

Professor Coggins installation and maintenance

25/8/16



1. Installation
 - 1.1 Unpacking
 - 1.2 Set up
2. Game operation
 - 2.1 Gun consoles
 - 2.2 Main cabinet
 - 2.3 Target descriptions
 - 2.3.1 Floating balls
 - 2.3.2 Fire extinguisher
 - 2.3.3 Skull Ed
 - 2.3.4 Tin can on Shelf
 - 2.3.5 Micro brain wave
 - 2.3.6 Pop up Robot
 - 2.3.7 Fusebox
 - 2.3.8 Monkey disco
 - 2.3.9 Spinning test tubes
 - 2.3.10 Anglepoise lamp
 - 2.3.11 Lever and cogs
 - 2.3.12 Bio hazard alarm
 - 2.3.13 Atomiser eyes and mouth
 - 2.3.14 Bubbling liquids
3. Access
4. Wiring diagrams
5. Game operation
6. Parts
7. Contacts
8. Build instructions

1. Installation

1.1 Unpacking

Carefully remove all packaging material, and site the machine on a flat and level floor.
The machine is designed for indoor use only.

1.2 Set up

The machine is delivered with the following settings:-

Coin mechanism £1 per game

Shots per game 20

Tickets per hit 1

2. Game operation

2.1 Gun consoles

When a coin is inserted, and the gun trigger is squeezed, infra red light is emitted from the gun barrel.

2.2 Main Cabinet

Each target has an infra red detector, which senses a beam of light from the gun. The target operates a relay on the timer module, which in turn sends a signal to the target animation. The length of time a target operates is adjustable on the timer module, but this is factory set and should not need to be altered.

2.3 Target Descriptions

2.3.1 Floating balls

The balls are operated by compressed air. A normally closed air valve is operated by a hit on the target box, which sends 12 volt dc to the valve coil, opens the valve and allows a flow of compressed air into the ball chamber.

2.3.2 Fire extinguisher



Hit the target and the extinguisher horn swings up, there is a sound effect and water squirts from under the bench top.

Access to the mechanism is by removing the 3 woodscrews pointed out with red arrows on the left picture.

2.3.3 Skull Ed



There is a sound effect and the jaw moves.

2.3.4 Tin can on shelf



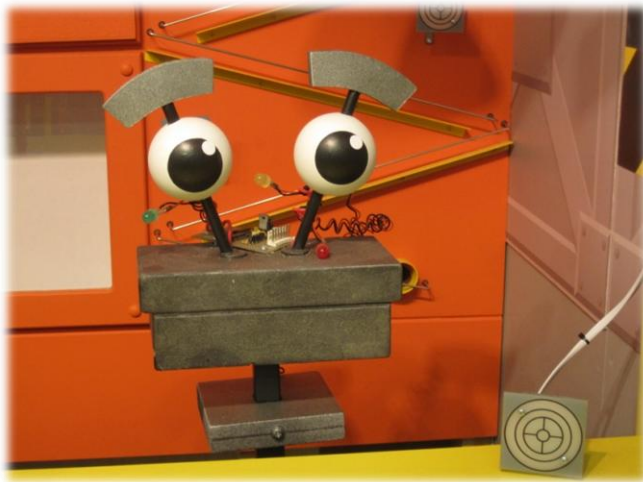
An air blast blows the can up a wire

2.3.5 Micro brain wave

The cabinet interior lights up and a motor turns the head. Sound effect.



2.3.6 Pop up robot



A cylinder lifts the robot into view, and it talks with different messages

2.3.7 Fusebox



An air cylinder opens the fusebox door, lights flash and there is a sound effect

2.3.8 Monkey Disco



Air cylinders open the left and right doors, the monkey moves from side to side using another air cylinder, loud music and lighting effects.

2.3.9 Spinning test tubes



A motor revolves the test tube holder, and the tubes lift up

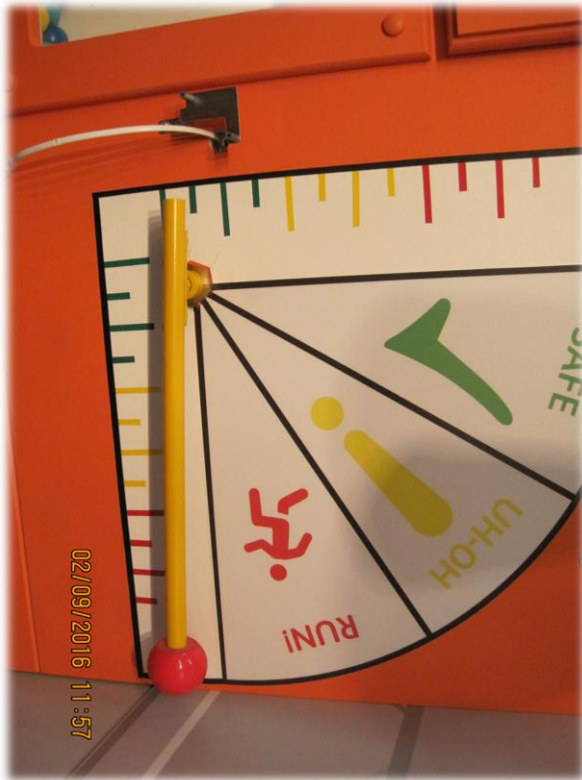
Sound effect.

2.3.10 Anglepoise Lamp



An air cylinder lifts the arm, the lamp lights and turns towards the player

2.3.11 Lever and cogs



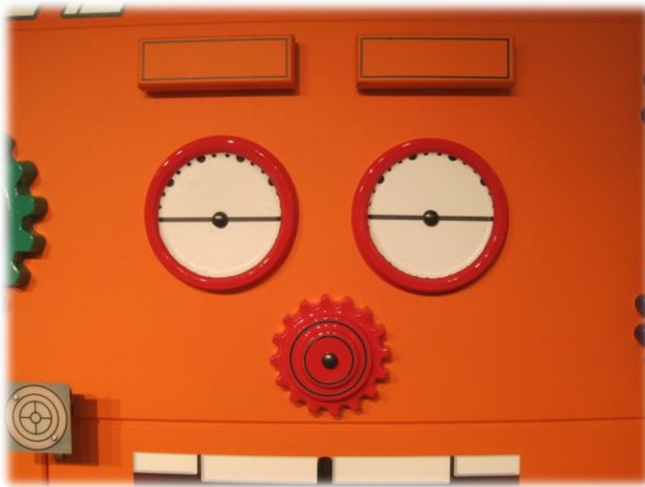
The lever moves down and the cogs rotate

2.3.12 Bio hazard alarm



The beacon lights and rotates with an alarm noise

2.3.13 Atomiser eyes and mouth



An air cylinder lifts the eye brows, and another air cylinder operates the mouth.

Multiple messages

.3.14 Bubbling liquids



A lamp illuminates, and air is bubbled through the liquid

Bubbling noises

3. Access

Gun consoles – Undo the 2 locks on the top face of the consoles, the top is hinged at the back, and will lift complete with the guns.



Coin doors – Opening the top door gives access to the coin mechanism, and opening the bottom door gives access to the cash box.

The machine is delivered with the following settings:-

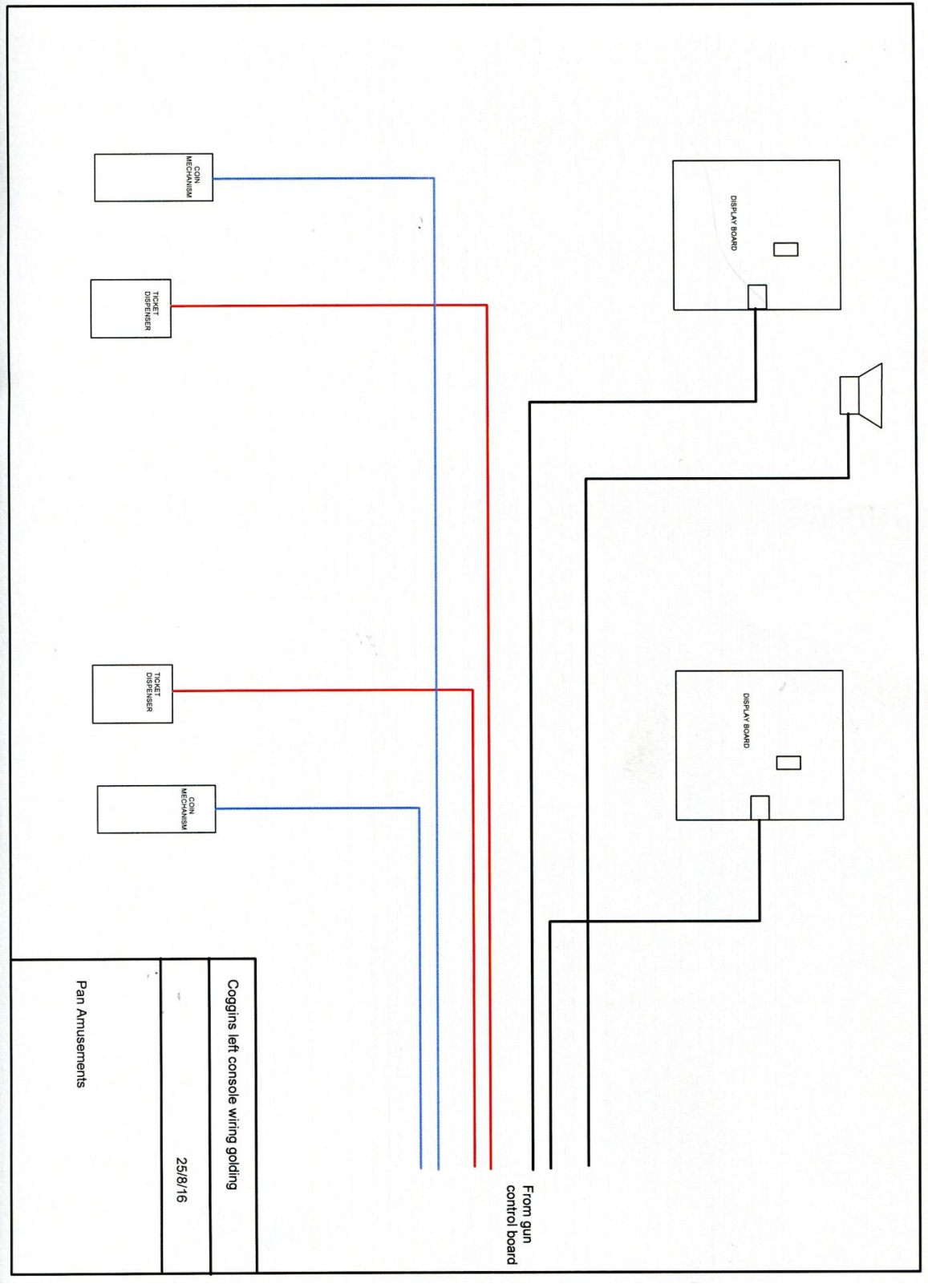
Shots per game 20

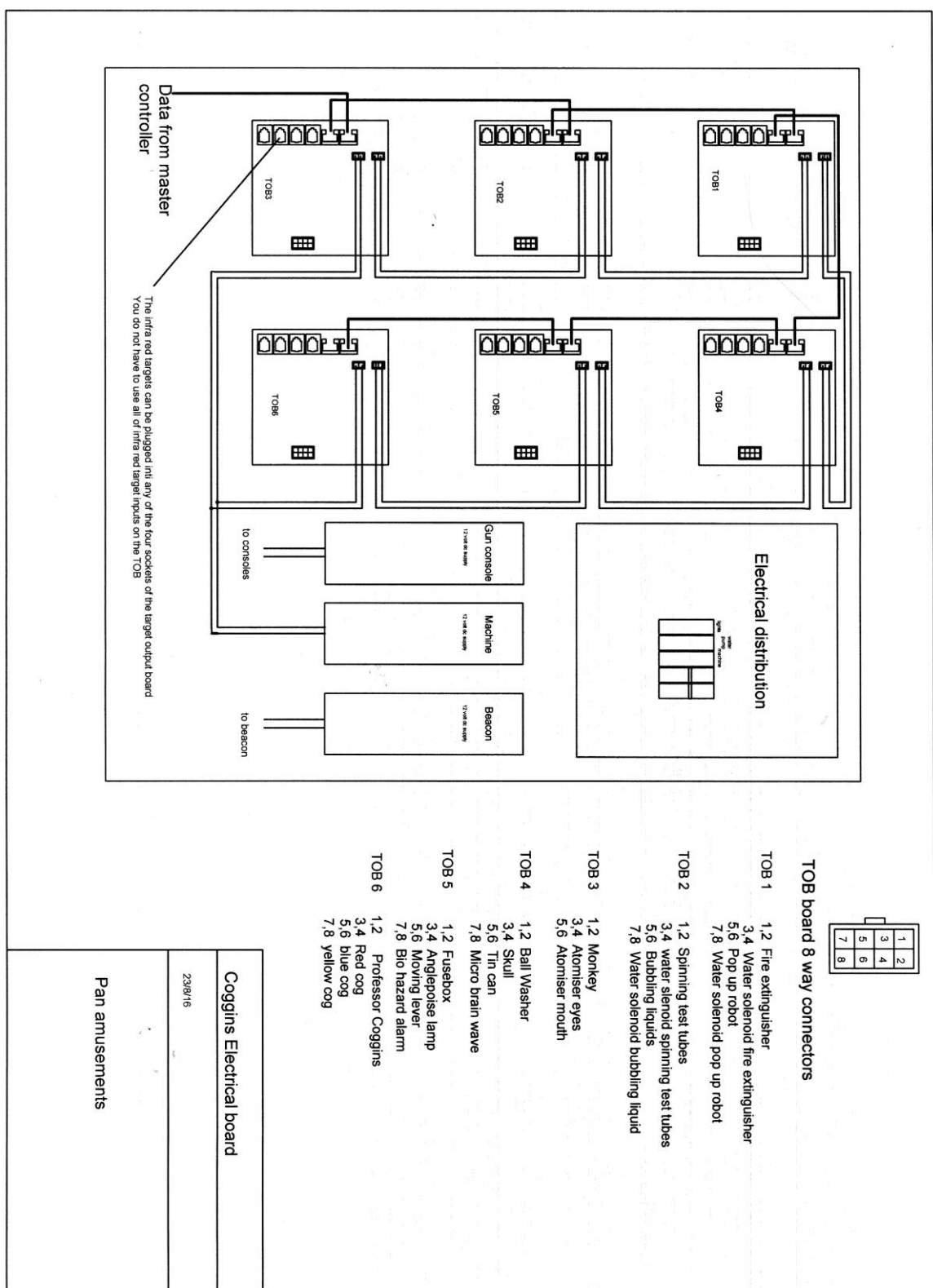
Tickets per hit 1

Settings can be altered, see the section marked master control unit.

4. Wiring diagrams







5. Game operation

Overview of electronics system

Master controller EAG03 (found in the gun console)

This board is responsible for communicating with all of the other boards on the system. It receives the "HIT" information from each of the targets, and then updates the scores on the gun control boards.

All of the target sound effects, and the background music sound track are generated on the master controller.

All of the parameters for the system such as coin values, shots per credit, gun volume, etc. are stored on this board. Any changes required only need to be done to the master controller and not to all the boards.

Gun control board EAG04 (found in the gun console)

Handles the credits from the coin mechanisms, the ticket dispensing, the gun sound effects, the guns and drives the gun display boards.

Parameters such as credit value, shots per credit as well as the gun volume are automatically loaded, on power up, from the master controller.

Target output board EAG 05 (found at the back of the machine)

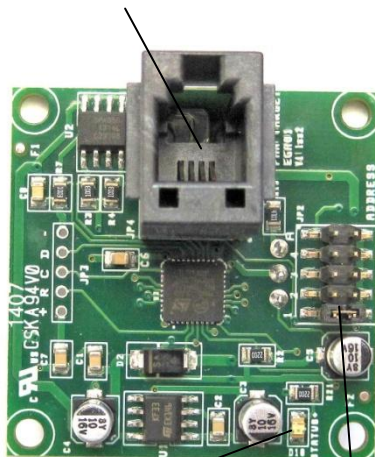
This board provides the outputs when a hit occurs, and also interfaces with up to 4 targets. The boards are configured to provide 1,2, or 4 solenoid outputs from an infra red target.

Infra red target EAG01 (found on the animation scene)

This board receives the infra red bullet and sends it to the target output board for checking. The target board shows red leds and these change to green when the target is hit.

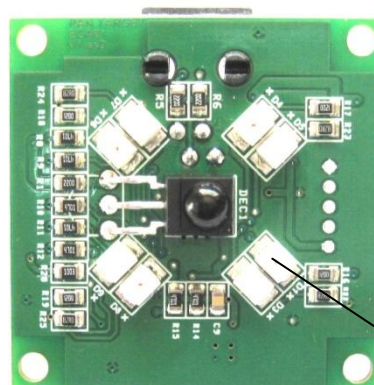
Infra red targets (IRT)

Data to target output board



Status led

address jumper



Target LEDs

Addressing.

This address jumper is set on address 1. Up to 4 targets can be connected to a target output board, but the addresses must be different on all infra red targets.

Target LED indications

One red LED on – No communication from master control units.

Check the cat5 cables from the target output boards back to the master control unit.

Check that the address is correct.

Check that the master control unit is powered up.

Two red LEDs on – no communication from target output board

This can happen if two Infra red targets have the same address.

Check the cabling, try a new 4 core cable.

Four red LEDs on – All OK, target ready to be hit

Four green LEDs flashing – Target hit and animation in progress

Two greens on – Target hit but no communication to target output board.

This can happen if two IRTs have the same address.

Check the cabling, try a new 4 core cable.

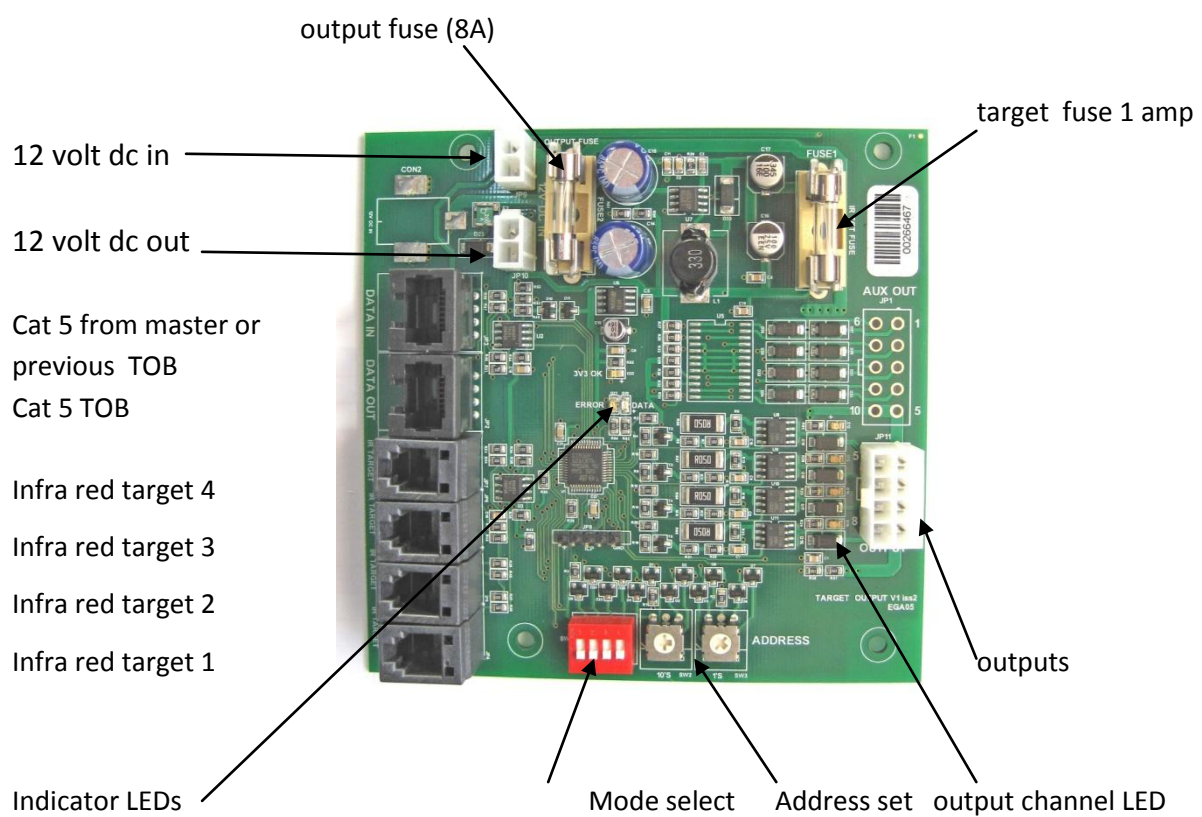
Status LED

The red status light on the back of the back of the IRT will flash a number of times to indicate an error code.

Error codes

2. No link to target output board.
3. 5 volt rail on target board is under 4 volts, check wiring to IRT.

Target output board (TOB)



This board provides the outputs for when a hit occurs.

This board also interfaces to up to 4 infra red targets.

Indicator LEDs

Error LED red

Error codes

1. In bootloader program (factory set) waiting for master to tell the TOBs to run the main program.

2. Output current is too high. (more than 5amps after 200ms)
3. Output is shorted (current more than 20 amps after 4 ms)
4. Default output programs loaded(factory set)
5. Unrecognised output program (factory set)
6. Blown output fuse.
7. No main firmware (factory set)

Data (yellow)

This LED should blink rapidly to indicate communication to the master controller.
If it is not blinking check the cat5 cable to the master controller.

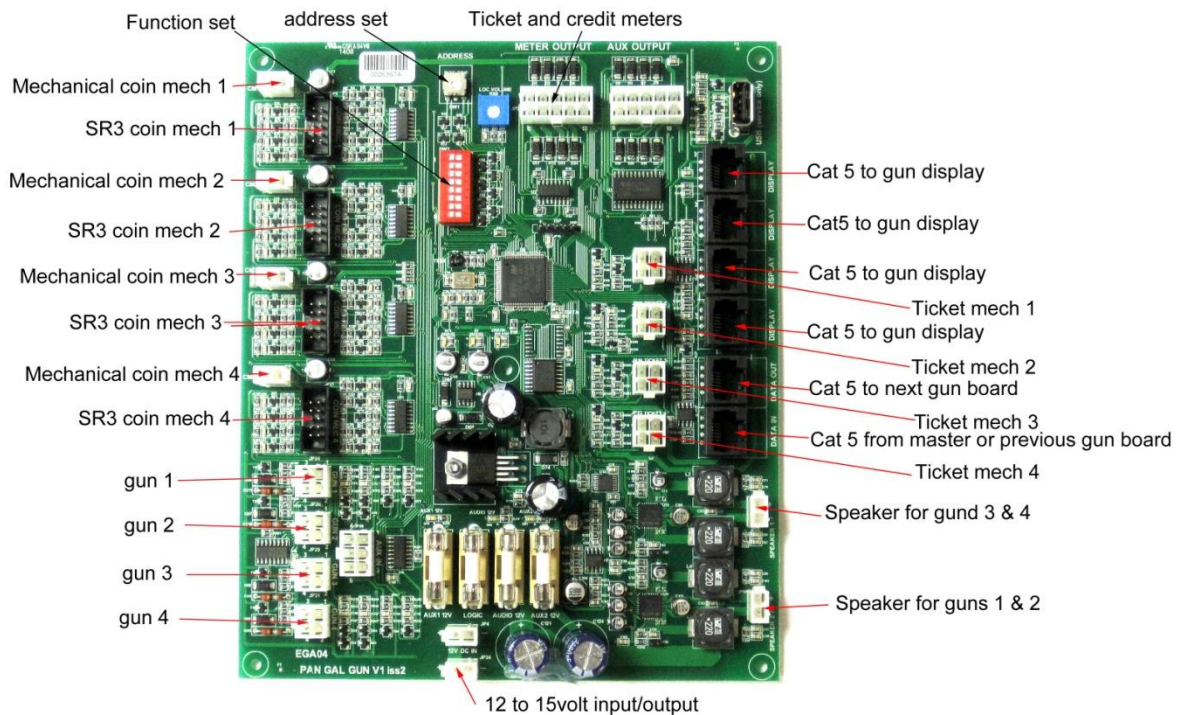
3v3 (green)

This indicates that the board is powered up and that 3.3.volts is available to the electronics.

D12 – 15(red)

These LEDs light when the output channels are on, they will show that the output is operating correctly.

Main Control Board (GCB)



This board also handles the credits from the coin mechanisms, the ticket dispensing, the gun sound effects, the infra red guns and also drives the gun display boards.

Indicator LEDs

Error LED (red) Contact factory

DATA (yellow)

This led should be blinking rapidly to indicate communication to the master controller. Check the cat 5 cable to the master controller if this is not happening.

3V3 (green)

This indicates that the board is powered up and 3.3 volts is available to the electronics

5V (green)

This indicates that the board is powered up and 5 volts is available to the electronics. If either of the LEDs are not lit, check the LOGIC fuse.

AUX1 12v

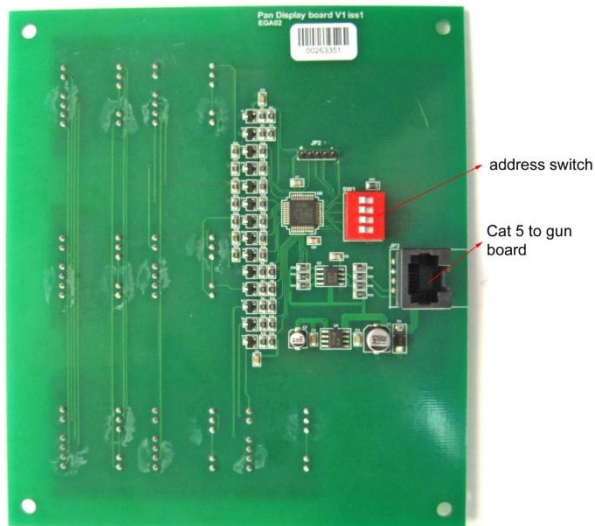
Shows that 12volts is available to the following outputs:-

- Credit and ticket counters

- Electronic coin mechanisms

If this LED is not lit, check for external faults, and then check FUSE AUX1 12V

Gun display board (GDB)



This board displays the score, credits and shots.

It is powered over the cat 5 cable that connects it to the gun control board.

It has to have an address set on the dip switches to define which player it relates to.

Player 1 switch 1 off switch 2 off

Player 2 switch 1 on switch 2 off

Player 3 switch 1 off switch 2 on

Player 4 switch 1 on switch 2 on

Master control unit (MCU)



This board is responsible for communicating with all the other boards on the system. It receives the HIT information from each of the targets and then updates the scores on the gun control boards. All of the target sound effects and background sound tracks are stored on an SD card found on the side of this box.

Service mode

Various parameters such as coin values, tickets dispensed etc. can be altered. The adjustments can be made using the 4 buttons on the lid of the control box in conjunction with the LCD display.

To alter parameters turn the service switch on. The top line shows the item and the bottom line shows the value associated with the item. The > shows the current selection.

The buttons perform the following functions:-

'SELECT' moves between the item and value. The selected one is shown with the > symbol

'UP' increments the item or value on the display

'DOWN' decrements the item or value on the display

'SAVE' saves the data to flash memory.

Change the data of each and every item that you wish to change and when you have finished, press the 'SAVE' button which stores the new values in flash memory, then turn off the service switch which will cause a reboot of the system.

Example

To change the cost per credit from 50p to £1

1. Ensure that the machine is switched on and that there are no credits left and no games are playing. Turn on the 'service mode switch' which is situated on top of the control box. The display will show 'SERVICE MODE' for 2 seconds.
2. The display will then show the first item which is "GAME TIME" with a value of 99 if set to its default setting. *A value of 99 equates to a game time of 990 seconds.*
3. While the top line is selected '>' , press the up button repeatedly until the display shows "CREDVAL" which is item 3, cost per credit.
4. Now press 'SELECT' button so that the bottom line of the display is selected. If set to default it should show "value=05" which equates to 50 pence.
5. Press up button until the display shows 'value=10' which equates to £1.
6. Press the 'save' button, which will save the changes made. *Note: if you turn off service modewithout pressing 'SAVE' any changes will be lost.*
7. Now turn off service mode switch which will reboot the gallery.

Notes:

1. You can only adjust each value within certain limits which are defined below in **table 1**.
2. As the display is only 2 digit on some machines, some values are entered divided by 10
For example ; coin 6 has a value of £2.00 (200 pence) so we would enter the value 20.
3. Items shown in red in **table 1** should not be changed unless instructed to do so by Pan amusements.

Table 1:

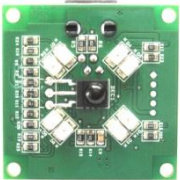
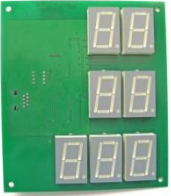




Item	Value	Description
GAMETIME	= 99	;Game duration. Enter value divided by 10. eg: 24 is 240 secs (not used)
HITTKT	= 1	;1 tickets per HIT
WINTKT	= 1	;1 extra tickets per WIN or bonus target
CREDVAL	= 5	;Cost per credit. Enter value divided by 10. example: 5 is 50pence.
CREDMAX	= 10	; maximum of 10 credits can be deposited before coin mech is locked out
COIN1	= 10	;1 pound coin Enter value divided by 10.
COIN2	= 5	;50 pence coin Enter value divided by 10.
COIN3	= 2	;20 pence coin Enter value divided by 10.
COIN4	= 1	;10 pence coin Enter value divided by 10.
COIN5	= 0	;No coin Enter value divided by 10.


COIN6	= 20	;2 pound coin Enter value divided by 10.
COINM	= 5	;50 Pence coin for mechanical coin mech. Enter value divided by 10.
1CRED	= 1	;
2CRED	= 2	;

6. Parts


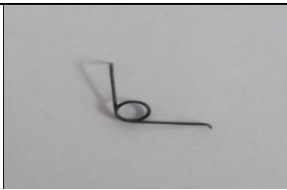
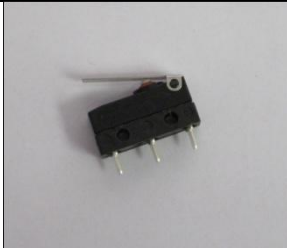
3CRED	= 3	;
4CRED	= 4	;
5CRED	= 5	;
6CRED	= 6	;
7CRED	= 7	;
8CRED	= 8	;
9CRED	= 9	;
10CRED	= 10	;
TARGETS	= 7	;Number of TARGET OUTPUT BOARDS on system. (max of 32)
GUNS	= 2	;Nmbr of gun control boards on system. 2 equals 8 guns (max of 15 GCBs))
DEFSCORE	= 10	;Default score if score.txt is missing or corrupt
GAMEMIX	= 32	;not used
ATRCTMIX	= 32	;not used
ATRCTDLY	= 30	;not used
DUCKING	= 12	;not used
BGMTREBLE	= 40	;Background and attract music Treble
BGMBASS	= 40	;Background and attract music bass
FXTREBLE	= 40	;Sound effects Treble
FXBASS	= 40	;Sound effects bass
GUNLOCK	= 10	;Gun lockout time 10 = 1 second
FIRERPT	= 4	;IR bullet repeats 4 times
GUNDBNC	= 5	;Debounce for trigger 5 = 48mS
SHOTS	= 20	;Shots per game
SWDBNC	= 10	;80mS
COINDBNC	= 5	;48mS
TKTTIM	= 20	;Ticket timeout. Enter seconds * 10. Example: 20 is 2 seconds
IRFLASH	= 50	;Flash speed of IR leds when hit in 10mS steps
IRBRIGT	= 10	;Brightness of IR leds (not done yet)
IRRPTS	= 2	;Number of times the 'Bullet' has to be received before a hit is valid
IRMINLKT	= 10	;Minimum lockout time of target when hit. (if no anim prgm)
IRMAXFLSH	= 99	;Maximum time the LED's will flash when target hit.
IRSPARE5	= 55	
IRSPARE6	= 66	
IRSPARE7	= 77	




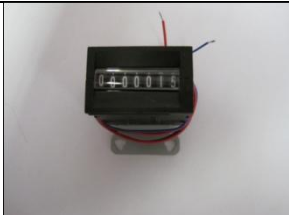





EAG01	Target	Operated by the gun		
EAG02	Display	Shows score, credits, and shots remaining		
EAG03	Main control board			
EAG04	Gun control board	Controls 4 guns		
EAG05	Target output board –	connected to the target EAG01 and the animation		
E702B	Target box front plate			

SD069	Main cabinet speaker	Supplies sound effects from the main cabinet		
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Gun consoles

G555	Small gun complete			
G708	Trigger torsion spring	Returns the trigger		
G710	Small gun micro switch	Operates the infra red sensor		

G416	Gun hose	Fastens the gun to the console		
G020	Infra red emitter	Located on the trigger assembly. Sends infra red light to the target		
G018	Console gun hose ring	Fastened in the top of the console to allow the gun hose to pass through		
E129	Counter 12 volt DC	Used in consoles to count games played and tickets dispensed		
E152	Console speaker	Gun noise only		
H101	Flat key lock			

H106	Radial cash lock			
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7. Contacts

Manufacturers :- Pan Amusements
Austerlands Mill
Huddersfield Road
Oldham, UK
OL4 3QB

Telephone 0161 652 8092

0161 624 5578

Fax 0161 627 5357

Email [info @panamusements.com](mailto:info@panamusements.com)

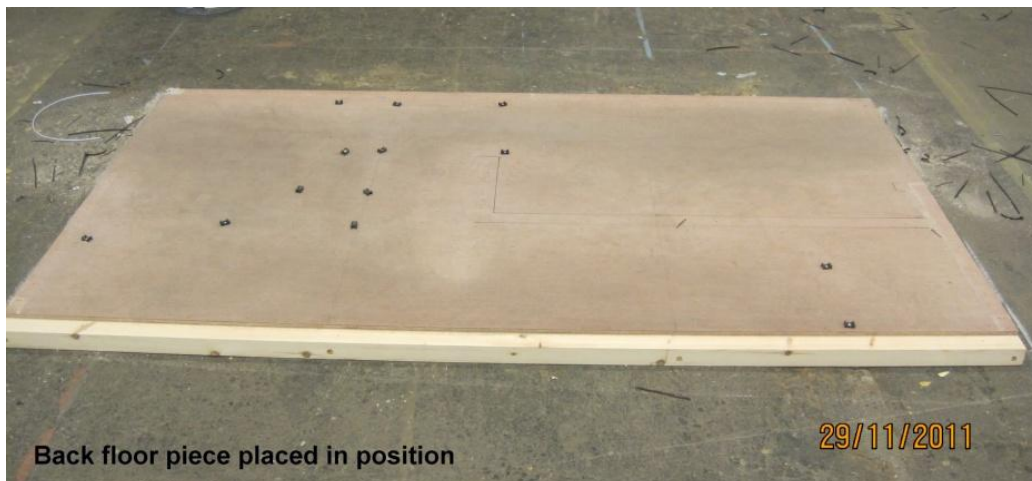
sales@panamusements.com

paul.whittaker@panamusements.com

Website www.panamusements.com

8. Professor Coggins assembly instructions 16/5/16

Part number of these instructions is PC056

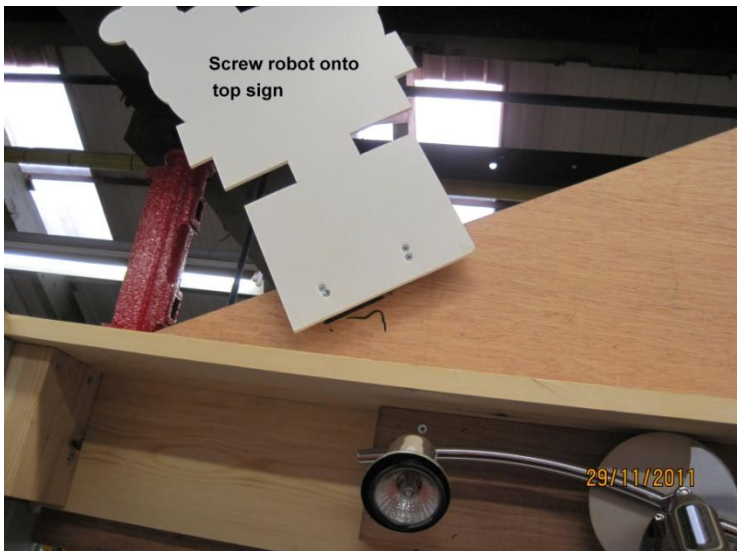
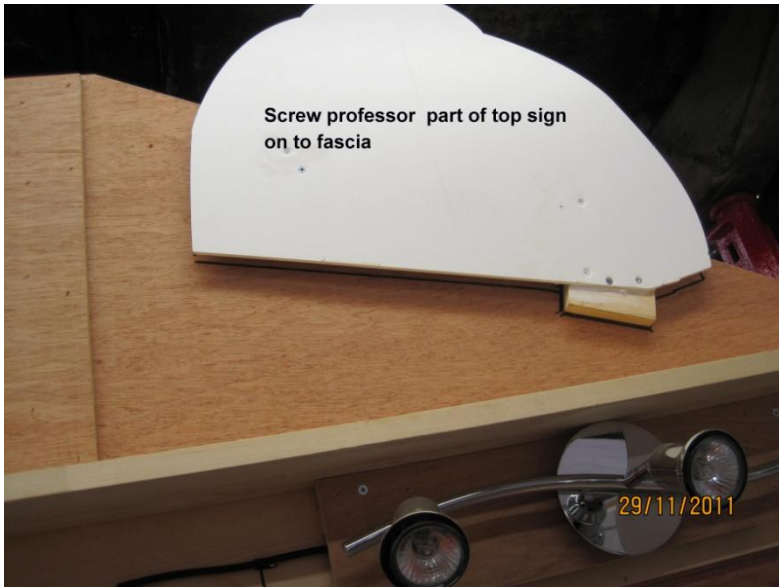


Back floor piece placed in position

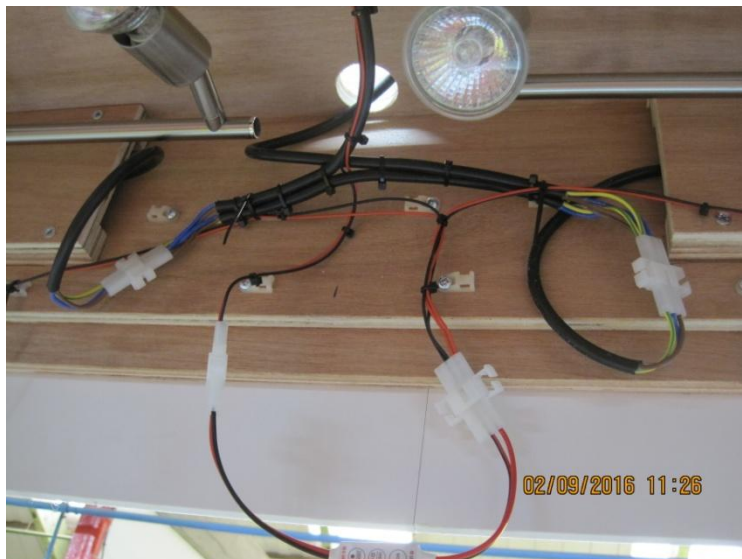


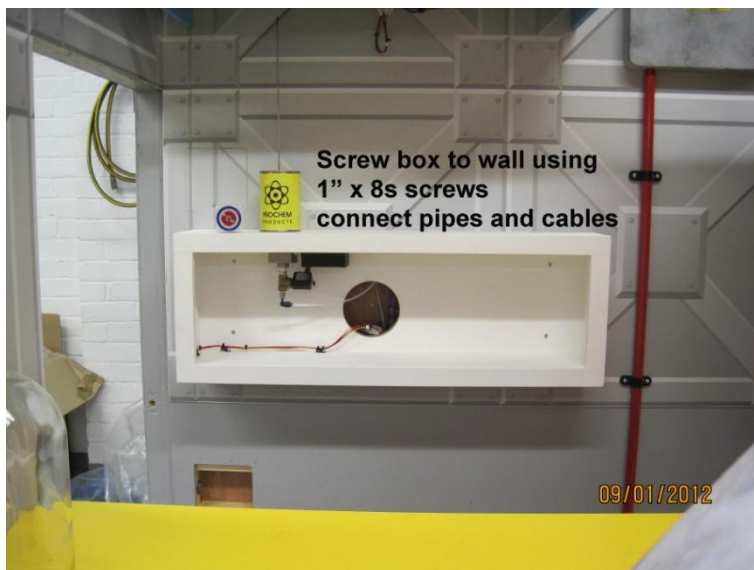
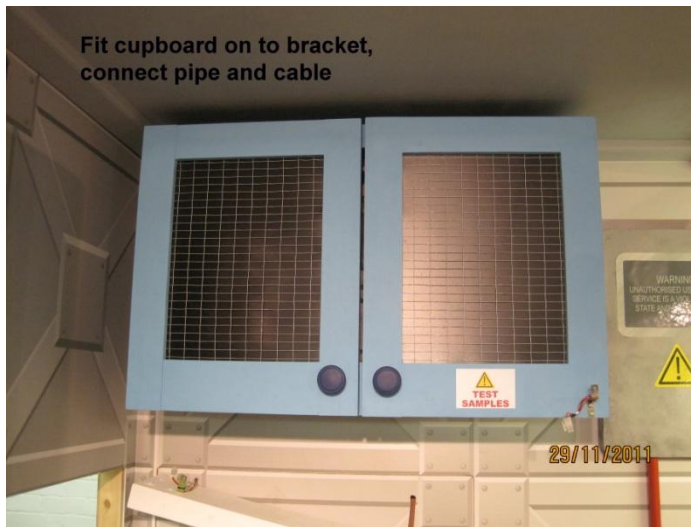






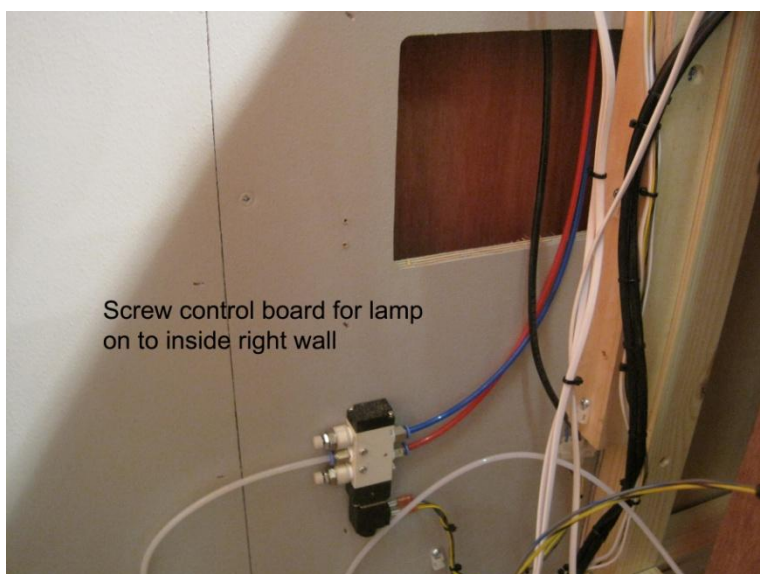
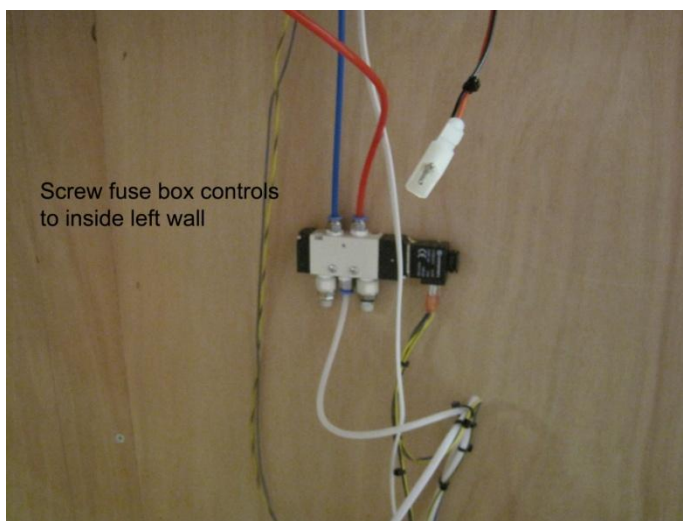
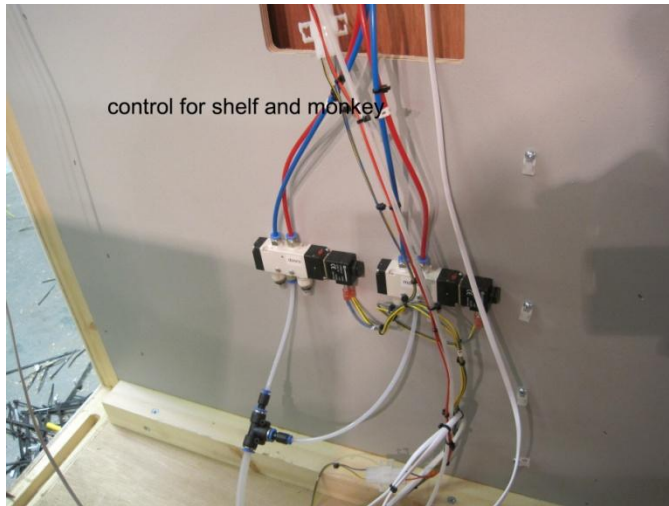


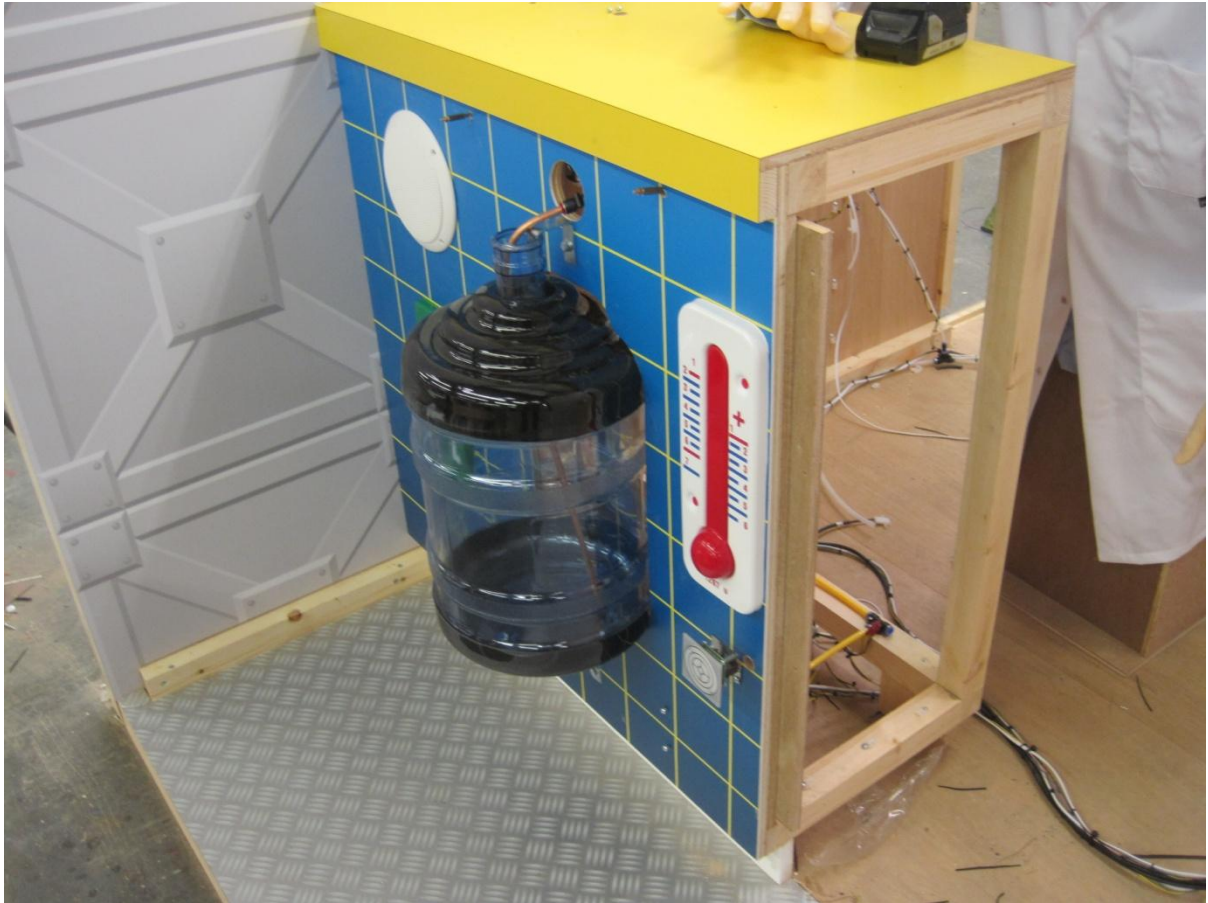






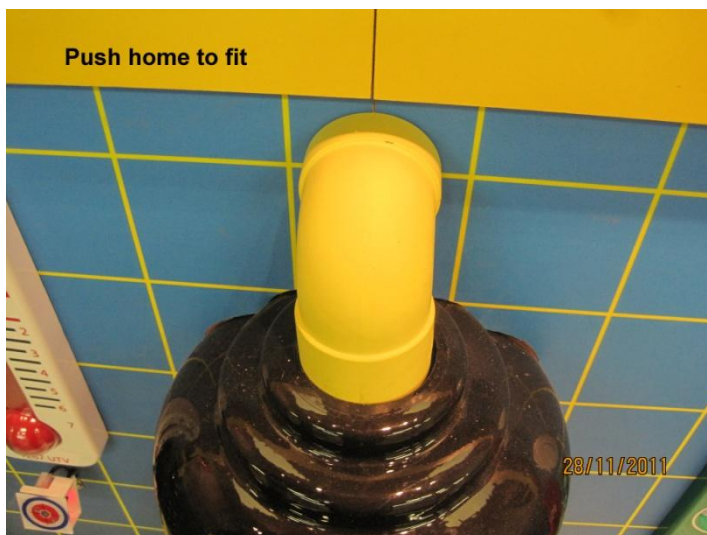




















Place the props

