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BIG WHEEL 1 or 2 player SERVICE MANUAL

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1. INFORMATION.

1.1 This Manual is intended as a guide to the operation, servicing, fault finding and repairs on the Big Wheel machines. It is important that the machine operates according to its design criteria.

1.2 All details and specifications shown in this manual are correct at the time of print. The right to modify equipment, change specifications and instructions at any time, without notice is reserved as part of Harry Levy Amusement Contractor Ltd policy of continuous development and improvement.

1.3 Only qualified, professional personnel should gain entry to the machine, and no liability is accepted by the author or Harry Levy Amusement Contractor Ltd. for any damage or injury arising from the use of this service manual.

2. GENERAL SERVICING

2.1 Replacement Parts.

It is of mutual interest that equipment is kept in excellent working condition, therefore when requested please order original replacement parts from your distributor or Harry Levy Amusement Contractor Ltd.

2.2 Ticket dispensers.

The ticket dispenser is a Deltronic DL 1275 unit. Please refer to the pink or yellow manual for ticket machine adjustment and electrical specification.

2.3 . Hopper. (USA)

This is a Coin Controls hopper(s). There are no user serviceable parts.

3. DESCRIPTION OF THE GAME

3.1 Switch on, and Attract mode.

Switch the machine on, the fluorescent lamp will light, the pusher boxes will move backward and forward, and the wheel will start to rotate. After some time (depending on the switch settings) the attract mode sounds will operate. If the volume is not loud enough then adjust the control, which is on the sound board in the rear of the machine.

The counter will increment each time a coin is inserted. The tilt system & alarm can be tested by pushing against the machine, the alarm will sound and any award being made will stop & the remaining award will be lost. Another alarm test is to stop one of the pusher boxes as if it had jammed, the alarm will sound. To reset the jam alarm press the reset button which is located on the top of the machine just behind the top sign, on the left.

3.2 The game

At the selected player station insert a coin. Coins of the wrong type are rejected. The object of the game is to time the coins entry so that it is fired into a partly filled cup on the wheel, making it tip its contents onto the pusher box. This in turn creates the improved possibility of an award for the player. The cup will right itself as it reaches the bottom of its rotation, ready to be refilled. Coins which fall off the playfield (USA machine) are counted into the change hopper by the win hopper. Tickets are then awarded from a ticket dispenser.

4. SPECIFICATIONS

	<u>1 Player</u>	<u>2 Player</u>
<u>4.1 Dimensions.</u> Height	1870mm (73 ³ / ₄ "	1870mm (73 ³ / ₄ "
Width	645mm (25 ¹ / ₄ "	1265mm (49 ³ / ₄ "
Depth	970mm (38 ¹ / ₄ "	970mm (38 ¹ / ₄ "

<u>4.2 Electrical ratings</u>	<u>1 Player</u>	<u>2 Player</u>
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At 115 Volts 60 Hz :	2.5 Amps /250 Watts	4.0 Amps / 360 Watts
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4.3 Errors and alarm signals

If the alarm bell sounds, either a pusher box is jammed or the tilt has been activated. The tilt will automatically time-out, and reset. The pusher box jam will require an engineer to rectify the fault, then power the machine back up. A reset switch is incorporated at the top of the machine to allow an 'accidental' jam to be reset without having to switch the machine off. If tickets (USA machine) run out, then an indicator L.E.D will light on the lower front entry door.

5. ACCESS

5.1 General.

With the exception of re-loading tickets for the ticket machine, always disconnect the machine from the mains supply by removing it's plug from the supply socket.

5.2 Playfield.

Release the lock at the top of the glass door and lift it up and out, put the glass in a safe place.

5.3 Coin entry.

Coins (or tokens) are guided past an opto sensor and on to the ejector unit. The coin is automatically ejected onto the playfield area. The ejector is factory set and should need no adjustment.

5.4 Lower Cabinet.

Each player section has an access door below the playfield which can be fully removed by releasing the lock at the top of door. A single back door is fitted which can be fully removed by releasing the two locks at the top of the door. This gives access to the power supply and the lighting choke board.

5.5 Cash box compartments.

Each player section has an access door below the pay-cup which can be fully removed by releasing the lock at the top of the door. The cash box may be fitted with its own lock, for extra security.

5.6 Top sign.

To replace lamps in the toposign, the toposign metalwork must be unscrewed at the rear and lifted up, taking care to keep the artwork in place. The artwork is carefully removed from the metalwork, and defective lamps can be replaced. When replacing the toposign care should be taken to ensure that the artwork locates in its groove in the wood. Replace all screws in the toposign housing.

5.7 Hoppers.

To access the winnings and change hoppers first remove the front lower door.

The winnings hopper is below the win chute, the change hopper on the left. The change hopper pulls forward, the winnings hopper pulls out to the right when the ticket bin is pulled forward. Hoppers are best returned to your distributor as they are not intended to be user serviceable.

6. ELECTRICAL SYSTEMS

6.1 General.

In general disconnect the machine from the mains supply then check the physical condition and operation of the suspect device or unit (remove from the machine if necessary) and bench test if possible.

In general PCB's are not user serviceable. Should a problem develop indicating a board fault it is recommended that the board is returned for repair or replacement by your distributor, however, fault diagnosis and repair may be performed by skilled service personnel but this may invalidate the warranty. Many of the IC's are common components and are available from electronic component suppliers, or from Harry Levy Amusement Contractor Ltd.

6.2 Wiring check.

If faults occur with any electrical system: - SWITCH THE MACHINE OFF, then check that:-

- a) All fuses are intact
- b) All wires are properly secured to their connector terminals and pins.
- c) All connector plugs and sockets are correctly mated.
- d) No wires are trapped, damaged or broken.

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, wiring is very rarely a cause for concern.

6.3 Power supply

The power supply is situated in the lower cabinet compartment beneath the playfield. When a fault occurs that affects the whole of the machine, the power supply and regulation system should be checked first.

6.4 Main logic board.

Each player section has its own logic board fitted to the left hand wall in the rear of the machine. There are fuses for the AC supplies and for each 50V AC ejector coil.

6.5 Tilt switch. bell and reset switch.

The tilt switch on all versions is situated inside the rear of the cabinet, at the top left and on each front door. The alarm sounder is located in the toptsign. The tilt alarm reset switch on all versions is fixed inside the toptsign with access to the button from outside the machine.

6.6 Hopper Microphone P.C.B. and reset switch. (USA version only)

Each player section has a microphone P.C.B. and hopper reset switch fitted to the bulkheads in the lower cabinet compartment. The microphone from each board is attached to the win chute.

6.7 Sound P.C.B.

The Sound board is in the rear LH side of the machine (1 player viewed from the back) or on the right of the centre partition wall (2 player).

6.8 Speaker.

All versions of the machine have a speaker fitted to the roof, inside the top sign. If the speaker is suspected faulty it should be replaced with one of the same type and rating.

6.9 Lighting.

Fluorescent tubes are situated at the top of the playfield.

Replacement is carried out by releasing the end caps and removing the tube from the spring clips, inserting a new tube of the correct type and reconnecting the end caps. Starter replacement may be required occasionally.

Always use exact replacement types.

The light board is situated inside the lower cabinet on the right (1 player) or on the centre partition wall (2 player).

6.10 Pusher box drive motor and cut-out switch.

All versions of the machine have a drive motor located inside the lower cabinet compartment under the playfield. A cut-out switch is mounted on the motor support frame which activates if the pusher boxes become jammed.

6.11 Coin and ticket counters.

On all versions of the machine the coin and ticket counters are located inside the lower compartment.

6.12 Switch settings.

Dipswitch settings - .Main Logic PCB.

BWHEEL6 V1.0

<u>SWITCH1</u>	<u>Pole</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>Game Time (Seconds)</u>
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		Off	Off	Off	3
		On	Off	Off	15
		Off	On	Off	20
		On	On	Off	25
		Off	Off	On	30
		On	Off	On	40
		Off	On	On	50
		On	On	On	60

ATTRACT SOUND TRIGGER TIME. Time between attract tunes can be adjusted.

<u>SWITCH1</u>	<u>Pole</u>	<u>4</u>	<u>5</u>
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		Off	Off	NO ATTRACT SOUND
		On	Off	30 second interval
		Off	On	60 second interval
		On	On	120 second interval

CONSOLATION AWARDS: Tickets paid on coin in

<u>SWITCH1</u>	<u>Pole</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>AWARD</u>
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		Off	Off	Off	0
		On	Off	Off	1
		Off	On	Off	2
		On	On	Off	3
		Off	Off	On	4
		On	Off	On	5
		Off	On	On	6
		On	On	On	7

SWITCH 2: Dipswitch on extension PCB FL0295 (Reset PCB.)

TICKET AWARD FOR COINS WON:

Pole	1	2	3	4	Award Ratio for coins off edge
	Off	Off	Off	Off	1
	On	Off	Off	Off	2
	Off	On	Off	Off	3
	On	On	Off	Off	4
	Off	Off	On	Off	5
	On	Off	On	Off	6
	Off	On	On	Off	7
	On	On	On	Off	8
	Off	Off	Off	On	9
	On	Off	Off	On	10
	Off	On	Off	On	11
	On	On	Off	On	12
	Off	Off	On	On	13
	On	Off	On	On	14
	Off	On	On	On	15
	On	On	On	On	16

SWIPE CARD CHANGE TABLE:

Pole	1	2	3	4	Change coins per swipe card input
	Off	Off	Off	Off	0
	On	Off	Off	Off	1
	Off	On	Off	Off	2
	On	On	Off	Off	3
	Off	Off	On	Off	4
	On	Off	On	Off	5
	Off	On	On	Off	6
	On	On	On	Off	7
	Off	Off	Off	On	8
	On	Off	Off	On	9
	Off	On	Off	On	10
	On	On	Off	On	11
	Off	Off	On	On	12
	On	Off	On	On	13
	Off	On	On	On	14
	On	On	On	On	15

7. MECHANICAL SYSTEMS

7.1 Pusher motor drive.

The motor which drives the pusher boxes is connected to a V belt & pulley system. The bearings are sealed for life and the belts do not stretch. If the belt should be damaged, change it by first switching the machine off. Remove the paycup doors. Unbolt the belt tensioner. The V-belt needs to be removed, the best way to accomplish this is to place a screwdriver between the one of the pulleys and the V-belt, then switch the machine on and prise the V-belt off. Take great care, always be able to turn the machine off immediately. With the V-belt removed switch the machine off again. Change the old belt for a new one that is the same specification. Place the new belt across the pulleys and tighten with the belt tensioner. Now put the V-belt back on the pulley using the same system. The only other thing that might need adjusting is the micro switch which is situated at the back of the drive motor, adjust to suit.

7.2 Pusher boxes.

The pusher boxes run on two Accuride slide bearings. Clean and re-grease as required. The nylon wheel may wear in time which is noticeable by the pusher box movement not being smooth. This can be rectified by the following procedure;-

- a). Switch off the machine at the mains.
- b). Open the back of the machine, the nylon wheel can be replaced by removing the two plates that hold it in place.
- c). Replace the nylon wheel with a new one. Grease the wheel and reassemble.

7.3 Coin entry chutes.

These can be changed or replaced. Care should be used when replacing them to ensure they locate in the firing mechanism correctly.

7.4 The Wheel.

The cup "tip" can be adjusted by carefully bending the stops underneath. This will allow more or less coins to tip the cup.

8. TROUBLE-SHOOTING

The following is a guide to some faults and remedies. Always replace faulty items with units of the same specification. Determine the cause of the fault and rectify to avoid recurrence of a problem. Test a coin mech. or ticket dispenser by fitting a known good unit from another machine in place of the suspect unit. The ticket machines are quite easy to fault find and repair on site.

SYMPTOM	POSSIBLE FAULT	REMEDY
No sound	Volume / Speaker	Adjust volume / Check speaker
	Sound board	Replace if faulty
Lights out	Tube, Starter, Choke	Check each item. Replace if faulty.
Ticket machine not working	Ticket motor / PCB	Bench test. Check transistor 2N2222, IC40106, opto sensor
	Logic / Inhibit switch	Replace logic PCB Check switches
Pusher not moving	Jam micro switch	Check that micro switch works.
Machine not paying out	Counter hopper	Change hopper
	Payout hopper	Refill hopper Change hopper
Tilt alarm not working	Tilt PCB	Change board
Coin counter not working	Counter / Opto sensor	Test / change for new one
Ticket counter not working	Check counter	Change for new one
	Check ticket opto	Change ticket machine

Coin Launch System -set-up & adjustment.

The coin launch system has been factory adjusted for optimum performance with your specified coin.

The system incorporates an automatic voltage compensation circuit, that adjusts the supply voltage to the solenoid coil to compensate for the variation in performance that occurs when the system warms up in normal use.

This ensures the players always have a game with similar characteristics, . from the first coin of the day through to the last coin.

ADJUSTMENT

Should the need arise to adjust the coin launch units please follow this procedure ;-

Note;- The coin should be launched to hit the 'BIG WHEEL' about 90mm from the top, which is half way between the top of the wheel and the centre cone.

1. Test the performance of the system.

2. If necessary, adjust the finger controls on the control board. Each coin launcher has its own control.

The control board is located under the launch units, on the right hand side.

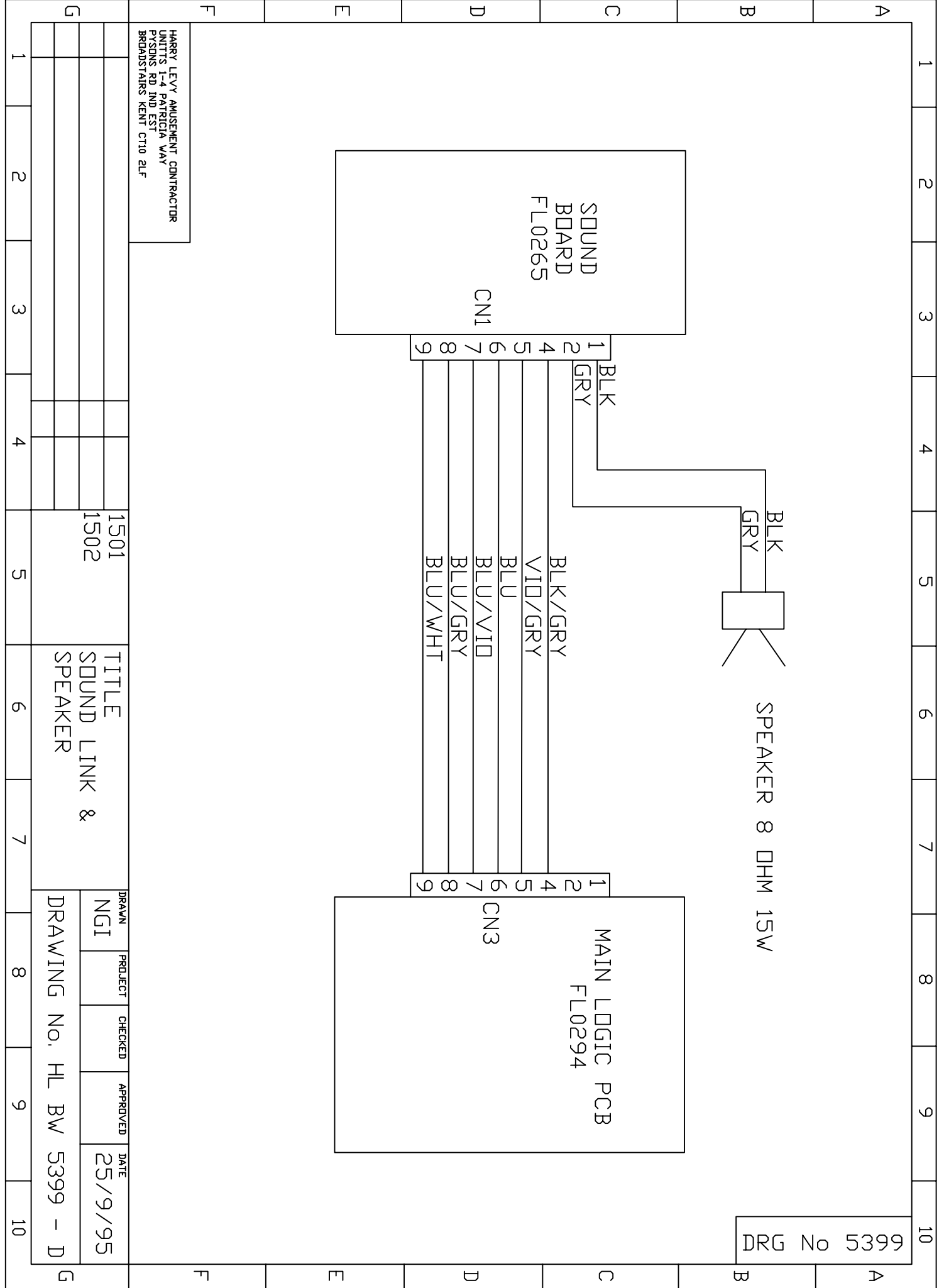
3. If there is insufficient adjustment on that control, a mechanical adjustment of the firing solenoid will be needed. Set the control board control to the midway position.

1) On the rear of the solenoid are four fixing bolts, loosen the bolts to allow the solenoid coil to move up and down. Note;- only small adjustments of 1 or 2mm are likely to be required.

2) Adjust the coil upwards to get more power, and throw the coin harder.

3) Adjust the coil downwards to reduce the power, reducing the throw of the coin.

4) Once the mechanical adjustment is about right, fine tune the coin throw with the control board finger control.



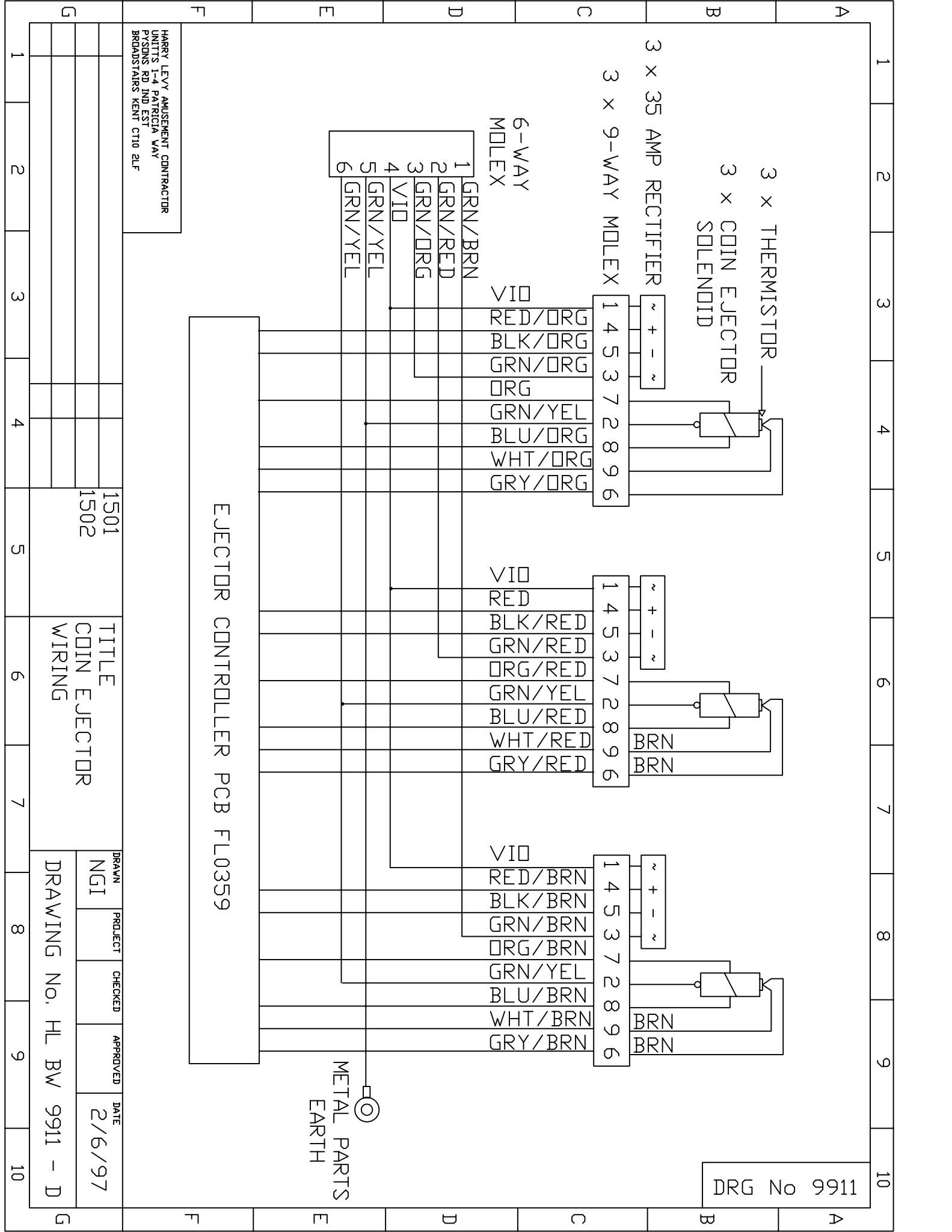
HARRY LEVY AMUSEMENT CONTRACTOR
 UNITS 1-4 PATRICIA WAY
 PYSONS RD IND EST
 BRADSTAIRS KENT CT10 2LF

DRG No 5399

DRAWN	PROJECT	CHECKED	APPROVED	DATE
NGI				25/9/95

DRAWING NO. HL BW 5399 - D

1	2	3	4	5	6	7	8	9	10
				1501	TITLE				
				1502	SOUND LINK & SPEAKER				



3 × THERMISTOR
 3 × COIN EJECTOR SOLENOID

3 × 35 AMP RECTIFIER

3 × 9-WAY MOLEX

6-WAY MOLEX

- 1 GRN/BRN
- 2 GRN/RED
- 3 GRN/DRG
- 4 VID
- 5 GRN/YEL
- 6 GRN/YEL

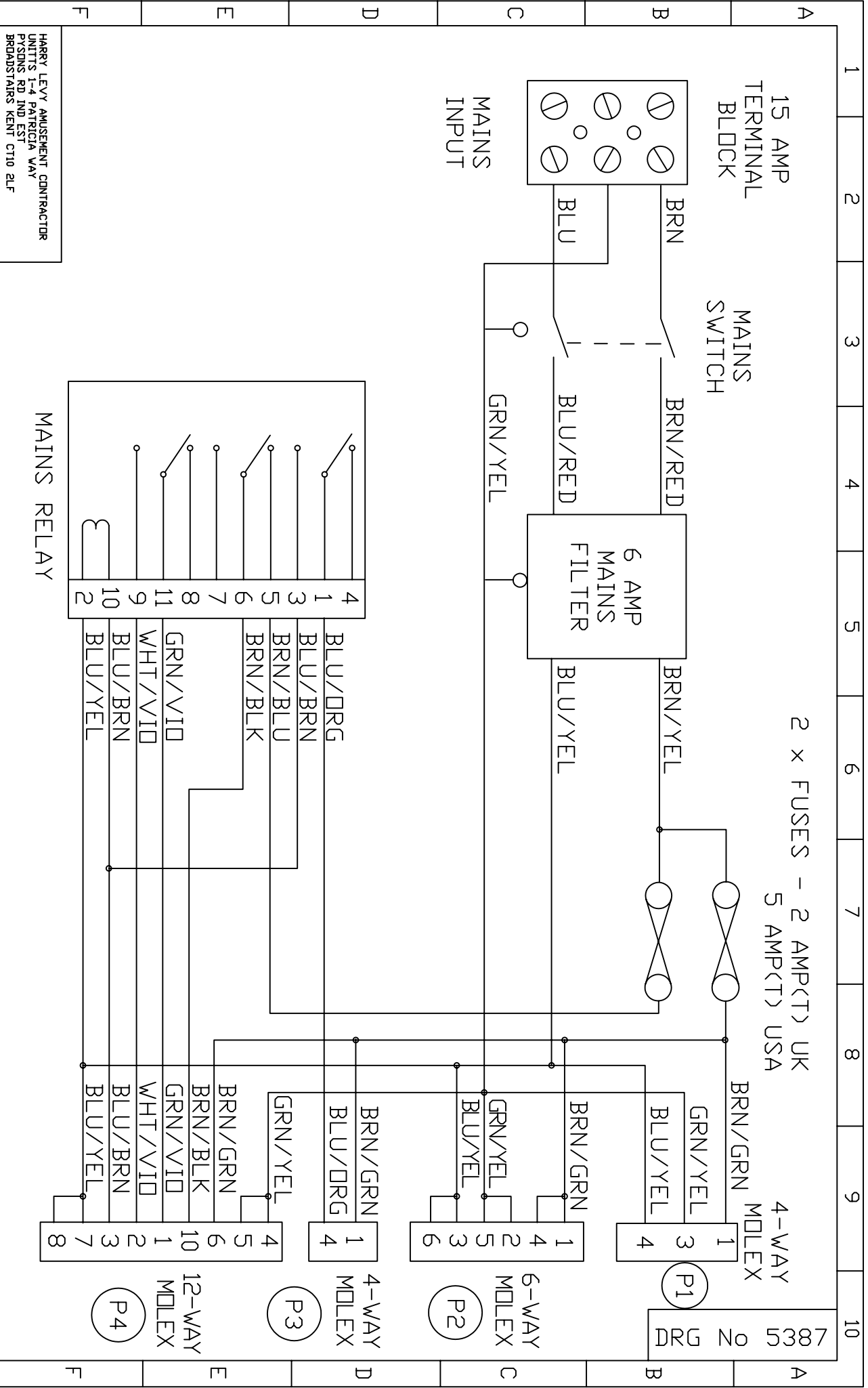
EJECTOR CONTROLLER PCB FL0359

METAL PARTS EARTH

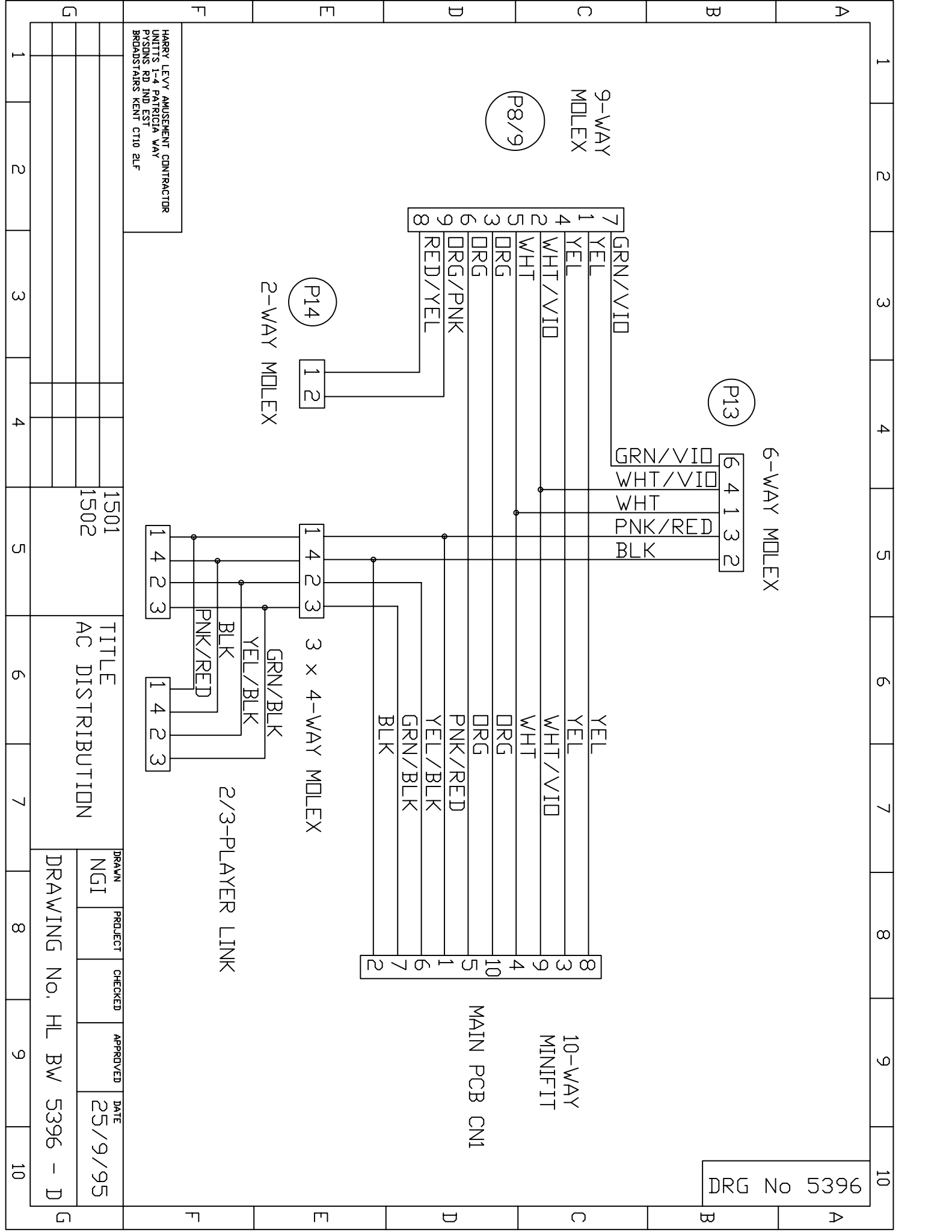
DRG No 9911

HARRY LEVY AMUSEMENT CONTRACTOR
 UNITS 1-4 PATRICIA WAY
 PYSONS RD IND EST
 BROADSTAIRS KENT CT10 2LF

1501					TITLE		DRAWN		
1502					COIN EJECTOR		NGI		
					WIRING		PROJECT		
							CHECKED		
							APPROVED		
							DATE		
							2/6/97		
							DRAWING NO. HL BW 9911 - D		



HARRY LEVY AMUSEMENT CONTRACTOR UNITS 1-4 PATRICIA WAY PYSONS RD IND EST BRADSTAIRS KENT CT10 2LF									
1501					TITLE				
1502					COMP BOARD				
					WIRING				
DRAWN		PROJECT		CHECKED		APPROVED		DATE	
NGI								21/9/95	
DRAWING NO. HL BW 5387 - D									



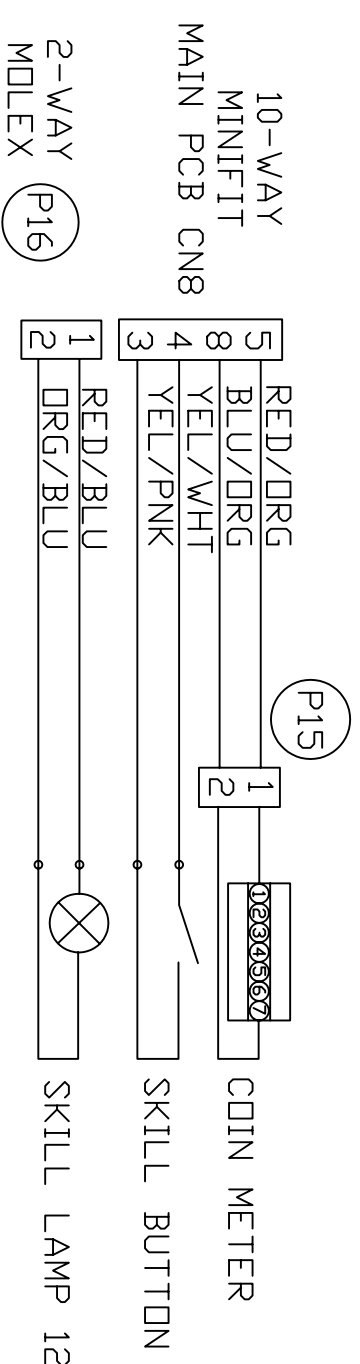
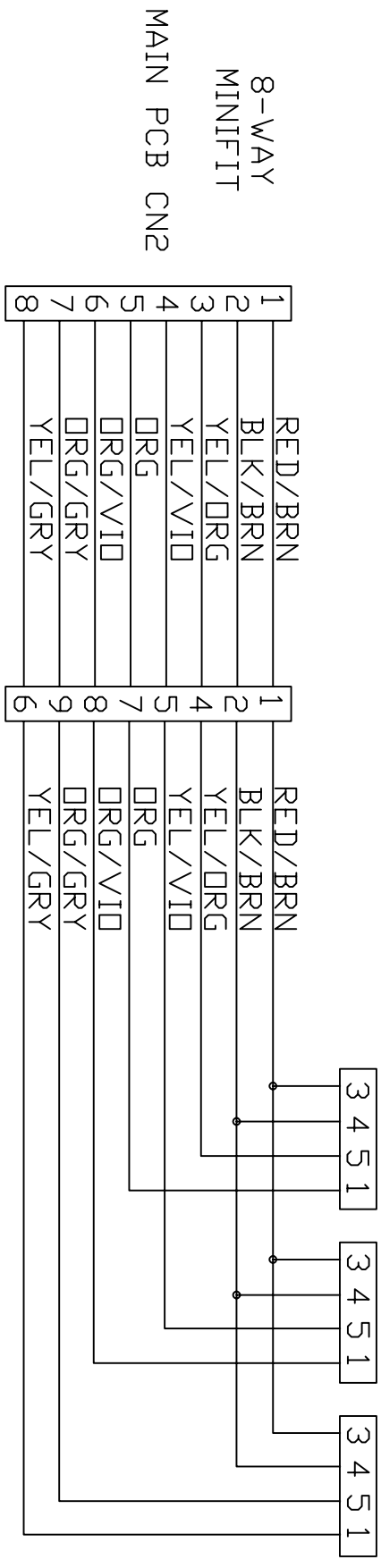
HARRY LEVY AMUSEMENT CONTRACTOR
 UNITS 1-4 PATRICIA WAY
 PYSONS RD IND EST
 BRADSTAIRS KENT CT10 2LF

DRG No 5396

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1502	AC DISTRIBUTION	NGI				25/9/95
DRAWING NO. HL BW 5396 - D						

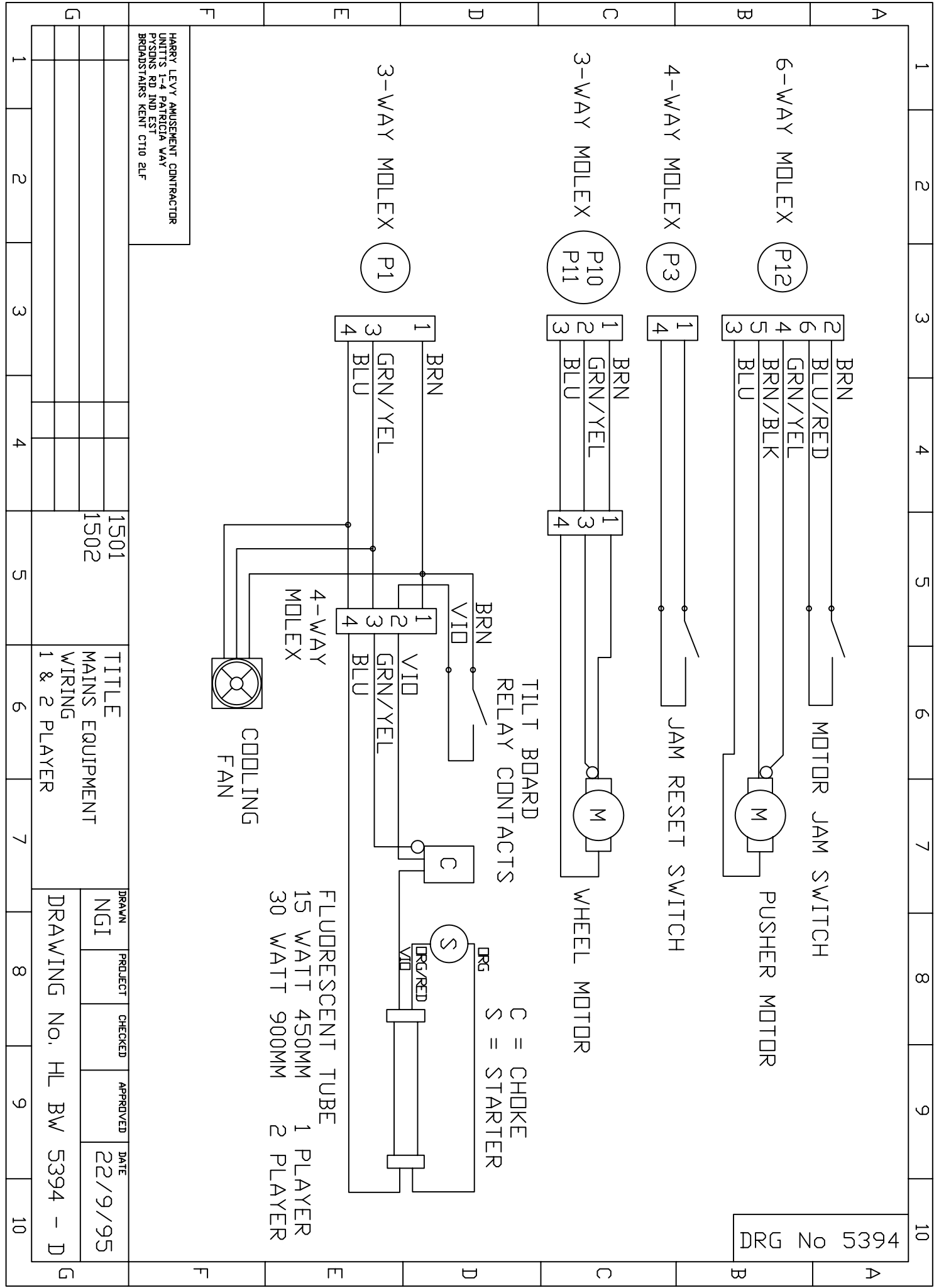
DRG No 5397

3 x COIN DPTD SENSOR PCBs
3 x 0.1" KK CONNECTOR



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UNITS 1-4 PATRICIA WAY
PYSONS RD IND EST
BROADSTAIRS KENT CT10 2LF

1	2	3	4	5	6	7	8	9	10	
				1501	TITLE COIN SENSORS & SKILL BUTTUN	DRAWN NGI	PROJECT	CHECKED	APPROVED	DATE 25/9/95
				1502						
					DRAWING NO. HL BW 5397 - D					



DRG No 5394

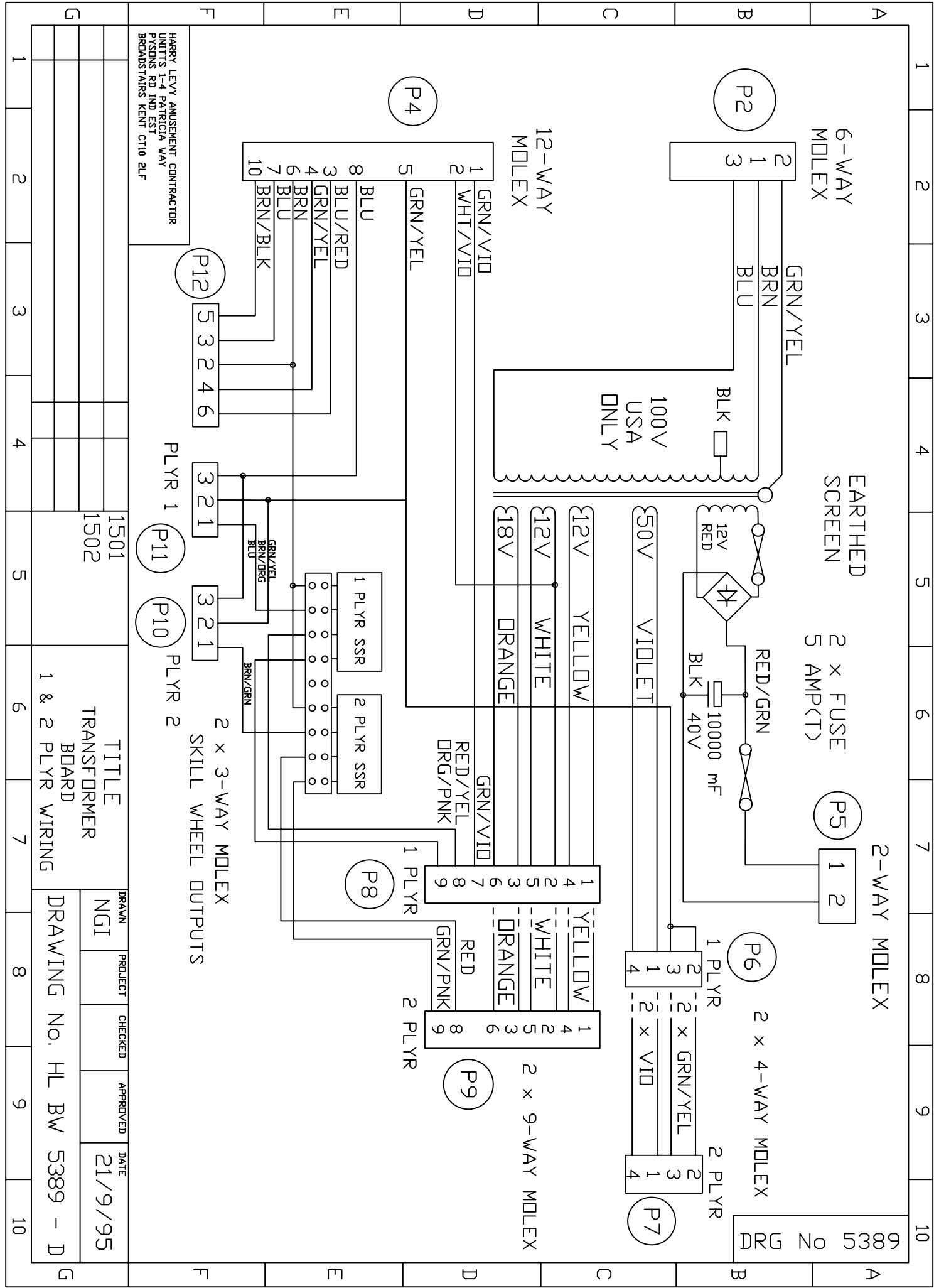
FLUORESCENT TUBE
 15 WATT 450MM 1 PLAYER
 30 WATT 900MM 2 PLAYER

C = CHOKE
 S = STARTER

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 UNITS 1-4 PATRICIA WAY
 PYSONS RD IND EST
 BRADSTAIRS KENT CT10 2LF

1501	TITLE	1501
1502	MAINS EQUIPMENT	1502
	WIRING	
	1 & 2 PLAYER	

DRAWN	PROJECT	CHECKED	APPROVED	DATE
NGI				22/9/95
DRAWING NO. HL BW 5394 - D				



HARRY LEVY AMUSEMENT CONTRACTOR
 UNITS 1-4 PATRICIA WAY
 PYSONS RD IND EST
 BROADSTAIRS KENT CT10 2LF

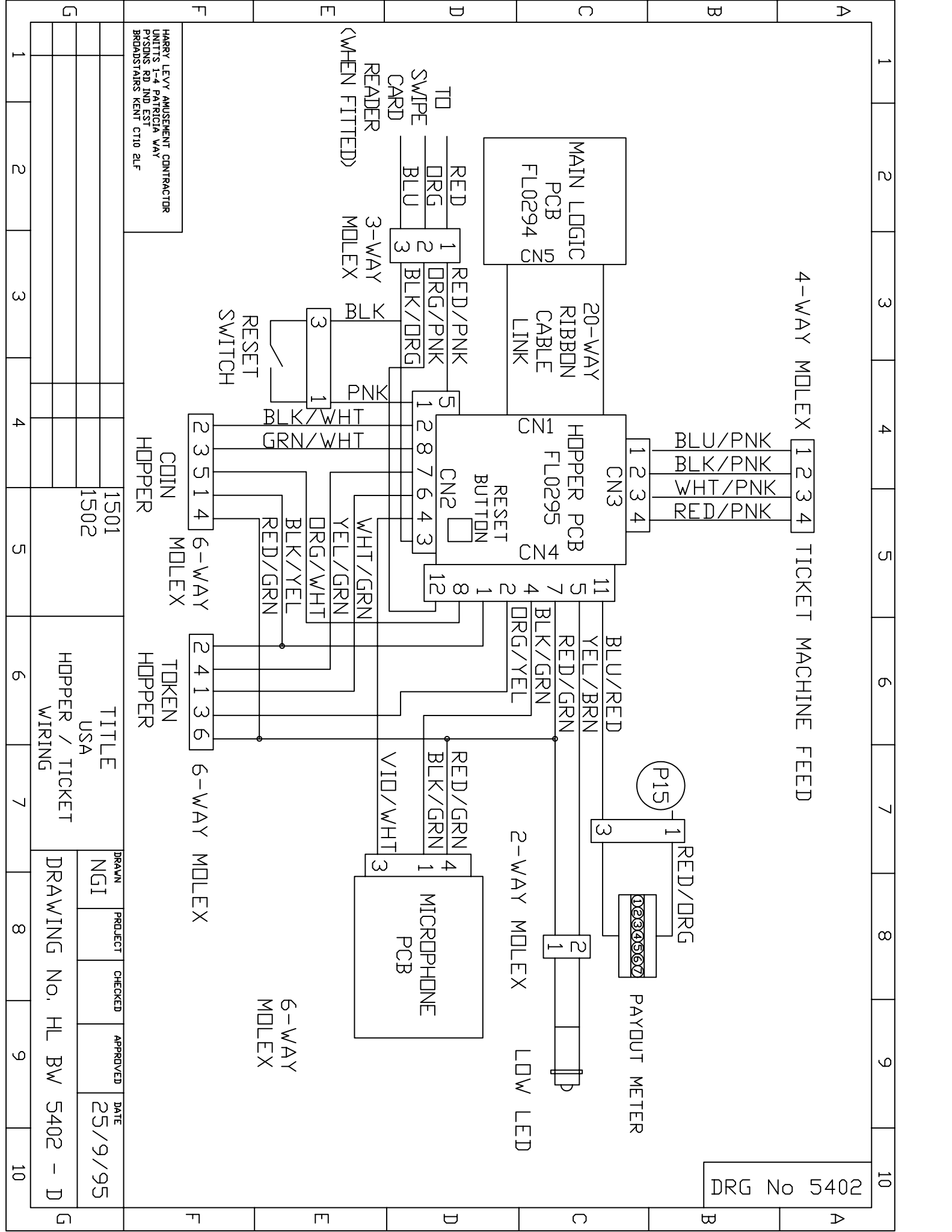
1501

1502

TITLE
 TRANSFORMER
 BOARD
 1 & 2 PLYR WIRING

DRAWN	PROJECT	CHECKED	APPROVED	DATE
NGI				21/9/95
DRAWING NO. HL BW 5389 - D				

DRG No 5389



DRG No 5402

HARRY LEVY AMUSEMENT CONTRACTOR
 UNITS 1-4 PATRICIA WAY
 PYSONS RD IND EST
 BROADSTAIRS KENT CT10 2LF

TITLE	DRAWN	PROJECT	CHECKED	APPROVED	DATE
HOPPER / TICKET WIRING	NGI				25/9/95

1501	1502	1501	1502	1501	1502	1501	1502	1501	1502
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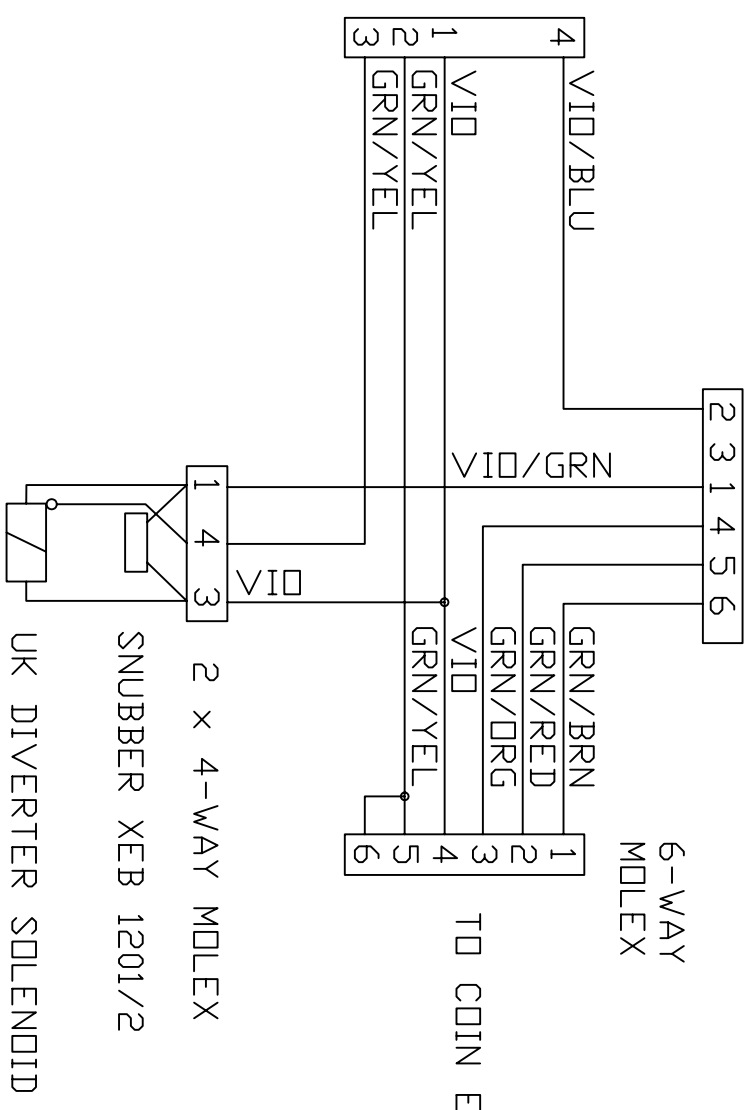
LOGIC PCB CN4
6-WAY MINIFIT

6-WAY
MOLEX

TD COIN EJECTOR SYSTEM

4-WAY MOLEX

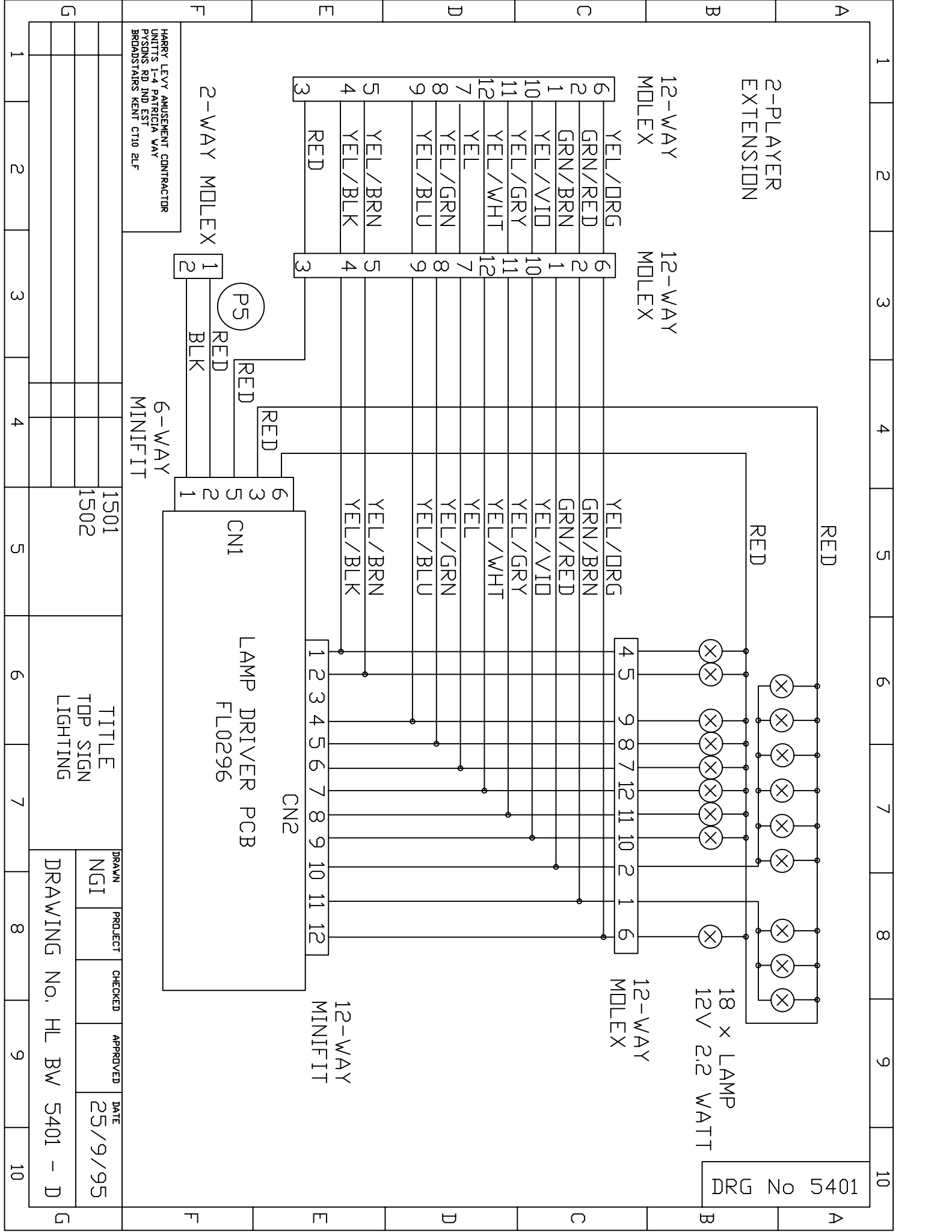
P6/7



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UNITS 1-4 PATRICIA WAY
PYSONS RD IND EST
BROADSTAIRS KENT CT10 2LF

1	2	3	4	5	6	7	8	9	10		
				1501	TITLE		DRAWN	PROJECT	CHECKED	APPROVED	DATE
				1502	50V SOLENOID WIRING		NGI				22/9/95
					DRAWING NO. HL BW 5395 - D						

DRG No 5395



DRG No 5401

HARRY LEVY AMUSEMENT CONTRACTOR UNITS 1-4 PATRICIA WAY PYSONS RD IND EST BROADSTAIRS KENT CT10 2LF		1501		TITLE		DRAWN		DATE	
2-WAY MOLEX		1502		TOP SIGN LIGHTING		NGI		25/9/95	
6-WAY MINIFIT						DRAWING No. HL BW 5401 - D			