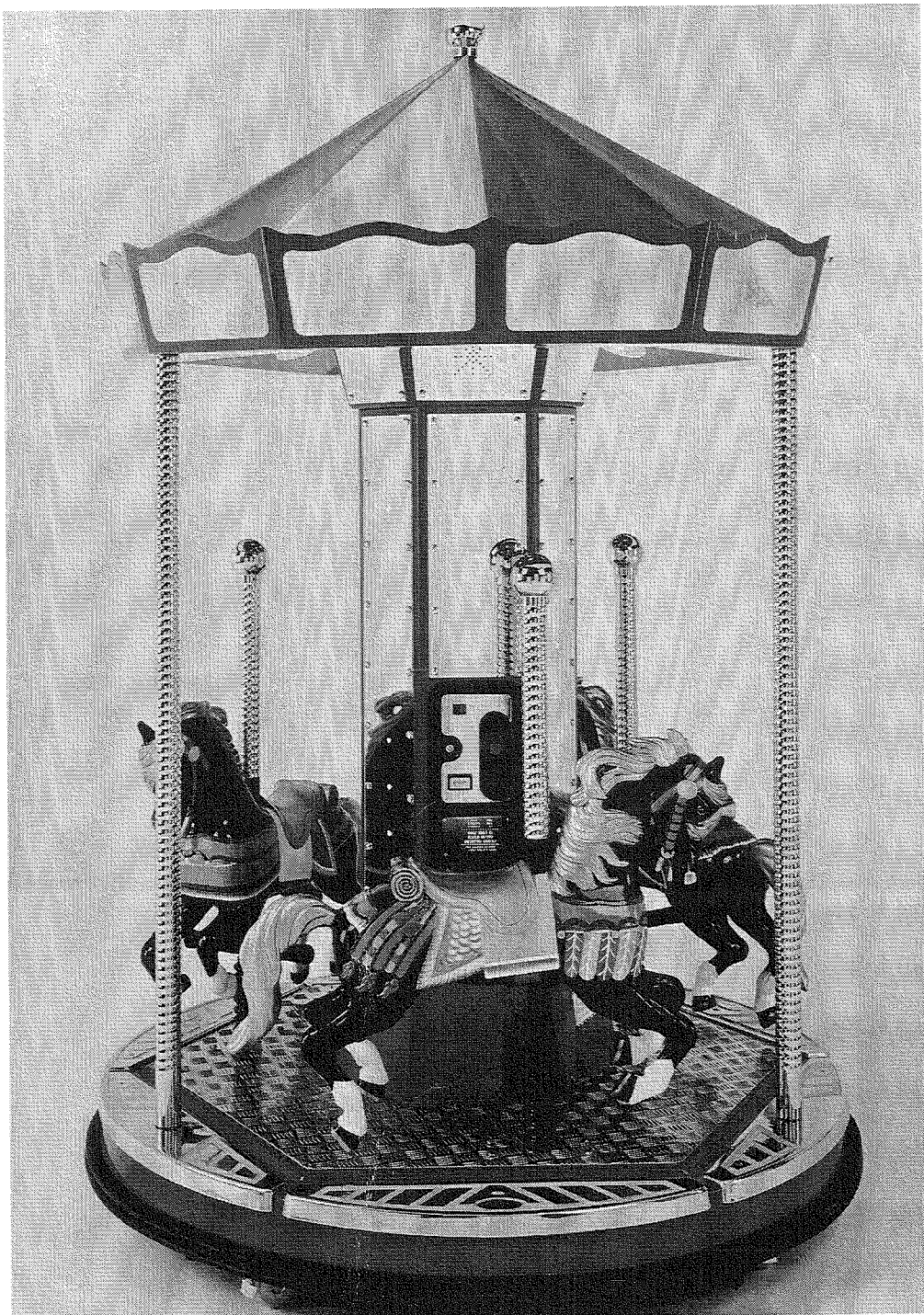




# **CAROUSEL**

## ***Maintenance Manual***





## INSTALLATION

Upon arrival of the Carousel ride, unpack and inspect for any damage. Damage must be reported to your supplier immediately upon receipt.

The Carousel should be sited inside on level ground.

Lock the 4 swivel/locking castors when the machine is sited correctly.

Connect the mains cable to a suitable supply (lights should operate).

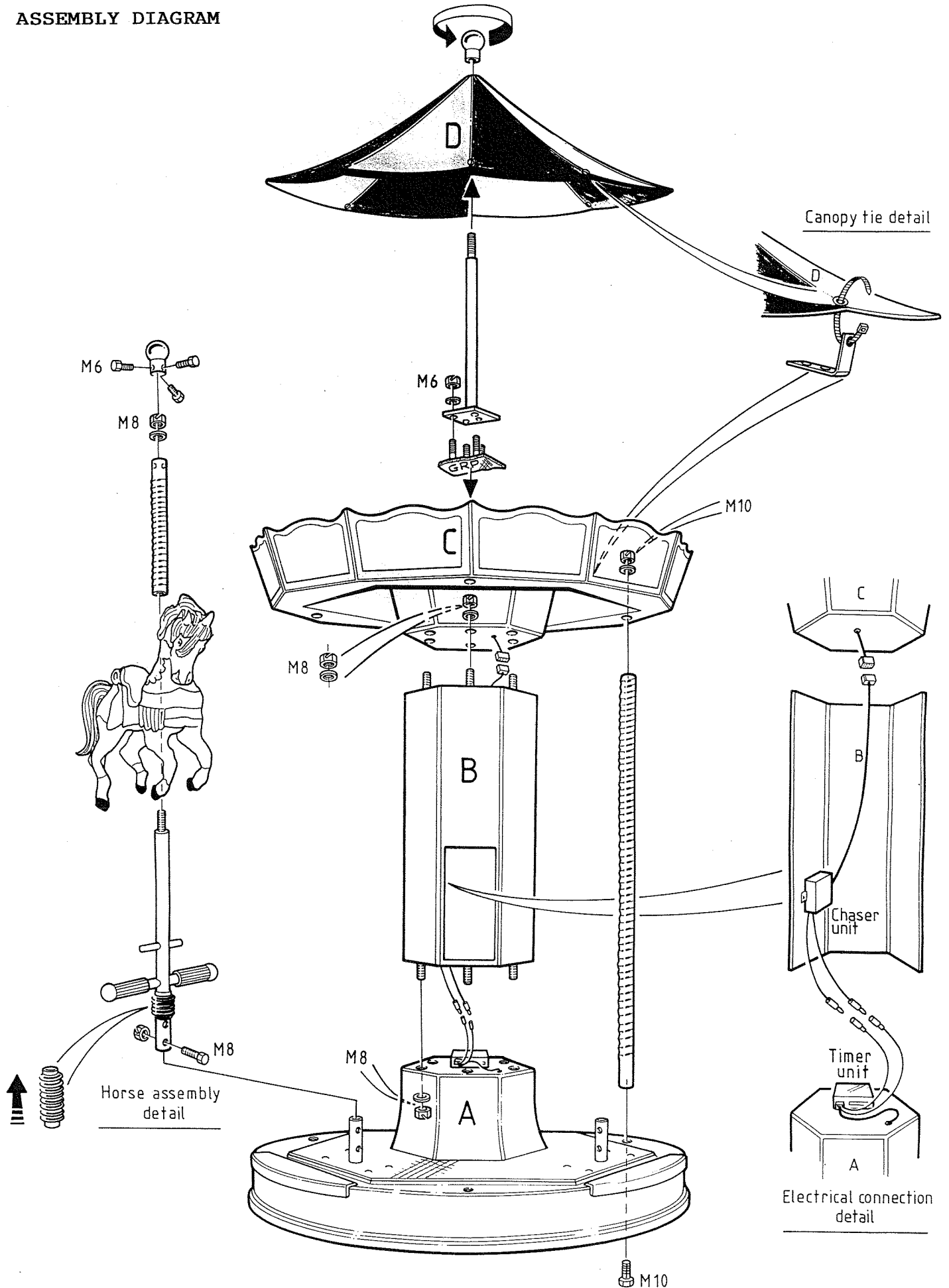
Operate the ride by placing the correct coin in the mechanism. Ride should operate and turn the coin counter 1 turn.

After 60 seconds (approximately), the ride should stop.

For rides that are supplied sub-assembled see Assembly Diagram. Ensure ALL nuts and bolts are tight prior to operation.

# AMUTEC KIDDIE RIDES

## ASSEMBLY DIAGRAM



## THOROUGH EXAMINATION AND TEST BASIC PROCEDURE

### Mechanical Examination.

- 1.. Remove inspection covers (where fitted) or sufficient casings so as to allow through examination of moving parts and any part of the structure which could conceivably be regarded as vital to the safe running of the ride.
- 2..Check that all bolts and nuts are tight and fitted with shake-proof or spring washers, where appropriate.
- 3..Check that all bearings are in good condition and lubricated where necessary.
- 4..Check that lubrication levels are correct (in gearbox's supplied by Amutec this is not necessary) where appropriate.
- 5..Check that couplings, belts, chains or hydraulic rams are in good condition and in the case of hydraulic parts and pneumatic systems, ensure that all seals are secure. Check seals for leakage of hydraulic fluid or air as appropriate.
- 6..Passenger restraints, where fitted, to be checked for effectiveness.
- 7..When confident that all reasonable mechanical checks have been carried out, check for damage or weakness in casings and in the body of the ride.

### Electrical Examination.

- 1..Check mains input lead for damage and that correct polarity has been observed. All covers should be removed and terminations checked for tightness and integrity. Any abrasions to sheath or insulation should be noted and cables renewed as required.
- 2..Check that any fuses fitted are correct rating and type.
- 3..Any metal parts of the machine such as the base, stem or metal parts attached thereto, which could possibly come into contact with, or have any connection to components which are supplied by mains voltage, should be securely earthed.  
All earth connections should be checked and the earth path to the furthest extreme of the machine manually checked. All such connections and terminations should be free of dirt and corrosion.  
Metal parts forming part of the SELV circuit, or completely remote from the possibility of contact with electrical parts, or induced currents, should not be earthed (see note 3)
- 4..Check to ensure good connections and freedom from damp and dirt on connectors, cable runs, etc.



5..All components must be checked to ensure correct functioning and that no cracks or breakages have been sustained. In the case of lamps, that the correct wattage is fitted.

6..Instrument test should be carried out to verify the comprehensive manual inspection. The test carried out should be:-

- (a) EARTH CONTINUITY (bonding) to the requirements of IEE Regulations and Electricity at Work Regulations (that is in the case of childrens coin operated rides 0.3 ohms max at a test current of 25 amps.
- (b) INSULATION PROTECTION to the requirements of IEE Regulations and Electricity at Work Regulations (that is 2 megohm at a test voltage of 500-600 volts)

As the whole electrical test envisaged includes a comprehensive visual examination, the instrument test can be regarded as absolute. Reference to the machine history is therefore not necessary (in most cases a machine history is difficult to establish).

A portable appliance tester, therefore giving absolute readings only, ie pass or fail, would be satisfactory for such tests. Examples of such instruments are the Seaward PAC 500 or the Metrohm PAT.

If access is restricted when manually checking the earth path of a particular type of ride, and manual inspections are not possible, a more elaborate instrument giving full analogue or digital readings may be desirable.

The reason for this would be to establish a history for the machine which could indicate any deterioration or degradation of the machines integrity from one inspection to another. Examples of test equipment which would perform this function are the Seaward PAT 100s, PAT1000x, MEGGER PAT2, MEGGER PAT 3, MEGGER PAT 101, or METOHM PAT with digital read out.

7..Check low voltage to coin mechanism and other devices, eg control levers, etc.

8..Where rides are sited outdoors or in adverse situations, it is essential that an RCCB is fitted. Where such a device is fitted, a check should be carried out for suitability and safe operation of such device.

## TEST

9..Finally test the ride by the insertion of a coin and by applying a loading to the ride slightly in excess of the minimum load of 45 kg (which is the minimum load for a child laid down by the Fairgrounds and Amusement Parks- A Code of Safe Practice.

## NOTE 3

On most modern rides, low voltage (derived from a dual wound isolated transformer) is used on all components, eg coin slot, control levers, lights etc. In such cases bonding to earth of the metal parts associated with these components and other isolated metal parts, may not be necessary, or indeed desirable. If in doubt, Manufacturers advice should be sought.

## CARE OF GRP (fibreglass)

All Amutec Kiddie Rides are manufactured in Self Coloured GRP, that is to say, the colour will remain for the life of the toy. Over a period of time, the colour will fade slightly and this will be most noticeable when transfers (decals) are removed.

Amutec rides are hand finished and wax polished before leaving the factory. The high gloss finish can be maintained if the following simple instructions are followed.

1..Day to Day cleaning. Wash down with hot soapy water and polish with a silicone based polish. Take care not to get water inside the base mechanism.

2..Scratches can be removed using a "cutting" type of polish (e.g. T. Cut) This type of polish can be obtained from most automobile shops and stores, garages etc.

3..Deep scratches can be removed by using a Wet/Dry finishing paper, using plenty of water in the process. In most cases a 1000 grit paper should be used although deep scratches may require a 600 or 400 grit paper. When dry, this will leave the fibreglass looking very dull and with a white or grey appearance. The colour and gloss can be recovered by polishing with a high speed buffing wheel and T Cut polish.

**WHEN USING A BUFFING WHEEL, CARE SHOULD BE TAKEN NOT TO BURN THE SURFACE OF THE FIBREGLASS, BY KEEPING THE BUFFING PAD MOIST ( either with water or polish, or both ).**

The advantages of using self coloured fibreglass over a painted finish are (a) the surface is very hard and durable (b) the colour will remain for the life of the toy (c) scratches can be removed without the need to re-paint.

The horses are painted and must not be treated as a self-coloured fibreglass item.

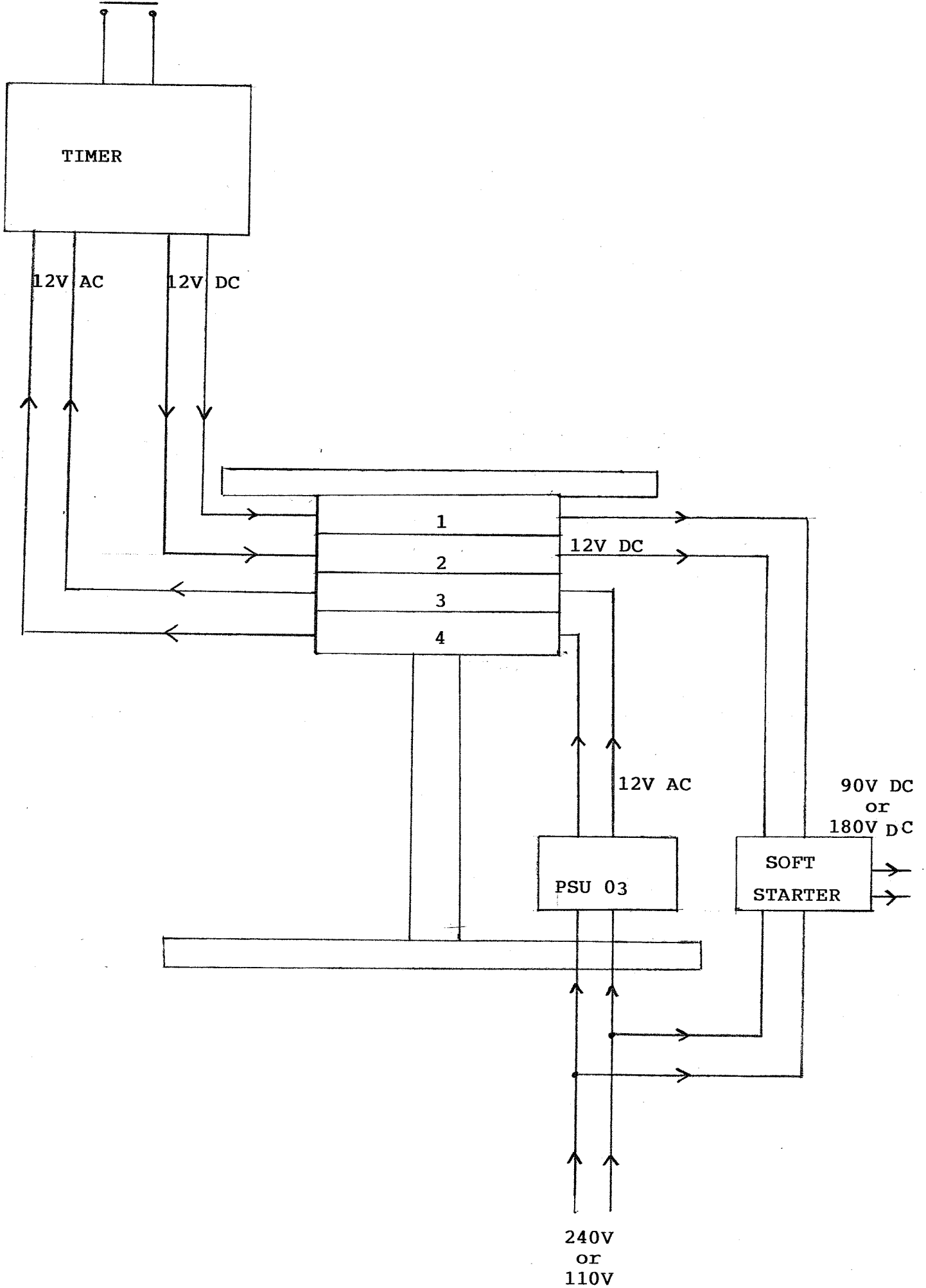


## PRINCIPLE OF OPERATION

1. Mains voltage (either 220-240V or 110-120V AC) enters the ride and is supplied to the power supply unit (PSU 03)
2. The power supply unit drops the voltage to 12V AC
3. The 12V AC output from the PSU 03 is supplied via sliprings 3 and 4 to the timer (powered at 12V AC)
4. When the timer is given a signal at the start contacts, the music starts and a relay contact is made inside the timer which allows a 19V DC supply to be sent to the soft start unit via sliprings 1 and 2
5. The 19V DC signal from the timer is received by the soft start unit and is used to operate a second relay which allows power to be provided to the DC motor controller (fitted in the soft start unit)
6. An output will be received at the DC motor output which will increase from 0-90V DC for 110V AC machines or from 0-180V DC for 240V machines. This ramped supply shall allow the motor to run up smoothly
7. When the ride time is completed the relay output from the timer will break and the music shall stop. The 19V DC signal to the soft start unit will cease
8. When the 19V DC signal to the soft starter ceases to be supplied the mains supply to the DC controller shall continue to be supplied for a pre-determined period (to exceed the ramp down time). As soon as the 19V DC signal is removed the DC controller shall begin ramp down and reduce the voltage to the motor from full supply voltage (90V DC for 110V AC or 180V DC for 240V AC machines) back to zero. When the motor is at a standstill the relay cut out and the controller will be isolated ready for its next operation

SIMPLIFIED ELECTRICAL DIAGRAM

COIN SWITCH (START CONTACT)



## VOLTAGES THAT SHOULD APPEAR AT CONTROL BOX

### TERMINALS

1. Mains voltage 240V or 110V AC at input to PSU 03 and soft start control inputs at all times when machine is plugged in to supply
2. 12V AC output from PSU at all times when machine is plugged in.  
If not present:
  - a) is machine plugged in
  - b) is mains power present at PSU input
  - c) is PSU fuse working
3. 12V AC at timer inputs (marked "From PSU 03"). If not present:
  - a) is 12V AC output from PSU
  - b) is 12V AC present at base side of sliprings 3 and 4. If not wiring is faulty between PSU and sliprings
  - c) is 12V AC present at top side of sliprings 3 and 4. If not sliprings need cleaning or brushes need replacing
4. When 2 x start terminals at timer are shorted out ride sound will operate. When timer operates a 19V DC supply will appear at the timer contacts marked "To Soft Start". If not present:
  - a) is 12V AC present at timer
  - b) have correct start points been shorted out
5. A 19V DC signal from soft "Start Terminals" of timer passes via sliprings 1 and 2 into the base of the machine to the soft starter. If 19V DC signal is not present at soft start controller when timer is operated check:
  - a) is timer giving a 19V DC signal output when operated
  - b) is there continuity across sliprings 1 and 2. Clean sliprings or replace brushes as necessary
6. When 19V DC signal is received at soft starter a DC supply voltage should appear at DC motor output. This will build up from 0V DC to (90V DC for 110V AC supply machine, 180V DC for 240V AC supply machine) in approximately 6/8 seconds. If not present:
  - a) is 19V DC signal received at soft starter
  - b) is mains voltage appearing at points L1 and L2 at KBMM barrier terminal. If not, control board (No?) is faulty
  - c) is speed adjustment pot on top of steel box set to maximum
  - d) if 90V DC for 110V or 180V DC for 240V is present at soft start output but motor does not start:
    - a) check brushes on motor
    - b) check wiring to motor

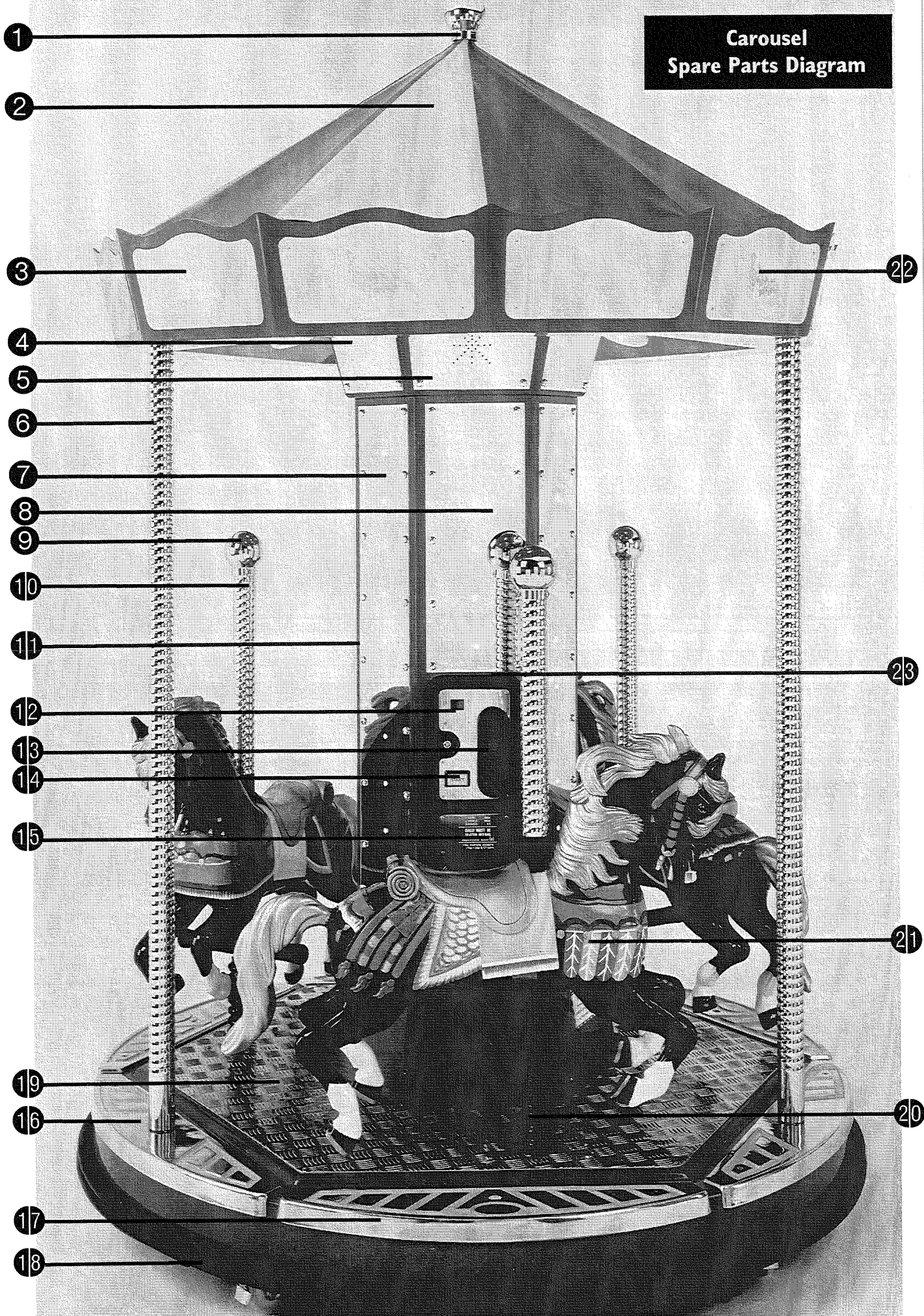
## INSPECTIONS

<u>Daily</u>	Check ride for signs of vandalism or loose fittings. Check castors are locked
<u>Weekly</u>	Check mains cable for any sign of damage or wear
<u>Monthly</u>	Check slip rings are clean. Clean as necessary with electrical cleaning fluid or where corrosion occurs ultra fina abrasive paper
<u>Three Monthly</u>	Check main slip ring brushes for signs of wear. Check support castors for signs of wear. Check 'V' belt drive for signs of wear. Replace as necessary
<u>Six Monthly</u>	Check drive motor brushes for wear. Replace as necessary Check pulleys on motor and gearbox are tight Check all nuts and bolts for tightness

## INSPECTION DOORS

1. One section of the aluminium floor plate is removable (4 x 4mm button head) as the Carousel is revolved it will reveal the soft start controller and power supply unit for test purposes
2. A fibreglass inspection door is situated between two of the horses (indicated by the letter 'A' on the Assembly Diagram) which gives access to the slipring assembly and pulleys (should the ride lose mains power and require revolving)
3. The cash box and coin mechanism doors give access to the timer, 10 channel chaser and bulbs in the centre column

# Carousel Spare Parts Diagram

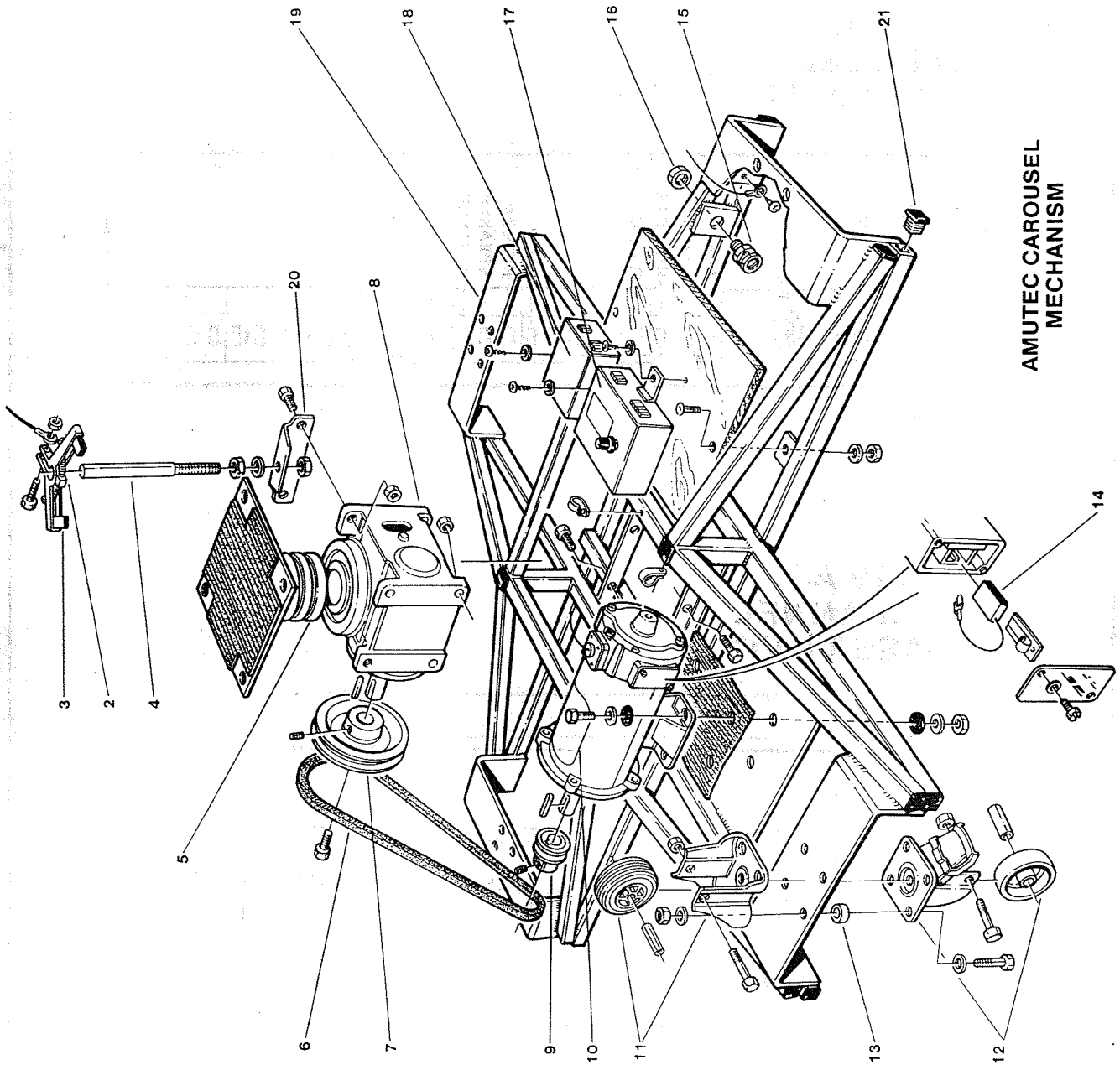


CAROUSEL SPARE PARTS

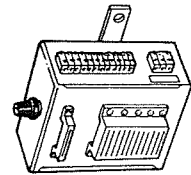
Picture ID Number	Description	Part Number
1	Chrome Roof Ball	AMT 0401
2	Canvas Roof Cover	AMT 0402
3	Stainless Roof Crown	AMT 0403
4	Perspex Mirror Roof Section	AMT 0404
5	Perspex Mirror Roof Section (Speaker)	AMT 0405
6	Chrome Candy Twist Roof Support	AMT 0406
7	Perspex Mirror Centre Section (Large)	AMT 0407
8	Perspex Mirror Centre Section (Small)	AMT 0408
9	Chrome Ball (on horse pole)	AMT 0409
10	Chrome Candy Twist Horse Pole	AMT 0410
11	Chrome Dome Nuts (Pack of 10)	AMT 0411
12	Stainless Coin Door Cover	AMT 0412
13	Coin Mechanism (Microcoin)	AMT 0413
14	Start Button	AMT 0414
15	Stainless Cash Door Cover	AMT 0415
16	Aluminium Footplate (under pole)	AMT 0416
17	Aluminium Footplate (under horse)	AMT 0417
18	Rubbing Ring (for 1 Carousel)	AMT 0418
19	Aluminium Footplate (includes door)	AMT 0419
20	Rubber Horse Gator	AMT 0420
21	Horse (state colour)	AMT 0421
22	Music Transfer (12 off)	AMT 0422
23	Double Door (frame + 2 doors inc. cut-outs)	AMT 0424
24	Cash Box	AMT 0066
25	2.2W Push Fit Bulb	AMT 0046
26	Lens Cover	AMT 0200
27	Rubber Foot Rest	AMT 0366 16



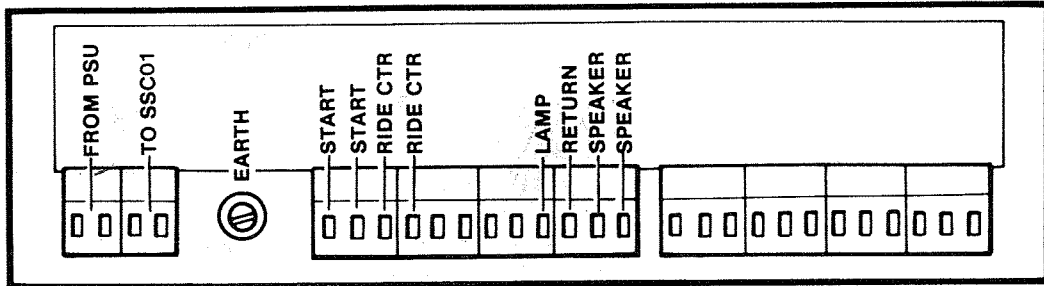
# AMUTEC CAROUSEL MECHANISM



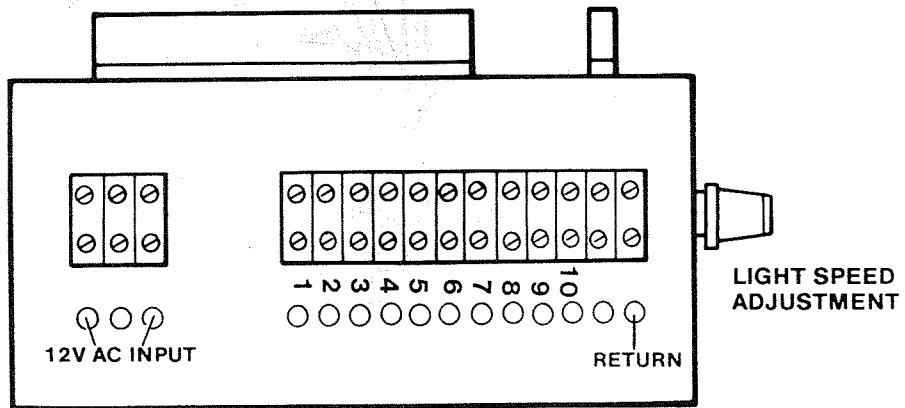
Item	Description	Part No.
1	10 CHANNEL CHASER (12 V AC)	AMT 0425
2	BRUSH HOLDER	AMT 0426
3	BRUSH ( for main slip ring )	AMT 0427
4	SPINDLE ( M8 )	AMT 0428
5	SLIP RING ASSEMBLY	AMT 0429
6	V BELT ( A32 )	AMT 0430
7	GEARBOX PULLEY ( 6 1/2" x 18mm Bore, 6mm Key )	AMT 0431
8	GEARBOX ( A610 70:1 )	AMT 0432
9	MOTOR PULLEY ( 16mm Bore 5mm Key )	AMT 0433
10	MOTOR ( 90V DC or 180V DC )	AMT0434 - 90 AMT0435-180
11	RUBBER CASTOR ( NON SWIVEL )	AMT 0436
12	NYLON CASTOR ( SWIVEL / LOCKING )	AMT 0437
13	SPACER	AMT 0311
14	BRUSH SET ( FOR DC MOTOR )	AMT 0442
15	CABLE GLAND ( M16 )	AMT 0315
16	CABLE NUT ( M16 )	AMT 0316
17	SOFT START CONTROLLER	AMT 0438
18	POWER SUPPLY UNIT	AMT 0439
19	BASE FRAME	AMT 0440
20	SPINDLE BRACKET	AMT 0441
21	1" SQUARE BUNG ( BLACK PLASTIC )	AMT 0027



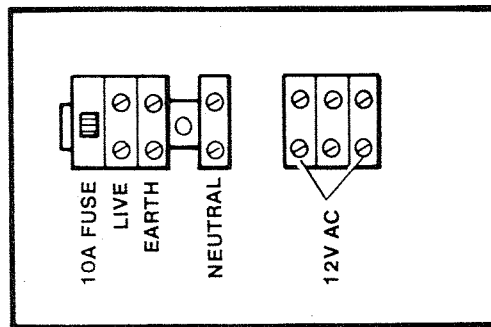
# 12V AC CAROUSEL TIMER UNIT



# 12V AC 10 CHANNEL CHASER UNIT



# POWER SUPPLY UNIT



**AMUTEC**  
Unit 4, Enterprise Road, Golf Road Industrial Estate, MABLETHORPE,  
LINCOLNSHIRE LN12 1NB England

RIDE / MECHANISM TYPE  
**CAROUSEL RIDE**

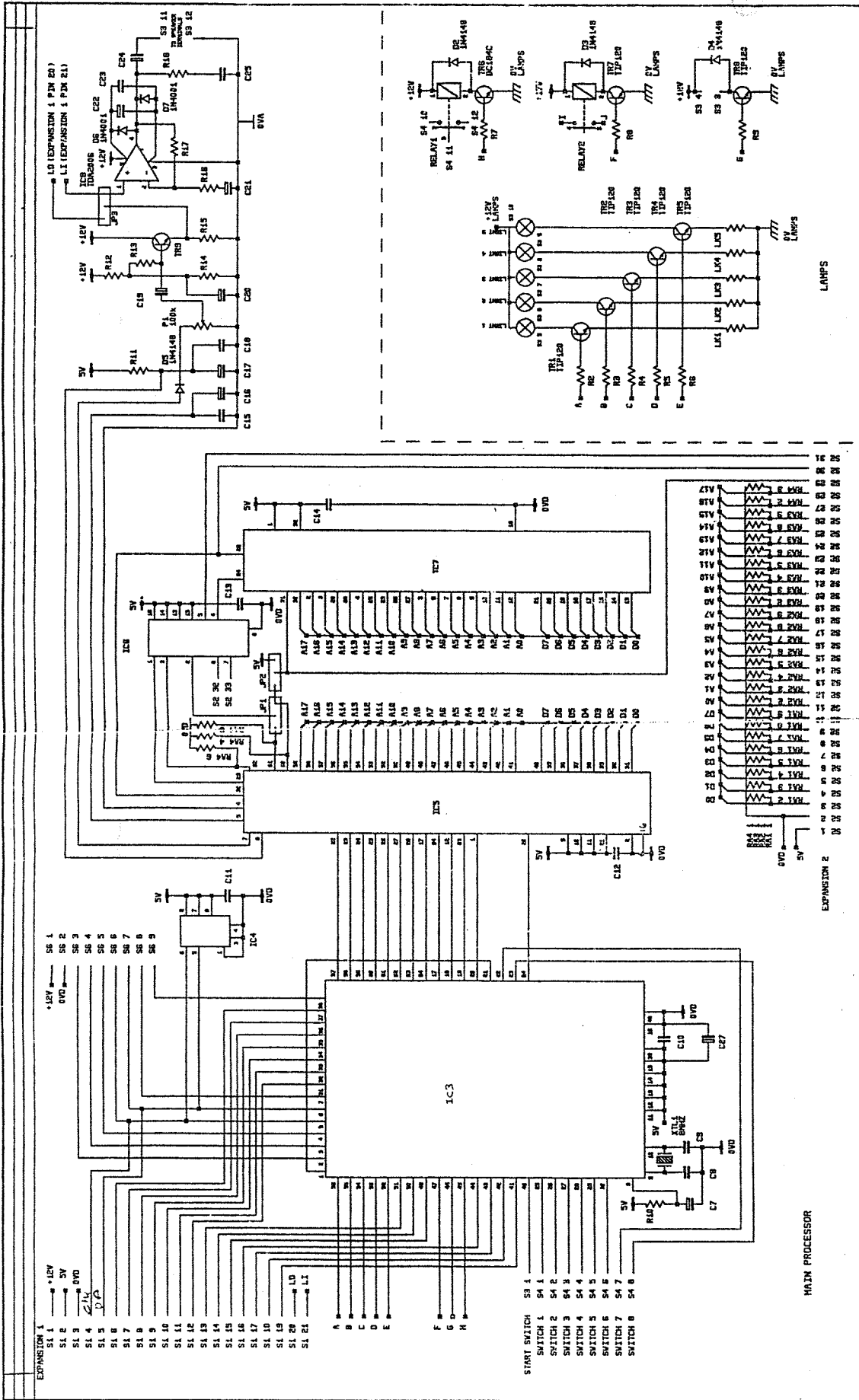
DRG No.

**WIRING TERMINATIONS**

TITLE

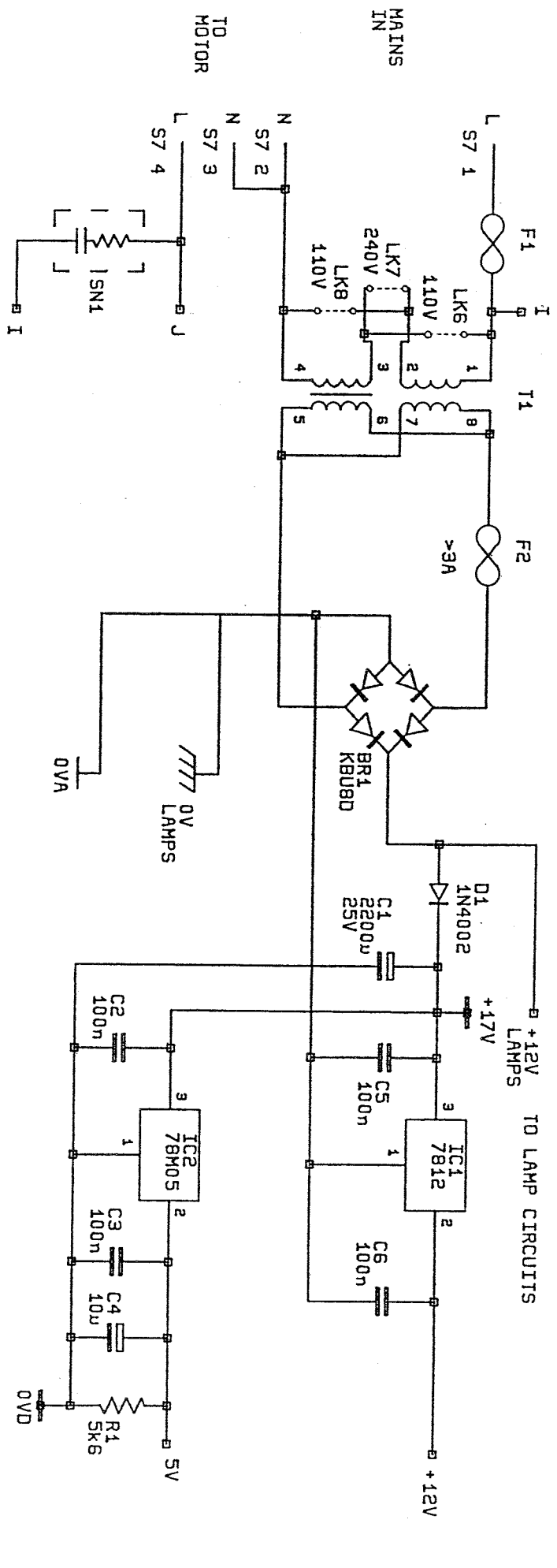






DATE		8/73		3/73	
DESIGNER		SHVSE-01		INTEGRATED TECHNOLOGY	
DRAWING NO.		SHVSE-01		000250	
TITLE		SHVSE-01		SET 1 OF 2 SHEETS	

# PSU

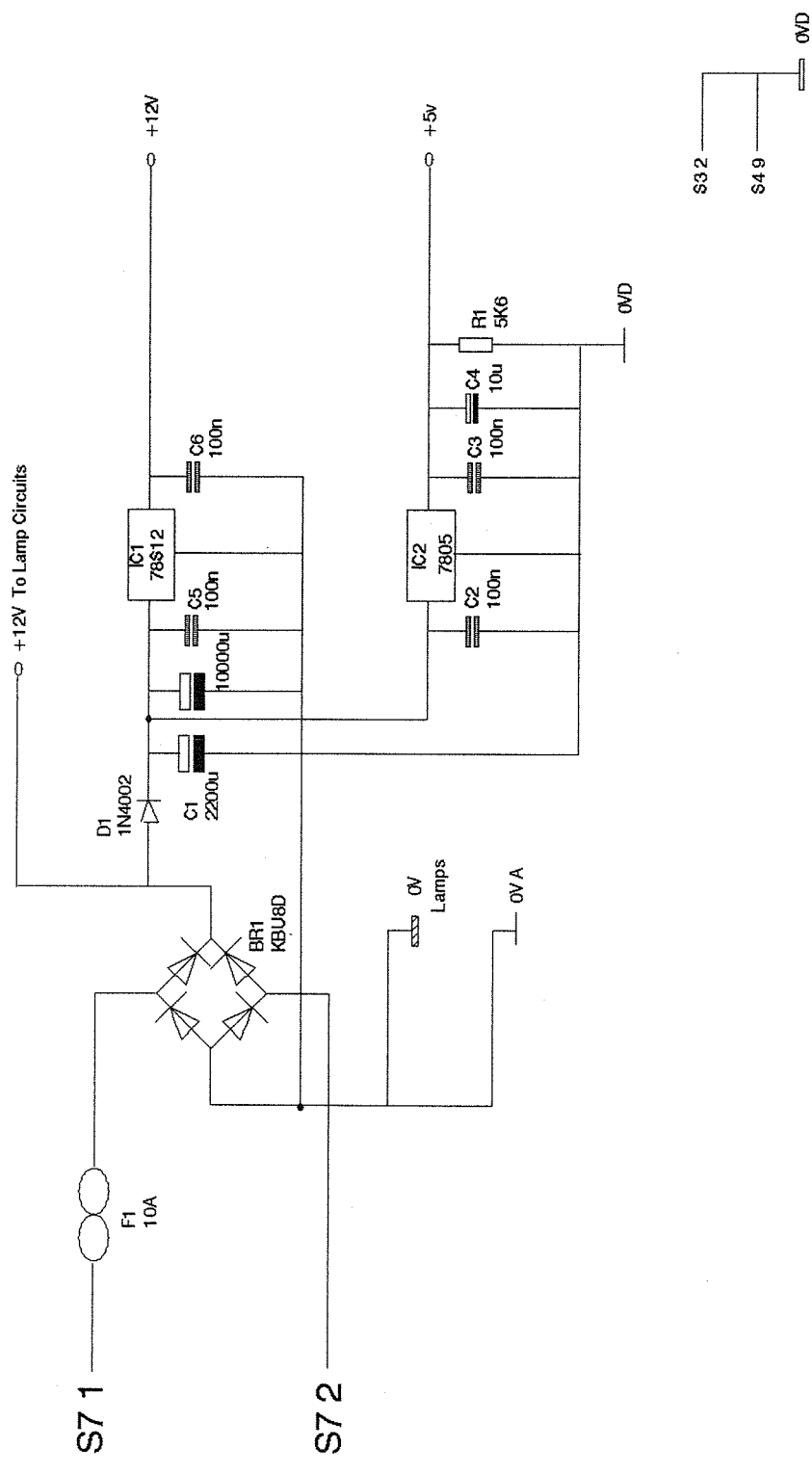


NOTES:  
ALL CAPACITOR VALUES IN F.  
ALL RESISTOR VALUES IN OHMS.  
UNLESS OTHERWISE STATED

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