

# OPERATORS HANDBOOK

VETERAN VAN



## INITIAL OPERATION

All Amutec Kiddie Rides are fully tested at the factory before being delivered to you.

Tests include

- (1) A weight test in excess of 45 kg.
- (2) Examination of the ride for sharp edges.
- (3) Full earth (ground) test.

On receipt of your ride you should examine it and report any damage to your supplier immediately. Before using your machine, check that the voltage for your area corresponds to that on the manufacturers voltage plate which is located at the base of the kiddie ride.

### TO TEST YOUR KIDDIE RIDE

Connect to a mains voltage supply and insert a coin. The ride will start and run for 60 seconds then stop. This operation will be recorded on the meter which is fitted to your ride.

### IF YOUR KIDDIE RIDE DOES NOT START

- (a) Check your mains voltage supply. This can be done by connecting another device to the supply.
- (b) If your ride is fitted with a fused plug, check the fuse and connections inside the plug.
- (c) Check to see if the coin mechanism is correctly connected. The coin mechanism is 12v supplied and is perfectly safe.

NB. Rides which are manufactured to operate on two (or more) coins will record one unit on the ride meter per set of coins.



## 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.



## 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 magohm 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 Metrohom 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 on 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

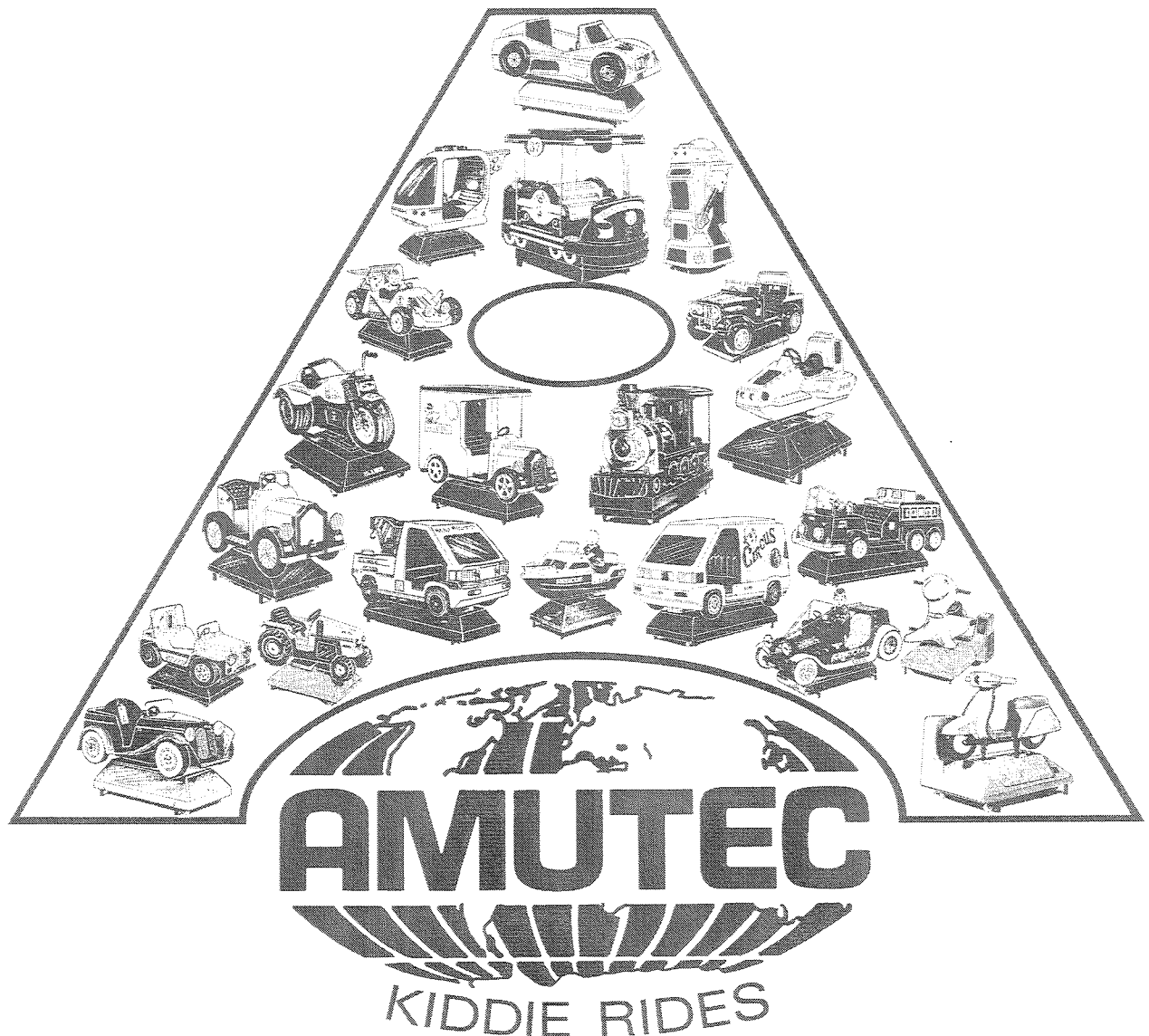
9..Finally test the ride by the insertion of a coin and by applying a loading to the ride slightly in excess of the minimum load of 45 kg (which is the minimum load for a child laid down by the Fairgrounds and Amusement Parks- A Code of Safe Practice.

## 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.

This test list can only afford general guide lines. The examiner must use discretion and always be aware that the ride safety is the paramount objective. If all checks are found correct, fill out and sign the appropriate form. If any defects are found disconnect the ride and inform the operator or person responsible. Disconnection of the ride should include removal of the fuses or some other means of immobilising the ride prior to informing the operator or person responsible.

Such tests should be carried out at least every fourteen months but it must be realised that the safety of the ride is essential at all times and failure to keep the ride in good safe condition, in accordance with the above guide lines and the Fairgrounds and Amusement Parks-A Code of Safe Practice, could render the operator liable to prosecution under the "Health and Safety at Work Act 1974"





ELECTRICAL



**AMUTEC**

KIDDIE RIDES



## AMUTEC KIDDIE RIDES Specification

Voltage	110v - 120v 60hz Single Phase or 220v - 240v 50hz Single Phase Other voltages available by request
Lights	12 volts
Main Motor	220v/240v 50hz GEC type BS 2206H Resilient Base, Split Phase 1/4 hp 180watts 1425 rpm Continuous rated 1/2" output shaft (plain)
	110v/120v 60hz GEC type BC 2206/08 DP Resilient Base, Capacitor Start 1/4hp 180watts 1725 rpm Continuous rated 1/2" output shaft (plain) Thermal Protected. CSA & UL approved.
	110v/120v 60hz GEC type BC 2508 Resilient Base, Capacitor Start 1/2 hp 379watts 1725 rpm Continuous rated 3/4" output shaft (keyed) Thermal Protected CSA & UL approved
	Note: Other makes of motor are available
Voltage Supply Cord	1.25mm Current rating 13A Voltage rating 300/500v
	United States and Canada Manufacturer Belden Cable Type SJT 17407 Conductors annealed copper, 18 awg - 41 strands 34 awg. Positive ground path. 7 Strand tinned copper drain wire. EMI Protection BELDFOIL Self shorting shield provides 100% coverage to suppress EMI radiation. Rating 1250 watts. 10A - 125v
Cable Gland and Strain relief	Operating temp range -20 C to +100C



Timer/Sound unit Manufacturer: Stamar Electronic Services  
or  
Integrated Technology  
To suit operating voltages as specified  
Metal enclosures for CSA & UL

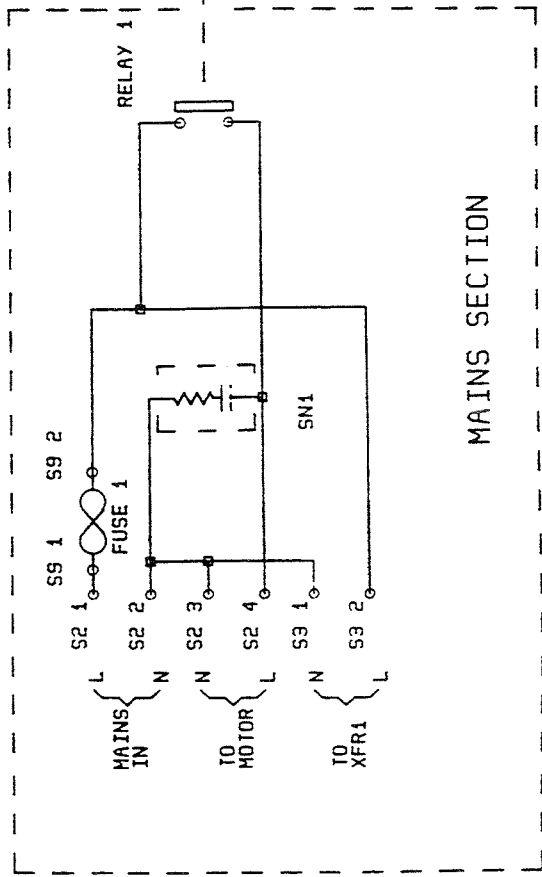
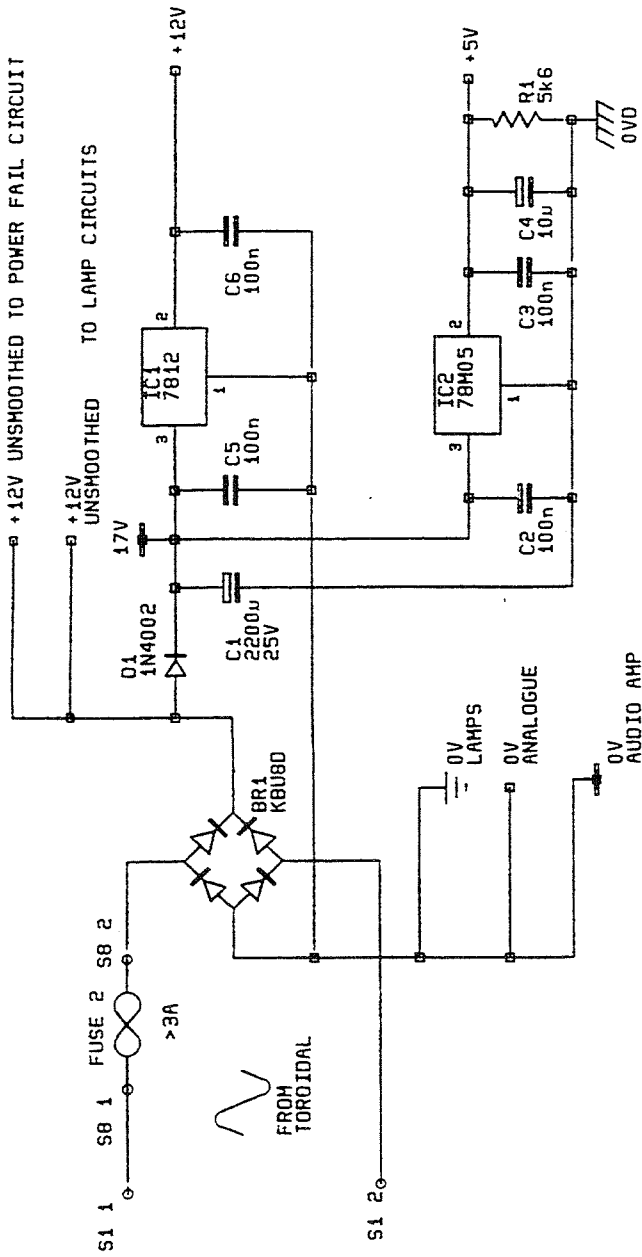
Gearbox Manufacturer: .David Brown (Radicon) Ltd  
Type A280 Ratio 20:1 and 60:1  
Type A410 Ratio 20:1

Frame Manufactured from welded steel box section  
Fitted with 2 nylon castors

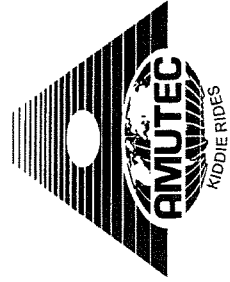
ALL METAL PARTS ARE CONNECTED TO  
EARTH (GROUND)

ALL AMUTEC RIDES MUST BE CONNECTED  
TO EARTH WHEN IN USE

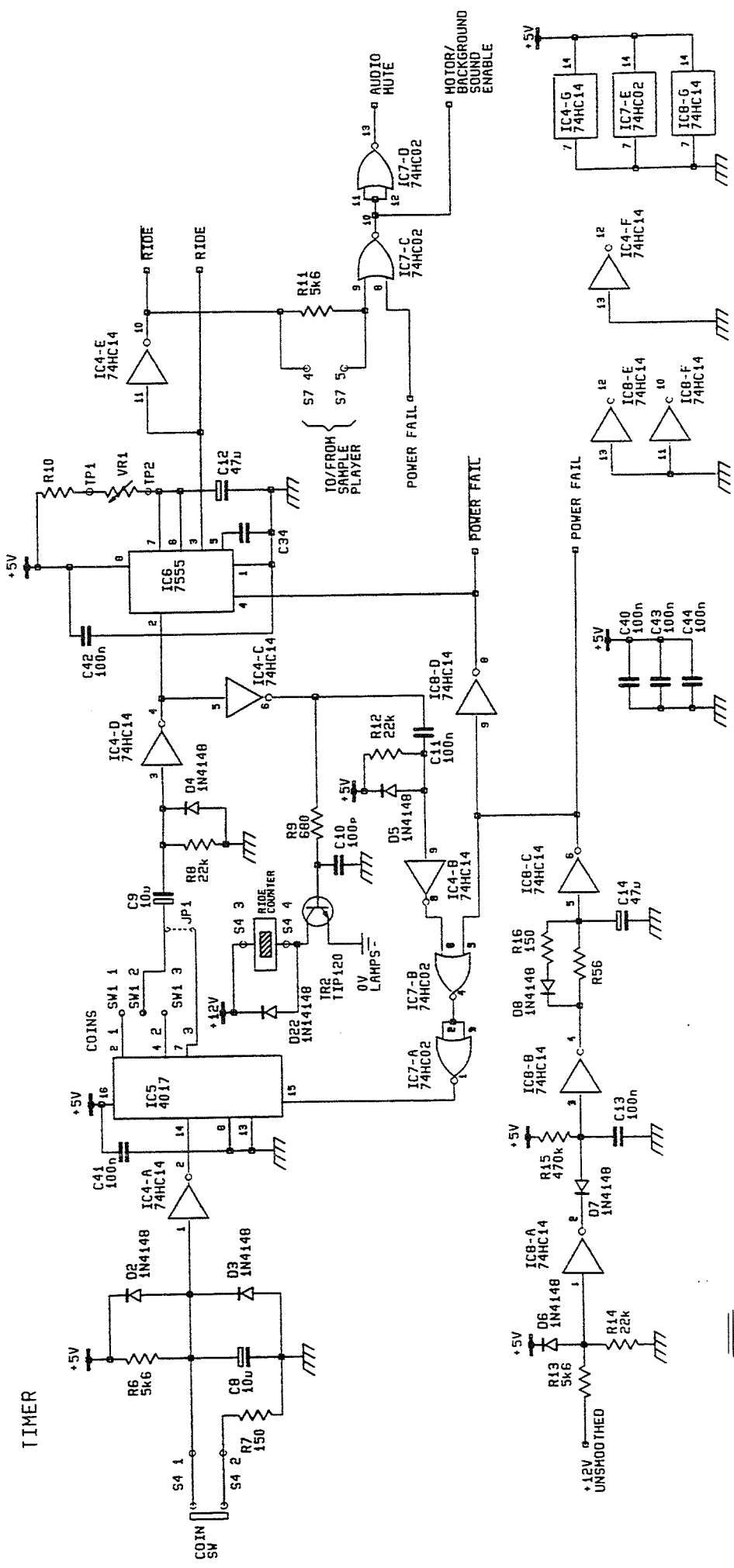
PSU



MOTOR/  
BACKGROUND  
SOUND  
ENABLE

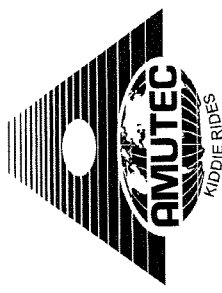


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TIMER

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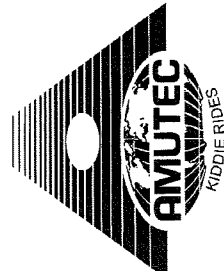
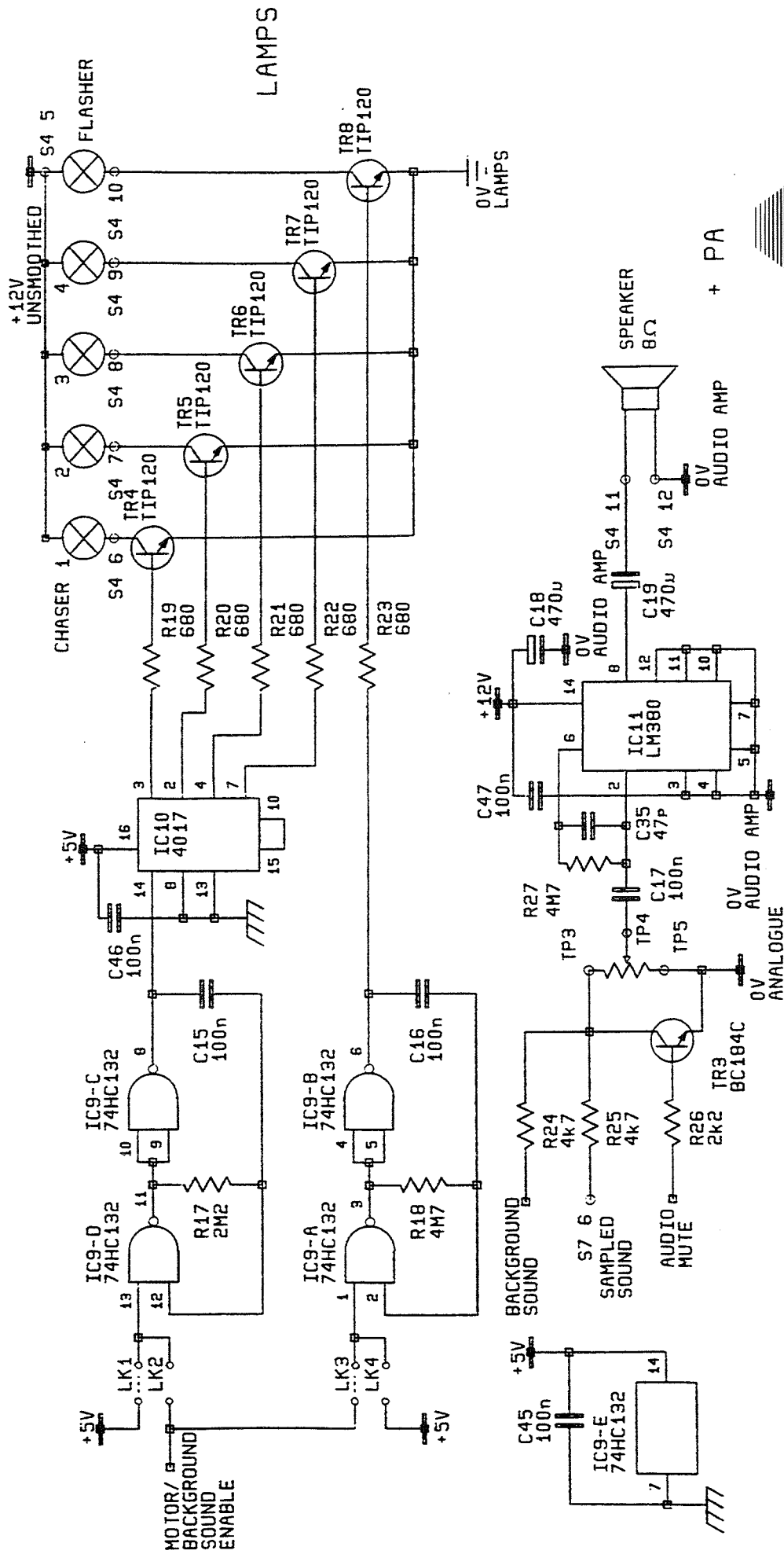
**AMUTEC**  
 Unit 4, Enterprise Road, Golf Road Industrial Estate, MABLETHORPE,  
 LINCOLNSHIRE LN12 1NB England

RIDE / MECHANISM TYPE  
**All rides**

DRG No  
**2 of 4**

**I.T. Main PCB Timer**

TITLE



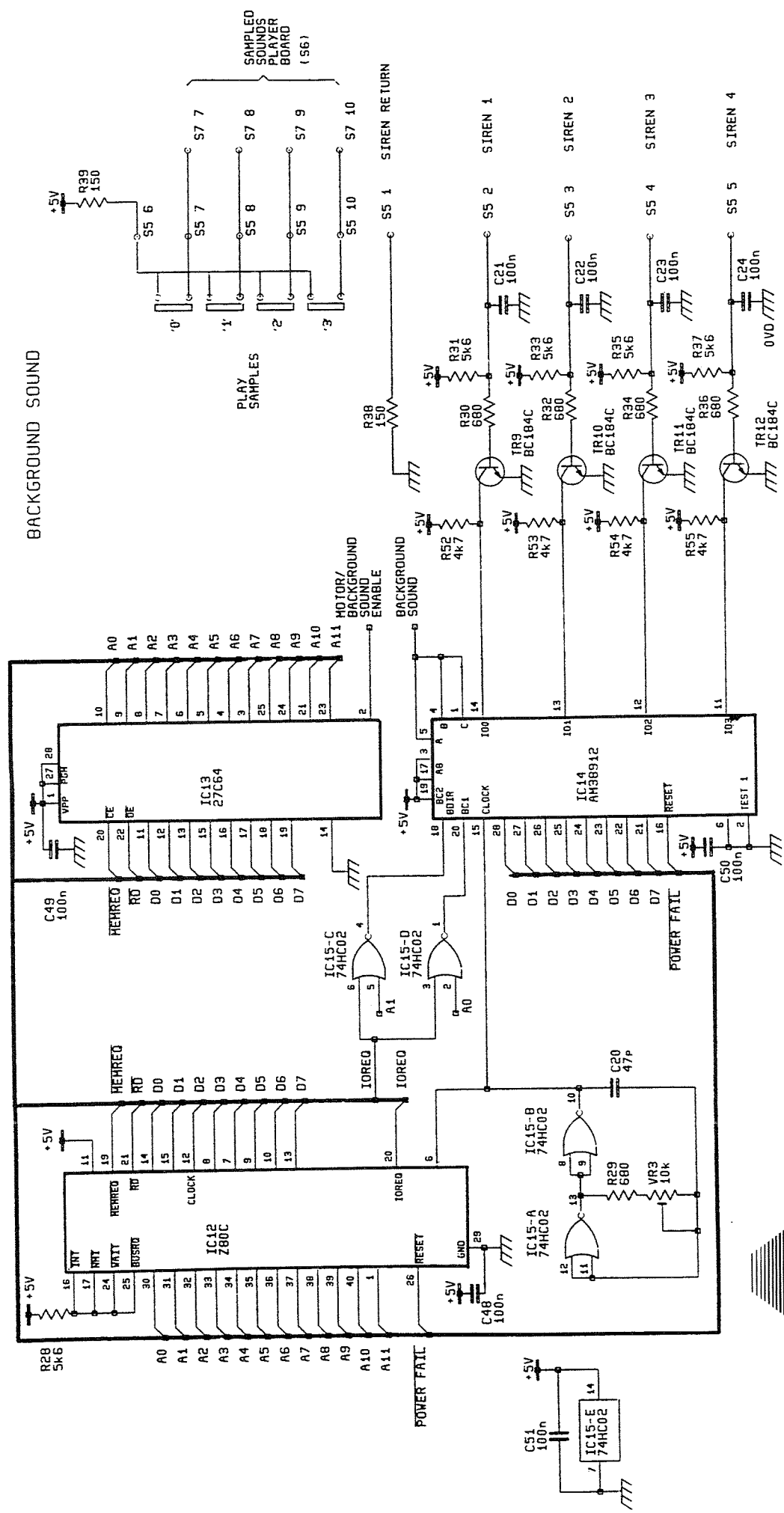
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RIDE / MECHANISM TYPE  
All rides

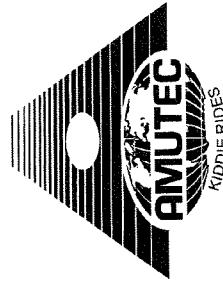
DRG N<sup>o</sup>  
3 of 4

TITLE  
I.T. Main circuit board lamps & PA



BACKGROUND SOUND

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 LINCOLNSHIRE LN12 1NB England

RIDE / MECHANISM TYPE  
**All rides**

DRG N<sup>o</sup>  
**4 of 4**

**I.T. Main PCB - Background sound**

TITLE

Refer to Fig.s 1, 2 and 3

## COIN MECHANISM



This section is intended to help the user get the most from the S1 acceptor mechanism. It discusses the adjustments and maintenance of the acceptor and related components. No applications section can be complete, however, and customers are always very welcome to contact us direct.

The frontplate (1/1) is the first check. This prevents entry of oversize, bent or badly distorted coins. The coin passes onto the run-down track formed by the magnet side (1/6) and the swinging side (1/7) which are held together by the bulldog clip (1/8). This track is inclined  $14^{\circ}$  from the horizontal to permit the coins to run down due to gravity, and  $5^{\circ}$  from the vertical, so as to check for diameter. As the coin enters the track it passes the washer catcher (1/11). This has a tooth which engages in the hole in a washer preventing further travel of the washer. At this point, the coin passes an over diameter stop on the adjustable slider (1/9), which stops the passage of slightly oversize coins.

If the coin is not over diameter, it passes further to an under diameter check. Here the coin is tilted an extra  $4^{\circ}$  from vertical against the under diameter ridge on the slider. Under diameter coins fall past this ridge to be rejected.

The base of the track has an under thickness gate, where thinner coins fall through to reject. The coin deflecting cones stop over thickness coins in the track by forcing the coins against the under diameter ridge in the slider. These coins are returned by pressing the reject button (1/4) which splits the track. When the reject button is released, it is returned to its original position by the button spring (1/2), allowing the acceptor to close up again. Rejected coins then either exit through a chute at the bottom of the acceptor (indirect reject) or are guided via the return chute (1/5) through the reject slot in the frontplate, and come to rest in the u-bolt (1/3).

The magnet positioned in the 'magnet-side' (1/6) of the rundown stops all ferromagnetic blanks. These can be stripped clear by the swinging side (1/7), by pressing the reject button (1/4). The anti-tilt leg (1/10) prevents cheating the acceptor by tilting the machine to gain acceptance of under diameter coins. If the machine is tilted, the leg swings across the track and prevents entry of all coins.

The final test is in the black marinyl cradle (1/13 to 1/20). This incorporates a diameter check in the form of a cradle (1/17) and weight (1/18). Under diameter coins fall straight through the cradle and fail to actuate the microswitch (1/19). The true coin then passes through an interlock mechanism (1/15) prior to actuating the microswitch. This interlock prevents 'coin-on-cotton' cheating and fishing. The coin guide (1/16) is adjusted to ensure that the coin hits the microswitch arm in the correct position.

If the optional lock out assembly (1/21 to 1/25) is fitted, the lockout arm (1/24) will prevent entry of coins into the mechanism. To enable coin acceptance, the correct voltage must be applied to the lock out coil (1/22) which will then withdraw the lock out arm from the coin path.

### **Adjustment**

The S1 mechanism can be adjusted both for diameter and thickness. The thickness adjustment is done first as this effects the diameter setting. It is often impossible to do this adjustment whilst the mechanism is still within the machine. It is therefore advisable that a spare fixed side be carried by a service engineer, so that the swinging side can be removed from the machine (by removing the bull-dog clip), and temporarily attached to the spare. This will allow the swinging side to be adjusted outside the machine.

**Thickness**

To adjust the thickness setting, first release the setting screw locknuts. Place a true coin on the track and adjust the thickness setting to a point where the coin just starts to fall through the coin track at both ends of the track. Before tightening the locknuts, the screws should be withdrawn just sufficient to allow the good coin to ride on the edge of the track at the fixed side.

**Diameter**

The diameter setting is adjusted by moving the slider. Release the slider fixing screws, and with a true coin, adjust the slider so that it is parallel to the base of the coin track, and just stops the coin from falling out of the side of the run down. Check this at both ends of the track, and if correct, re-tighten the fixing screws. Check both settings using new and well-worn coins of the correct denomination, and check for rejection of incorrect coins and any problem blanks.

**Microswitch**

The microswitch accept chute is adjustable to one of four widths. This is factory adjusted to the correct coin diameter and should not require field adjustment.

The microswitch actuating wire should not catch on the side of the black plastic microswitch bracket. At its resting position, the wire should run along the mid point of a small ridge in the bracket.

The microswitch is available in three different spring tensions - identified by the colour of the plastic boss at the wires pivot point.

Red:	Light tension e.g. 1 Aus. Sch. 25c NL.
Black:	Medium tension e.g. 2p and other intermediate coins.
White:	Heavy tension e.g. 10p, 50p, 5DM.

For security reasons, the microswitch with the heaviest tension which still allows the coin to pass is fitted

Finally, check that the interlock hangs freely as this prevents the coin-on-cotton fiddle.

**IF THE ABOVE PROCEDURES ARE NOT SUCCESSFUL, CHECK FOR WORN OR DAMAGED PARTS AND REPLACE WHERE NECESSARY.**

**Lock out coils**

Voltage	Current	Power	Colour Code
240 V AC	30.0 mA	7.2 VA	White + Blue
110 V AC	42.0 mA	4.62 VA	White + Green
50 V AC	76.5 mA	3.8 VA	White + Red
24 V AC	240.0 mA	5.76 VA	White + Yellow
12 V AC	240.0 mA	2.88 VA	White + Grey
24 V DC	300.0 mA	7.2 W	Black + Yellow band
12 V DC	350.0 mA	4.2 W	Black + Grey / Blue band
10 V DC	300.0 mA	3.2 W	Black + Brown



# COIN MECHANISM



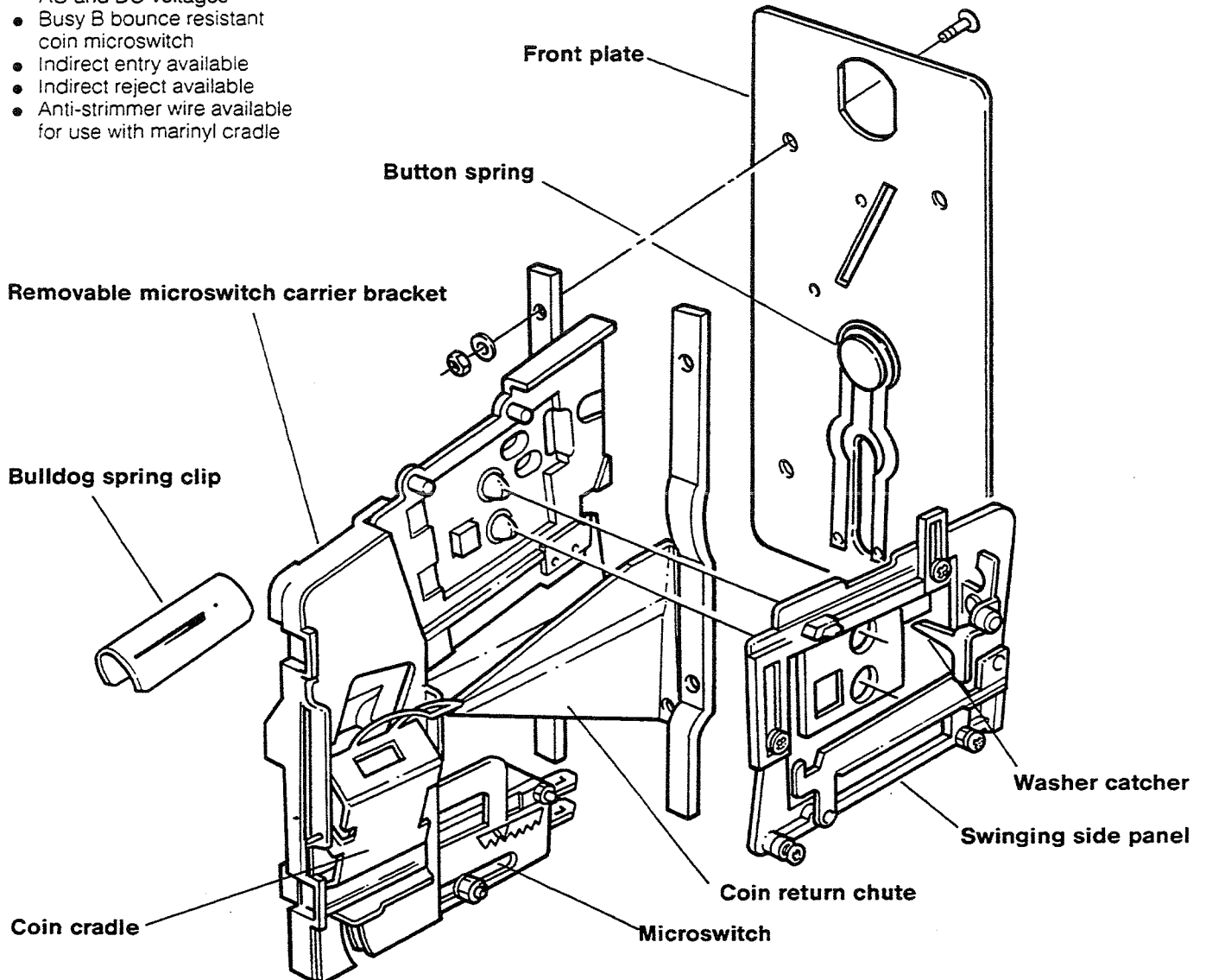
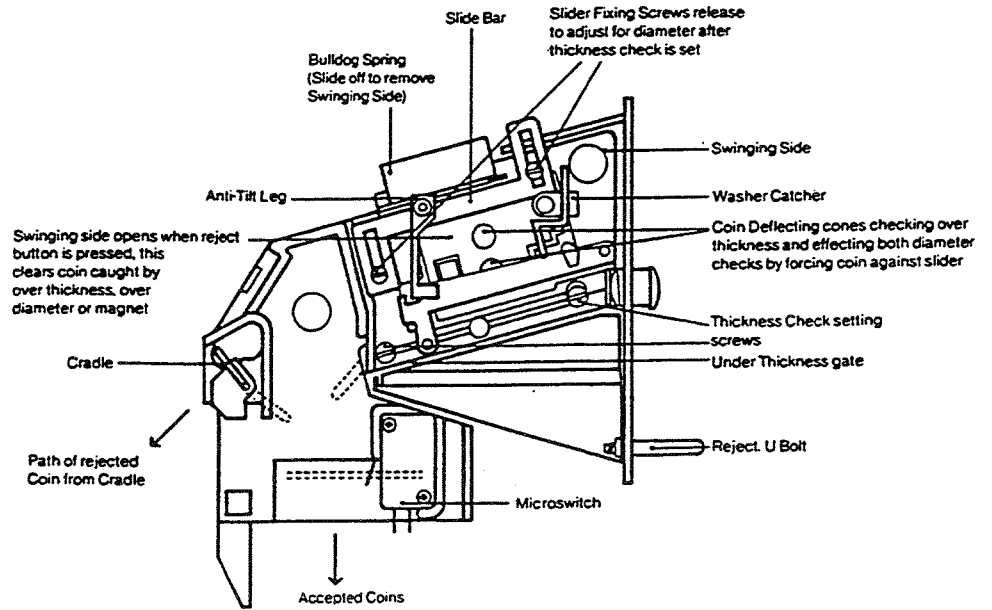
## S1 ACCEPTOR

A single coin mechanical 'Roll Down' acceptor, it is jam-resistant and comes complete with accept - reject assembly. It is economical in size/shape, simple in construction and easy to adjust. It incorporates the Marinyl switch/cradle assembly (fitted as standard) and is also available with meter microswitch bracket or flip flap assembly.

### Features

- Track adjustable or preset for all coins from 17mm-30mm.
- Coin on cotton catch
- Washer catcher
- Diameter, thickness and ferrous content check
- Tests for underweight coins/frauds
- S/S front plate with up to 4 entries
- Reject button and reject outlet
- Lockout coil wound for most AC and DC voltages
- Busy B bounce resistant coin microswitch
- Indirect entry available
- Indirect reject available
- Anti-strimmer wire available for use with marinyl cradle

Fig. 1 S1 Acceptor





# COIN MECHANISM



Fig. 2 Dimensional Checks

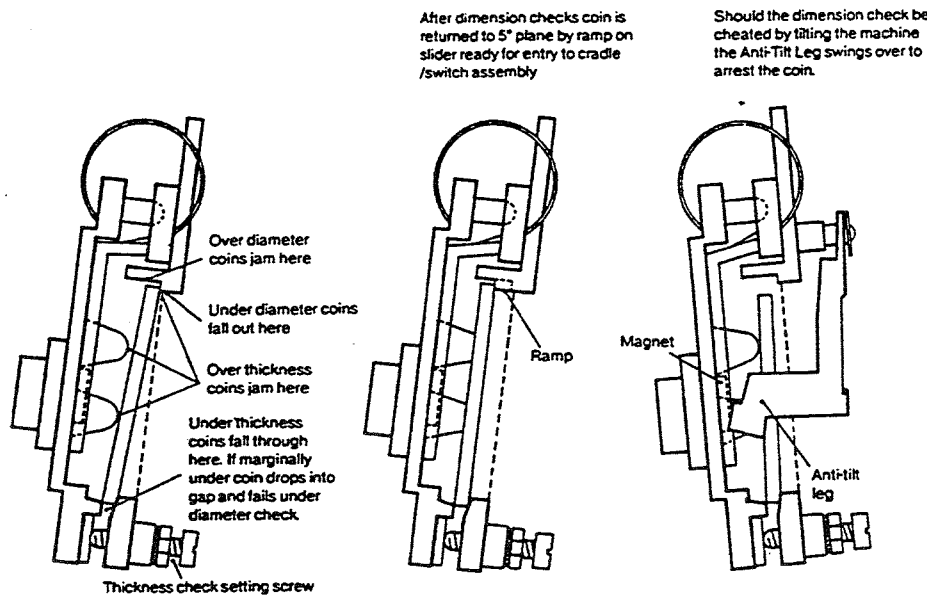
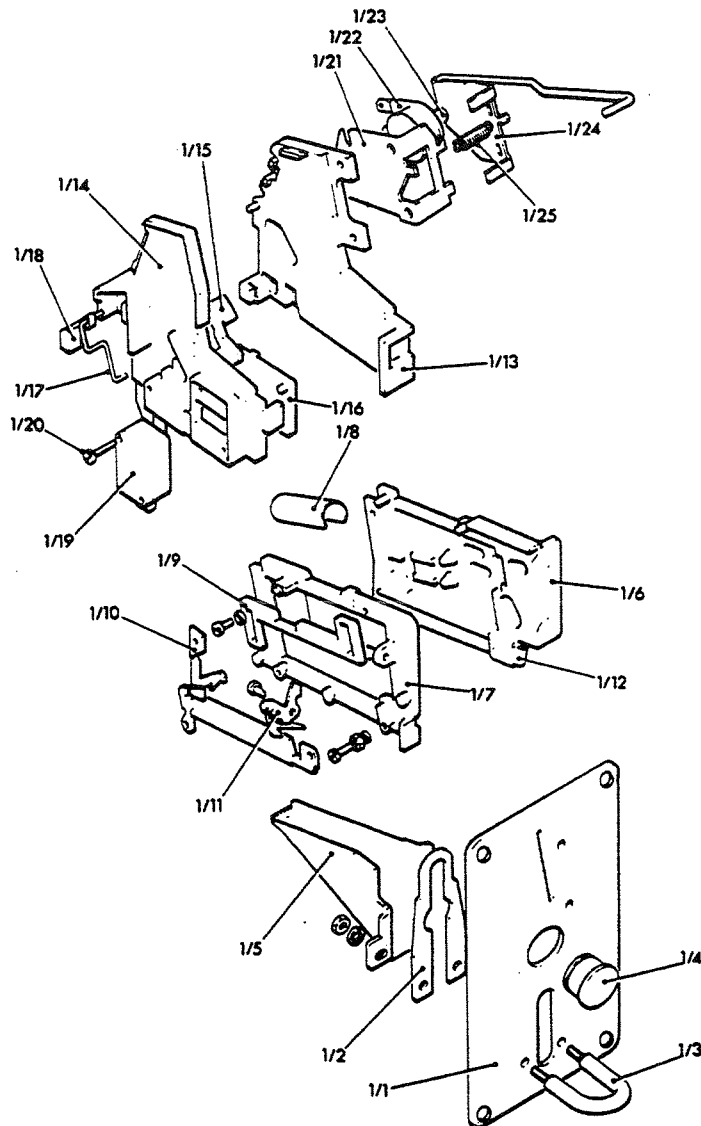
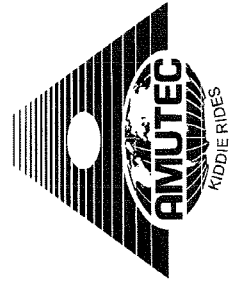
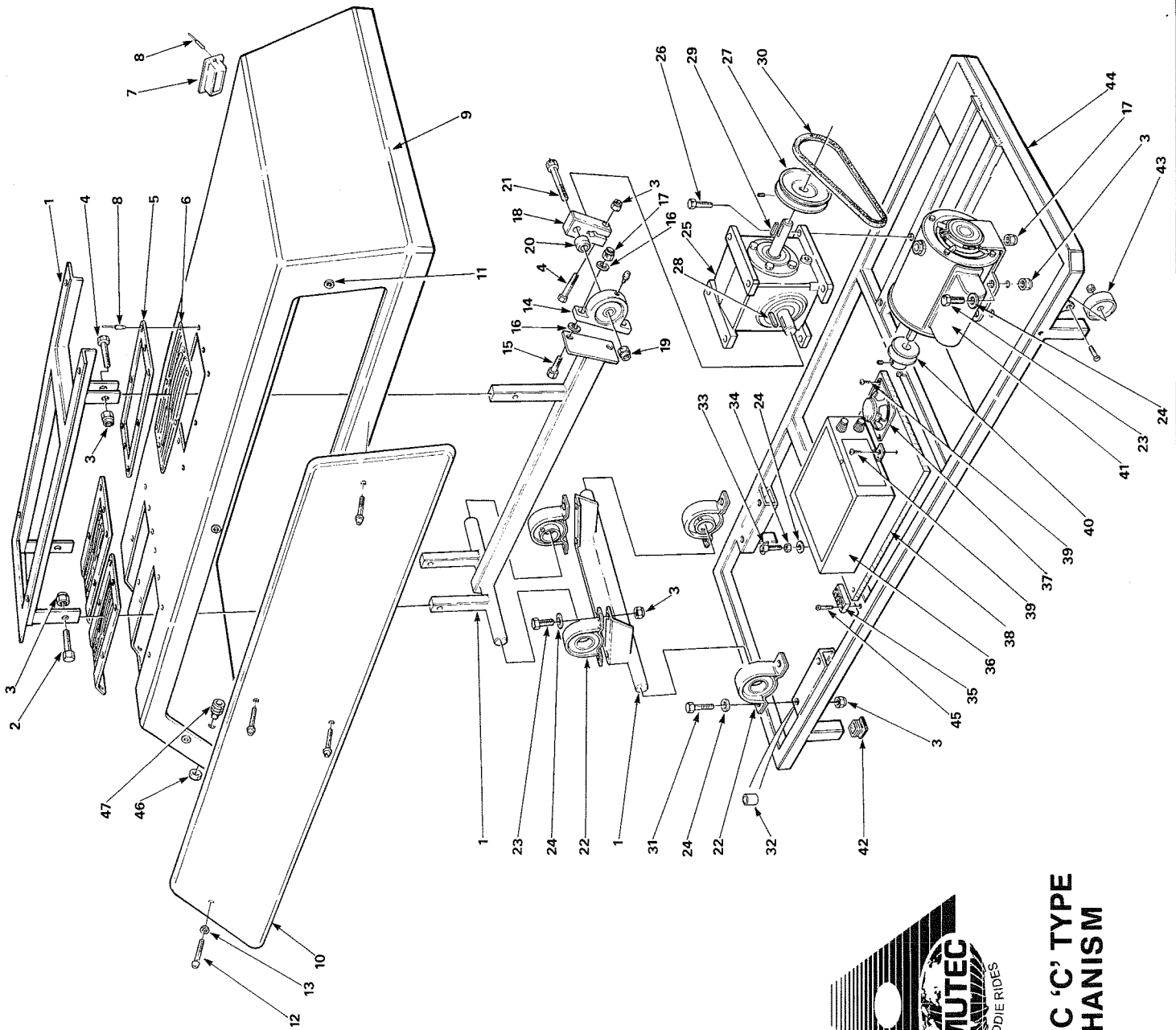


Fig. 3 Exploded Diagram

## Parts List

- 1/1 Front plate (state coinage)
- 1/2 Button Spring
- 1/3 U Bolt
- 1/4 Button
- 1/5 Return Chute
- 1/6 Magnet Side (state coinage)
- 1/7 Swinging Side
- 1/8 Bulldog Spring
- 1/9 Slider
- 1/10 Anti-tilt leg
- 1/11 Washer catcher
- 1/12 Button Stop
- 1/13 Fixed Side (M/Sw Brkt)
- 1/14 Removable Side (M/Sw Brkt)
- 1/15 Interlock
- 1/16 Coin guide
- 1/17 Cradle (state coinage)
- 1/18 Cradle weight (state coinage)
- 1/19 Microswitch (state coinage)
- 1/20 M/Sw Screws (2)
- 1/21 Lockout bracket (state voltage)
- 1/22 Lockout Coil (state voltage)
- 1/23 Pole piece
- 1/24 Lockout arm (state type)
- 1/25 Lockout spring





# AMUTEC 'C' TYPE MECHANISM

Item	Description	PartNo
1	'C' TYPE TOP FRAME	0319
2	M8 x 45 HIGH TENSILE BOLT	0069
3	M8 NYLOC NUT	0069
4	M8 x 55 HIGH TENSILE BOLT	0069
5	ALUMINIUM RECTANGLE	0300
6	RUBBER GATER	0301
7	12v COUNTER (panel mounted)	0038
8	1/8th x 5/8th RIVET	0302
9	'C' TYPE CABINET (various colours)	0320
10	'C' TYPE INSPECTION DOOR (various colours)	0320
11	M6 JACK NUT	0307
12	M6 x 40 BUTTON HEAD BOLT	0068
13	M6 SPRING WASHER	0068
14	SLI2 BEARING	0061
15	M10 x 35 HIGH TENSILE BOLT	0070
16	M10 WASHER	0070
17	M10 NYLOC NUT	0070
18	A410 20:1 CRANK	0077
19	M12 NYLOC NUT	0314
20	SPACER	0311
21	M12 x 90 HIGH TENSILE BOLT	0310
22	LPB 1" BEARING	0074
23	M8 x 25 HIGH TENSILE BOLT	0069
24	M8 WASHER	0069
25	A410 20:1 GEARBOX	0056
26	M10 x 50 HIGH TENSILE BOLT	0070
27	89 x 16 x 5mm KEY PULLEY	0080
28	OUTPUT SHAFT KEY 34 x 6 x 6mm	0321
29	INPUT SHAFT KEY 30x 5 x 5mm	0321
30	A670 'V' BELT	0083
31	M8 x 50 HIGH TENSILE BOLT	0069
32	SPACER TUBE	0322
33	M8 x 35 HIGH TENSILE BOLT (with knoblet)	0318
34	M8 NUT (plain)	0069
35	EARTH STRIP	0317
36	TIMER (various types)	0332
37	SPEAKER 8Ω	0037
38	TIMER BOARD	0323
39	SELF TAPPING SCREW	0324
40	2" x 1/2" BORE PULLEY	0073
41	1/4 H.P. MOTOR (110v or 240v)	0052
42	1" SQUARE BUNG (black plastic)	0027
43	CASTOR and FITTINGS	0072
44	'C' TYPE BASE FRAME	0325
45	2BA x 19mm ROUNDHEAD SCREW FITTING	0326
46	CABLE GLAND NUT	0316
47	CABLE GLAND	0315

