SERVICE MANUAL

UPRIGHT MODEL

SAGAIA

TAITO CORPORATION

SPECIFICATIONS:

1. Power Supply	240/220 VAC (Hantarex US 250 power supply)
2. Power Consumption	140w
3. Play Pricing	Adjustable on Dip switches
4. TV Monitor	2 x 21" FST Wells-Gardner colour monitors
5. Dimensions	Width : 966mm
	Depth : 1136mm
	Height : 1886mm
6 Weight	Approximately 250KG

* The specifications and appearance may be changed for improvement.

Table of Contents

(For Power Supply Information Refer to Hantarex Manual)

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.

| MALE		FEMALE	
NAME:	PROCO JR	NAME:	TAIT YOUNG
AGE:	22	AGE:	20
BLOOD:	AB	BLOOD:	AB

GAME DESCRIPTION

Once Proco and Tait left the ruined planet Darius for a better world. They built their brave new world on the planet Oruga.

A few thousand years passed when an unidentified radio wave was received from somewhere out of the Galactic System.

Descendants of Proco and Tait left Oruga for the Galactic System immediately in the highly tuned spaceship "Silver-Hawk". sensing by instinct that the radio wave was an SOS call from the people of Darius.

The object of the game is to travel through the various zones destroying everything in your path. on your quest to the planet Darius. Watch out though, for some weird and wonderful creatures en route. which have to be destroyed to enable you to progress to the next zone.

SAGAIA CONTROL PANEL LAYOUT
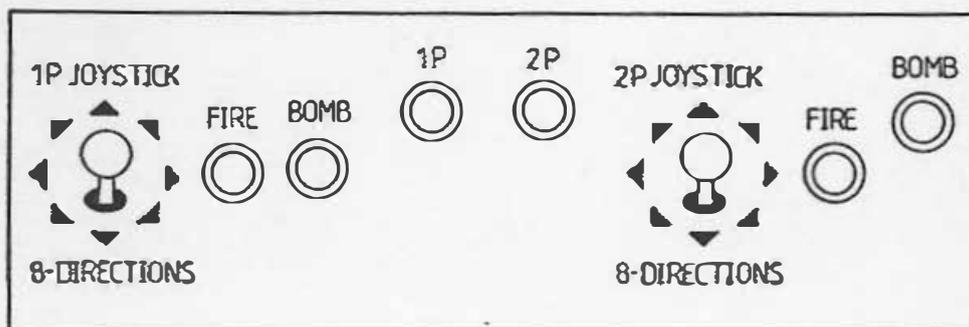
HOW TO PLAY

Insert coin(s) and press either the 1P or 2P button.

Use the Joystick(s) to manoeuver the Mater-Hawk(s) anywhere on the screen.

Destroy the enemies using the Fire and Bomb buttons.

Whilst a person is playing the game, another person can join in at any time by inserting coin(s) and pressing either the 1P or 2P button.

The game has a special Nuclear Attack Feature, so when the ground or air Nuclear Tochika are destroyed they cause a wide explosion which destroys the enemy.

SPECIAL NUCLEAR ATTACK
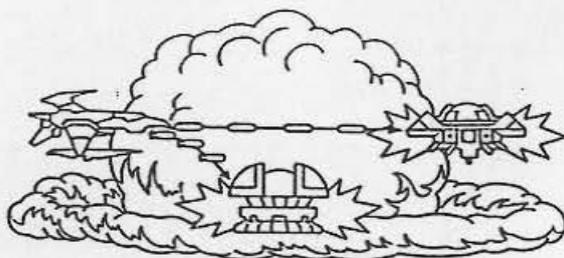
TAKE POWER-UP UNITS!

MISSILE POWER IS INCREASED BY TAKING RED.

LASER-GUN POWER IS INCREASED BY TAKING YELLOW.

BOMB POWER IS INCREASED BY TAKING GREEN.

DEFENSE POWER IS INCREASED BY TAKING BLUE.

By turning on the Dip Switch A-3 located on the main PC board and by turning on the main power switch. The screen changes to the Test Mode menu.

1. CRT TEST

When the Cross Hatch and colour bars are displayed on the screen. colours and brightness can be adjusted. Refer to colour monitor set-up instructions on Page 15.
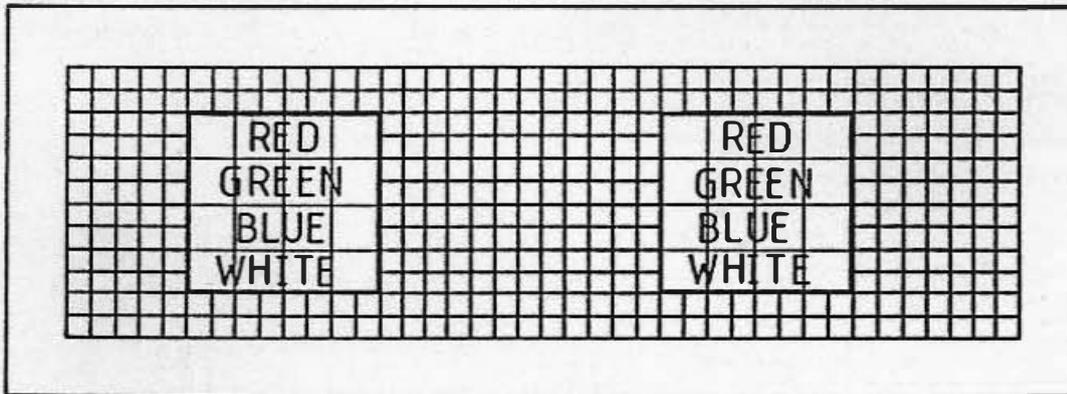
CROSS HATCH

VERTICAL MONITOR 1   HORIZONTAL MONITOR 2

When the Start button is pressed the screen returns to the next test. Refer to Test Mode instructions on Page 5.

TEST MODE

COIN A	OFF	COIN B	OFF
SERVICE	OFF	TILT	OFF
IP SELECT	OFF	2P SELECT	OFF
IP FIRE	OFF	2P FIRE	OFF
IP WARP	OFF	2P WARP	OFF
IP LH U	OFF	2P LH U	OFF
D	OFF	D	OFF
L	OFF	L	OFF
R	OFF	R	OFF

```
           8  7  6  5  4  3  2  1
DIP SW  A  H  H  H  H  H  L  H  H    L   ON
        B  H  H  H  H  H  H  H  H    H   OFF
```

SOUND CODE   0 0

RAM OK
ROM OK

When each SW is turned on, the display is changed from "OFF" to "ON".
DIP SW is displayed as shown below.

        "OFF" = "H"
        "ON"   = "L"

For the RAMs, if any error exists, "ERROR" is displayed.
The sound outputs can be checked by selecting the sound codes with the joystick, then by pressing the start button.

After Test. switch machine off and reset Dip Switch A-3 to continue with game.

SAGAIA DIP SWITCHES

PLEASE NOTE: BEFORE CHANGING THE SETTINGS OF DIP SWITCHES, TURN THE POWER OFF
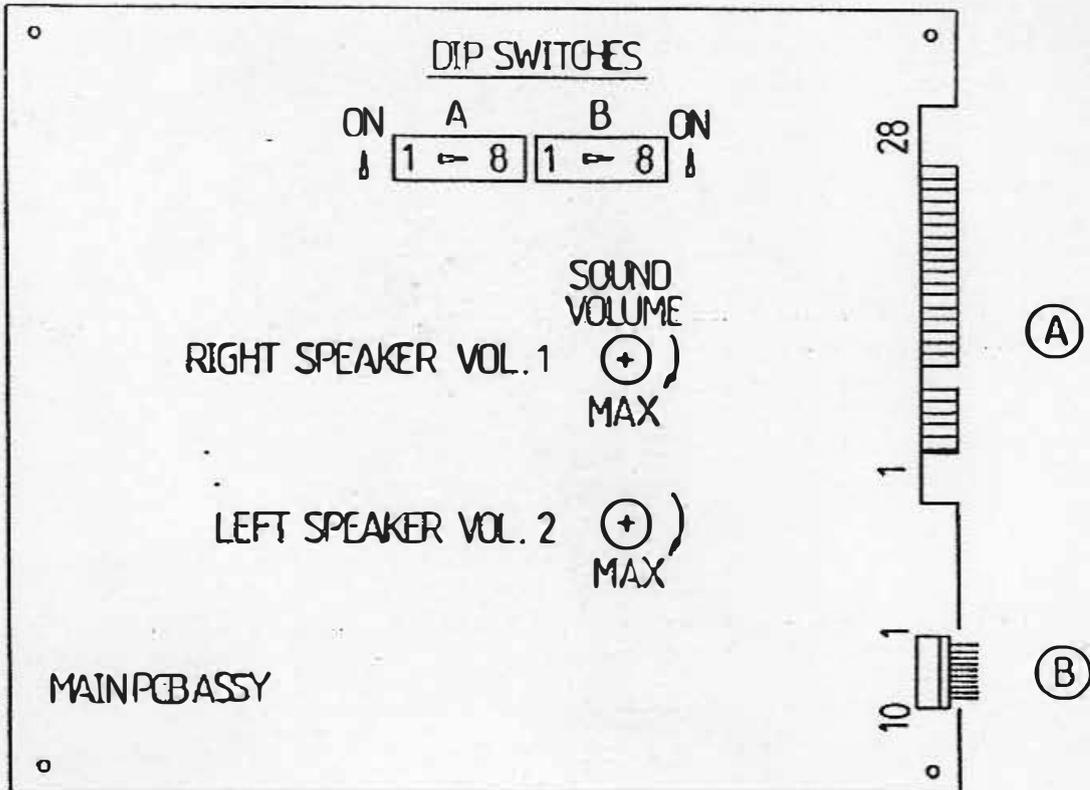
<> SETTING OF DIP SWITCH A

SETTINGS	POSITIONS	1	2	3	4	5	6	7	8
TURBO Button Full Auto	* WITHOUT		OFF						
	WITH		ON						
TEST MODE	* NORMAL GAME			OFF					
	TEST MODE			ON					
ATTRACT SOUND	* WITH				OFF				
	WITHOUT				ON				
PLAY PRICING COIN A	* 1 COIN 1 PLAY	OFF				OFF	OFF		
	2 COINS 1 PLAY					ON	OFF		
	3 COINS 1 PLAY					OFF	ON		
	4 COINS 1 PLAY					ON	ON		
PLAY PRICING COIN B	* 1 COIN 2 PLAYS							OFF	OFF
	1 COIN 3 PLAYS							ON	OFF
	1 COIN 4 PLAYS							OFF	ON
	1 COIN 6 PLAYS							ON	ON

<> THE SETTING OF DIP SWITCH B

SETTINGS	POSITIONS	1	2	3	4	5	6	7	8
GAME DIFFICULTY A (EASY) D (DIFFICULT)	* RANK B	OFF	OFF						
	RANK A	ON	OFF						
	RANK C	OFF	ON						
	RANK D	ON	ON						
BONUS POINTS (1 UP)	* 700,000 PTS.			OFF	OFF				
	800,000 PTS.			ON	OFF				
	900,000 PTS.			OFF	ON				
	1,000,000 PTS.			ON	ON				
NUMBER OF PLAYERS	* 3					OFF	OFF	OFF	
	4					ON	OFF		
	5					OFF	ON		
	6					ON	ON		
CONTINUE MODE	* WITH								OFF
	WITHOUT								ON

* FACTORY SETTINGS.

ADJUSTMENTS ON SAGAIA PCB

DIP SWITCHES

```
ON   A        B    ON
  | [1 ⊶ 8][1 ⊶ 8] |
```

SOUND
VOLUME

RIGHT SPEAKER VOL.1   (+))
                       MAX

LEFT SPEAKER VOL.2   (+))
                       MAX

MAIN PCB ASSY

28

(A)

1

1

(B)

10

CONNECTOR B   VI EO SUPPLY

10-WAY JST 0.1" PITCH (PART NO. H 10P-SHF-AA)

HORIZONTAL MONITOR 2

NO	FUNCTION	COLOUR
1	VIDEO GND	BLK/VIO
2	VIDEO SYNC	WHT/VIO
3	VIDEO BLU	BLU/VIO
4	VIDEO GRN	GRN/VIO
5	VIDEO RED	RED/VIO

VERTICAL MONITOR 1

NO	FUNCTION	COLOUR
6	VIDEO GND	BLK/BLU
7	VIDEO SYNC	WHT
8	VIDEO BLU	BLU
9	VIDEO GRN	GRN
10	VIDEO RED	RED

SAGAIA MAIN LOOM

CONNECTOR A   LOGIC PCB

28 WAY EDGE CONNECTOR KEYWAY PINS 7,H

BLK	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	-5v	VIO
ORG	+12v	6	F	+12v	ORG
	KEYWAY	7	H	KEYWAY	
WHT/ORG	METER A	8	J	METER B	WHT/YEL
		9	K		
WHT/GRY	L SPEAKER (+)	10	L	L SPEAKER (-)	GRY/WHT
BLK/GRY	R SPEAKER (+)	11	M	R SPEAKER (-)	GRY/BLK
		12	N		
		13	P		
		14	R		
		15	S		
ORG/BLK	COIN A	16	T	COIN B	YEL/BLK
GRN/BLK	PLAYER 1	17	U	PLAYER 2	GRN/RED
YEL/WHT	1P UP	18	V	2P UP	GRY/GRN
GRY/YEL	1P DOWN	19	W	2P DOWN	GRY/RED
BLU/VIO	1P LEFT	20	X	2P LEFT	GRY/ORG
BLU/YEL	1P RIGHT	21	Y	2P RIGHT	GRY/BLU
BLU/BLK	1P MISSILE	22	Z	2P MISSILE	WHT/BLU
RED/GRN	1P BOMB	23	a	2P BOMB	RED/BLU
		24	b		
		25	c		
		26	d		
BLK	GND	27	e	GND	BLK
BLK	GND	28	f	GND	BLK

CONNECTOR B   VIDEO SUPPLY

10 WAY JST 0.1" PITCH (PART No. 1110P-SHF-AA)

```
 1  VIDEO GND       BLK/VIO
 2  VIDEO SYNC      WHT/VIO
 3  VIDEO BLU       BLU/VIO
 4  VIDEO GRN       GRN/VIO
 5  VIDEO RED       RED/VIO
 6  VIDEO GND       BLK/BLU
 7  VIDEO SYNC      WHT
 8  VIDEO BLU       BLU
 9  VIDEO GRN       GRN
10  VIDEO RED       RED
```

CONNECTOR C   P.S.U.

9 WAY AMP M+L PLUG MALE PINS

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

CONNECTOR D   COIN DOOR

6 WAY AMP M+L SOCKET MALE PINS

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

CONNECTOR F   CONTROL PANEL

9 WAY AMP MINI M+L PLUG FEMALE PINS

1	GND	BLK
2	IP START	GRN/BLK
3	IP UP	YEL/WHT
4	IP DOWN	GRY/YEL
5	IP LEFT	BLU/VIO
6	IP RIGHT	BLU/YEL
7	IP MISSILE	BLU/BLK
8	IP BOMB	RED/GRN
9		

CONNECTOR G   CONTROL PANEL

9 WAY AMP MINI M+L PLUG FEMALE PINS

1	GND	BLK
2	2P START	GRN/RED
3	2P UP	GRY/GRN
4	2P DOWN	GRY/RED
5	2P LEFT	GRY/ORG
6	2P RIGHT	GRY/BLU
7	2P MISSILE	WHT/BLU
8	2P BOMB	RED/BLU
9		

CONNECTOR H   SPEAKERS

4 WAY AMP MINI M+L SOCKET MALE PINS

1	LEFT SPEAKER (+)	YEL/GRN
2	LEFT SPEAKER (-)	GRY/WHT
3	RIGHT SPEAKER (+)	YEL/RED
4	RIGHT SPEAKER (-)	GRY/BLK

CONNECTOR I   SERVICE SWITCH

MINI PUSH BUTTON (PART No. 43EC45A02)

1 GND   BLK
2 SERVICE   RED/ORG

CONNECTOR J   RIGHT SPEAKER

100 OHM POT.

1 SPEAKER BAL.   .   BLK/GRY
2 SPEAKER (+)   .   YEL/RED
3 SPEAKER BAL.   GRY/BLK

CONNECTOR K   LEFT SPEAKER

100 OHM POT.

1 SPEAKER BAL.   WHT/GRY
2 SPEAKER (+)   YEL/GRN
3 SPEAKER BAL.   GRY/WHT

CONNECTOR L   METER

3 WAY AMP M+L SOCKET MALE PINS

1 +5v   PNK
2 CREDIT BD   WHT/RED
3 METER A   WHT/ORG
4 METER B   WHT/YEL (TIED BACK)

CONNECTOR M   VERTICAL MONITOR "1"

10 WAY MOLEX 0.156" PITCH KEYWAY PIN 4

1	VIDEO SYNC	WHT
2		
3		
4	KEYWAY	
5		
6		
7	VIDEO GND	BLK/BLU
8	VIDEO BLU	BLU
9	VIDEO GRN	GRN
10	VIDEO RED	RED

CONNECTOR N   HORIZONTAL MONITOR "2"

10 WAY MOLEX 0.156" PITCH KEYWAY PIN 4

1	VIDEO SYNC	WHT/VIO
2		
3		
4	KEYWAY	
5		
6		
7	VIDEO GND	BLK/VIO
8	VIDEO BLU	BLU/VIO
9	VIDEO GRN	GRN/VIO
10	VIDEO RED	RED/VIO

PART No 12164   ELECTRONIC CREDIT BOARD

PINOUT INFORMATION

PIN COLOUR		FUNCTION
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. KEYWAY		
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. BLACK	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.

c.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 male 'N' lock connector.

Pinouts are shown below.

PIN COLOUR	FUNCTION	
1. ORANGE	+12v	DC SUPPLY
2. PINK	+5v	DC (LAMP SUPPLY)
3. YEL/BLK	2nd COIN INPUT (S10)	
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

	5	6	7
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

COLOUR MONITOR SETUP INSTRUCTIONS

1. HORIZONTAL FREQUENCY

With the monitor being driven with the display signal. connect one jumper between TP1 and TP2 and another jumper between TP3 and TP4.
Adjust the horizontal hold control until the picture stops sliding horizontally. Remove the jumpers. Do not use the horizontal hold control for horizontal centralizing.

NOTE: If the sync signal .is composite, use the horizontal sync input of the same polarity as the composite sync signal.

2. PICTURE SIZE

Adjust the vertical size control, and the horizontal width coil for desired picture size.

3. PICTURE CENTRALIZING

If the video is off centre vertically, turn the vertical raster position control to move the raster up or down. If the video is off centre horizontally adjust the horizontal video shift control to centre the picture. If any additional horizontal positioning is required. move the horizontal raster position jumper to the left or right position.

4. BRIGHTNESS

Adjust the brightness control to obtain the proper illumination. Adjust this control such that the illumination is just barely extinguished from portions of the display which should be black.

5. CONTRAST CONTROL

Adjust the contrast control for the desired picture intensity.
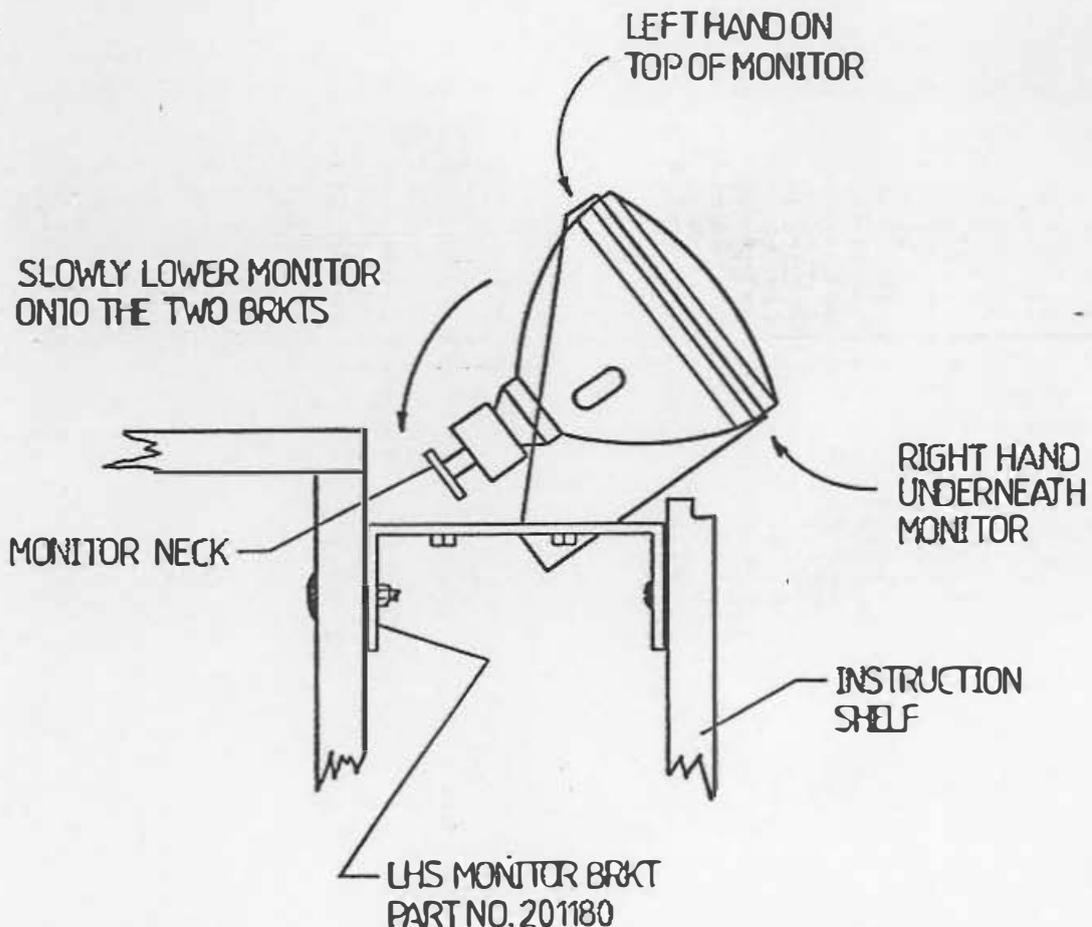
6. FOCUS

Adjust the focus control for the best overall definition and fine picture detail.
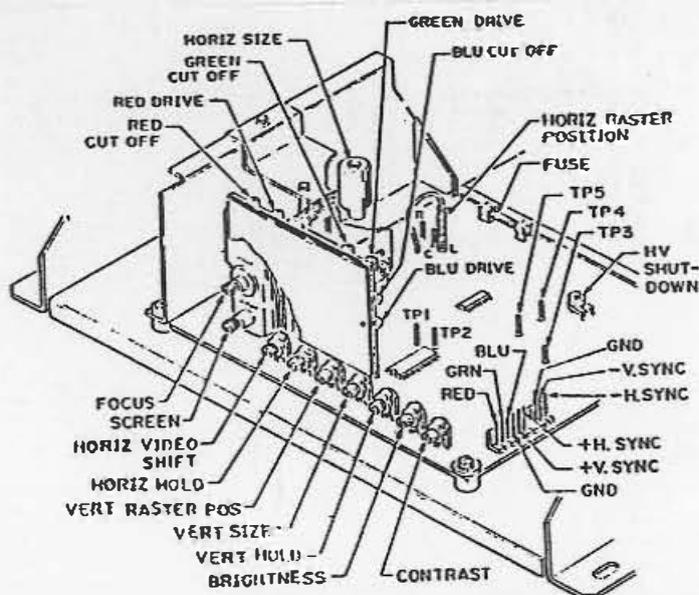
REMOVAL AND INSTALLATION OF HORIZONTAL MONITOR

1. Pick monitor up using the slots located on each side of the monitor chassis, ensure that the neck of the monitor is facing away from you.

2. Lift monitor onto the front instruction shelf of the machine.

3. Slide the edges of the monitor chassis underneath the lips of the two monitor brkts.

4. Adjust your hands so that your left hand is on the top of the monitor, and your right hand is underneath the monitor.

5. Slowly lower the monitor into the machine, and onto the two monitor brkts.

6. Whilst lowering the monitor, care should be taken not to damage the tube neck of the monitor on the shelf behind.

7. The same instructions as above should be followed when removing the monitor from the machine. Only this time follow the instructions in reverse order. Again care should be taken not to damage the tube neck of the monitor on the shelf.

LEFT HAND ON
TOP OF MONITOR

SLOWLY LOWER MONITOR
ONTO THE TWO BRKTS

RIGHT HAND
UNDERNEATH
MONITOR

MONITOR NECK

INSTRUCTION
SHELF

LHS MONITOR BRKT
PART NO. 201180

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.
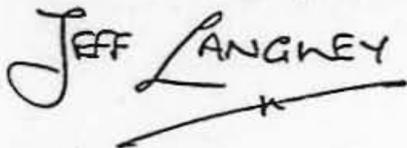
Jeff Langley

JEFF LANGLEY
General Manager

ELECTROCOIN AFTERSALES & SERVICE LTD.