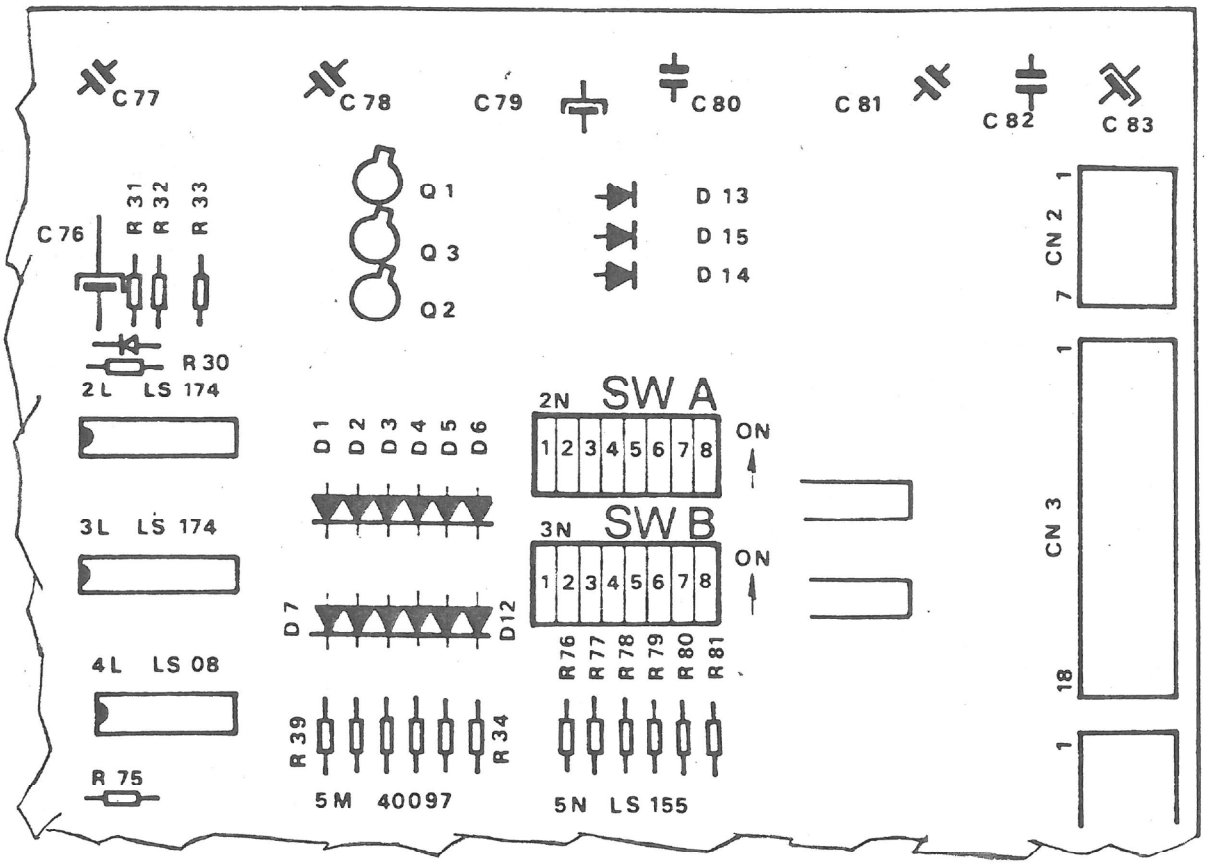
Schalter 6 + 7 rechter Geldeinwurf

6 =	ON	ON	OFF	OFF
7 =	ON	OFF	ON	OFF
	1 Münze 1 Spiel	1 Münze 2 Spiele	1 Münze 3 Spiele	1 Münze 5 Spiele

Tankmenge ist nicht veränderbar!

ASTRO WARS

EINSTELLMÖGLICHKEITEN



Schalterpaket 2 N

Einstellung High Score

normal = Schalter 7 ein (ON) High Score 5000 Punkte
random = Schalter 7 aus (OFF) bei jedem Spiel
High Score Veränderung von 5000 - 12500 Punkte

High Score Einstellung mit Schalter 5 + 6 einzeln

70 % 5000-7000 Punkte	= Schalter 5 ein (ON) Schalter 6 ein (ON)
70 % 7000-9000 Punkte	= Schalter 5 ein (ON) Schalter 6 aus (OFF)
70 % 8500-10500 Punkte	= Schalter 5 aus (OFF) Schalter 6 ein (ON)
70 % 10500-12500 Punkte	= Schalter 5 aus (OFF) Schalter 6 aus (OFF)

Schalter 2 schaltet nur, wenn
Schalter 7 High Score auf aus (OFF) geschaltet ist

Schalter 2 aus (OFF) = Freispiel
ein (ON) = kein Freispiel

Schalter 3 + 4 sind für Zusatzraketen

3 ON, 4 ON = keine
3 ON, 4 OFF = 3000 P.
3 OFF, 4 ON = 5000 P.
3 OFF, 4 OFF = 7000 P.