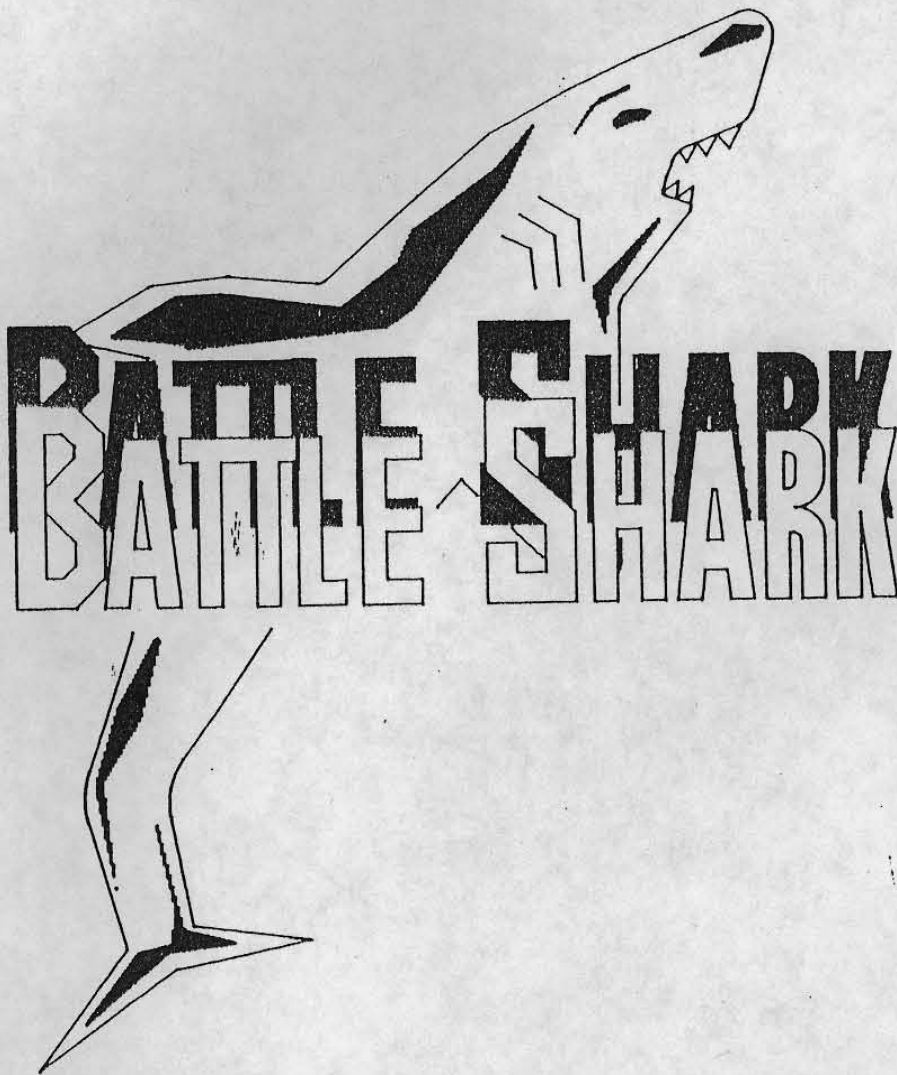


ELECTROCOIN AUTOMATICS LTD

SITDOWN

SERVICE MANUAL



TAITO CORPORATION

TAITO

PART No. 64069

SPECIFICATIONS:

- | | |
|----------------------|--|
| 1. Power Supply | HANTAREX US 250 |
| 2. Power Consumption | 140w |
| 3. Play Pricing | Adjustable on Dip switches |
| 4. TV Monitors | 25" Hantarex 9000E colour monitor |
| 5. Dimensions | Width : 661mm
Depth : 754mm (without seat)
Height : 1802mm |
| 6 Weight | Approximately: 160 kg |

* The specifications and appearance may be changed for improvement.

Table of Contents

Installation	2
Adjustments of Color Video Monitor, Refer to Hantarex Manual)	
Play Instructions	3, 4
Test Mode	5, 6
Dip Switch Settings	7
Credit Board Information	8, 9, 10, 11
Connector Information	12, 13, 14, 15
Main Loom Drawing	16, 17, 18
Power supply (Refer to Hantarex Manual).	19

PRECAUTIONS TO BE OBSERVED WHEN INSTALLING MACHINE

THIS VIDEO GAME IS FOR INDOOR USE ONLY.
WHEN INSTALLING AVOID PLACES MENTIONED BELOW

1. PLACES SUBJECT TO CONDENSATION DUE TO HUMIDITY.
2. IN THE PROXIMITY OF AN INDOOR SWIMMING POOL OR SHOWER.
3. PLACES SUBJECT TO DIRECT SUNLIGHT.
4. VICINITY OF HIGHLY INFLAMMABLE/VOLATILE CHEMICALS.
5. UNEVEN SURFACES.
6. VICINITY OF FIRE EXITS AND FIRE EXTINGUISHERS.
7. DUSTY ATMOSPHERE.

INSTALLATION

IT IS IMPORTANT TO AVOID ROUGH HANDLING OF THIS MACHINE AS CERTAIN PARTS ARE FRAGILE.

UPON REMOVAL OF THE SHIPPING CARTON EXAMINE THE EXTERIOR OF THE CABINET FOR DENTS, CHIPS OR BROKEN PARTS.

ACCESS TO THE APPLIANCE SHOULD ONLY BE MADE BY QUALIFIED PERSONNEL FOR ANY PURPOSE.

INSPECT THE INTERIOR OF THE CABINET AS FOLLOWS:

A) CHECK THAT ALL THE PLUG IN CONNECTORS ARE FIRMLY SEATED i.e. THE EDGE CONNECTOR ON THE CPU BOARD. IF ANY CONNECTORS ARE FOUND UNPLUGGED IT IS IMPORTANT WHEN RE-PLUGGING NOT TO FORCE THE CONNECTORS TOGETHER. AS SOME MAY BE KEYED AND ONLY GO ON IN THE PROPER ORIENTATION.

B) CHECK THAT ALL PLUG-IN INTEGRATED CIRCUITS AND SUB BOARDS ON THE GAME PCB ARE FIRMLY SEATED IN THEIR SOCKETS.

C) CHECK ALL SUB ASSEMBLIES SUCH AS THE POWER SUPPLY FOR SECURE MOUNTING.

ENSURE THE MAINS SUPPLY IS CORRECT FOR OPERATION OF THE MACHINE, AND THAT THE SUPPLY HAS A GOOD EARTH CONNECTION.

SAFETY/MAINTENANCE

THIS VIDEO GAME REQUIRES CERTAIN MAINTENANCE TO KEEP IT IN GOOD WORKING ORDER.

IT IS ADVISED THAT THE SITE MANAGER CHECKS THE SERVICEABILITY OF THE MACHINE DAILY.

WARNING

HIGH VOLTAGES EXIST WITHIN THE MACHINE SO IT IS ADVISABLE THAT ONLY QUALIFIED SKILLED PERSONNEL SHOULD TOUCH ANY INTERNAL PARTS OF THE MACHINE. THE HIGH VOLTAGES PRESENT MAY CAUSE SHOCK OR EVEN FATALITY WITH MISUSE. ALWAYS TURN THE MACHINE OFF BEFORE COMMENCING ANY WORK.

HIGH VOLTAGES MAY EXIST IN ANY MONITOR UNIT, EVEN WITH THE POWER DISCONNECTED. USE EXTREME CAUTION AND DO NOT TOUCH ELECTRICAL PARTS, OR THE YOKE WITH YOUR HANDS OR WITH METAL OBJECTS HELD IN YOUR HANDS. INFORMATION ON THE MONITOR FUSES ARE CONTAINED IN THE MONITOR MANUAL SUPPLIED WITH THIS MACHINE.

CAUTION

DO NOT USE FUSES OTHER THAN THOSE SPECIFIED, FOR THE CONTINUED PROTECTION OF YOUR GAME.

NEVER CONNECT OR DISCONNECT ANY CONNECTORS OF THE PCB, OR RESET THE DIP SWITCH SETTINGS WHILE THE POWER IS ON.

REGULARLY CLEAN THE OUTSIDE OF THE CABINET. DO NOT DRY WIPE ANY OF THE ACRYLIC PANELS, BECAUSE ANY DUST CAN SCRATCH THE SURFACE AND RESULT IN FOGGING THE PLASTIC. ACRYLIC SURFACES MAY BE CLEANED WITH ANY NON-ABRASIVE HOUSEHOLD CLEANER.

PLAY INSTRUCTIONS

YOU ARE A SUBMARINE GUNNER. ENTER THE ENEMY'S BASE AND DESTROY IT
DURING THE THIRD WORLD WAR, HOSTILE FIGHTING HAS TAKEN
PLACE ON LAND AND HAS EXTENDED INTO THE OCEANS.
BUT THE PEACE NEGOTIATIONS ARE AN ENEMY TRAP. THE ENEMY
IS BUILDING AN UNDERWATER FORTRESS. SEEK AND DESTROY !!

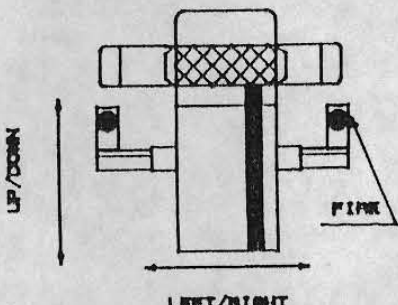



LET'S GET TO WORK BATTLESHARK!

HOW TO PLAY

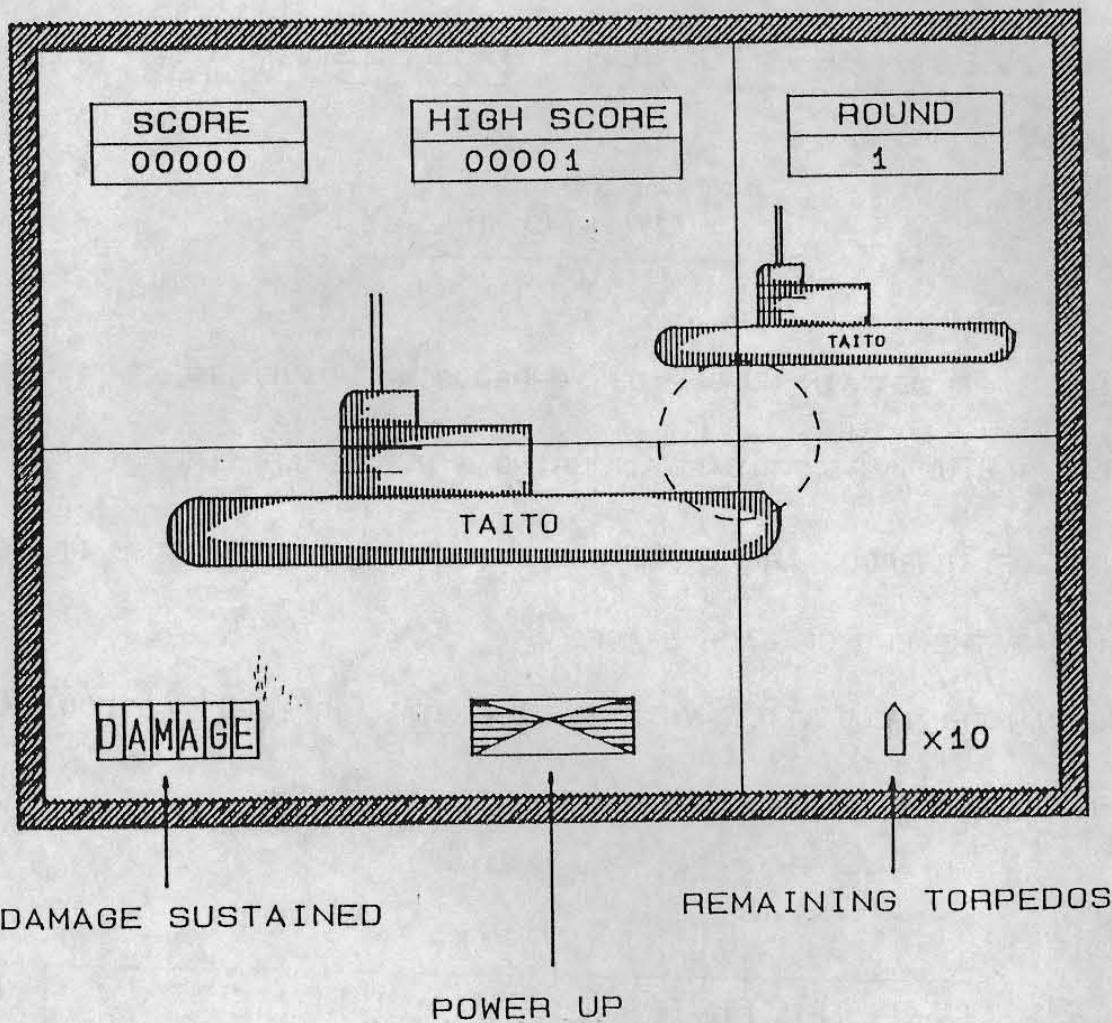
AT THE START, A CERTAIN NUMBER OF TORPEDOS ARE GIVEN TO EACH PLAYER.
THEY WILL FILL UP AUTOMATICALLY, DURING A PERIOD OF TIME.

THE NUMBER OF TORPEDOS ARE INCREASED BY, DEFEATING THE BOSS PLAYER
APPEARING AT THE END OF EACH STAGE.

TO AVOID DAMAGES RECEIVED, AVOID THE ENEMY'S TORPEDOS AND BODILY CRASHES.
IF YOU HAVE RECEIVED TOO MUCH DAMAGE THE GAME ENDS.

PERISCOPE	ITEMS		
	POWER UP	TORPEDOS	DAMAGE RECOVERY
			

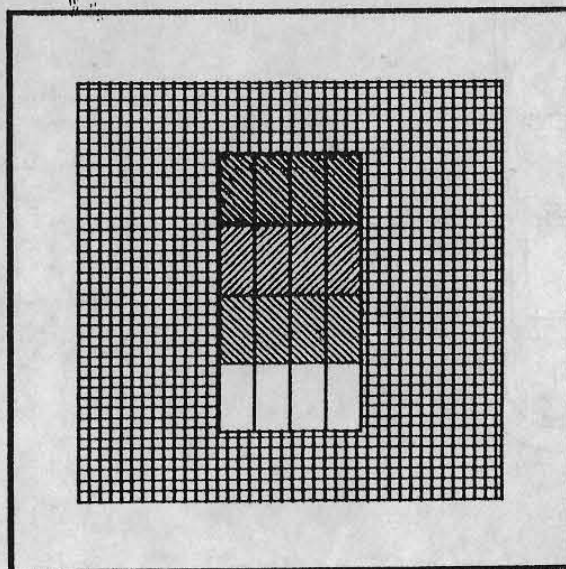
SCREEN EXPLANATION



TEST MODE

COIN A : OFF	COIN B : OFF
SERVICE SW.: OFF	TILT : OFF
1 PLAYER : OFF	2 PLAYER : OFF
FIRE : OFF	STICK H : 00 (BC-42)
	STICK V : 00 (C0-3E)
DIP SWITCH:	8 7 6 5 4 3 2 1
A: L : ON	H H H H H L H H
B: H : OFF	H H H H H H H H
SOUND CODE 0 - FE	
RAM O.K	
ROM O.K	

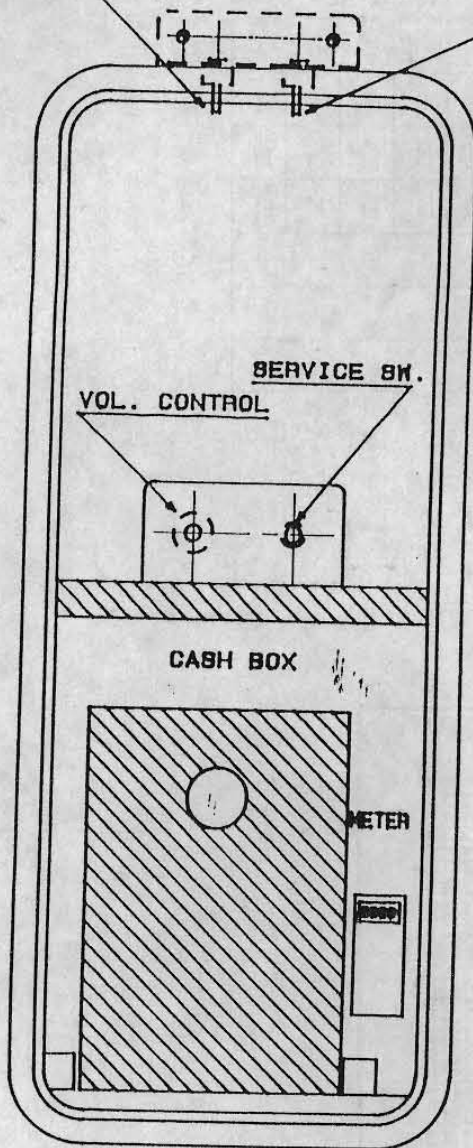
CROSS HATCH



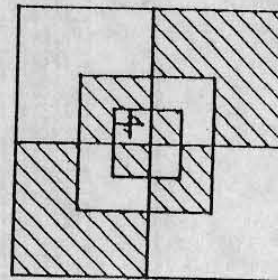
WHEN THE CROSS HATCH AND COLOUR BARS ARE DISPLAYED
ON THE SCREEN, COLOURS AND BRIGHTNESS CAN BE ADJUSTED.
PRESS FIRE BUTTON TO CONTINUE TEST.

ADJUSTMENT TEST

VERTICAL POT (Y) HORIZONTAL POT (X)



THIS TEST CAN BE USED TO INDICATE THE UP/DOWN, LEFT/RIGHT MOVEMENT OF THE SCOPE MECHANISM. ADJUST POSITION USING ADJ X AND ADJ Y POTENTIOMETERS AS NECESSARY WITH THE SCOPE MECH. IN ITS CENTRAL POSITION. NOTE: ADJ X AND ADJ Y POT'S ARE LOCATED INSIDE COIN DOOR MOUNTED ON A BRACKET.



PRESS FIRE BUTTON TO CONTINUE TEST

BATTLE SHARK DIP SWITCH SETTINGS

PLEASE NOTE! BEFORE CHANGING THE SETTINGS TURN OFF THE MAINS POWER.

[] DIP SWITCH A.

SETTINGS	POSITIONS	1	2	3	4	5	6	7	8															
TEST MODE	NORMAL GAME	OFF		OFF																				
	TEST MODE			ON																				
ARRACT SOUND	WITH			OFF								OFF												
	WITHOUT											ON												
COIN A	1 COIN 1 PLAY										OFF								OFF					
	2 COINS 1 PLAY																		ON				OFF	
	3 COINS 1 PLAY																		OFF				ON	
	4 COINS 1 PLAY																		ON				ON	
COIN B	1 COIN 2 PLAYS																OFF						OFF	OFF
	1 COIN 3 PLAYS																						ON	ON
	1 COIN 4 PLAYS	OFF	ON																					
	1 COIN 6 PLAYS	ON	ON																					

[] DIP SWITCH B.

SETTINGS	POSITIONS	1	2	3	4	5	6	7	8
GAME DIFFICULTY EASY (A) DIFFICULT (D)	RANK B	OFF	OFF						
	RANK A	ON	OFF						
	RANK C	OFF	ON						
	RANK D	ON	ON						
SPEED OF SIGHT	NORMAL A			OFF	OFF				
	B			ON	OFF				
	C			OFF	ON				
	FAST D			ON	ON				

PINOUT INFORMATION

<u>PIN</u>	<u>COLOUR</u>	<u>FUNCTION</u>
1.	YEL/BLK	10p MICROSWITCH OR N.P.N OPEN COLLECTOR INPUT.
2.	N/C	10p MICROSWITCH OR N.P.N. OPEN COLLECTOR INPUT.
3.	WHT/BLU	10p PNP INPUT (MS 111/SENTINEL)
4.	N/C	20p INPUT (MICROSWITCH)
5.	WHT/GRN	20p INPUT (MS 111/SENTINEL)
6.	N/C	50p INPUT (MICROSWITCH)
7.	WHT/BLK	50p INPUT (MS 111/SENTINEL)
8.	N/C	£1 INPUT (MICROSWITCH)
9.	WHT/YEL	£1 INPUT (MS 111/SENTINEL)
10.	BLU/BLK	0 VOLTS (10p INHIBIT)
11.	BLU/YEL	0 VOLTS (20p INHIBIT)
12.	BLU/ORG	0 VOLTS (50p INHIBIT)
13.	BLU/WHT	0 VOLTS (£1 INHIBIT)
14.	BLACK	0 VOLTS
15.	BLACK	0 VOLTS
16.	N/C	0 VOLTS
17.	N/C	0 VOLTS
18.	ORANGE	+ 12v DC
19.	ORANGE	+ 12v DC
20.	ORANGE	+ 12v DC
21.	BLU/VIO	- POSITIVE COMMON FOR MS111/SENTINEL
22.	WHT/RED	METER OUTPUT (NPN OPEN COLLECTOR)
23.	ORG/BLK	CREDIT OUTPUT (NPN OPEN COLLECTOR)
24.	N/C	0 VOLTS

NOTES:-

- 1) Use 0 volts for negative common if plugging into MS 125 seperator unit.
- 2) Ensure that there is no coin meter connected across any input, eg. via a microswitch or an adaptor card.

NOTE: On most unigame adaptors pin 10 is linked to pin 24, and pin 11 is linked to pin 25, these links should be removed completely. Then short pin 11 to pin 12 on the adaptor card. This then uses the output from the credit board meter drive.

- 3) The meter will always total cash in 10p units regardless of any credit setting.
- 4) More than one coin mech may be fed into the PCB.

e.g. A) S10 (up to four)
 B) S10 X MS 111
 C) S10 X MS 125
 D) S10 X Sentinel

- 5) Most credit boards are supplied with a standard credit loom.
 (Part No 16315) fitted with a male 6 way amp mate 'N' lock connector.

Pinouts are shown below.

<u>PIN</u>	<u>COLOUR</u>	<u>FUNCTION</u>
1.	ORANGE	+12v DC SUPPLY
2.	PINK	+5v DC (LAMP SUPPLY)
3.	N/C	
4.	WHT/RED	TO COIN METER
5.	BLACK	0v DC
6.	ORG/BLK	COIN INPUT TO GAME PCB.

DIP SWITCH SETTINGS V-2

FUNCTION 1 2 3 4 5 6 7 8

Bonus Games

Not used

None	on	on
For every 50p	off	on
For every £1	on	off
For every £2	off	off

1 Pulse per credit	on
2 Pulses per credit	off

Price per play

10p	on	on	on
20p	off	on	on
30p	on	off	on
40p	off	off	on
50p	on	on	off
60p	off	on	off
£1	on	off	off
£2	off	off	off

Please Note:- A bonus game will only be awarded if the game price of play is less than the bonus value set. Also if a mixture of coins are inserted, the time interval between coins inserted must be of less than 5 seconds for the bonus to be awarded.

EXAMPLES OF SETTINGS (FOR £1 INSERTED).

Price of Play	Bonus Games	Credits	Bonus	Total
10p	off	10	None	10
10p	For every 50p	10	2	12
10p	For every £1	10	1	11
20p	off	5	None	5
20p	For every 50p	5	2	7
20p	For every £1	5	1	6
30p	off	3	None	3
30p	For every 50p	3	2	5
30p	For every £1	3	1	4
40p	off	2	None	3
40p	For every 50p	2	2	4
40p	For every £1	2	1	3
50p	off	2	None	2
50p	For every £1	2	1	3

COIN CONTROLS CCU

TECHNICAL DATA

APPLICATIONS

CCU with sentinel

The CCU is designed to work with the sentinel 30 range of validators in a single or dual currency mode. All connections to the validators are directly from the CCU. Connections to the host machine being via the 6 way connector. If it is required that the host machine controls inhibits directly then the inhibit wiring will need to be modified to suit the application.

SWITCH SETTINGS FOR CCU

Totalising switch

As each coin is accepted, the number of credits generated by the coin are calculated by dividing the coin value by the price per credit. The result is added to the credit total. In non-totalise mode, if the coin is 20p or 10p, any money remaining after the credit calculation is added to the next 20p/10p entered before the next credit calculation is performed. If the coin is £1 or 50p then the additional credits will also be added to the credit total. In totalise mode all 20p and 10p coins are added together. Whenever this total exceeds £1 or 50p then the corresponding additional credits are added to the credit total. A time limit is placed on the totalisation to prevent the money total from being passed from one used to the next.

S11 ON - TOTALISE MODE
S11 OFF - NON TOTALISE MODE

CURRENCY SELECT SWITCH

Most coin sets have a fixed ratio of 100, 50, 20, 10 eg. 100p, 50p, 20p, 10p, but a small number of coin sets possess a different ration eg. 100 cents, 25 cents, 10 cents, 5 cents. On the CCU an option switch is available to allow an operator to select the coin set required. When the standard coin set is selected, the meter output pulses are in units of 10p. For the non-standard coin set, the meter output pulses are in units of 5c.

S12 ON - NON-STANDARD COIN SET (100, 25, 10, 5)
S12 OFF - STANDARD COIN SET (100, 50, 20, 10)

INHIBIT SWITCHES

The inhibit switches are connected directly to the sentinel. There are individual switches for 11-14 and 15,6 and 17,8.

NOTE: When sentinel is used in dual currency mode, and 15,6 and 17,8 are enabled by setting SW17 and 18 on. Then both currencies must have the same coin ratios.

4.4 PRICE SETTING

The price settings switches are arrange din three groups:- 5 switches for the basic price per credit, 3 switches for the number of additional credits bought by the highest value coin eg. £1.

2 switches for the number of additonal credits bought by the second highest value coin ig. 50p.

PROGRAMMING INFORMATION

PRICE PER GAME FOR 100, 50, 20, 10 COIN SET

<u>SW1</u>	<u>SW2</u>	<u>SW3</u>	<u>SW4</u>	<u>SW5</u>	<u>UNITS/GAME</u>
X	ON	ON	ON	ON	5
X	OFF	ON	ON	ON	10
X	ON	OFF	ON	ON	20
X	OFF	OFF	ON	ON	30
X	ON	ON	OFF	ON	40
X	OFF	ON	OFF	ON	50
X	ON	OFF	OFF	ON	60
X	OFF	OFF	OFF	ON	70
X	ON	ON	ON	OFF	80
X	OFF	ON	ON	OFF	90
X	ON	OFF	ON	OFF	100
X	OFF	OFF	ON	OFF	110
X	ON	ON	OFF	OFF	120
X	OFF	ON	OFF	OFF	130
X	ON	OFF	OFF	OFF	140
X	OFF	OFF	OFF	OFF	150

X = DON'T CARE

ADDITIONAL GAMES FOR HIGHEST VALUE COIN(COIN 1)

<u>SW6</u>	<u>SW7</u>	<u>SW8</u>	<u>FUNCTION</u>
ON	ON	ON	NO ADDITIONAL GAMES
OFF	ON	ON	1 ADDITIONAL GAME
ON	OFF	ON	2 ADDITIONAL GAMES
OFF	OFF	ON	3 ADDITIONAL GAMES
ON	ON	OFF	4 ADDITIONAL GAMES
OFF	ON	OFF	5 ADDITIONAL GAMES
ON	OFF	OFF	6 ADDITIONAL GAMES
OFF	OFF	OFF	7 ADDITIONAL GAMES

ADDITIONAL GAMES FOR SECOND HIGHEST COIN (COIN 2)

<u>SW9</u>	<u>SW10</u>	<u>FUNCTION</u>
ON	ON	NO ADDITIONAL GAMES
OFF	ON	1 ADDITIONAL GAME
ON	OFF	2 ADDITIONAL GAMES
OFF	OFF	3 ADDITIONAL GAMES

TOTALISING SWITCHES

S11 ON TOTALISE MODE
S11 OFF NON-TOTALISE MODE

CURRENCY SELECT SWITCHES

S12 ON NON-STANDARD COIN SET (100, 25, 10, 5)
S12 OFF STANDARD COIN SET (100, 50, 20, 10)

INHIBIT SWITCHES

S13 COIN 1 ON = ACCEPT OFF = INHIBIT
S14 COIN 2
S15 COIN 3
S16 COIN 4
S17 COIN 5/6
S18 COIN 7/8

BATTLE SHARK

CONNECTOR A

LOGIC PCB

28 WAY EDGE CONNECTOR KEYWAY PINS 7,H

BLK/RED	GND	1 A	GND	BLK
BLK	GND	2 B	GND	BLK
PNK	+5v	3 C	+5v	PNK
PNK	+5v	4 D	+5v	PNK
VIO	-5v	5 E		
RED/BLK	+13v	6 F	+13v	RED/BLK
KEYWAY		7 H	KEYWAY	
WHT/ORG	METER A	A J	METER B	WHT/YEL
		9 K		
GRY/WHT	L/SPEAKER (+)	10 L	R/SPEAKER (+)	GRY/BLK
WHT/GRY	L/SPEAKER (-)	11 M	R/SPEAKER (-)	BLK/GRY
RED/ORG	VIDEO RED	12 N	VIDEO GRN	GRN
BLU	VIDEO BLU	13 P	V-SYNC	WHT
BLK/BLU	VIDEO GND	14 R	SERVICE SW	ORG/RED
		15 S		
ORG/BLK	COIN A	16 T	COIN B	YEL/BLK
		17 U		
		18 V	AD X	GRY/BRN
		19 W	JST X	GRY/RED
		20 X	AD Y	GRY/BLU
		21 Y	JST Y	GRY/YEL
YEL/BLU	PUSH SW A	22 Z		
BLU/YEL	PUSH SW B	23 a		
		24 b		
		25 c	VOL. 1	YEL/BRN
YEL/GRN	VOL. 2	26 d	VOL. 3	YEL/RED
BLK	GND	27 e	GND	BLK/YEL
BLK/GRN	GND	28 f	GND	BLK/ORG

CONNECTOR B

+24v MOTOR

7 WAY JST 0.1" PITCH NH SERIES

1	+24v	GRY
2		
3	DRIVE	BLK/WHT
4	GND	BLK
5	GND	BLK/PNK
6		
7		

CONNECTOR C

PSU

9 WAY AMP M+L PLUG MALE PINS

1	+5v	PNK
2	+5v	PNK
3		
4	GND	BLK/RED
5	GND	BLK/GRN
6	GND	BLK
7	GND	BLK
8	+12v	ORG
9	-5v	VIO

CONNECTOR D

MONITOR SUPPLY

4 WAY AMP M+L PLUG MALE PINS

1	0v	BRN
2	135v	RED
3	0v	ORG
4	220v	YEL

CONNECTOR F

CONNECTOR BOX

9 WAY AMP M+L PLUG FEMALE PINS

1	+13v	RED/BLK
2	+13v	RED/BLK
3		
4	GND	BLK
5		
6	GND	BLK/PNK
7	GND	BLK
8	+24v	GRY
9	+24v	GRY

CONNECTOR GVIDEO/MONITOR

12 WAY AMP M+L PLUG (RED) FEMALE PINS

1	VIDEO GND	BLK/BLU
2		
3	VIDEO BLU	BLU
4	V-SYNC	WHT
5	VIDEO RED	RED/ORG
6	VIDEO GRN	GRN
7	0v	BRN
8		
9	220v	YEL
10	135v	RED
11		
12	0v	ORG

CONNECTOR HCOIN DOOR

6 WAY AMP M+L SOCKET MALE PINS

1	+12v	ORG
2	+5v	PNK
3	COIN B	YEL/BLK
4	CREDIT BD	WHT/RED
5	GND	BLK
6	COIN A	ORG/BLK

CONNECTOR ISCOPE

15 WAY AMP M+L SOCKET MALE PINS

1	L/SPEAKER (+)	GRY/WHT
2	L/SPEAKER (-)	WHT/GRY
3	R/SPEAKER (+)	GRY/BLK
4	R/SPEAKER (-)	BLK/GRY
5	+24v	GRY
6	DRIVE	BLK/WHT
7	PUSH A	YEL/BLU
8	GND	BLK
9	PUSH B	BLU/YEL
10	+5v	PNK
11	AD-Y	GRY/BLU
12	AD-X	GRY/BRN
13	GND	BLK
14		
15	EARTH	GRN/YEL

CONNECTOR JSERVICE SW

FIT MINI PUSH BUTTON

1	SERVICE SW	ORG/RED
2	GND	BLK

CONNECTOR K

ADJ. VOL.

FIT ROTARY SWITCH

- A GND
- 1 VOL 1
- 2 VOL 2
- 3 VOL 3

- BLK
- YEL/BRN
- YEL/GRN
- YEL/RED

CONNECTOR L

METERS

3 WAY M+L SOCKET MALE PINS

- 1 +5v
- 2 CREDIT BD
- 3 METER A
- 4 METER B

- PNK
- WHT/RED (TIED BACK)
- (TIED BACK)
- (TIED BACK)

CONNECTOR M

ADJ. X

FIT 5K POT

- 1 +5v
- 2 AJ. X
- 3 GND

- PNK/WHT
- GRY/RED
- BLK/YEL

CONNECTOR N

ADJ. Y

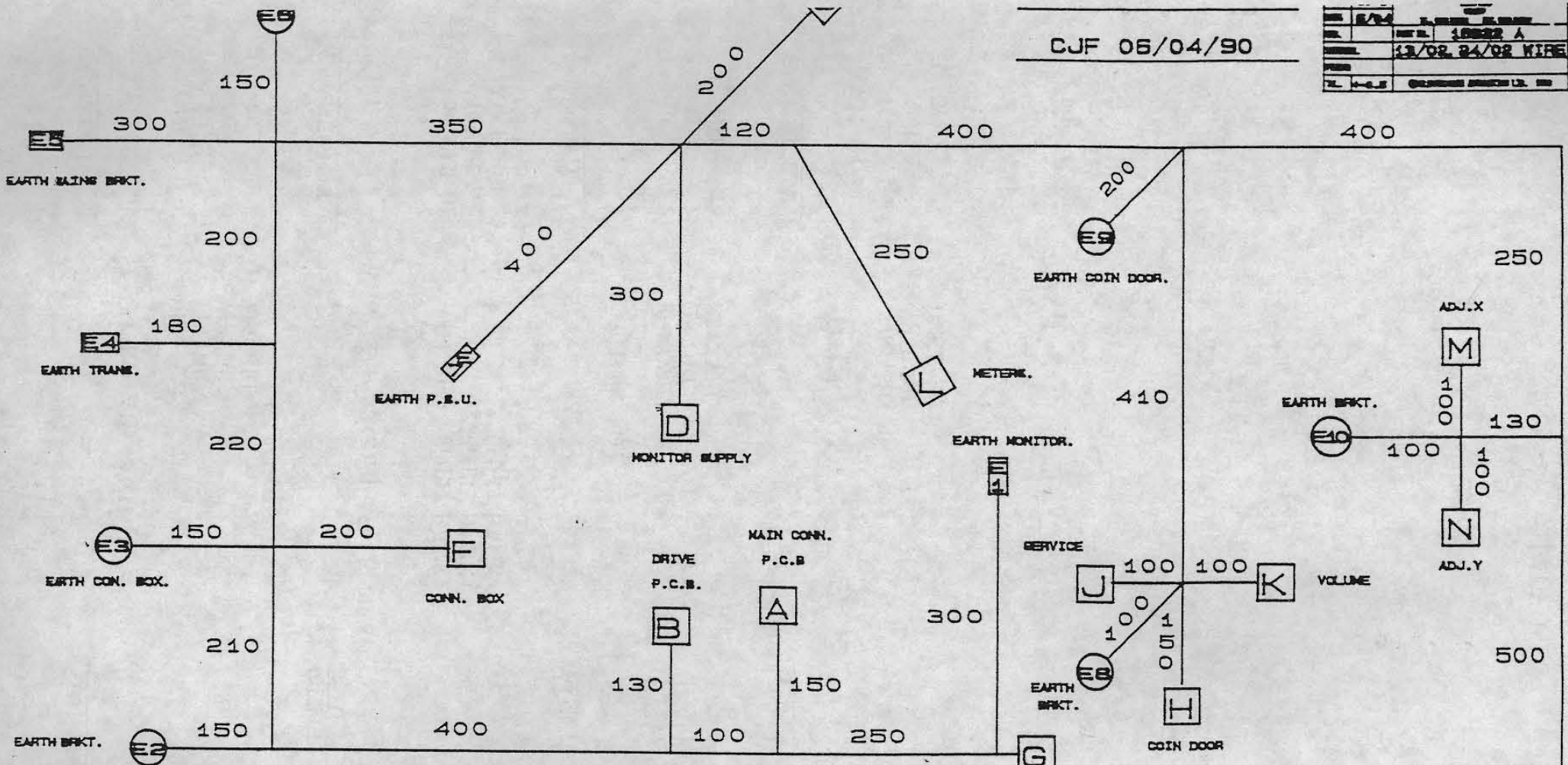
FIT 5K POT

- 1 +5v
- 2 ADJ. Y
- 3 GND

- PNK/WHT
- GRY/YEL
- BLK/YEL

CJF 06/04/90

REV	1/1/84
DATE	12/82 A
BY	13/02, 24/02 WIRE
SCALE	
ELECTRICIAN'S SIGNATURE	



KEY

- | | |
|---|--------------------------------------|
| A | 28 MAY EDGE CONNECTOR KEY PINS 7.H |
| B | 7 MAY JST 0.1 PITCH MH SERIES |
| C | 8 MAY AMP M+L PLUS MALE PINS |
| D | 4 MAY AMP M+L PLUS MALE PINS |
| F | 8 MAY AMP M+L PLUS FEMALE PINS |
| G | 12 MAY AMP M+L PLUS RED FEMALE PINS |
| H | 8 MAY AMP M+L SOCKET MALE PINS |
| I | 15 MAY AMP MINI M+L PLUS FEMALE PINS |
| J | FIT MINI PUSH BUTTON |
| K | FIT ROTARY SWITCH |
| L | 3 MAY AMP M+L SOCKET MALE PINS |
| M | FIT BK ONE POTENTIOMETER |
| N | FIT BK ONE POTENTIOMETER |

- D. 25 FASTON WITH BOOTLS > E1, E4, E6, E7, E11.
- 08A RING CRIMP > E2, E6.
- 28A RING CRIMP > E3, E8, E9, E10.

WIRE LIST

PART NO 16922

TITLE

SHEET 1 OF 2

REVISION A

MAIN LOOM

DATE 6-4-90

WIRE NO	FROM	TO	COLOUR	FUNCTION	WIRE SIZE
1	A-1	C-4	BLK/RED	GND	24/02
2	A-2	I-8	BLK	GND SCOPE	13/02
3	A-3	C-1	PNK	+5v	24/02
4	A-4	I-10	PNK	+5v	13/02
5	A-5	C-9	VIO	-5v	13/02
6	A-6	F-2	RED/BLK	+13v	24/02
7	A-8	L-3 tied back	WHT/ORG	METER A	13/02
8	A-10	I-1	GRY/WHT	L/SPEAKER (+)	13/02
9	A-11	I-2	WHT/GRY	L/SPEAKER (-)	13/02
10	A-12	G-5	RED/ORG	VIDEO RED	13/02
11	A-13	G-3	BLU	VIDEO BLU	13/02
12	A-14	G-1	BLK/BLU	VIDEO GND	13/02
13	A-16	H-6	ORG/BLK	COIN A	13/02
14	A-22	I-7	YEL/BLU	PUSH SW A	13/02
15	A-23	I-9	BLU/YEL	PUSH SW B	13/02
16	A-26	K-2	YEL/GRN	VOL. 2	13/02
17	A-27	I-13	BLK	GND SCOPE	13/02
18	A-28	C-5	BLK/GRN	GND	24/02
19	A-A	J-2	BLK	GND SERVICE	13/02
20	A-B	K-GND	BLK	GND VOL.	13/02
21	A-C	L-1	PNK	+5v METER	13/02
22	A-D	M-1	PNK/WHT	+5v ADJX	13/02
23	A-F	F-1	RED/BLK	+13v	24/02
24	A-J	L-4 tied back	WHT/YEL	METER B	13/02
25	A-L	I-3	GRY/BLK	R/SPEAKER (+)	13/02
26	A-M	I-4	BLK/GRY	R/SPEAKER (-)	13/02
27	A-N	G-6	GRN	VIDEO GRN	13/02
28	A-P	G-4	WHT	V-SYNC	13/02
29	A-R	J-1	ORG/RED	SERVICE SW	13/02
30	A-T	H-3	YEL/BLK	COIN B	13/02
31	A-V	I-12	GRY/BRN	AD X	13/02
32	A-W	M-2	GRY/RED	JST X	13/02
33	A-X	I-11	GRY/BLU	AD Y	13/02
34	A-Y	N-2	GRY/YEL	JST Y	13/02
35	A-c	K-1	YEL/BRN	VOL. 1	13/02
36	A-d	K-3	YEL/RED	VOL. 3	13/02
37	A-e	M-3	BLK/YEL	GND ADJ X	13/02
38	B-1	F-8	GRY	+24v	24/02
39	B-3	I-6	BLK/WHT	DRIVE	24/02
40	B-4	F-4	BLK	GND	24/02
41	B-5	F-6	BLK/PNK	GND	24/02
42	C-2	H-2	PNK	+5v coin door	24/02
43	C-6	H-5	BLK	GND coin door	24/02
44	C-7	F-7	BLK	GND conn box	24/02
45	C-8	H-1	ORG	+12v coin door	24/02
46	D-1	G-7	BRN	0v	24/02
47	D-2	G-10	RED	135v	24/02
48	D-3	G-12	ORG	0v	24/02
49	D-4	G-9	YEL	220v	24/02
50	F-9	I-5	GRY	+24v	24/02
51	H-4	L-2 tied back	WHT/RED	CREDIT BD	13/02

WIRE LIST

PART NO 16922

TITLE

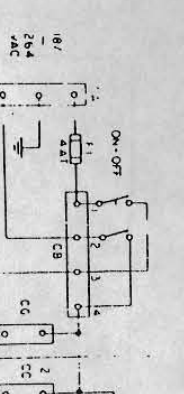
SHEET 2 OF 2

REVISION A

MAIN LOOM

DATE 6-4-90

WIRE NO	FROM	TO	COLOUR	FUNCTION	WIRE SIZE
52	M-1	N-1	PNK/WHT	+5v ADJ Y	13/02
53	M-3	N-3	BLK/YEL	GND ADJ Y	13/02
54	E-1	E-2	GRN/YEL	EARTH	24/02
55	E-2	E-3	GRN/YEL	EARTH	24/02
56	E-3	E-4	GRN/YEL	EARTH	24/02
57	E-4	E-5	GRN/YEL	EARTH	24/02
58	E-5	E-6	GRN/YEL	EARTH	24/02
59	E-6	E-7	GRN/YEL	EARTH	24/02
60	E-7	E-8	GRN/YEL	EARTH	24/02
61	E-8	E-9	GRN/YEL	EARTH	24/02
62	E-9	E-10	GRN/YEL	EARTH	24/02
63	E-10	E-11	GRN/YEL	EARTH	24/02
64	E-11	I-15	GRN/YEL	EARTH	24/02

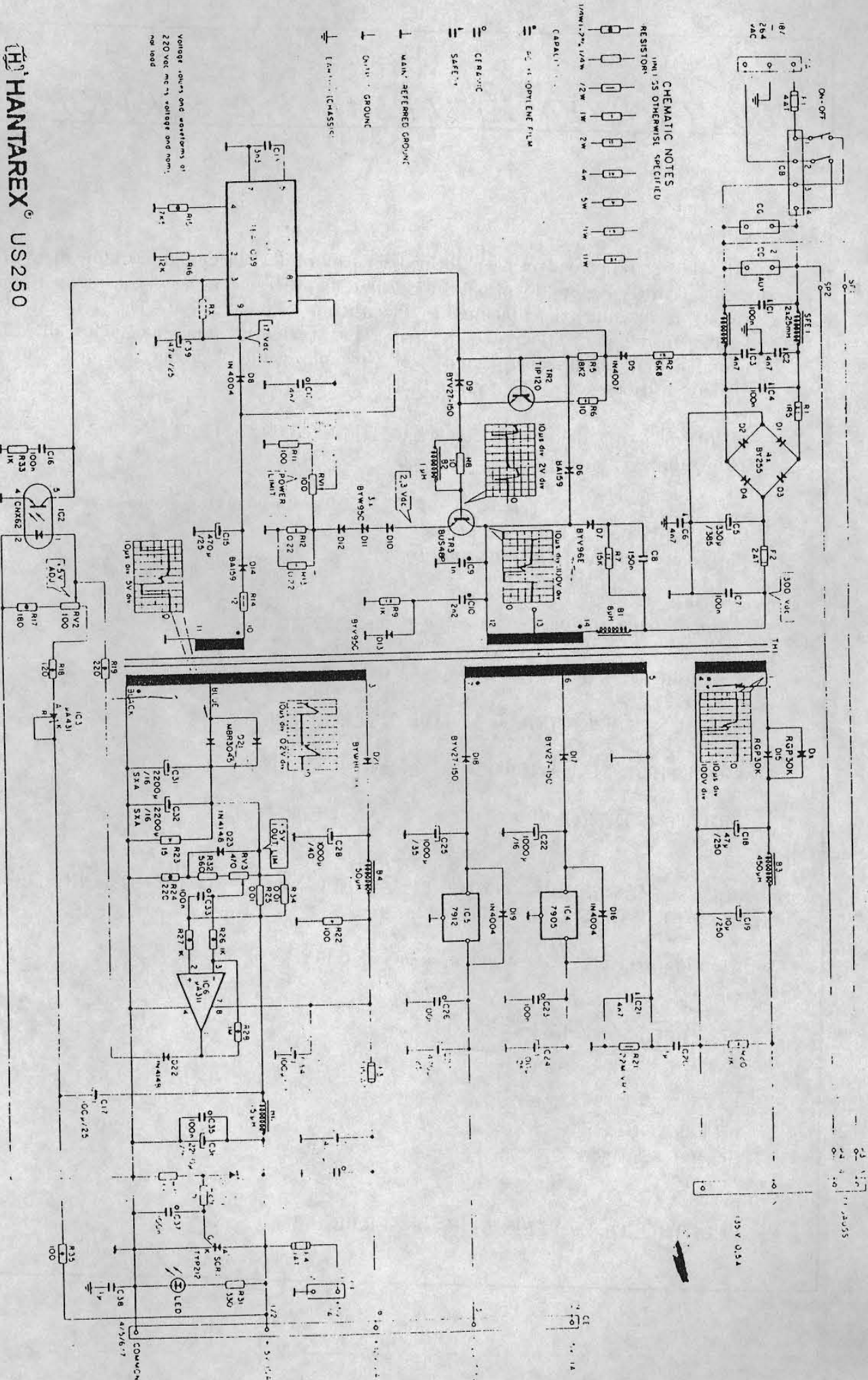


CHEMATIC NOTES

- RESISTOR: 1/4W, 1/2W, 1W, 2W, 4W, 5W, 10W, 15W
- CAPACITOR: 50V, 100V, 250V, 500V, 1000V
- DIODE: 1N4004, 1N4007, 1N4148, 1N4351, 1N4363, 1N4374, 1N4390, 1N4571, 1N4733, 1N4749, 1N4750, 1N4751, 1N4752, 1N4753, 1N4754, 1N4755, 1N4756, 1N4757, 1N4758, 1N4759, 1N4760, 1N4761, 1N4762, 1N4763, 1N4764, 1N4765, 1N4766, 1N4767, 1N4768, 1N4769, 1N4770, 1N4771, 1N4772, 1N4773, 1N4774, 1N4775, 1N4776, 1N4777, 1N4778, 1N4779, 1N4780, 1N4781, 1N4782, 1N4783, 1N4784, 1N4785, 1N4786, 1N4787, 1N4788, 1N4789, 1N4790, 1N4791, 1N4792, 1N4793, 1N4794, 1N4795, 1N4796, 1N4797, 1N4798, 1N4799, 1N4800
- TRANSISTOR: 2N2222, 2N2907, 2N3055, 2N3638, 2N3773, 2N4351, 2N4363, 2N4374, 2N4390, 2N4571, 2N4733, 2N4749, 2N4750, 2N4751, 2N4752, 2N4753, 2N4754, 2N4755, 2N4756, 2N4757, 2N4758, 2N4759, 2N4760, 2N4761, 2N4762, 2N4763, 2N4764, 2N4765, 2N4766, 2N4767, 2N4768, 2N4769, 2N4770, 2N4771, 2N4772, 2N4773, 2N4774, 2N4775, 2N4776, 2N4777, 2N4778, 2N4779, 2N4780, 2N4781, 2N4782, 2N4783, 2N4784, 2N4785, 2N4786, 2N4787, 2N4788, 2N4789, 2N4790, 2N4791, 2N4792, 2N4793, 2N4794, 2N4795, 2N4796, 2N4797, 2N4798, 2N4799, 2N4800
- IC: 741, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800

- CLEARANCE
- SAFETY
- ┆ MAIN REFERRED GROUND
- ┆ CHASSIS GROUND
- ┆ Earth (CHASSIS)

Voltage values and tolerances of 220VAC are 1% unless otherwise noted.



HANTAREX® US250
SW MODE POWER SUPPLY

SCHEMATIC DIAGRAM 7/9/10/86

ELECTROCOIN AFTERSALES & SERVICE LTD

The above company has been formed as part of the Electrocoin Automatics Group at the Cardiff factory to provide the AfterSales Service necessary to support the variety of machines manufactured by Electrocoin Automatics Ltd. The company will be responsible for servicing both Spares and Technical requirements for all U.K. manufactured Electrocoin machines, all "Famous Games" products, and all Board Games distributed by Electrocoin Ltd.

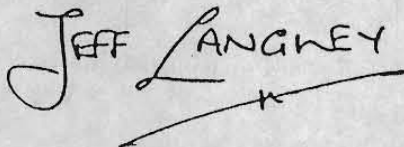
Normal working hours are Monday to Friday 08.00 to 17.30 and Saturday morning 08.00 to 12.30.

AfterSales & Service Tel No: 0222 373059 during working hours,
0836 536195 after hours/weekends.
Please contact the following staff for:-

PARTS ENQUIRIES	- GARY SCOBLE
TECHNICAL INFORMATION	- IAN COLLEY
ACCOUNTS ENQUIRIES	- JULIE TIPPER
WORKSHOP MANAGER	- MIKE CALLAN
CREDIT CONTROLLER	- IAN HEPPENSTALL

PLEASE REMEMBER, TO HELP US HELP YOU, PROMPT RETURN OF FAULTY PARTS IS ESSENTIAL.

Assuring you of the best attention at all times.



JEFF LANGLEY
General Manager

ELECTROCOIN AFTERSALES & SERVICE LTD.