

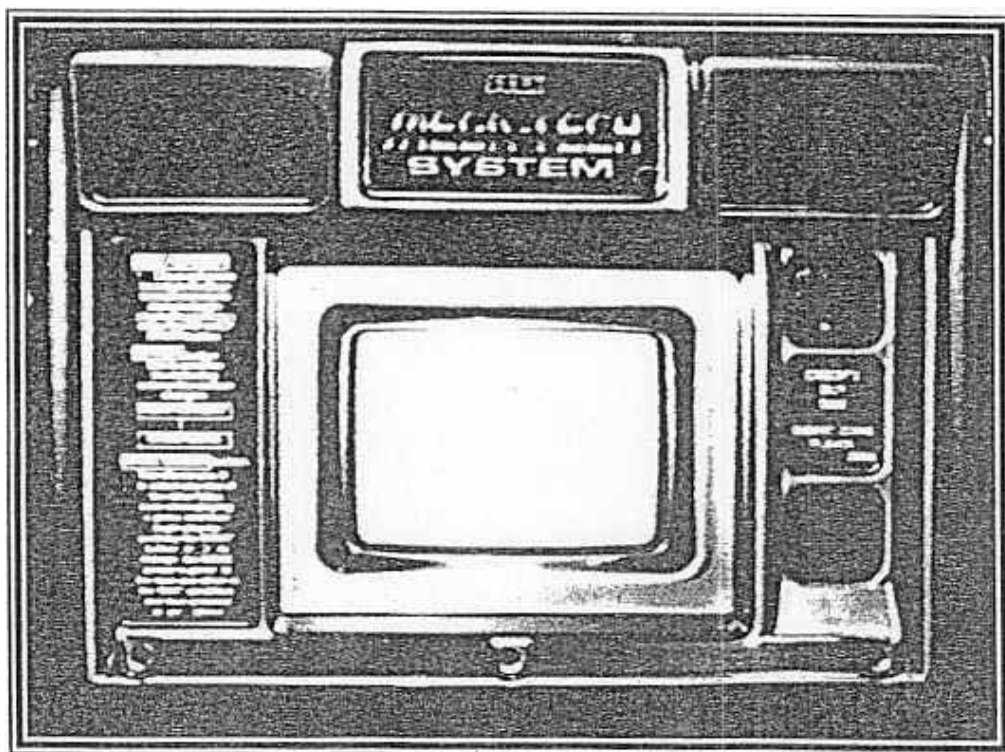
SEG.MEG

Sega Mega-Tech

1430

**SEGA®**

# MEGA-TECH SYSTEM



## OWNERS MANUAL

MANUFACTURED UNDER THE LICENCE OF SEGA ENTERPRISES LTD.

by

Deith Leisure Manufacturing

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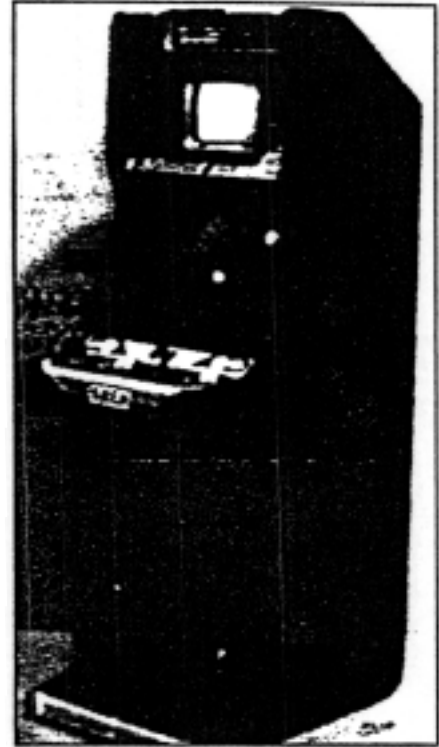
## SPECIFICATIONS

INSTALLATION SPACE:	Width 760mm (29.9") Depth 530mm (20.9") Height 1760 (69.3")
POWER:	190 watts
C.R.T. :	20" Monitor & 10" Monitor
WEIGHT	113Kg

Note: Descriptions herein contained may be subject to improvement changes without notice.

## INTRODUCTION TO THE OWNERS MANUAL

Sega Enterprises, Ltd., supported by its high level electronic technology of LSI's, microprocessors, etc. and a wealth of experience, has for more than 30 years been supplying various innovative and popular amusement machines to the world market. This owner's manual is intended to provide detailed comments together with all the necessary information covering the operation in general of electronic assemblies, electromechanical servicing and spare parts listing for the Sega Mega-Tech system. The manual is intended for those who have a knowledge of electrical and technical expertise especially in TVs, CRT's, microprocessors, etc. Take the time to read the manual before attempting to work on the machine. Should there be a malfunction, non-technical personnel should under no circumstances attempt to touch any of the internal parts of the machine.

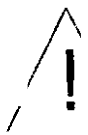




### 1. HANDLING PRECAUTIONS

When installing or inspecting the machine be very careful of the following points and pay attention to ensure that the players will enjoy the game safely.

- a) Be sure to turn the power off before working on the machine.
- b) To insert or pull out the plug quickly is dangerous, do not pull by the cable but by the plug only.
- c) Ensure that the grounding connections are making good connection where so specified and that the power cord is not damaged or exposed.
- d) Do not use any fuse that does not meet the specified rating.
  - ✓ Check all connections to the power supply and game board.
  - ✓ Use only recognised and approved digital test equipment should it be necessary to work on the Mega-Tech logic board.

After the initial inspection, confirming that there are no irregularities, turn the power on.

	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	
<b>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL</b>		

<b>IMPORTANT ( In the United Kingdom ) Mains Supply (AC240 Vac, 50 Hz only)</b>	
<b>WARNING - THIS APPARATUS MUST BE EARTHED</b>	
The wires in this cable are connected according with the following table:	
	

## 2. PREVENTION OF COUNTERFEITING AND CONVERSION

### LABELLING

To prevent counterfeit and conversions, the following labels are placed on all Sega products. To ensure you have a genuine Sega product please always check that it is fitted with a Sega license seal. They are used to prevent illegal or unauthorised copying of Sega products and are your guarantee that you have been supplied with a genuine Sega product.



### ORIGINAL SEAL

This type of seal is placed on machines manufactured by Sega

### LICENSE SEAL

This type of seal is placed on kits, such as printed circuit boards, of Sega products.

### COPYRIGHT NOTICE

This Sega product has the following copyright notice:

© SEGA 1989

This signifies that this work was disclosed in 1989 and is the property of Sega Enterprises, Ltd.



**3. PRECAUTIONS CONCERNING THE PLACE OF INSTALLATION**

The Sega Mega-Tech System is an indoor video game. DO NOT install it outside. Avoid installing in any of the places listed below so as to ensure proper usage:

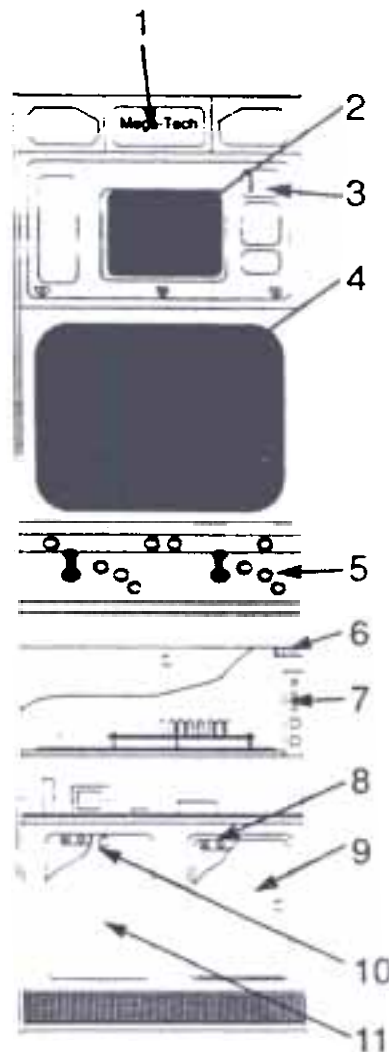
- a) Places subject to rain or water leakage, or condensation due to humidity.
- b) In the proximity of an indoor swimming pool and/or shower.
- c) Places subject to direct sunlight.
- d) Places subject heat sources from heating units, etc., or hot air.
- e) In the vicinity of highly inflammable or volatile chemicals or hazardous matter.
- f) Sloped surfaces.
- g) Do not place near or adjacent to fire exits and/or fire extinguishers.
- h) Places subject to any type of violent impact.
- i) Dusty or inhospitable environments.

**CAUTION**

**See instructions on page 7 for the installation and removal of cartridges.**

**NAME OF PARTS**

- 1 Design Plate MGS-1030
- 2 10" Monitor 200-5126
- 3 Coin Mechanism
- 4 20" Monitor 200-5095
- 5 Control Panel MGS-2000
- Door Switch #1
- 7 Switch Unit MGS-1031
- Door Switch #2
- 9 Cash Box
- 10 Door Switch #3
- 11 Data retrieval door

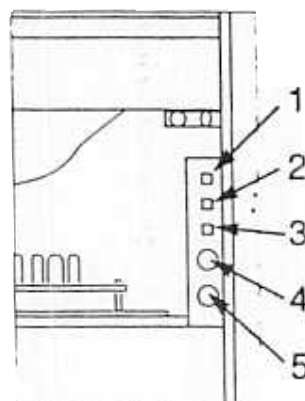


**SWITCH PANEL** Switch Panel MGS-1031

Demagnetiser switch  
Used for removing the on-screen colour unevenness

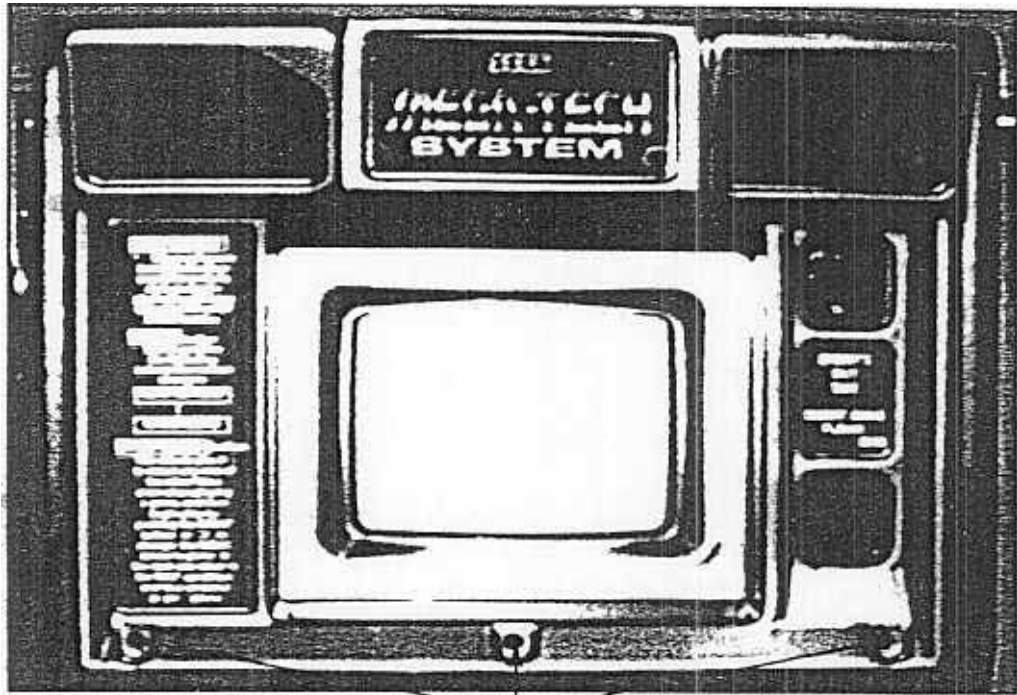
Service Switch  
Service engineers credit switch bypassing the meter system.

- 3. Test Switch  
For the functions of this switch see 'Self Testing'
- 4 Left Speaker Volume
- 5 Right Speaker Volume



6. OPENING THE FRONT MASK

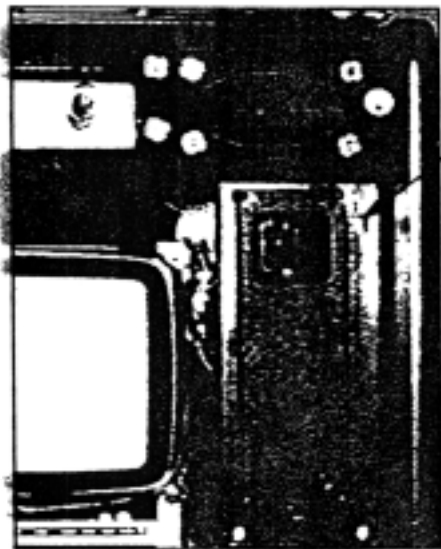
- a) Remove three tamper-proof screws (1)
- b) The top mask is hinged, lift to gain access to:  
The 10" monitor and controls  
The coin mechanism  
The speaker and lamp assembly.



1

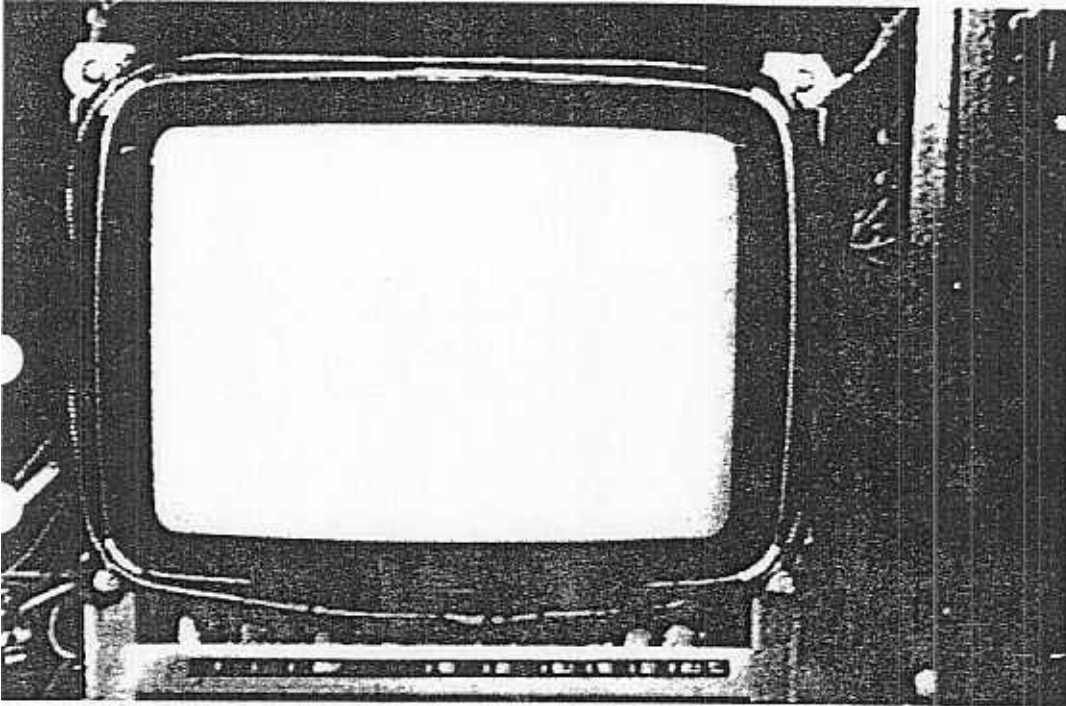
COIN MECHANISM

To gain access to the coin mechanism remove screw (2) and the coin mechanism will hinge forward to allow access to the connectors and manifold.





10" MONITOR CONTROLS



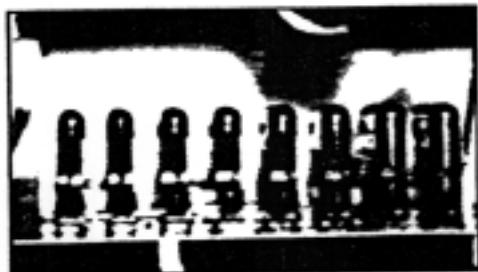
1. V. Hold Controls the vertical hold of the image.
  2. V. Size Controls the vertical picture size.
  3. V. Pos Controls the vertical position of the image.
  4. H. Hold Controls the horizontal position of the image.
  5. H. Size Controls the horizontal picture size.
  6. H. Pos Controls the horizontal position of the image.
  7. Bright Controls the brightness of the image.
  8. B. Gain
  9. G. Gain
  10. R. Gain
- Adjust to obtain the appropriate contrast and white balance.

*Do not adjust the RGB Gain controls unless necessary.*



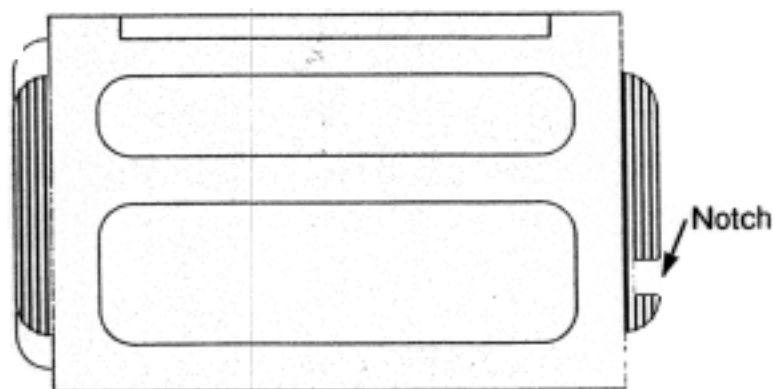
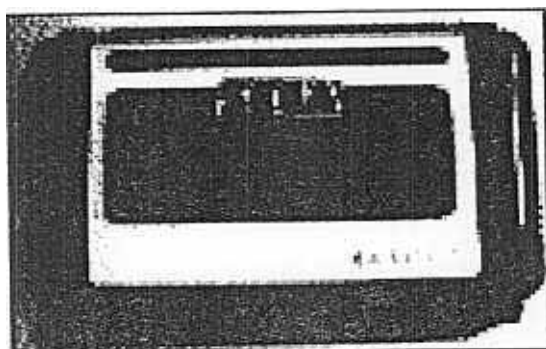
**8. REPLACING THE GAME SOFTWARE CARTRIDGES.**

1. Make sure the power to the Mega-Tech game is off before attempting to change or insert Game Software Cartridges.



2. When changing a Game Software Cartridge the label should be facing the right hand side of the cabinet as viewed from the front and the notch on the cartridge facing towards the front of the machine.

3. Gently remove a Game Software Cartridge making sure that the game board is not stressed.



**REAR OF CARTRIDGE**

When inserting the cartridge this side should facing the left of the machine when viewed from the front.



**FRONT OF CARTRIDGE**

When inserting the cartridge this side should facing the right of the machine when viewed from the front.

**COIN / CREDIT OPTION SWITCH SETTINGS**

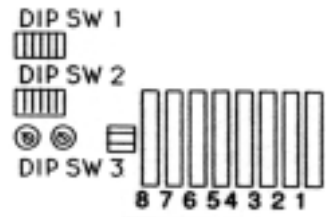
**DIP SW 1**

**IMPORTANT NOTE**  
For a more detailed explanation on the switch settings see page 10

OPTIONS		1	2	3	4	6	7	8
Coin 3 & 4 Inhibits	Coin 3 + Coin 4 Inhibit	ON	ON					
	Coin 3 Accept + Coin 4 Inhibit	ON	OFF					
	Coin 3 Inhibit + Coin 4 Accept	OFF	ON					
	Coin 3 + Coin 4 Accept	OFF	OFF					
Coin 4 (Lowest Value) & Coin 3 (These coins are localised and are used to give credits as set below.)	Value of 10 per Credit			ON	ON	ON		
	Value of 8 per Credit			OFF	ON	ON		
	Value of 6 per Credit			ON	OFF	ON		
	Value of 5 per Credit			OFF	OFF	ON		
	Value of 4 per Credit			ON	ON	OFF		
	Value of 3 per Credit			OFF	ON	OFF		
	Value of 2 per Credit			ON	OFF	OFF		
Coin 2	Coin 2 Inhibited					ON	ON	ON
	2 Coins / Credits					OFF	ON	ON
	1 Credits / Coins					ON	OFF	ON
	2 Credits / Coins					OFF	OFF	ON
	3 Credits / Coins					ON	ON	OFF
	4 Credits / Coins					OFF	ON	OFF
	5 Credits / Coins					ON	OFF	OFF
3 Credits / Coins					OFF	OFF	OFF	

**OPTION SWITCH SETTINGS**

**DIP SW 2**



OPTIONS		1	2	3	4	5	6	7	8
Coin 1 (Highest value coin)	Coin 1 Inhibited	ON	ON	ON	ON				
	1 Credit / Coin	OFF	ON	ON	ON				
	2 Credits / Coin	ON	OFF	ON	ON				
	3 Credits / Coin	OFF	OFF	ON	ON				
	4 Credits / Coin	ON	ON	OFF	ON				
	5 Credits / Coin	OFF	ON	OFF	ON				
	6 Credits / Coin	ON	OFF	OFF	ON				
	7 Credits / Coin	OFF	OFF	OFF	ON				
	8 Credits / Coin	ON	ON	ON	OFF				
	9 Credits / Coin	OFF	ON	ON	OFF				
	10 Credits / Coin	ON	OFF	ON	OFF				
	11 Credits / Coin	OFF	OFF	ON	OFF				
	12 Credits / Coin	ON	ON	OFF	OFF				
	13 Credits / Coin	OFF	ON	OFF	OFF				
	14 Credits / Coin	ON	OFF	OFF	OFF				
15 Credits / Coin	OFF	OFF	OFF	OFF					
GAME TIME SETTINGS	0 : 30 Per Credit					OFF	OFF	OFF	OFF
	1 : 00 Per Credit					ON	OFF	OFF	OFF
	1 : 30 Per Credit					OFF	ON	OFF	OFF
	2 : 00 Per Credit					ON	ON	OFF	OFF
	2 : 30 Per Credit					OFF	OFF	ON	OFF
	3 : 00 Per Credit					ON	OFF	ON	OFF
	3 : 30 Per Credit					OFF	ON	ON	OFF
	4 : 00 Per Credit					ON	ON	ON	OFF
	4 : 30 Per Credit					OFF	OFF	OFF	ON
	5 : 00 Per Credit					ON	OFF	OFF	ON
	5 : 30 Per Credit					OFF	ON	OFF	ON
	6 : 00 Per Credit					ON	ON	OFF	ON
	6 : 30 Per Credit					OFF	OFF	ON	ON
7 : 00 Per Credit					ON	OFF	ON	ON	
7 : 30 Per Credit					OFF	ON	ON	ON	
FREE PLAY					ON	ON	ON	ON	

## How to use the Coin/Credit switches

For international reasons the value of coins are referred to as Coin 1,2,3 and 4. Coin 1 being the highest value coin and Coin 4 the lowest. e.g. For the U.K.

Coin 4 = 10p Coin, Coin 3 = 20p Coin, Coin 2 = 50p Coin, Coin 1 = £1 Coin.

The switch settings provided offer a wide range of options. It should be remembered that credits = time and not complete games.

Convert your required currency into units i.e.

For the UK

10p = value of 1

20p = value of 2

50p = value of 5

£1 = value of 10

For Spain

25PTs = value of 1

50PTs = value of 2

100PTs = value of 4

200PTs = value of 8

For Germany

50Phg = value of 1

1DM = value of 2

2DM = value of 4

5DM = value of 10

For Italy

50Lira = value of 1

100Lira = value of 2

200Lira = value of 4

500Lira = value of 10

Take an example where the game will be set for one credit to equal one minute of time with the lowest value coin buying 1 minute, then the settings would be as follows:

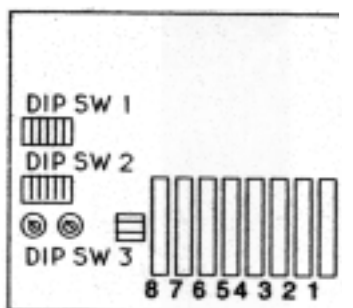
Coin value	Credits	Time (Minutes)	
1 (10p/25PTs/50Phg/50Lira)	1	1.00	DIP1 Pos 1&2&3&4&5 = Off Off Off Off Off
2 (20p/50PTs/1DM/100Lira)	2	2.00	DIP1 Pos 1&2&3&4&5 = On On Off Off Off
4 (100PTs/2DM/200Lira)	4	4.00	DIP1 Pos 6&7&8 = Off On Off
5 (50p)	5	5.00	DIP1 Pos 6&7&8 = On Off Off
8 (200PTs)	8	8.00	DIP 2 Pos 1&2&3 = On On Off
10 (£1/5DM/500Lira)	10	10.00	DIP 2 Pos 1&2&3 = On Off Off

(For time in one minute intervals set DIP 2 Pos 5&6&7&8 = Off Off Off Off)

### OPTION SWITCH SETTINGS

### DIP SW 3

OPTIONS		1	2	3	4
SOUND	MONAURAL	ON		OFF	OFF
	STEREO	OFF		OFF	OFF
MODE	JAPAN		ON	OFF	OFF
	EXPORT		OFF	OFF	OFF

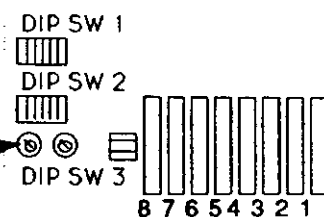


### MASTER VOLUME CONTROLS

Although there are left and right volume controls fitted conveniently to the switch panel to the right of the lower front door, these are slave controls. The maximum sound level is controlled via the two pre-set controls positioned on the Mega-Tech logic board.

If turning the slave controls on the switch panel does not provide an adequate sound level adjust the left and right controls on the Mega-Tech logic board.

Pre-set master volume controls left and right.





# MEGA TECH SYSTEM (834-6937-01)

## COIN/CREDIT OPTION SWITCH SETTING

DIP SW 1

OPTION		1	2	3	4	5	6	7	8
COIN 3 and COIN 4 Inhibits	COIN 3 + COIN 4 Inhibit	ON	ON						
	COIN 3 Accept + COIN 4 Inhibit	ON	OFF						
	COIN 3 Inhibit + COIN 4 Accept	OFF	ON						
	COIN 3 + COIN 4 Accept	OFF	OFF						
COIN 4 (LOWEST VALUE COIN) and COIN 3 (These coins are totalised and are used to give credits as set below.)	Value of 10 Per Credit			ON	ON	ON			
	Value of 8 Per Credit			OFF	ON	ON			
	Value of 6 Per Credit			ON	OFF	ON			
	Value of 5 Per Credit			OFF	OFF	ON			
	Value of 4 Per Credit			ON	ON	OFF			
	Value of 3 Per Credit			OFF	ON	OFF			
COIN 2	Value of 2 Per Credit			ON	OFF	OFF			
	Value of 1 Per Credit			OFF	OFF	OFF			
	COIN 2 Inhibited						ON	ON	ON
	2 Coins/Credit						OFF	ON	ON
	1 Credit/Coin						ON	OFF	ON
	2 Credits/Coin						OFF	OFF	ON
3 Credits/Coin						ON	ON	OFF	
4 Credits/Coin						OFF	ON	OFF	
5 Credits/Coin						ON	OFF	OFF	
6 Credits/Coin						OFF	OFF	OFF	

⊗ When inhibiting COIN 3 and COIN 4, set to value of 1 per credit.

## OPTION SWITCH SETTING

DIP SW 2

OPTION		1	2	3	4	5	6	7	8
COIN 1 (HIGHEST VALUE COIN)	COIN 1 Inhibited	ON	ON	ON	ON				
	1 Credit/Coin	OFF	ON	ON	ON				
	2 Credits/Coin	ON	OFF	ON	ON				
	3 Credits/Coin	OFF	OFF	ON	ON				
	4 Credits/Coin	ON	ON	OFF	ON				
	5 Credits/Coin	OFF	ON	OFF	ON				
	6 Credits/Coin	ON	OFF	OFF	ON				
	7 Credits/Coin	OFF	OFF	OFF	ON				
	8 Credits/Coin	ON	ON	ON	OFF				
	9 Credits/Coin	OFF	ON	ON	OFF				
	10 Credits/Coin	ON	OFF	ON	OFF				
	11 Credits/Coin	OFF	OFF	ON	OFF				
	12 Credits/Coin	ON	ON	OFF	OFF				
	13 Credits/Coin	OFF	ON	OFF	OFF				
	14 Credits/Coin	ON	OFF	OFF	OFF				
15 Credits/Coin	OFF	OFF	OFF	OFF					
GAME TIME SETTING	0' 30" Per Credit					OFF	OFF	OFF	OFF
	1' 00" Per Credit					ON	OFF	OFF	OFF
	1' 30" Per Credit					OFF	ON	OFF	OFF
	2' 00" Per Credit					ON	ON	OFF	OFF
	2' 30" Per Credit					OFF	OFF	ON	OFF
	3' 00" Per Credit					ON	OFF	ON	OFF
	3' 30" Per Credit					OFF	ON	ON	OFF
	4' 00" Per Credit					ON	ON	ON	OFF
	4' 30" Per Credit					OFF	OFF	OFF	ON
	5' 00" Per Credit					ON	OFF	OFF	ON
	5' 30" Per Credit					OFF	ON	OFF	ON
	6' 00" Per Credit					ON	ON	OFF	ON
	6' 30" Per Credit					OFF	OFF	ON	ON
	7' 00" Per Credit					ON	OFF	ON	ON
7' 30" Per Credit					OFF	ON	ON	ON	
FREE PLAY					ON	ON	ON	ON	

## OPTION SWITCH SETTING

DIP SW 3

OPTION		1	2	3	4
SOUND	MONAURAL	ON			
	STEREO	OFF			
MODE	JAPAN		ON		OFF
	EXPORT		OFF		
ADVERTISE SOUND	OFF			ON	
	ON			OFF	

⊗ COIN 1 - HIGHEST VALUE COIN  
 COIN 2 -  
 COIN 3 -  
 COIN 4 - LOWEST VALUE COIN

*LI*  
*20f*  
*20f*  
*10f*

## 10. HOW TO OPERATE THE MEGA-TECH GAME

1. First make sure that the cartridges are correctly inserted and then turn the power ON.
2. In the attract mode with no coin (credit) registered the Demo screens are sequentially shown on the main monitor (20"). Also, the sub-monitor (10") displays the individual game instructions.  
  
Push the ENTER button to see the game instructions on the next page and also the game's (1 through 8) menu.
3. Insert coins or register credit with the service switch and the timer's countdown starts. Remember that credit is for time and not complete games.
4. The 1 through 8 game titles will be shown on the sub-monitor. Use the SELECT button to select a game.
5. Push the START button to begin the game.
6. The player will be warned near the end of the time limit by on-screen flashes and audible alarms.
7. When the time is up, "TIME UP" will be displayed on the screen.
8. Inserting a coin anytime during the game enables the extended game time.
9. After play is finished, the game returns to the attract mode.

## 11. CONTROL PANEL

Game Select Button

1P Start Button

2P Start Button

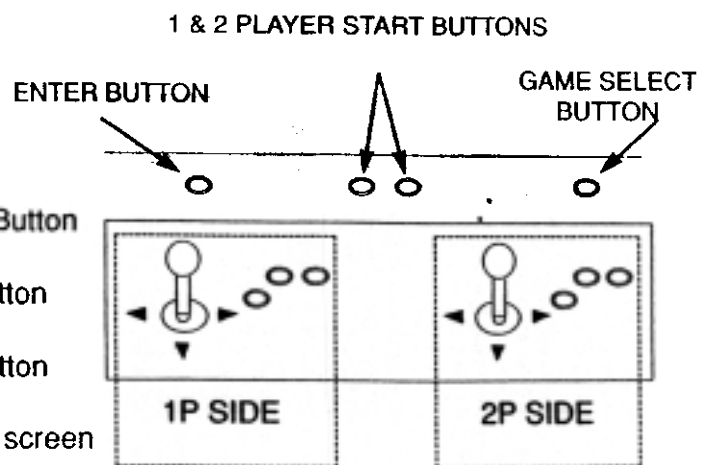
Enter Button

Game Selection Button

1 Player Start Button

2 Player Start Button

The Sub-monitor screen change button



## 13. SELF TEST

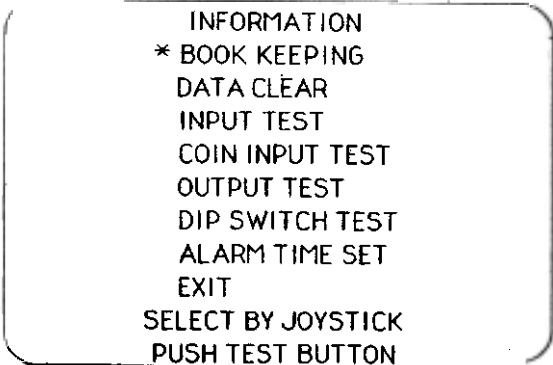
The Mega-Tech system has an in-built diagnostics test for buttons, switches and timing systems.

### 1. Test Items

- a) **BOOKEEPING:** Checks the coin input, number of credits and total play time.
- b) **DATA CLEAR:** Clears the bookkeeping data.
- c) **INPUT TEST:** Checks all pushbuttons and joysticks.
- d) **COIN TEST:** Checks all coin inputs.
- e) **OUTPUT TEST:** Checks alarm and on-screen message.
- f) **DIP SWITCH TEST:** Checks all DIP switch settings.
- g) **ALARM TIME SET:** Checks time settings of the alarm and on-screen message.

### 2. HOW-TO-TEST

- a) Press the TEST button and the following screen will appear
- b) When proceeding to the next test item, move the \* (asterisk) mark to the corresponding position by pushing the TEST button



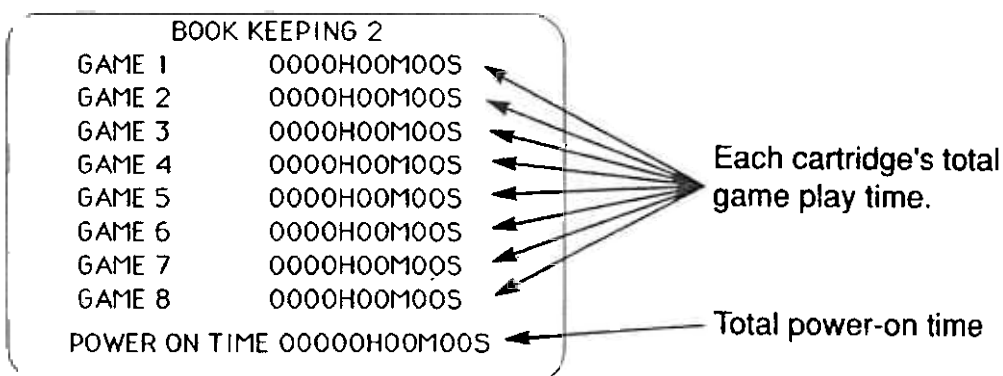
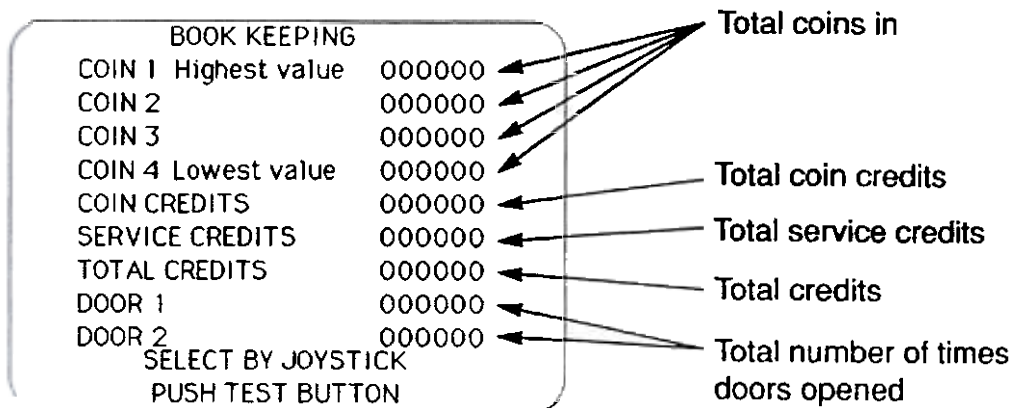
INFORMATION  
\* BOOK KEEPING  
DATA CLEAR  
INPUT TEST  
COIN INPUT TEST  
OUTPUT TEST  
DIP SWITCH TEST  
ALARM TIME SET  
EXIT  
SELECT BY JOYSTICK  
PUSH TEST BUTTON

- c) When testing only a certain item, push the JOYSTICK (UP/DOWN) to move the \* to the desired position, and then press the TEST button to enter that particular item's self-test.
- d) To exit the self-test and return to the game mode, bring the \* to the position of EXIT and push the TEST button.

### 3. TEST ITEMS AND DESCRIPTIONS

#### 3.1. BOOK KEEPING

a) By using the joystick, book keeping 1 and 2 screens can be alternated. To return the screen to INFORMATION, push the TEST button.

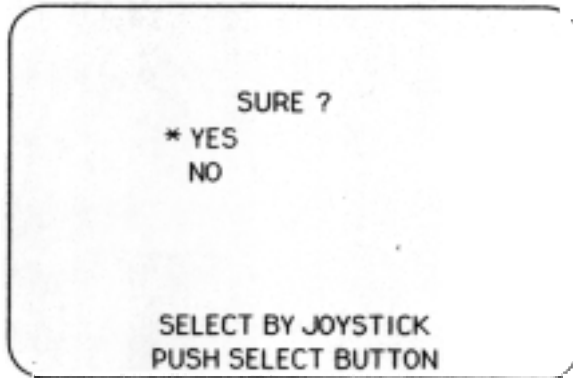


Push the TEST button to proceed to the next item



### DATA CLEAR

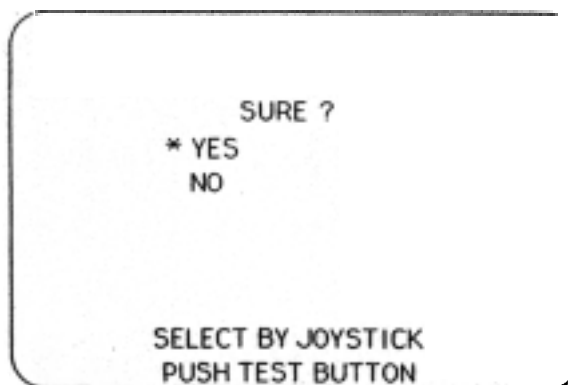
To clear the book keeping data, bring the \* to YES by using the joystick, and then push the SELECT button.



Push the TEST button to proceed to the next item

### INPUT TEST

- a) Checks for correct function of switches.
- b) When each switch is operated, if 'ON' is displayed, the switch is working correctly.
- c) When 'DOOR 1' or 'DOOR 2' is opened, if the 'OPEN' is displayed the switches are working correctly.



Push the TEST button to proceed to the next item

## 3.4. COIN CHUTE TEST

- a) When a coin is inserted, if 'ON' is displayed, the coin validator is working.

COIN CHUTE TEST	
COIN 1	OFF
COIN 2	OFF
COIN 3	OFF
COIN 4	OFF

Push the TEST button to proceed to the next item.

## 3.5. OUTPUT TEST

- a) By using the joystick, bring the \* to the corresponding position and check ALARM or FLASH. When the ALARM is to be checked, push the SELECT button to have ALARM sound and push it again to stop the ALARM sound. When FLASH is to be checked, push the SELETCT button to start the on-screen FLASH, push again to stop the FLASH.

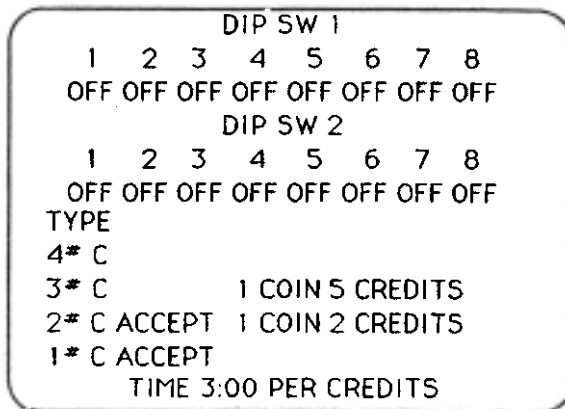
OUTPUT TEST	
* ALARM	
FLASH	

SELECT BY JOYSTICK  
PUSH TEST BUTTON

Push the TEST button to return to the main menu

### 3.6. DIP SWITCH ASSIGNMENTS

- a) This screen will display the current settings of the DIP switches.
- b) The display shows coin denomination, coins and credit combination settings and the timer setting.



Push the TEST button to proceed to the next item

### 3.7. ALARM TIME SETTINGS

- a) Allows for the setting of the timer for ALARM and on-screen FLASH that warns the player of the limited remaining play time.



- b) Select ALARM or FLASH as required by moving the joystick up or down and set the timer period from 00 to 30 seconds by moving the joystick left or right.
- c) The timer when set as above will warn the player just before the game is over by the ALARM or on screen FLASH.

Push the TEST button to proceed to the next item.

### 3.8. EXIT

- a) Bring the \* to EXIT and push the TEST button to return the screen to the GAME mode.

## SENTINEL TECHNICAL AND SERVICING INFORMATION

### Coin Mechanism Assembly

The Sentinel Coin Mechanism is shown in exploded form at the back of this manual.

A rundown is provided between the reject gate (no. 42) and the body (no. 7) along which are placed three coils of different shapes and sizes. The first coil (no. 18) is a large diameter round coil which is placed at the front of the rundown. Coil number two is a smaller round coil (no. 14), which is situated in the gate (no. 42) and the final coil is a wrapround (no. 20). If a coin having passed the three sensors is deemed true the accept gate (no. 40) is opened by energising a solenoid (no. 23A) and the coin passes through the accept coil (no. 28). Having cleared the accept coil, the accept gate is closed and a credit signal is generated. If the mechanism is fitted with a sorter, this is energised at the same time as the accept flap and is reset once the photo-cells (no. 47) have been obscured and cleared again.

### Coin Entry and Exit Options

#### Option One—Front Entry

The front entry option is achieved by fixing to the basic assembly, parts numbered (6,8,9,12,13,15,16.). In most cases this assembly will then be used in conjunction with the frontplate parts numbered (1,2,3,4,5,44). This option can be either direct or indirect reject and can also be fitted with either a single exit port or a four coin sorter.

#### Option Two—Top Entry

This is achieved by adding to the basic assembly, parts numbered (51, 52, 53, 54, 55). This unit can be fitted with either a single exit port or a four coin sorter.

### Coin Sorter Module

When fitted to the assembly the sorter allows for-way sorting. This is achieved by two incorporated flaps (no. 27, 36) which are actively driven by solenoids (nos. 23 B & 23 C). The first flap (no. 36) is a metal construction, which diverts the coin to one of ports A or B at the back of the assembly when the solenoid (no 23C) is not energised, and to one of ports C or D near the centre of the mechanism when the solenoid (no. 23C) is energised. The long plastic divertor flap (no. 27) which runs the length of the sorter, is used to select between ports A and B or between ports C and D under the control of the solenoid (no. 23B).

Two sets of photo-cells (no. 47) are located at the bottom of the sorter which reset the solenoids and allow the assembly to accept further coins immediately after the coin has cleared the cells. This eliminates any timing complications.

### Assembly and Disassembly

To remove the body from frontplate, first unplug connectors (parallel or serial interface). Pull back catch (no. 6) and lift body upwards. When stop position is reached the body can be withdrawn. When reassembling, line up keyhole slots in body with retainers on frontplate. Push body forward and downwards. When in position, catch (no. 6) will click into appropriate slot.

### To remove Sorter

Undo screw (no. 19c) and remove cover (no. 39). The sorter can be unplugged and withdrawn. When reassembling ensure snubber (no. 25) is in correct position.

### Servicing the Sorter

When the three retaining screws (no. 30) are removed the sorter splits into two parts allowing the solenoids and flaps to be serviced. To remove flap (no. 27) the spring retaining screw (no. 35) must be removed first, followed by the spring (no. 32).

When reassembling the unit great care must be taken that neither springs (nos. 32, 37) are damaged.

### Accept Gate

To detach accept gate first slide spring (no. 41) towards rear of mech and remove. Pull gate forward and downward. Care must be taken not to damage spring.

### Bulb

To replace the bulb it is necessary to remove bulb-holder. Place the blade of a screwdriver between bulb holder (16) and the parallel face of front entry (13). A slight twist will dislodge the small round pin on bulb holder from the slot in the front entry. The holder can now be removed. When the new bulb is in position, the holder should first be located at the back of the entry and the round pin pressed to locate in the appropriate slot.

### Reject Button

To replace reject button it is necessary to remove button assembly. This is achieved by removing screws (no. 45). When reassembling ensure cone spring is in correct position.

### Direct Reject

By removing screws (no. 58) the reject cup and flap can be detached.

If the reject Gate (no. 42), coils (nos. 14, 18, 20, 28) or circuit board need to be removed please contact Coin Controls.

### Application

This section is intended to help the user to get the most out of the SENTINEL coin mechanism. It discusses power supplies, interfacing and coin sorting. No applications section can ever be complete, however, and customers are always very welcome to contact Coin Controls direct to discuss the requirements of their particular coin handling applications and any other coin handling matters.

#### Power Supplies

Voltage:	11 to 15 Volts DC.
Current:	220 mA continuous (nominal) 0.7 Amps max. (no sorter fitted) 2.0 Amps max. (sorter fitted)
Rise Time:	200 msec max.

**IMPORTANT NOTE:** Operation of the coin mech. outside of specification may cause malfunction or damage. It is important to ensure sufficient power-supply current capacity.

## Using the Parallel Interface

The parallel interface provides open-collector output signals which will automatically pull-up or pull-down to any voltage in the range +5V to +24v and 0V to -20V respectively. Figure 3.2 is a circuit diagram of the Accept output buffer in each of its three states.

Two types of output coding are available, dependent upon the state of the SELECT input on the parallel interface. The output coding types are: 1-Of-4 Coins and 8 Coin.

These are described in detail later on. Full electrical specifications for the interface are given in Section 5.0.

All parallel interface signals are routed via Connector 1, the parallel interface connector. The following signals are available on this connector:

Pin No.	Signal Name	Signal Description
1	COM A	Supply input for output pull-up/pull-down. Allowing this line to float disables all the accept outputs.
2	A1	Accept Output 1. The Accept outputs are all normally open-circuit, pulling to within 1 Volt of the voltage on the COM A pin when true (logic "1").
3	n.c.	Polarising Position
4	A2	Accept Output 2
5	A3	Accept Output 3
6	SELECT	4-coin/8-coin interface selection. This line is a passive pull-up, active pull-down signal. Open circuit: 4-coin interface. Tied to 0v : 8-coin interface.
7	A4	Accept Output 4
8	I4	Inhibit Coin Channel 4. The Inhibit inputs are all passive pull-up, active pull-down. A coin channel is enabled when the inhibit input is pulled to 0v and disabled when it is left floating.
9	V (board)	Power supply input. 11—15Vdc. 220mA nominal. 2.0 A peak
10	0v	
11	I3	Inhibit input for Coin Channel 3.
12	I2	Inhibit input for Coin Channel 2.
13	I1	Inhibit Input for Coin Channel 1.
14	15,6	Inhibit Input for Coin Channels 5 and 6.
15	17,8	Inhibit Input for Coin Channels 7 and 8.

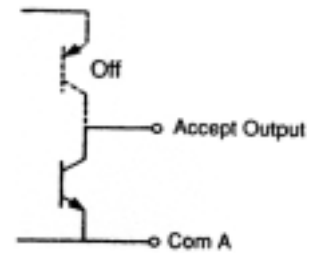
## Cleaning

The plastic coin rundown should be cleaned periodically using a slightly moist cloth. Access to the rundown is gained by folding back the reject flap.

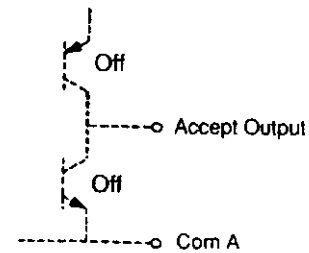
Cleaning of the sorter module may also be necessary from time to time on some sites.

## Faulty Operation

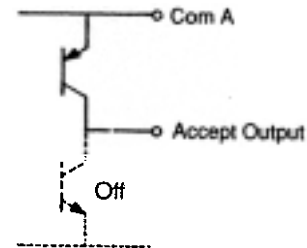
Both Master Programmer and Toolkit enable functional testing of the coin mechanism and are of particular use in determining if a fault resides in the coin mech or the host machine. It is generally recommended that mechs with electronic faults be returned to Coin Controls Ltd. for repair.



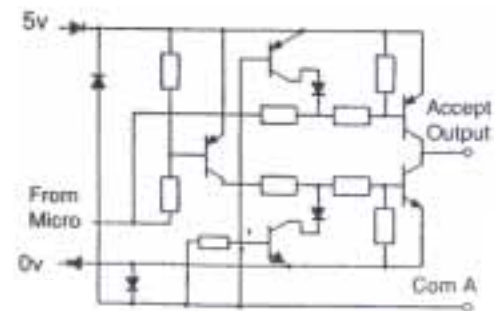
Com A connected to 0 to 20v



Com A not connected or 0v < COM A < 5v



Com A connected to +5v to +24v



Actual circuit

## Fault Finding on the Sentinel

The following information is presented for customer guidance in determining a suspected fault and does not cover all possible causes.

<u>Symptom</u>	<u>Investigate</u>	<u>Possible Cause</u>
Mech does not work (all coins reject)	Connector	Poor contact Bent Pins
	Power Supply	Not switched On. Incorrect Voltage. Inadequate Power. Power supply Rise— Time is too slow.
	Inhibit Inputs	Mech inhibited.
	Accept Gate	Gate not free or dislocated
Mech takes first coin and then stops working (See Section 3.3.1)	Accept channel	Obstruction in channel
	Parallel Interface (If connected)	Parallel I/Face COM A pin not connected.
True coins reject too often	Serial Interface (If connected)	Host Machine not responding
	Power Supply	Voltage less than 11v (NB. voltage drop when solenoid activated).
	Accept Gate	Flap not free or dislocated
	Connector	Loose.
Coins stick or jam in mech	Rundown	Dirty
	Rundown, accept channel, reject channel, accept gate, sorter (if fitted).	Dirt or Mechanical damage/obstruction
One of the True Coins always rejects	Mounting of mech Body and/or Sorter.	Improperly mounted.
	Parallel Interface (If connected)	Bent or broken Connection Pin, Wrong Inhibit input voltage



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<u>Symptom</u>	<u>Investigate</u>	<u>Possible Cause</u>
False Coins in Cashbox	Accept Flap	Flap spring loose or flap dislocated
Coins in wrong Cashbox	Sorter	Dirty, Mechanical damage or obstruction, Solenoid failure or wire broken
No Accept Signal	Connector	Connector Loose or broken
	Accept Channel	Dirty or obstructed (mech timeout)

### Power Supply

11 to 15 volts dc. 220mA nominal standby consumption  
0.7 Amps Peak, 200 msec max. (no sorter)  
2.0 Amps Peak, 600 msec max. (with sorter)  
Rise Time=200 msec (max.)

### Parallel Interface

COM A: + 5 to +24 volts dc, 0 to -20 volts dc; 200mA max

AI—A4. SOMA sink or source, credit pulse 80msec (+/-20%) duration. (See Section 3.2)

I1—I7,8: 3K3 pull-up to on-board 5vdc.  
Open Circuit or greater than 3.6v—Coin Inhibited  
Short to 0v or less than 1.2v —Coin enabled

Inhibit input: signal range: 0v (abs. minimum) < Vin < 5v (abs. maximum)

### Serial Interface

IIC Serial Interface Standard

Received Data Rate: 1500 baud (max.)  
250 baud (min.)

Transmit Data Rate: Programmable 1000 baud or  
500 baud (+/-20%).

Sdata, Sclk: 47K pull-up to on-board 5v dc.  
"0"—0v (abs. min) < Vin < 1.2v (abs. max.)  
"1"—3.6v(abs.min) < Vin < 24v (abs. max.)

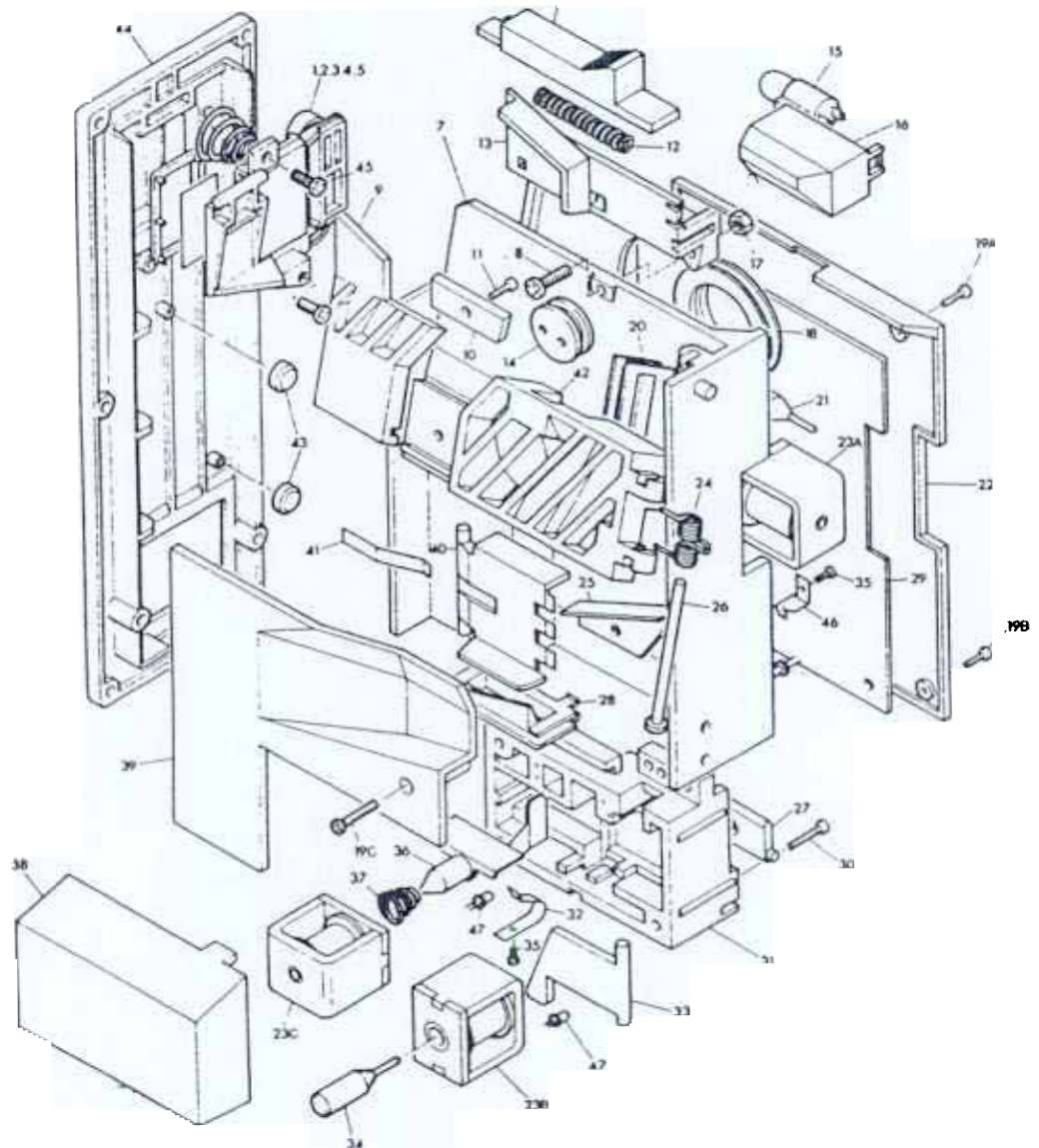
**IMPORTANT NOTE:** Application of signals or voltages outside of those specified above may cause damage to, or malfunction of the mechanism

### Environmental Conditions

Temperature range:- 0° C to 50° C ambient  
Relative Humidity:- 5% to 95% non-condensing

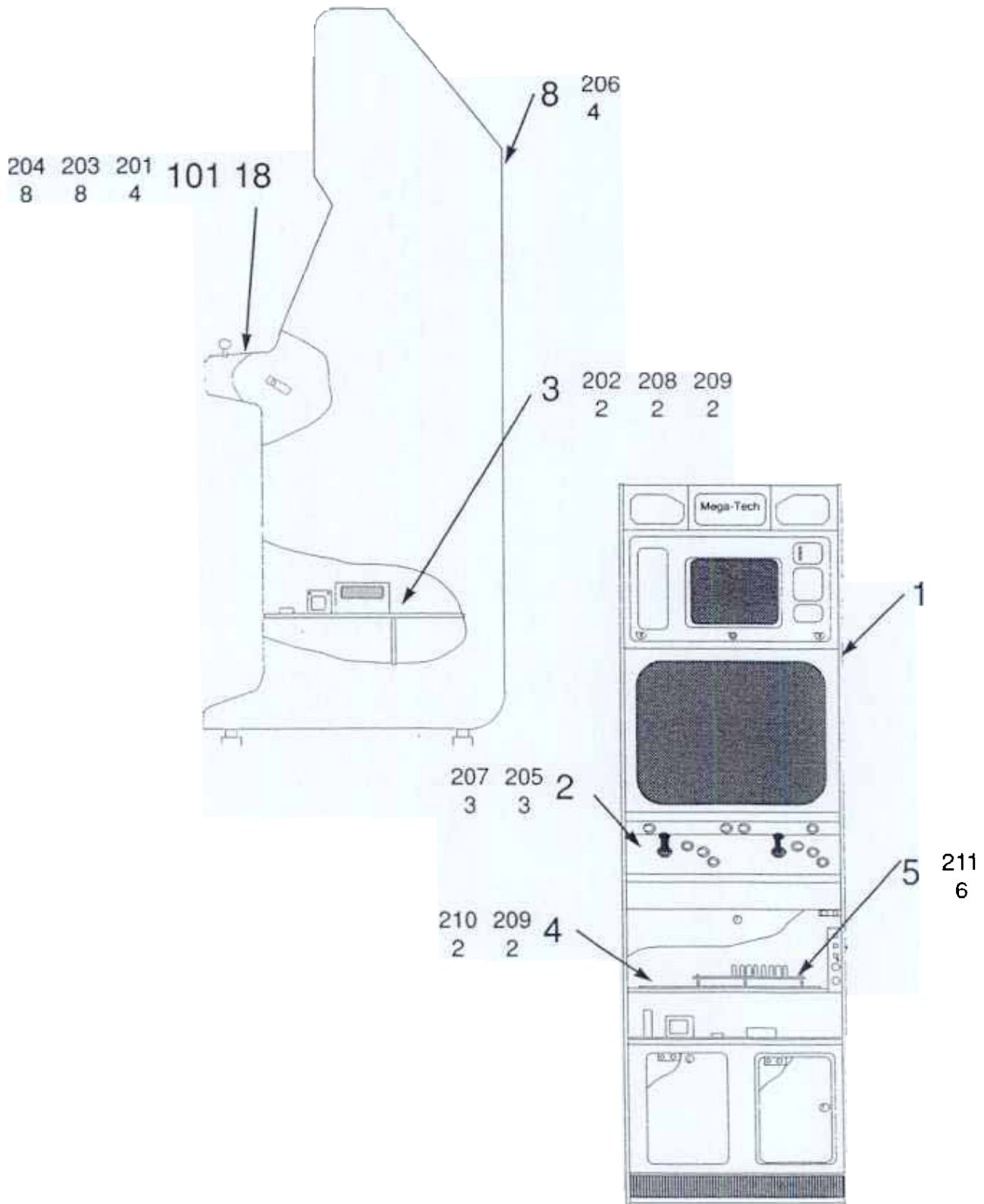
## The Sentinel Coin Mechanism Parts List

- 1 Coin entry and button housing
- 2 Button
- 3 Button lid
- 4 Button cone spring
- 5 Button label
- B Quick release latch
- 7 Main body
- 8 M4.0 x 16.0 pozi pan HD screw
- 9 Front entry gate piece
- 10 Gate snubber
- 11 4.20 x 3/8" pozi CSK screw
- 12 Quick release latch spring
- 13 Front entry
- 14 2nd sense coil assembly.
- 15 Bulb
- 16 Lamp holder
- 17 M4.0 full nut
- 18 1st sense coil assembly
- 19 4.20 x 5/16" pozi pan H D
- 20 3rd sense coil
- 21 Main body pole piece
- 22 P.C.B. cover plate
- 23 Solenoid assembly
- 24 Hinge pin spring
- 25 Main body snubber
- 26 Hinge pin
- 27 Sorter coin divertor flap
- 28 Final accept coil assembly
- 29 Printed circuit board assembly
- 30 4.20 x 5/8" pozi pan HD screw
- 31 Sorter centre plate
- 32 Coin divertor flap spring
- 33 Sorter solenoid flap
- 34 Solenoid flap pole piece
- 35 6.20 x 1/4" pozi pan HD screw
- 36 Solenoid coin flap assembly
- 37 Sorter solenoid cone spring
- 38 Sorter solenoid cover
- 39 Coin rundown and reject cover
- 40 Accept gate
- 41 Accept gate spring
- 42 Reject gate
- 43 Mech. mounting studs
- 44 Front plate
- 45 M3.0 x 6.0 pozi pan HD screw
- 46 Cotton catch
- 47 Photo Cells
- 51 Top entry chute
- 52 Top entry gate piece
- 53 Top entry reject lever
- 54 Top entry reject lever pivot screw
- 55 Top entry reject lever spring
- 56 Reject clip
- 57 Reject clip flap
- 58 M3.0 x pozi pan HD
- 59 Single coin outlet



14 PARTS LIST

Top Assy. Mega-Tech System for UK (MGS-0000) (D-Y)



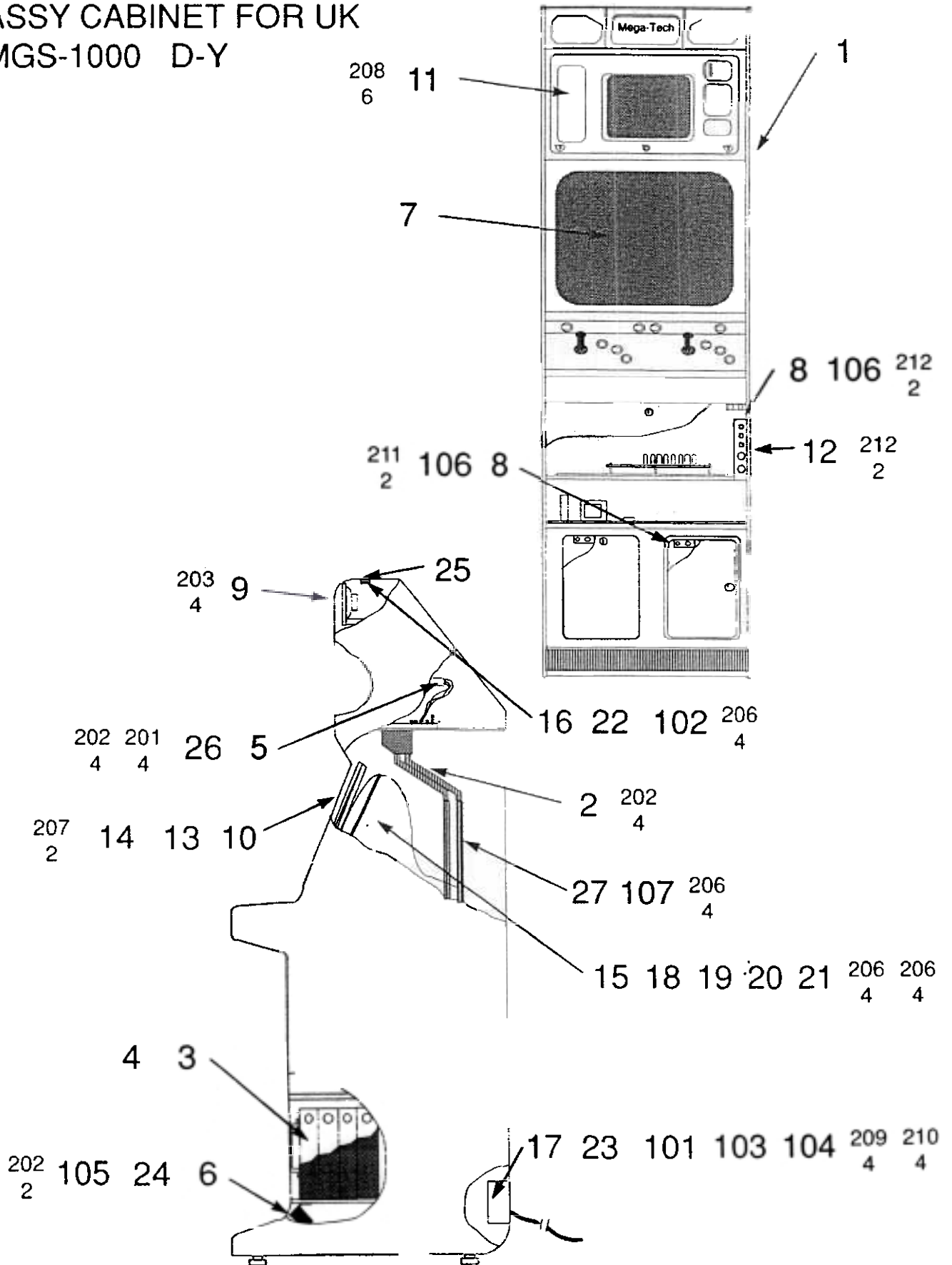
# Sega • Mega-Tech System Owners Manual

Drw No.	Sega Part Number	D L Part Number	Qty per	Description
1	MGS-1000	SE	1	Assy cabinet for UK
2	MGS-2000	SE	1	Assy control panel
			1	Assy pwr supply UK
	MGS-0001	SE	1	Baseboard
	B34-6937	SE	1	iC BD Mega 8
	421-5800-96	SE	1	Original Seal Mega-Tech
	421-0246	SE	1	Sticker export England
	117-5125	SE	1	Nameplate Elec. Spec England
	421-5709	SE	1	Sticker service instr. England
10	SGB-1035X	SE	1	Key bag
11	421-6594	SE	1	Sticker serial No. England
12	421-6671	SE	1	Sticker Danger High Voltage
13	421-7418	SE	1	Adjust Instr Sheet Mega-Tech
14	SGM-2675	SE	1	Polythene Bage 240x370
15	SGM-3640	SE	1	Polythene Lense cover upright
16	540-0006-01	SE 0020	1	Tamp/pr wrench M4
17	540-0007-01		1	Tamp/pr wrench M5
18	VC-1013	SE	2	Bracket
19	421-17417	SE	1	Denomination sticker for 421-7416
20	420-5901	SE	1	Owners manual Mega-Tech
	420-5318	SE	1	Display manual 20" 200-5090 UK
101	250-5010	SE	2	Super Clamp
	837-69172	SE	1	Piggyboard
	600-5811-3	SE	1	Wire harness Jst 7p
		SE 1446	2	M screw PH M3x30
			2	Spr washer M3
	060-0003	SE	4	Flt washer M3
	050-0003	SE	2	Hex Nut M3
21	610-0239-01	SE	1	Assy CRTG H8 JY00K1
22	610-0239-02	SE	1	Assy CRTG H8 Space Harrier
	610-0239-03	SE	1	Assy CRTG H8 Sup/Thunder Blade
	610-0239-04	SE	1	Assy CRTG H8' Great Golf
	610-0239-05	SE	1	Assy CRTG H8 Aner Burner
	610-0239-06	SE	1	Assy CRTG H8 Out Run
	610-0239-07	SE	1	Assy CRTG H8 Alien Syndrome
	610-0239-08	SE		Assy CRTG H8 Shinobi
	610-0239-09	SE	1	Assy CRTG H8 Fantasy Zone





ASSY CABINET FOR UK  
MGS-1000 D-Y

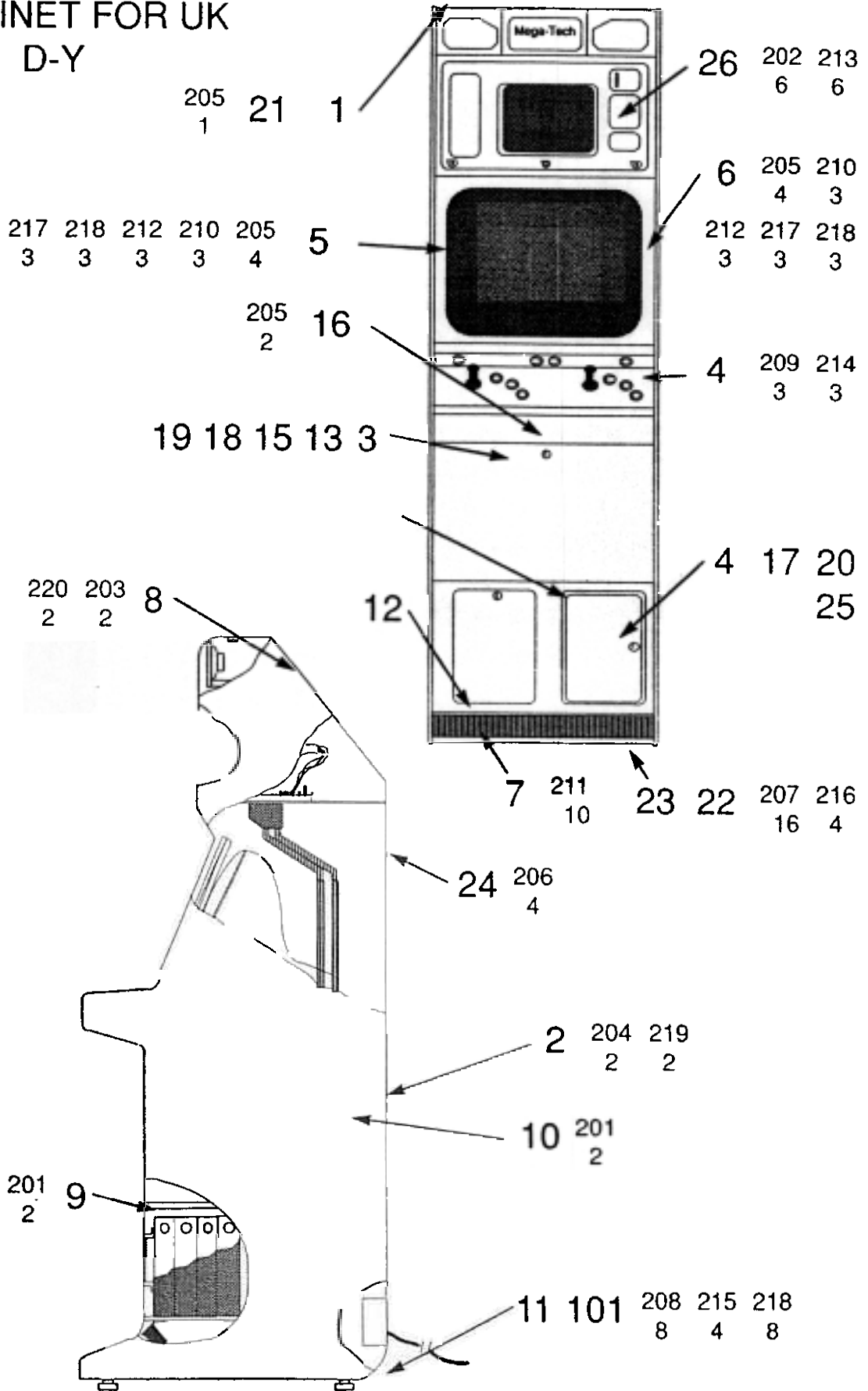








ASSY CABINET FOR UK  
MGS-1000 D-Y

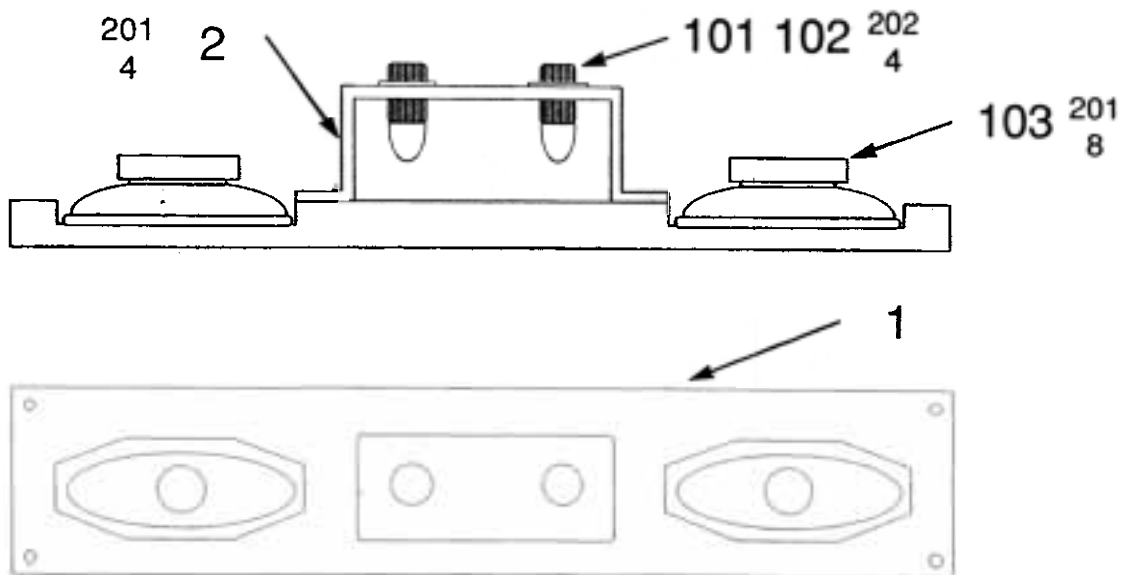


# Sega • Mega-Tech System Owners Manual

			Qty per	Description
		SE	1	Back door Front door
5		SE		Monitor Bracket left Support Bracket Service Door
			1	Lock Bracket Stopper Bracket Nut Plate Floor Mat
			1	Lock Tng
	117-5098	SE	1	
	HN-1050	SE		
		SE 0906		
				Leg Adjuster
		SE		Air Vent
27	600-5B11-9	SE	2	
201	000-0416-5	SE 1430	4	
202	000-0425	SE 1448		
203	000-0435	SE		
204	000-0550			
205	005-3113F			
206	008-0416	SE 0259		Tmp Prf Scr TH M4x16
207	030-0520-FS			Hex Bit W/FS M5x20
208				Hex Bit M6x30
209			3	
210	031-0630-B	SE	10	Scr Nail Thh Stnls 1.5x16 Hex Nut M6 Fig Nut M4
214		SE 0376		Fig Nut M5
		SE 1325		W Scr RH W/F 3.5x16
216	059-0007	SE 1442	4	Hex Nut 3/8 x 16

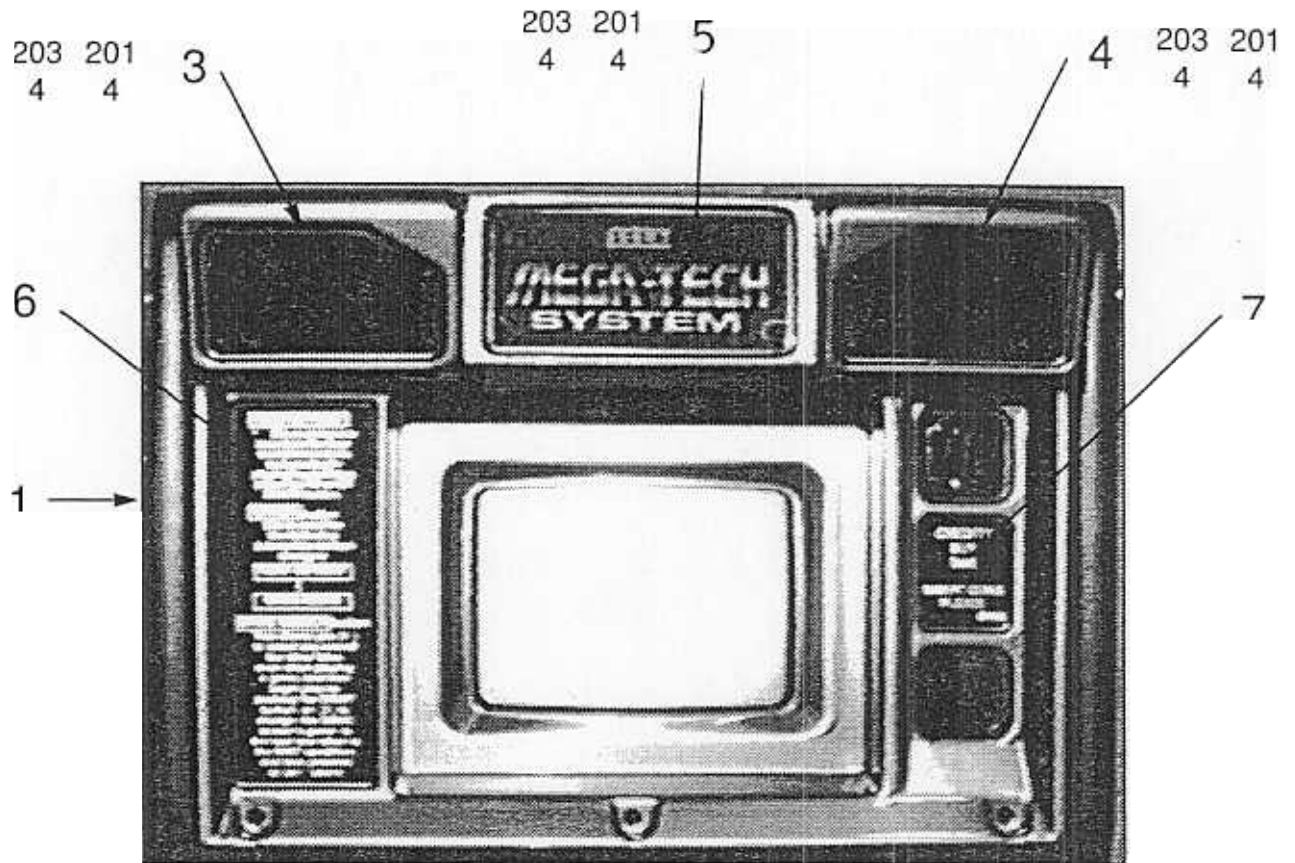
## Sega • Mega-Tech System Owners Manual

Drw No.	Sega Part Number	D L Part Number	Qty per	Description
217	060-0006	SE 2027	6	Flt Wshr M6
218	061-0006	SE 0378	14	Spr Wshr M6
219	069-0001	SE 1508	2	Flt Wshr 5.5 20x1.6
220	069-0007	SE 1531	2	Flt Wshr 4.4 16x1.6



Drw No.	Sega Part Number	D L Part Number	Qty per	Description
1	MGS-1022	SE	1	Sp Base
2	MGS-1023	SE	1	Lamp Base Bracket
101	390-5266	LA 0037	2	Lamp 240v 10w
102	214-0105-01	EL0274	2	Bulb Skt T-19
103	130-5025-02	SE	2	Speaker 12x8cm 8ohm 10w
104	280-0425	SE	2	Cord Clamp
201	000-0416-FS	SE 0755	12	M Scrw PH W/FS M4x16
202	000-0306-FS	SE	4	M Scrw PH W/FS M3x6

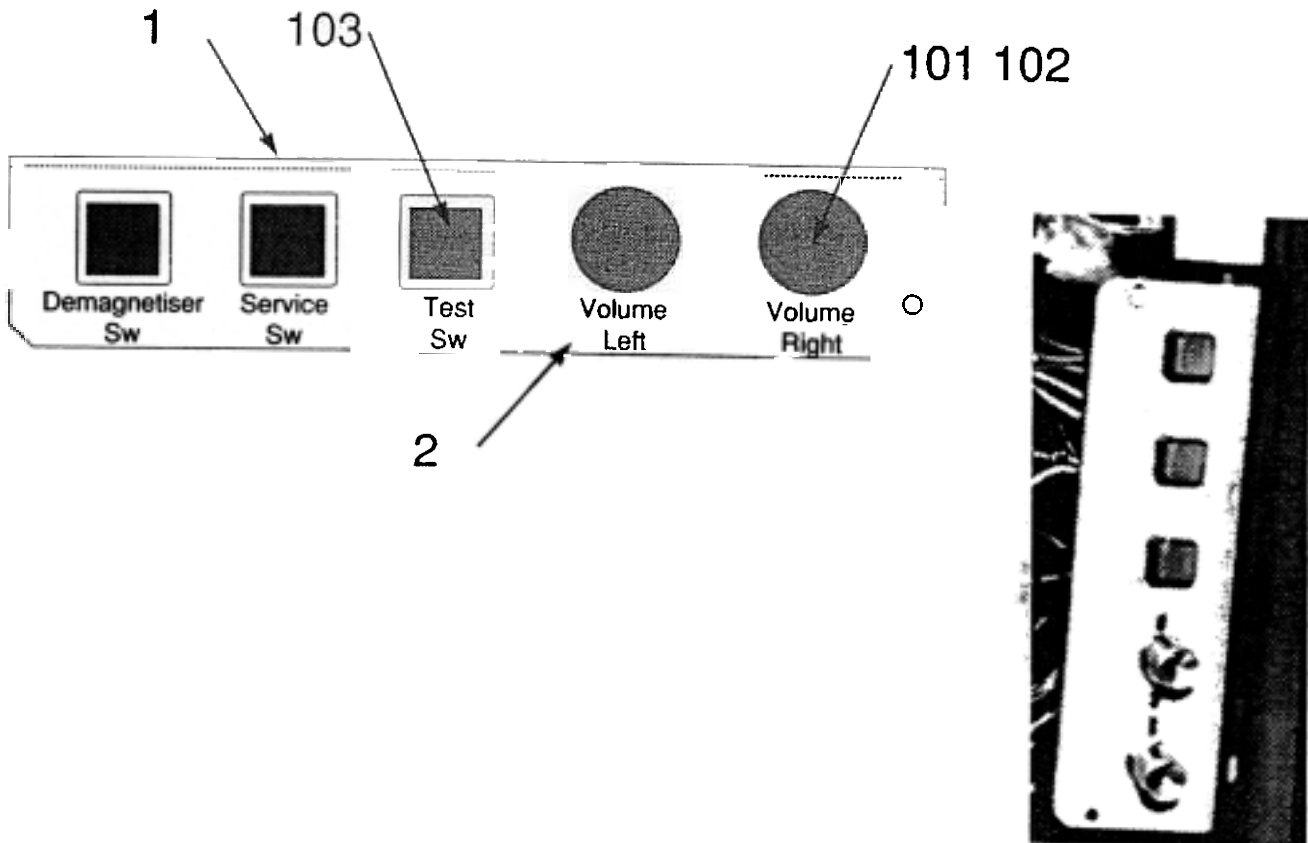
Assy Front Mask MGS-1025



Drw No.	Sega Part Number	D L Part Number	Qty per	Description
1	MGS-1026	SE	1	Front Mask
3	MGS-1028	SE	1	Speaker Net Right
4	MGS-1029	SE	1	Speaker Net Left
5	MGS-1030	SE	1	Design Plate Mega System
6	422-0290	SE	1	How To Play St UK
7	421-7416	SE	1	Denomination Sticker UK
201	031-0410	SE	12	Crg Blt Blk M4x10
203	051-0004	SE 1173	12	Flg Nut M4

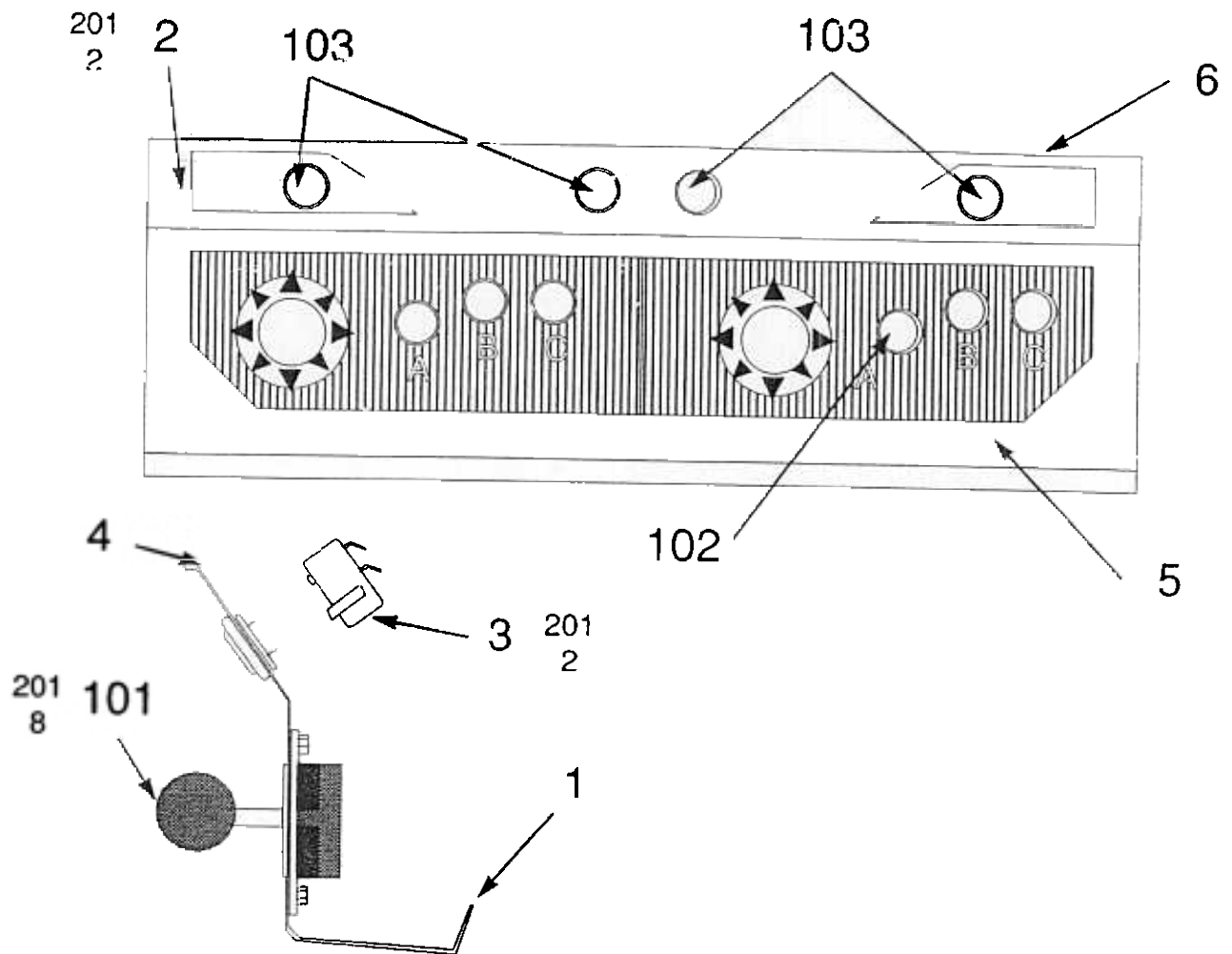


Switch Unit MGS-1031



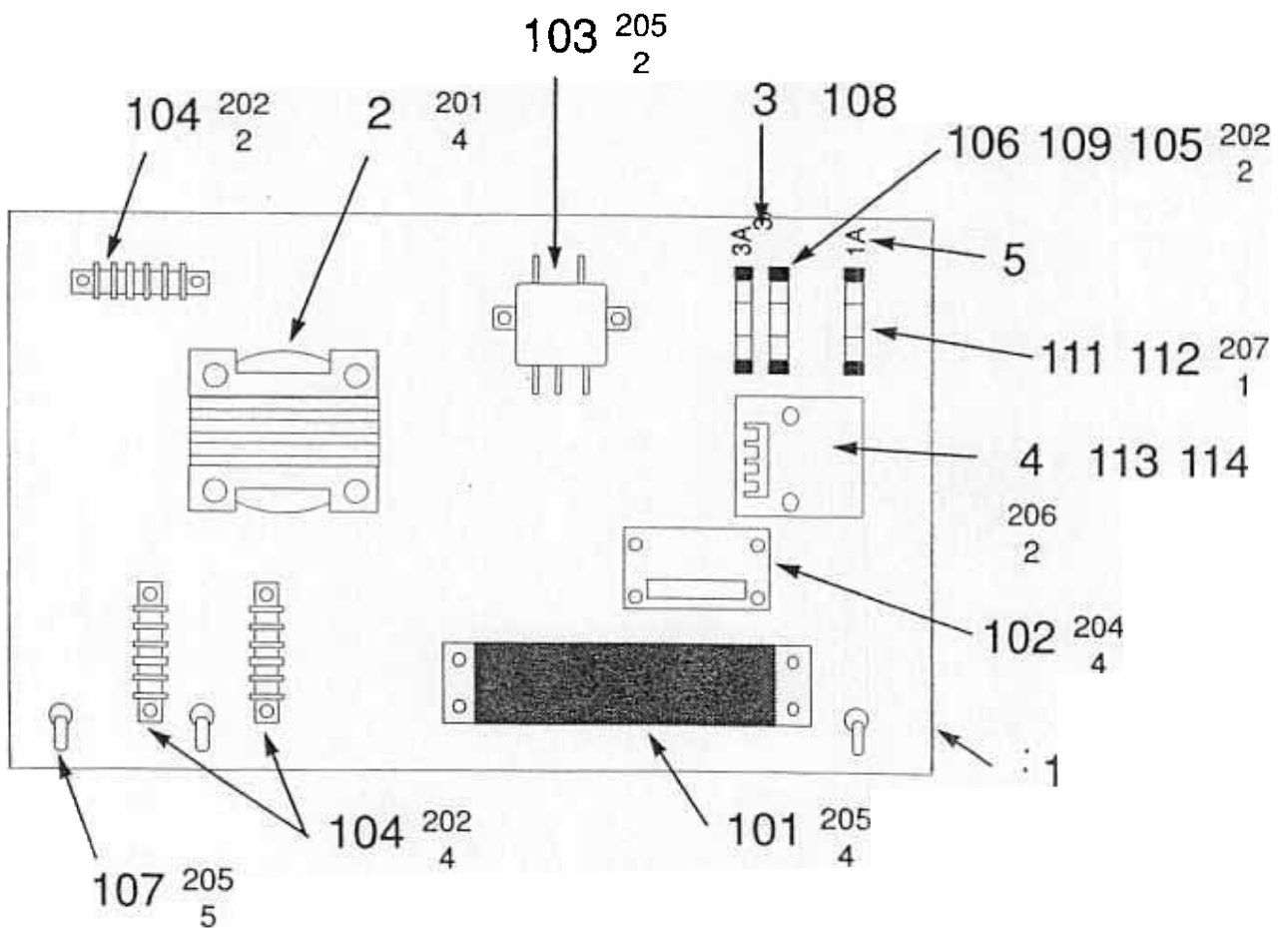
Drw No.	Sega Part Number	D L Part Number	Qty per	Description
1	AN-1270	SE	1	Sw Brkt
2	421-5407	SE	1	Sticker Sw
101	220-5219	EL 0185	2	Rheo Stat 100 Ohm 10w
102	601-0042	EL 0263	2	Knob 22mm
103	509-5028	SE 1328	3	Sw PB 1m

Assy Control Panel . MGS-2000



Drw No.	Sega Part Number	D L Part Number	Qty per	Description
1	MGS-2001	SE	1	Control Panel
2				Hook Right
			1	Hook Left
	MGS-5106	SE	1	Cushion Plate
5	VO-0001	SE	1	Vinyl Overlay (UK)
6	PLE-0001	SE	1	Plastic Edging (UK)
101	610-0231-01	JO 0016	2	
			4	

Assy Power Supply Export (UK) MGS-4000





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Drw No.	Sega Part Number	D L Part Number	Qty per	Descripti
1	MGS-4001	SE	1	Wooden base
2	560-5145	TX 0069	1	Pwr Transformer 90-240v
3	421-7424	SE	1	Sticker fuse inst.
4	VP-4002	SE	1	Regulator unit
5	421-6595-01	SE	1	Sticker 1A
101	400-5072	EL0334	1	Switch Regulator
102	400-5070	SE 0752	1	DC/DC Converter Japa
103	270-5020	EL0273	1	Noise filter
104	117-5167	EL 0771	3	Terminal 5p-2px2 short
105	514-5029-02	EL 0770	1	Fuse holder
106		FU 0068	1	Fuse 5a 32mm Slo-Blo
107	280-0419	SE	5	Harness lug
108	601-0769	SE	2	Staple max #3
109		FU 0064	1	Fuse 3.5a 32mm Slo-Bio
110				
111	514-5028	SE	1	Fuse holder p w/cover
112	514-0033	SE	1	Fuse 1a 6.4x30mm
113	280-0297	SE	2	One touch bush
114	601-0485	SE 0819	2	One touch collar
201	000-0414-FS	SE 1249	4	M Scrw PH W/FS M4x14
202	005-3516	SE 1325	8	W Scrw RH 3.5x16
203	005-3513	SE	2	W Scrw RH 3.5x13
204	029-0173	SE	4	W Scrw RH 2.7x25
205	005-3510	SE	9	W Scrw RH 3.5x10
206	005-3525	SE	2	W Scrw RH 3.5x25
207	005-3516	SE 1325	1	W Scrw RH 3.5x16

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