



** 4 Player **

USA

(Ticket / Optional Swipe)



Section 1 **Commissioning**

- 1.1 - Receipt of machine
- 1.2 - Electrical connection
- 1.3 - Electrical supply entry
- 1.4 - Physical dimension
- 1.5 - Initial operation

Section 2 **Access**

- 2.1 - Access to the machine

Section 3 **Game Operation**

- 3.1 - The game
- 3.2 - Priming the playfield with coins
- 3.3 - General care and maintenance

Section 4 **Electrical Systems**

- 4.1 - Circuit breakers
- 4.2 - Logic Board
- 4.3 - Sound board
- 4.4 - Hoppers
- 4.5 - Power supplies
- 4.6 - Feature interface board
- 4.7 - Reel mechanism
- 4.8 - Coin-in sensor board
- 4.9 - Counters
- 4.10 - Tilt board
- 4.11 - Alarm board
- 4.12 - Pusher box motor control
- 4.13 - Swipe change facility (Optional Fit)

Section 5 **Lighting**

- 5.1 - Cabinet lighting

Section 6 **Mechanical Systems**

- 6.1 - Pusher boxes

Section 7 **Fault Finding**

- 7.1 - Methodology
- 7.2 - System checking
- 7.3 - Basic checks

Section 8 **Spares Listing**

Section 9 **Electrical Schematic Diagrams**

1.0 Commissioning

1.1 Receipt Of Machine

Upon receipt of machine carefully remove all protective packaging and establish machine on a flat and level floor. Take care to protect the machine from sudden shocks etc. when lifting or manhandling.

The machine should only be situated indoors, and should not be subjected to any other environments. Ensure all ventilation grills have at least 4" (100mm) clearance from other surfaces to permit adequate cooling.

1.2 Electrical Connection

The Jacks Hi machine should be connected to the mains supply via a suitable plug to suit your installation requirements. Supply entry to the machine is via an IEC 320 style filtered inlet (Ref: Section 1.3). A competent trained person should always carry this out. If in any doubt, consult a qualified electrician.

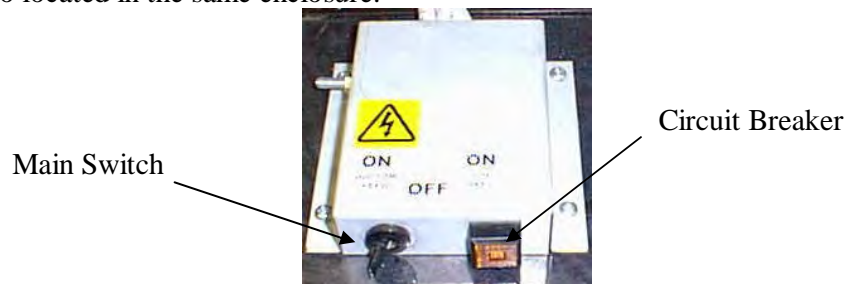
Mains wiring:	Live	Black
	Neutral	White
	Earth	Green

THIS MACHINE MUST BE EARTHED/GROUNDED

1.3 Electrical Supply Entry

This machine may have the electrical supply connected either at the base or at the very top, as best suits the location in which the machine is situated. The base feed entry socket is located on the end of the machine. The top feed entry socket is located on the top surface of the top sign.

The On/Off switch is a three-position switch, with the central position being 'Off'. Left and right of this position are 'On - Top Feed' and 'On - Bottom Feed' respectively. The main supply circuit breaker is also located in the same enclosure.



Main Supply Switch & Circuit Breaker

1.5 **Initial Operation**

Connect the mains supply and switch ON.

The Top-Sign and Coin-Entry fluorescent lamps will illuminate and the pusher boxes start moving. Insert a coin in any of the coin entry chutes, a tune will be heard as the coin is accepted. The corresponding section coin-in counter will be incremented. The game is now initiated and will remain so for approximately 25 seconds.

The anti abuse 'slam-tilt' alarm feature may be tested by thumping on a lower cabinet door. The alarm should sound and the top sign lights go out. All count hoppers will run, directing any fallen coins off the playfield into the cashbox. No award is made to the pay cup in this instance. There is also a tilt pendulum sensor in the centre top sign, which will detect machine movement from level. The operation of the tilt or slam tilt alarm stops all games in progress and lasts approximately 10 seconds.

A safety feature is incorporated which will stop the pusher drive motor should a jam or restriction occur. Simply holding back an advancing pusher box will test this. To effect reset of this feature, operate the reset switch, which is discreetly located in the roof section behind the top sign mount pillar (access door end).

2 **Access**

2.1 **Access To Machine**

Playfield

Release the lock at the top of the glass and hinge backward far enough to get a firm handhold either side. Carefully lift clear of the machine and store safely.

Coin-Entry

Release the locks (key 301) at the top of the door and hinge backwards.

Lower Cabinet

Each player section has an access door below the playfield which may be fully removed by releasing the lock (key 301), hinge outward and lift clear.

Cashbox

Each player section has an access door located below the lower cabinet, which can be fully removed by releasing the lock (key 201) at the top, hinge outward, and lift clear. The cash box is located within.

Top-Sign

The artwork panels require to be unscrewed and carefully removed, permitting access to the top sign. Dangerous voltages are present within the top signs, and access should only be undertaken by competently trained persons.

3 **Game Operation**

3.1 **The Game**

Attract Mode

When not in active play, the machine lighting and pusher box mechanism operate continuously. An attract sound may be heard at intervals dependant on the switch settings of the sound board. The reel mechanism will occasional rotate to create interest in the playfield. The hopper will run periodically to purge it of stray coins.

Active Play Mode

When coins of the correct type are inserted into a coin entry chute they are detected by a dual beam opto sensor activating that particular player section and then pass down the moving coin chute into the pin perspex to the playfield. Coins of the incorrect type fall through the chute and are collected in the reject trays, not activating the sensors.

After coin entry, a player section remains enabled for approximately 20 seconds, allowing the player the full benefits from the effects of his coin. The hopper will run continuously during this time.

All coins in and feature payouts are recorded on separate electro-mechanical counters (see 'counters' section), located in each section coin entry area. It is recommended that readings of these counters be taken regularly, to establish a clear pattern of usage/profit and thus any significant deviations may highlight a fault condition requiring attention. All in/out counts are simultaneously recorded and maintained in non-volatile RAM, and may be read electronically by connecting an appropriately programmed computer (not supplied) into the RS232 data retrieval socket, located on the section logic board.

3.2 **Priming The Playfields With Coins.**

Each player section requires approximately 900 coins, of which the first 850 may be hand placed on the playfield. The final 50 for each section should be played into the machine via the coin entry slots in order to achieve the best possible visual appearance of the playfield area.

Remember to record the coin counter readings after priming for your records.

3.3 **General Care & Maintenance**

The Jacks Hi is a robust and reliable machine, which looked after will give years of profitable service. Regular cleaning is the key to optimum condition and performance.

To maintain all visible surfaces in an 'as new condition':

3. Plastic and Glass Fibre - use a general purpose (non aggressive) water based detergent and finish with a quality furniture polish.
2. Laminated Cabinet trims - clean with an all purpose non-aggressive cleaner and finish to a high gloss using a furniture polish.
3. Glass and Chrome - clean with a quality window cleaning solution.

Do not use caustic or abrasive cleaners. Always use cleaning products in accordance with the manufacturers instructions.

The Jacks Hi utilises 'sealed for life' type bearings and a high quality mechanical components that do not require regular greasing or regular servicing.

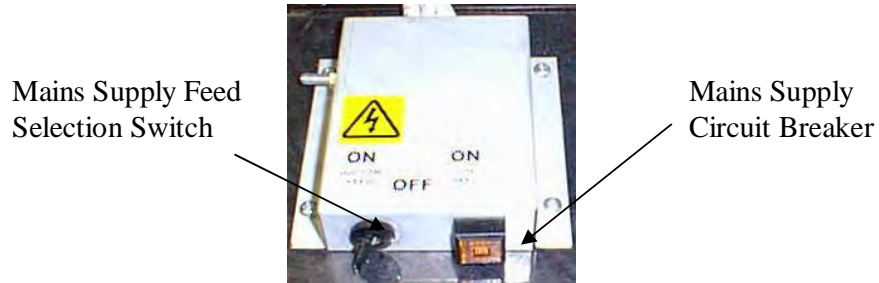
It is recommended an initial inspection be carried out after approximately two months usage, to check for any signs of wear on the moving parts. Adjust as required, and thereafter inspect annually.

4 Electrical Systems

4.1 Circuit Breakers

Mains Supply Circuit Breaker

The Mains Supply is protected by a thermally operated circuit breaker, which can be manually reset. This circuit breaker is located in a metal enclosure together with the main supply switch.



Should this device trip, firstly ascertain the cause of the fault and rectify. To reset the device, simply depress the yellow centre back into the body of the circuit breaker.

Motor Fuse

The Motor fuse is located on the motor control PCB (located within top sign No.1 – see ‘Access section’). This fuse is designed to protect the motor control circuitry and must only be replaced with an identical item. Failure of this fuse would normally indicate a motor fault.

Motor fuse 2 Amp (T) 20mm
(T) = Time Delay/Anti-Surge

Power Supplies

For each set of back-to-back player sections, there is a power supply unit (PSU) and Dichroic lighting transformer. These both have circuit breakers fitted in the low voltage sides of the circuits. These circuit breakers are physically mounted within the metal enclosures of these units, and the reset buttons are easily accessible without opening the units.

<u>PSU</u>	<u>Dichroic Transformer</u>
12 Volt 4 Amp	Section A 10 Amp (2 x 50W Lamps max)
24 Volt 3 Amp	Section B 10 Amp (2 x 50W Lamps max)

The circuit breakers provide protection for the circuit cabling etc. In most instances of a fault condition occurring, the switch-mode power supply will fold-back within a fraction of a second to near zero. Removal of the fault allows the supplies to re-establish. Should a circuit breaker trip, reset is achieved by pressing the protruding white button back into the device body.

4.2 Logic Board

The logic board houses the game Micro-controller (PIC) and the Non-volatile RAM, together with interfacing electronics and RS232 data port. There is one logic board per player section.



Program: JAXHI14 V1.1

Switch settings:

SW1

<u>Poles</u>	<u>1</u>	<u>2</u>	<u>Tickets On Coin-In</u>
	0	0	0
	1	0	1
	0	1	2
	1	1	3

<u>Poles</u>	<u>3</u>	<u>4</u>	<u>Win Table Select</u>						
			<u>Card</u>	<u>2</u>	<u>4</u>	<u>6</u>	<u>8</u>	<u>J</u>	
	0	0	6	10	16	20	26	26	FACTORY SETTING
	1	0	5	10	20	30	40	40	
	0	1	5	10	20	40	60	60	
	1	1	5	10	20	30	50	50	

<u>Poles</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>Tickets Per Coin Over The Edge</u>
	0	0	0	0	1
	1	0	0	0	2
	0	1	0	0	3
	1	1	0	0	4
	0	0	1	0	5
	1	0	1	0	6
	0	1	1	0	7
	1	1	1	0	8
	0	0	0	1	9
	1	0	0	1	10
	0	1	0	1	11
	1	1	0	1	12
	0	0	1	1	13
	1	0	1	1	14
	0	1	1	1	15
	1	1	1	1	16

Logic board switch settings continued:

SW2

<u>Poles</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>Nominal % Payout</u>
	0	0	0	30
	1	0	0	35
	0	1	0	40
	1	1	0	45 (Factor Setting)
	0	0	1	50
	1	0	1	55
	0	1	1	60
	1	1	1	65

SW2 Pole 4

Pole 4 is used to ‘reset ‘ the current payout percentage registers. When in play, the program tracks the payouts and adjusts the availability of the higher value cards so as to maintain the selected percentage payout (poles 1-3).

When the percentage settings are altered, it may be desired to reset the program to the new settings immediately, rather than allowing the program to adjust over a period of time. This ‘register reset’ may be achieved by selecting pole 4 to ON, switching the machine ON, and then switching pole 4 OFF. In confirmation of the register reset, a ‘coin-in’ sound will be generated.

It is a feature of the electronics that data regarding game play is written to a non-volatile RAM. ***As such the machine ‘remembers’ unpaid awards etc***. These events can’t therefore, be cleared by switching off then on again, they must occur in order to be released from a ‘call attendant’ mode. Alternatively, performing a ‘reset’ will clear registers of outstanding amounts. The red beacon light illuminates over the section when such a situation occurs.

Removed from program

Bonus Empty Caption – Coin Entry Door

Should the supply of tickets run out, the ‘*Bonus empty when light*’ caption on the coin entry door will illuminate continuously.

4.3 Sound Board



Program: PIC: QSOUND27 V1.0
 EPROMS: JAXSND7 V1.0

DIP-Switch settings

Pole	1	2	3	Select
	off	off	off	No attract music
	on	off	off	30 sec attract music interval
	off	on	off	60 sec attract music interval
	on	on	off	90 sec attract music interval
	off	off	on	120 sec attract music interval
	on	off	on	150 sec attract music interval
	off	on	on	180 sec attract music interval
	on	on	on	210 sec attract music interval
Pole	4	5	6	No. of messages played in attract
	off	off	off	1
	on	off	off	2

Loudspeaker The loud speaker is located in the top of the centre coin entry area.
 It is rated at 8 Ohms 25 watts.

4.4 Hoppers

There is a hopper fitted in each player station of the machine. Its purpose is to collect and count coins that are pushed from the playfield in normal play. When not being played, the hopper will run periodically to clear any stray coins.

While being played, the hopper runs continually. All coins falling from the playfield are counted and ticket awards are calculated from the count. In the event of a tilt, any awards in progress are terminated.

If fitted, a second hopper dispenses coins via a swipe card mechanism.

Important... Do not disconnect the hoppers with power switched on; damage to the optical sensor can occur.

4.5 Power Supplies

WARNING - Dangerous voltages (110 V) within - Disconnect from the mains supply!

Each set of two back-to-back player sections shares a power supply unit (PSU) and Dichroic lighting transformer. These units are fitted one in each of the lower compartments. Both units are housed in earthed metal enclosures; with ventilation holes too permit free circulation of air. Both units are slightly raised up off the base, to allow air to enter from below

The PSU houses one 12VDC and one 24VDC switch-mode power supply and associated circuit breakers. The Dichroic unit houses a 200VA 11.8VAC transformer, used solely to power the dichroic spot lamps used on each playfield.



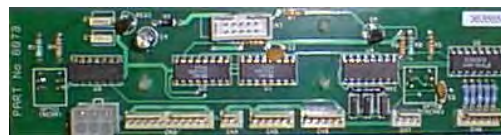
Power Supply Unit



Dichroic Transformer

4.6 Feature Interface Board

Located on the centre rear of the pin Perspex, the feature interface board has three purposes. Firstly it drives the 'card' lamps of both the pin Perspex and the top sign. Secondly, it drives the reel mechanism, and thirdly it has the 'flag-opto' switches of the bonus channels mounted on it. The data to and from the main logic board is transmitted via a serial link.

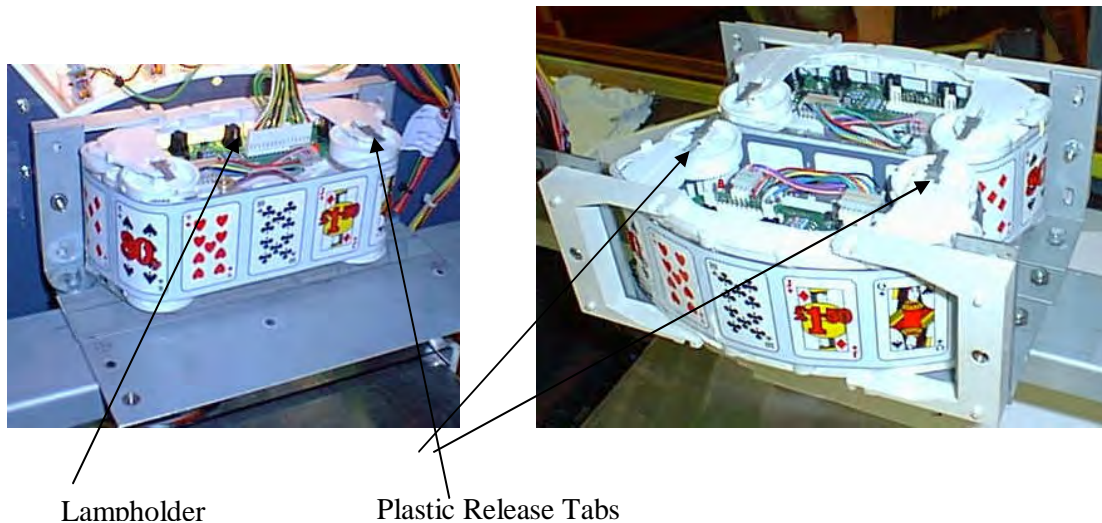


Feature Interface Board

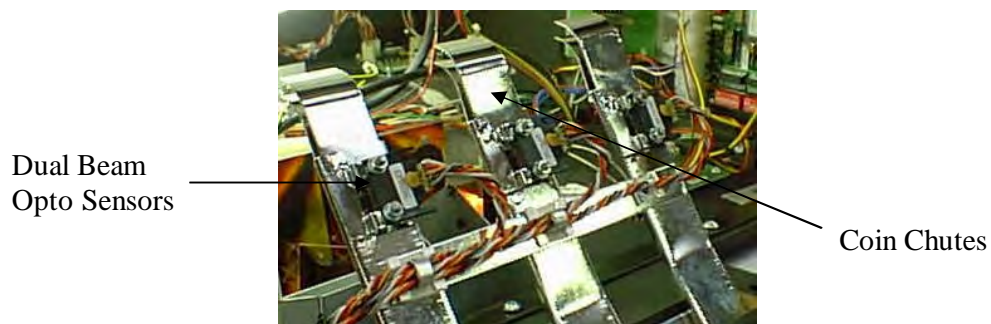
4.8 Reel Mechanism

The reel mechanism is located on the rear of the pin perspex, with three illuminated graphics on the reel band displayed through a clear window in the perspex. The reel band is removable by lifting the two grey plastic tabs and then pressing inward on the roller assembly, which will click into the retracted position, thus removing tension from the reel band. It is probably best to release the reel mech from its mounting if it is required to replace the reel band. Illumination lamps may be removed and replaced by releasing the PCB mounted lamp holder. This is simply a case of turning the lamp holder a quarter turn anti-clockwise. The lamp is a push fit in to the lamp holder.

Refitting the reel band is a reverse procedure, ensuring it is the correct way round for the plastic tab to align with the optical position sensor. Lifting the plastic tabs on the front roller assembly allows spring tension to be re-applied to the reel band.



4.8 Coin-In Sensor Board



Coins enter via one of three coin chutes and pass through a dual beam coin sensor. These are connected to an interface board, which generates a coin-in signal. This signal is directed to the section logic board, which in turn activates the player section and increments the coin-in counter.

4.9 Counters

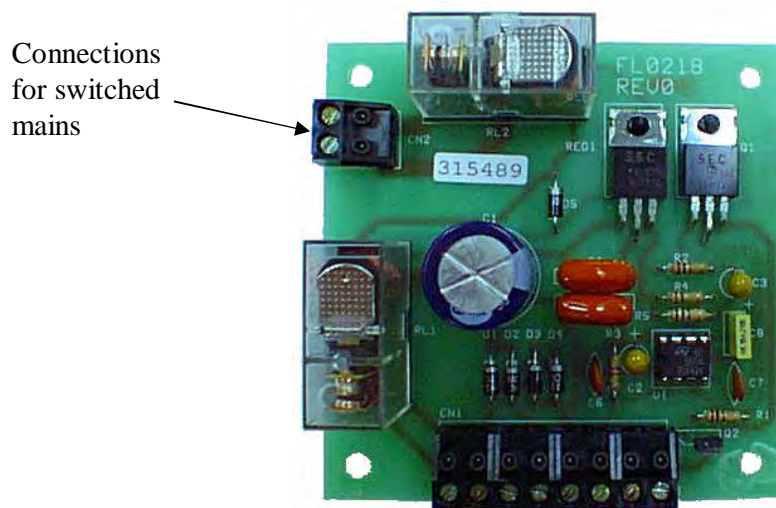
Electro-mechanical counters are provided in each player section, located in the coin entry compartment. These counters record the number of coins in, feature awarded coins/tickets out, coins over the edge/tickets issued and, if fitted, swipe coins issued. Taking readings from these counters regularly will obviously facilitate the monitoring of the machine performance and assist in cash accounting.

The readings of these counters (coins-in & coins/tickets out) can also be accessed via the data port on the logic board using a computer (not supplied) installed with the appropriate software.

4.10 Tilt board

The Tilt board is located in the top sign. This board has the pendulum tilt device (centre top sign) and the slam tilt switches (all lower compartment doors) as its inputs. Should any one of these inputs be activated, the tilt board immediately activates an audible alarm (top sign, access door end) and switches off the lighting in all three top signs, so as to indicate which machine is being tampered with. Provided there are no further inputs, the tilt alarm condition will only remain active for a short period of time, when it will then automatically reset.

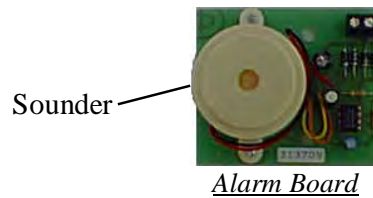
The tilt board switches the mains lighting in the centre top sign and a separate relay board in each of the end top signs switches the mains lighting there.



Tilt Board

4.11 Alarm Board

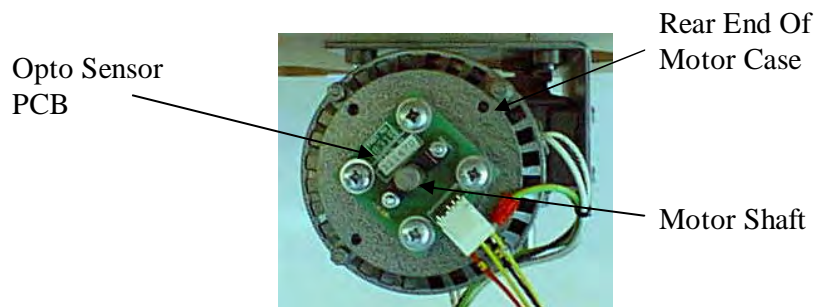
Located in the No.1 top sign (access door end of machine), this board drives a sounder to produce the alarm tone for tilt, motor jam etc.



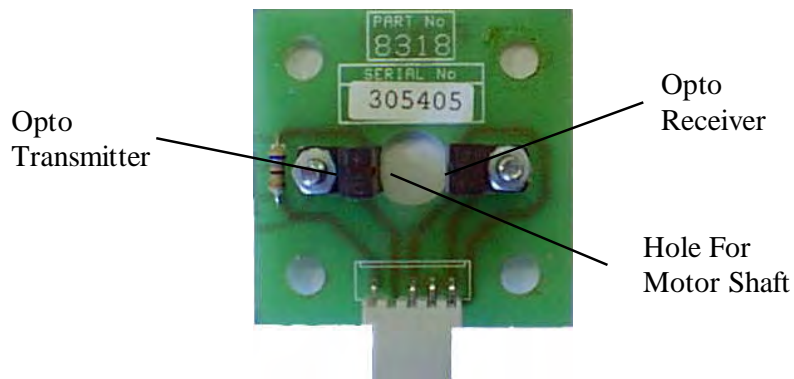
4.12 Pusher Box Motor Control

This system utilises an opto-electronic method to monitor the motor load, and stop the motor in the event of a restriction/jam.

The motor drive shaft extends some 35mm out of the rear end of the motor case. It is here that the opto sensor PCB is located, secured to the motor case. The motor shaft has a hole drilled in it, through which the infrared beam may pass when correctly aligned. With the rotation of the motor shaft, this results in the beam being continually interrupted, and a resultant string of pulses produced by the opto receiver.



Opto Sensor PCB Mounted To Motor



Close Up Of Opto Sensor PCB

The pulses produced by the opto receiver are monitored by the circuitry of the motor control PCB. This control circuit basically monitors for a given number of pulses within a set time frame. Should this number of pulses decrease beyond the tolerated amount, the supply to the motor is immediately switched off via a solid-state relay. The control of the motor cut off point may be set by way of a 4 way DIP switch mounted on the motor control board (located in No.1 top sign) thus:

<u>Pole</u>	<u>1</u>	<u>2</u>	<u>Response</u>
	off	off	Fastest
	on	off	2nd Fastest
	off	on	2nd Slowest
	on	on	Slowest

<u>Pole</u>	<u>3</u>	<u>4</u>	<u>Stop Resistance</u>
	off	off	Weakest
	on	off	2nd Weakest
	off	on	2nd Hardest
	on	on	Hardest



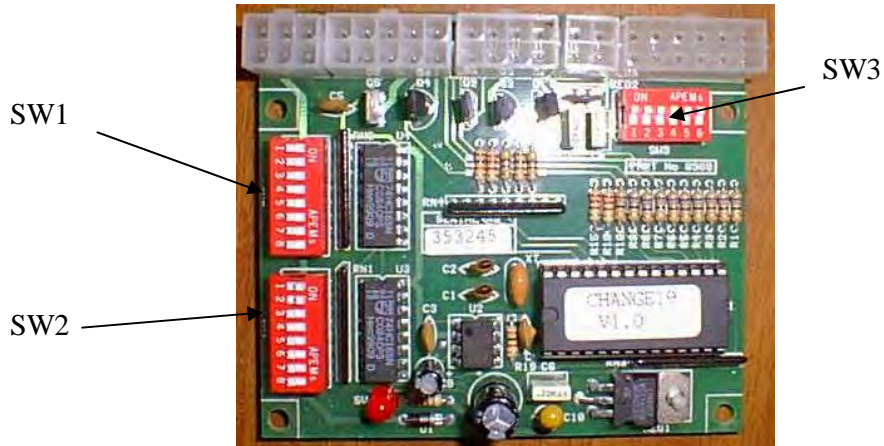
When the system operates and stops the motor, the supply to the motor remains off until manual reset is initiated. This creates the opportunity to ensure the machine is in a safe state to re-start; a visual check by the attendant ensuring that there is no longer any item causing the obstruction. Reset of the system is done by depressing the 'Restart' switch on the Motor Control PCB or by way of the remotely located reset switch (mounted in the roof section, behind the end top sign foot support).

There is an LED on the Motor Control PCB, which indicates the output of the opto-sensor. In normal operation this will appear to be continuously ON, due to the high repetition rate of the pulses. This facility may be used to check the operation of the sensors, by manually rotating the motor shaft and observing the LED. The LED should turn on then off as the hole in the shaft passes between the sensors. The 20mm fuse on this PCB is to provide over current protection to the solid-state relay/motor combination. The other relay (RL1) is used to provide a switching function upon system operation, which is used for signalling to other circuits for alarm operation etc.

4.13 Swipe Change Facility (Optional Fit)

If the machine was purchased with the optional facility to interface with a swipe card change facility, then a change board and interface relay will have been installed. This is 'interface' circuitry, and the swipe card system needs to be installed by a trained person. The supplied installation basically provides for a pulsed input, inhibit relay output and payout hopper control.

There is a free ended yellow wire which is the pulse input (black wire is the zero volt reference for this input) and a green and grey pair of wires which are the volt free contacts of the inhibit relay. These lengths of wire are coiled and secured with cable ties to adjacent machine looming.



Change Board

Program: **CHANGE21 V1.1**

								SW1		
								Poles		
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>Function</u>		
off	off	off	off	off	-	-	-	Poles 1-5 = No. Pulses Out		
on	on	on	on	on	-	-	-	1-32 pulses (Binary + 1)		
					on	-	-	Swipe Mode On		
					off	-	-	Swipe disabled		

SW2
Not Used

SW3
Not Used

5 Lighting

5.1 Cabinet Lighting

Fluorescent Lighting **WARNING - Dangerous Voltages (230v) - switch OFF prior to replacing!**

Fluorescent tube lighting is situated in both the top sign and the coin entry areas. The lighting in the coin entry area has double insulated fittings in accordance with current regulations, and the control gear is mounted on a light tray in each top sign, together with the control gear for that top sign lighting.



Light Tray Located In Top Sign

Dichroic Lighting **WARNING - These lamps become very hot in operation allow to cool before handling!**

Low voltage dichroic spot lamp lighting is situated at the top of each playfield. These lamps are easily replaced by simply pulling the old bulb free from the fitting, and pushing the replacement bulb back in place. Power for these lights is derived from an isolation transformer (see power supplies section of this manual).

Beacon Light

Located on the top of each top sign, these red beacon lights serve to enhance the game by flashing in the event of a bonus win and serve to draw the operating staffs attention in the event of a problem by remaining on permanently.

6 **Mechanical Systems**

6.1 **Pusher boxes**

The pusher boxes are mounted on two Accuride slide bearings. An annual check to remove any build up of dust, and a light coat of grease will ensure many years of reliable service.

Ensure that the coin scraper system is fully intact and working smoothly and freely, replace any suspect parts subject to wear.

7 **Fault Finding**

7.1 **Methodology**

It is of mutual interest that your pusher is kept in excellent working condition, therefore when required please order original replacement parts from your distributor, MGA. If a fault occurs with any electrical system **SWITCH THE MACHINE OFF**. Check that:-

- a) There is a suitable mains supply.
- b) All circuit breakers are set.
- c) All plugs and sockets are correctly mated.
- d) No wires are trapped, damaged or broken.
- e) All wires are properly secured to their terminals and pins.

Wiring check.

A visual inspection will reveal the general condition of the wiring. A more thorough test using a continuity tester will be needed to check apparently intact wires, however once a machine has been playing successfully for some time wiring is not usually at fault.

Device testing.

Disconnect the machine from the mains supply then check the physical condition and operation of the suspect device (remove from the machine if necessary). Bench test if possible using a suitable power supply.

In general PCB's are not user serviceable. Should a problem develop indicating a board fault it is recommended that the board be returned to your distributor for repair.

7.2 **Systems Checking**

When a fault occurs that affects two back-to-back sections of the machine, the power supply system should be investigated first.

Check plugs are fully mated and wiring intact.

Check relevant circuit breakers are all set.

Refer to schematics and drawings to check power connections, voltages etc.

If the fault is not visual, or easily measurable it is often helpful to disconnect the outputs from the PSU, check that the PSU is functioning then connect the loads one at a time.

It is easy to identify the faulty system, then use a similar technique within that system (such as disconnecting all hoppers) to identify the faulty component.

7.3 Basic Checks

<u>Symptom</u>	<u>Possible Fault</u>	<u>Remedy</u>
Will not start	Internal switch OFF Circuit breaker tripped	Check internal switch is ON Check plug fuse then circuit breakers.
No sound	Volume Speaker Sound board	Adjust volume Check wiring. Replace if faulty Check power supply & connectors, replace board if faulty.
Light failed	Tube failed Starter failed Choke (ballast) failed	Check end caps & wiring Replace tube. Replace with same type. Replace with same rating.
Pusher boxes not moving	Power to motor Mechanical jam	Check for coins or swag causing jam. Clear & reset.
Tilt alarm not working	Pendulum stuck Door bump sensor Sounder Tilt P.C.B	Check pendulum & adjust. Check & adjust. Test connections & power Check connections & power.
Counter not working	Wiring Counter Opto sensor	Check connectors & loom Bench test / replace. Check opto sensor operation.
Hopper not working	Hopper motor. Power. Jammed.	Bench test with power supply. Check supply & connections. Check for obstruction.
Coin entry lock out	Lock out conditions (Beacon light permanently on)	Award not completed (empty hopper). Counter fault or not connected. RAM IC read/write error 24 V supply failure (monitored) Reel Mech' positioning error. Coin-in detect fall time/direction

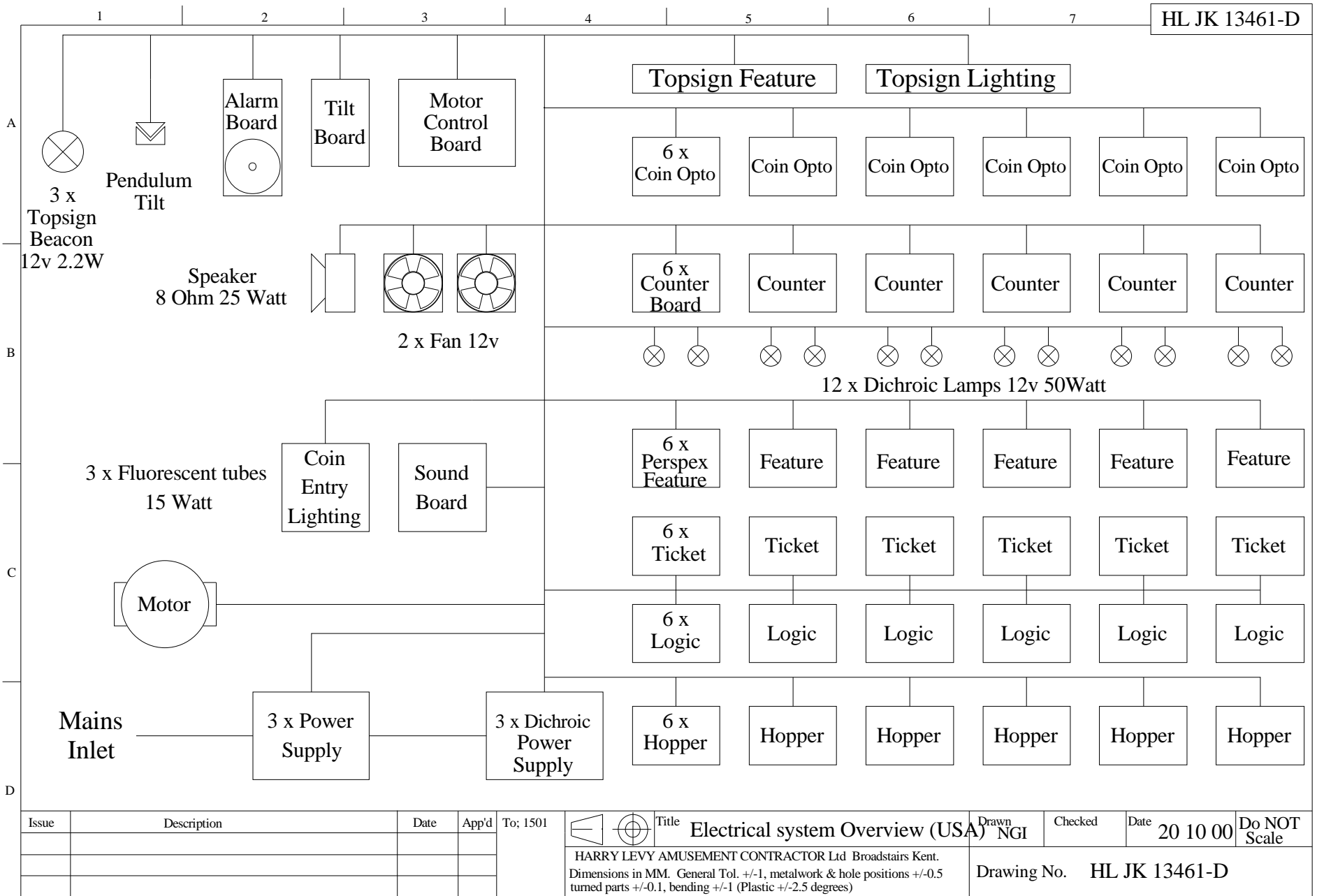
8 Spare Parts List

This spares list is by no means fully comprehensive; since to provide the full listing would require another volume! The following are some of the more commonly required items that you may need. If the item you require is not listed, please contact either your distributor or Harry Levy Amusements and we will be pleased to assist you.

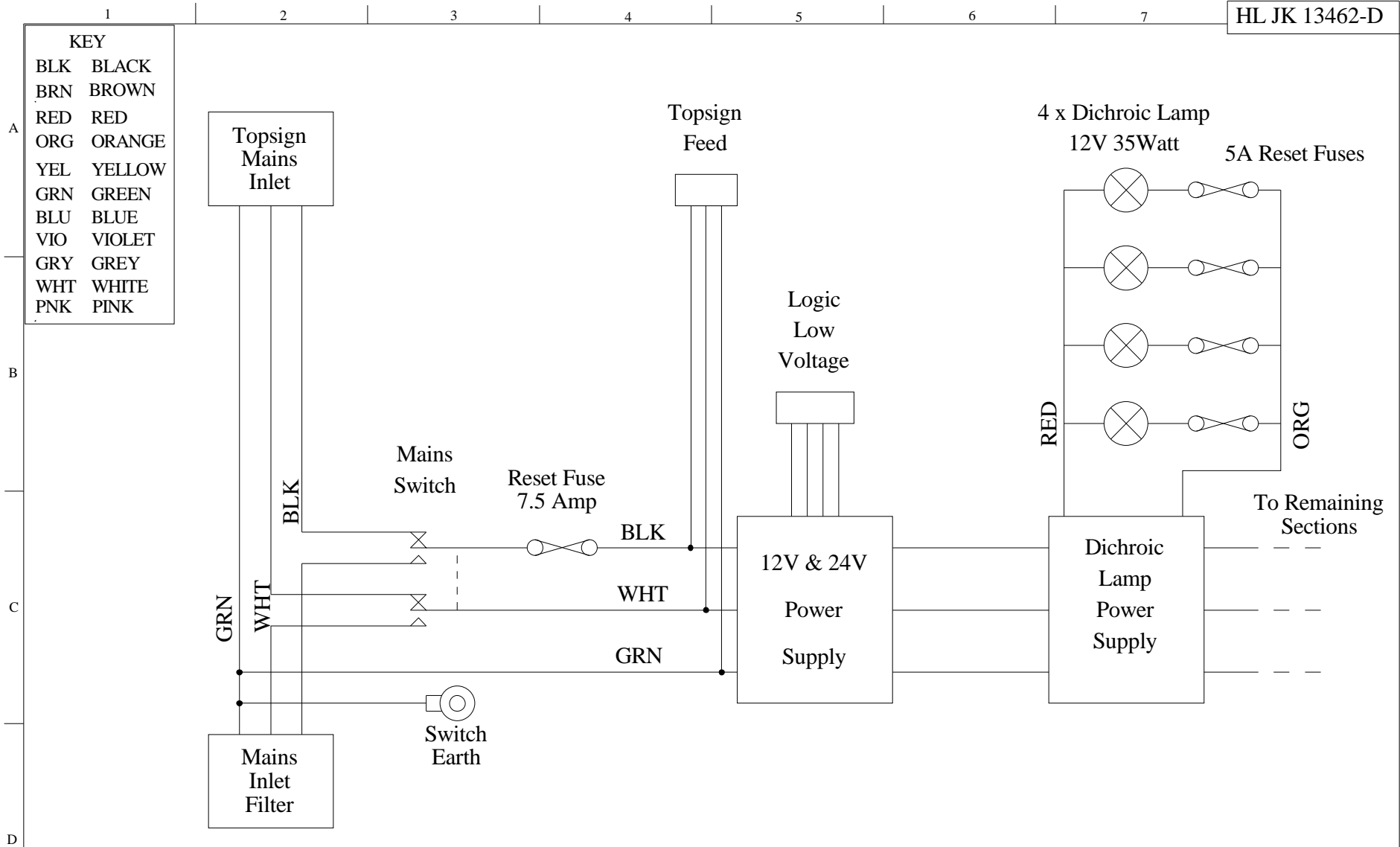
<u>Description</u>	<u>Harry Levy Stock Number</u>
201 lock & keys	6278
301 lock & keys	6087
Accuride pusher box slide	6081
Circuit Breaker 10A	8883
Circuit Breaker 3A	8879
Circuit Breaker 4A	8880
Circuit Breaker 7.5A (mains)	8714
Counter PCB (assembled)	6029
Electronic alarm board	7819
Fan 12 VDC	8624
Filter - Mains 6 A	8178
Hopper USA – Token	8676
Interface board – feature	8873
Key switch	6610
Led board	22066
Logic board	22099
Microphone board	8498
Motor 110V 60Hz	8567
Motor control board	8321
Motor Opto board	8318
Power supply 12V 100W	22064
Power supply 24V 100W	8860
Reel band – cards	JK9025
Reel stickers UK	JK9033
Reel mechanism	22071
Sound board	22050
Speaker	6979
Switch - ON / OFF / ON	8712
Switch - pendulum tilt	CC004
Switch - reset	6127
Switch – slam tilt	6149
Tilt board	7917
Transformer Dichroic 200VA	8978

Other items may be available on request.

9. **Electrical Schematic Diagrams**

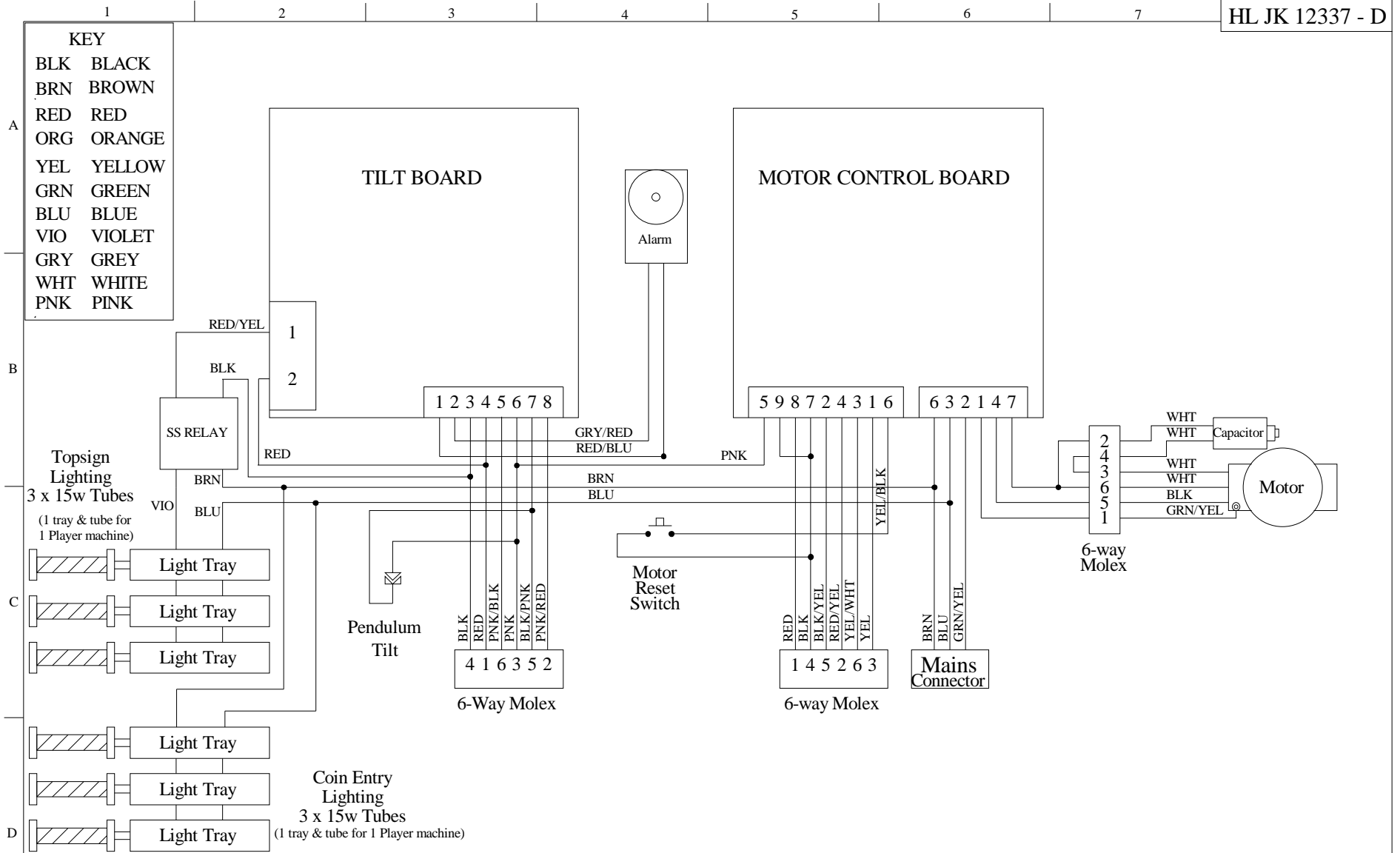


HL JK 13462-D



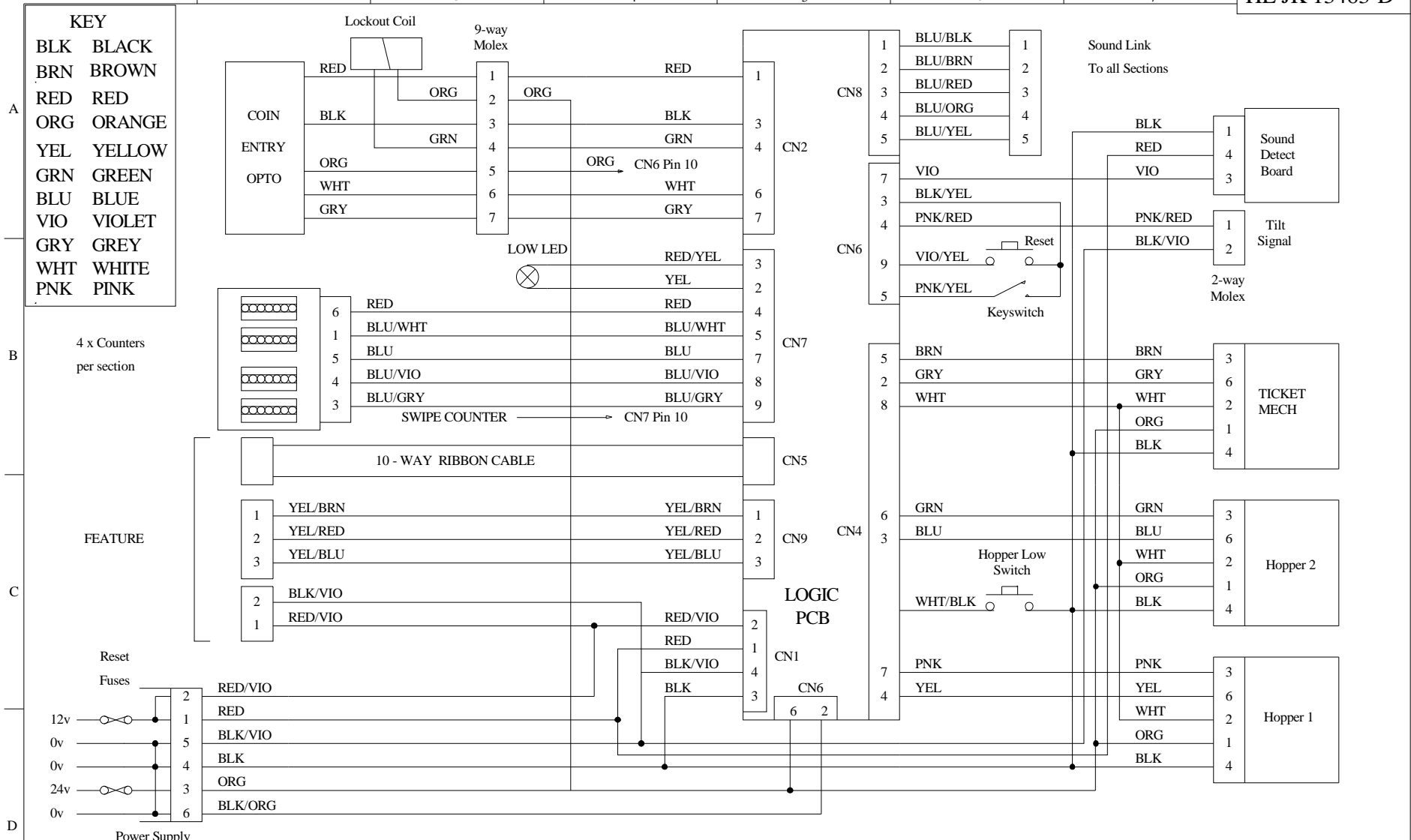
Issue	Description	Date	App'd	To: 1501	Title	Drawn	Checked	Date	Do NOT Scale
					Mains Wiring USA	NGI		20 10 00	
HARRY LEVY AMUSEMENT CONTRACTOR Ltd Broadstairs Kent. Dimensions in MM. General Tol. +/-1, metalwork & hole positions +/-0.5 turned parts +/-0.1, bending +/-1 (Plastic +/-2.5 degrees)						Drawing No. HL JK 13462-D			

HL JK 12337 - D



Issue	Description	Date	App'd	To: 1501	Title	Drawn	Checked	Date	Do NOT Scale	
2	SOLID STATE RELAY ADDED & MC Bd WIRING Mod	20/04/01	ADF		Tilt Board & Motor Control Board Wiring Span	NGI		08 10 99	Do NOT Scale	
					HARRY LEVY AMUSEMENT CONTRACTOR Ltd Broadstairs Kent. Dimensions in MM. General Tol. +/-1, metalwork & hole positions +/-0.5 turned parts +/-0.1, bending +/-1 (Plastic +/-2.5 degrees)		Drawing No. HL JK 12337 - D			

HL JK 13463-D



A

B

C

D

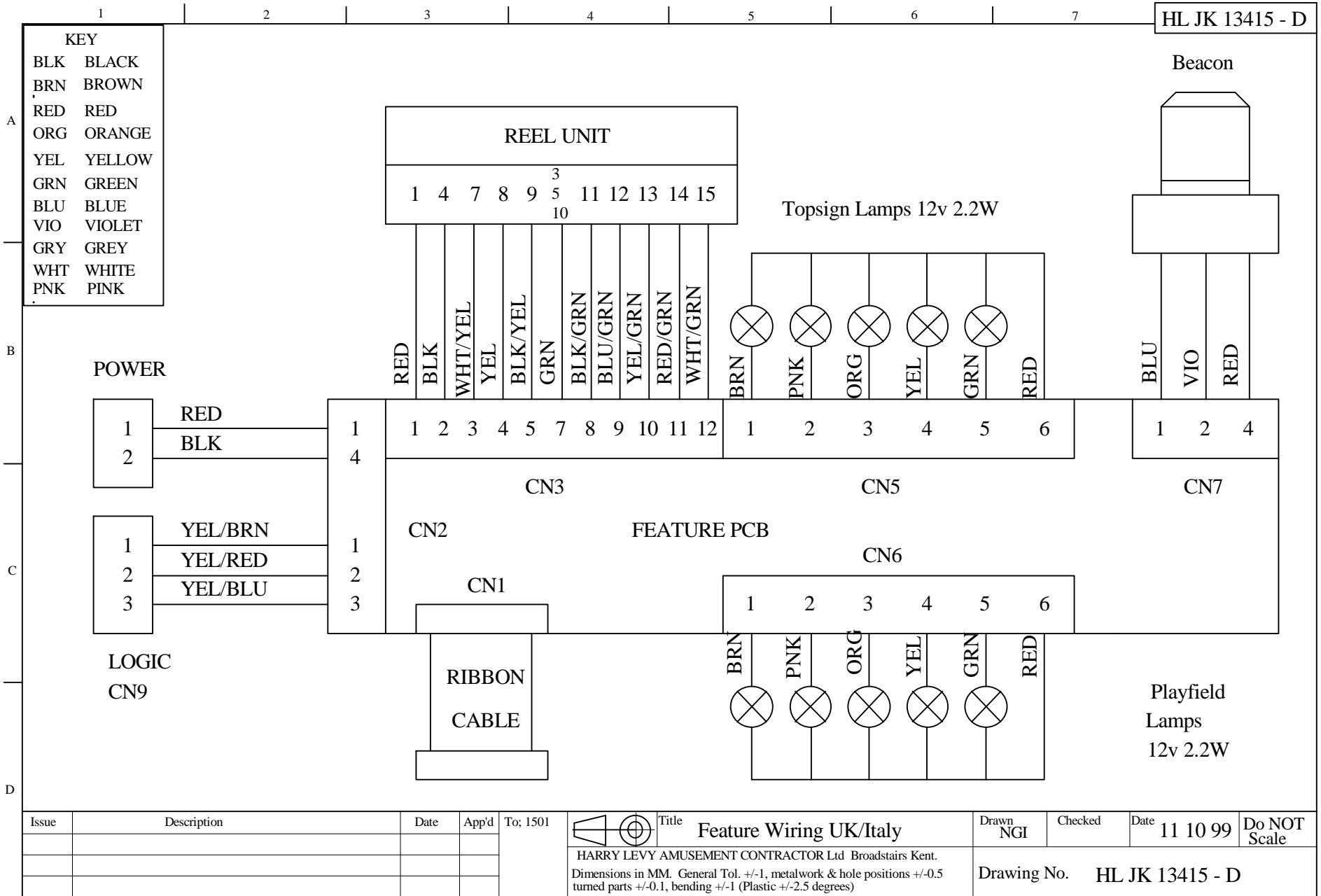
Issue	Description	Date	App'd	To: 1501

Title Logic Board Wiring USA

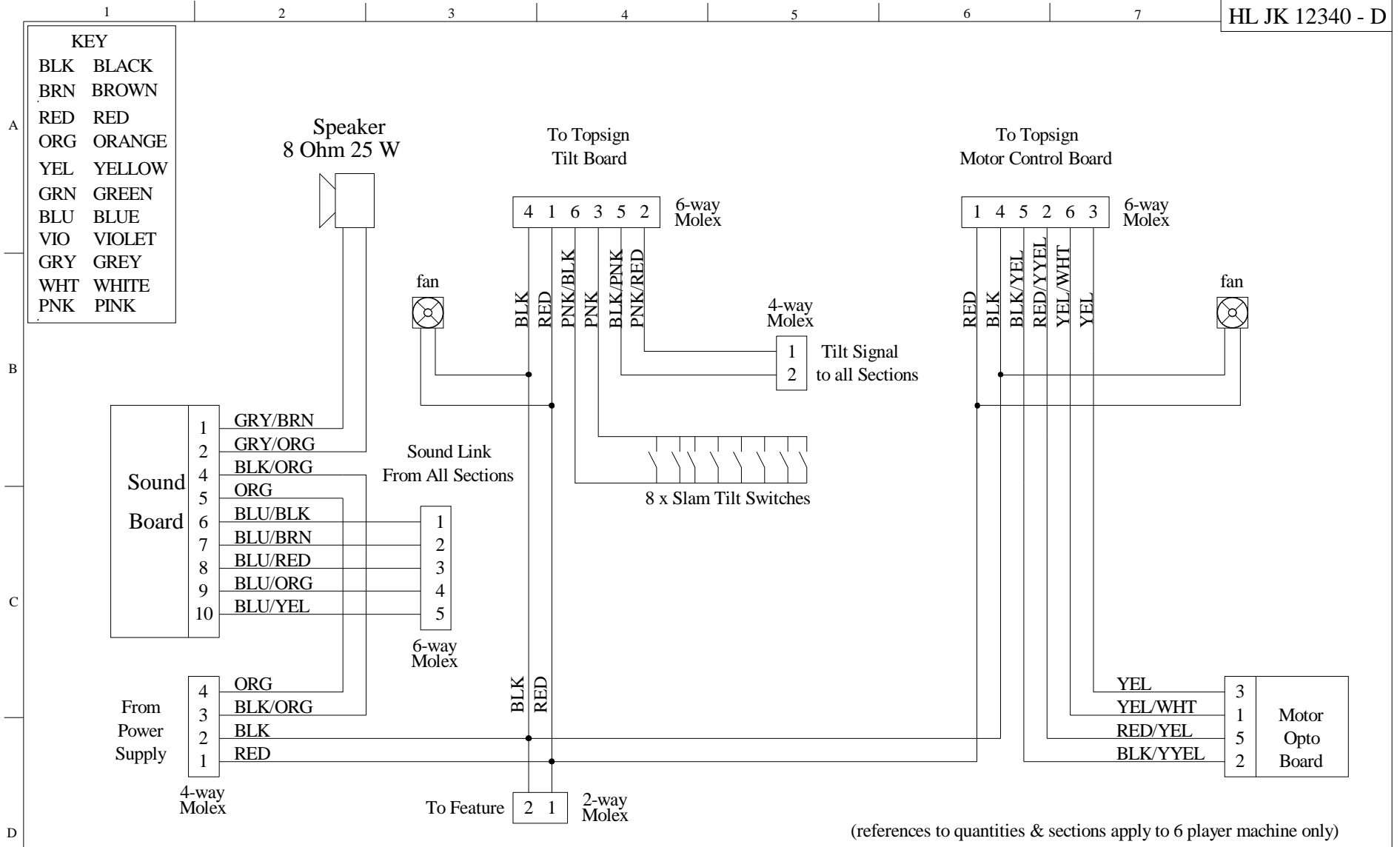
HARRY LEVY AMUSEMENT CONTRACTOR Ltd Broadstairs Kent.
 Dimensions in MM. General Tol. +/-1, metalwork & hole positions +/-0.5
 turned parts +/-0.1, bending +/-1 (Plastic +/-2.5 degrees)

Drawn NGI **Checked** **Date** 20 10 00 **Do NOT Scale**

Drawing No. HL JK 13463-D



HL JK 12340 - D



(references to quantities & sections apply to 6 player machine only)

Issue	Description	Date	App'd	To: 1501	Title	Drawn	Checked	Date	Do NOT Scale
					Tilt, Sound & Motor Control	NGI		11 10 99	Do NOT Scale
					HARRY LEVY AMUSEMENT CONTRACTOR Ltd Broadstairs Kent. Dimensions in MM. General Tol. +/-1, metalwork & hole positions +/-0.5 turned parts +/-0.1, bending +/-1 (Plastic +/-2.5 degrees)	Drawing No. HL JK 12340 - D			