Blazing Trails

(MPU4, set 1)

MANUAL

© Mdm

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Operating and Safety Instructions

Product Safety

Every effort has been made to ensure this product has been designed with safety in mind.

Components used within this product are used within the manufacturers stated specification limits. Under no circumstances should replacement parts other than those specified or supplied by the manufacturer be used within this machine.

Electrical Safety

This machine must not be used unless it is correctly earthed and should be connected to a mains supply of 220v/240v at a frequency of 50Hz.

All machines leaving the manufacturer are subject to electrical safety tests. These tests consist of earth-bond and insulation tests. These tests should be carried out on a regular basis, or when a critical part is replaced.

Only suitably qualified or adequately instructed person should carry out work on the internal parts of this machine.

Connection.

A three-pin plug fitted with a fuse rated at 3 Amps should be fitted to the supply cable. The supply cable should not exceed a length of 2 metres.

Parts list

Blazing Trails is designed to fit the Barcrest Tall Slimline base cabinet.
If the *kit* is to be fitted on, then additional parts may be required depending on the base machine.
Please see the criteria stated in CONVERSION INSTRUCTIONS on page 7.

On receipt of your kit please check the content against the following list, and notify our **Spares Department *immediately*** of any shortages on 01222 377402.

Part	Part number
Top Glass	AT 1009
Reel Glass	AL 1009
Reel Band 1	AR 1046
Reel Band 2	AR 1047
Reel Band 3	AR 1048
Reel band 4	AR 1049
Button Legends x 11	AB 1006
£5 Cash disclaimer	AD 1150
£15 cash disclaimer	AD 1151
5p £15 stake/prize decal	AD 1152
5p £5 stake /prize decal	AD 1153
10p £15 stake /prize decal	AD 1154
10p £5 stake/prize decal	AD 1155
20p £15 stake/prize decal	AD 1156
20p £5 stake/prize decal	AD 1157
25p £15 stake/prize decal	AD 1158
30p £15 stake/prize decal	AD 1159
20p £5 award decal	AD 1160
20/25/30p £15 award decal	AD 1161
5p/10p £15 award decal	AD 1162
5/10p £5 award decal	AD 1163
1 x Gamesman Gm3000 reel unit & mounting foot	MDMGM3000
2 x 5mm bolts for mounting 4th reel	
2 x snap rivets	
Fourth Reel Loom	
1 x Alphanumerical display bracket	
3 x RPB assembly complete	
Top Vacuum Form loomed	
Reel glass vacuum form loomed	
Switch matrix loom	
Game EPROM x 1	
Sound EPROM’s x 3	
Game manual	
Switch settings sticker	

Blazing Trails Game Information

General

Blazing Trails is a 4-reel AWP machine for the UK single site / arcade market.

Game Description

Wins are achieved by lining up matching symbols on all 3 reels with the help of holds and nudges. All wins may be gambled up to the jackpot and can be exchanged for the main feature. Lining up 3 badges on the winline will award the main feature.

Once the feature has been achieved the reels will respin and nudges, cash and features will be added. The player may collect cash, nudge or feature columns at any time or press the start button to spin the feature reel and move around the board to try to improve his win. Extra cash, nudges and features will be added when the player lands on an appropriate square. In addition he may also land on a Wanted or Weapon square which will award an extra weapon or Wanted. Matching a Wanted with his preferred Weapon will award the player a bonus feature. Landing on the horse & carriage will allow the player to use his skill to stop on a position on the board. If the player lands on the "Saloon" squares he may be awarded a bonus or be thrown off the board. If the player lands on the "Bank Raid" square he will move around the board collecting prizes as he goes.

Conversion instructions.

First the base machine should reach certain criteria.
These criteria are

1) Dimensions of cabinet height 1670mm, width: 690mm, depth 660mm
2) An alphanumerical display must be fitted.
3) Eight large buttons on the button panel.

Prior to commencement ensure that the machine to be converted is in good working order.

1) Disconnect and remove the coin handling.
2) Disconnect and remove the reel unit.
3) Disconnect the lamp looms attached to the lamp interface board.
4) Remove the button switches from the button housings.
5) Remove the alphanumeric display.
6) Remove the securing screws fixing the glass frames, from the machine.
7) Place the frames onto a flat surface and remove the glasses, retain all fixings to use again, discard the glasses.
8) Before replacing the new glass into the framework affix the vacuum forming to the glass ensuring that it is aligned correctly. Replace glasses into the frame and secure back into the machine the same way they came out.
9) Remove the lens caps from the buttons and discard the existing button legends. Replace with legends provided. See figure 2 in the Technical Data section of the manual.
10) Reconnect button switches to the button housings.
11) Reconnect the lamp looms to the interface board and auxiliary board. See figure 4 in the Technical Data section of the manual.
12) The three circular buttons are then fitted into the top glass.
13) Connect the feature switches. The black wire are common to all switches, the orange wire is for the Take Feature switch, the brown wire is for the Take Cash switch, and the grey wire is for the Take Nudge switch. The green and blue wires are fitted to the lamp terminals. Connect the trailing loom to a connector provided in the original machine loom. The location of this is usually in the top right hand side of the machine and has black, green, and blue wires fitted.
14) Fit the alphanumeric display on to the central extrusion with the bracket provided.
15) Fit the reel bands provided on all for reels. See figure1
15) Fit the Sound EPROM's and the game EPROM into the program card. See figure 3.

Setting-up

No connector or component must be removed or reconnected whilst the power is turned on.

Check that all connectors, assemblies, and wiring harness are correctly engaged inside the machine.

Set the DIL switch options on the MPU board to the desired position and fit the relevant decals.
Run the machine through the test procedure.

Award Structure

Located on the right hand side of the reel glass are stake and prize, and award decals that change accordingly.
For the correct decal layout relevant to the stake and prize please refer to the table below.

5/10p £5

20p	40p	60p	£1	£2	£3	£4

5/10p £15

20p	40p	60p	£1	£2	£4	£8

20p £5+repeat chance

£1	£2	£3	£4	£5	£5	£5

20/25/30p £15

£1	£2	£3	£4	£5	£8	£10

Switch Settings

Switch bank 1

Switch	OFF	ON
1	Ram clear toggle	Ram Clear toggle
2	Enable coin alarm	Coin Alarm Inhibit
3	Wins banked	Direct Payout
4	Not Used (leave OFF)	
5	Normal payout	Lock up if tubes low
6	Small Motors	Large Motors
7	Attract sound ON	Inhibit Attract Sound
8	Multi-coin play	Single coin play

Switch bank 2

Switch	Function
1	Stake & Prize selection (see overleaf)
2	Stake & Prize selection (see overleaf)
3	Stake & Prize selection (see overleaf)
4	Not used (Leave OFF)
5	Payout percentage selection (see overleaf)
6	Payout percentage selection (see overleaf)
7	Payout percentage selection (see overleaf)
8	Payout percentage selection (see overleaf)

Stake, Prize and Percentage Settings.

The stake and prize can be selected via the DIL switches.

NO STAKE & PRIZE KEY SHOULD BE FITTED

Switch 1	Switch 2	Switch 3	Outcome
OFF	OFF	OFF	**5p £5**
ON	OFF	OFF	**5p £15**
OFF	ON	OFF	**10p £5**
ON	ON	OFF	**10p £15**
OFF	OFF	ON	**20p £5**
ON	OFF	ON	**20P £15**
OFF	ON	ON	**25P £15**
ON	ON	ON	**30P £15**

The percentage can be selected via the DIL switches. If a percentage key is fitted this will override the DIL switch selection. If all the switches are off then the percentage defaults to 78%.

Switch 5	Switch 6	Switch 7	Switch 8	%
ON	OFF	OFF	OFF	**70**
OFF	ON	OFF	OFF	**72**
ON	ON	OFF	OFF	**74**
OFF	OFF	ON	OFF	**76**
ON	OFF	ON	OFF	**78**
OFF	ON	ON	OFF	**80**
ON	ON	ON	OFF	**82**
OFF	OFF	OFF	ON	**84**
ON	OFF	OFF	ON	**86**
OFF	ON	OFF	ON	**88**
ON	ON	OFF	ON	**90**
OFF	OFF	ON	ON	**92**
ON	OFF	ON	ON	**94**
OFF	ON	ON	ON	**96**
ON	ON	ON	ON	**98**

Demonstration mode

A demonstration mode is provided which enables the game to be played or tested without having the need to insert coins and without any actual payout of prizes.

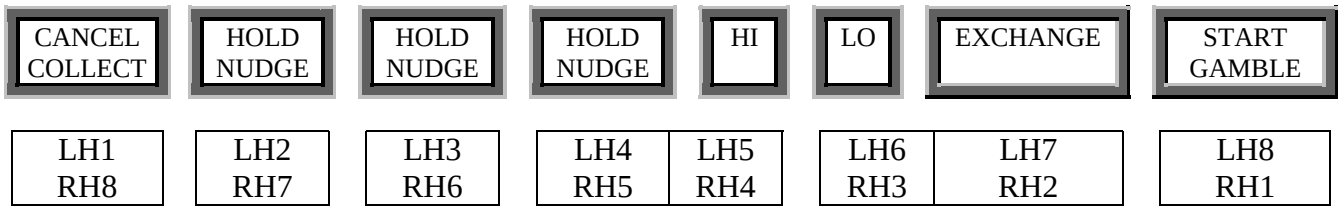
To enter the demonstration mode, open the top door and press the test button once. To achieve £5 worth of credits press the Start button. By holding down the Cancel button and any of the Hold buttons the reels can be stepped down. The reel can also be stepped up by holding down the Cancel and HI buttons, to induce reel wins or to play the feature.

If the MPU does not recognise any activity after approximately 20 seconds the machine enters the attract mode. Credits can then be achieved by pressing the Start button again.

Test Routine.

To enter the test routine the top door must be open and the test-button pressed twice.

Navigation.



To step to the next test press the RH2 button. To step to a previous test press the RH3 button. The relevant test will be displayed on the alphanumerical display. To activate the desired test the RH1 button is then pressed. Press the RH1 once to exit that test.

Test Number	*Test procedure*
1.1	Coin in
1.2	Coin out
2.1	Reels 1
3.2	Lamps
4.1	Inputs
4.2	DILS
5.1	Alphanumeric
6.1	Meters
7.1	Communications
8.2	Volume
9.1	Keys
A.1	Alarm log

Test 1.1 – Coin In.

All coins accepted by the machine will display the relevant coin value on the display.

To inhibit the coins the LH1 button is pressed. To return to coin acceptance then the LH1 button is pressed again.

Test 1.2 – Coin out.

Button RH2 and RH3 are used to select payout tube.

Button LH1 is used to payout coins. The alphanumerical display will read how many coins have been paid out.

Test 2.1– Reels 1.

On entry to this test reels 1 to 4 will spin to the SYNC position and light all the lamps behind the reel bands. The message SYNC POSITION will be displayed. At this point the first reel symbols will be on the win line. Reels 1,2,3 will show MDM jackpot and reel 4 will show 12.

The relevant HOLD/NUDGE button can be pressed to step the reels down.
Pressing the CANCEL button will nudge the feature reel.
The symbol on the last reel pressed will be displayed.
If the CANCEL button is held for 3 seconds or more any win/feature available will be indicated.

Test 3.2 – Lamp test

On entering the test the display will read 3.2 FLASH, and all the lamps will flash.

Pressing the LH1 button will toggle the step lamp test.
TheRH2 and RH3 buttons will respectively step through the lamps forwards and backwards.

Test 4.1 – Inputs

When any input changes (including the level sensors) a sound will be generated and the relevant information is displayed.
To exit this test, hold down RH1 for longer than two seconds.

Test 4.2 – DIL Switches.

On entry to this test the status of the DIL switches are displayed. When a number 1 is displayed then the switch is ON. If the number is 0 then the switch is OFF. **Activating DIL switch 1 bank 1 will perform a ram clear.**

Test 5.1 – Alphanumerical display.

On pressing the RH1 button each segment of the alphanumeric will light from left to right. Once all the segments have been tested they will then be tested simultaneously.

Test 6.1 – Meters.

Pressing the RH1 button initiates the test. Each meter will pulse 5 times. **The refill key is not required for this test.**

Test 7.1 – Comms.

If machine recognises that there is a Datapak connected to the RS232 port the machine will display PASS. If there is no Datapak fitted then FAIL is displayed.

Test 8.2 – Volume.

This test will allow adjustment of the electronic volume control and is identical to the volume adjustment via the refill key with the doors closed.

The display will show the volume in a percentage.
The LH1 and LH2 buttons will be used to adjust the volume down and up respectively.
The RH2 and RH3 buttons will allow the sample number to be increased or decreased respectively.

It is recommended that the manual volume control is set to maximum to allow the software to control the volume correctly.

Test 9.1 – Keys

The display will show whether or not the percentage and the stake and prize is currently controlled off the DIL switches or a key. The display will then change to display the current aiming percentage, the current stake and prize and then the actual percentage.

Test A.1- Alarm log.

On pressing the RH1 button the alarm log number will be shown on the left-hand side of the display, the alarm code on the right.

By pressing the LH4 button and the LH2 buttons you can increment or decrement the log number respectively.
By holding the RH2 button for five seconds the alarm log can be cleared.

Alarm codes

Code	Fault	Causes (in order of probability)
0.1	Ram clear/ checksum fail	Change of program, faulty battery, M.P.U
0.2	Mode change	Stake, prize or percentage changed
0.3	Manual ram clear	Dil switch 1 toggled
1.1	£1 coin input	Coin jam. Coin mech., coin loom,
1.2	50p coin input	As above
1.3	20p coin input	As above
1.4	10p coin input	As above
1.6	5p coin input	As above
1.5	Token input	As above
1.9	Anti-strim alarm	Coin mech., coin loom, M.P.U
2.1	Reel 1 fault	Set-up, opto, loom, motor, M.P.U
2.2	Reel 2 fault	As above
2.3	Reel 3 fault	As above
2.4	Reel 4 fault	As above
6.0	Meter error	More than 1 meter disconnected
6.1	Meter 1 fault	Meter1 faulty
6.2	Meter 2	“
6.3	Meter 3	“
6.4	Meter 4	“
6.5	Meter 5	“
7.1	E.D.C failure	Dataport unit not fitted, M.P.U, no –12v
9.1	Incorrect switch settings	Adjust switch settings, faulty MPU
9.2 – 9.8	Faulty processor	Faulty MPU, programme card

Technical Data

Machine Description

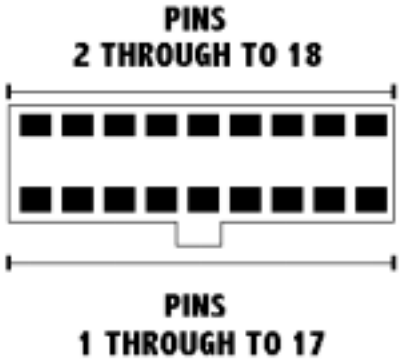
Cabinet

Cabinet name:	Slimline
Manufacturer:	Barcrest
Technology:	MPU4
Height:	1670mm
Width:	690mm
Depth:	660mm
Weight:	110Kg (approx.)

Coin Handling

Routing

This machine uses an 18 way routing plug. The pins are identified with the notch of the routing plug facing downward and the wire links facing you.



To achieve the correct routing, link pins: -

1 + 2, 4 + 6, 7 + 18, 8 + 15, 12 + 13

Coin Payout

1 x 20p Coin Controls compact 50v AC.
1 x £1 Coin Controls compact 50v AC.
6 x Cream Starpoint 3CLD AA level sensors for £1 and Token tubes.
1x Red Starpoint 3CLD AA level sensor for 20p tube.

Coin Tube Capacities

The coin tube capacities are listed below with the level sensor positions.
The £1 tube holds £70 with the level sensor positioned at £16.
The 20p tube holds £30 with the level sensor positioned at £4.40.

Meters

2 x 12v DC
1 x 48v AC or 1x12v DC for refill

Software Meters (electronic)

In all there are 50 meters, but there are useful meters that have been incorporated for the operators benefit. These are Cash in, Cash out, Games played, and Cash refilled. For the desired meter refer to the table below.
To access the software meters open the top door and press the test button once. The machine will go into demonstration mode. Next turn the refill key to the on position.

The alphanumerical display will show meter number 0. To display the next meter press the third **Hold/Nudge** button, to display the previous meter press the first **Hold** button.
To clear the meters, press and hold the **Start** button. A countdown sequence will be initiated and can be aborted by releasing the **Start** button. Once the countdown reaches zero the meters will be cleared.

Meter No.	Description	Divide by

Note that the software will be cleared down every time the RAM has been reset and the percentage or price of play has been altered.

Reels

Main Reels

Motor alignment

Put the machine into reel test (test 2.1). This will spin the reels showing the first symbols on the reel band in the win line.
A pointer moulded into the reel drum should line up with a pointer on the side of the frame with the exception of the fourth reel. Any miss-alignment can be adjusted by slackening off the motor mounting screws and rotating the motor.

Reel Band Placement

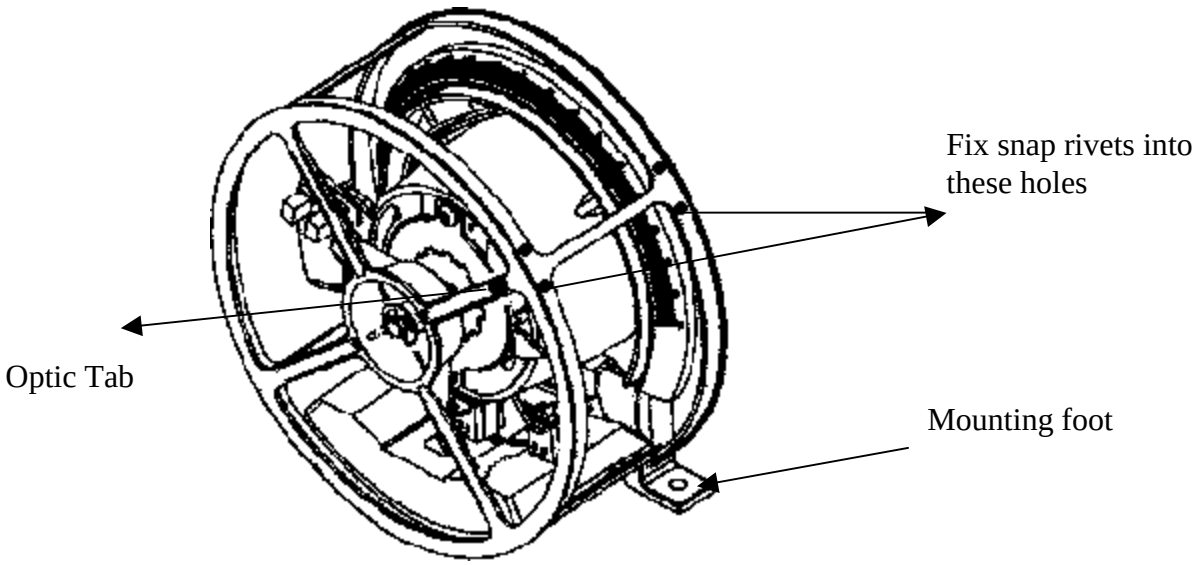
Place the notched reel band on to the notch on the reel drum and rotate. When fully rotated remove the double-sided tape on the bottom edge of the reel band and affix to the top edge of the reel band.

Fourth Reel

The fourth reel has already been set-up correctly and NO attempt should be made to adjust any alignment.

Reel Band Placement

Locate the holes to the right hand side of the optic tab, line these up with the holes fitted on the clear tail of the reel band and rotate. Once all of the holes are lined up fit the plastic snap rivets supplied.
Figure 1



Reel band Layout

Reel 1	Reel 2	Reel 3	Reel 4
MDM Jackpot	MDM Jackpot	MDM Jackpot	12
Cherry	Cherry	Cherry	4
Lemon	Lemon	Lemon	11

Button Layout

Figure 2 8-way button panel

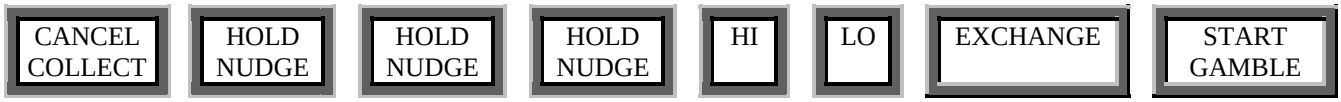
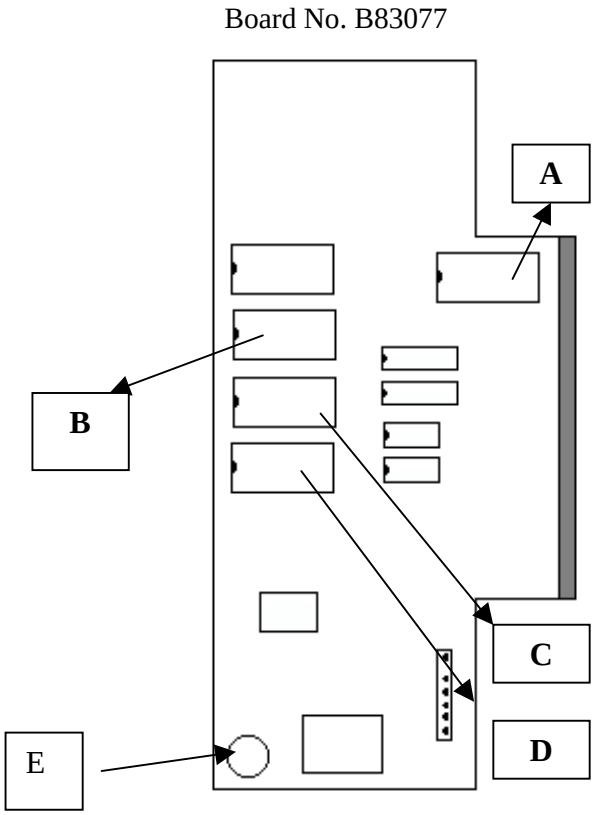


Figure 3 Program Card and EPROM location



A = Game EPROM
B = Sound EPROM 3
C = Sound EPROM 2
D = Sound EPROM 1
E = Manual volume control

Connections

Figure 4 Lamp interface board.

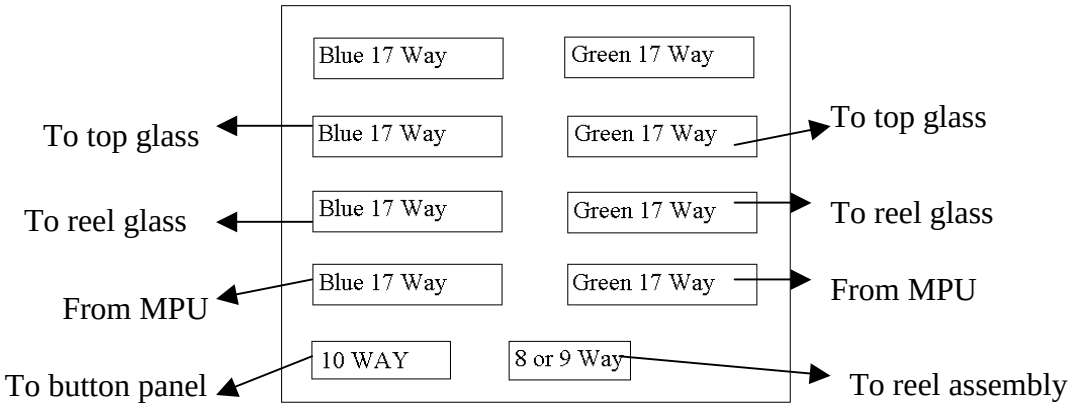
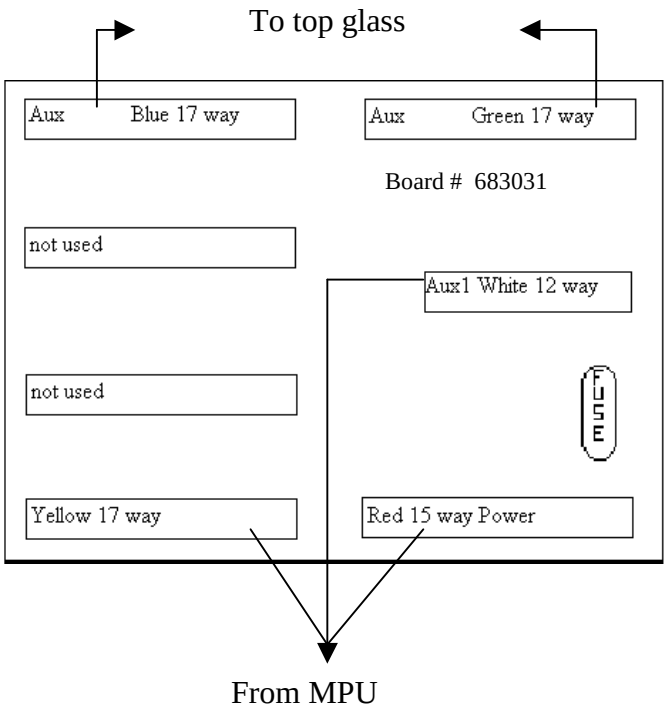


Figure 5 Auxiliary lamp board.



Lamp Allocation

Lamp	Blue Pin	Green Pin	Position
0	**9**	**1**	**Reel 1 top**
1		2	Reel 2 top
2		3	Reel 3 Top
3		4	
4		5	
5		6	
6		8	
8	**8**	**1**	**Reel 1 middle**
9		2	Reel 2 middle
10		3	Reel 3 middle
11		4	
12		5	
13		6	
14		8	
15		9	
16	**7**	**1**	**Reel 3 bottom**
17		2	Reel 3 bottom
18		3	Reel 3 bottom
19		4	
20		5	
21		6	
22		8	
23		9	
24	**5**	**0**	**Cancel**
25		1	Hold 1 button
26		2	Hold 2 button
27		3	1 nudge
28		4	Plum award
29		5	
30		8	Grape award
31		9	
32	**4**	**0**	**Hold 3 button**
33		1	Hi button
34		2	Lo button
35		3	2 nudges
36		4	Lemon 1
37		5	Cowboy
38		6	Bell award
39		8	
40	**3**	**0**	**Exchange button**
41		1	Start button
43		2	3 nudges
42		3	Feature reel
44		5	Orange award
45		6	Cowboy 2
46		7	Melon award
47		8	
48	**2**	**1**	**Take feature button**
49		2	Take cash button
50		3	Take nudge buttton
51		4	4 nudges
52		5	Cherry award
53		6	MDM winner
54		8	Jackpot1 award decal
55		9	

Lamp allocation

Lamp	Blue pin	Green pin	Position
56	**1**	**1**	
57		2	
59		4	Feature1 award stars
60		5	Lose
61		6	Feature 2 award stars
62		8	Jackpot award decal
63		9	
64	**17**	**10**	**rifle**
65		11	Big money
66		12	Have em harry
67		13	Weapon
68		14	Cash+2
69		15	Nudge+2
70		16	Wagon
71		17	Saloon
72	**16**	**10**	**Dynamite**
73		11	Big repeater
74		12	Dynamite dick
75		13	Feature+2
76		14	5 nudges top glass
77		15	6 nudges top glass
78		16	7 nudges top glass
79		17	8 nudges top glass
80	**15**	**10**	**Gun**
81		11	Reel steppa
82		12	El loco
83		13	Nudge+2
84		14	4 nudges top glass
85		15	10 nudges top glass
86		16	Nudge 1
87		17	Bank raid
88	**14**	**10**	**Knife**
89		11	Win streak
90		12	Cut throat kid
91		13	Cash+1
92		14	3 nudges top glass
93		15	16 nudges top glass
94		16	Lose feature
95		17	Name 3
96	**13**	**10**	**Axe**
97		11	Jackpot
98		12	Indian joe
99		13	Feature+2
100		14	2 nudges top glass
101		15	99 nudges top glass
102		16	Wanted
103		17	Name 2
104	**12**	**10**	**Whip**
105		11	Super jackpot
106		12	Nasty dan
107		13	Win series
108		14	1 nudge top glass
109		15	Cash+2
110		16	Feature+1
111		17	Name 1

Lamp allocation

Lamp	Blue pin	Green pin	Position
112	**11**	**10**	**Start**
113		11	Wagon
114		12	Saloon
115		13	Super jackpot
116		14	Win spinner
117		15	Saloon
118		16	Super jackpot cash
119		17	Cherry
120	**10**	**10**	**Lose**
121		11	Cash link
122		12	Skill climb
123		13	Bank roll
124		14	Nearest win
125		15	Wanted
126		16	Wagon
127		17	Jackpot

Auxiliary Lamp Allocations

Lamp	Blue Pin	Green Pin	Position
200	8	1	Horse
201		2	Nudge+1
202		3	Cowboy hagon
203		4	Cowboy wagon
208	7	1	Saloon
209		2	Feature+2
210		3	Orange
211		4	Lose cash
212		5	
213		6	
216	5	1	Cash+1
217		2	Bell
218		3	Grape
219		4	Plum
220		5	Wagon
221		6	
224	4	1	Nudge+2
225		2	Weapon
226		3	Feature+1
227		4	Lemon
228		5	Saloon
229		6	Melon
232	3	1	Nudge +1
233		2	Wanted secret
234		3	Hi
235		4	
236		5	Lo
237		6	Saloon
240	2	1	Nudge +2
241		2	Cash +3
242		3	Nudge picker
243		4	Skill steppa
244		5	Cash climb
245		6	Feature+1
246		7	
248	1	1	Bank raid secret
249		2	Extra Life secret
250		3	Gunned down secret
251		4	Repeat chance secret
252		5	Weapon secret
253		6	Shoot out secret

MPU Connections

11 Way	**White –Triac Drives**
Pin	**Function**
1	48v AC
2	0v
3	20p solenoid
4	£1 solenoid
5	Token solenoid A
6	Token solenoid B
7	Not used
8	Not used
9	Not used
10	Not used
11	Refill meter

11 Way	**Blue – Power Out**
Pin	**Function**
1	48v AC
2	0v
3	Audio output
4	0v
5	0v
6	0v
7	+12v DC supply
8	Key
9	-12v DC supply
10	+34v DC supply
11	Aerial (pink)

19 Way	**Orange-switches**
Pin No	**Function**
1	£1 A level sensor
2	£1 B level sensor
3	Token level sensor
4	Token B level sense
5	Not used
6	Stake
7	Stake
8	Stake
9	Jackpot select
10	Jackpot select
11	Jackpot select
12	Jackpot select
13	% key pin 4
14	Key
15	% key pin 3
16	% key pin 2
17	% Key pin 1
18	Enable pins 1-8
19	Enable pins 9-17

19 Way	**Black-Switches**
Pin No	**Function**
1	Take Feature switch
2	Take Cash switch
3	Take Nudges switch
4	Not used
5	Not used
6	Test switch
7	Refill key switch
8	Door switches
9	Cancel/Take
10	Hold-Nudge1
11	Hold-Nudge2
12	Hold-Nudge3
13	HI
14	LO
15	Exchange
16	Key
17	Start
18	Enable Pins 1-8
19	Enable pins 9-17

10 Way	**Yellow –Meters**
Pin	**Function**
1	Cash In
2	Cash Out
3	Token In
4	Token Out
5	Not used
6	Not used
7	Not used
8	Refill meter
9	Key
10	+12v DC Common

9 Way	**Green – Photo**
Pin	**Function**
1	+5v supply
2	LED Drive
3	Signal
4	Key
5	Reel D input
6	+12v supply
7	Reel C input
8	Reel B input
9	Reel A input

15 Way	**Red-Power In**
Pin No	**Function**
1	-12v Return
2	+34v Supply
3	+34v Supply
4	Key
5	48v Return
6	-12v supply
7	+12v supply
8	+12v supply
9	+12v supply
10	+12v return
11	+12v return
12	+12v return
13	+34v return
14	+34v return
15	48v supply

19 Way	**Red-Stepper Motors**
Pin No	**Function**
1	+12v supply
2	Reel D drive
3	Reel D drive
4	Reel D drive
5	Reel D drive
6	Reel C drive
7	Reel C drive
8	Reel C drive
9	Reel C drive
10	Reel B drive
11	Reel B drive
12	Key
13	Reel B drive
14	Reel B drive
15	Reel A drive
16	Reel A drive
17	Reel A drive
18	Reel A drive
19	+12v supply