



**Jolly Roger (Amusement Rides) Ltd.**

# **Service Manual**

**Grateful acknowledgement is made to the British Amusement, Catering and Trades Association's (BACTA) code of practice "Industry Standards - Coin-Operated Children's Rides", "A Code of Safe Practice at Fairs" by the Health & Safety Executive and to the Institute of Electrical Engineers' "Regulations for Electrical Installations" from where some of the material in this manual is taken.**

*All quotes in italics are extracts from BACTA's code of practice mentioned above.*

**Jolly Roger (Amusement Rides) Ltd. has produced this manual for guidance only and cannot be held responsible for any accident or injury caused as a result of it. To the best of our knowledge it represents good, sound advice.**

**All claims made relating to Jolly Roger (Amusement Rides) Ltd. operations are to the best of our knowledge true at the time of going to print.**

## **Introduction to the Manual**

The 1987 Consumer Protection Act was amended by the Health and Safety at Work etc. Act 1974 by the specific inclusion of "fairground equipment" which includes Children's Rides.

In support of the Health and Safety at Work etc. Act 1974 there is a voluntary code of practice entitled "A Code of Safe Practice at Fairs" published by the Health and Safety Executive which gives further specific guidance to manufacturers and operators of fairground rides.

In general, however, any person, firm or organisation who/which has to any extent the control of any premises has a duty to ensure that there are no risks to people using those premises. Every employer has a duty to ensure the safety at work of all his employees, and others not specifically employed by him, so far as it is reasonably practicable. A damaged Children's Ride with a sharp protrusion may cause injury to both employees and members of the public alike. The operator (i.e. the person having day to day responsibility for the ride) may be deemed legally responsible under the Health and Safety at Work etc. Act 1974.

The purpose of this manual therefore is to inform the operator of his/her obligations and to advise him/her on what steps he/she must take in order to maintain and improve the safe operation of his/her Children's Rides.

The information within this manual has been designed to help you obtain the maximum from your children's ride with the minimum trouble and cost.

Your system is fully automatic in operation and requires very little attention. However, regular skilled servicing is advised to maintain the safe and efficient operation of rides and as such it is recommended that you read this manual before putting your ride into operation.

This manual is written on the assumption that the person operating and servicing the machine have suitable mechanical and electrical knowledge to do so. As with any service manual however, not all steps are described in full.

All Jolly Roger (Amusement Rides) Ltd. children's rides are manufactured and assembled using good sound engineering practices. Rides are subjected to a thorough examination and are issued with a test certificate before leaving the factory. Every passenger-carrying amusement device in operational use, together with all its ancillary parts and gears, should be thoroughly examined at least once every 14-month period. If you have purchased a children's ride from Jolly Roger (Amusement Rides) Ltd. it is your responsibility to have the ride re-tested. Jolly Roger (Amusement Rides) Ltd. will be happy to quote for this examination for all Jolly Roger (Amusement Rides) Ltd. children's rides sold by us.

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Jolly Roger (Amusement Rides) Ltd. reserves the right to make alterations to specifications without prior notice.

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# Section 1

## *Safety*

### Safety instructions

- These rides have been designed, manufactured and tested in accordance with the BACTA Industry Standards for Coin Operated Children's Rides.
- It is the policy of Jolly Roger (Amusement Rides) Ltd. to ensure that all products are designed, manufactured, tested and released to conform with statutory safety requirements. In support of this policy, all WARNING LABELS attached to components, assemblies or affixed to the ride must be observed. Failure to do so may result in a SAFETY HAZARD.
- All items contained within the machine are used within their specification limits and in accordance with sound engineering practice.
- **“WARNING: THIS APPARATUS MUST BE EARTHED. DANGEROUS VOLTAGES EXIST WITHIN THE EQUIPMENT.”**
- This equipment is “Class 1 apparatus” as defined in the International Electro-technical Commission (IEC) Publications 65.
- Jolly Roger (Amusement Rides) Ltd. strongly recommends that the socket outlet supplying the children's ride is protected by an R.C.D. (i.e. residual current device).
- To prevent electrical shock, do not remove screws or covers, or insert any metallic object into the machine.
- High voltages may exist within the machine, even some after the power has been disconnected, so use extreme caution.
- Servicing should only be carried out by suitably qualified engineers.
- **STATIC ELECTRICITY CAN DAMAGE ELECTRONIC CIRCUITS.** Before handling printed circuit boards be sure to discharge the static build-up in your body by making skin contact with a known earth point.
- The machine must be protected by a 13A fuse in the mains plug or distribution board.

- The wires in the mains lead are coloured in accordance with the following code:

| <b>230V</b> |                  | <b>110V</b> |         |
|-------------|------------------|-------------|---------|
| Earth       | = GREEN & YELLOW | Earth       | = GREEN |
| Neutral     | = BLUE           | Neutral     | = WHITE |
| Live        | = BROWN          | Live        | = BLACK |

As the colours of the wires in the mains lead of this apparatus may not correspond with the colour markings identifying the terminals in your plug, proceed as follows:

- The wire which is coloured GREEN AND YELLOW must be connected to the terminal in the plug which is marked by the letter "E", or by the safety earth symbol or coloured green or green-and-yellow.
  - The wire that is coloured BLUE must be connected to the terminal that is marked with the letter N or coloured black.
  - The wire that is coloured BROWN must be connected to the terminal that is marked with the letter L or coloured red.
- Never adjust or put hands into operating machinery.

## Section 2

### *Installation on site*

#### Unpacking

Although the packaging of the machine is designed to protect it from the roughest handling, severe dropping may cause damage to the fibreglass moulding.

Remove all packaging from around the ride and retain it for future transportation.

Inspect the machine for signs of damage and loose or rattling parts. If damage is evident, notify your supplier as soon as possible.

#### Siting

Operators should adopt a common sense approach when siting their Children's Rides.

*No ground shall be used where the slope or unevenness is such that an amusement device cannot be safely operated on it.*

*Adequate clearance should be provided and maintained in the immediate vicinity of the amusement device.*

*Amusement devices should not be operated in adverse weather conditions that may affect the stability of the devices or the safety of persons.*

*Every device should be so placed, that between fixed parts of adjacent devices, there should be a space of at least 1.1 metres, when members of the public are allowed access between them. For this purpose all parts of slow moving juvenile rides may be regarded as fixed parts of the device, unless their motion presents a danger.*

*Access for fire appliances to fire hydrants and other supplies of water should not be obstructed, nor hydrant indication plates obscured without the agreement of the Fire Authority.*

This list is by no means exhaustive but is intended to indicate the sort of considerations to be taken into account when siting a Children's Ride.

There is no requirement for a safety mat to be fitted around Children's Rides.

#### Power Supply

The data plate located on the toy base is stamped with the supply voltage for which the ride is set (230v/110v). If your mains supply is different, or becomes different in the future, a suitably qualified engineer can change the setting by following the instructions laid down in the appropriate section of this manual.

#### Test operation of a ride

The ride has no mains power on/off switch and is fully automatic in operation once power is applied. With power applied to the ride any external lights will flash. The ride will take approximately 5 seconds to power up the electronics correctly; any attempt to start the ride within this period is likely to fail and result in the loss of any credits paid for. Credits will also be lost if there is a break in the power supply:

The ride is factory-set to accept the coinage you requested. Each unit normally equates to a ride duration of between 60 to 90 seconds. Changes to the duration, cost and sound volume can be made by a service engineer.

To start the ride: Insert a coin or token to the value of a ride. Press the start button and the ride will run for approximately 90 seconds. Coins are registered on a meter. Some rides do not have start buttons, these will start to run as soon as the money is registered.

**Caution:** All covers are to be in place before attempting to operate the ride.

If the Ride does not operate, consult the fault finding section of this manual.

## Section 3

### *Operator Maintenance*

#### Operator Maintenance

*An inspection of each passenger carrying amusement device should be carried out daily on each day before it is made available for the public. The ride should not be made available to the public until any adjustments or repairs have been satisfactorily completed.*

#### Daily Safety Checks

It is recommended that the following checks are carried out daily:

- a Check that the mains plug is undamaged and securely attached to the mains cable by the cord grip.
- b Check that the mains cable is undamaged.
- c Check that there are no broken or damaged parts of the ride which may cause injury.
- d Check that all guards are in place thus preventing any access to the mechanism.
- e Check that the toy is firmly secured to the base by applying pressure to the ride.
- f Check that all advisory literature is in place.

#### Body Maintenance

The Children's Ride is 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 if any transfers are removed. The high gloss finish can be maintained with the following instructions:

- a Wash down with hot soapy water daily and polish with a silicone based polish. Take care not to get water inside the base mechanism.
- b Scratches can be removed using a "cutting" type polish (e.g. "T" cut). This type of polish is obtainable from most automobile shops, stores and garages.

- c Deep scratches can be removed by using a wet/dry finishing paper, using plenty of water in the process. In most cases 1,000 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 restored by polishing with a high speed buffing wheel and "T" cut polish.

**When using a buffing wheel, care must be taken not to burn the surface of the fibreglass. This can be done by keeping the buffing pad moist at all times.**

#### Construction

All R G Mitchell Limited Children's Rides are constructed in a similar manner. They consist of a **Base unit** onto which is mounted a moving **Toy**. (The Toy is the name given to the glass fibre module in which the child/children are seated.)

The **Base unit** contains:

- a Electric Motor
- b Gearbox
- c Mechanical cranking system
- d Timer/Control Unit: (This may be mounted within the Toy.)
- e Solid state relay (only with PC Timer/control unit)
- f Alarm (if fitted: This may be mounted within the toy.)
- g Lighting unit (if fitted)
- h Rolling road power unit (if fitted)
- i Power Supply Unit [PSU]. (only used with V3 Timer/control unit)

The **Toy** contains:

- a Coin mechanism: There are two main types of Coin Mechanism, they are either 'Mechanically' or 'Electronically' operated. (see sections 5 & 6)
- b Cashbox

- c Alarm (if fitted: This may be mounted within the base.)
- d Timer/control Unit: (This may be mounted within the base.)

Each of the above components are described in more detail in other sections of this manual.

## **Basic theory of operation**

The coin trips the coin mechanism sending an electrical pulse to the timer/control unit. At this point the timer/control unit is charged and awaiting a signal from the start button on the toy.

Once the start button has been depressed the motor will run the ride for approximately 90 seconds.

The amount of money or tokens paid will depend on whether or not any credit rides have been recorded by the timer/control unit. (When a mechanical coin mechanism is fitted rides cannot be credited. Each ride must be paid for in turn.)

If there are credit rides you will be prompted to press the start button each time.

Some of the rides have additional sound effects available. Those that sound as an attraction, those that sound while the ride is running and those that can be selected by the rider.

## **Adjusting the volume**

**CAUTION** Residual voltage may remain in the system even when disconnected from mains power. **DO NOT TOUCH ANY ELECTRICAL CIRCUITRY.**

- 1 Disconnect the ride from the mains power supply.
- 2 Open the control unit access panel. The volume control is on top of the control unit.  
**NEVER ADJUST OR PUT HANDS INTO OPERATING MACHINERY.**
- 3 After adjusting the volume close the access panel, reconnect power supply and test for volume. Repeat as necessary until the desired volume is achieved.

# Section 4

## *Electronics*

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## Introduction to electronics

The electronic components of a ride are dependent upon the functions that have been requested by the operator and functions that are available to a specific ride.

The following descriptions, wiring layouts and colour codings give a general view of the electronics within the rides.

It must be remembered that each model of ride may differ slightly in the design of its electronics.

## Timer/Control Units

Two types of Timer/Control Unit have been used, they are:

Up to 1st. January 1996  
**PC 001/002**

From 1st January 1996  
**V3 (VERSION 3)**

### Description of Timer/Control Units

The Timer/Control Unit is a multi-function programmable unit, which is customised to the operator's requirements.

The unit is managed by an interchangeable Programmable Integrated Circuit (PIC) software device. The unit also incorporates interchangeable Erasable Programmable Read Only Memory (EPROM) chips.

The PIC and EPROM's supply the following functions:

**PIC:** for management control of, cost, credit, time and some lighting etc.

**PC 001/002** is fitted with EPROM 1 & EPROM 2 for sound effects and oral instructions.

**V3** has between two and four EPROMs. Each EPROM can have different size memories for producing sound effects and oral instructions.

### The PC 001/002 consists of:

- a** Step down transformer 230V/110V AC - 12V SELV.
- b** Printed Circuit Boards (PCB) protected by fuses. (see PC 001/002 diagram for fuse ratings)
- c** Fused outlet. (see PC 001/002 diagram for fuse rating)
- d** 12V SELV outlets.
- e** Fine adjustment for ride duration.  
The adjustment knob is located either inside or outside the casing, depending on the construction of the unit.
- f** Volume control located outside of casing.

### The V3 consists of:

- a** Printed Circuit Boards (PCB) protected by fuses. (see V3 diagram for fuse ratings)
- b** 12V SELV outlets.
- c** Fine adjustment for ride duration. The adjustment switch is located outside of casing.
- d** Volume control located outside of casing.

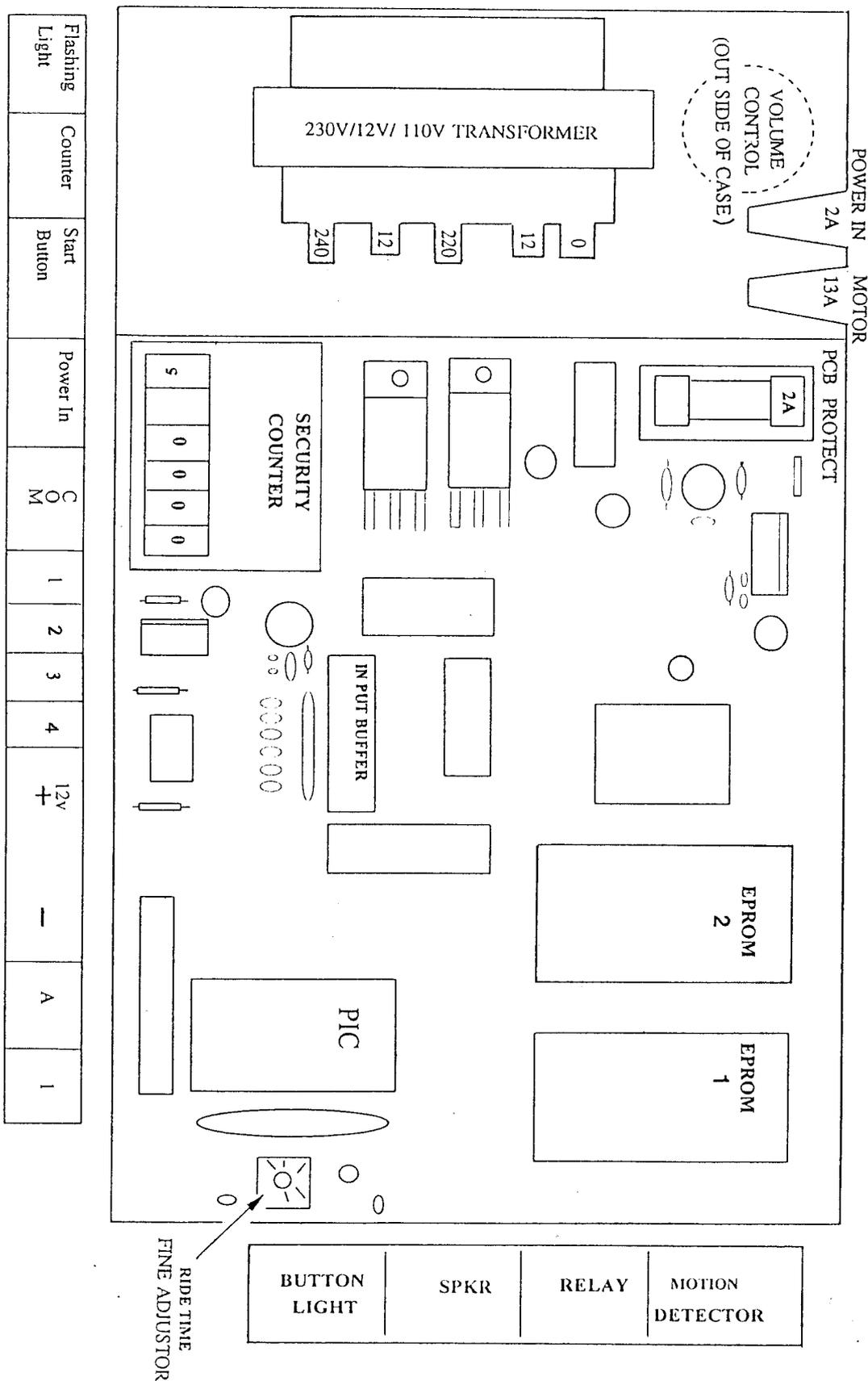
### The V3 is linked to a separate power unit.

#### The V3 Power Unit consists of:

- e** Step down transformer 230V/110V AC - 12V SELV
- f** Fuses (see V3 diagram for fuse ratings)
- g** Filter

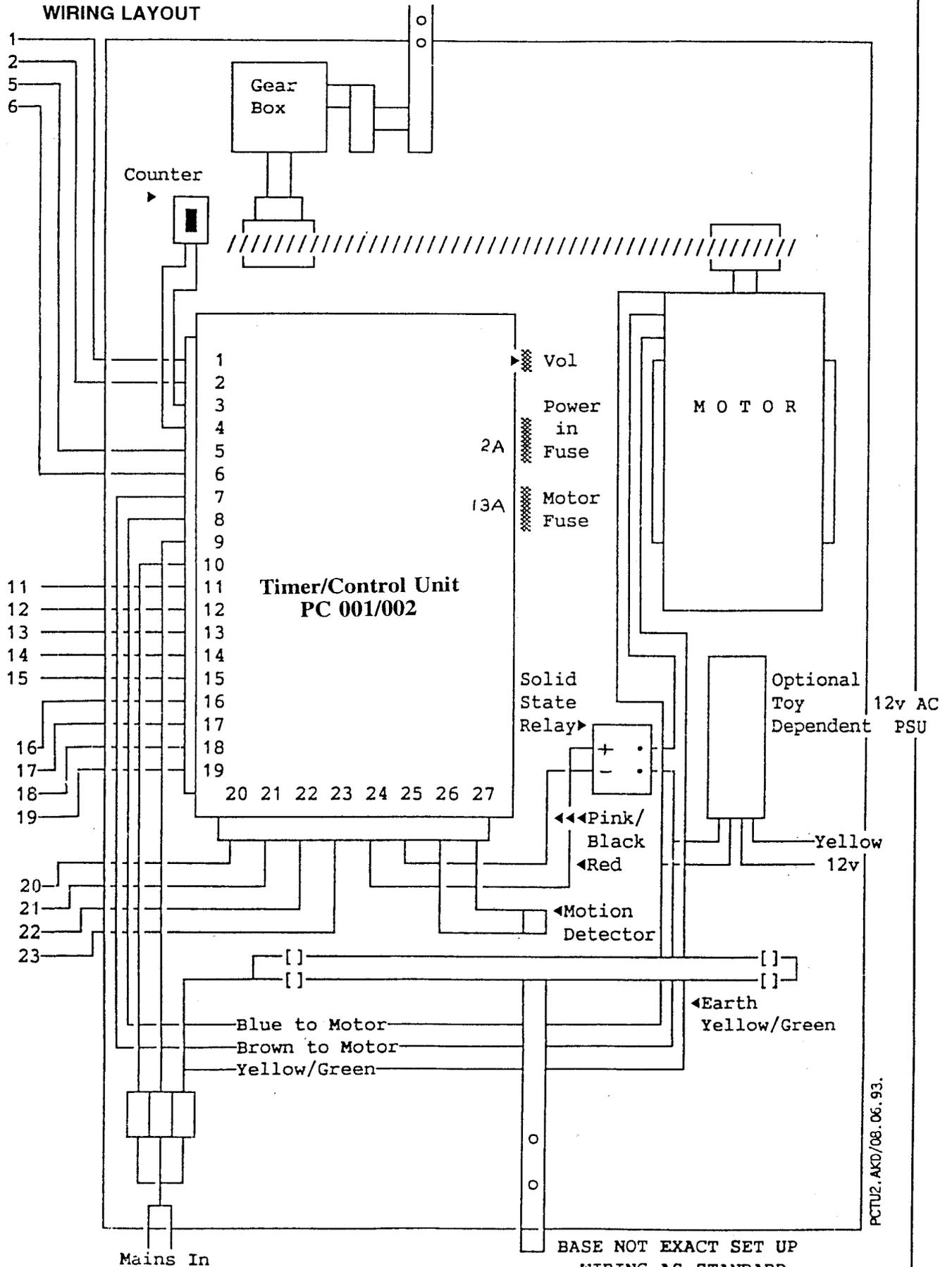
Timer/control unit, PC 001/002 (Up to 1<sup>st</sup> January 1996)

MAIN COMPONENTS



Timer/control unit, PC 001/002 (Up to 1<sup>st</sup> January 1996)

WIRING LAYOUT



PCTU2.AKD/08.06.93.

**Timer/control unit, PC 001/002 (Up to 1<sup>st</sup> January 1996)**

**WIRING COLOURS AND CONNECTIONS**

|    |   |
|----|---|
| 1  | Flashing Lights - Black x 2, Grey x 1     |
| 2  | Flashing Lights - Grey                    |
| 3  | Counter - Red                             |
| 4  | Counter - White/Black                     |
| 5  | Start Button - Black                      |
| 6  | Start Button - White                      |
| 7  | Motor - Brown/Black                       |
| 8  | Motor - Blue/White                        |
| 9  | Power In - Blue 1.5mm/Black               |
| 10 | Power In - Brown 1.5mm/White              |
| 11 | Common - Black                            |
| 12 | Sound One - Red/Black                     |
| 13 | Sound Two - Orange/Black                  |
| 14 | Sound Three - Yellow/Black                |
| 15 | Sound Four - Grey/Black                   |
| 16 | 12 + Coin Interface - Red                 |
| 17 | 12 - Coin Interface - Black               |
| 18 | Acc. Output to Coin Interface - Red/White |
| 19 | Inhibit to Coin Interface - Blue/Grey     |

**Alarm**  
 Cash Door - Violet 72" Sleeve (6mm) 12"  
 Inspection Door - Pink 20" Sleeve (6mm) 16"  
 Siren + Red  
 Siren - Black

**Mains**  
 Negative - Blue 1.5mm }  
 Positive - Brown 1.5mm } 3.4 meters  
 Earth - Green/Yellow 1.5mm }

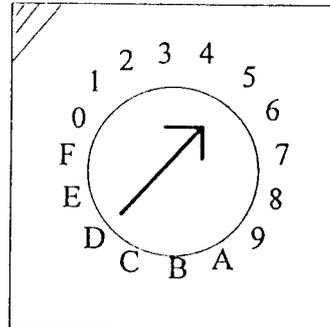
- 20 - Button Yellow
- 21 - Light Red
- 22 & 23 - Speaker Green
- 24 - SSR Red +
- 25 - SSR Pink/Black -
- 26 - Motion Detector - Black
- 27 - Motion Detector - Red/Blue

|    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|
| 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 |
|----|----|----|----|----|----|----|----|

### Timer/control unit, PC 001/002 (Up to 1<sup>st</sup> January 1996)

#### RIDE TIME FINE ADJUSTER

The fine adjuster control is used only when a mechanical coin mechanism is fitted on export models.



| POSITION | NO OF COINS | TIME OF RIDE IN MINUTES |
|----------|-------------|-------------------------|
| 0        | 1           | 1.5                     |
| 1        | 1           | 2.0                     |
| 2        | 1           | 2.5                     |
| 3        | 1           | 3.0                     |
| 4        | 2           | 1.5                     |
| 5        | 2           | 2.0                     |
| 6        | 2           | 2.5                     |
| 7        | 2           | 3.0                     |
| 8        | 3           | 1.5                     |
| 9        | 3           | 2.0                     |
| A        | 3           | 2.5                     |
| B        | 3           | 3.0                     |
| C        | 4           | 1.5                     |
| D        | 4           | 2.0                     |
| E        | 4           | 2.5                     |
| F        | 4           | 3.0                     |

#### Export PIC chips

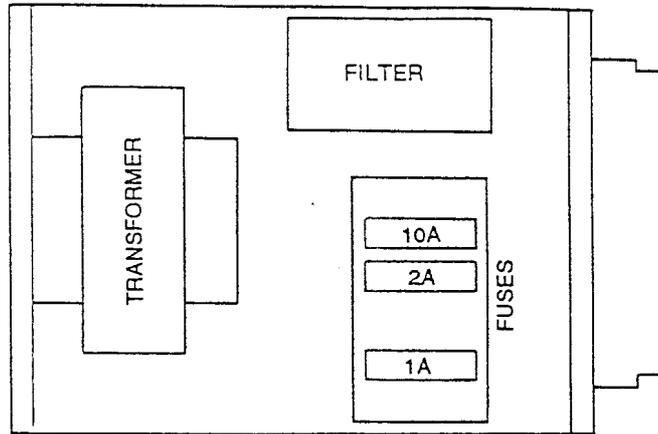
Version 1 .... Levelling switch active (Fitted on NASA type children's ride).

Version 2 .... Levelling switch inactive.

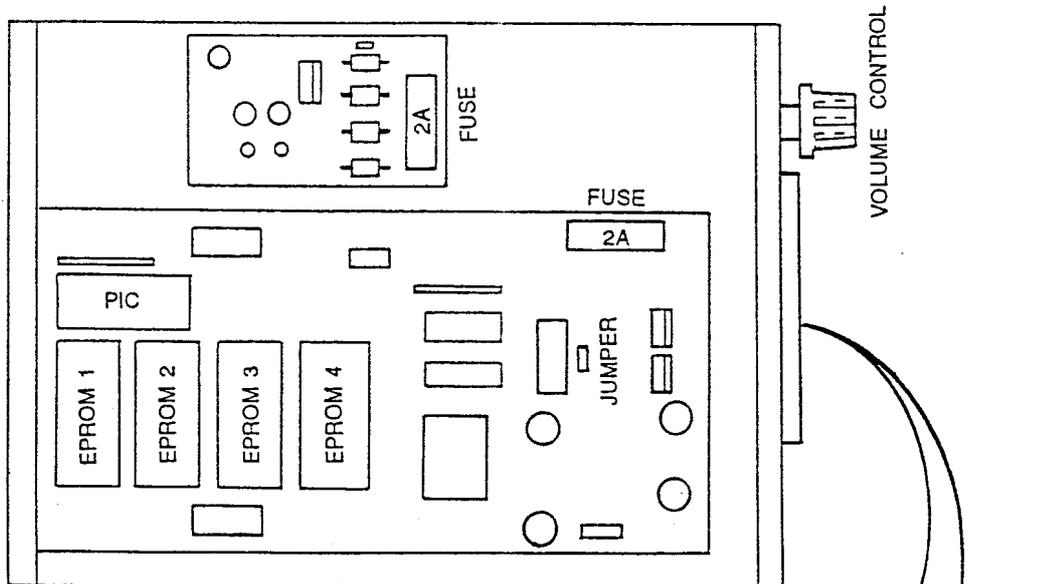
All other functions as original types.

### Timer/Control Unit V3 and Power Supply Version 1 (From 1<sup>st</sup> Jan.1996 to 1<sup>st</sup> Jan.2000)

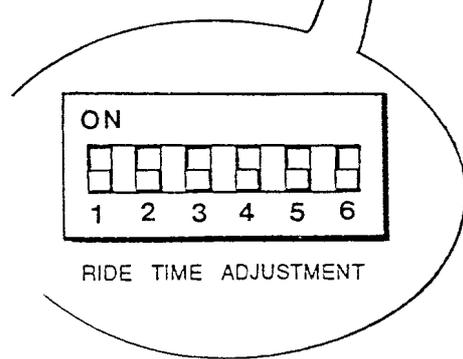
#### MAIN COMPONENTS



Power Supply Version 1

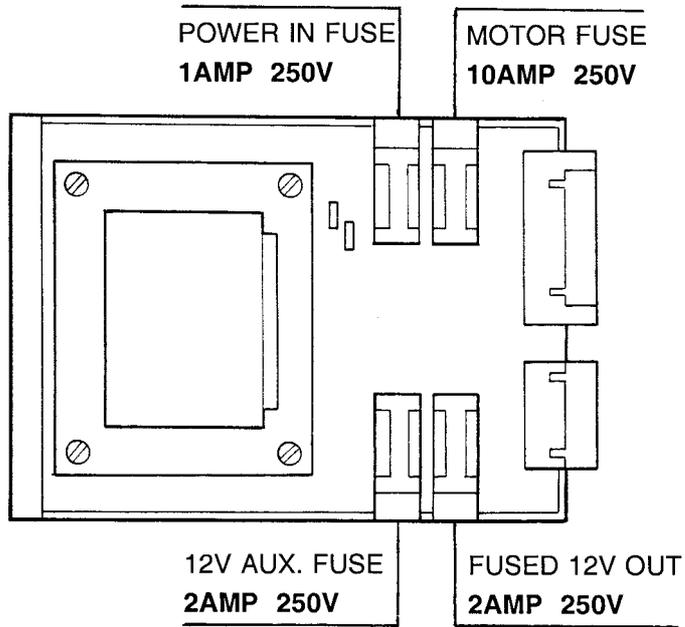


Timer/Control Unit V3

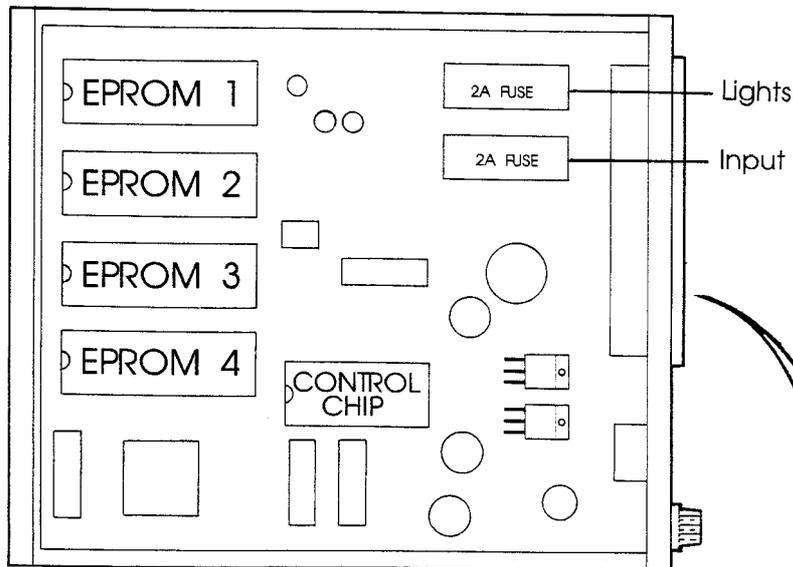


### Timer/Control Unit BOT 1 and Power Supply Unit 99 (From 1<sup>st</sup> Jan. 2000)

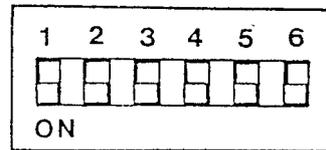
#### MAIN COMPONENTS



**Power Supply Unit 99**

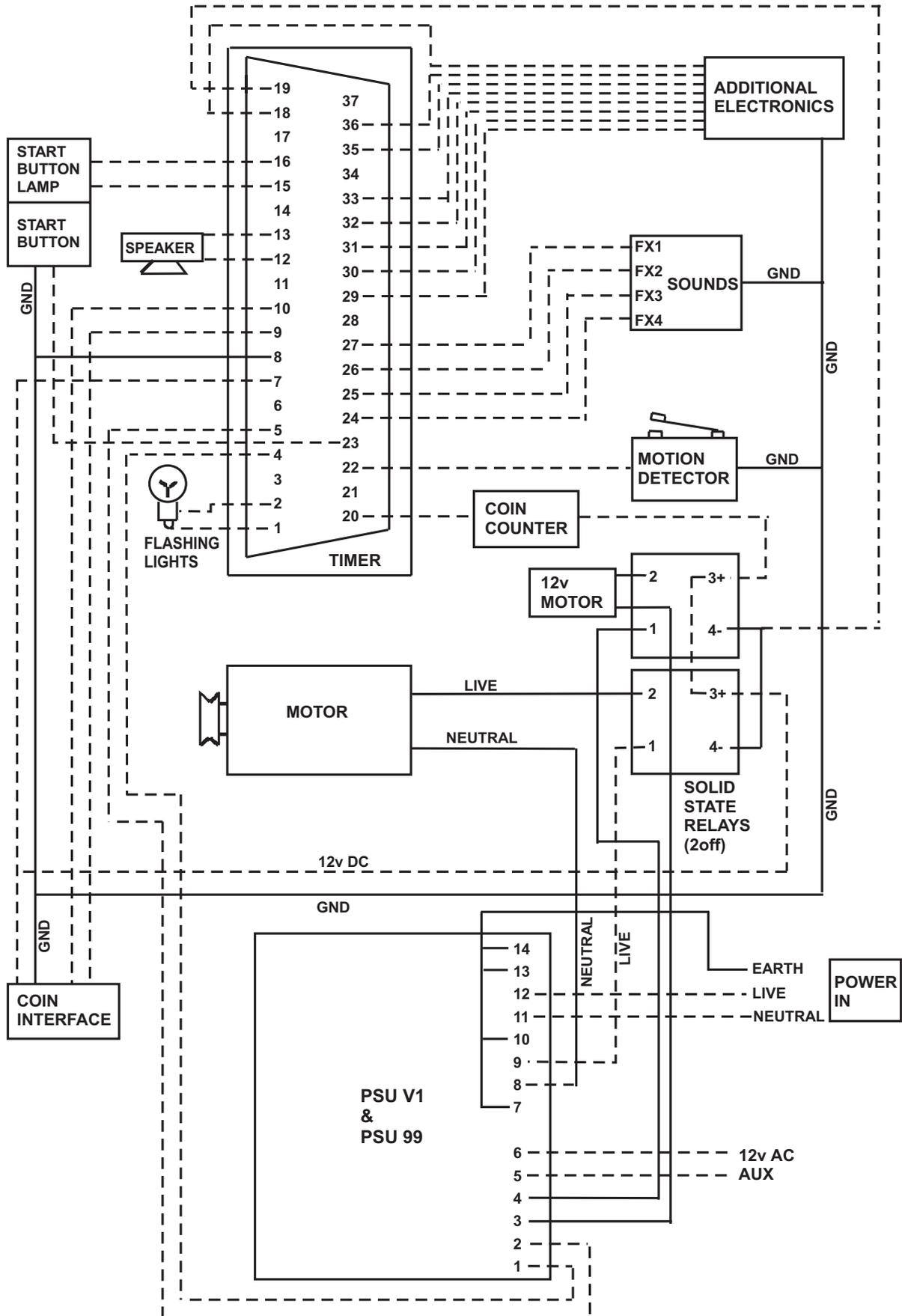


**Timer/Control Unit BOT 1**



RIDE TIME ADJUSTMENT

Timer/control Units V3 & BOT 1 and Power Supply Units (from 1st Jan 1996)  
 WIRING LAYOUT



**Timer/Control Unit, V3 (From 1<sup>st</sup> January 1996)**

**WIRING COLOURS AND CONNECTIONS**

**Connections to 37 way 'D' plug**

| <b>Pin no.</b> | <b>Wire colour</b> | <b>Function</b>          |
|----------------|--------------------|--------------------------|
| 1              | Grey               | Flashing lights output   |
| 2              | Grey               | Flashing lights output   |
| 3              | N/C                | N/C                      |
| 4              | Yellow             | 12v A.C. input           |
| 5              | Yellow             | 12v A.C. input           |
| 6              | N/C                | N/C                      |
| 7              | Red                | 12v+                     |
| 8              | Black              | Gnd/Com/Neg/0v           |
| 9              | White/Red          | Accumulated input        |
| 10             | Grey/Blue          | Inhibited output         |
| 11             | N/C                | N/C                      |
| 12             | Green              | Audio output             |
| 13             | Green              | Audio output             |
| 14             | N/C                | N/C                      |
| 15             | Yellow/Red         | Start button lamp        |
| 16             | Yellow/Red         | Start button lamp        |
| 17             | N/C                | N/C                      |
| 18             | Green/Red          | Output from M/C pin 18   |
| 19             | Pink/Black         | Solid state relay 0v     |
| 20             | White/Black        | Coin counter 0v          |
| 21             | N/C                | N/C                      |
| 22             | Red/Blue           | Motion detector          |
| 23             | White              | Start button switch      |
| 24             | Grey/Black         | Sound Fx 4               |
| 25             | Yellow/Black       | Sound Fx 3               |
| 26             | Orange/Black       | Sound Fx 2               |
| 27             | Red/Black          | Sound Fx 1               |
| 28             | N/C                | N/C                      |
| 29             | White              | Data input / serial in   |
| 30             | White/Red          | P/S input switch         |
| 31             | N/C                | N/C                      |
| 32             | Blue               | Serial in/out clock      |
| 33             | White/Black        | S/P output switch        |
| 34             | N/C                | N/C                      |
| 35             | Red/Brown          | VCC 5v+                  |
| 36             | Violet/Red         | Data output / serial out |
| 37             | N/C                | N/C                      |

**Timer/Control Unit, V3 (From 1<sup>st</sup> January 1996)**

**RIDE TIME CONTROLLER**

The V3 Timer/control unit will have been fitted with one of two types of Ride Time Controller

**A Installed in:**

- UK Rental (R G Mitchell) machines.
- UK machines with electrical coin mechanisms.
- None UK (ie export) machines built to special order.

**CUSTOM CONTROLS SETUP**

| DIP 1 | DIP 2 | DIP 3 | DIP 4 | TIME          |
|-------|-------|-------|-------|---------------|
| OFF   | OFF   | OFF   | OFF   | 1 min         |
| ON    | OFF   | OFF   | OFF   | 1 min 6 secs  |
| OFF   | ON    | OFF   | OFF   | 1 min 12 secs |
| ON    | ON    | OFF   | OFF   | 1 min 18 secs |
| OFF   | OFF   | ON    | OFF   | 1 min 24 secs |
| ON    | OFF   | ON    | OFF   | 1 min 30 secs |
| OFF   | ON    | ON    | OFF   | 1 min 36 secs |
| ON    | ON    | ON    | OFF   | 1 min 42 secs |
| OFF   | OFF   | OFF   | ON    | 1 min 48 secs |
| ON    | OFF   | OFF   | ON    | 1 min 54 secs |
| OFF   | ON    | OFF   | ON    | 2 min         |
| ON    | ON    | OFF   | ON    | 2 min 6 secs  |
| OFF   | OFF   | ON    | ON    | 2 min 12 secs |
| ON    | OFF   | ON    | ON    | 2 min 18 secs |
| OFF   | ON    | ON    | ON    | 2 min 24 secs |
| ON    | ON    | ON    | ON    | 2 min 30 secs |

DIP 5: OFF=COIN CONTROLLED, ON=FREEPLAY  
 DIP 6: OFF=ATTRACTION ON, ON=ATTRACTION OFF

**B Installed in:**

- All mechanical coin mechanism machines.
- None UK (ie export) machines built to special order with electrical coin mechanisms.

**CUSTOM CONTROLS SETUP**

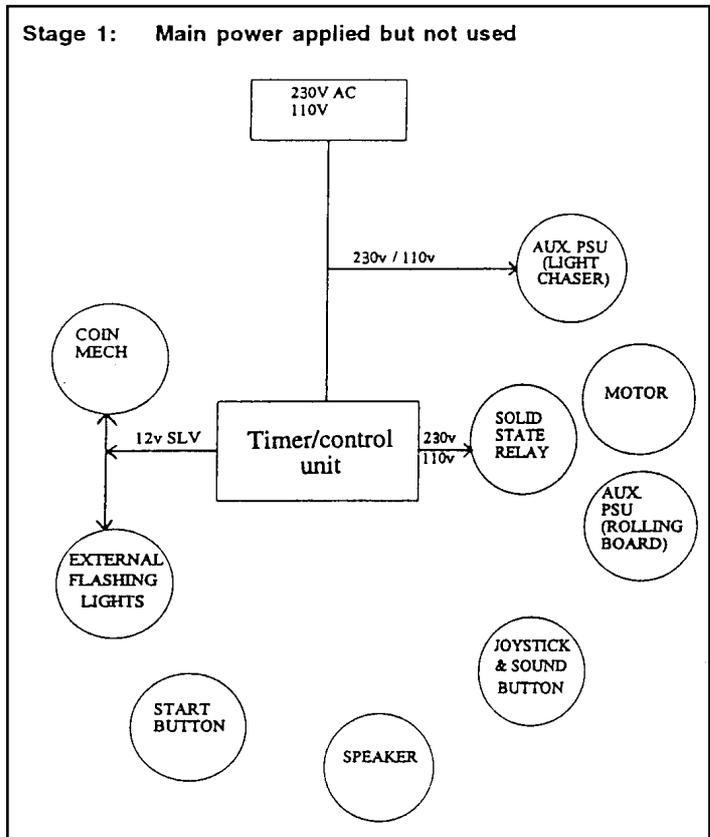
| DIP 1 | DIP 2 | DIP 3 | DIP 4 | TIME     | COINS |
|-------|-------|-------|-------|----------|-------|
| OFF   | OFF   | OFF   | OFF   | 1.5 mins | 1     |
| ON    | OFF   | OFF   | OFF   | 2 mins   | 1     |
| OFF   | ON    | OFF   | OFF   | 2.5 mins | 1     |
| ON    | ON    | OFF   | OFF   | 3 mins   | 1     |
| OFF   | OFF   | ON    | OFF   | 1.5 mins | 2     |
| ON    | OFF   | ON    | OFF   | 2 mins   | 2     |
| OFF   | ON    | ON    | OFF   | 2.5 mins | 2     |
| ON    | ON    | ON    | OFF   | 3 mins   | 2     |
| OFF   | OFF   | OFF   | ON    | 1.5 mins | 3     |
| ON    | OFF   | OFF   | ON    | 2 mins   | 3     |
| OFF   | ON    | OFF   | ON    | 2.5 mins | 3     |
| ON    | ON    | OFF   | ON    | 3 mins   | 3     |
| OFF   | OFF   | ON    | ON    | 1.5 mins | 4     |
| ON    | OFF   | ON    | ON    | 2 mins   | 4     |
| OFF   | ON    | ON    | ON    | 2.5 mins | 4     |
| ON    | ON    | ON    | ON    | 3 mins   | 4     |

DIP 5: OFF=COIN CONTROLLED, ON=FREEPLAY  
 DIP 6: OFF=ATTRACTION ON, ON=ATTRACTION OFF

Operation of Timer/Control Unit

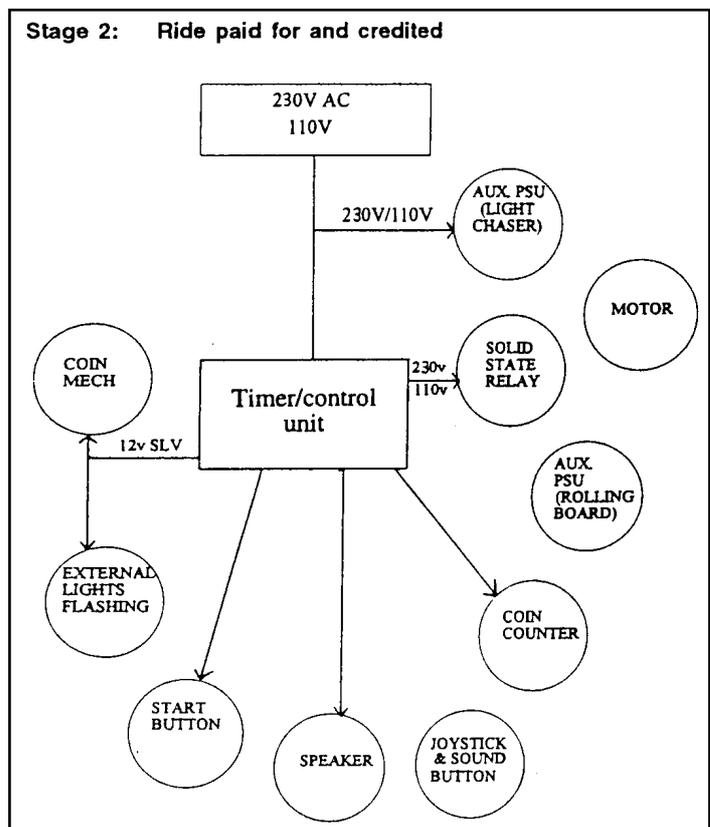
Stage 1

- a 230V/110V mains power supplied to the Timer/Control Unit. (Optional spur off to auxiliary Power Supply Unit (PSU) such as light chaser for TTCar)
- b 230V/110V outlet from Timer/Control Unit via 13 amp fuse to solid state relay
- c 12V SELV outlet from Timer/Control Unit to coin mechanism and flashing lights.



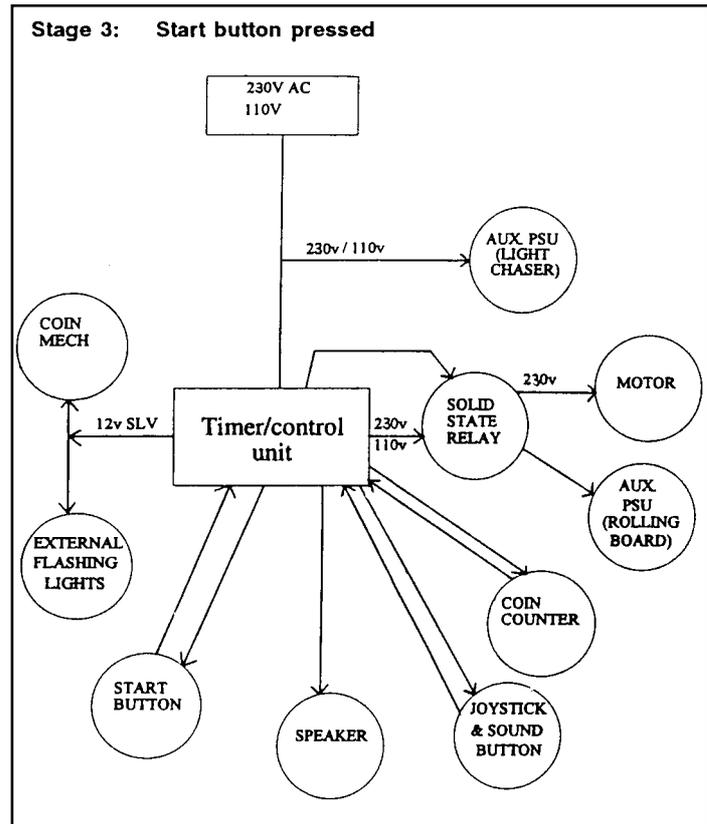
Stage 2

- a Coins fed into the coin mechanism are identified and decoded into units, i.e. 10P = 1 unit, 50P = 5 units etc. A single pulse is sent to the timer for each unit.
- b The Timer/Control Unit registers the units and calculates and records the credits, i.e. 2 units = 1 credit etc.  
The units are also recorded onto an internal and external counter. (Credits are programmable, i.e. 2 units = 1 credit, 4 units = 2 credits, 5 units = 3 credits etc. *This only applies if Multimech timer is fitted.*)
- c Once a credit has been recorded in the memory the start button is energised. (Optional oral prompt to the press the start button can be given.)



**Stage 3**

- a Pressing the start button triggers the timer, which deducts one credit from its memory (Not the counter).
- b A 12V SELV pulse triggers the solid state relay, supplying 230V/110V AC to the motor and optional auxiliary PSU i.e., Rolling road. (Ride will run for a pre-set duration).
- c The timer activates background sound effects and energises the joystick (where fitted) and sound select buttons.

**Stage 4; see the diagrams at stages 1, 2 and 3**

Once the ride has completed its cycle the system will revert to either **stage 1** if only one ride was paid for, or (if Multimech timer is fitted.) stage 2 if multiple rides were paid for.

- a When a coin is inserted it will advance the counter in one unit increments i.e.\*

10p = 1 unit

50p = 5 units

£1 = 10 units

*(\*only applies if Multimech timer is fitted.)*

- b Start button will be powered when sufficient units have been registered to equal a credit i.e.  
3 units = 1 credit
- c Timer/Control Unit will record an accumulation of credits.
- d Once pressed the Timer/Control Unit will deduct one credit and energise the start button again at the end of the ride for the next credit.
- e Speaker will get inputs for background sounds and selected sound effects from the joystick or buttons.
- f Oral prompt to press start button.

## Maintenance

**WARNING** See safety instructions in Section 2.



**STATIC ELECTRICITY CAN DAMAGE ELECTRONIC CIRCUITS.**

*Before handling printed circuit boards, discharge the static build-up in your body by making skin contact with a known earth point.*

The only electronic maintenance available to engineers on site is the replacement of the PIC and EPROMs on the mother board and any inline fuses. For further information on circuitry and component replacement, contact R G Mitchell Limited.

### PIC and EPROM replacement

#### Removal:

- 1 Use a chip puller  
or
- 2 Hold the chip at either end between the thumb and forefinger.
- 3 Ease the chip from its socket with a direct upward pull.

#### Fitting:

- 1 Hold the chip at either end between the thumb and forefinger.
- 2 Align the chip so that the notched end of the chip matches the notched end in the socket.
- 3 Align the pins with the respective socket holes.
- 4 Carefully press the chip into the socket.

### Fuse Replacement

Following the replacement of any 10 or 13 amp fuse and prior to mains power being reconnected a PAT test should be carried out. (see Electronic Section Index for PAT test)

For fuse identification and location. (see Timer/Control Unit, Main components)

### Free Play Mode

#### Pc 001/002 Timer/control Unit Only

- 1 Gain access to the PC 001/002 Timer/control unit and remove its top cover.
- 2 Replace the PIC chip with one labelled "1 Coin".
- 3 Gain access to the rear of the start button.
- 4 Ensure the common pin on the start button has a black wire going to the black on the timer start button connections.
- 5 Change the white wire to the normally closed connection on the start button switch to the normally open.
- 6 Fit a red/white wire from the normally open to "A" on the timer or interface box.
- 7 To return to pay mode, return connections to original positions and remove the link wire.

### Free Play Mode

#### V3 Timer/control unit only

- 1 Gain access to the V3 Timer/control unit.
- 2 Locate the Ride Time control switches (situated on the outside of the casing below the 37 way pin plug)
- 3 Switch 5 controls the Free Play Mode.
- 4 Switch UP for Free Play Mode ON.  
Switch DOWN for Free Play Mode OFF.

### Electronic Interface Unit

#### Used only with S5 electronic coin mechanisms

The interface unit is used in conjunction with S5 electronic coin mechanisms only. Its sole purpose is to convert the ribbon lead output from the coin mechanism to a standard cable input to the timer/control unit.

### Rolling Road PSU (if fitted)

#### Used only with PC 001/002 Timer/control unit

This PSU converts 230V/110V AC direct from the mains supply to 12 volts SELV for an electric motor and consists of a 230V/110V AC - 12V SELV step down transformer and a 1amp fuse.

**Light Chaser PSU (if fitted)**

Used only with PC 001/002 Timer/control unit

This PSU receives 230V AC from the timer/Control unit via the relay and converts it to 12V SELV for an internal light chaser circuit. The unit consists of a 230V AC - 12V SELV step down transformer, a 2amp fused PCB and an operator adjustable light flasher control on the outside of the unit case.

**Alarm Unit (if fitted)**

The alarm is a self-contained battery operated system activated by a micro switch mounted on the cash box door. The PP3 batteries are fitted in the unit itself.

**To replace alarm batteries:**

- 1 Gain access to the alarm unit through the relevant access panel.
- 2 Locate and remove the top from the alarm unit.
- 3 Replace the battery.

## Section 5

# *Coin Mechanisms (Mechanical)*

### SI Acceptor coin mechanisms

The standard mechanical coin mechanism used in the toys is the **SI Acceptor**

#### Removal and cleaning

Unlock and remove coin mechanism from toy.

Unplug micro switch connections.

Holding the mechanism either side of the slide plates (6 and 7), slide back and remove the bulldog spring (8). The swinging slide side of the mechanism is now free to be removed for cleaning.

### Fault diagnosis

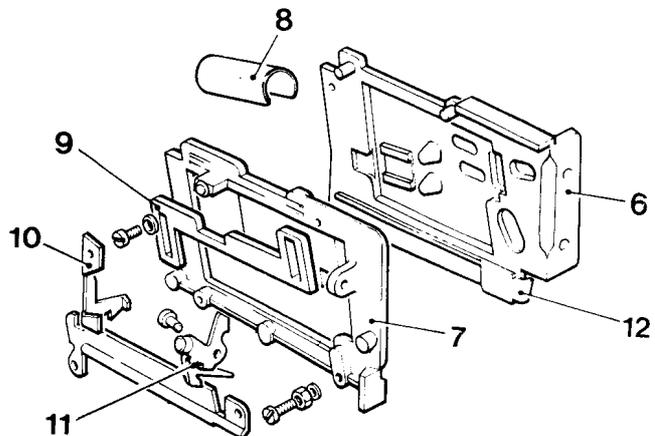
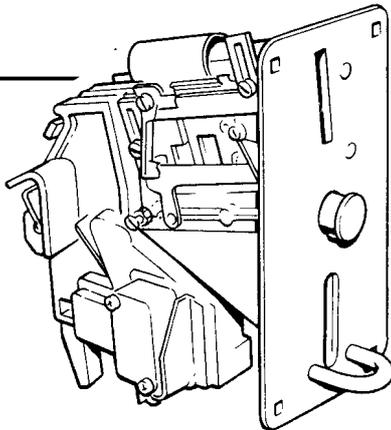
Insert coin

**A** If the coin is rejected, unlock and remove coin mechanism from toy. Remove the coin (see 'Removal and cleaning'). Clear any blockages and refit coin mechanism.

**B** If the coin is accepted, but the ride fails to operate, check that the mains plug is in the power point and that it is switched on.

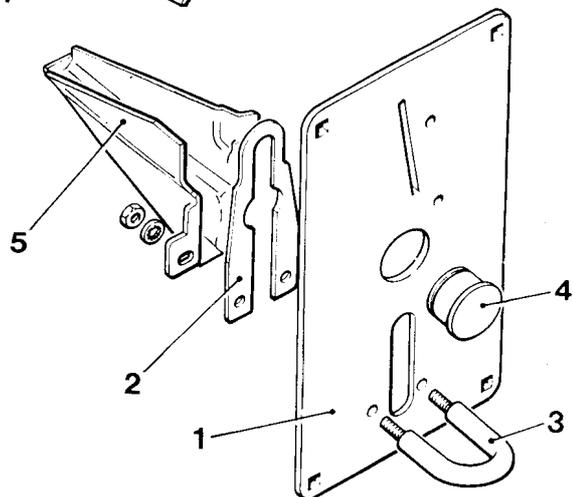
If the ride is still inoperative, check that the wires within the plug are secure and replace (if necessary) the fuse.

**C** If the ride still fails to work, consult a service engineer.



#### **S1 Acceptor**

- 1 Front plate
- 2 Button spring
- 3 U Bolt
- 4 Button
- 5 Return chute
- 6 Magnet side
- 7 Swinging side
- 8 Bulldog spring
- 9 Slider
- 10 Anti-tilt leg
- 11 Washer catch
- 12 Button stop



### Adjustment

The S1 Acceptor is adjustable for diameter (17 to 30mm) and thickness of coins or tokens as follows:

#### Diameter

Release screws **(A)** on slider **(9)**.

Adjust height of slider to accept chosen coin.

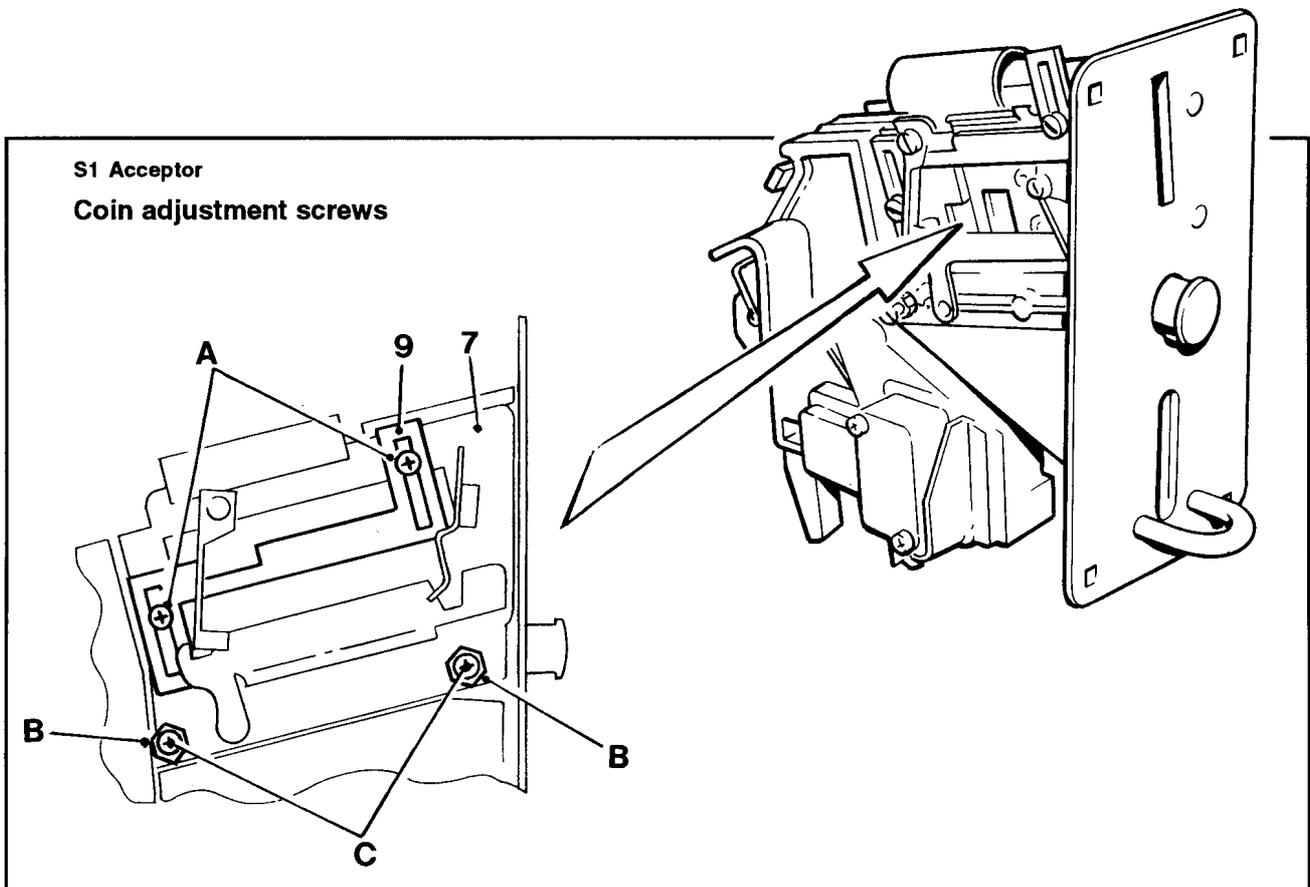
Tighten screws **(A)** and recheck fit of coin.

#### Thickness

Slacken lock nuts **(B)** on swinging slide **(7)**.

Adjust screws **(C)** until selected coin will pass.

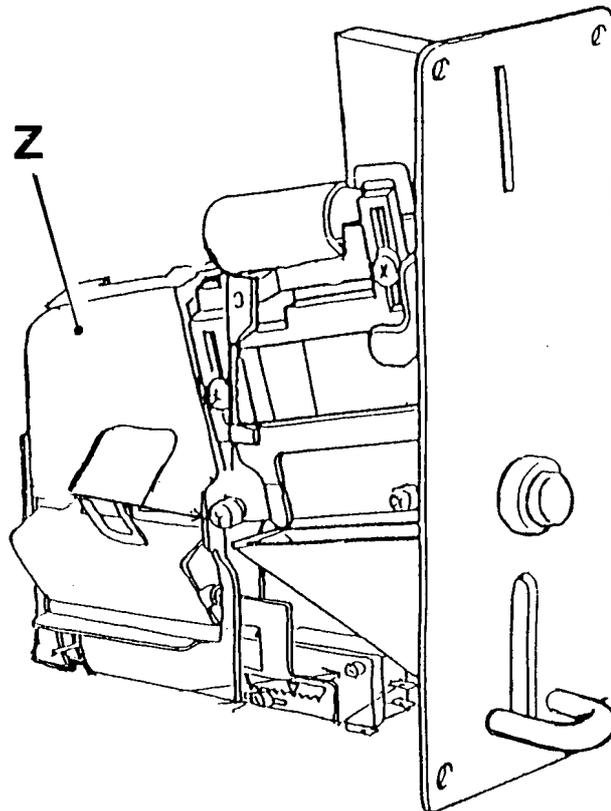
Tighten lock nuts **(B)** and recheck fit of coin.



***Abuse of coin mechanisms***

As you may be aware, it is possible to get free rides on machines fitted with mechanical coin mechs, particularly the RGM Express. The most common method used is to strike the reject button a sharp blow. This sends a shock through the coin mech, causing the microswitch to short.

To overcome this, replace the metal cradle 'Z' with a marylal (plastic) cradle.



## Section 6

### *Coin Mechanisms (Electronic)*

| <b>Contents</b>   | <b>Page</b> |
|---|-------------|
| <b>Micromech S5 &amp; S6</b>  | <b>6.3</b>  |
| <b># Coin Controls C120</b>   | <b>6.7</b>  |
| <b># NRI G-13</b>   | <b>6.15</b> |
| <b># Note:</b> The <b>C120</b> and <b>G-13</b> function in a similar manner. Provided that they are fitted as a complete unit (i.e. frontplate with mechanism body) they are fully interchangeable. |             |
| <b>CashFlow 330</b>   | <b>6.21</b> |



# Micromech S5 & S6 validators

## Introduction

### MICROMECH S5

**Features:**

The MICROMECH S5 incorporates all the features of both a multi coin electronic validator and a single price accumulator in a compact 3.5 inch housing. It is extremely versatile and can be supplied pre programmed to suit a variety of applications.

MICROMECH can also be quickly and easily programmed or reprogrammed in situ.

MICROMECH provides fast (3 coin per second) and accurate discrimination using new technology,\* and together with genuine field programmability offers a solution to your coin validation problems now and into the future.

• **FIELD PROGRAMMABLE**

Can be programmed to accept new coins or tokens or different coin currencies quickly and easily in the field without removal from its in service location.

• **COIN OUTPUTS**

Can be programmed to accept up to 12 different coins or tokens. The credit pulses of which can be directed to any of the 6 coin output lines. The number of pulses is also programmable.

• **OUTPUT PULSE WIDTH**

The width of all output pulses programmable.

• **PRICE OUTPUT**

A programmable accumulated price output is provided in addition to other coin outputs.

• **FRAUD ALARM**

Alarm output in event of "stringing" or "Yo Yo" practices.

• **INHIBIT**

General blocker inhibit input. Plus inhibit of individual coins.

• **DISCRIMINATION**

Normal and narrow discrimination bands for each coin. Offering even more protection from slugs and migratory coins.

• **MAINTENANCE**

The convenient 90° split opening and unique point contact coin path\* allow the MICROMECH to handle wet and dirty coins and minimise costly downtime and servicing.

### MICROMECH S6

**Features:**

The MICROMECH S6, incorporates all the features of the S5, **AND MORE.**

Designed with the ever changing amusement industry in mind, we have included all MULTI CREDIT & MULTI GAME BOARD functions into the same compact 3.5 inch housing. No more add on boards and interface problems.

**SPECIAL FEATURES:**

• User selectable multi credit function (direct credit conversion) or multi credit and multi game function (indirect credit conversion) means the MICROMECH S6 will suit a majority of applications.

• The MICROMECH S6 can be programmed with up to 6 credit thresholds. Each threshold can be set to any value and is not limited by coin denominations. The number of credits at each threshold either pulsed direct or accumulated for indirect conversion is also programmable. The MICROMECH S6 offers unparalleled flexibility for the amusement industry.

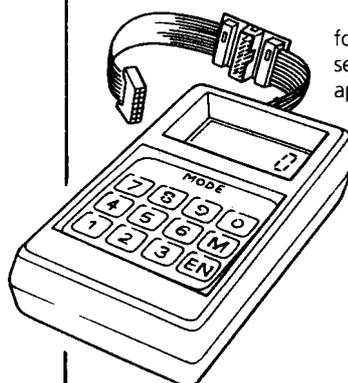
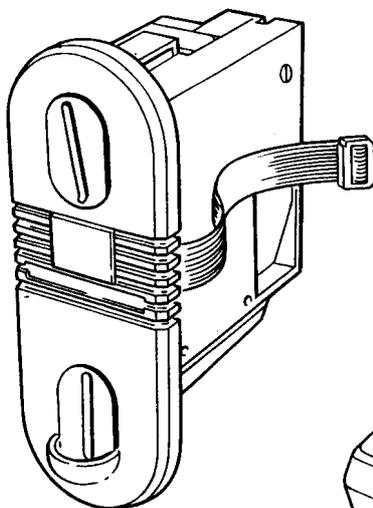
• 4 game select inputs and corresponding 4 game outputs are provided and are used in conjunction with the 6 credit threshold when the MICROMECH S6 is set to multi game function (indirect credit conversion).

• Cash meter output. Pulse value programmable.

• Interactive credit display output provided. 2 digit credit display is available as an optional extra.

**MICROMECH S5 & S6 - TECHNICAL DATA**

|                 |  |
|-----------------|--|
| ACCEPTANCE:     | Up to 12 different coins or tokens   |
| DIAMETER:       | 13mm to 34mm   |
| THICKNESS:      | 0.7mm to 3.4mm   |
| DIMENSIONS:     | Height 99mm, Width 89mm, Depth 45mm  |
| TEMPERATURE:    | Storage -15c to 75c, Operating 0c to 55c   |
| SUPPLY VOLTAGE: | 12 volts DC regulated, -1v, +5v  |
| CONFIGURATION:  | MICROMECH can be supplied in front entry form with or without a face plate or in top entry form to suit most brackets. |



**MICROMATE FEATURES**

The MICROMATE is an inexpensive hand held programming and diagnostic tool. It is supplied with an adaptor board which allows it to be interfaced between the validator supply and the validator.

No additional supply or port is required. Operation is via keypad and 4 digit LED display.

The MICROMATE is used to program the S5 and S6 validators for new coins or tokens in the field. It is also used to access and set the various functions within MICROMECH by selecting the appropriate mode.

| MODE NO. | FUNCTION  |   |
|----------|---|---|
|          | S5  | S6  |
| 1        | VIEW COIN SETTINGS<br>SET DISCRIMINATION LEVELS | VIEW COIN SETTINGS<br>SET DISCRIMINATION LEVELS   |
| 2        | SET ACCUMULATED PRICE                           | SET CASH METER PULSE VALUE                        |
| 3        | SET EACH COIN INHIBIT                           | SET EACH COIN INHIBIT                             |
| 4        | SET COIN OUTPUT LINES<br>SET OUTPUT PULSES      | SET CONVERSION TYPE<br>SET CREDIT THRESHOLD TABLE |
| 5        | SET COIN VALUES                                 | SET COIN VALUES                                   |
| 6        | PROGRAM NEW COINS                               | PROGRAM NEW COINS                                 |
| 7        | SET OUTPUT PULSE WIDTH                          | SET OUTPUT PULSE WIDTH                            |
| 8        | CLEAR ALL SETTINGS                              | CLEAR ALL SETTINGS                                |

## Servicing

### Introduction

The mechanism is pre-programmed to accept 10p, 20p, 50p, and £1 coins. It is connected to the control unit via an interface unit that is mounted within the toy body.

**IMPORTANT** There are two versions of the S6 mechanism.

**A** Mechanisms with serial numbers beginning with S506 must be mated with a standard interface.

**B** Mechanisms with serial numbers beginning with S606 must be mated with an interface that has two green labels attached.

When ordering replacement parts be sure to quote serial numbers.

**WARNING** Ensure mains power is turned off and disconnected before opening any access panels.



Only suitably qualified service engineers are permitted to make adjustments to the coin mechanism.

### Cleaning frontplate

When cleaning the frontplate of the mechanism use only a damp cloth, or "Nilco" polish is suggested. **No solvents or abrasives should be used.**

### Removal

**Note:** The frontplate (A) is retained by screws and protrudes back through the removable panel (B). The mechanism (C) is clipped to the rear of the frontplate.

Removing the mechanism (C) does not require the frontplate (A) to be unscrewed from the panel (B).

Unlock and remove panel (B), complete with coin mechanism, from toy.

Disconnect the ribbon cable from the interface.

Locate the clip at the rear of the mechanism and pull it down to disengage it.

Lift the rear of the mechanism until it springs clear of the lower retaining lug.

Slide the mechanism sideways to remove it from the lug at the top front.

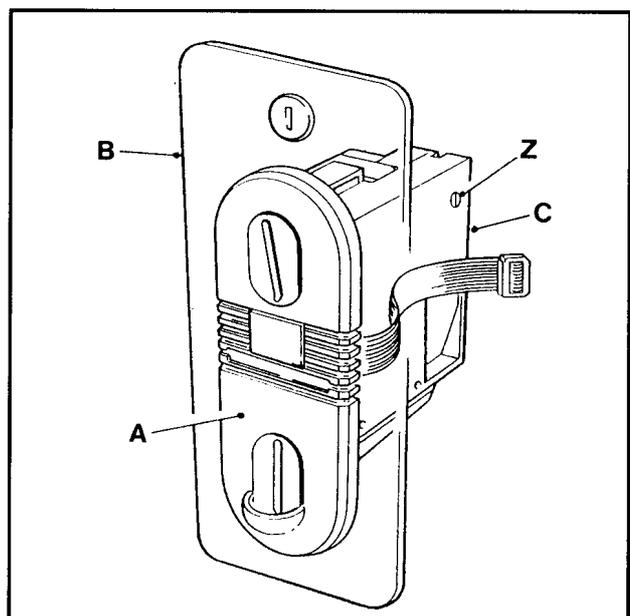
### Cleaning inside mechanism

To open the mechanism: Depress the spring loaded screw (Z) and turn it 90°.

The side hinges down to give access for cleaning or to clear blockages.

### Reassembly

Reassemble in the reverse order. On refitting to the toy care must be taken not to trap the ribbon cable.

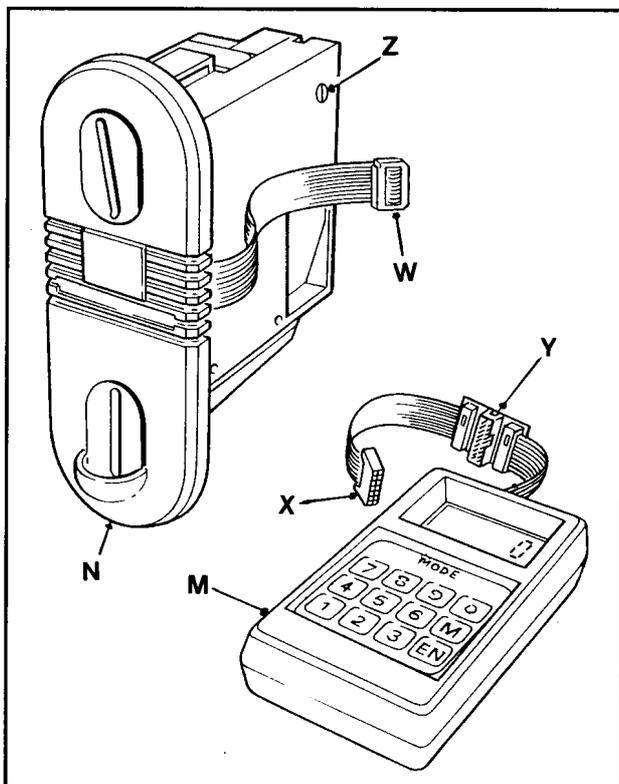


## Programming

The Micromech S5 & S6 are programmed using the Micromate unit.

Attach the Micromate (M) to the Micromech (N) as follows:

- 1 Switch the machine OFF at the mains.
- 2 Gain access through the cash box door and locate the interface unit.
- 3 Remove the top of the interface unit and extract the coin mechanism ribbon cable plug (W).
- 4 Fit the Micromate programmer plug (X) into this interface socket and the coin mechanism plug (W) into the socket on the programmer ribbon lead (Y).
- 4 Switch the machine ON at the mains.



### To begin programming

The Micromech may have been pre-programmed before leaving the manufacturer. This data can now be added to or changed using the following modes of the Micromate.

#### Mode 2

##### To set cash meter pulse value

Mode 2 programmes the Micromech to pulse (trip over) the cash meter once for a set pulse unit.

For example: In the UK the Micromech is programmed to pulse the cash meter once for every 10p that it detects. (i.e. a "pulse unit of ten")

Therefore;

Every two 5p pieces (one credit) = one pulse unit

Every 50p piece (five credits) = five pulses units

Every £1 (ten credits) = 10 pulses units

Set the Cash Meter pulse unit value as follows:

- 1 Press 2 to select mode 2.

The mode 2 light will illuminate, and if the Micromech has not been previously programmed, the display will show "0".

If the Micromech has been previously programmed it will display the previous unit value. (This would most possibly be 10.)

- 2 Assuming the coin (or credit) value is to be 10p, and the display shows 10, then press "EN".
- 3 If the display does not show the correct coin (or credit) unit value, then enter the desired unit value, and press "EN".

#### Mode 3

##### To inhibit or accept coins

This mode is to set the Micromech to either reject or accept a particular coin. (This function is in addition to any other external inhibit that may be fitted.)

- 1 Press 3 to select mode 3.

Mode 3 light will illuminate and the display will show "0".

- 2 Select the coin reference number by pressing the appropriate button.

Press "EN".

- 3 If "1" is displayed, this coin number is enabled and these coins will be accepted by the Micromech.

If "0" is displayed the coin number is disabled and these coins will be rejected.

- 4 If you do not wish to change the setting;

Press "EN".

- 5 If you wish to change the setting;

Press either "1" (to accept the coin) or "0" (to reject the coin).

Press "EN".

- 6 The Micromate will make the changes and automatically exit the mode.

**Mode 5****To set the cash meter value of a coin**

(See also mode 2)

It is possible to assign any cash meter unit value to any coin reference number.

To change cash meter unit values that have been assigned in mode 2 proceed as follows:

- 1 Press 5 to select mode 5.

Mode 5 light will illuminate and the display will show "0".

- 2 Enter the coin reference number, and press "EN".

- 3 The current unit value for that coin will be displayed. If no change is required, then press "EN".

- 4 If the cash meter unit value is to be changed, enter the new value. (It is possible to enter a value figure of up to 9999.)

Press "EN".

The Micromech will make the changes, and automatically exit the mode.

**Mode 6****To set for new coins or tokens**

This procedure teaches the Micromech to recognize a particular coin and also allows the programmer to designate to that coin its own unique reference number.

- 1 Press 6 to select mode 6.

The mode 6 light will illuminate, and the display will show "0".

- 2 When programming in a new coin you have to designate it a unique reference number. It is suggested that the number you select is between 1 and 5.

Number 1 is usually allocated to the 10p coin. Numbers 6 to 9 are for further or export use.

- 3 Enter the number that you have designated to the coin.

If a previous coin has been designated this number, the previous coin will be overwritten and lost from the memory.

Press "EN".

It is necessary to feed a sample of the selected coin through the Micromech.

Obtain ten of the coins. They should be representative of the coin (or token) used in normal circulation.

- 4 Feed the ten sample coins through the Micromech at a maximum rate of one coin per second. (The figure displayed as each coin passes through the Micromech is the actual value of the sample.)

- 5 When the tenth coin passes through, the mode light will change from "6" to "1" to indicate that no more coins are required. The display will be blank, waiting for the discrimination band selection.

If normal discrimination band is required, enter "1" and press "EN".

If a narrow discrimination band is required, select "2" and press "EN".

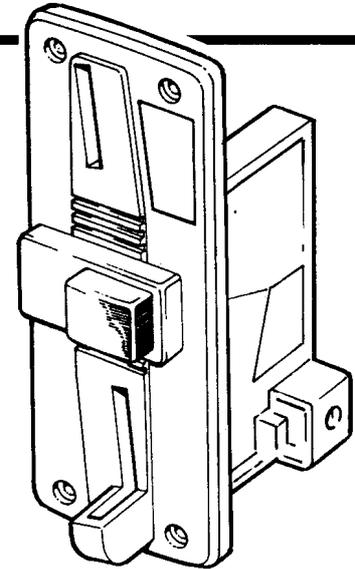
When a narrow band is selected the Micromech should, as far as practicable, be installed in its actual operating environment.

**After programming**

Switch off the ride. Return all plugs to normal and close all doors/panels.

Switch Ride on and test.

# Coin Controls International C120 Validators



## C120 Validators

### CONTENTS

#### MECHANICAL DESCRIPTION

- A1 Coin Mechanical Assembly
- A2 Coin Entry and Exit Position
  - A2.1 Standard Body Validator
  - A2.2 Frontplate Validator

#### SERVICING

- B1 Main Components
  - B1.1 Back Cover
  - B1.2 Accept Cover
  - B1.3 Accept Gate
- B2 Cleaning
- B3 Fault Finding

#### INTERFACING

- C1 Power Supply
- C2 Interface
  - C2.1 Coin Accept Outputs
  - C2.2 Inhibit All Coins
- C3 Selective Coin Inhibit
- C4 High Security Windows

#### ENVIRONMENTAL CONDITIONS

- D1 Operating Conditions
- D2 Storage Conditions
- D3 Orientation
- Figure 1 C120 Exploded Diagram
- Figure 2 Standard Body C120
- Figure 3 Frontplate C120

**MECHANICAL DESCRIPTION****A1  
Coin Mechanism Assembly**

The C120 can be seen in exploded form in figure 1. Please refer to this diagram in order to identify the parts detailed below. A rundown is provided between the body and the reject gate along which is placed 3 pairs of inductive coils. If a coin, having passed all 3 sensors, is deemed true, the accept gate operates by energising the solenoid. Once the coin has been detected by the accept sensor the gate is closed and a credit signal is generated.

The exact operation of the accept gate, and which of the two pairs of sensors is used, depends on the model of C120 in operation (see **A2 Coin Entry and Exit Positions**).

**A2  
Coin Entry and Exit Positions**

These positions are fixed for the two available models of the C120, the standard and frontplate versions.

**A2.1  
Standard Body Validator**

For dimensional drawings see figure 2.

In this model, when the solenoid is energised on acceptance of a valid coin, the accept gate is pushed closed, diverting the true coin via the path opposite the solenoid, and out of the base of the validator. Reject coins pass directly through the path covered by the solenoid and out of the base of the validator.

**A2.2  
Frontplate Validator**

For dimensional drawings see figure 3.

In this model the solenoid action has been reversed, resulting in the accept gate being withdrawn (opened) when a valid coin is entered. The valid coin will then pass out of the base of the unit via the solenoid path. For rejection of coins the gate remains closed and the coin is diverted via the front of the unit and out into the reject coin holder of the frontplate assembly.

**Summary Specification**

Acceptance : upto 6  
different coins  
or tokens

Coin diameter : 15 to 31 mm

Coin thickness : 1.5 to 3.3 mm  
(Depending  
on model  
selected)

Temperature  
range : 0°C to 55°C

Power supply : 11-15V d.c.

Rise time : <200ms

## SERVICING

### B1

#### Main Components

#### B1.1

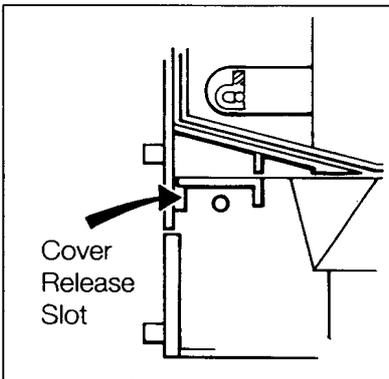
##### Back Cover

Removal of the back cover can be achieved by depressing the cut-away section in the top right hand corner and pulling the cover away. This now allows access to the pcb, inhibit D.I.L. switches (see section C3) and the interface loom.

To replace the cover insert the two hook shaped clips on the bottom inside face of the cover into the recesses in the bottom edge of the body/pcb, and push the top edge of the cover closed until it clicks shut.

#### B1.2

##### Accept Cover



The cover can be removed by firstly removing the screw and then inserting a screwdriver into the release slot and levering it open. When opening the cover, care must be taken not to damage the solenoid to pcb connection.

To replace the cover, fit the right hand edge in the locating slots provided, making sure the solenoid to pcb connection is in the channel provided and does not become trapped. Firmly press down on the left hand side until it clicks into place.

Replace the screw in the hole provided taking care not to over-tighten.

### B1.3

#### Accept Gate

Open accept cover as described in Section B1.2.

Release the solenoid retaining screw and withdraw solenoid and accept gate assembly from the cover by pushing the gate through from the inside. Care must be taken to ensure the solenoid to pcb connection is not damaged.

Refitment is the reverse of the above procedure.

### B2

#### Cleaning

The plastic coin rundown should be cleaned regularly to ensure accurate validation of coins and tokens. Only a damp cloth and a mild detergent

should be used, on no account can any solvent type cleaner or foam cleaner be used. Access to the rundown is gained by folding back the reject gate. Access to the accept gate is described in B1.2 and B1.3.

### B3

#### Fault Finding

The following information is presented for customers' guidance in determining a suspected fault, and does not cover all possible causes.

It is recommended that all faulty products be returned to a Coin Controls Group company or to an authorised repair centre. For further information contact the Coin Controls Technical Service Department.

| Symptom                               | Investigate                                 | Possible Cause   |
|---------------------------------------|---|--|
| Mech does not work (all coins reject) | Connector                                   | Poor contact<br>Ribbon cable damaged   |
|                                       | Power Supply                                | Not Switched On<br>Incorrect voltage<br>Inadequate power, power supply rise time too slow. |
|                                       | Inhibit Switches                            | Coins inhibited  |
|                                       | Inhibit Input                               | Mech inhibited   |
|                                       | Accept Gate                                 | Gate not free or dislocated  |
|                                       | Accept Channel                              | Obstruction in channel   |
| True coins reject too often           | Power Supply                                | Voltage less than 11V (NB Voltage drop when solenoid activated)                            |
|                                       | Accept Gate                                 | Gate not free or dislocated  |
|                                       | Connector                                   | Loose  |
| Coins stick or jam in mech            | Rundown,                                    | Dirt or mechanical damage/destruction  |
|                                       | Accept Channel, Reject Channel, Accept Gate |  |
| One of the true coins always rejects  | Interface                                   | Damaged ribbon cable   |
|                                       | Inhibit switches                            | Coin inhibited   |
| No accept signal                      | Connector                                   | Ribbon cable or connector loose or broken  |
|                                       | Accept Channel                              | Dirty or obstructed (mech timeout)   |

# 6.10

# Coin Mechanisms - Electronic

## INTERFACING

This section describes the method of interfacing with the C120, if further information is required contact Coin Controls Technical Services Department.

### C1

#### Power Supply

Voltage : 12 volts d.c.  
-1 +3 volts

Current : Typically  
70mA quiescent

: Typically  
300mA peak

#### IMPORTANT NOTE

*Operation of the coin mech outside the specification may cause malfunction or damage. It is important to ensure that the supply voltage remains within the quoted range throughout the Peak current periods of operation.*

### C2

#### Interface

The parallel interface connector is made via a 10-way ribbon cable with a polarised female IDC connector.

The following signals are available on this connector.

| Pin No. | Signal            | Active |
|---------|-------------------|--------|
| 1       | Ground (0v)       |        |
| 2       | +12v d.c.         |        |
| 3       | Accept coin 5     | Low    |
| 4       | Accept coin 6     | Low    |
| 5       | Not used          |        |
| 6       | Inhibit all coins | High   |
| 7       | Accept coin 1     | Low    |
| 8       | Accept coin 2     | Low    |
| 9       | Accept coin 3     | Low    |
| 10      | Accept coin 4     | Low    |

### C2.1

#### Coin Accept Outputs (Pins 3,4,7,8,9 and 10)

Each coin accept output consists of an open collector NPN transistor. On acceptance of a true coin the transistor is turned on for a period of 80 mSec +/- 20%.

< 0.7 volts at 50mA.

The host machine must look for valid credit pulses NOT LESS THAN 50 mS. It is not sufficient to merely detect the edges of credit pulses. This "debounce" will prevent credits being registered by the host machine as a result of any noise or false credit pulses being induced on the output lines.

### C2.2

#### Inhibit All Coins (Pin 6)

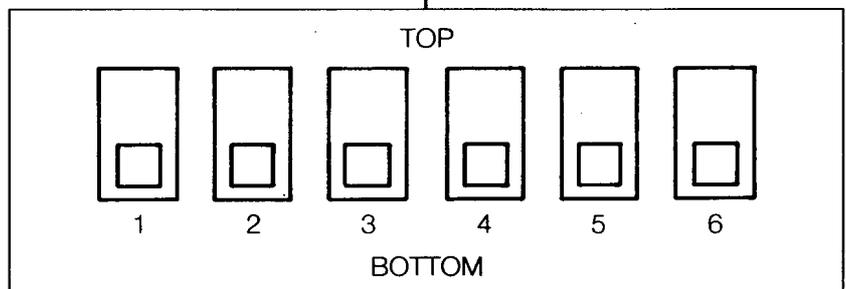
When this input is high (>2.0 volts) all coins are rejected. When low (<1.2 volts), individual coin inhibit is determined by D.I.L. switch - see section C3. By default, this line is low.

### C3

#### Selective Coin Inhibit

Individual coins can be inhibited/enabled through the operation of D.I.L. switches located on the pcb under the back cover. For access see section B1.1.

Inhibit Switches



Each coin (1 to 6) has a correspondingly numbered switch which, when in the Down position, enables the coin and when in the Up position, inhibits the coin.

### C4

#### High security windows

A high security option is available on upto 2 coins selectable through the use of the Inhibit switches.

This option is only available if it has been specifically programmed at the factory, and will be indicated on the coinage label with the letter h after the appropriate coin. The standard configuration for high security is as detailed below:-

Normal security available on coins in positions 1, 2, 3 and 4.

High security available on coin 5 and 6 linked to coins 3 and 4.

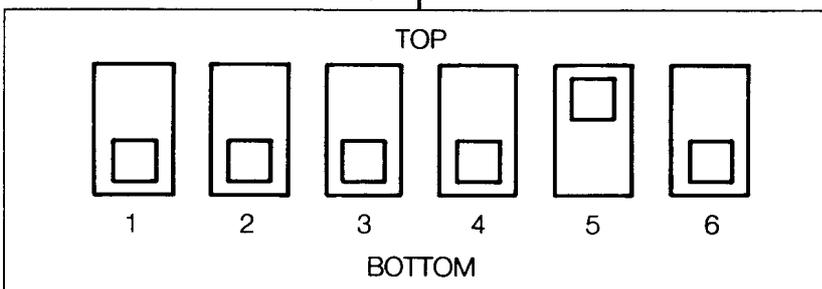
e.g.

|          | Coin Number |    |    |    |      |    |
|----------|-------------|----|----|----|------|----|
|          | 1           | 2  | 3  | 4  | 5    | 6  |
| Coinage  | 100         | 50 | 25 | 10 | 25   | 10 |
| Security | Normal      |    |    |    | High |    |

To enable the high security specification the high security coin D.I.L. switch must be in the Up position.

e.g. To achieve normal security on coins 100, 50 and 10, with high security on 25, switch 5 must be Up.

High Security Setting



## ENVIRONMENTAL CONDITIONS

### D1 Operating Conditions

Temperature range : 0°C - 55°C

Relative Humidity : 20% to 75% non-condensing

### D2 Storage Conditions

Temperature range : -30°C - 55°C

Relative Humidity : 10% to 85% non-condensing

### D3 Orientation

The C120 is designed to operate vertically with a maximum angle of operation of +/- 5° from the vertical in any plane.

# 6.12

# Coin Mechanisms - Electronic

## EXPLODED DIAGRAM - C120 SERIES.

**FIG. 1**

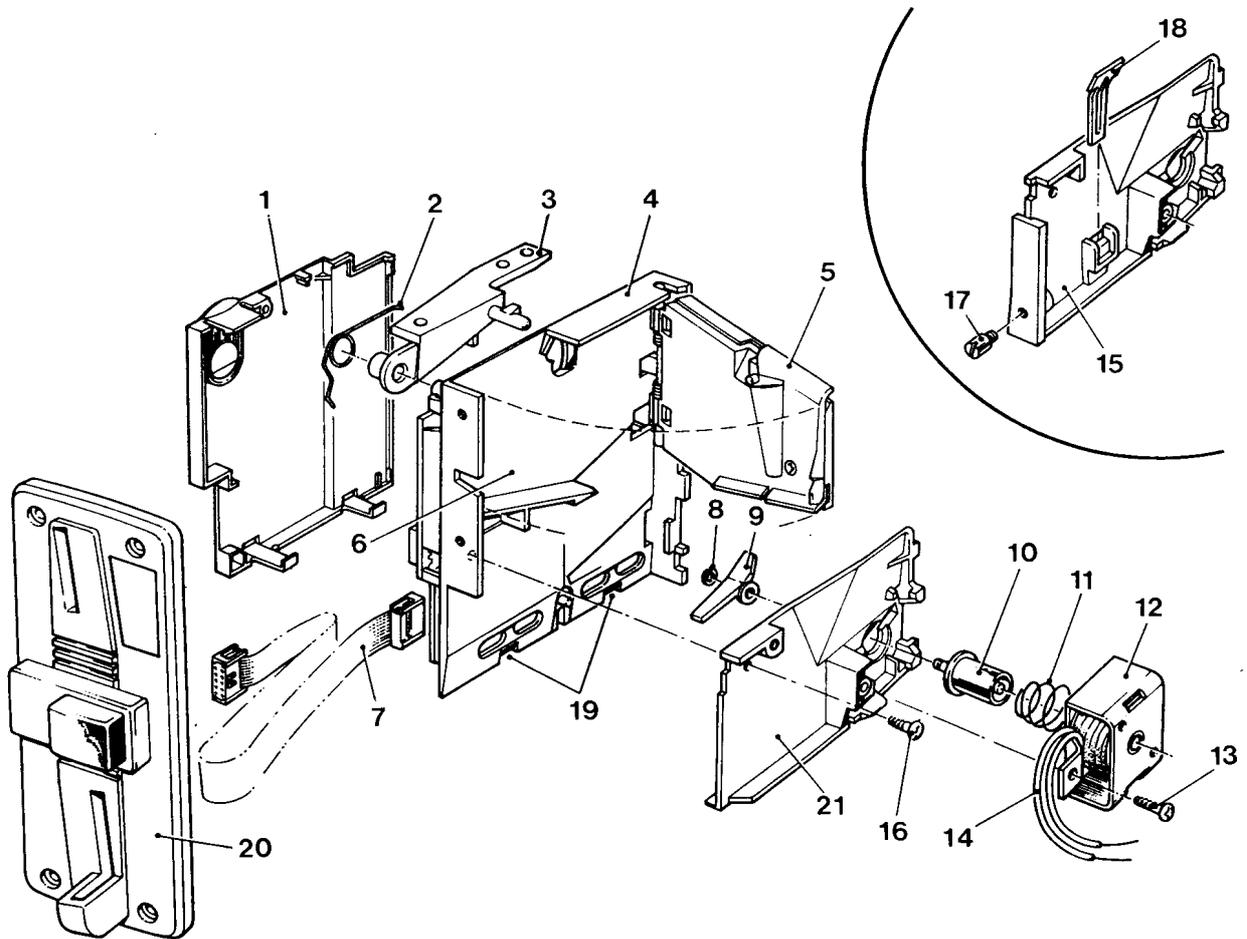
- 1. Back cover
- 2. Reject lever spring
- 3. Reject lever
- 4. Main body
- 5. Reject gate
- 6. Rundown
- 7. Interface loom
- 8. Accept gate circlip
- 9. Accept gate
- 10. Pole piece
- 11. Accept gate spring

- 12. Solenoid
- 13. Solenoid retaining screw
- 14. Solenoid to PCB connection
- 15. Reject cover (standard body)
- 16. Reject cover retaining screw
- 17. Mounting studs
- 18. Non-return catch
- 19. Accept sensors

**Options**

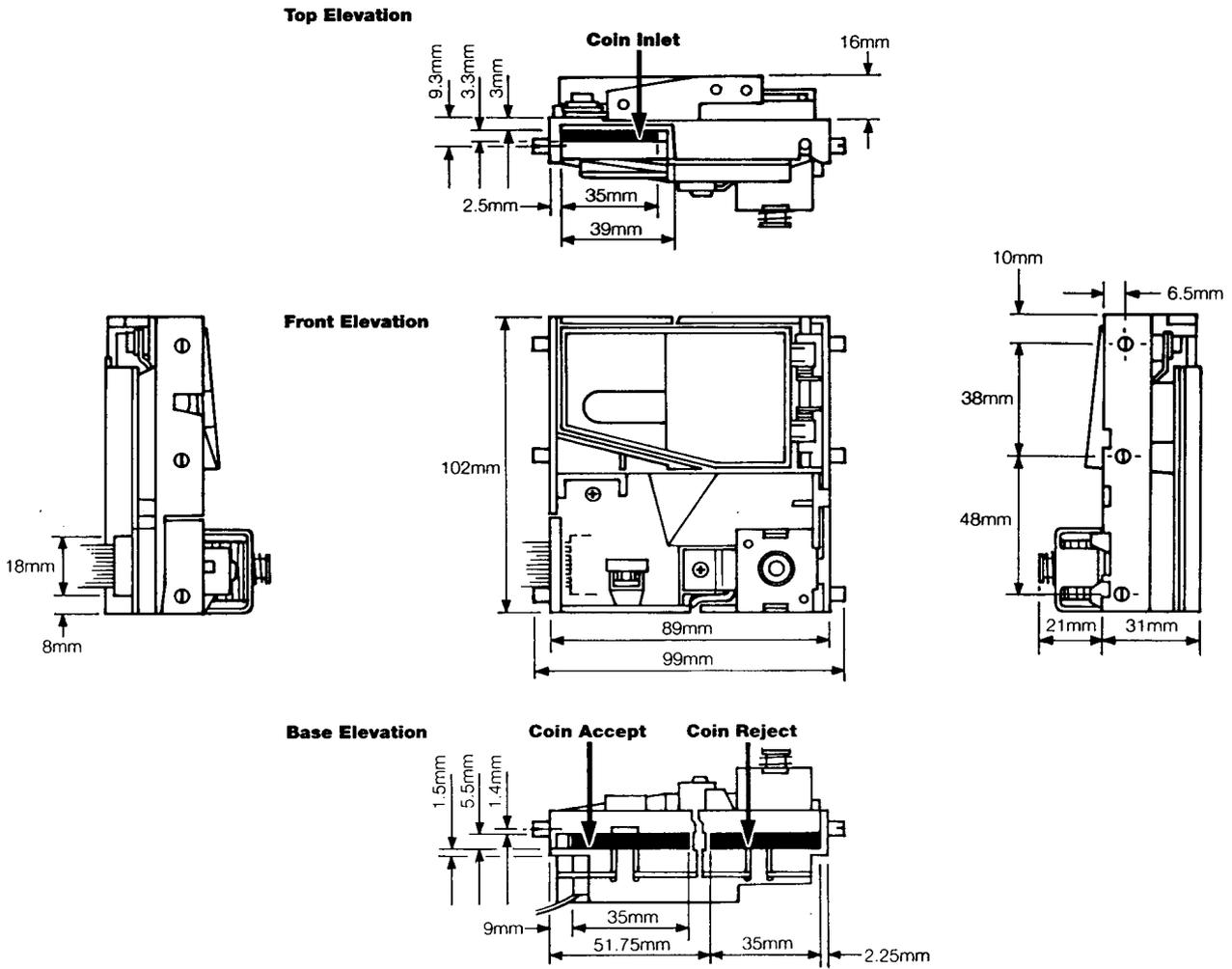
- 20. Frontplate
- 21. Reject cover (Frontplate validator)

**ALTERNATIVE OPTION**



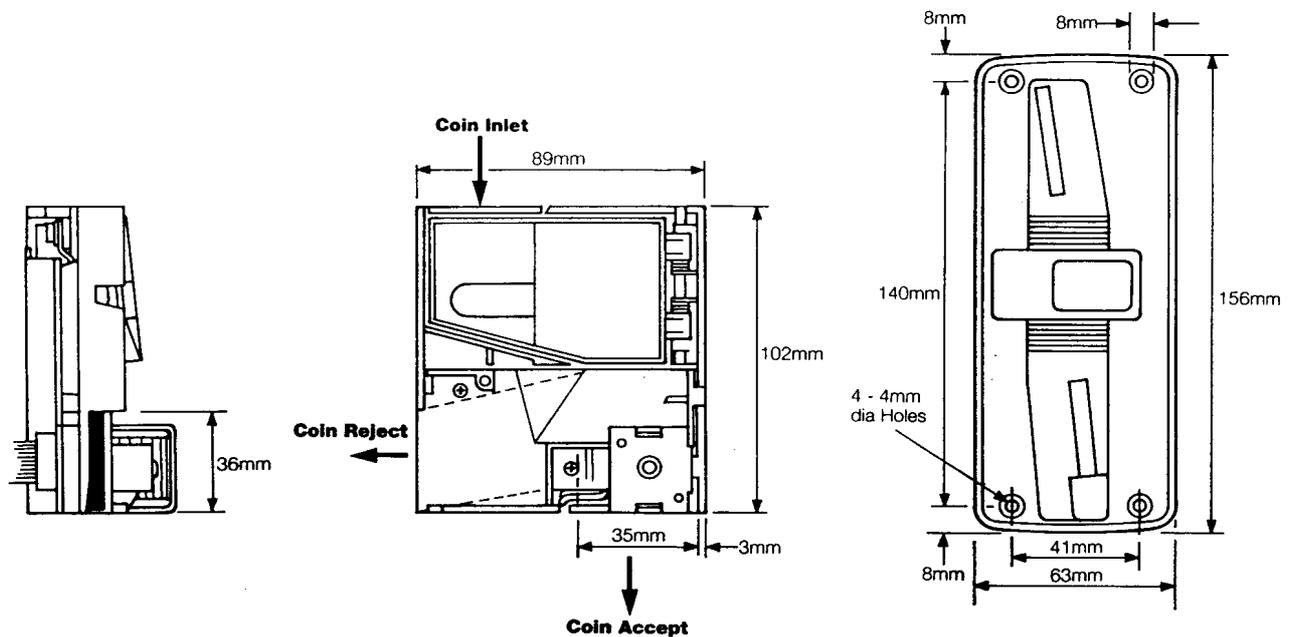
**C120 - Fig 2**

## C120 STANDARD BODY



**C120 - Fig 3**

## C120 FRONTPLATE VALIDATOR





## *NRI Electronic Validator*

### *G-13*

### Introduction

The mechanism is pre-programmed to accept 10p, 20p, 50p, and £1 coins. It is connected to the timer/control unit via an interface unit that is mounted within the toy body.

### Programming the validator

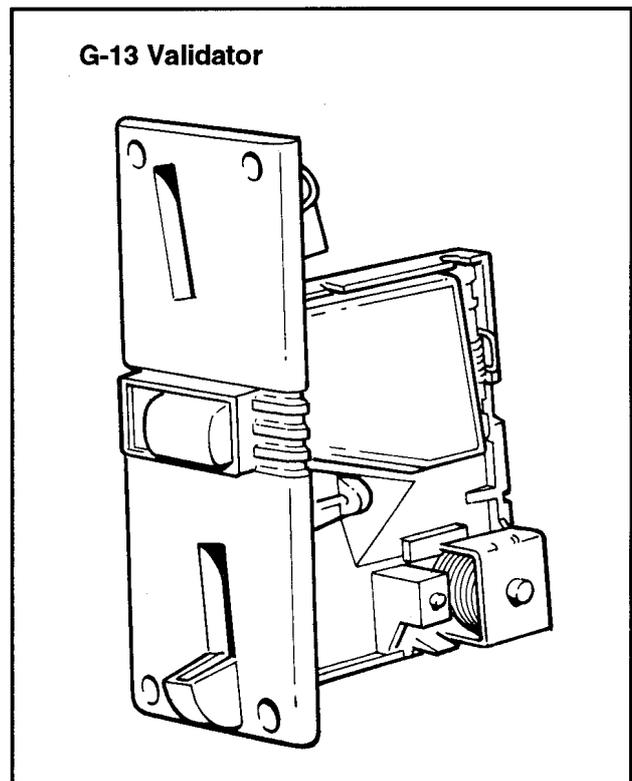
If the validator is required to be re-programmed to accept a different range of coins, then this must be done by a suitably qualified service engineer or alternatively the validator should be returned to the factory.

### Coin measuring principle

When a coin is inserted into the mechanism it rolls down an incline that has three inductive sensors positioned along its length. These sensors detect the coin material, thickness, diameter and embossing.

As the influence of the coin parameters on the coins is very different, best possible selectivity is obtained by the combination of the three sensors.

The passing coin activates the sensors, providing different voltage measuring values. These voltages are digitized and processed within the micro-processor.



### Parameters

**Acceptance:**

Up to six different coins

**Diameter of coin:**

Between 15 & 31mm

**Thickness of coin:**

Between 1.5 & 2.6 (3.3)mm

**Temperature range:**

0°C up to 55°C

**Power supply:**

12 volts D.C. (+3, -1 volts tolerances)

## Servicing

**WARNING** Ensure mains power is turned off and disconnected before opening any access panels.



Only suitably qualified service engineers are permitted to make adjustments to the coin mechanism.

### Cleaning frontplate

When cleaning the frontplate of the mechanism use only a damp cloth and a small amount of detergent. **No solvents or abrasives should be used.**

### Removal

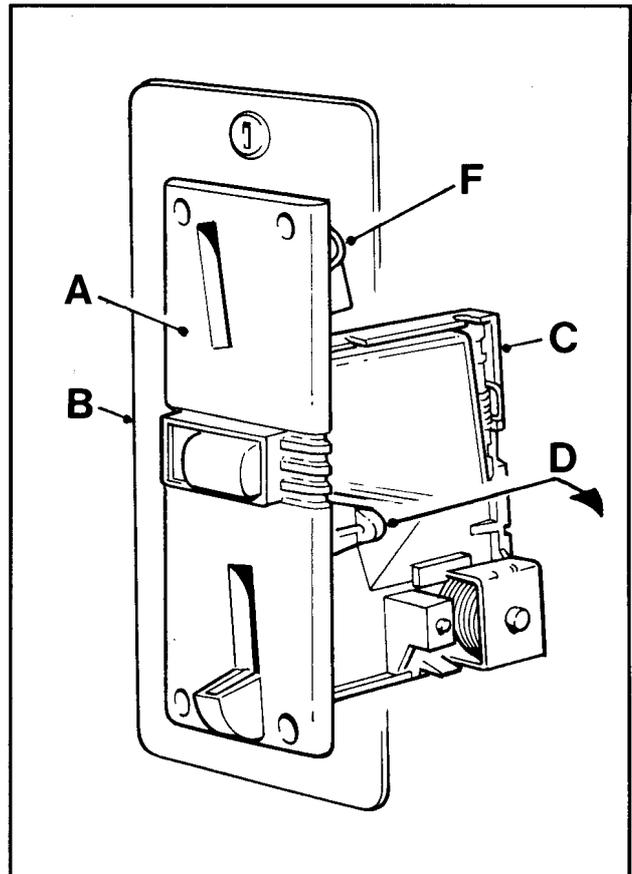
**Note:** The frontplate (A) is retained by screws and protrudes back through the removable panel (B). The mechanism (C) is clipped to the rear of the frontplate.

Removing the mechanism (C) does not require the frontplate (A) to be unscrewed from the panel (B).

Unlock and remove panel (B), complete with coin mechanism, from toy.

Disconnect the ribbon cable from the interface.

Locate the plastic moulded clip (D) on the side of the frontplate. Gently ease it away from the mechanism, while simultaneously pulling the mechanism backwards away from the frontplate.



### Cleaning inside mechanism

To give access to the coin path; open the spring loaded side panel (E).

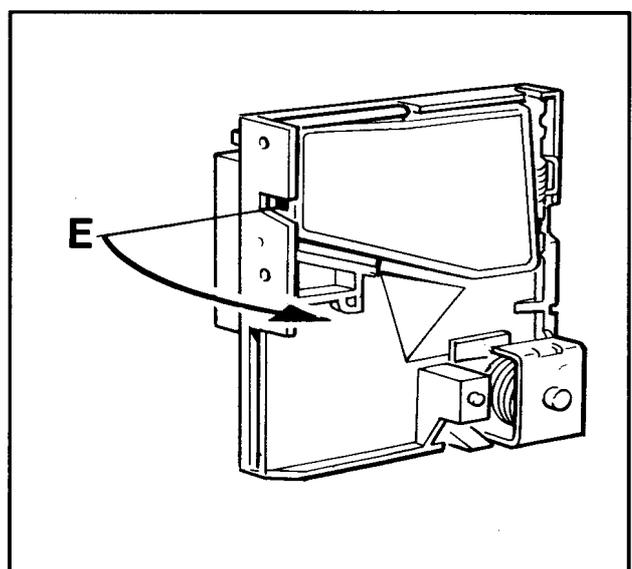
The coin path should be kept clean using only a damp cloth and a small amount of detergent. **No solvents or abrasives should be used.**

### Reassembly

Reassemble in the reverse order.

**Note:** The metal tag (F) (where fitted) attached to the frontplate is to hang freely in the slot at the top of the mechanism.

On refitting to the toy care must be taken not to trap the ribbon cable.



## Fault finding, G-13

| Fault   | Check  | Possible reason for fault   |
|---|--|---|
| Coins are rejected.<br>Mechanism fails to work: | Electrical connection<br>Power supply<br><br>Inhibit input<br>Inhibit switches<br>Accept solenoid<br>Accept path | Ribbon cable damaged or loose contact.<br>Supply not switched on.<br>Voltage level not correct<br>Insufficient power.<br>Mechanism inhibited<br>Coins inhibited<br>Solenoid not free or dislocated<br>Obstruction in path |
| True coins rejected too often:                  | Power supply<br><br>Accept solenoid<br>Connector<br>Coin path  | Voltage less than 11V<br>(voltage drop when solenoid activated)<br>Solenoid not free or dislocated<br>Loose<br>Dirty  |
| Coins jam in mechanism:                         | Coin path<br>Accept path<br>Reject path<br>Accept solenoid   | Dirt or damage  |
| One of the true coins<br>always rejected:       | Inhibit switches   | Ribbon cable damaged<br>Coin inhibited  |
| No accept signal:                               | Electrical connection<br>Accept path   | Ribbon cable or connector loose or broken<br>Dirty or obstructed  |

## Technical Data

### Pin assignment:

(See "Interface Connector" diagram.)

### Coin inhibit (Pin 6)

An external voltage controls coin acceptance.

Inhibit: >2.0 volts

Acceptance: <1.2 volts

Umax: 35 volts

### Single coin inhibit

By Dual-in-line switches at the validator.

### Coin return signal (Pin 5)

Coin return: <0.7 volts low active / 150 mA  
open collector, NPN-transistor

### Coin signals (Pins 3, 4, 7, 8, 9, 10)

Coin signals: <0.7 volts active low / 150 mA  
open collector, NPN-transistor

I max = 150 mA, Umax 35 volts

Time of pulses: 100 msec +/- 10%

typical: 100 msec

### Power supply 12 volts D.C. (Pins 1, 2)

Tolerances: +3 , -1 volts

### Current consumption

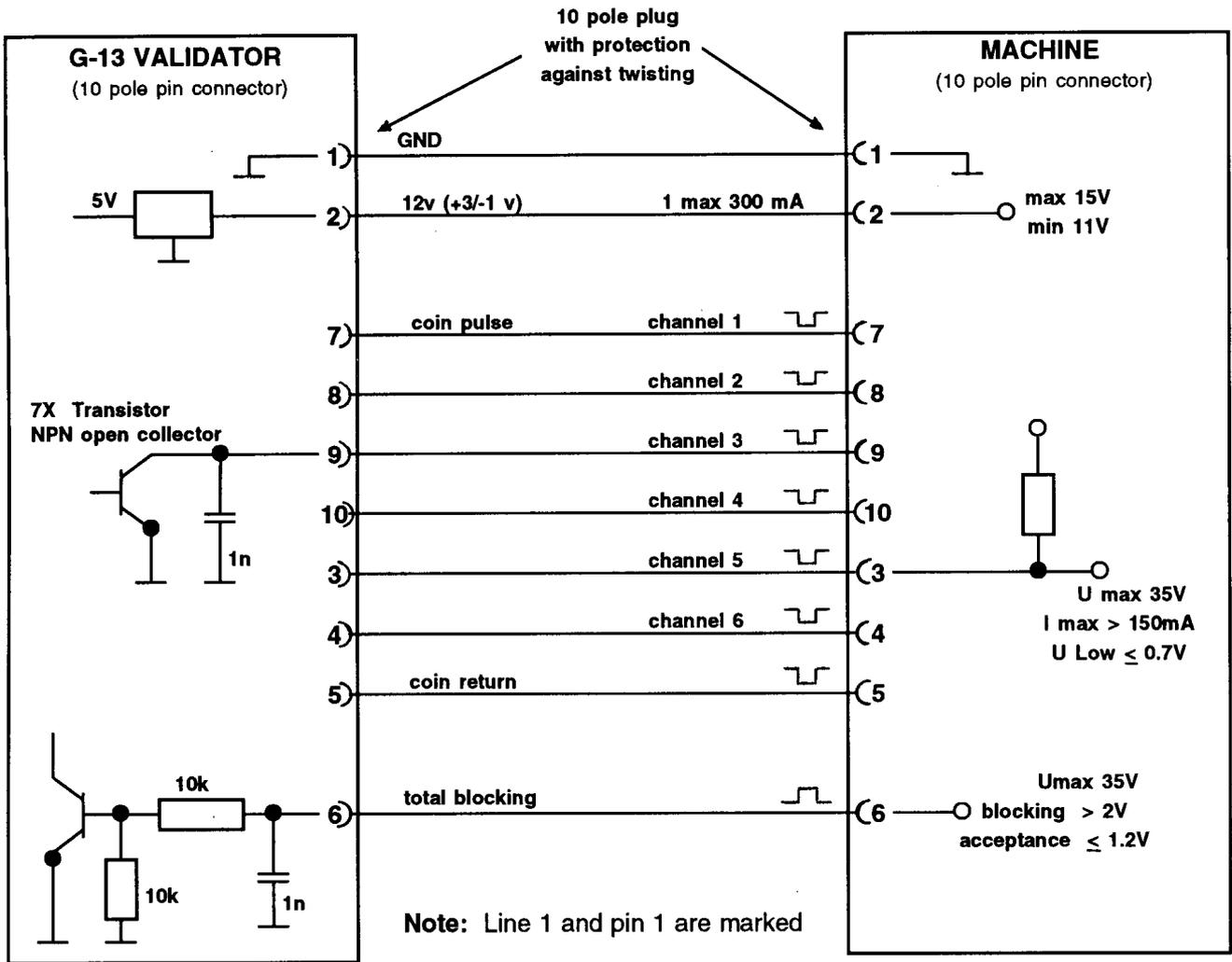
Standby: approximately 150 mA

At coin acceptance: approximately 300 mA

# 6.18

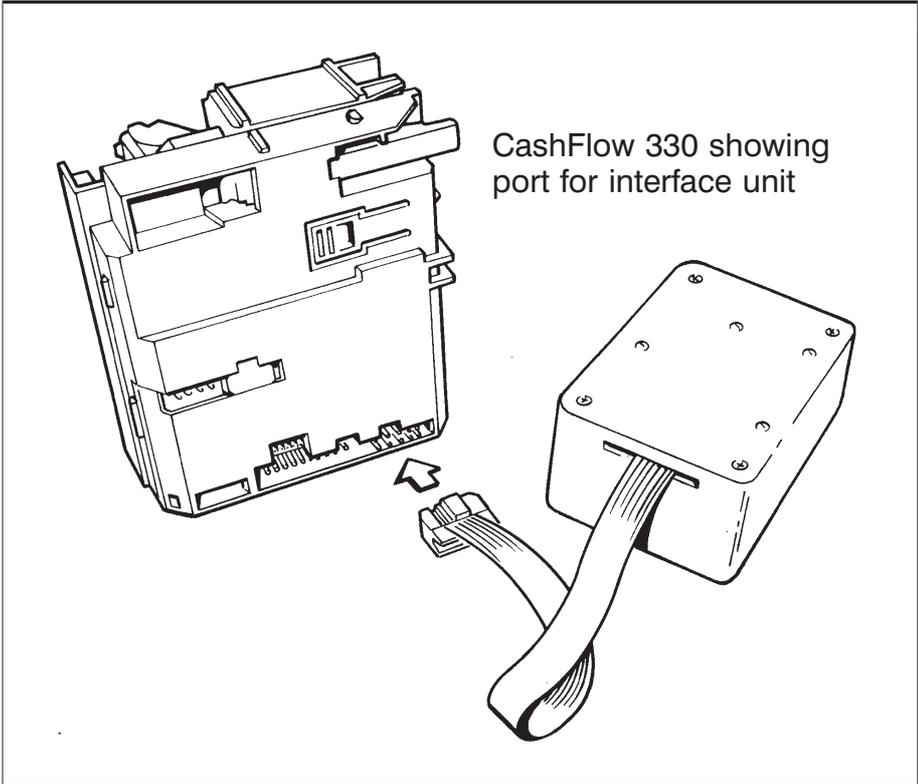
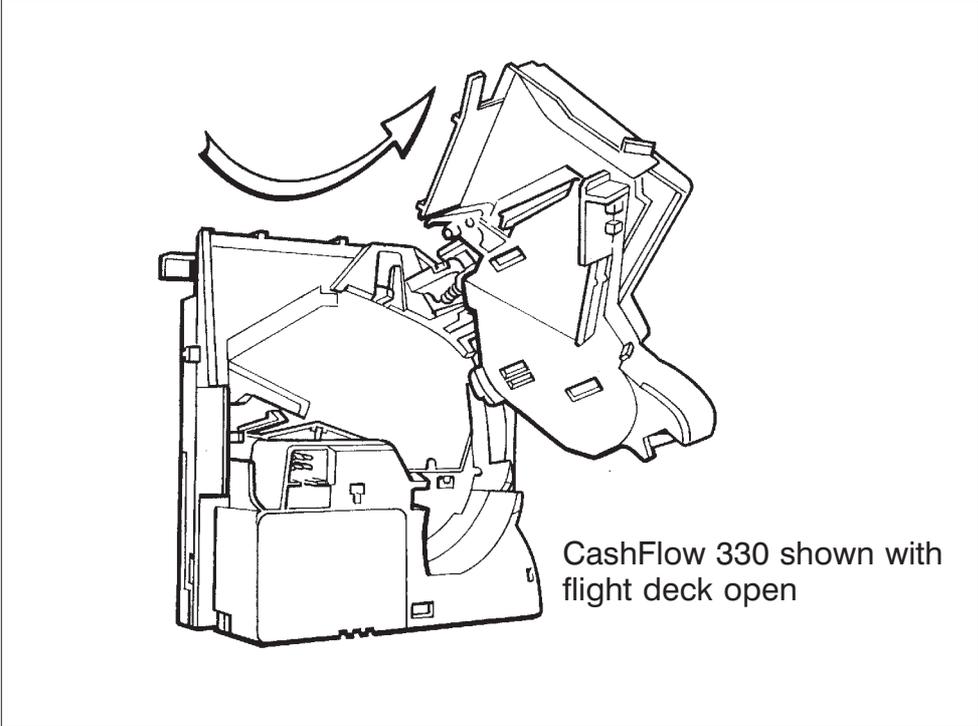
# Coin Mechanisms - Electronic

## Interface connector





*CashFlow 330 validator*



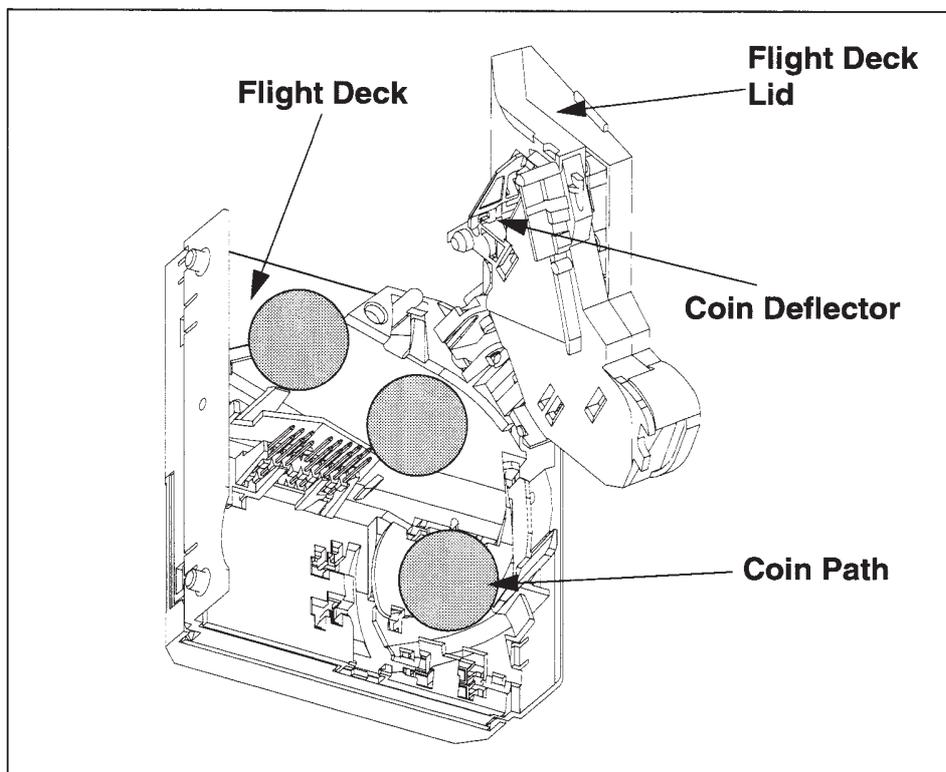
## GLOSSARY

|                                |  |
|--------------------------------|--|
| <b>Acceptor</b>                | The unit which accepts and validates coins. Made up of various modules.  |
| <b>Accept Gate</b>             | A control module that routes coins. Forms part of the Acceptor   |
| <b>Adaptor</b>                 | Plastic moulding to house the Acceptor and replicate 5" product envelope.  |
| <b>Back Cover</b>              | Plastic moulding which houses the discriminator. Forms part of the Acceptor.   |
| <b>Channel</b>                 | A mounting assembly generally fitted in the host machine.  |
| <b>Coin Entry</b>              | The opening where coins enter the Acceptor.  |
| <b>Discriminator</b>           | The module which discriminates coins using the sensors on both the flight deck and the flight deck lid. Forms part of the Acceptor.    |
| <b>Dual Polarity Interface</b> | A specific customer interface that provides a single output circuit to work with both positive and negative common customer interfaces |
| <b>Front Plate</b>             | Accessory which is available for providing Front entry coin option.  |
| <b>Interface</b>               | The electrical or mechanical boundary between the validator and the host machine.  |
| <b>0V Common Interface</b>     | A specific customer interface that uses open collector outputs referenced to 0V  |
| <b>SELV</b>                    | Safety Extra Low Voltage supply. Applicable only where the Acceptor is used as a stand alone product.                                  |

## PRODUCT OPERATION

### MECHANICAL

The discriminator comprises a flight deck and lid which together form the coin control and flight path. On the inside of the flight deck lid there is a mechanical device incorporated near the coin entry point. This device is known as the coin deflector and brings coins under control by either removing or dampens their inherent kinetic energy. It also acts as a cotton catcher.



There is a hinge at the top right hand side of the flight deck which allows coupling of the lid via an intermediate component, known as the flight deck lid arm. This allows the lid to locate accurately to the flight deck independently of the hinge. The lid also maintains a parallel coin throat by being spaced from the deck on three bosses which locate the lid to the deck.

The design of the lid arm hinge area allows the lid to open to 180 deg. relative to the deck. The opening is restricted to just over 100 deg. by the back cover to prevent the lid fouling other parts such as front plates etc.

The action of the hinge spring allows the lid to remain open when past about 100 deg. and will snap shut when closed to about 60 deg.

although the lid will need to be pressed to ensure that it is correctly seated against the deck.

Clearance of any debris or jammed coins from the acceptor is carried out by opening the lid. This is done by pressing the reject lever which is located behind the coin entry.

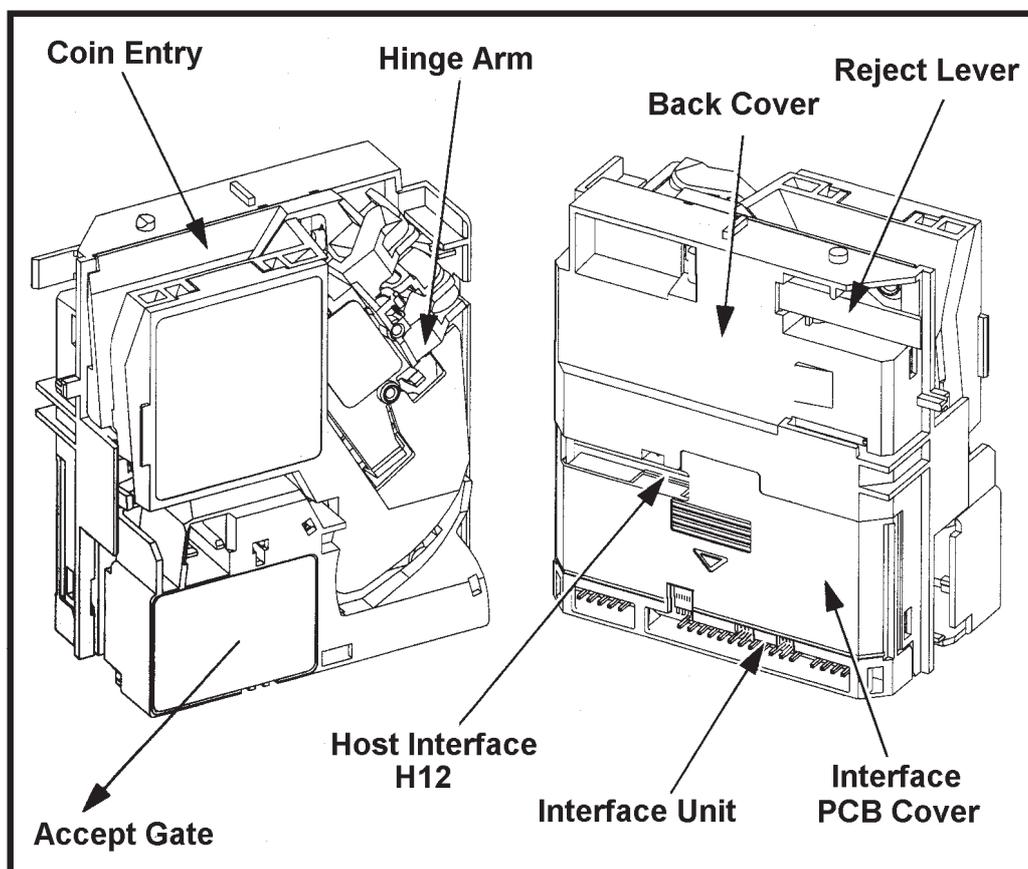
The reject lever assembly forms part of the back cover assembly and there are versions available for front and top entry mounted acceptors. They both clip on to the discrimination module.

For front plate mounted acceptors the reject lever assembly is located on the back of the back cover.

For channel mounted acceptors the reject lever assembly is located on the top of the back cover.

The lid opening is articulated so as to remain essentially parallel to the flight deck as the gap between them is increased. This means that the acceptor can be defined within a smaller total volume envelope while offering the best coin jam clearance. This means that the edge of the lid furthest from the hinge does not have to open more to give greater clearance at the hinge end.

The discriminator also provides the mounting for the PCB.

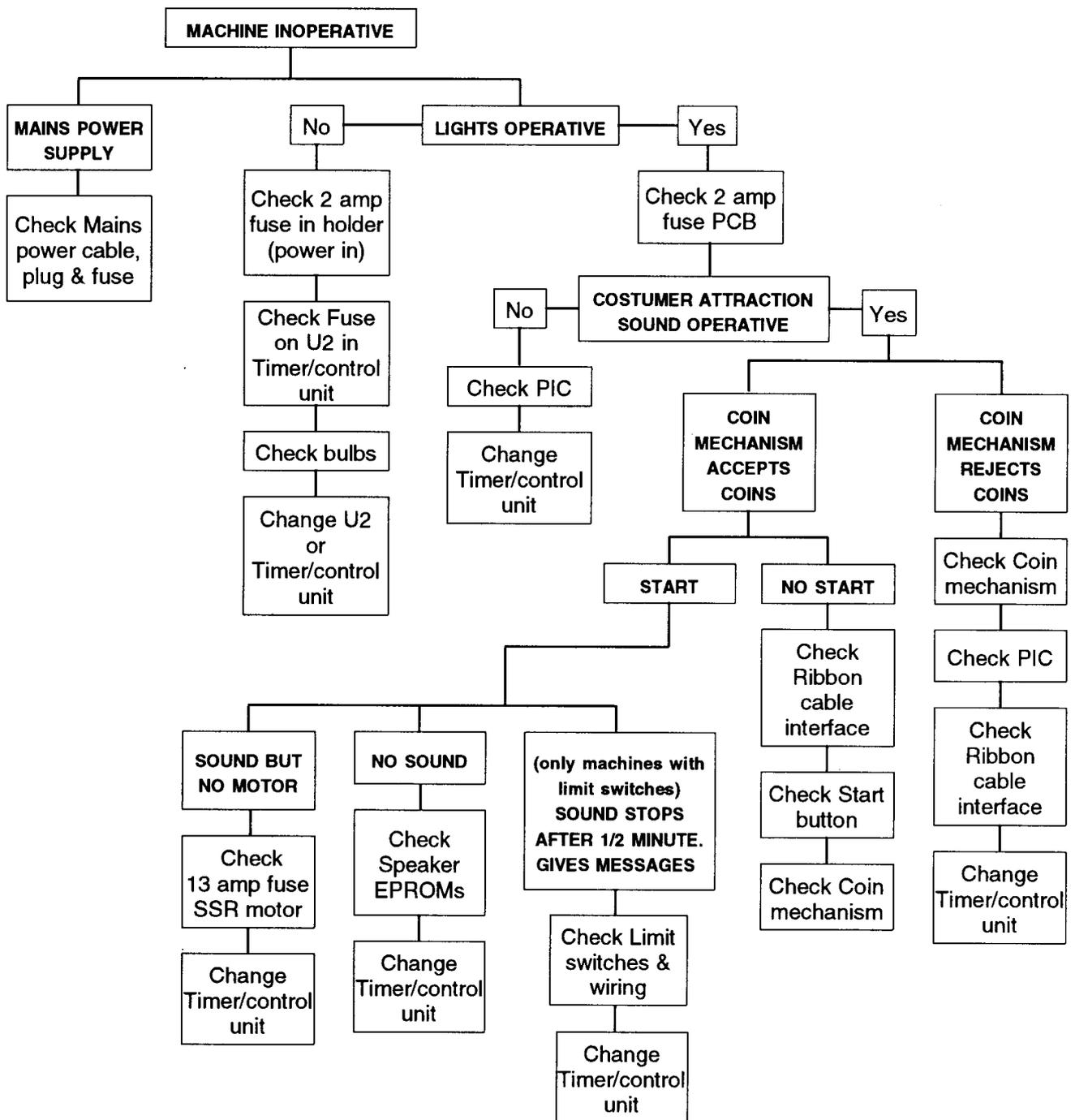




# Section 7

## *Fault Finding*

**Fault finding chart**



## **Section 8**

### *Examination and Test*

#### **Basic procedure of Examination & Test**

A passenger-carrying amusement device should not be used unless a current valid certificate of initial test has been provided, showing that the device is safe to operate.

Every passenger carrying amusement device in operational use, together with all its ancillary parts and gear, should be thoroughly examined at least once in every 14-month period.

The appointed person need not be independent but should be at least 21 years old and competent by such qualifications, knowledge, experience and supporting services to make an assessment of the safety of the ride including and associated equipment/parts, e.g. electrical, hydraulic or pneumatic. The appointed person should have technical competence to recognise the significance of the effects of stresses, loadings and fatigue and also be competent to determine the extent of permissible wear.

#### **1 Mechanical Examination**

- 1.1 Remove inspection covers (where fitted) or sufficient casings so as to allow thorough examination of all moving parts and any part of the structure which could conceivably be regarded as vital to the safe running of the ride.
- 1.2 Check that all bolts and nuts are tight and fitted with shake-proof washers, spring washers or Nyloc nut where appropriate.
- 1.3 Check that all bearings are in good condition and lubricated where necessary.
- 1.4 Check that lubrication levels are correct where appropriate.
- 1.5 Check that couplings and drive belts are in good condition. Ensure that all seals are secure.
- 1.6 Check passenger restraints (where fitted) for effectiveness.

#### **2 Electrical Examination**

- 2.1 Removed all covers.

Check that the mains input lead and plug are not damaged and that the polarity is correct.

Check terminals for correct fitting and tightness.

Check that all connections, terminals and cables are free from damp, dirt and corrosion.

Check cables for abrasions to the sheath or insulation. Renewed as required.

- 2.2 Check that fuses are of the correct rating and type.

- 2.3 Check that any metal parts of the machine such as the base, drive mechanism or metal parts attached thereto, which could possibly come into contact with, or have any connection to components which are supplied by mains voltage, are securely earthed.

Check annually, the earth paths to the furthest points of the machine.

- 2.4 Metal parts that form part of the SELV circuit, **SHOULD NOT BE EARTHED.**

**NOTE** The term SELV (Safety Extra Voltage) is a voltage not exceeding 50 volts AC or 120 volts DC which is provided from an isolating transformer to BS 3535 or other source providing equivalent isolation.

Metal parts that are completely remote from the possibility of contact with electrical parts, or induced currents, **SHOULD NOT BE EARTHED.**

- 2.5 A portable appliance test should be carried out to verify the manual examination and the results recorded.

The machine must be re-tested using the 'PAT 500' equipment when earth terminals within the machine have been disturbed or disconnected.

The method of using the 'PAT 500' equipment is described in literature supplied with that equipment. All company approved service engineers are familiar with its use.

**NOTE** If no 'PAT' tester is available then use suitable electrical test equipment to register the following limits:

- i Earth Continuity (Bonding), IEE regulations 0.3 ohms max. at a test current of 25 amps.
- ii Insulation Protection, IEE regulations 2 megohms at a test voltage of 500-600 volts.

### **2.7 Final test:**

Sit a minimum load (equivalent to 45kg per child) onto or in the ride, then insert a coin and operate the ride.

If all checks are found to be correct, fill in the appropriate form. (see sample of form at the end of this 'Examination and Test' section)

If any defects are found, disconnect the machine. (This should include the removal of fuses or other means of immobilisation.)

Immediately Inform the operator or person responsible that the machine is defective and is immobile.

# SERVICE MANUAL section 10.1

for

## *Four-Track, Mr. Postie & Convertible*

### Contents

|                                      |             |
|--------------------------------------|-------------|
| Customer operation of toy            | Page 10.1.1 |
| Emptying the cash box                | 10.1.1      |
| Alarm system ( <i>Where fitted</i> ) | 10.1.1      |
| Servicing                            | 10.1.2      |
| Replacement parts                    | 10.1.5      |

### Weight & Dimensions

|        |  |
|--------|--|
| Weight | 140 kg   |
| Length | 165 cm   |
| Width  | 76 cm  |
| Height | 137 cm (Four-track & Mr. Postie)<br>126 cm (Convertible) |

### Customer operation of toy

The car is a two seater Children's Ride.

Whilst the machine is connected to a live power supply the head lights and interior button switches (10) flash constantly.

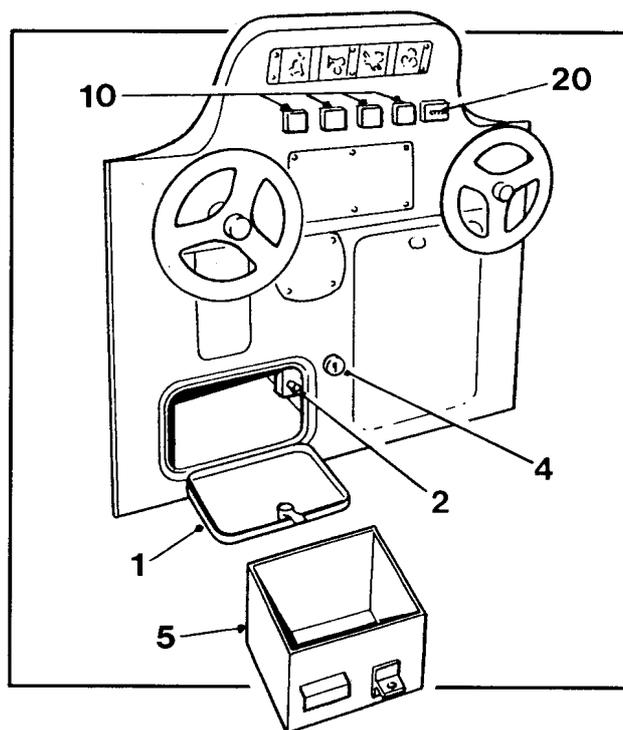
A teaser sound track repeats every 120 seconds when the ride is not credited.

A yellow "Start" button (20) flashes when a ride has been credited.

This is followed by an oral request, either; "Press Start Button" or "Insufficient Money"

Whilst in motion there is a constant engine sound and, depending upon the type of car, added sound effects are available on pressing the coloured button switches (10).

When the pre-set duration of the ride has been reached, the ride will stop, accompanied by the oral prompt of "Thank You".



### Maintenance

#### Emptying the cash box

Disarm the alarm (*where fitted*) by inserting and turning the alarm key in the key-switch (4). (The key-switch (4) is located near the cash box door.)

Unlock and open the cash box door (1).

Release the cash box (5) by removing the clip or padlock.

Slide the cash box out and empty.

Refit in the reverse order.

#### Cancelling or disarming the alarm system (*where fitted*)

An alarm is fitted to protect the cash box.

The alarm is triggered by a microswitch (2) that is released when the cash box door (1) is opened.

To disarm, or cancel an already activated alarm, insert and turn the alarm key in the key-switch (4). (The key-switch (4) is located near the cash box door.)

## 10.1.2

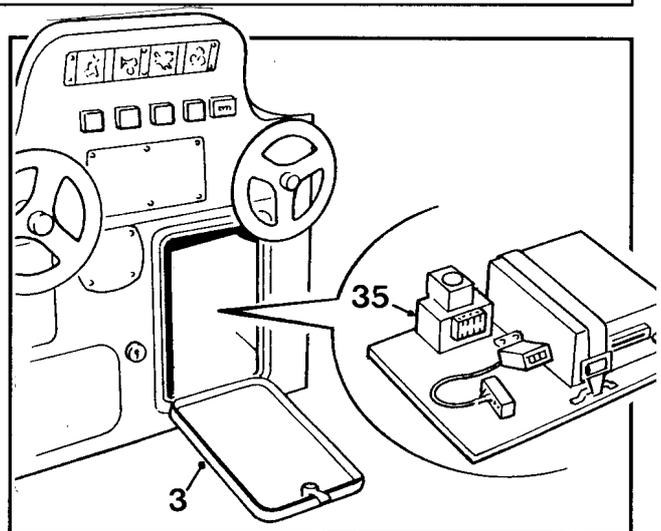
## SERVICING

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

Should the alarm have been operating for some time, it will be necessary to replace the batteries. The batteries are located in the alarm unit (35) which is situated within the right-hand door (3).

### Servicing

**WARNING** Read safety instructions first.  
Disconnect electrical power before opening any access panels.



### Base access panel

The panel (60) at the rear of the base will give access for servicing the P.S. unit and relays. Better access is gained by removing the toy.  
(See Toy from base removal.)

### Toy from base removal

If possible, place the complete machine onto a bench.

Remove the front (62) and rear covers (61).

To give access to the front retaining nuts (64), move the toy backwards either by using its own motor power or by manually turning the gearbox belt (46).

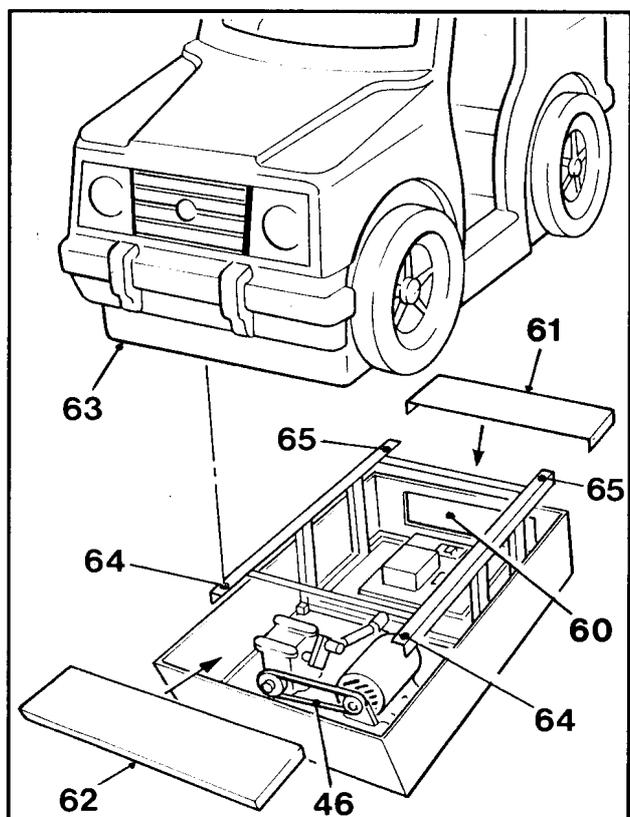
Remove the front nuts (64). (They are fastened onto screws that are captivated on the underside of the toy.)

Move the toy forwards and remove the rear nuts (65).

Unplug and release all cables connected between the toy to the base.

Lift the toy (63) from the base.

Re-assemble the toy (63) to the base in the reverse order.

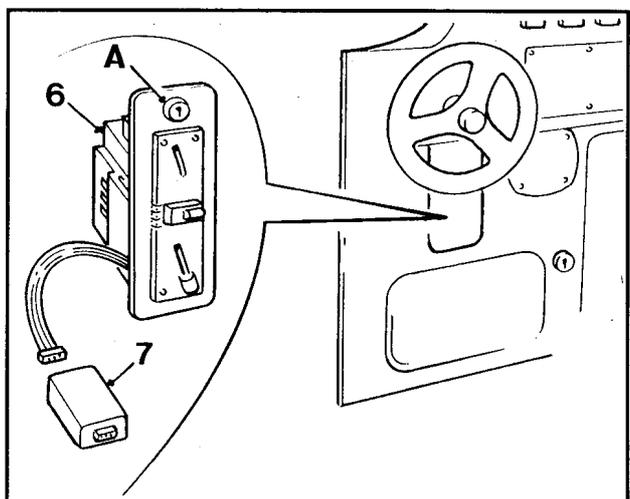


### Coin Mechanism: removal / replacing

The coin mechanism (6) is released by the use of a key (A). Once released, unplug the mechanism from the interface unit (7).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a microswitch.

For further details about the unit see the relevant Coin mechanism section in this manual.



## Rolling Road

The rolling road (26) consists of a film wrapped around the inside of a transparent drum (27), which is illuminated from the inside by a bulb (28). The drum is rotated by the motor (29).

**Note:** Should the motor fail, the heat from the bulb could melt the film.

### Replacing the Bulb, or 'Road' Film

Remove the screen (25) by releasing its fixing screws.

At the motor end of the drum, where it attaches to the drive shaft, loosen the two diagonally opposed grub screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

**A Bulb:** Remove/replace the bulb (28). Refit drum and screen.

**B 'Road' Film:** The film is held in place within the drum (27) with a single drop of Superglue on the outside edge.

Prise the film free with a knife and slide it out. *(Note the orientation of the film before removing it.)*

Cut the new film to the same length as the old one.

Roll it and slide it into the drum, ensuring it is in the correct way around.

Fasten the film in place with a single drop of Superglue on the edge.

Re-assemble the drum and fit the screen (25).

### Replacing the Rolling Road motor

To replace the rolling road motor it is necessary to remove the complete rolling road assembly (26) as follows:

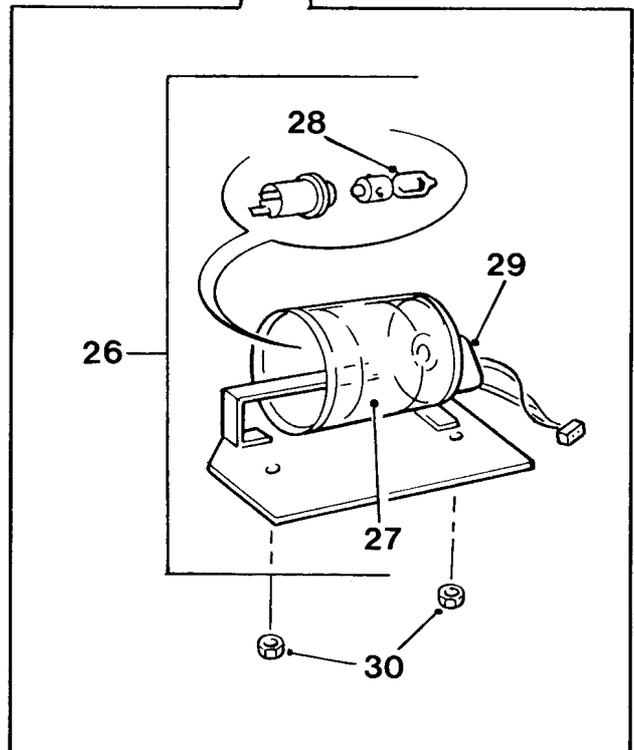
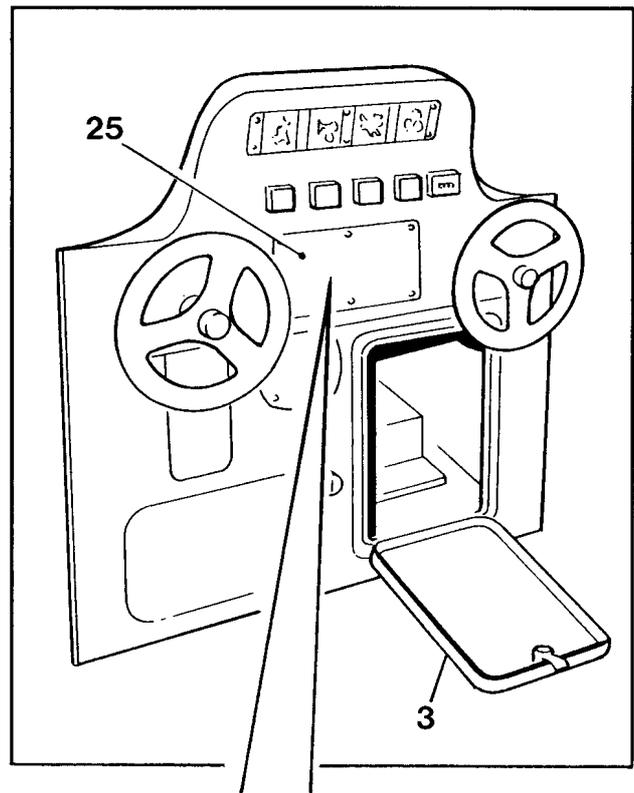
Gain access up through the right-hand door (3).

Release the rolling road cables from their clips down the forward face of the console.

Locate and remove the two nuts (30) retaining the rolling road to the console. The assembly will now be free to lower out through the door (3).

Remove the drum (27) from where it is attached to the drive shaft by loosening the two diagonally opposed grub screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.



Remove the nuts and bolts that retain the motor/gearbox (29) and withdraw the complete assembly. (The motor and gearbox are replaced as a unit.)

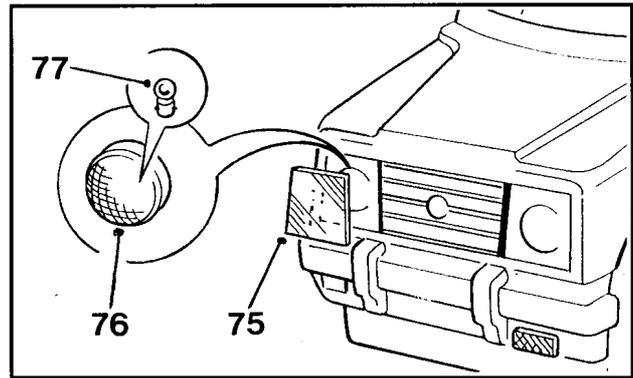
Re-assemble in the reverse order.

### Headlamp bulb replacment

Remove the screws retaining the headlamp cover (75).

Remove the lens from headlamp (76). Replace bulb (77).

Re-assemble in the reverse order.



### Speaker removal

Gain access through the right-hand door (3).

Locate and remove the screws that retain the speaker (40). Gently ease the speaker forwards from the console (The electrical cables are soldered to the speaker.)

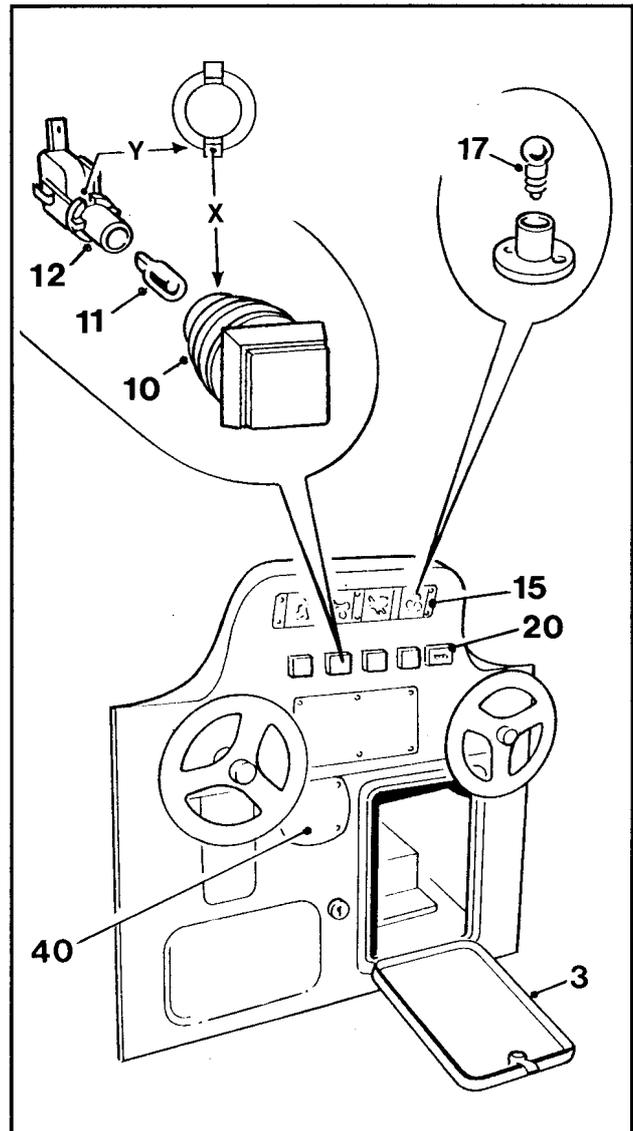
Re-assemble in the reverse order.

### Picture bulbs replacment

Remove the screws retaining the picture screen (15).

Unscrew and replace bulb (17).

Re-fit the picture screen (15)



### Button switches, and bulbs

When pressed, the button switches (10) are illuminated by a bulb (11). The bulb is mounted within a snap-in retainer (12) that is pushed into the back of the switch.

(The retainer (12) also has a microswitch clipped to it.)

#### Bulb replacement:

Gain access up through the right-hand door (3).

Locate the bulb retainer (12) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (11) from the retainer (12) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

#### Button switch replacement

Remove the bulb/retainer (12) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the button switch (10) from the console. Refit in the reverse order.

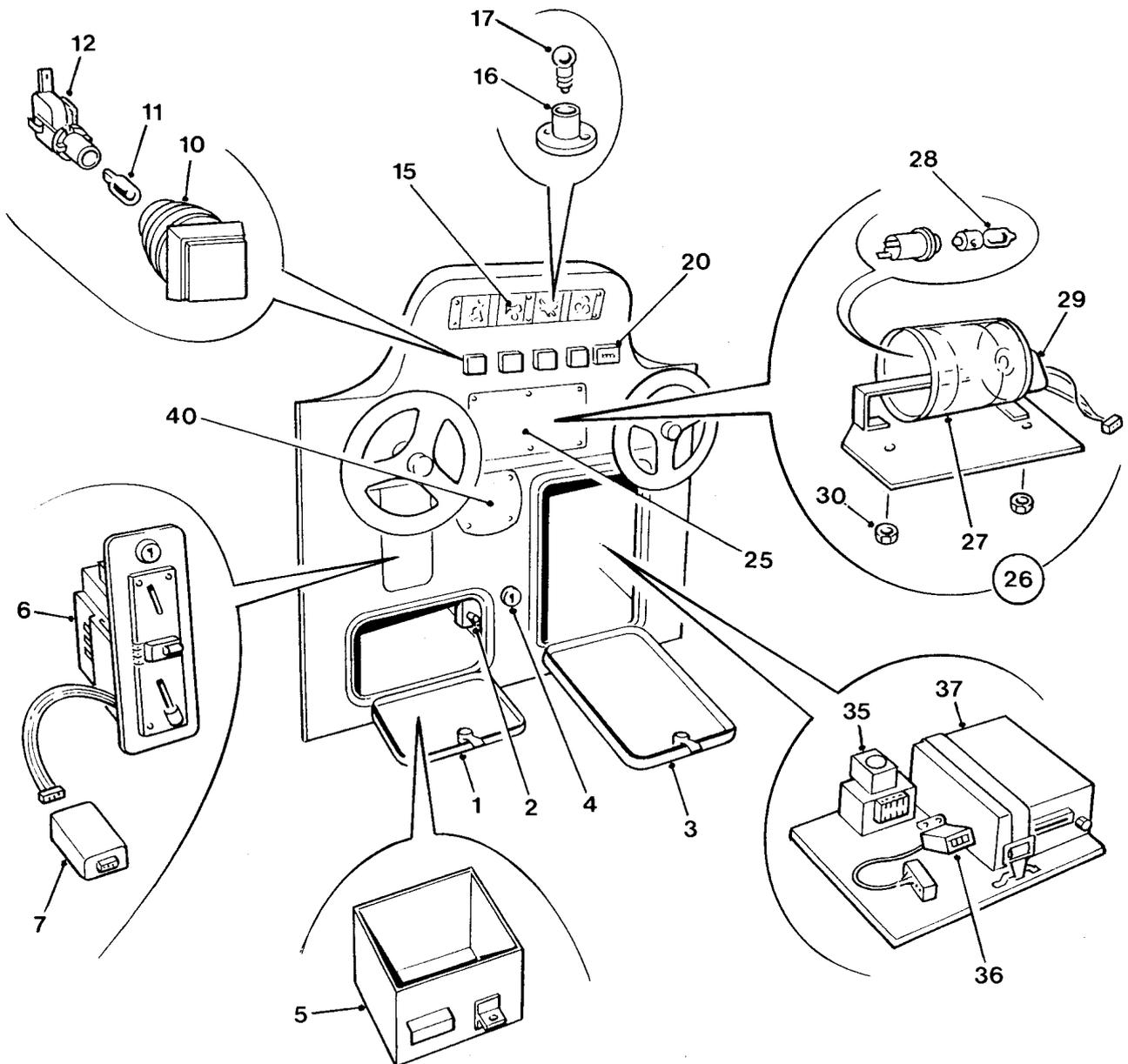
#### Start switch

The Start switch (20) contains the same components as the button switches (10) and is serviced in the same manner.

**Console**

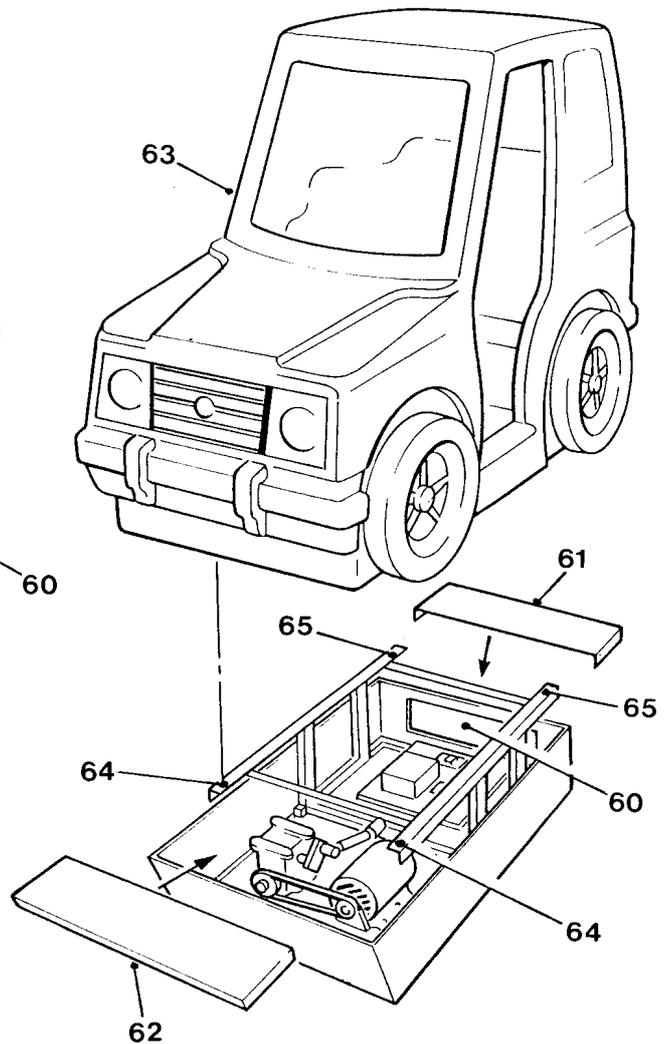
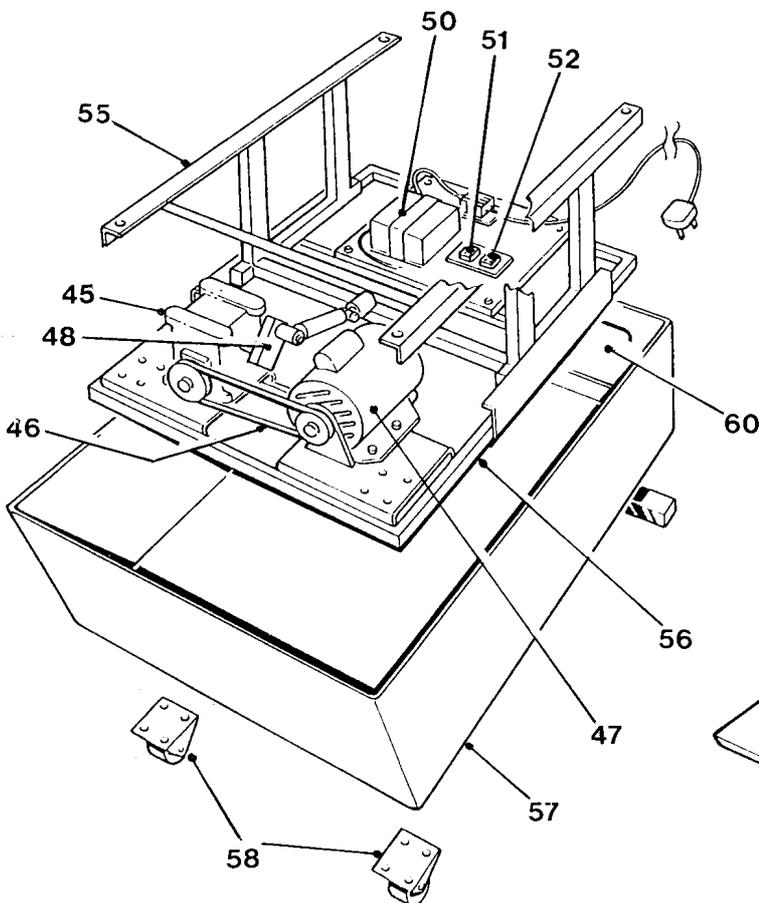
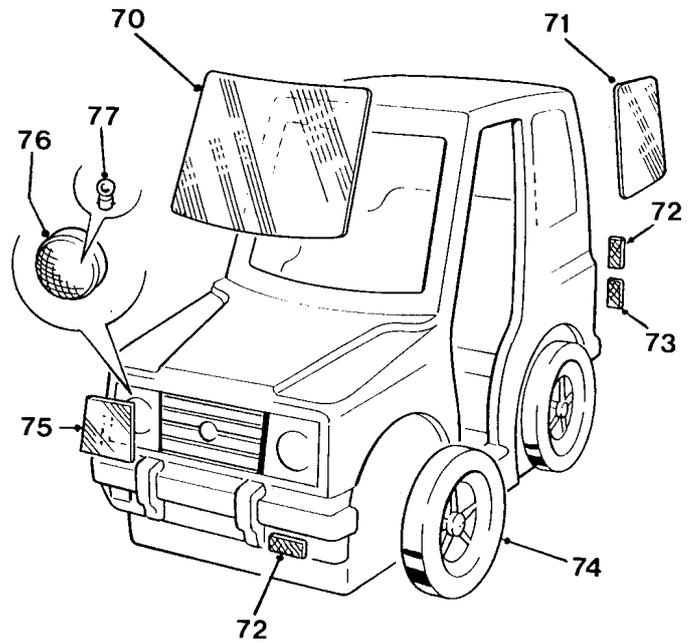
| Item | Description                      | Qty |
|------|----------------------------------|-----|
| 1    | DOOR, cash box                   | 1   |
| 2    | MICROSWITCH, alarm               | 1   |
| 3    | DOOR, right-hand access          | 1   |
| 4    | KEY-SWITCH, alarm                | 1   |
| 5    | CASH BOX                         | 1   |
| 6    | COIN MECHANISM                   | 1   |
| 7    | INTERFACE, coin mechanism        | 1   |
| 10   | BUTTON, switch                   | 4   |
| 11   | BULB, 12V, 2CP VCH 512           | 4   |
| 12   | RETAINER, for button switch bulb | 4   |
| 15   | SCREEN, pictures                 | 1   |
| 16   | HOLDER, for picture screen bulb  | 3   |
| 17   | BULB, 12V 10W, screw thread      | 3   |

| Item | Description                             | Qty |
|------|---|-----|
| 20   | START BUTTON, switch                    | 1   |
| 25   | SCREEN, rolling road                    | 1   |
| 26   | ROLLING ROAD, assembly                  | 1   |
| 27   | DRUM, rolling road                      | 1   |
| 28   | BULB, bayonet 12V 10W, for rolling road | 1   |
| 29   | MOTOR/GEARBOX, rolling road             | 1   |
| 30   | NUT, rolling road fixing                | 2   |
| 35   | ALARM                                   | 1   |
| 36   | COUNTER                                 | 1   |
| 37   | CONTROL UNIT                            | 1   |
| 40   | SPEAKER                                 | 1   |



Toy body & base

| Item | Description                             | Qty |
|------|---|-----|
| 45   | GEARBOX                                 | 1   |
| 46   | BELT                                    | 1   |
| 47   | MOTOR                                   | 1   |
| 48   | CRANK                                   | 1   |
| 50   | POWER SUPPLY (P.S.) UNIT                | 1   |
| 51   | SOLID STATE RELAY, motor                | 1   |
| 52   | SOLID STATE RELAY, rolling road         | 1   |
| 55   | FRAME, sliding                          | 1   |
| 56   | FRAME, base                             | 1   |
| 57   | COVER, base                             | 1   |
| 58   | CASTORS                                 | 2   |
| 60   | PANEL, rear access                      | 1   |
| 61   | PANEL, base rear top                    | 1   |
| 62   | PANEL, base front top                   | 1   |
| 63   | TOY body                                | 1   |
| 64   | NUTS, fastening toy to base, front      | 2   |
| 65   | NUTS, fastening toy to base, rear       | 2   |
| 70   | SCREEN, Front (Mr. Postie & Four-Track) | 1   |
| 70   | SCREEN, Front (Convertible)             | 1   |
| 71   | SCREEN, side (Four-Track)               | 1   |
| 72   | REFLECTOR, orange                       | 4   |
| 73   | REFLECTOR, red                          | 2   |
| 75   | SCREEN, headlamp                        | 2   |
| 76   | HEADLAMP                                | 2   |
| 77   | BULB, bayonet 12V 5W, for headlamp      | 2   |



# SERVICE MANUAL section 10.2

for

## *Mushroom*

### Contents

|                           |             |
|---------------------------|-------------|
| Customer operation of toy | Page 10.2.1 |
| Cash box & Alarm          | 10.2.2      |
| Transportation            | 10.2.2      |
| Servicing                 | 10.2.3      |
| Electronics               | 10.2.7      |
| Replacement parts         | 10.2.9      |

### Weight & Dimensions

|                  |        |
|------------------|--------|
| Weight           | 100 kg |
| Height           | 188 cm |
| Diameter of base | 91 cm  |
| Diameter of top  | 117 cm |

### Customer operation of toy

The machine is a two seater Children's Ride.

Whilst the machine is connected to a live power supply the interior light (1) and button switches (2) flash constantly.

A teaser sound track repeats every 120 seconds when the ride is not credited.

A yellow "Start" button (3) flashes when a ride has been credited by inserting a coin into the coin mechanism (6).

This is followed by an oral request, either; "Press Start Button" or "Insufficient Money".

Immediately that the start button (3) has been pressed the machine will begin to oscillate in a circular motion.

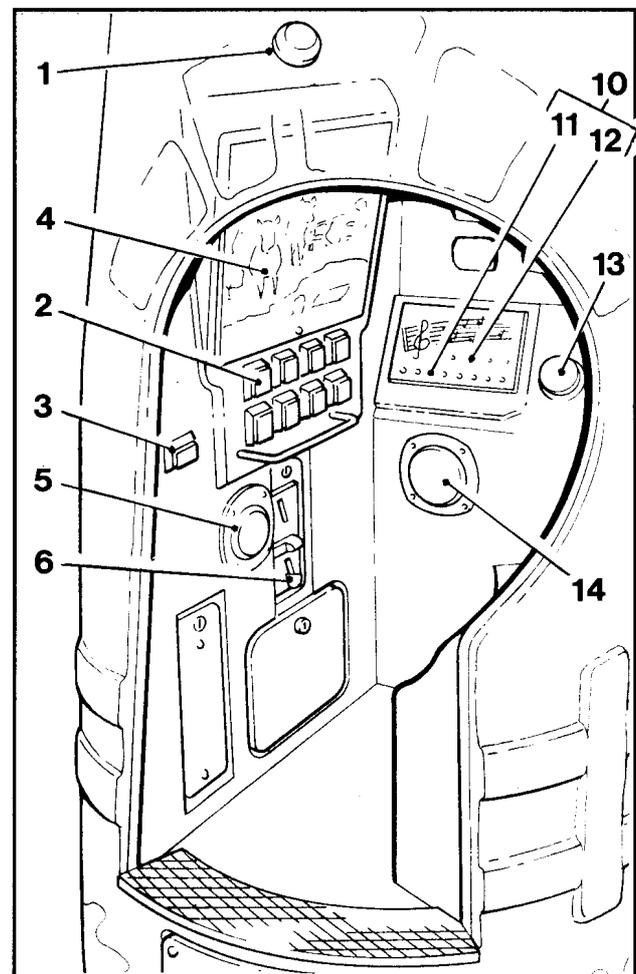
Whilst in motion there is a continuous oral request for the child to press the 'Picture' buttons (2) that correspond with the illuminated pictures on the display unit (4). If the child fails to select the correct button the voice will repeat the request until the correct button is pressed. The speaker (5) for the display unit is situated below it.

Working independently of the interactive display unit (4) is the organ (10).

The organ will play as a conventional organ, e.g. when the keys (11) are pressed the appropriate musical note will be heard.

In addition to playing musical notes, the organ can be made to mimic the sounds of the animals shown under the lamps (12).

To select animal sounds; press the select button (13) to move along the row of animals. Whichever animal is illuminated, the organ keys, when



pressed, will play notes in the sound of that animal. The speaker (14) for the organ is situated below it.

When the pre-set duration of the ride has been reached, the ride will stop, accompanied by the oral prompt of "Thank You".

## Maintenance

### Emptying the cash box

Disarm the alarm (*where fitted*) by inserting and turning the alarm key in the key-switch (20). (The key-switch (20) is located near the cash box door.)

Unlock and open the cash box door (21).

Release the cash box (22) by removing the clip or padlock.

Slide the cash box out and empty.

Refit in the reverse order.

### Cancelling or disarming the alarm system (*where fitted*)

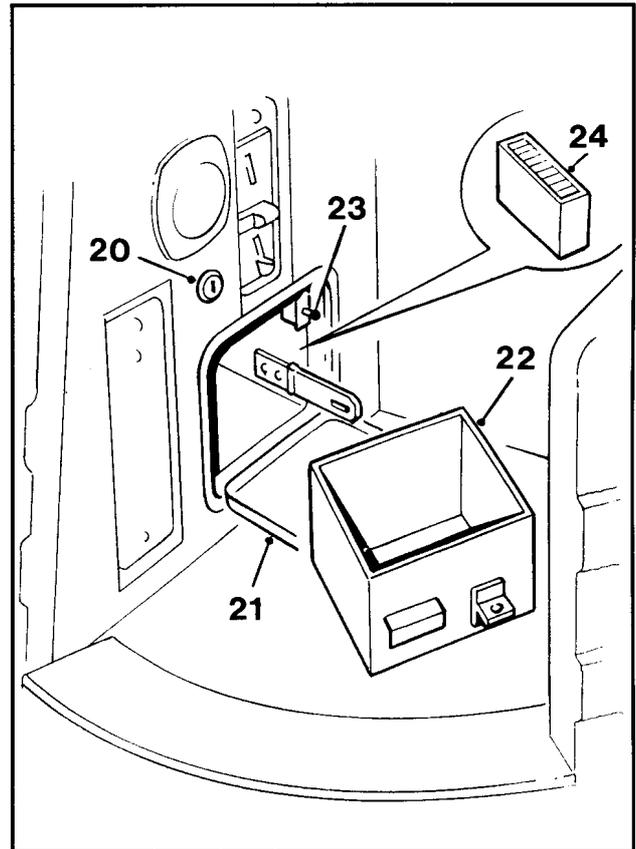
An alarm is fitted to protect the cash box.

The alarm is triggered by a microswitch (23) that is released when the cash box door (21) is opened.

To disarm, or cancel an already activated alarm, insert and turn the alarm key in the key-switch (20).

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

Should the alarm have been operating for some time, it will be necessary to replace the batteries. The batteries are located in the alarm unit which is situated within the base of the machine.



### Credits Counter

The credits counter (24) is situated within the cash box compartment.

## Transportation

**WARNING** Read Safety section of this manual.  
Disconnect electrical power before opening any access panels.

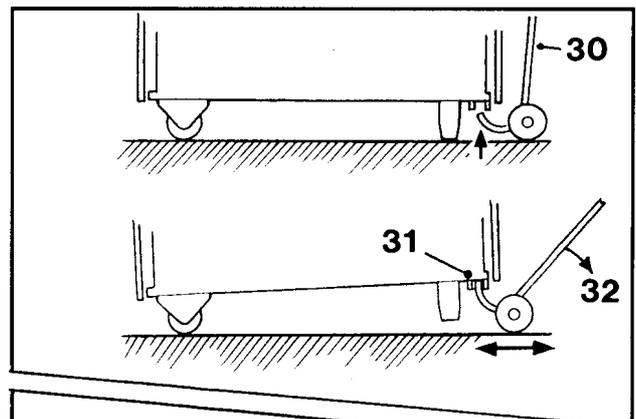


### Towing jack

The Towing jack (30) is provided to help in moving the machine.

Insert the hook of the jack into the eye (31) that is situated under the base between the two feet.

Lever the jack backwards (32) to raise the machine off its feet. The machine can now be pulled along with the jack handle.



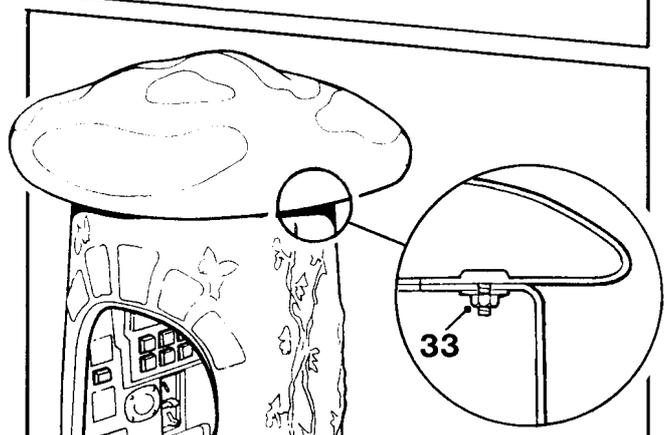
### Removal of mushroom cap

To assist in transporting the machine it may be helpful to remove the cap.

To remove the cap:

Unscrew the four nuts (33) from the inside of the main module.

Lift the cap off.



## Servicing

**WARNING** Read Safety section of this manual.



Disconnect electrical power at the mains before opening any panels.

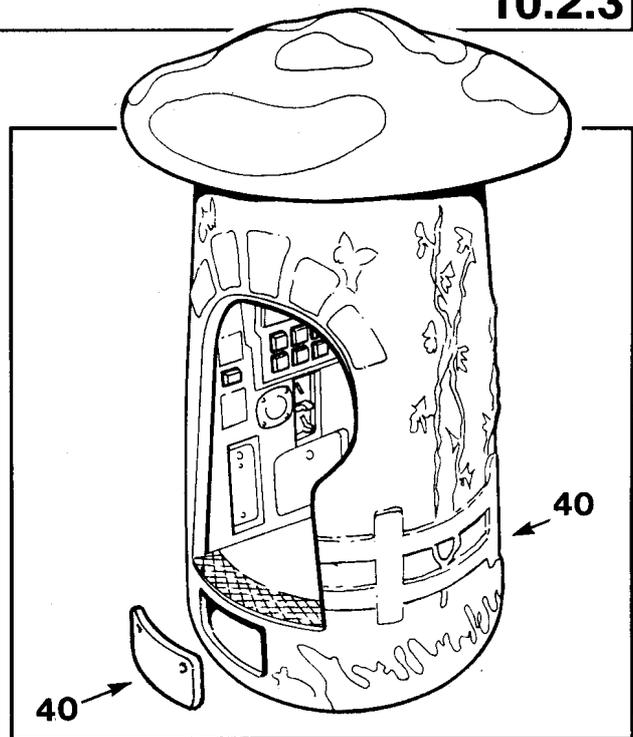
### Base unit access panels

The panels (40) at the front and rear give access for servicing the power supply unit (P.S.U.) (41), relays (42), motor (43), drive belt (44) and connecting rod (58).

The panels are fitted with micro-switches.

**Note:** When the panels are removed, the micro-switches break and the machine becomes inoperative.

To give greater access to the components inside the base, the toy can be revolved from side to side by manually turning the drive belt (44).



### Base plate

#### Removal / replacing

**Note:** Access to the gearbox (49) and swivel bearing (59) is made by removing the base plate (55).

Remove the base plate as follows:

Remove the front and rear access covers (40).

Unclip the wiring from the base plate (55) to provide sufficient loose cable to enable the plate, when it has been unfastened, to be pulled clear of the machine.

Place on the floor a padded mat (B) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

Disconnect the connecting rod (58) from the top base plate (56).

Loosen the two grub screws (57) that retain the swivel bearing (59).

Slide lower base plate (55) away from the machine.

To replace the base plate:

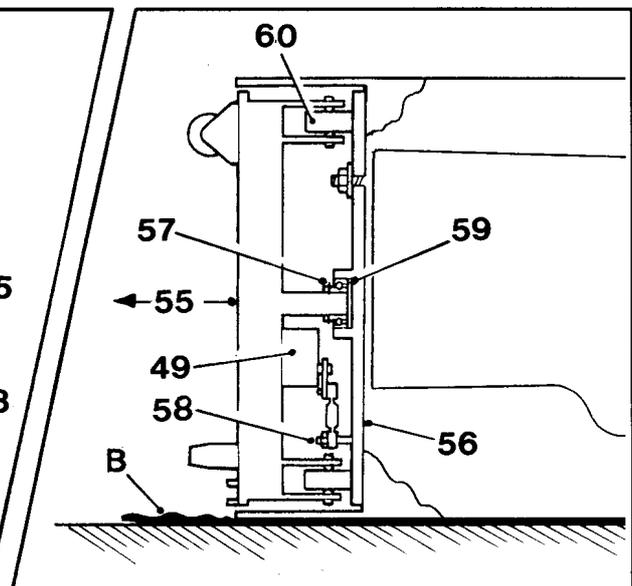
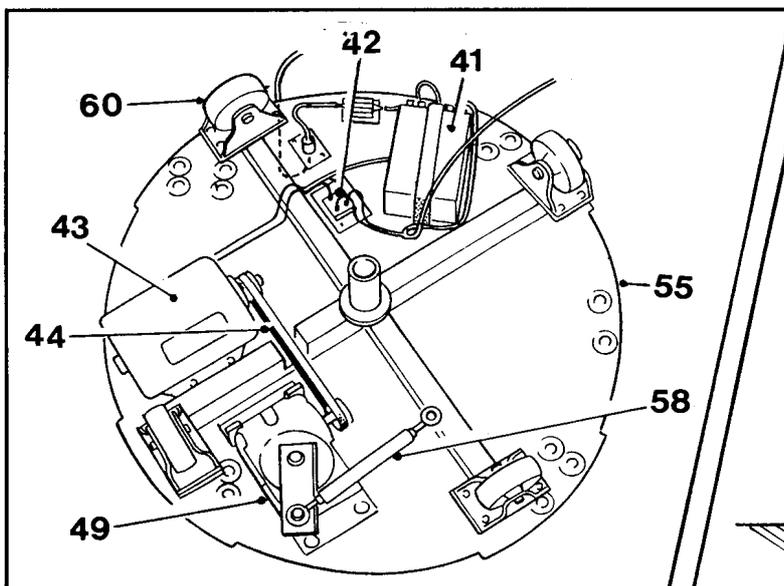
Slide the base plate (55) back into position until the casters (60) seat against the top plate (56).

Tighten the two grub screws (57) to retain the swivel bearing.

Fasten connecting rod (58) to the top plate.

Stand the machine upright.

Slacken the grub screws (57) to allow the bearing to settle centrally. Re-tighten grub screws.

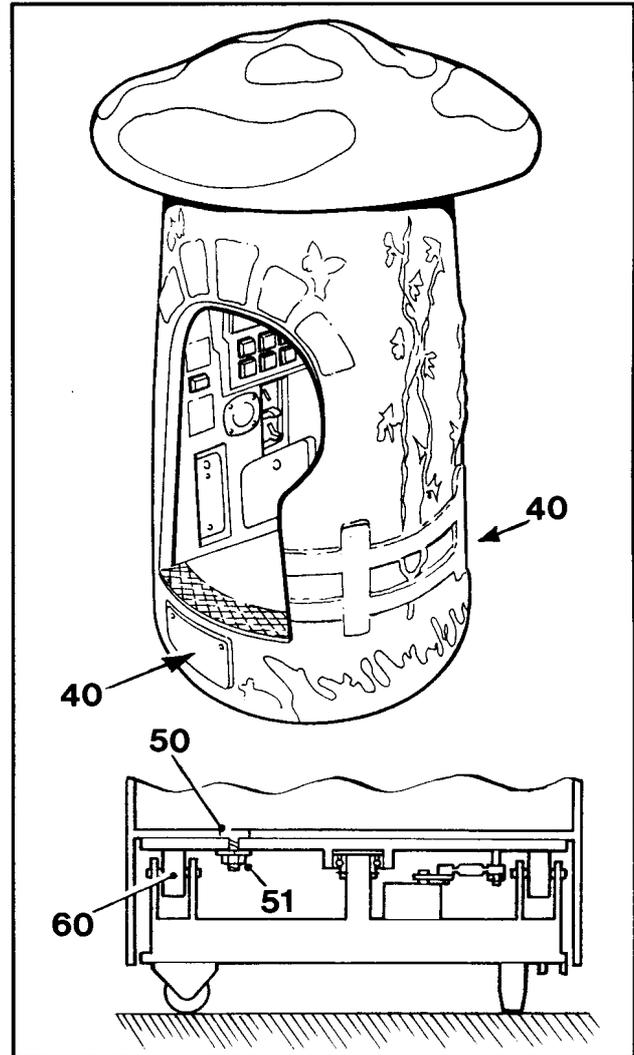


**Toy from base****Removal / replacing**

**Note:** Bonded into the floor of the toy are three captive bolts (50). These bolts protrude down through the top plate of the base unit and are secured by nuts (51) beneath that plate.

To remove the toy from the base proceed as follows:

- Remove the front and rear access panels (40).
- Disconnect all wiring from between the toy and the base unit.
- Remove the nuts (51).
- Lift the toy vertically clear of the base.
- Refit in the reverse order.

**Casters****Removal / replacing**

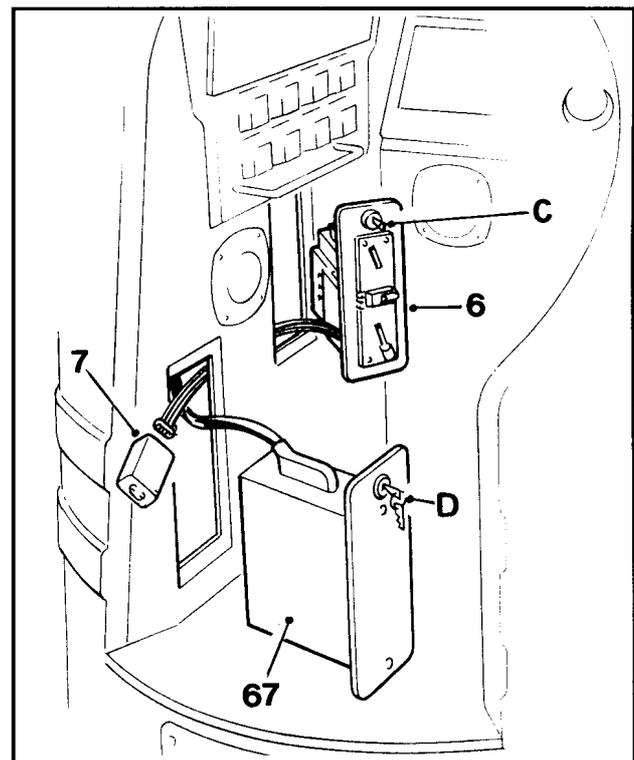
The casters (60) can be replaced via the access panels (40). It is not necessary to dismantle the base unit.

**Coin Mechanism****Removal / replacing**

The coin mechanism (6) is released by the use of a key (C). Once released, unplug the mechanism from the interface unit (7).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a microswitch.

For further details about the unit see the relevant "Coin Mechanism Sections" in this manual.

**Timer/Control Unit****Removal / replacing:**

The timer/control unit (67) is released by the use of a key (D).

## Display unit bulbs

### Bulb replacement:

Remove the screws (70) retaining the display unit (4).

Remove the nuts (71) retaining the electronics panel (73).

Replace bulb (72).

Replace in the reverse order.

## Button switches and bulbs

When pressed, the button switches (2) are illuminated by a bulb (75). The bulb is mounted within a snap-in retainer (76) that is pushed into the back of the switch. (The retainer (76) also has a microswitch clipped to it.)

### Bulb replacement:

Gain access by removing the display unit (4).

Locate the bulb retainer (76) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (75) from the retainer (76) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

### Replace button switch as follows:

Remove the bulb/retainer (76) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the button switch (4) from the console.

Refit in the reverse order.

## Start switch

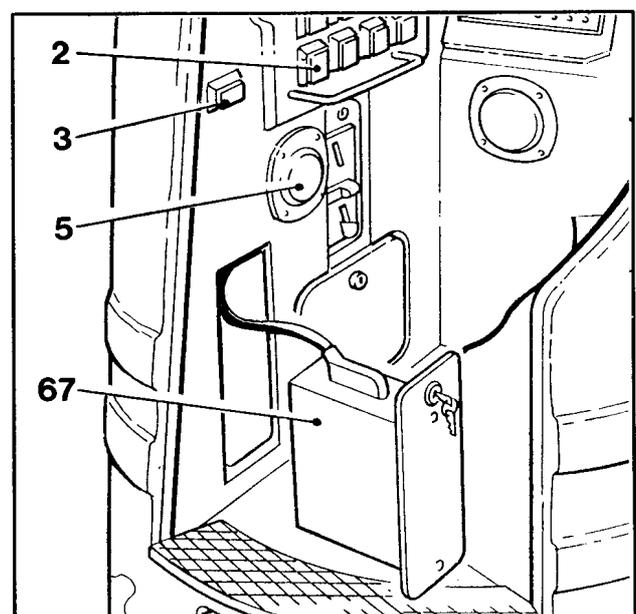
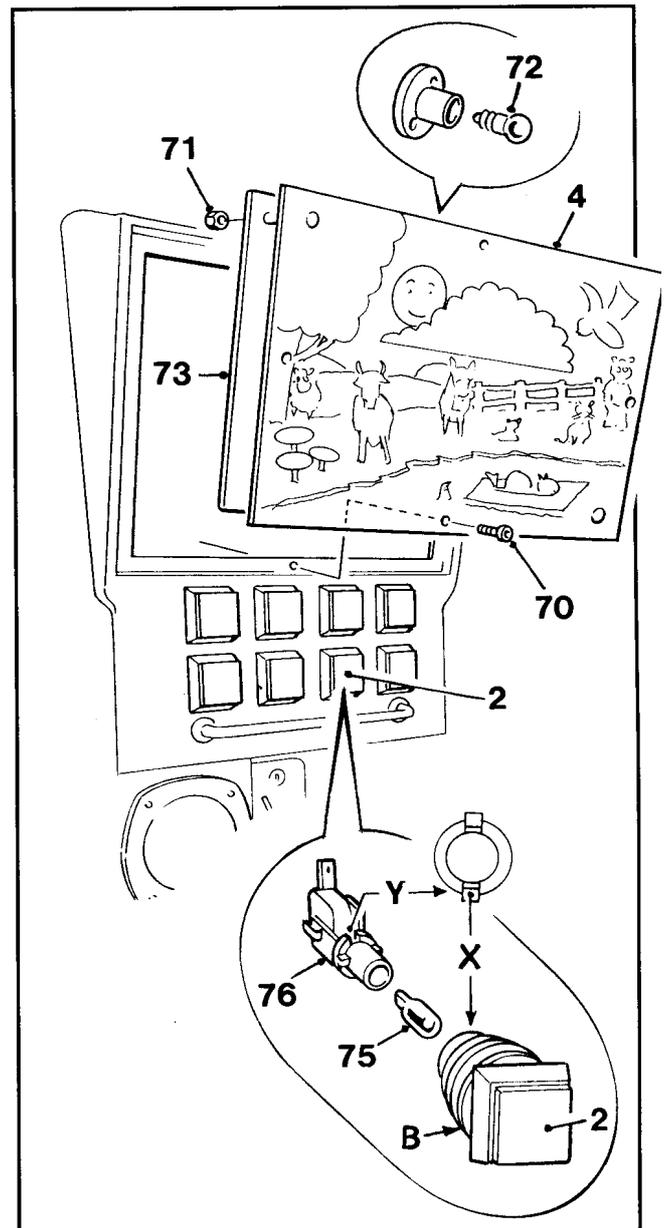
The Start switch (3) contains the same components as the button switches (2) and is serviced in the same manner.

## Speaker

Gain access to the speaker (5) by removing the time/control unit (67).

Locate and remove the screws that retain the speaker, then gently ease it forwards from the console.

Re-assemble in the reverse order.



## Organ

### Removal / replacing

To release the key board (80), remove the fixing screws (84).

With the key board removed, the electronics panel (81) can be seen. To release the electronics panel remove the screws from its mounting board.

Replace in the reverse order.

### Organ speaker volume

The volume of the organ can be adjusted by turning knob (A) that is situated on the electronic panel.

### Organ electronics

If the organ does not operate:

Check the fuse (B).

Check that the two red LEDs (C) are illuminated, this indicates there is power to the units.

### Organ speaker

Gain access to the back of the speaker (14) by removing the key board (80).

Locate and remove the screws that retain the speaker, then gently ease it forwards.

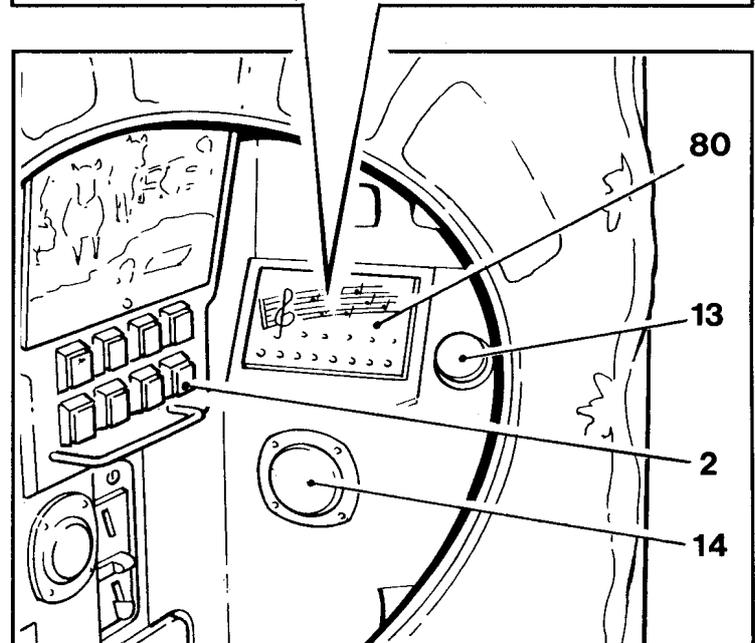
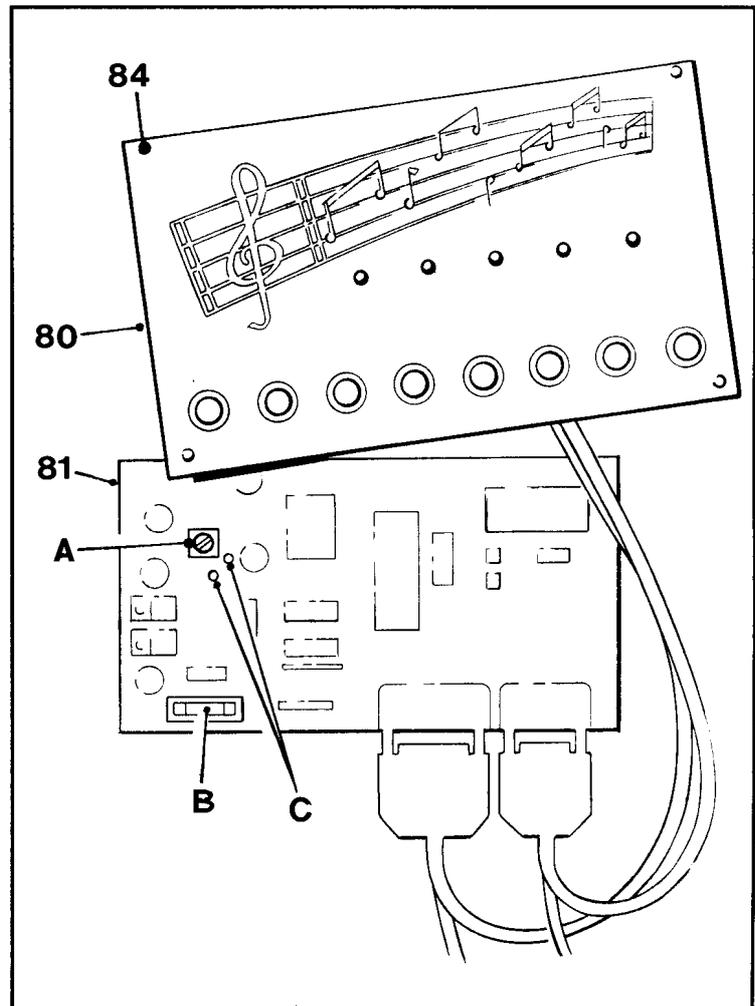
Replace in the reverse order.

### Organ selector button

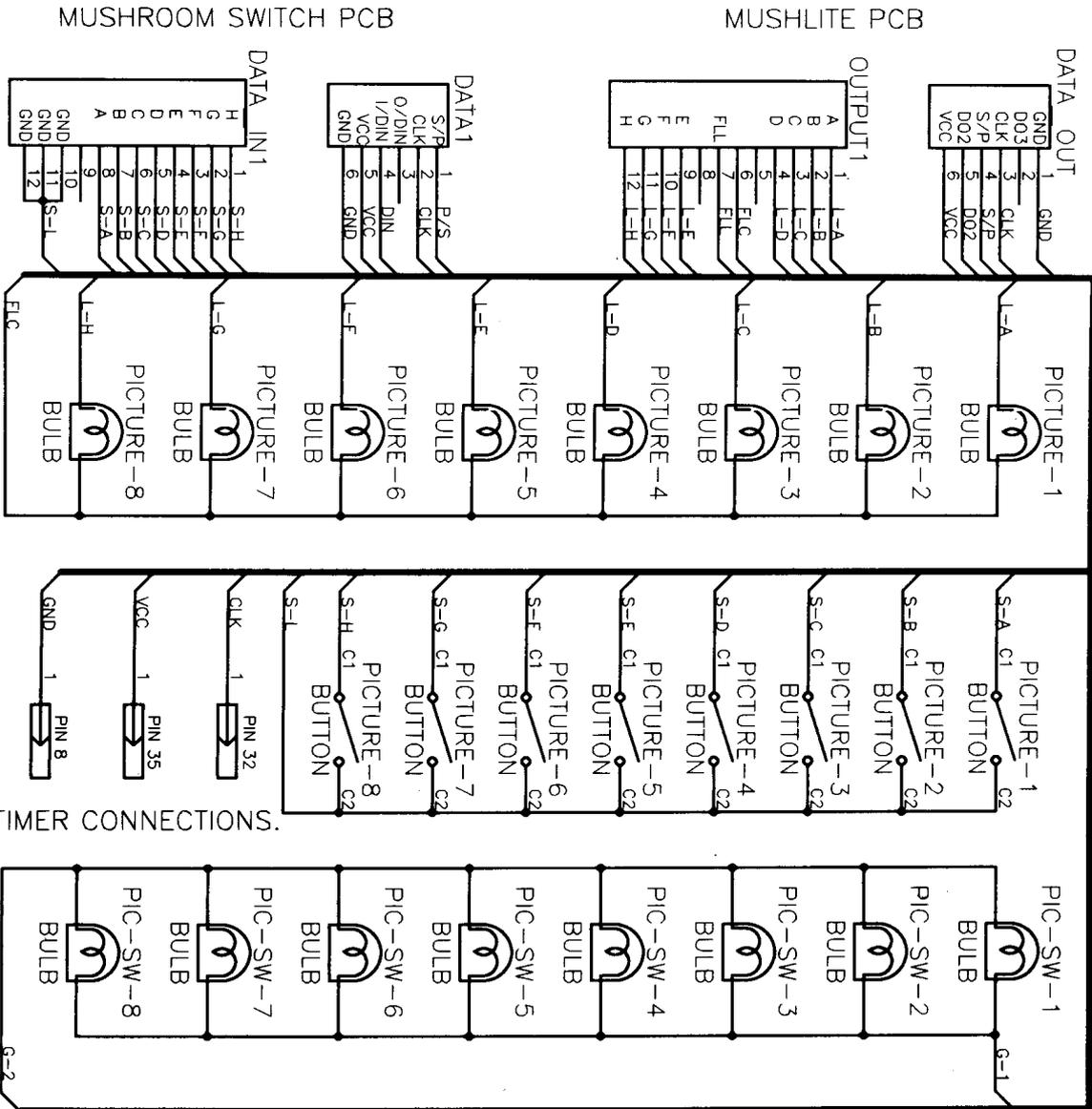
Gain access by removing the key board (80).

The selector button (13) contains the same components as the button switches (2) and is serviced in the same manner.

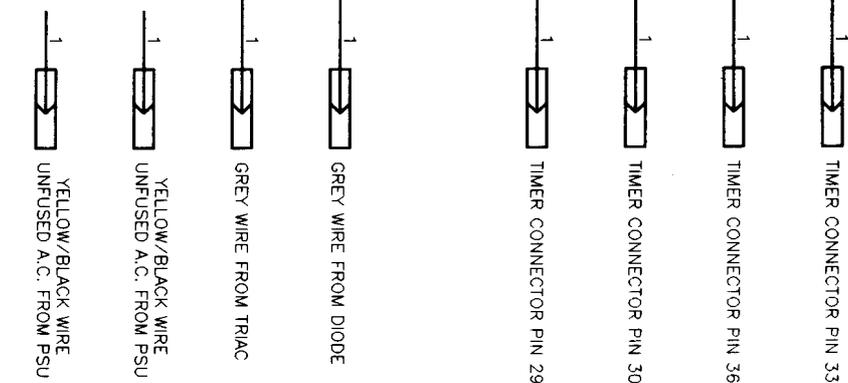
Replace in the reverse order.



Display unit (Mushroom)



TIMER CONNECTIONS.

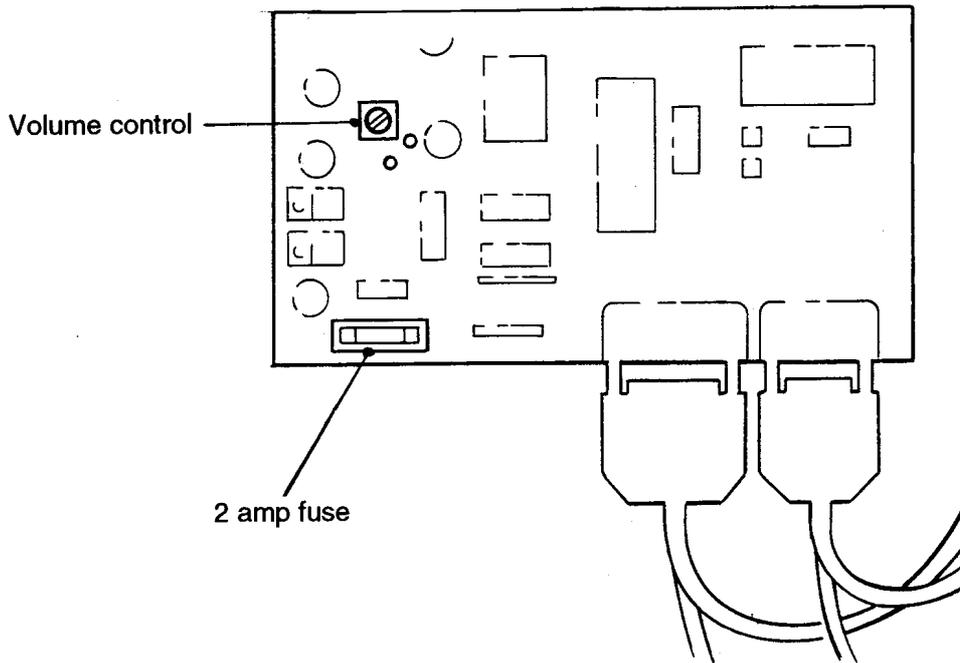
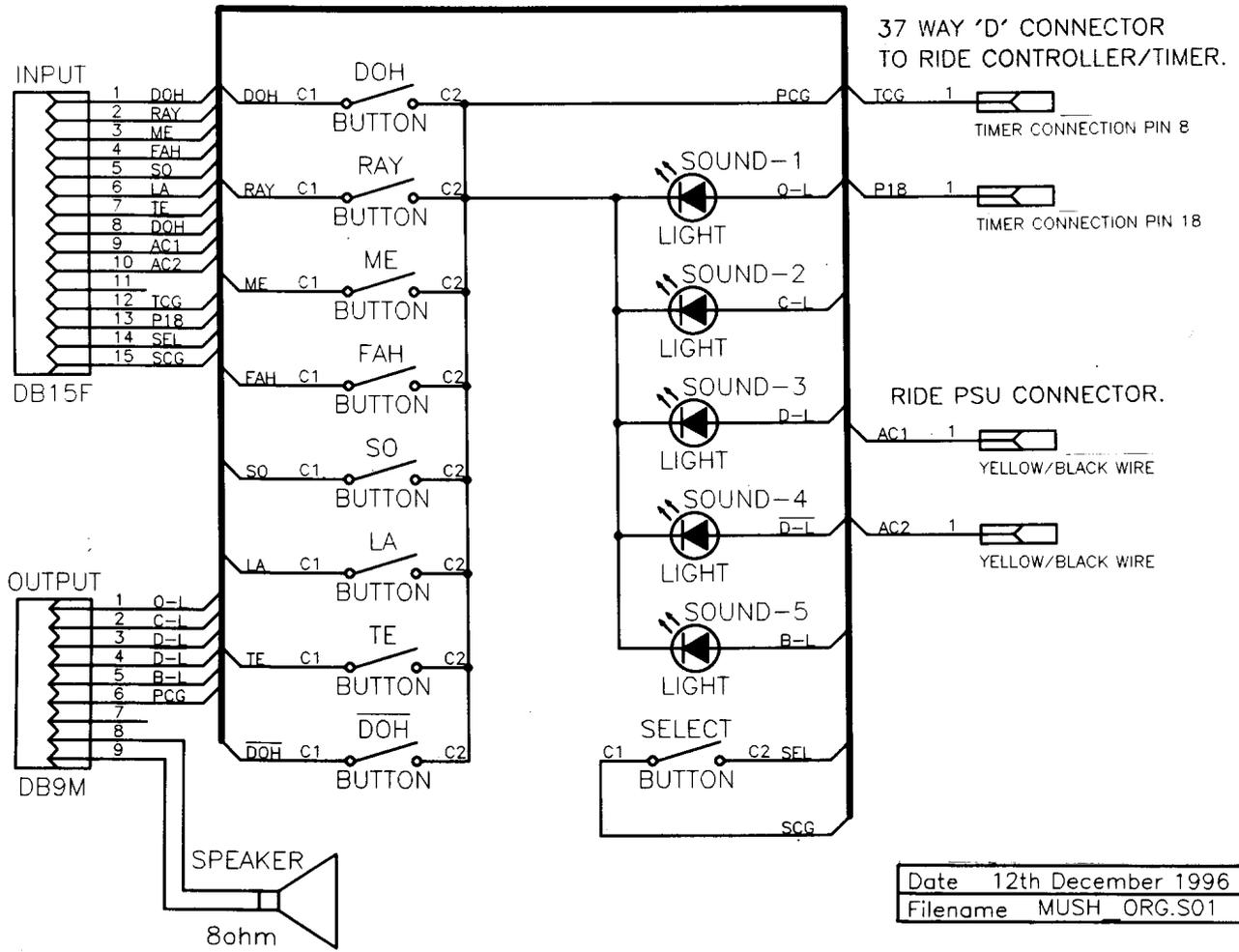


U2 PCB FLASHER PANEL FOUND WITH DISPLAY.

37WAY 'D' CONNECTOR TO RIDE CONTROLLER/TIMER.

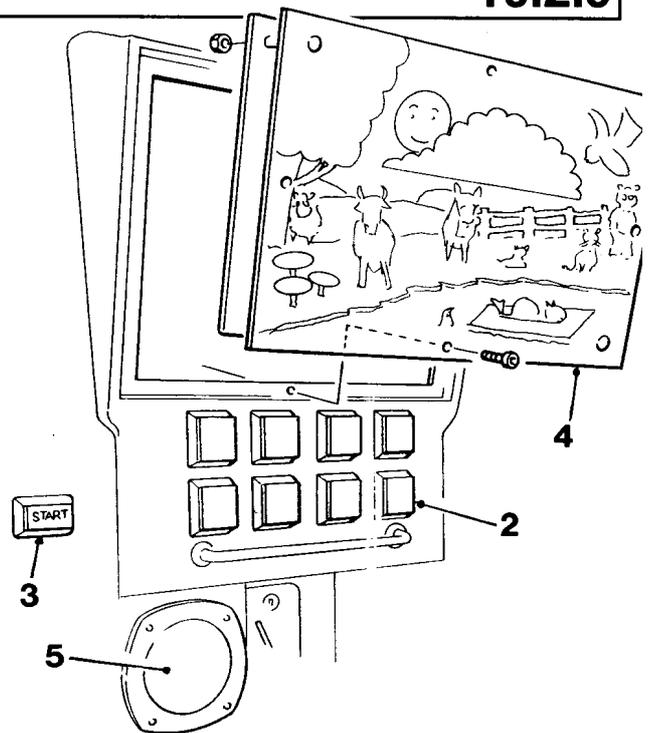
|          |                    |          |        |
|----------|--------------------|----------|--------|
| Date     | 12th December 1996 | Drawn by | KDW    |
| Filename | MUSHDISP.S01       | Sheet    | 1 of 1 |

Organ (Mushroom)



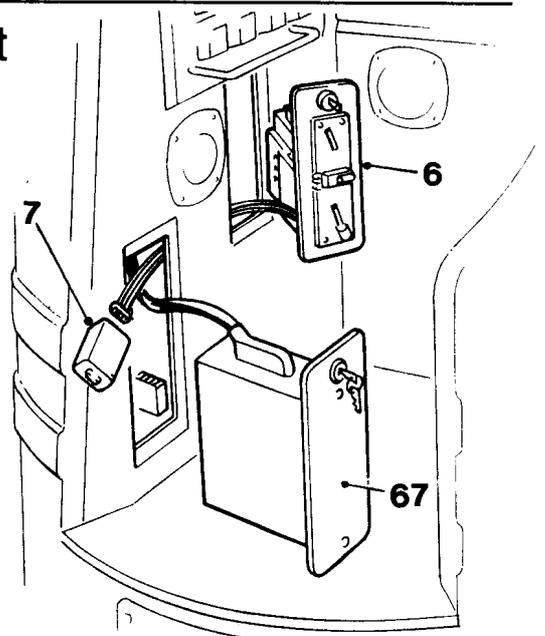
**Display unit & Start switch**

| Item | Description                              | Qty |
|------|--|-----|
| 2    | BUTTON SWITCH                            | 8   |
| --   | BULB, 12V, 2CP VCH 512                   | 8   |
| --   | RETAINER/MICROSWITCH                     | 8   |
| 3    | START SWITCH                             | 1   |
| --   | BULB, 12V, 2CP VCH 512                   | 1   |
| --   | RETAINER/MICROSWITCH                     | 1   |
| 4    | DISPLAY UNIT                             | 1   |
| --   | HOLDER, threaded for picture screen bulb | 8   |
| --   | BULB, 12V 10W, screw thread              | 8   |
| 5    | SPEAKER, display unit                    | 1   |



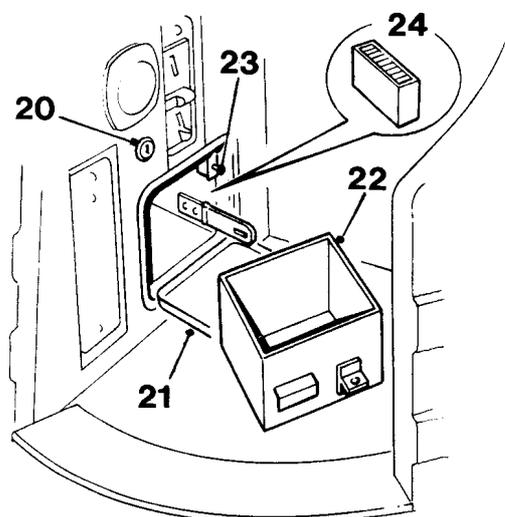
**Coin mechanism & Timer/control unit**

| Item | Description               | Qty |
|------|---------------------------|-----|
| 6    | COIN MECHANISM            | 1   |
| 7    | INTERFACE, coin mechanism | 1   |
| 67   | TIMER/CONTROL UNIT        | 1   |



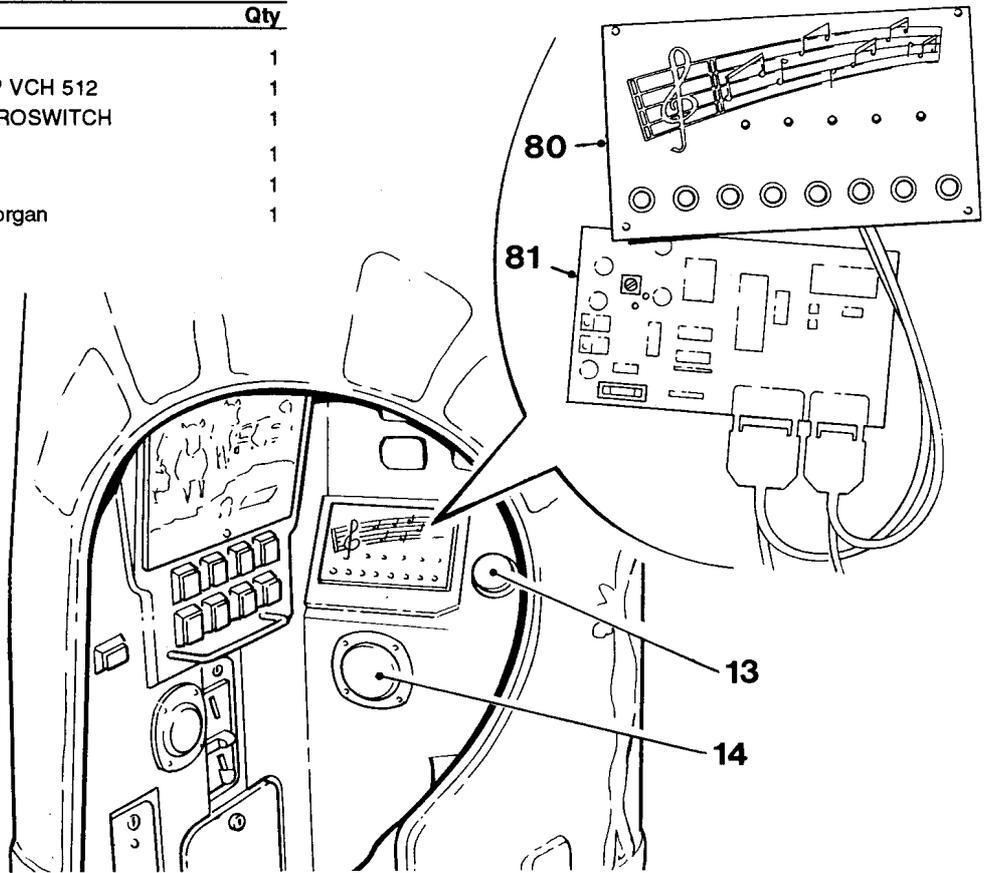
**Cash box & Credit counter**

| Item | Description        | Qty |
|------|--------------------|-----|
| 20   | KEY-SWITCH, alarm  | 1   |
| 21   | DOOR, cash box     | 1   |
| 22   | CASH BOX           | 1   |
| 23   | MICROSWITCH, alarm | 1   |
| 24   | CREDIT COUNTER     | 1   |



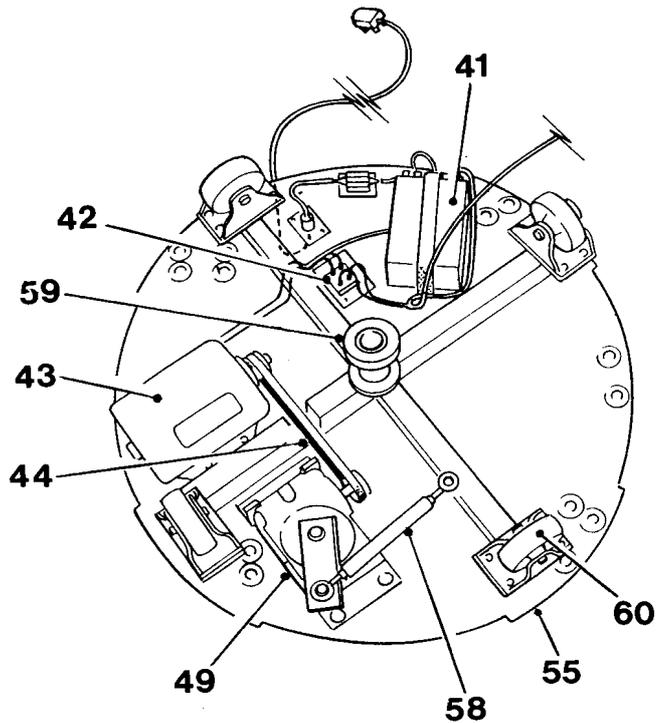
Organ

| Item | Description              | Qty |
|------|--------------------------|-----|
| 13   | SELECT SWITCH, organ     | 1   |
| --   | BULB, 12V, 2CP VCH 512   | 1   |
| --   | RETAINER/MICROSWITCH     | 1   |
| 14   | SPEAKER, organ           | 1   |
| 80   | KEY BOARD, organ         | 1   |
| 81   | ELECTRONICS BOARD, organ | 1   |



Base

| Item | Description              | Qty |
|------|--------------------------|-----|
| 41   | POWER SUPPLY (P.S.) UNIT | 1   |
| 42   | SOLID STATE RELAY        | 1   |
| 43   | MOTOR                    | 1   |
| 44   | BELT                     | 1   |
| 49   | GEARBOX                  | 1   |
| 55   | BASE PLATE               | 1   |
| 58   | CONNECTING ROD           | 1   |
| 59   | BEARING, swivel          | 1   |
| 60   | CASTER                   | 4   |



# SERVICE MANUAL section 10.3

for  
*NASA*

## Contents

|                           |             |
|---------------------------|-------------|
| Customer operation of toy | Page 10.3.1 |
| Cash box & Alarm          | 10.3.2      |
| Transportation            | 10.3.2      |
| Servicing                 | 10.3.3      |
| Replacement parts         | 10.3.7      |

## Weight & Dimensions

|        |        |
|--------|--------|
| Weight | 100 kg |
| Length | 113 cm |
| Width  | 113 cm |
| Height | 200 cm |

## Customer operation of toy

Whilst the machine is connected to a live power supply the interior light (1), button switches (2) and console lights (3) flash constantly.

A teaser sound track repeats every 120 seconds when the ride is not credited.

A yellow "**Start**" button (4) flashes when a ride has been credited by inserting a coin into the coin mechanism (6).

This is followed by an oral request, either; "**Press Start Button**" or "**Insufficient Money**"

Immediately that the start button (4) has been pressed the machine will begin to oscillate in a circular motion.

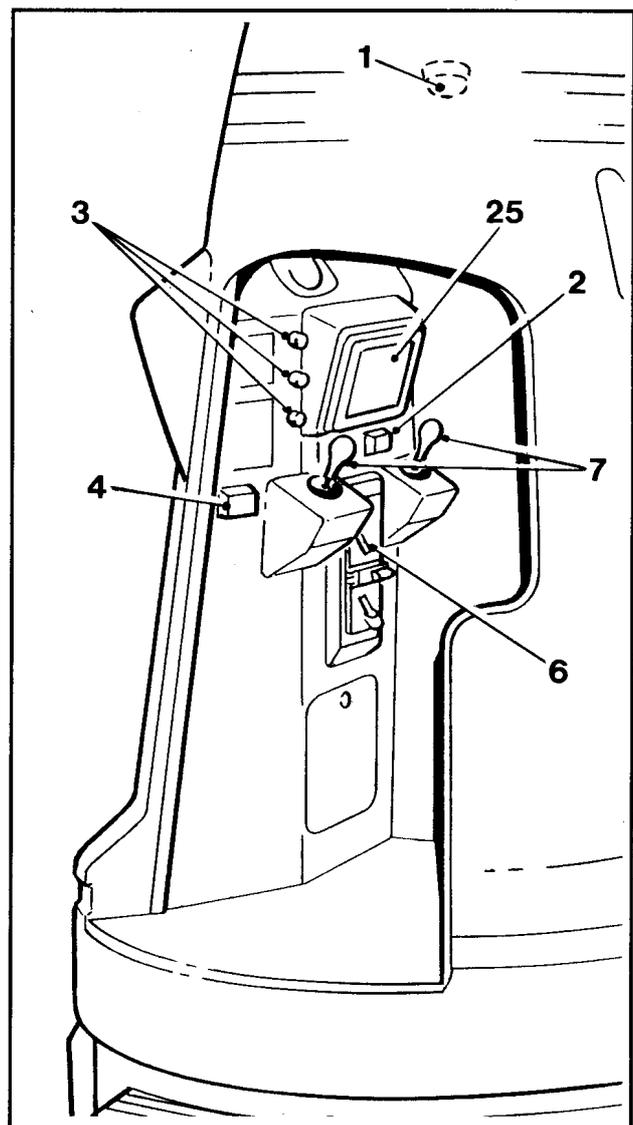
Whilst the machine is in motion:

The two joysticks (7) when moved produce sounds.

The button switches (2) when pressed will produce sounds.

The screen (25) shows a moving image. (The image is produced by an illuminated 'rolling road' situated behind the screen.)

When the pre-set duration of the ride has been reached, the ride will stop, accompanied by the oral prompt of "**Thank You**".



## Maintenance

### Emptying the cash box

Disarm the alarm (*where fitted*) by inserting and turning the alarm key in the key-switch (20). (The key-switch (20) is located on the base of the machine to the left of the door.)

Unlock and open the cash box door (21).

Release the cash box (22) by removing the clip or padlock.

Slide the cash box out and empty.

Refit in the reverse order.

### Cancelling or disarming the alarm system (*where fitted*)

An alarm is fitted to protect the cash box.

The alarm is triggered by a microswitch (23) that is released when the cash box door (21) is opened.

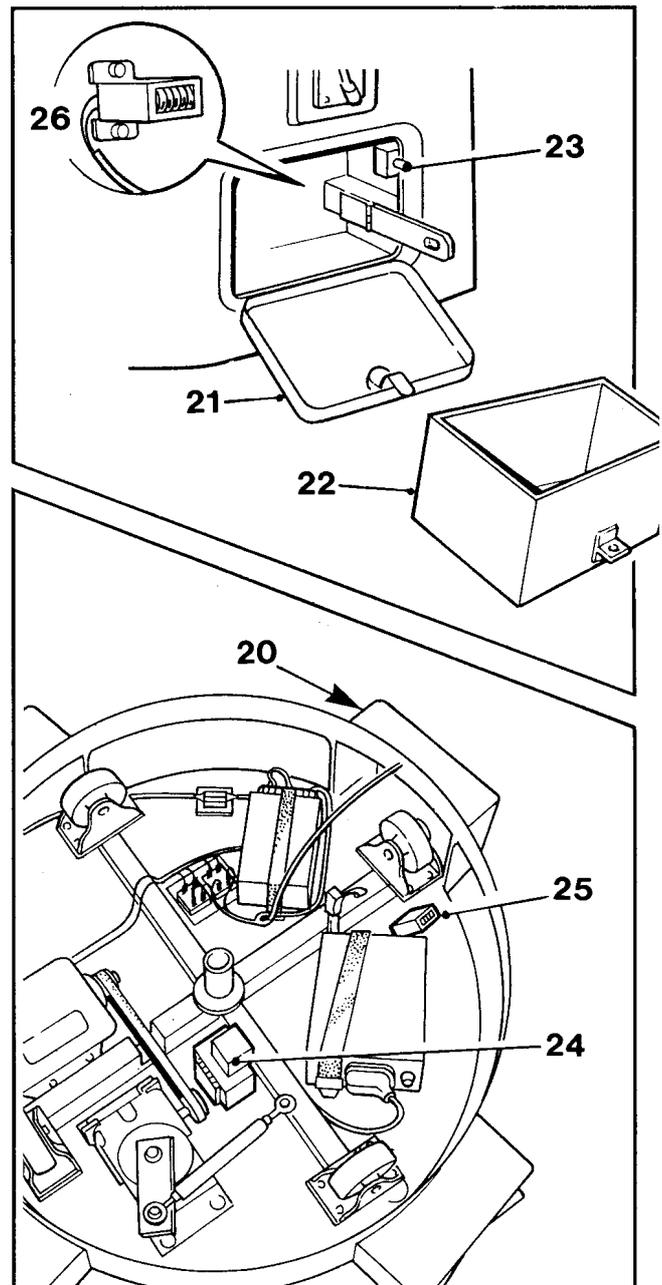
To disarm, or cancel an already activated alarm, insert and turn the alarm key in the key-switch (20).

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

Should the alarm have been operating for some time, it will be necessary to replace the batteries. The batteries are located in the alarm unit (24) which is situated within the base of the machine.

### Credits Counter

The credits counter is situated either within the base of the machine (25) or inside the cash box compartment (26).



## Transportation

**WARNING** Read Safety section of this manual.  
Disconnect electrical power before opening any access panels.

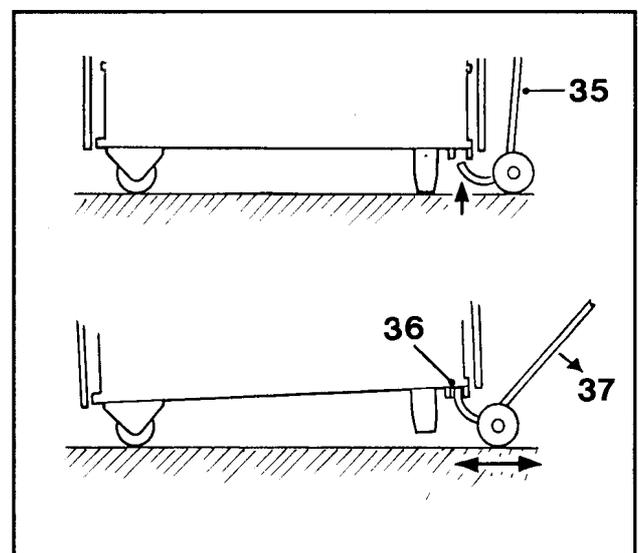


### Towing jack

The Towing jack (35) is provided to help in moving the machine.

Insert the hook of the jack into the eye (36) that is situated under the base between the two feet.

Lever the jack backwards (37) to raise the machine off its feet. The machine can now be pulled along with the jack handle.



## Servicing

**WARNING** Read Safety section of this manual. Disconnect electrical power at the mains before opening any panels.



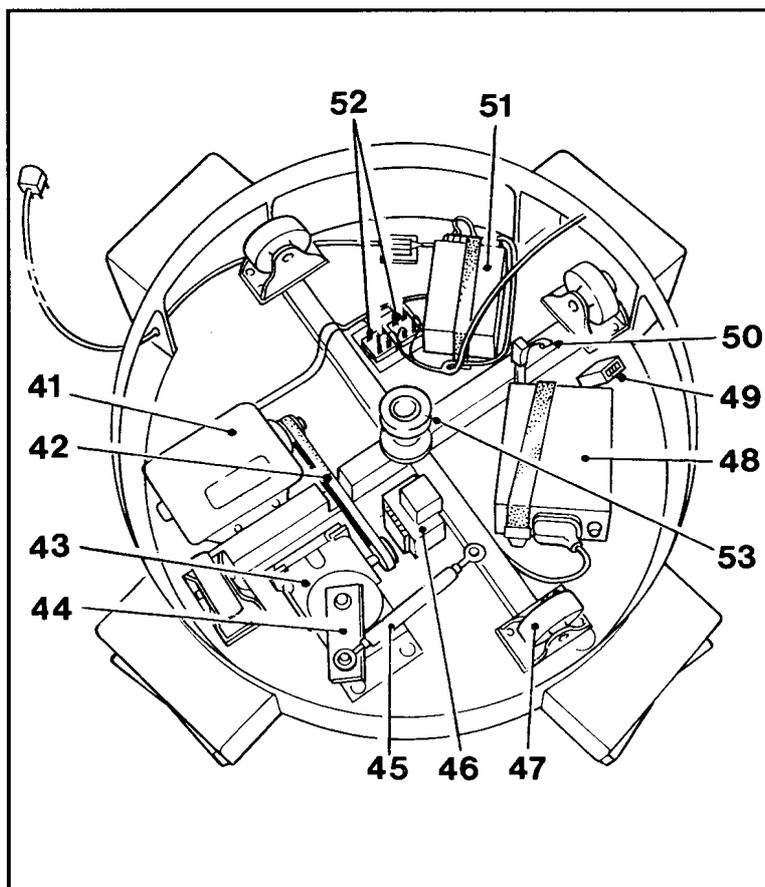
### Base unit access panels

The four panels (40) give access for servicing the components within the base. The panels are fitted with micro-switches.

**Note:** When the panels are removed, the micro-switches break and the machine becomes inoperative.

Components within the base consist of:

- Motor (41)
- Drive belt (42)
- Gearbox (43)
- Crank (44)
- Connecting rod (45)
- Alarm unit (46) (where fitted)
- Casters (47)
- Timer/control unit (48)
- Credits counter (49)
- Motion stop switch (50)
- Power supply unit (P.S.U.) (51)
- Solid state relays (52)
- Swivel bearing (53)



### Toy from base, Removal / replacing (Without removing the top base plate)

**Note:** Bonded into the floor of the toy are three captive bolts (60). These bolts protrude down through the top plate of the base unit and are secured by nuts (61) beneath that plate.

To remove the toy from the base proceed as follows:

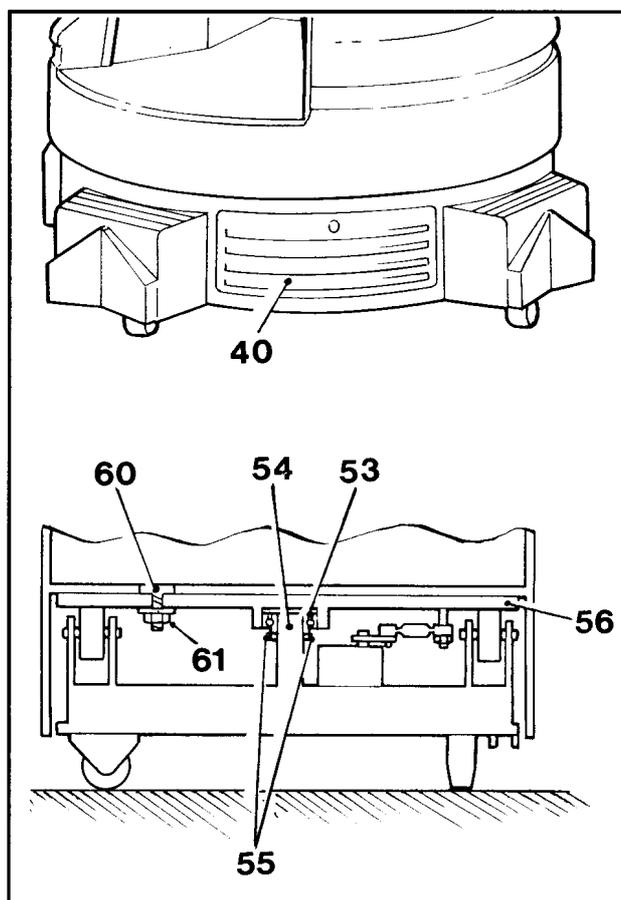
- Remove the access panels (40). Disconnect all wiring from between the toy and the base unit
- Remove the nuts (61) and lift the toy vertically clear of the base
- Refit in the reverse order.

### Toy from base, Removal / replacing (By releasing the top base plate)

Bolted to the top base plate (56) is a swivel bearing (53). The bearing locates over the centre shaft (54) of the base unit.

Two diagonally opposed grub screws (55) secure the inner of the bearing to the shaft.

To remove the toy, complete with top base plate, the two grub screws (55) must first be loosened.



### Motion stop switch (50)

The switch is used to ensure that the motion of the toy stops with the entrance inline with the step .

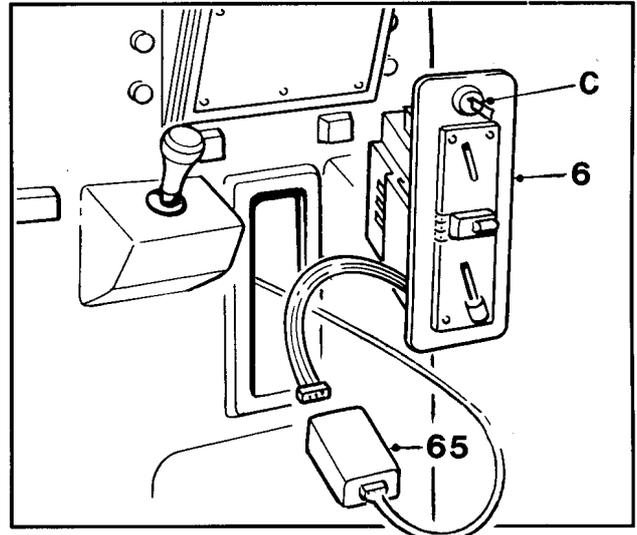
### Coin Mechanism

#### Removal / replacing

The coin mechanism (6) is released by the use of a key (C). Once released, unplug the mechanism from the interface unit (65).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a microswitch.

For further details about the unit see the relevant "Coin Mechanism Sections" in this manual.



### Button switches and bulbs

When pressed, the button switches (2) are illuminated by a bulb (75). The bulb is mounted within a snap-in retainer (76) that is pushed into the back of the switch. (The retainer (76) also has a microswitch clipped to it.)

#### Bulb replacement:

Gain access by removing the coin mechanism (6).

Locate the bulb retainer (76) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (75) from the retainer (76) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

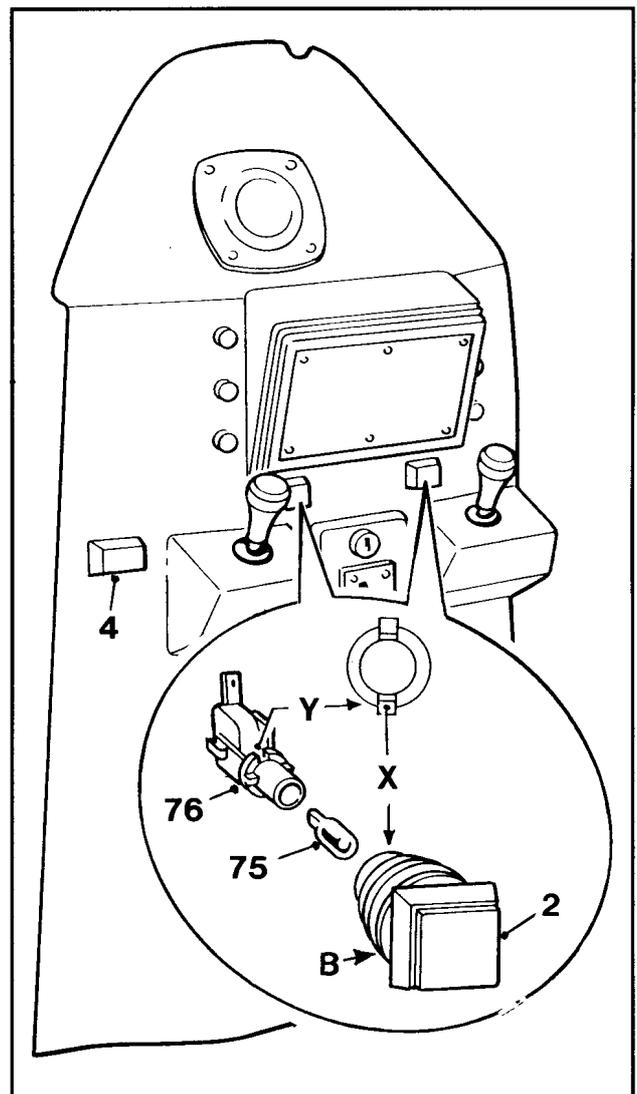
#### Replace button switch as follows:

Remove the bulb/retainer (76) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the button switch (2) from the console.

Refit in the reverse order.



### Start switch

The Start switch (4) contains the same components as the button switches (2) and is serviced in the same manner.

## Console

### to gain access to rear of console

Remove the screws (80).

Gently ease the left-hand side of the console away in the direction of arrow (X).

**Caution:** The console will still be retained by two bolts and wingnuts (81) on its right-hand side.

For the purpose of servicing, there will be sufficient access to the rear of the console without having to completely removing it by releasing wingnuts (81).

## Joysticks

Gain access to the joysticks by easing the console forwards. (see "Console" above)

Remove the screws retaining the joystick (7), then lift it from the console.

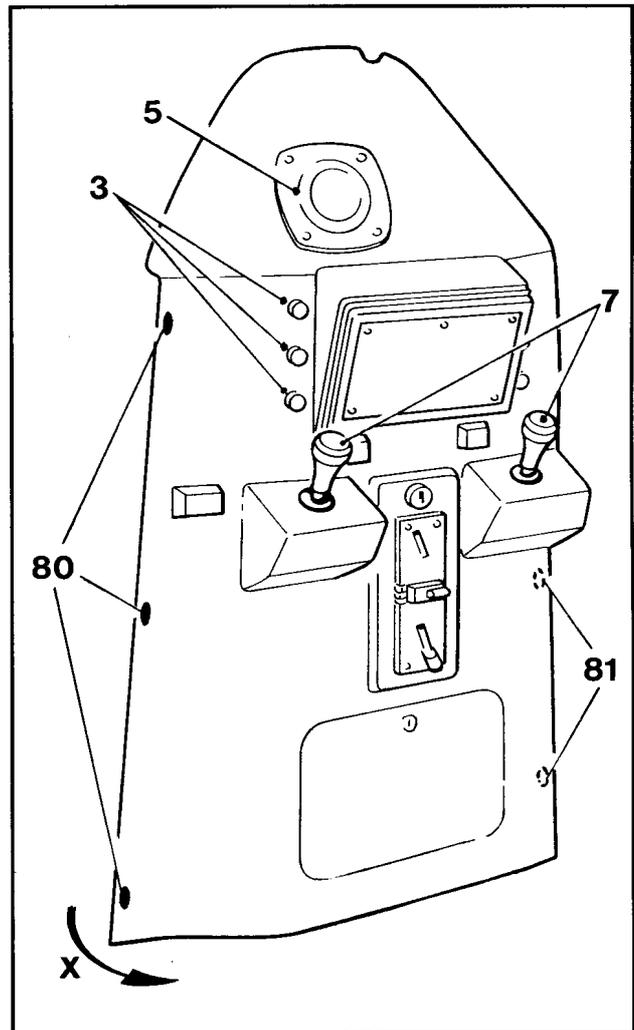
Re-assemble in the reverse order.

## Speaker

Gain access to the rear of speaker by easing the console forwards. (see "Console" above)

Remove the screws that retain the speaker (5), then ease it away from the console.

Re-assemble in the reverse order.



## Console lights

Gain access to the rear of the console lights (3) by easing the console forwards. (see "Console" above)

### Replacing Bulb

Unscrew the bulb holder, and pull out bulb.

Re-assemble in the reverse order.

### Replacing light unit

Unscrew bulb holder.

Unscrew locking nut.

Pull light unit from front of console.

Re-assemble in the reverse order.

### Rolling Road

The rolling road (26) consists of a film wrapped around the inside of a transparent drum (27), which is illuminated from the inside by a bulb (28). The drum is rotated by the motor (29).

**Note:** Should the motor fail, the heat from the bulb could melt the film.

#### Replacing the Bulb, or 'Road' Film

Remove the screen (25) by releasing its fixing screws.

At the motor end of the drum, where it attaches to the drive shaft, loosen the two diagonally opposed grub screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

**A Bulb:** Remove/replace the bulb (28). Refit drum and screen.

**B 'Road' Film:** The film is held in place within the drum (27) with a single drop of Superglue on the outside edge.

Prise the film free with a knife and slide it out. (*Note the orientation of the film before removing it.*)

Cut the new film to the same length as the old one.

Roll it and slide it into the drum, ensuring it is in the correct way around.

Fasten the film in place with a single drop of Superglue on the edge.

Re-assemble the drum and fit the screen (25).

#### Replacing the Rolling Road motor

To replace the rolling road motor it is necessary to remove the complete rolling road assembly (26) as follows:

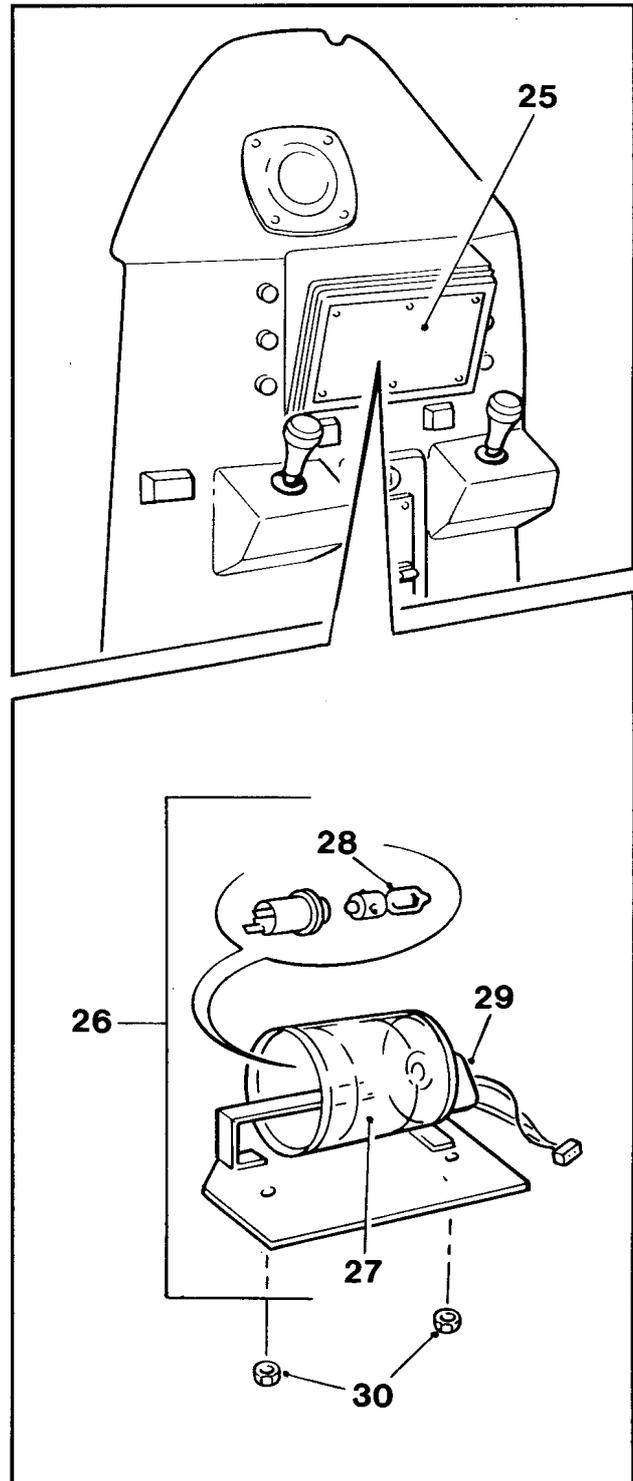
Gain access to the rear of the rolling road by easing the console forwards. (*see "Console" on previous page*)

Release the rolling road cables from their clips down the forward face of the console.

Locate and remove the two nuts (30) retaining the rolling road assembly to the console.

Remove assembly from behind the console.

Remove the drum (27) from where it is attached to the drive shaft by loosening the two diagonally opposed grub screws.



Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

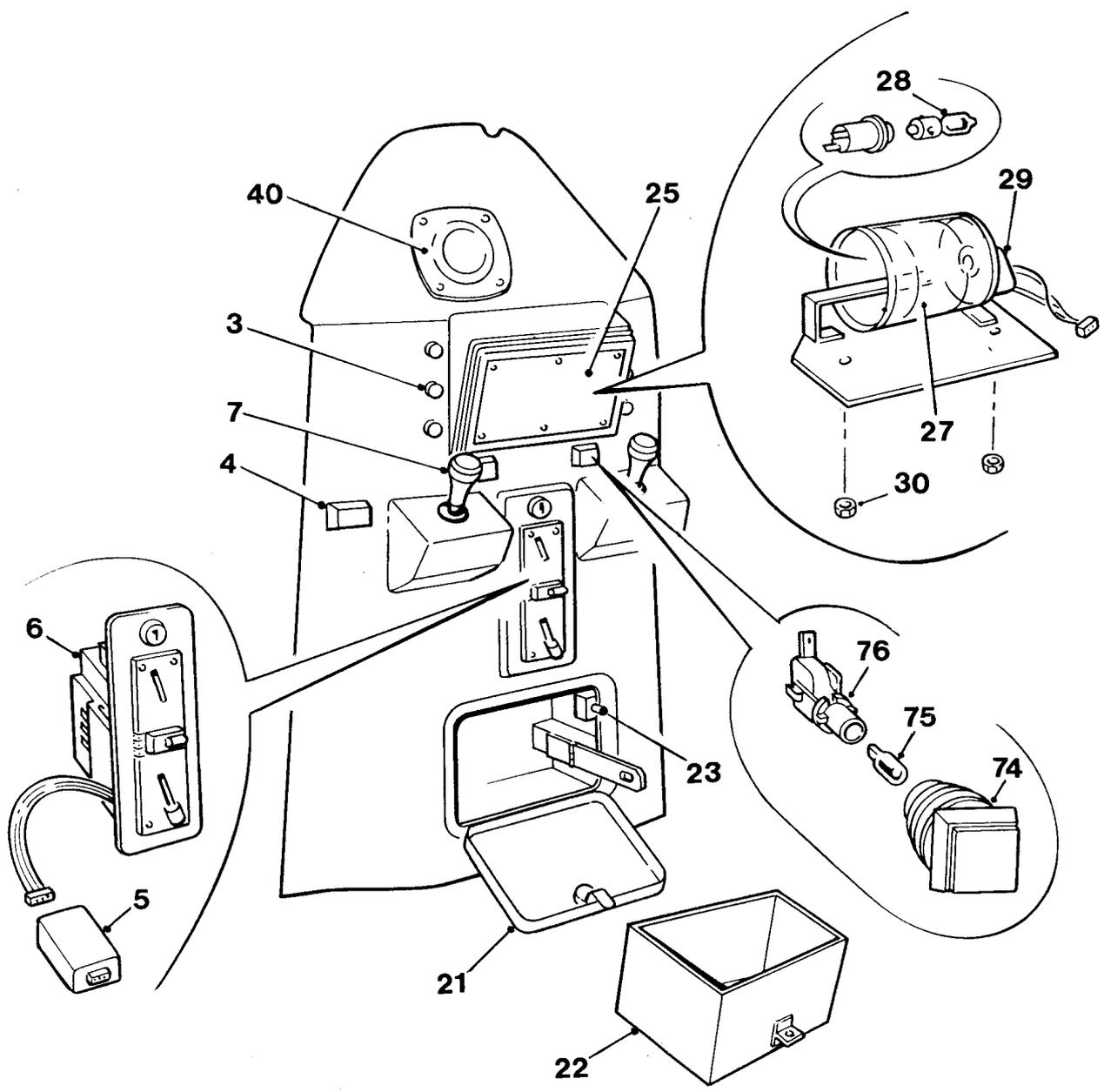
Remove the nuts and bolts that retain the motor/gearbox (29) and withdraw the complete assembly. (The motor and gearbox are replaced as a unit.)

Re-assemble in the reverse order.

**Console**

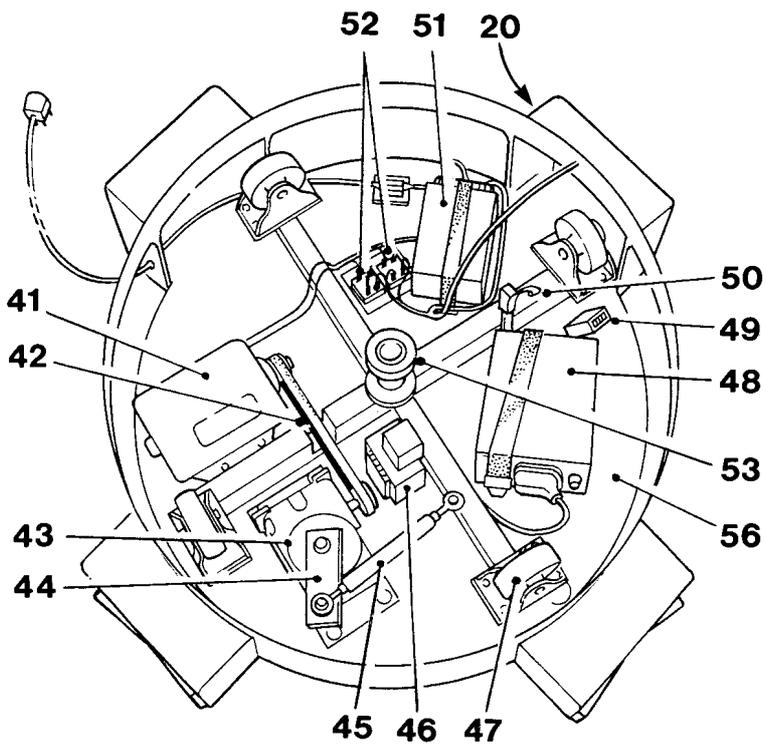
| Item | Description               | Qty |
|------|---------------------------|-----|
| 3    | CONSOLE LIGHTS            | 6   |
| 4    | START BUTTON, switch      | 1   |
| 5    | INTERFACE, coin mechanism | 1   |
| 6    | COIN MECHANISM            | 1   |
| 7    | JOYSTICK                  | 2   |
| 21   | DOOR, cash box            | 1   |
| 22   | CASH BOX                  | 1   |
| 23   | MICROSWITCH, alarm        | 1   |

| Item | Description                             | Qty |
|------|---|-----|
| 25   | SCREEN, rolling road                    | 1   |
| 27   | DRUM, rolling road                      | 1   |
| 28   | BULB, bayonet 12V 10W, for rolling road | 1   |
| 29   | MOTOR/GEARBOX, rolling road             | 1   |
| 30   | NUT, rolling road fixing                | 2   |
| 40   | SPEAKER                                 | 1   |
| 74   | BUTTON, switch                          | 4   |
| 75   | BULB, 12V, 2CP VCH 512                  | 4   |
| 76   | RETAINER, for button switch bulb        | 4   |



Base

| Item | Description              | Qty |
|------|--------------------------|-----|
| 20   | KEY-SWITCH, alarm        | 1   |
| 41   | MOTOR                    | 1   |
| 42   | BELT                     | 1   |
| 43   | GEARBOX                  | 1   |
| 44   | CRANK                    | 1   |
| 45   | CONNECTING ROD           | 1   |
| 46   | ALARM (where fitted)     | 1   |
| 47   | CASTER                   | 4   |
| 48   | TIMER/CONTROL UNIT       | 1   |
| 49   | CREDITS COUNTER          | 1   |
| 50   | MOTION STOP SWITCH       | 1   |
| 51   | POWER SUPPLY (P.S.) UNIT | 1   |
| 52   | SOLID STATE RELAY        | 2   |
| 53   | BEARING, swivel          | 1   |
| 56   | BASE PLATE               | 1   |



# SERVICE MANUAL section 10.4

for

## *Enchanted Castle*

### Contents

|                           |             |
|---------------------------|-------------|
| Customer operation of toy | Page 10.4.1 |
| Cash box & Alarm          | 10.4.2      |
| Transportation            | 10.4.2      |
| Servicing                 | 10.4.3      |
| Electronics               | 10.4.6      |
| Replacement parts         | 10.4.7      |

### Weight & Dimensions

|                  |        |
|------------------|--------|
| Weight           | 105 kg |
| Height           | 193 cm |
| Diameter of base | 100 cm |
| Diameter of top  | 115 cm |

### Customer operation of toy

The machine is a two seater Children's Ride.

Whilst the machine is connected to a live power supply the interior roof light and button switches (2) flash constantly.

A teaser sound track repeats every 120 seconds when the ride is not credited.

A yellow "Start" button (3) flashes when a ride has been credited by inserting a coin into the coin mechanism (6).

This is followed by an oral request, either; "Press Start Button" or "Insufficient Money".

Immediately that the start button (3) has been pressed the machine will begin to oscillate in a circular motion.

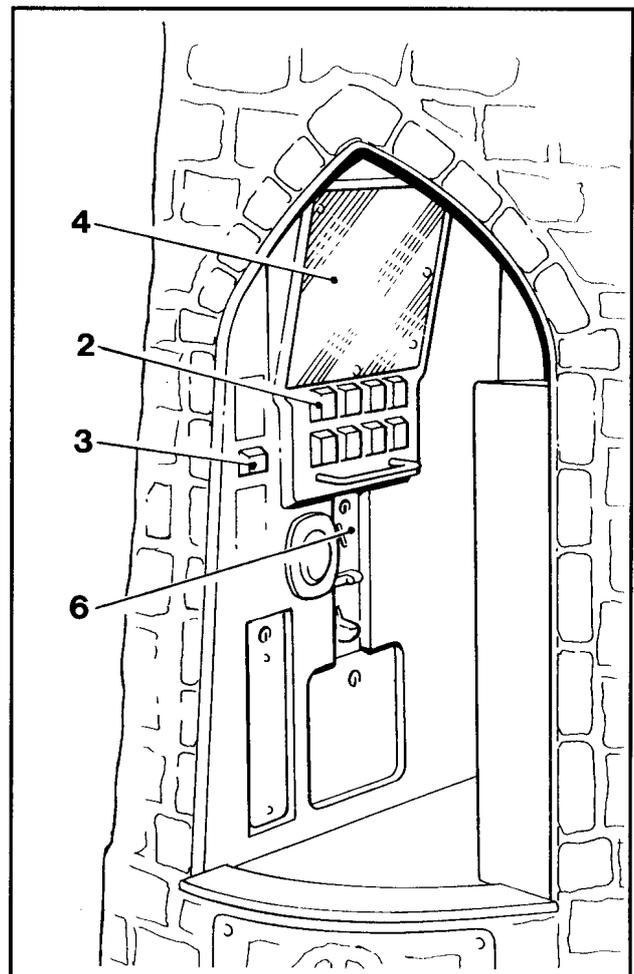
Whilst the machine is in motion, the "Magical Mirror" display (4) and interactive buttons (2) are operative as follows:

A picture appears on the "Magical Mirror" display (4).

There is a continuous oral request for the child to press one of the 'Picture' buttons (2) that corresponds with the illuminated picture on the display (4).

If after three attempts, the child has failed to select the correct button, the voice gives the correct answer and another picture is illuminated on the display.

When the pre-set duration of the ride has been reached, the ride will stop, accompanied by the oral prompt of "Thank You".



## Maintenance

### Emptying the cash box

Disarm the alarm (*where fitted*) by inserting and turning the alarm key in the key-switch (20). (The key-switch (20) is located near the cash box door.)

Unlock and open the cash box door (21).

Release the cash box (22) by removing the clip or padlock.

Slide the cash box out and empty.

Refit in the reverse order.

### Alarm System (*where fitted*)

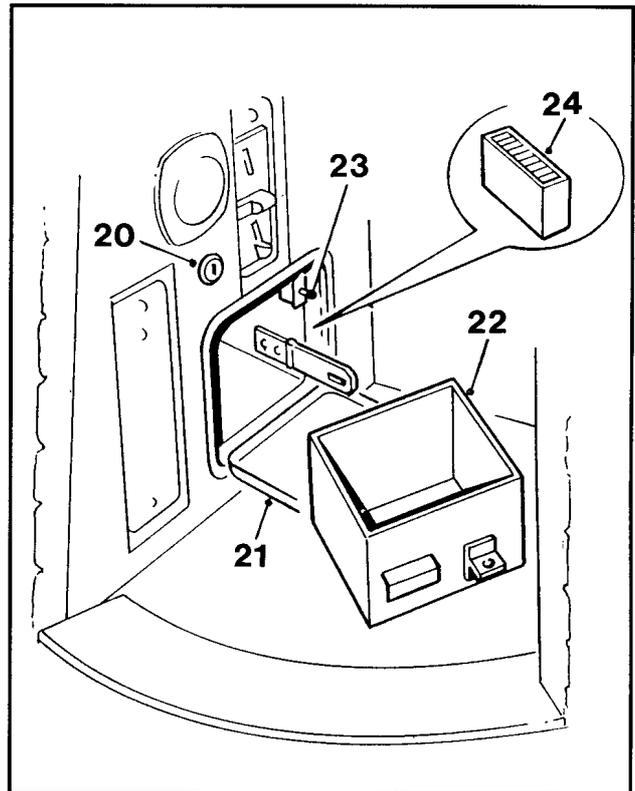
An alarm is fitted to protect the cash box.

The alarm is triggered by a microswitch (23) that is released when the cash box door (21) is opened.

To disarm, or cancel an already activated alarm, insert and turn the key in the key-switch (20).

**Note:** Even with the machine disconnected from the power supply, the alarm will still be activated.

Should the alarm have been operating for some time, it will be necessary to replace the batteries. The batteries are located in the alarm unit which is situated within the base of the machine.



### Credits Counter

The credits counter (24) is situated within the cash box compartment.

## Transportation

**WARNING** Read Safety section of this manual.  
Disconnect electrical power before opening any access panels.

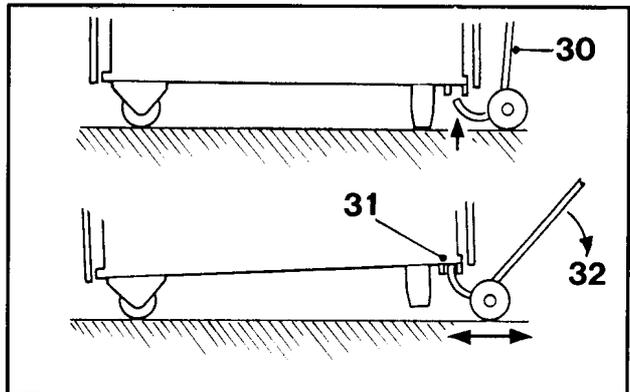


### Towing jack

The Towing jack (30) is provided to help in moving the machine.

Insert the hook of the jack into the eye (31) that is situated under the base between the two feet.

Lever the jack backwards (32) to raise the machine off its feet. The machine can now be pulled along with the jack handle.



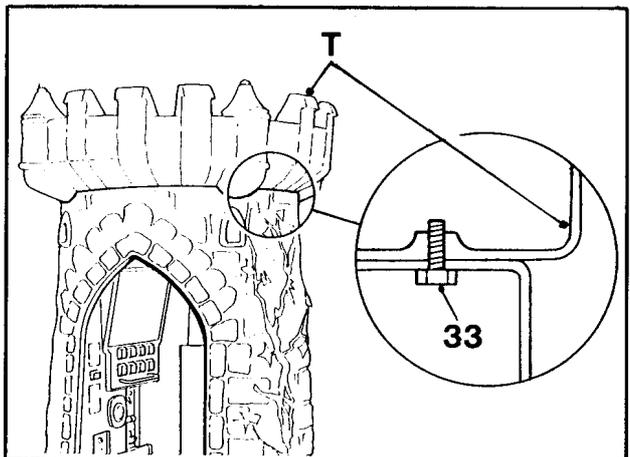
### Removal of castle battlements (top)

To assist in transporting the machine it may be helpful to remove the top (T) of the castle.

To remove the top:

Unscrew the four bolts (33) from the inside of the main module. (One of the bolts is behind the console and it is necessary to remove the "Magic Mirror" display unit to gain access.)

Lift the top off.



## Servicing

**WARNING** Read Safety section of this manual.



Disconnect electrical power at the mains before opening any panels.

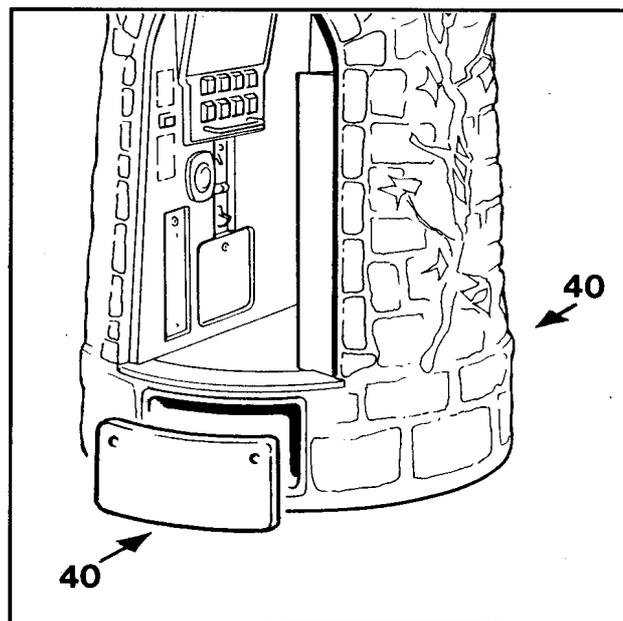
### Base unit access panels

The panels (40) at the front and rear give access for servicing the power supply unit (P.S.U.) (41), relays (42), motor (43), drive belt (44) and connecting rod (58).

The panels are fitted with micro-switches.

**Note:** When the panels are removed, the micro-switches break and the machine becomes inoperative.

To give greater access to the components inside the base, the toy can be revolved from side to side by manually turning the drive belt (44).



### Base plate

#### Removal / replacing

**Note:** Access to the gearbox (49) and swivel bearing (59) is made by removing the base plate (55).

Remove the base plate as follows:

Remove the front and rear access covers (40).

Unclip the wiring from the base plate (55) to provide sufficient loose cable to enable the plate, when it has been unfastened, to be pulled clear of the machine.

Place on the floor a padded mat (B) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

Disconnect the connecting rod (58) from the top base plate (56).

Loosen the two grub screws (57) that retain the swivel bearing (59).

Slide lower base plate (55) away from the machine.

To replace the base plate:

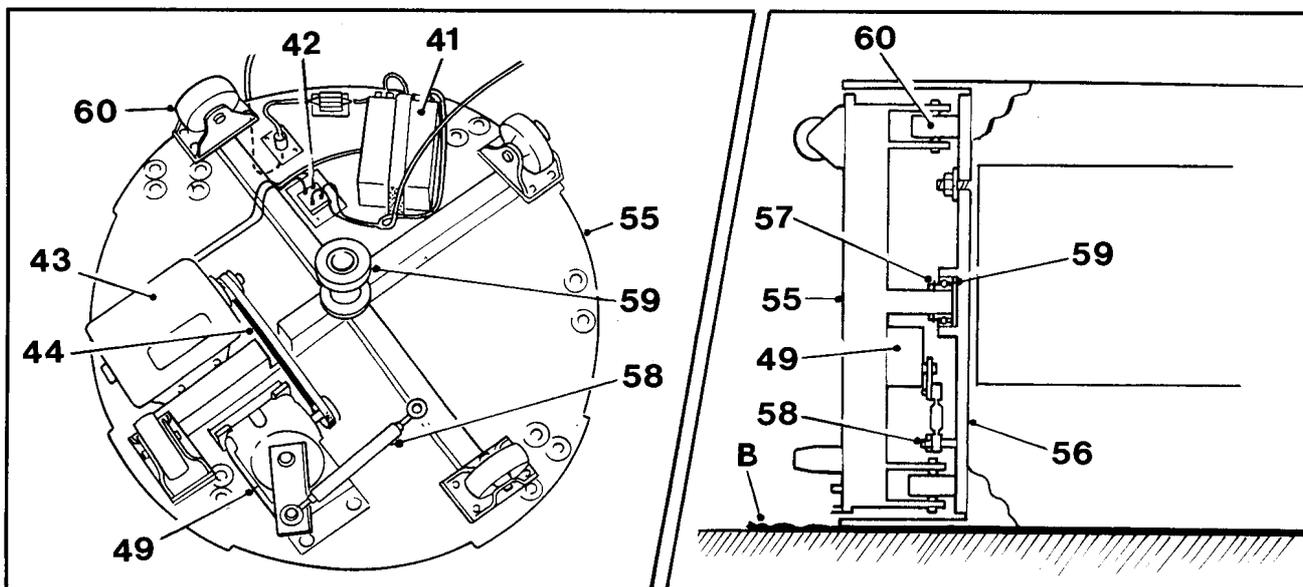
Slide the base plate (55) back into position until the casters (60) seat against the top plate (56).

Tighten the two grub screws (57) to retain the swivel bearing.

Fasten connecting rod (58) to the top plate.

Stand the machine upright.

Slacken the grub screws (57) to allow the bearing to settle centrally. Re-tighten grub screws.



## 10.4.4

## SERVICING

### Toy from base

#### Removal / replacing

**Note:** Bonded into the floor of the toy are three captive bolts (50). These bolts protrude down through the top plate of the base unit and are secured by nuts (51) beneath that plate.

To remove the toy from the base proceed as follows:

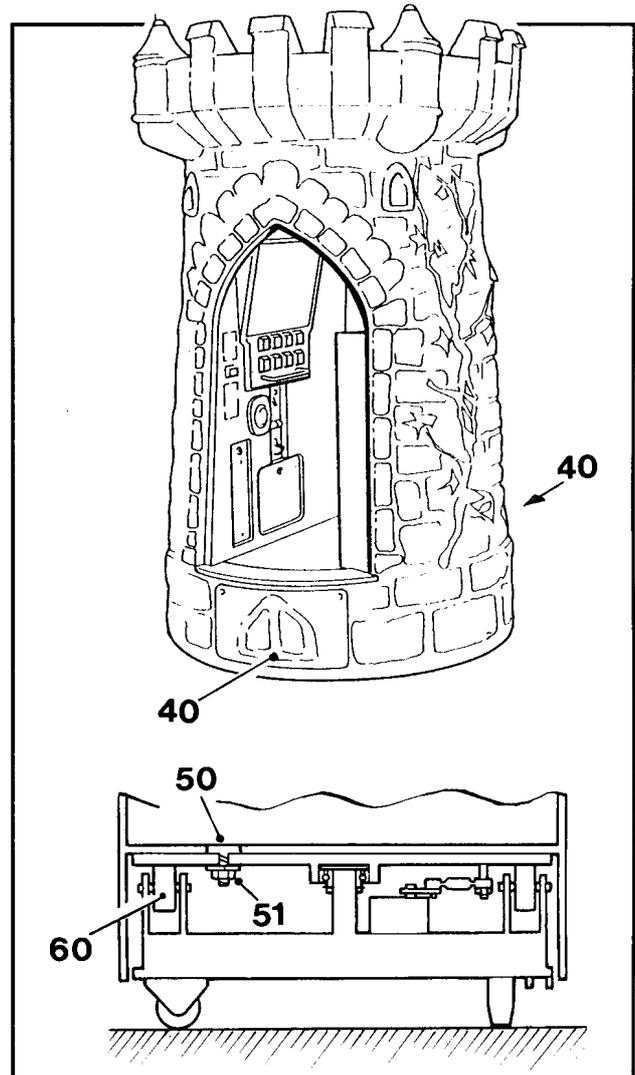
Remove the front and rear access panels (40).

Disconnect all wiring from between the toy and the base unit.

Remove the nuts (51).

Lift the toy vertically clear of the base.

Refit in the reverse order.



### Casters

#### Removal / replacing

The casters (60) can be replaced via the access panels (40). It is not necessary to dismantle the base unit.

### Coin Mechanism

#### Removal / replacing

The coin mechanism (6) is released by the use of a key (C). Once released, unplug the mechanism from the interface unit (7).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a microswitch.

For further details about the unit see the relevant "Coin Mechanism Sections" in this manual.

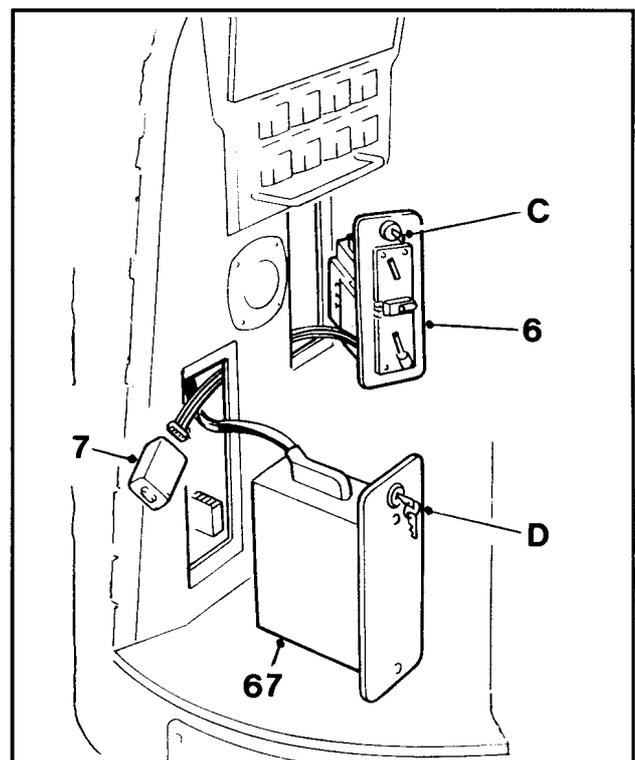
### Timer/Control Unit

#### Removal / replacing:

The timer/control unit (67) is released by the use of a key (D).

#### IMPORTANT

The timer/control unit is marked with a "GREEN" label. Only units with a green label can be used in this machine.



## "Magic Mirror" Display unit bulbs

### Bulb replacement:

Remove the screws (70) retaining the display unit (4).

Remove the nuts (71) retaining the electronics panel (73).

Replace bulb (72).

Replace in the reverse order.

## Button switches and bulbs

When pressed, the button switches (2) are illuminated by a bulb (75). The bulb is mounted within a snap-in retainer (76) that is pushed into the back of the switch. (The retainer (76) also has a microswitch clipped to it.)

### Bulb replacement:

Gain access by removing the display unit (4).

Locate the bulb retainer (76) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (75) from the retainer (76) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. *The tabs (X) of the switch must align with the slots (Y) of the retainer.* Push firmly on the retainer until it is heard to click into place.

### Replace button switch as follows:

Remove the bulb/retainer (76) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the button switch (4) from the console.

Refit in the reverse order.

## Start switch

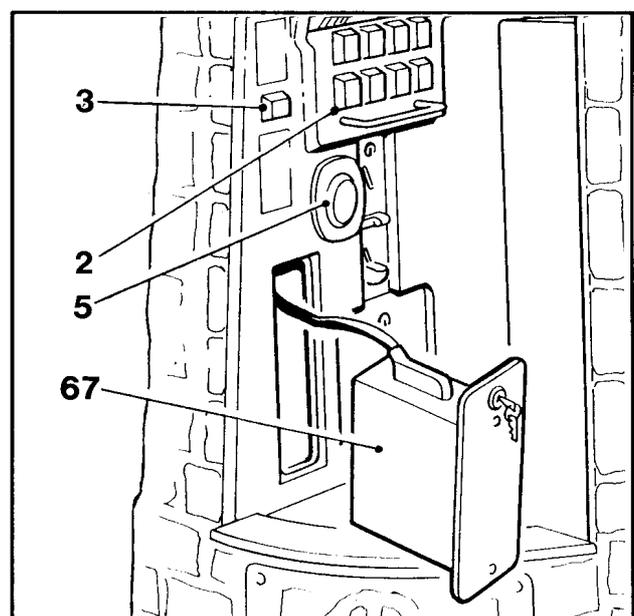
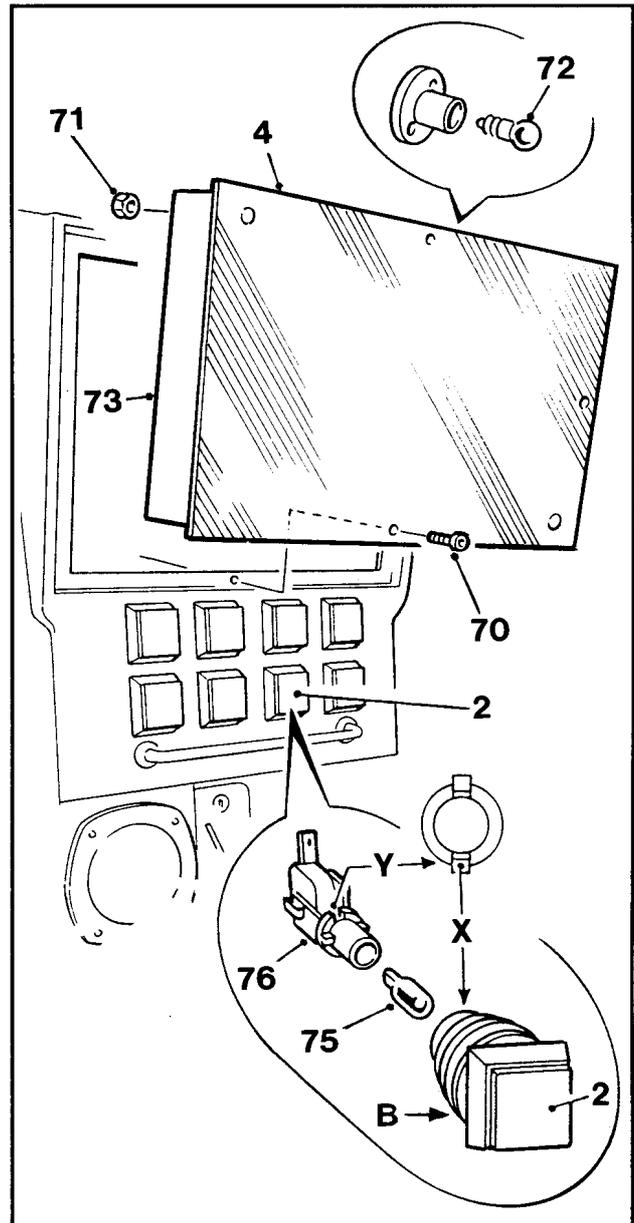
The Start switch (3) contains the same components as the button switches (2) and is serviced in the same manner.

## Speaker

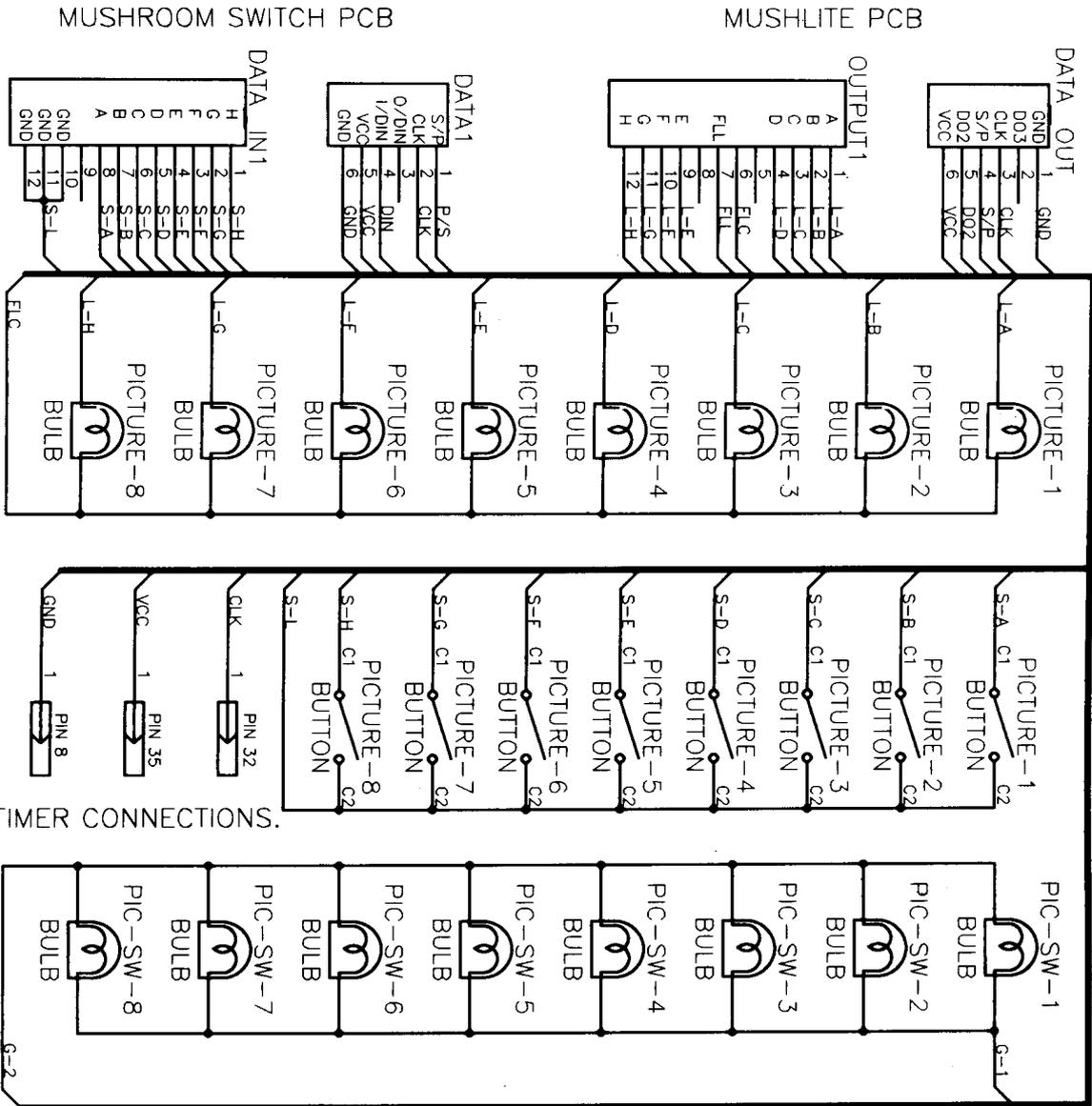
Gain access to the speaker (5) by removing the time/control unit (67).

Locate and remove the screws that retain the speaker, then gently ease it forwards from the console.

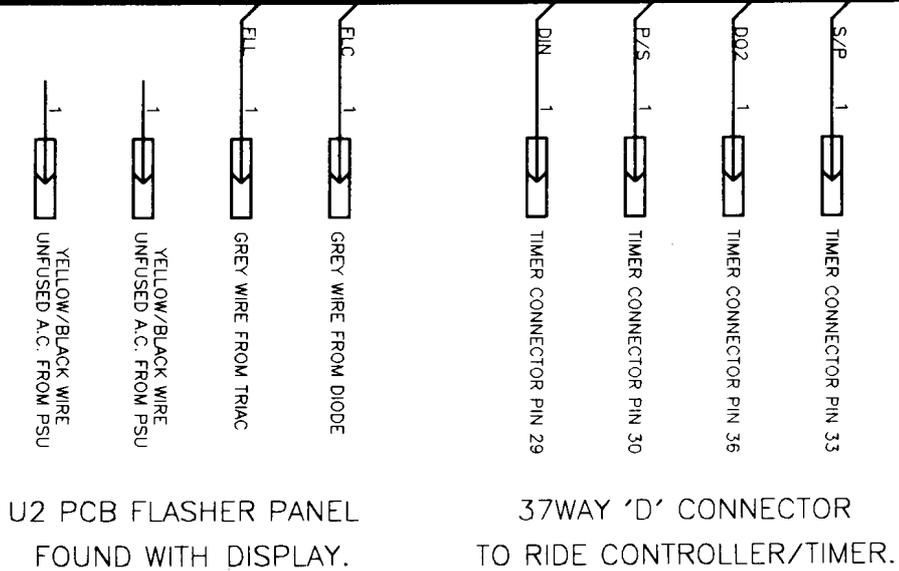
Re-assemble in the reverse order.



"Magic Mirror" Display unit



TIMER CONNECTIONS.



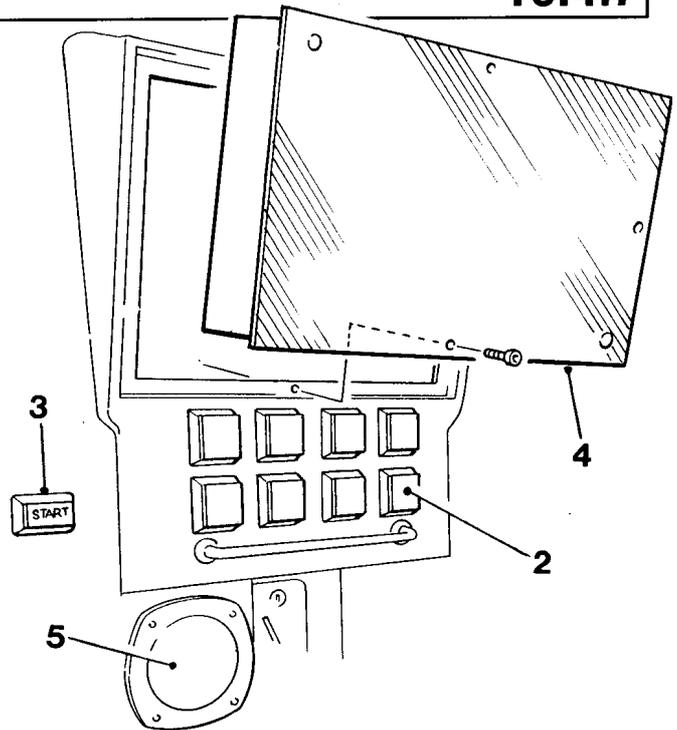
U2 PCB FLASHER PANEL FOUND WITH DISPLAY.

37WAY 'D' CONNECTOR TO RIDE CONTROLLER/TIMER.

|          |                    |          |        |
|----------|--------------------|----------|--------|
| Date     | 12th December 1996 | Drawn by | KDW    |
| Filename | MUSHDISP.S01       | Sheet    | 1 of 1 |

**Display unit & Start switch**

| Item | Description                              | Qty |
|------|--|-----|
| 2    | BUTTON SWITCH                            | 8   |
| --   | BULB, 12V, 2CP VCH 512                   | 8   |
| --   | RETAINER/MICROSWITCH                     | 8   |
| 3    | START SWITCH                             | 1   |
| --   | BULB, 12V, 2CP VCH 512                   | 1   |
| --   | RETAINER/MICROSWITCH                     | 1   |
| 4    | 'MAGIC MIRROR' DISPLAY UNIT              | 1   |
| --   | HOLDER, threaded for picture screen bulb | 8   |
| --   | BULB, 12V 10W, screw thread              | 8   |
| 5    | SPEAKER, display unit                    | 1   |

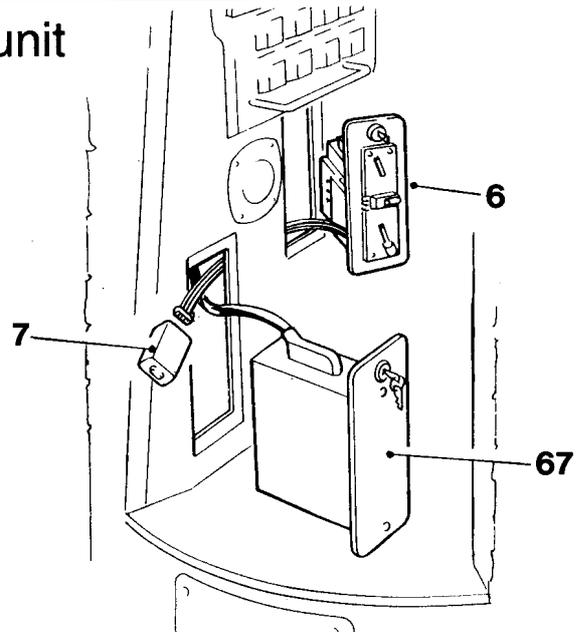


**Coin mechanism & Timer/control unit**

| Item | Description               | Qty |
|------|---------------------------|-----|
| 6    | COIN MECHANISM            | 1   |
| 7    | INTERFACE, coin mechanism | 1   |
| 67   | TIMER/CONTROL UNIT        | 1   |

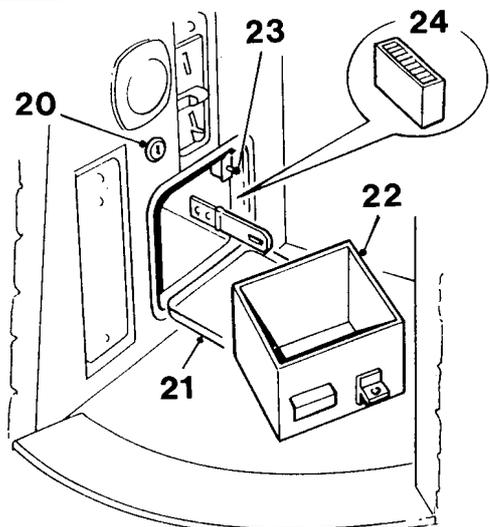
**IMPORTANT**

The timer/control unit is marked with a "GREEN" label. Only units with a green label can be used in this machine.



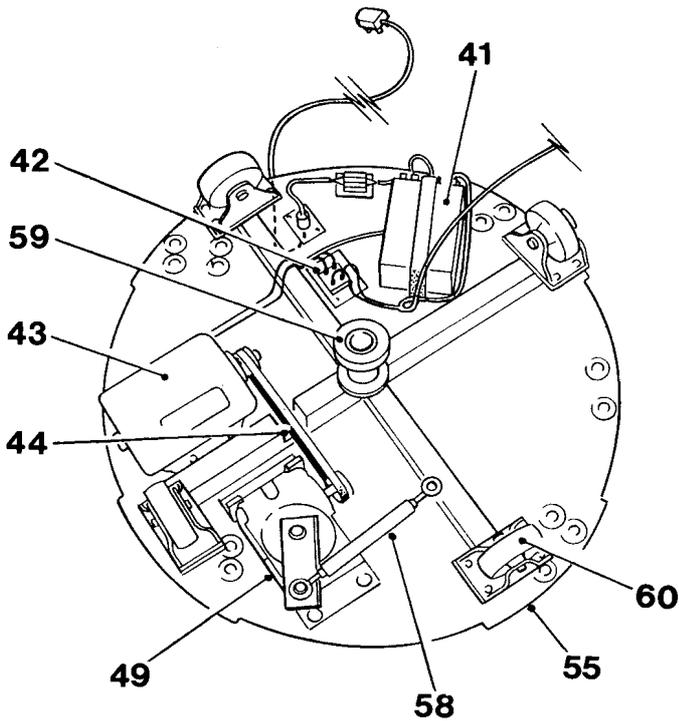
**Cash box & Credit counter**

| Item | Description        | Qty |
|------|--------------------|-----|
| 20   | KEY-SWITCH, alarm  | 1   |
| 21   | DOOR, cash box     | 1   |
| 22   | CASH BOX           | 1   |
| 23   | MICROSWITCH, alarm | 1   |
| 24   | CREDIT COUNTER     | 1   |



Base

| Item | Description              | Qty |
|------|--------------------------|-----|
| 41   | POWER SUPPLY (P.S.) UNIT | 1   |
| 42   | SOLID STATE RELAY        | 1   |
| 43   | MOTOR                    | 1   |
| 44   | BELT                     | 1   |
| 49   | GEARBOX                  | 1   |
| 55   | BASE PLATE               | 1   |
| 58   | CONNECTING ROD           | 1   |
| 59   | BEARING, swivel          | 1   |
| 60   | CASTER                   | 4   |



# SERVICE MANUAL section 10.5

## for *SOOTY*

### Contents

|                                      |             |
|--------------------------------------|-------------|
| Customer operation of toy            | Page 10.5.1 |
| Emptying the cash box                | 10.5.2      |
| Alarm system ( <i>Where fitted</i> ) | 10.5.2      |
| Servicing                            | 10.5.3      |
| Replacement parts                    | 10.5.6      |

### Weight & Dimensions

|        |       |
|--------|-------|
| Weight | 80kg  |
| Length | 130cm |
| Width  | 72cm  |
| Height | 142cm |

### Customer operation of toy

The machine is a single seater children's ride.

Whilst the machine is connected to a live mains power supply, the interior light, headlamps and 'lettered' push buttons (4) flash constantly.

**Note:** All oral requests are in the voice of Mathew Corbett.

A 'Sooty and Company' teaser attraction sound track repeats every 120 seconds, when the ride is not in motion or has not been credited.

Once money has been inserted into the coin mechanism (2), the timer/controller will then determine if a ride can be given.

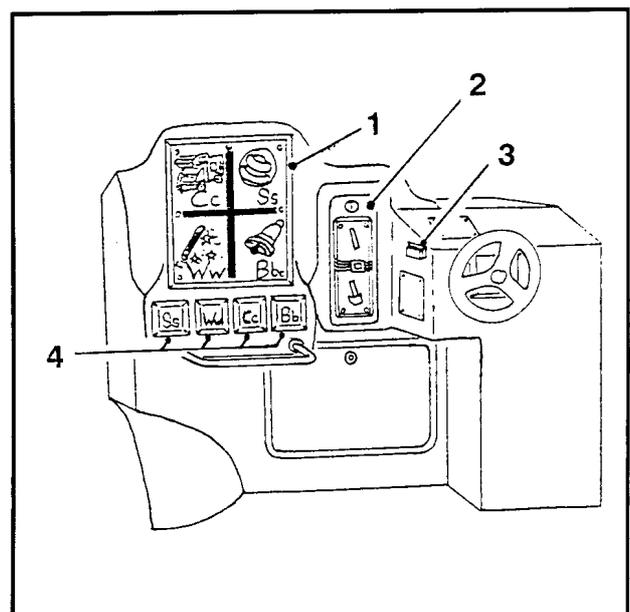
If the timer/controller has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give 1 or more rides, then the yellow start button (3) will flash, and an oral request to push the start button will be given.

Immediately that the start button has been pressed, the toy will begin to move and a background sound will be heard.

Whilst in motion, there will be oral requests to match the 'lettered' push buttons (4) with the illuminated pictures that appear in the display unit(1).

If the wrong lettered push button is pressed, then an



oral message will be given to let you know that your selection was incorrect, and to tell you to try again.

If the correctly matched 'lettered' push button is pressed, then an oral message will be given to let you know that you made the correct selection, and the display unit will then illuminate another picture.

When the duration of the ride has been reached, the toy will stop moving and an oral message telling you that the ride has finished will be given.

## Maintenance

### Emptying the cash box

Disarm the alarm (*if fitted*) by unlocking and removing the base access panel (8) using a key. Removal of the base access panel operates the microswitch (5) which disarms the alarm. Upon removal of the base panel, if no microswitch can be seen, then the ride has not been fitted with an alarm system.

Once the alarm (*if fitted*) has been disarmed, unlock and open the cash box door (10) using a key.

Release the cash box (11) by removing the clip or padlock.

Slide the cash box out and empty.

Refit the cash box and replace the clip or padlock.

Close and lock the cash box door using a key.

Close and lock the base access panel using a key.

### labelling="Section-Header">Cancelling or disarming the alarm system (*if fitted*).

An alarm system is fitted to protect the cash box.

The alarm is triggered by a microswitch (9) which is operated when the cash box door is opened.

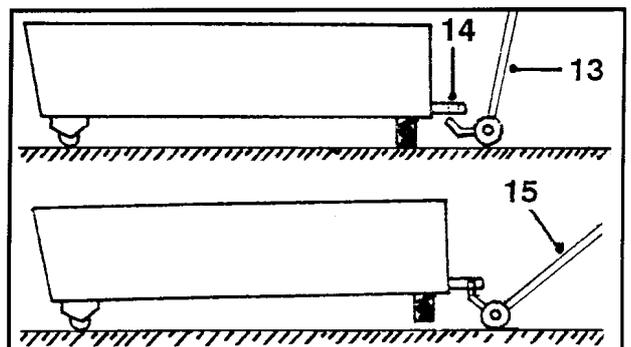
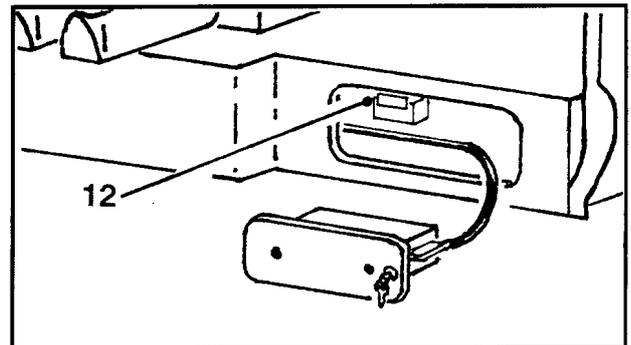
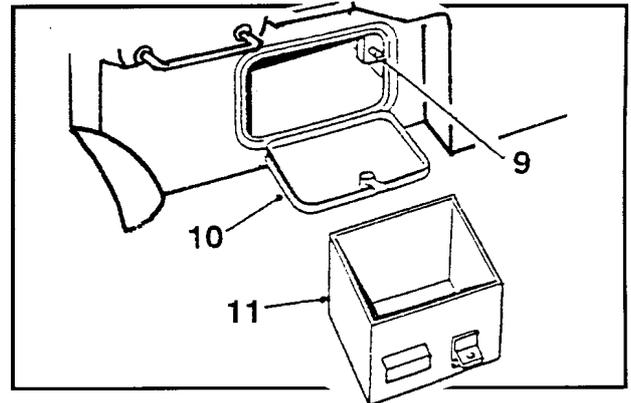
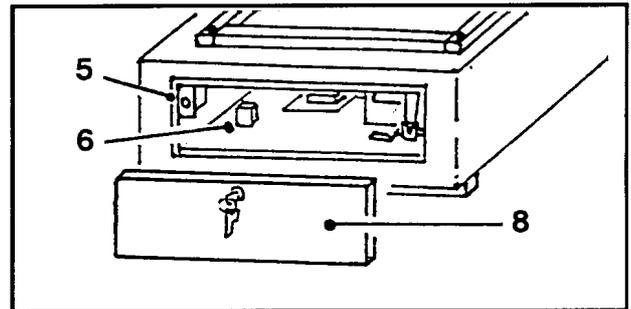
To disarm the alarm, or to cancel an alarm that has already been activated, unlock and remove the base access panel, this operates the microswitch (5) which disarms or cancels the alarm.

**Note:** Even with the ride disconnected from any mains power supply, the alarm system can still be activated.

To keep the reliability of the alarm, it may be necessary to periodically replace the battery that powers the alarm system. The battery can be found inside the alarm box (12) which is found under the seating area of the toy, behind the timer/controller.

### Coin counter

The coin counter (6) can be accessed by removing the base access panel.



## Transportation

### WARNING



*Read Safety section of this manual.  
Disconnect electrical power before  
transporting this machine.*

### Towing jack

The towing jack (13) is provided to help move the machine.

Insert the hook of the jack into the towing eye (14) on the base of the machine.

Lever the jack backwards (15) to raise the machine off its feet. The machine can now be pulled along with the jack handle.

## Servicing

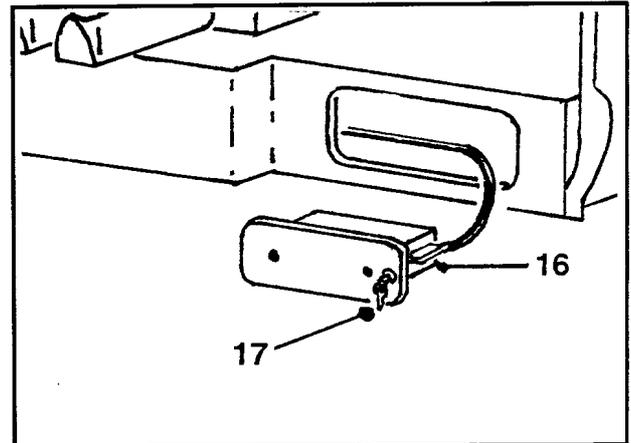
**WARNING** Read Safety section of this manual.



Disconnect electrical power before servicing this machine.

### Timer\controller unit removal and replacement

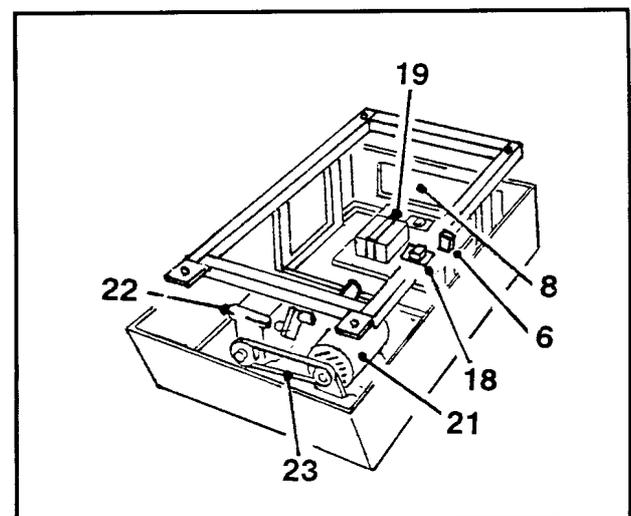
The timer\controller unit (16) is released from the toy by use of a key (17).



### Base access panel

The base access panel (8) is located at the rear of the base, and when removed, access is given for servicing the coin counter (6), solid state relay (18), power supply unit (19) and the mains chord.

Removing the toy from the base will give better access to these parts, as well as access to the motor (21), gearbox (22) and pulley belt (23), see: **Toy from Base removal**.



### Toy from Base removal

Whilst the ride is in motion, wait for the mechanism to move the toy as far forward as it can and switch the mains supply off, this makes the removal of the toy from the base easier.

If possible, place the complete ride onto a work bench.

Remove the timer\controller from the toy as previously described in this section.

Disconnect the base connector terminal block, which is found underneath the seating area, by simply pulling the two halves apart. Push the base half of the terminal block through the round hole in the floor of the toy.

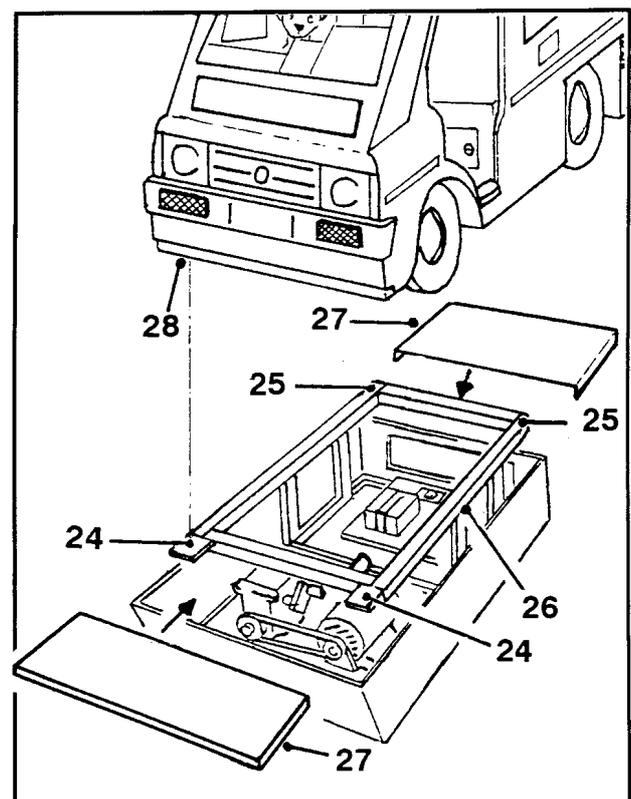
The toy is fastened to the base with 4 nylock nuts, 2 at the front of the toy (24) and 2 at the rear of the toy (25).

First, remove the 2 front nylock nuts using a 13mil spanner or ratchet, then remove the 2 rear nuts in the same way as the 2 front nuts.

Carefully lift the toy off of the base, making sure that the 4 captive bolts on the floor of the toy have been lifted out of the mechanism of the base (26).

Remove the front and rear covers (27), if necessary, by using a philips or pozi-driv type screwdriver.

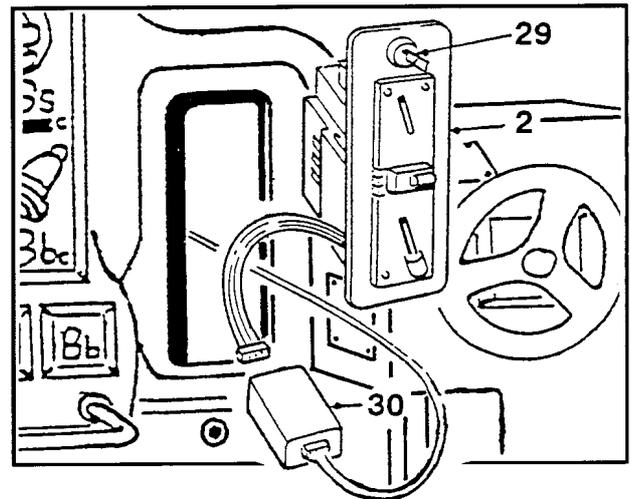
Re-assemble the toy (28) in reverse order.



**Coin Mechanism: removal / replacement**

The coin mechanism(2) is released by use of a key (29). Once released, unplug the mechanism from the interface unit (30).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but 2 wires will need to be disconnected from the microswitch, on the coin mechanism.



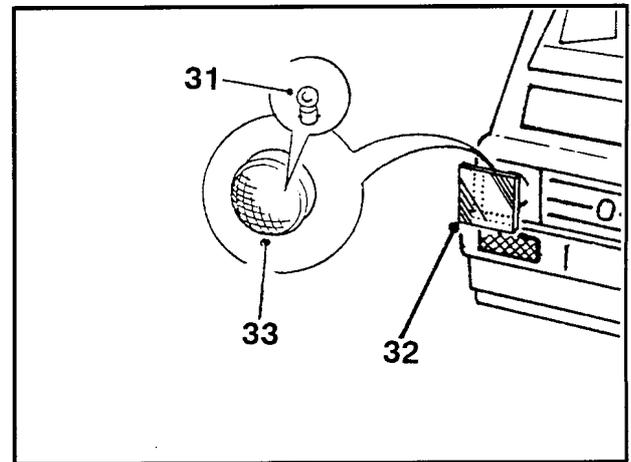
**Headlamp bulb replacement**

Remove the screws that retain the headlamp cover (32) using a tamper proof screwdriver.

Remove the lens from the headlamp(33).

Remove and replace the bulb(31).

Re-assemble in reverse order.



**Display unit bulb replacement**

Release the 7 screws (39) that retain the display unit using a tamper proof screwdriver.

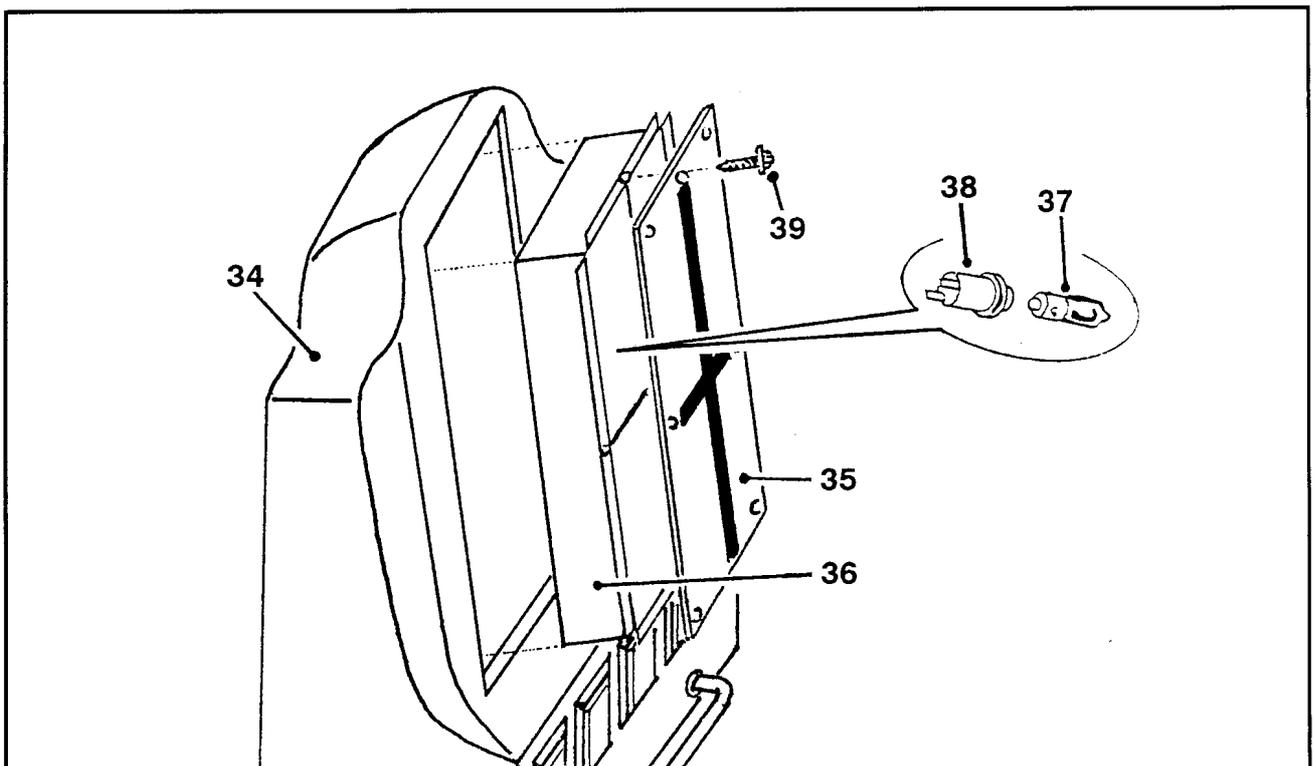
Remove the screen (35).

Extract the light box(36) from the console (34).

Remove the bulb (37) from the holder (38) in the light box.

Replace the bulb.

Refit in reverse order.



# SERVICE MANUAL section 10.6

for

## *Ice Cream Van*

### Contents

|                                      |             |
|--------------------------------------|-------------|
| Customer operation of toy            | Page 10.6.1 |
| Emptying the cash box                | 10.6.2      |
| Alarm system ( <i>Where fitted</i> ) | 10.6.2      |
| Servicing                            | 10.6.2      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Weight | 95 kg  |
| Length | 135 cm |
| Width  | 76 cm  |
| Height | 126 cm |

### Customer operation of toy

The Ice Cream Van is a two seater Children's Ride.

Whilst the machine is connected to a live power supply the head lights, interior panels and button switches flash constantly.

A teaser sound track repeats every 120 seconds when the ride is not credited.

A yellow "Start" button (20) flashes when a ride has been credited.

This is followed by an oral request, either; "**Press Start Button**" or "**Insufficient Money**"

Immediately that the start button (20) has been pressed the toy will begin to move backwards and forwards on its base. Whilst in motion there is a constant engine sound.

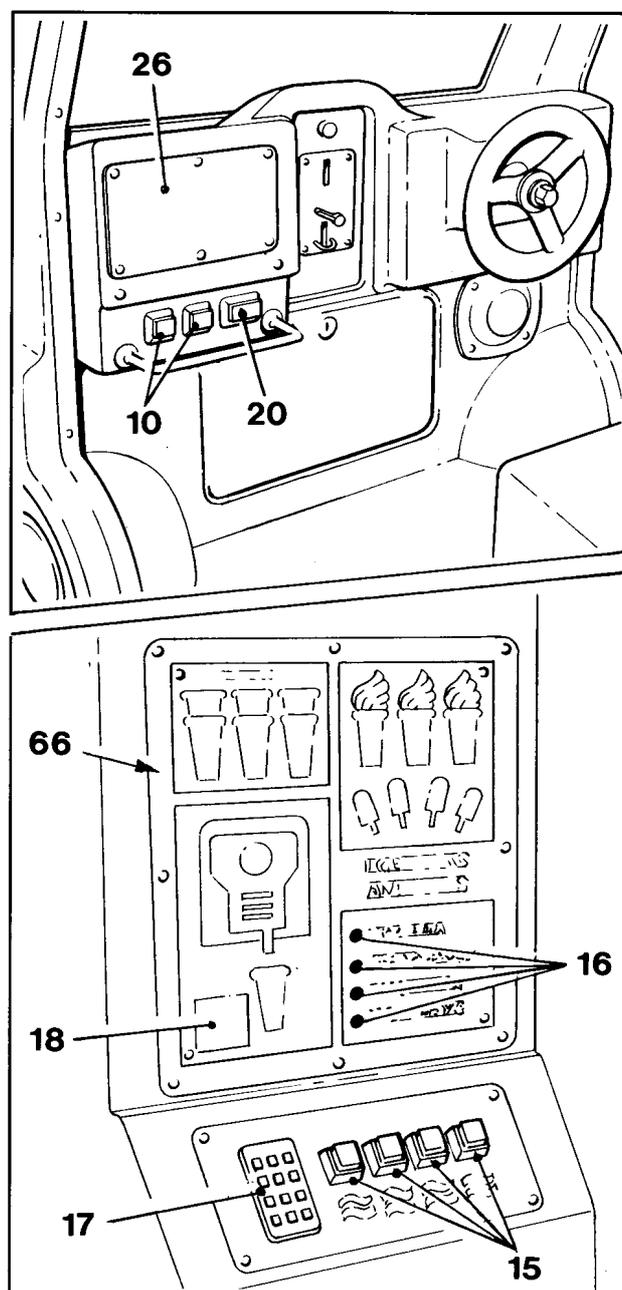
The dashboard of the van displays a rolling road (26) and sound effects are available on pressing the coloured button switches (10).

In the rear of the toy is the *Ice cream display* (66). This is an interactive display with screen and button switches.

By pressing buttons (15) the corresponding cone or ice lollys above will illuminate, accompanied by one of the lights (16), and also an oral message

The keypad (17), when pressed, displays random figures on the screen (18), accompanied by a beeping sound.

When the pre-set duration of the ride has been reached, the ride will stop, accompanied by the oral prompt of "Thank You".



## Maintenance

### Emptying the cash box

*The cash box may be fitted with an alarm.*

Disarm the alarm (*where fitted*) by opening the base access panel (60). This deactivates a microswitch.

Unlock and open the cash box door (1).

Release the cash box (5) by removing the clip or padlock.

Slide the cash box out and empty.

Refit in the reverse order.

### Cancelling or disarming the alarm system (*where fitted*)

An alarm is fitted to protect the cash box.

*The alarm unit (35) is usually to be found within the base unit, but may be installed within the toy, depending on the type of ride.*

The alarm is triggered by a microswitch (2) that is released when the cash box door (5) is opened.

To disarm, or cancel an already activated alarm, open the base access panel (60). This deactivates a microswitch that is depressed by the panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

Should the alarm have been operating for some time, it will be necessary to replace the batteries. The batteries are located in the base of the alarm unit (35)

### Credit counter

The credits counter is situated either within the base of the machine (36), or inside the cash box compartment (36A).

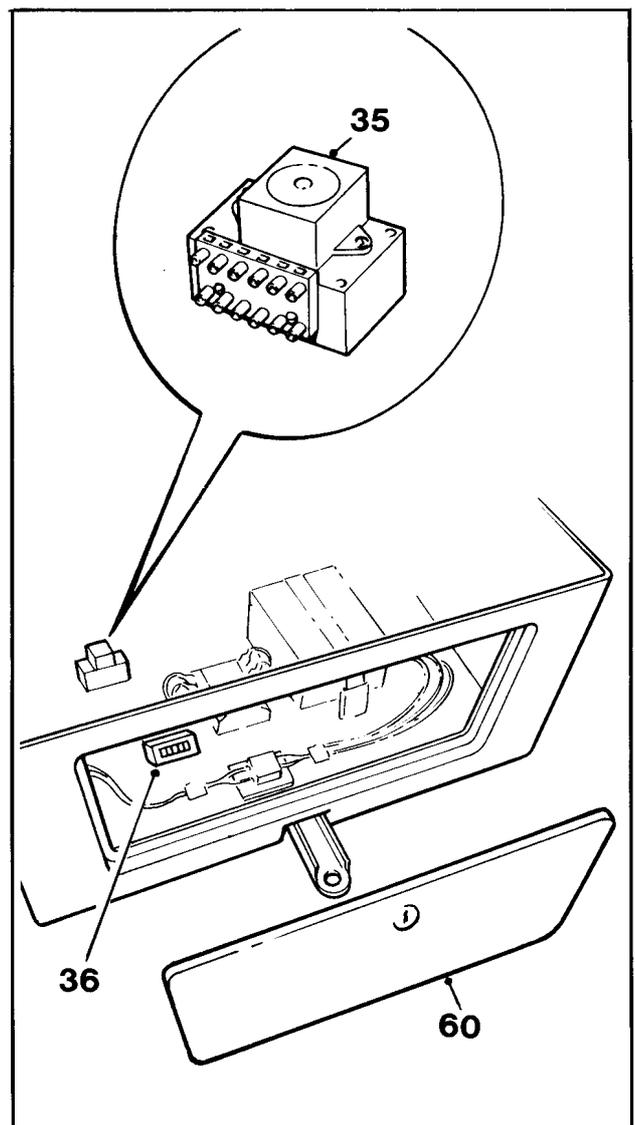
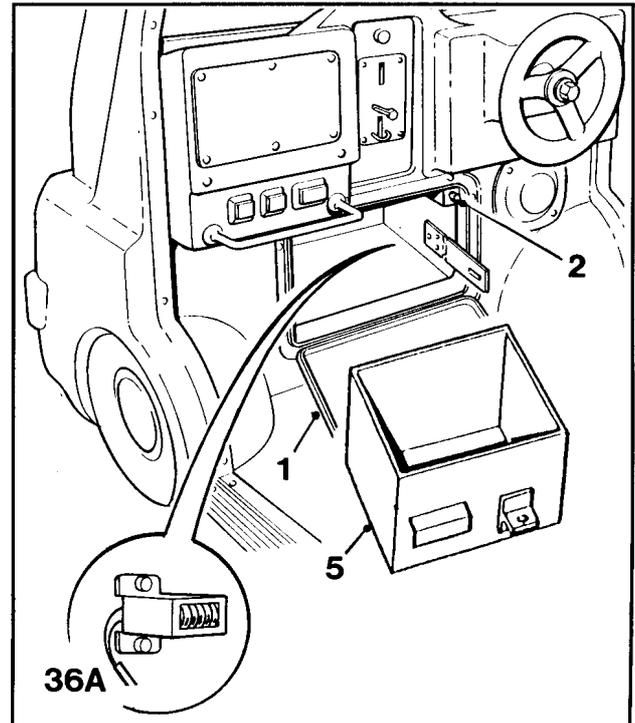
## Servicing

**WARNING** *Read safety instructions first.  
Disconnect electrical power before opening any access panels.*



### Base access panel

The panel (60) at the rear of the base will give access for servicing the P.S. unit, relays and Alarm (*where fitted*). Greater access can be gained by removing the glass fibre cover from the base. (*See following;*)



# SERVICING

10.6.3

## Base cover: removal / replacing

Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap

Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

The glass fibre cover (31) is fastened to the base frame by four screws (32).

Remove the four screws (32)

Release the power cable gland (4).

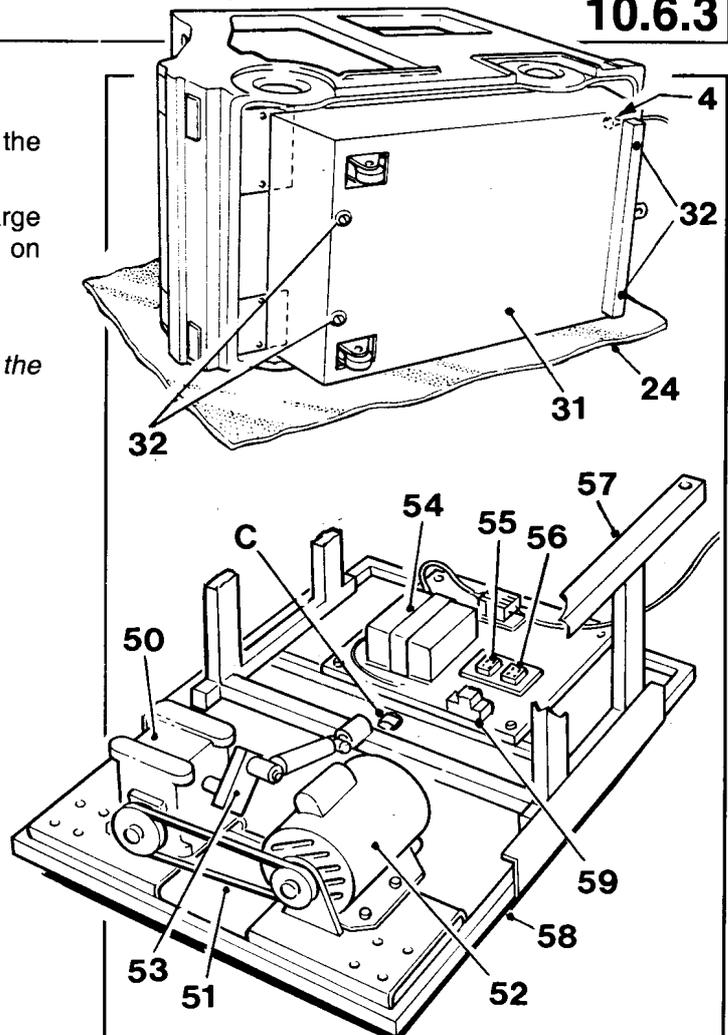
Pull the cover (31) clear of the machine.

The machine can now be stood upright.

### **This gives access to:**

- Gearbox (50)
- Belt (51)
- Motor (52)
- Crank (53)
- Power supply (P.S.) unit (54)
- Solid state relay, motor (55)
- Solid state relay, rolling road (56)
- Frame, sliding (57)
- Frame, base (58)
- Alarm (where fitted) (59)

Refit cover in the reverse order.



## Coin Mechanism: removal / replacing

**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit



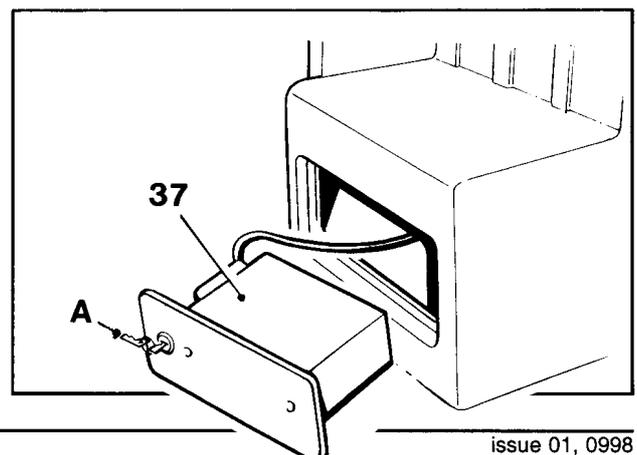
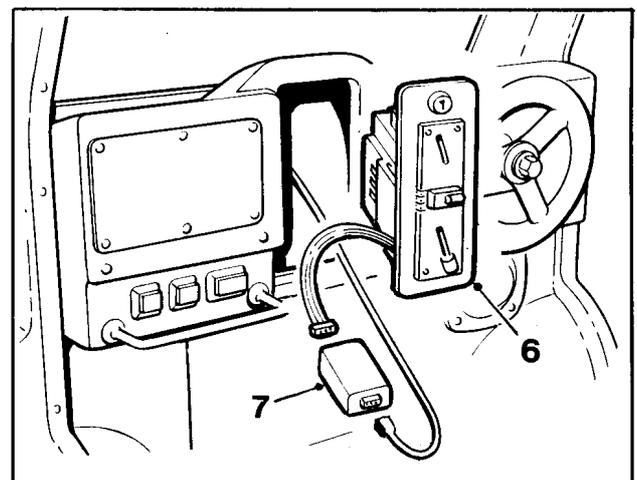
The coin mechanism (6) is released by the use of a key (A). Once released, unplug the mechanism from the interface unit (7).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a microswitch.

For further details about the unit see the relevant Coin mechanism section in this manual.

## Timer/Control Unit

The Timer/Control Unit (37) is situated beneath the seat. To release the unit, use the key (A).



### Rolling Road

The rolling road (26) consists of a film wrapped around the inside of a transparent drum (27), which is illuminated from the inside by a bulb (28). The drum is rotated by the motor (29).

**Note:** Should the motor fail, the heat from the bulb could melt the film.

#### Replacing the Bulb, or 'Road' Film

Remove the screen (25) by releasing its fixing screws.

At the motor end of the drum, where it attaches to the drive shaft, loosen the two diagonally opposed grub screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

**Bulb:** Remove/replace the bulb (28). Refit drum and screen.

**'Road' Film:** The film is held in place within the drum (27) by double-sided adhesive tape.

Peel the film free from the adhesive tape and slide it out. (*Note the orientation of the film before removing it.*)

Cut the new film to the same length as the old one.

Roll it and slide it into the drum, ensuring it is in the correct way around.

Fasten the film down to the adhesive tape.

Re-assemble the drum and fit the screen (25).

#### Replacing the Rolling Road motor

**Note:** *There should never be a need to replace a Rolling Road Motor, but if there was proceed as follows .....*

To replace the rolling road motor it is necessary to remove the complete rolling road assembly (26) as follows:

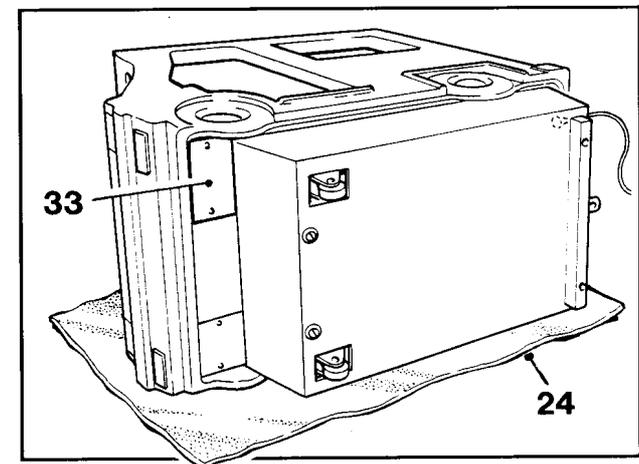
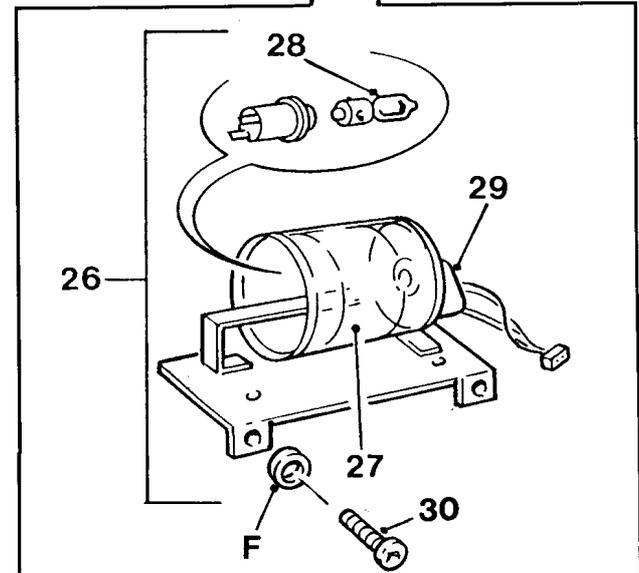
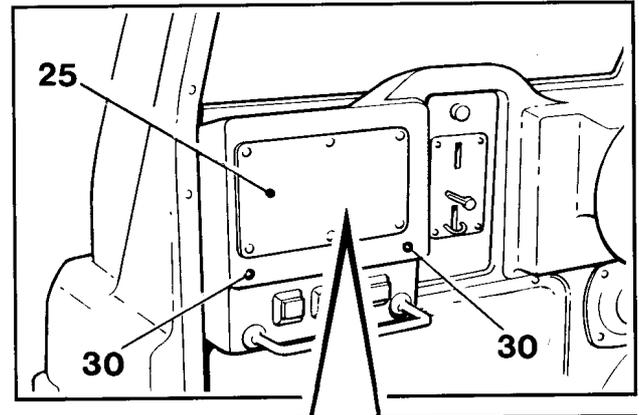
Start the toy into motion so that it is moving backwards and forwards. When the toy is at its farthest point forward, switch off the main power supply.

Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side. Carefully lay the machine down on the mat.

Remove the panel (33).

Release any rolling road cables from their clips down the forward face of the console.

Remove the two screws (30) supporting the rolling road. (*On some machines, spacers (F) are fitted between rolling road bracket and the fibre glass. Ensure these spacers are not lost.*)



Extract the complete rolling road assembly through the opening (33).

Remove the drum (27) from where it is attached to the drive shaft by loosening the two diagonally opposed grub screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

Remove the nuts and bolts that retain the motor/gearbox (29) and withdraw the complete assembly. (*The motor and gearbox are replaced as a unit.*)

## Console speaker: removal / replacing

When removing the speaker it is necessary to extract it through the floor of the toy, as follows:

Start the toy into motion so that it is moving backwards and forwards. When the toy is at its farthest point forward, switch off the main power supply.

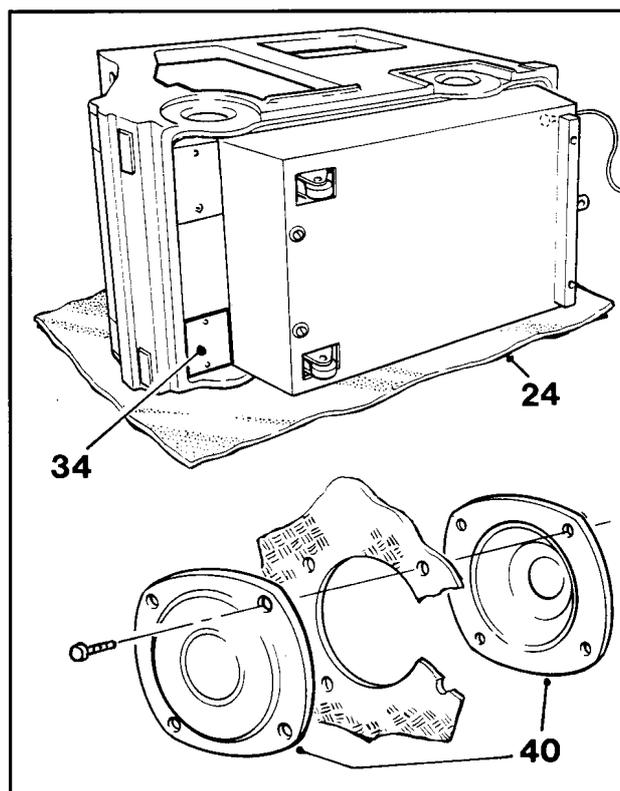
Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side. Carefully lay the machine down on the mat.

Remove the panel (34).

From within the cab, remove the four screws that retain the speaker (40). Disconnect the speaker cables.

Extract the speaker through the floor panel opening (34).

Reassemble in the reverse order.



## Electronics, "Ice cream display" removal / replacing

Remove the screws (65) retaining the screen (66).

This gives access to the electronics attached to the rear of the display i.e.,

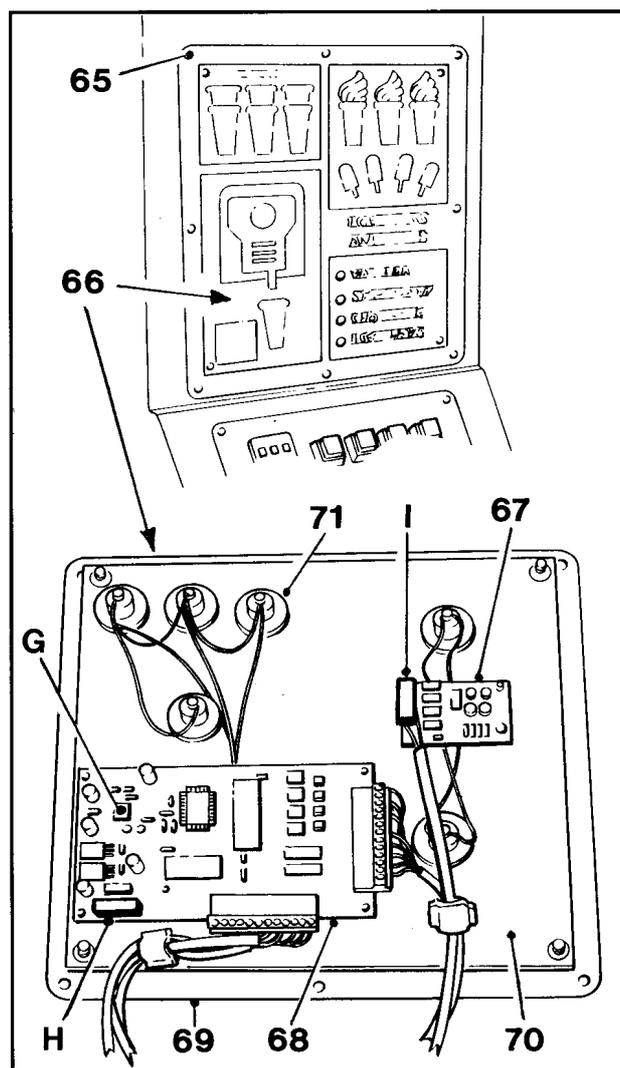
### Till Driver PCB (68) containing.....

The volume control (G) for the display.

2 amp fuse (H) for rear sounds.

### U2 Lights Board (67) containing .....

2 amp fuse (I) for lighting the ice cream display and the three ice cream cones. (Any other lights are flashed by the Timer/Control Unit.)



## Picture bulbs, "Ice cream display": removal / replacing

Remove the screws (65) retaining the display screen (66).

Remove the front of the display (69) from its base board (70), this give access to the bulbs.

Replace the bulb (71).

Re-fit the display screen.

### Button switches, and bulbs

The button switches (10) are illuminated by a bulb (11). The bulb is mounted within a snap-in retainer (12) that is pushed into the back of the switch.

(The retainer (12) also has a microswitch clipped to it.)

#### Bulb replacement:

Gain access to the rear of the switch by removing the relevant panel

Locate the bulb retainer (12) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (11) from the retainer (12) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

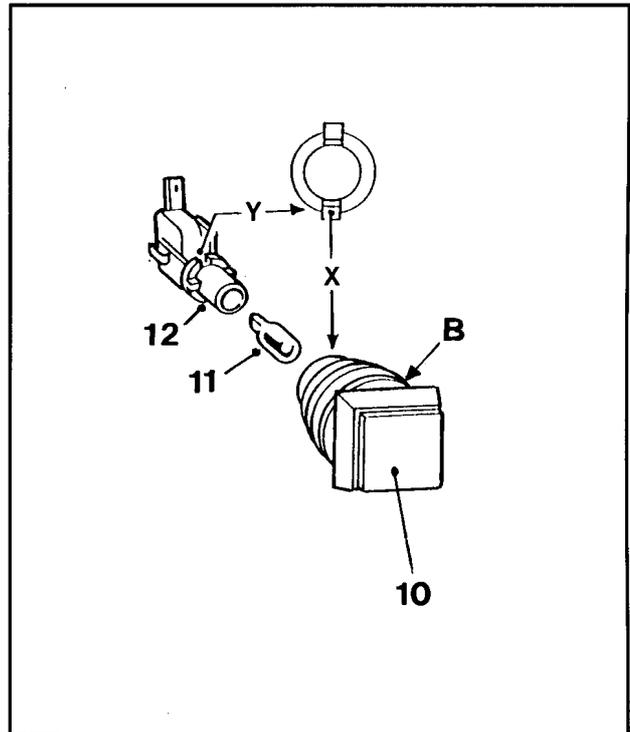
#### Button switch replacement

Remove the bulb/retainer (12) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the button switch (10) from the console.

Refit in the reverse order.



### Start switch

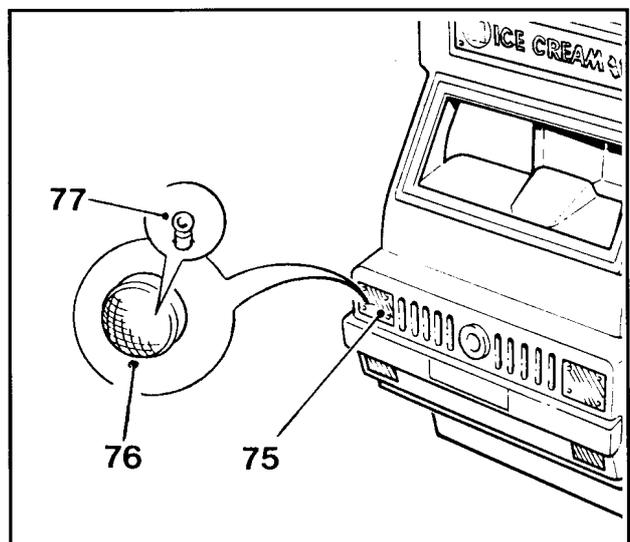
The Start switch (see page 10.6.1, item 20) contains the same components as the button switches (10) and is serviced in the same manner.

### Headlamp bulb: removal / replacing

Remove the screws retaining the headlamp cover (75).

Remove the lens from headlamp (76). Replace bulb (77).

Re-assemble in the reverse order.



# SERVICE MANUAL section 10.7

for

## *Fire Fox (option: Police)*

### Contents

|                                      |             |
|--------------------------------------|-------------|
| Customer operation of toy            | Page 10.7.1 |
| Emptying the cash box                | 10.7.1      |
| Alarm system ( <i>Where fitted</i> ) | 10.7.2      |
| Servicing                            | 10.7.2      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Weight | 100 kg |
| Length | 185 cm |
| Width  | 74 cm  |
| Height | 147 cm |

### Customer operation of toy

The Fire Fox is a two seater Children's Ride.

Whilst the machine is connected to a live power supply the external and interior console (9) lights flash constantly.

A teaser sound track repeats every 120 seconds when the ride is not credited.

A yellow "Start" button (20) flashes when a ride has been credited.

This is followed by an oral request, either; "**Press Start Button**" or "**Insufficient Money**"

Immediately that the "Start" button (20) has been pressed the toy will begin to move up and down on its base. Whilst in motion there is a constant engine sound.

On the console are mounted two joysticks (10). When the joysticks are moved, different sounds are heard.

When the pre-set duration of the ride has been reached, the ride will stop, accompanied by the oral prompt of "Thank You".

### Maintenance

#### Emptying the cash box

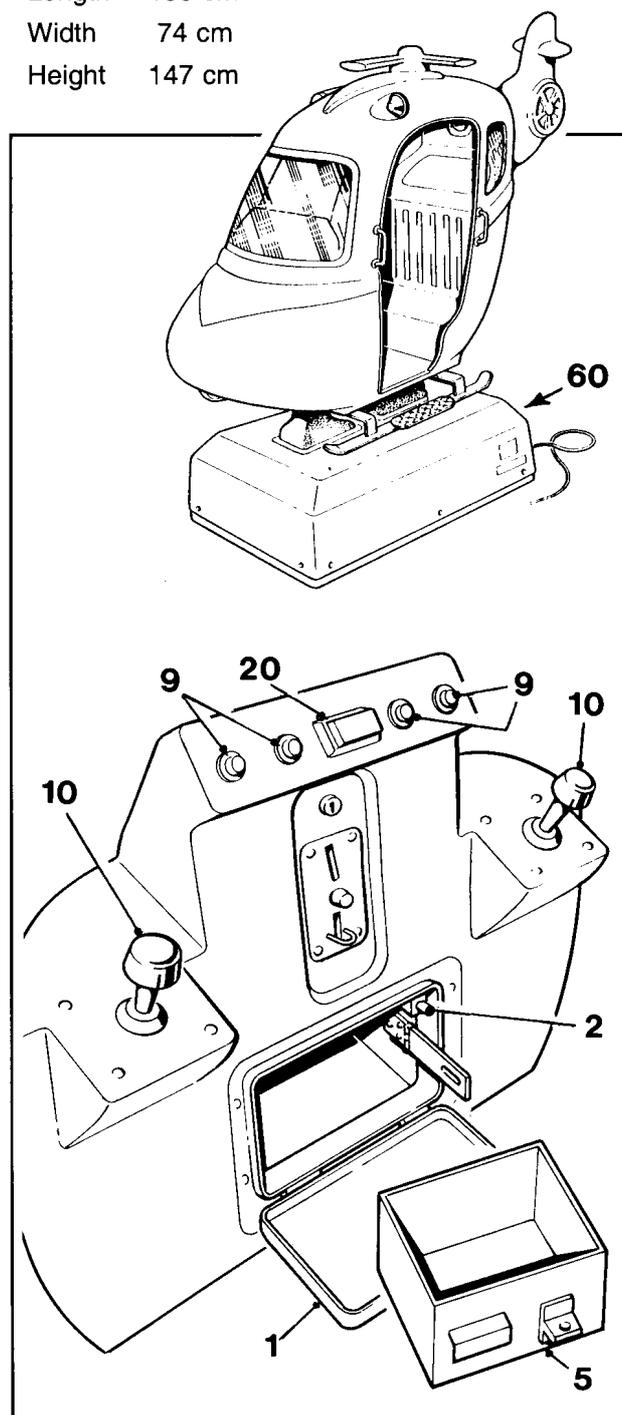
*The cash box may be fitted with an alarm.*

Disarm the alarm (*where fitted*) by opening the base access panel (60). This deactivates a microswitch (2).

Unlock and open the cash box door (1).

Release the cash box (5) by removing the clip or padlock. Slide the cash box out and empty.

Refit in the reverse order.



### labelling="Section-Header">Cancelling or disarming the alarm system (where fitted)

An alarm is fitted to protect the cash box.

The alarm unit (35), (when fitted), is within the base unit.

The alarm is triggered by a microswitch that is released when the cash box door is opened.

To disarm, or cancel an already activated alarm, open the base access panel (60). This deactivates a microswitch that is depressed by the panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

Should the alarm have been operating for some time, it will be necessary to replace the batteries. The batteries are located in the base of the alarm unit (35).

### Credits counter

The credits counter is either situated within the base of the machine (36), or inside the cash box compartment (36A), see opposite page.

## Servicing

**WARNING** Read safety instructions first.  
Disconnect electrical power before opening any access panels.



### Base access panel

The panel (60) at the rear of the base will give access for servicing the P.S. Unit, Timer/Control Unit, Relay and Alarm (where fitted). Greater access can be gained by removing the glass fibre cover (28) from the base. (See following)

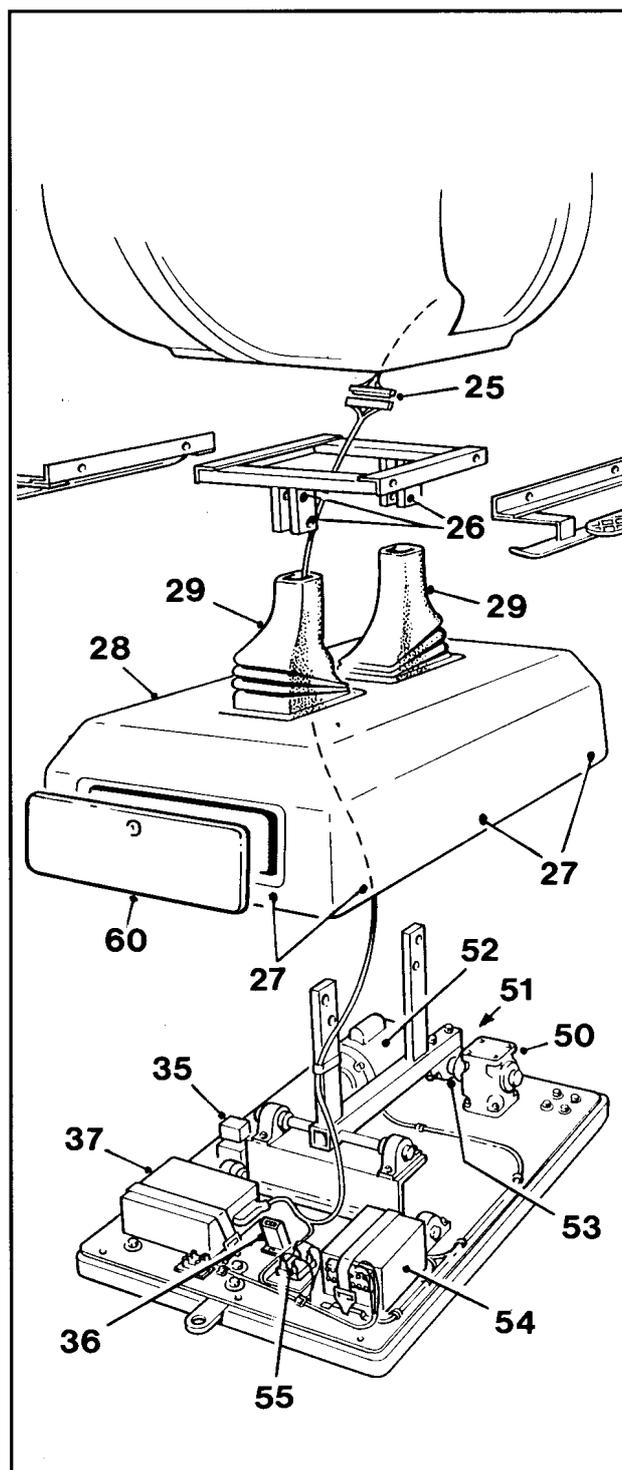
### Base cover: removal / replacing

Disconnect the loom connector (25) under toy.

Remove the four screws (26) from the toy mounting brackets, and lift the toy clear of the base.

Remove the screws (27) from around the base cover. Lift the cover (28), complete with gaiters (29), clear of the base. Care should be taken when feeding the loom through the gaiter.

Pull the cover (28) clear of the base.



### This gives access to:

- Alarm (where fitted) (35)
- Timer/Control Unit (37)
- Gearbox (50)
- Belt (51)
- Motor (52)
- Crank (53)
- Power supply (P.S.) unit (54)
- Solid state relay (55)

Refit cover in the reverse order.

## Coin Mechanism: removal / replacing

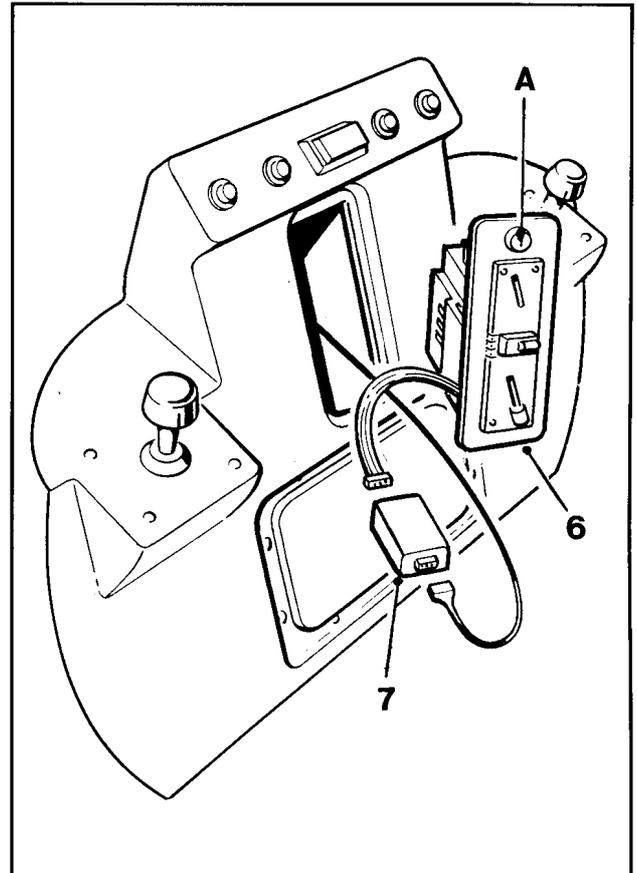
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit



The coin mechanism (6) is released by the use of a key (A). Once released, unplug the mechanism from the interface unit (7).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a microswitch.

For further details about the unit see the relevant Coin mechanism section in this manual.



## Console: removal / replacing

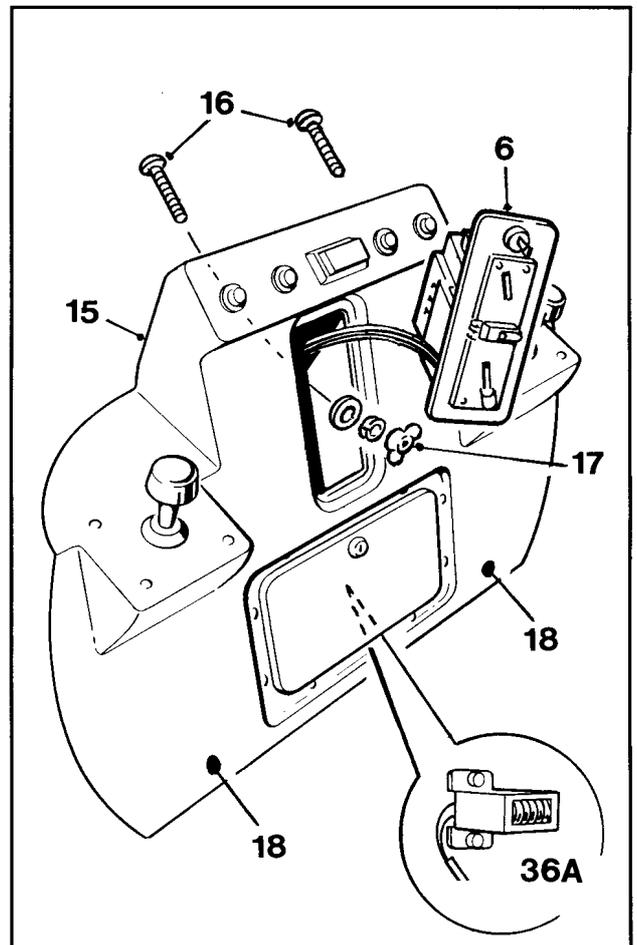
The top of the console (15) is retained by two bolts (16) situated below the windscreen. These bolts are secured inside the console by washers and wing nuts (17).

To access the wing nuts it is necessary to remove the coin mechanism (6).

Remove wing nuts (17).

Remove the two screws (18) at the base of the console.

Re-assemble in the reverse order.



### Console lights: removal / replacing

To gain access to the rear of the Lights (19), remove the Coin Mechanism (6). *If greater access is required it will be necessary to remove the console (15).*

To replace a bulb; dismantle the light by unscrewing it.

Re-assemble in the reverse order.

### Start Button Switch: removal/replacing

To gain access to the rear of the Start Button (20), remove the Coin Mechanism (6). *If greater access is required it will be necessary to remove the console (15).*

#### Start Button

The Start Button (20) is illuminated by a bulb (11). The bulb is mounted within a snap-in retainer (12) that is pushed into the back of the switch.

(The retainer (12) also has a microswitch clipped to it.)

#### Bulb replacement:

Gain access to the rear of the switch by removing the console.

Locate the bulb retainer (12) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (11) from the retainer (12) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

#### Start Button replacement

Remove the bulb/retainer (12) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the button switch (20) from the console.

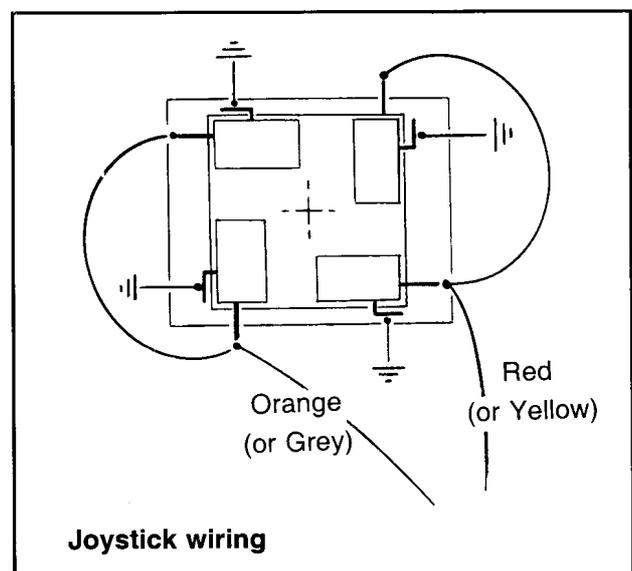
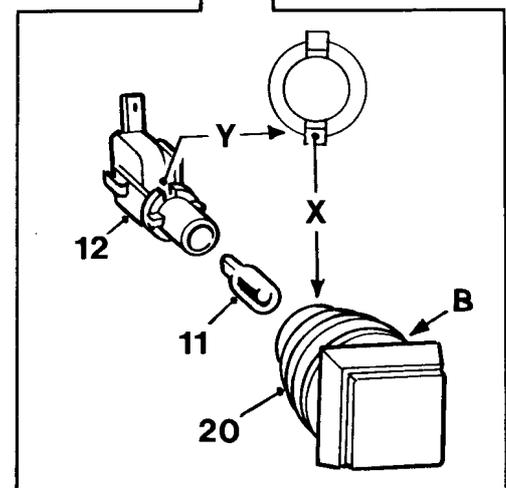
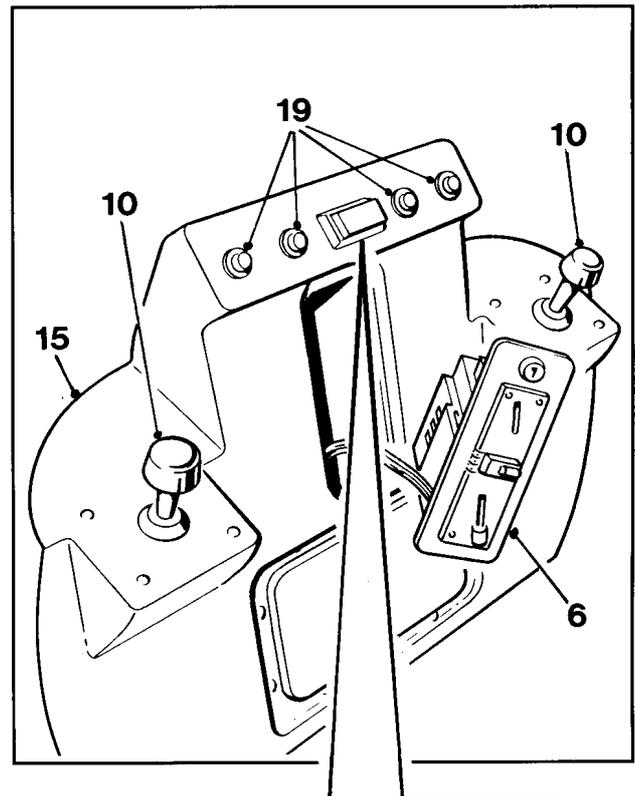
Refit in the reverse order.

### Joystick: removal / replacing

It is necessary to remove the console (15) (see previous page), to access the underside of a Joystick (10).

Remove the four screws retaining the Joystick.

Remove the Joystick, noting the wire colours and their terminal positions (see Joystick diagram).

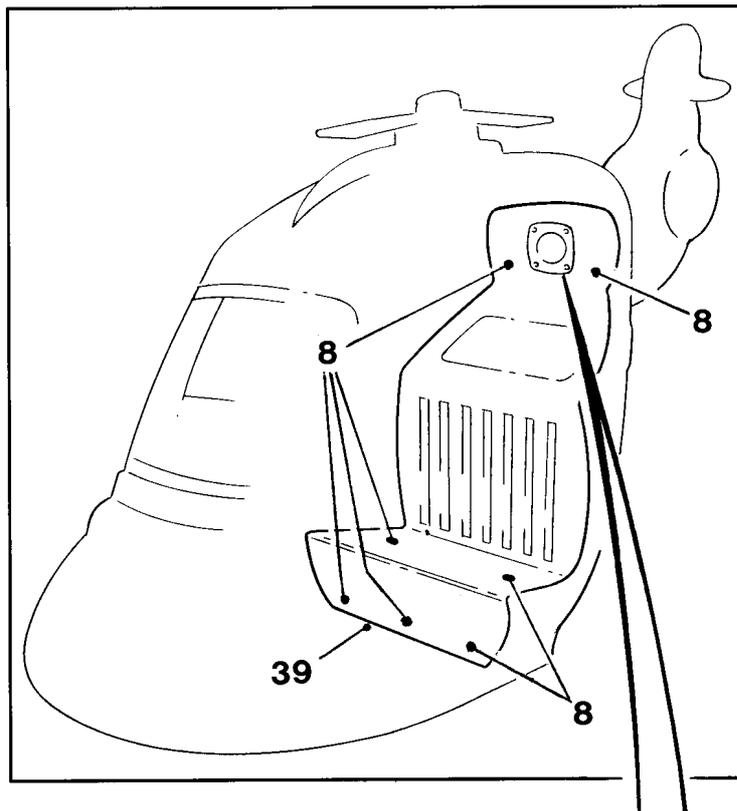


## Seat: removal / replacing

The seat (39) is retained by screws (8).  
Remove the screws and lift out seat.

**Caution:** Mounted within the seat is a speaker (40), this has wires connected to it which will need to be disconnected.

Re-assemble in the reverse order.



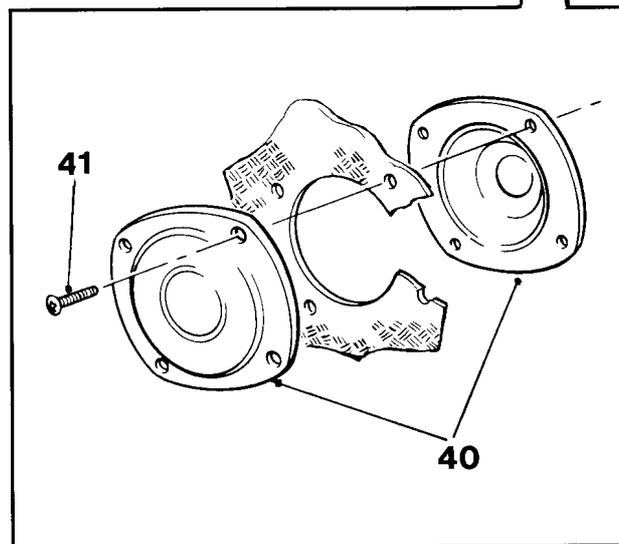
## Speaker: removal / replacing

It is necessary to remove the seat to access the speaker (see above).

Disconnect the wires from the back of the speaker.

The speaker (40) is retained in the seat by the screws (41). Remove these screws.

Re-assemble in the reverse order.



# SERVICE MANUAL section 10.8

for

## Roadster

### Contents

|                             |             |
|-----------------------------|-------------|
| Customer operation of toy   | Page 10.8.1 |
| Emptying the cash box       | 10.8.2      |
| Alarm system (Where fitted) | 10.8.2      |
| Servicing                   | 10.8.3      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 173 cm |
| Width  | 85 cm  |
| Height | 88 cm  |
| Weight | 122 kg |

### Customer operation of toy

The Roadster is a two seater Children's Ride.

Whilst the machine is connected to a live power supply the head and tail lights, and the interior button switches flash constantly.

A teaser attraction sound track repeats every 120 seconds when the ride is not in motion or has not been credited.

Once money has been inserted into the coin mechanism, the timer/controller will then determine if a ride can be given.

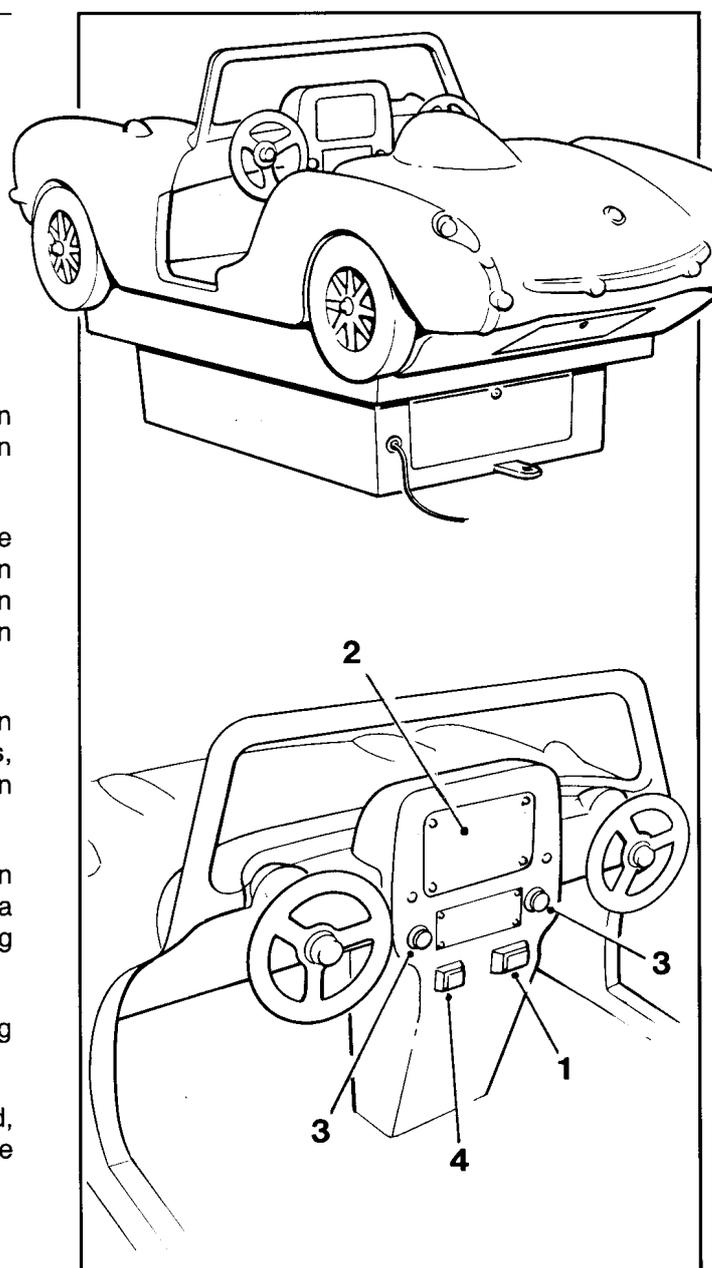
If the timer/controller has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow Start Button (1) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the Start Button has been pressed, the toy will begin to move and a background sound will be heard and the Rolling Road (2) on the dashboard will be activated.

Additional sound effects are available on pressing the Buttons (3) and the Horn (4).

When the duration of the ride has been reached, the toy will stop moving, and an oral message saying that the ride has finished will be given.



## Maintenance

### Emptying the cash box

*The cash box may be fitted with an alarm.*

Disarm the alarm (*where fitted*) by unlocking and removing the base access panel (10) using a key. Removal of the panel (10) operates the microswitch (11) which disarms the alarm. If upon removal of the base panel no microswitch can be seen, then the ride has not been fitted with an alarm system.

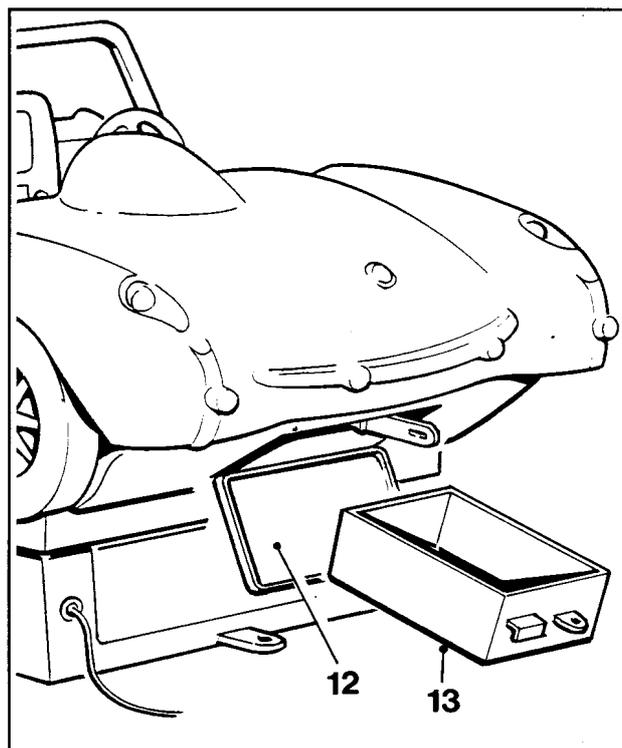
Once the alarm (*if fitted*) has been disarmed, unlock and open the cash box door (12) using the key.

Release the cash box (13) by removing the clip or padlock.

Slide the cash box out and empty.

Refit the cash box and replace the clip or padlock.

Close and lock the cash box door using a key.



### Base access panel

**WARNING** *Read safety instructions first.  
Disconnect electrical power before  
opening any access panels.*



The panel (10) at the rear of the base gives access to the Coin Counter, P.S. unit, Relays and Alarm (*where fitted*). Greater access can be gained by removing the glass fibre cover (81) from the base. (*See Servicing*)

### Alarm system: Cancelling or disarming (*where fitted*)

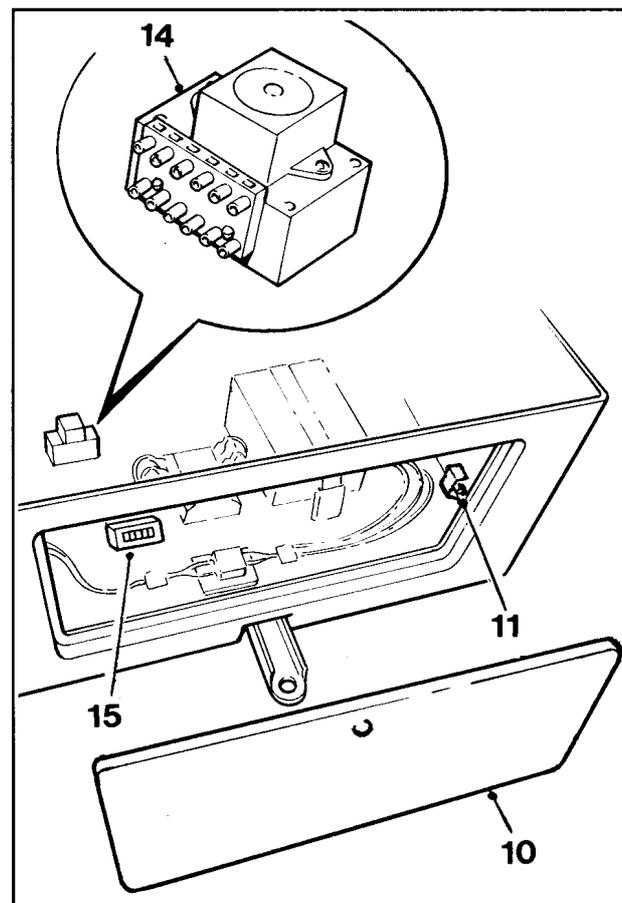
An alarm is fitted to protect the cash box.

The alarm is triggered by a microswitch that is operated when the cash box door (12) is opened.

To disarm, or cancel an already activated alarm, unlock and remove the base access panel (10), this operates the microswitch (11) which disarms or cancels the alarm.

**Note:** The alarm is battery powered. Even with the ride disconnected from any mains power supply the alarm can still be activated.

To keep the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located in the alarm unit (14) which is situated within the base.



### Coin counter

The coin counter (15) is accessed by removing the base access panel (10).

## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

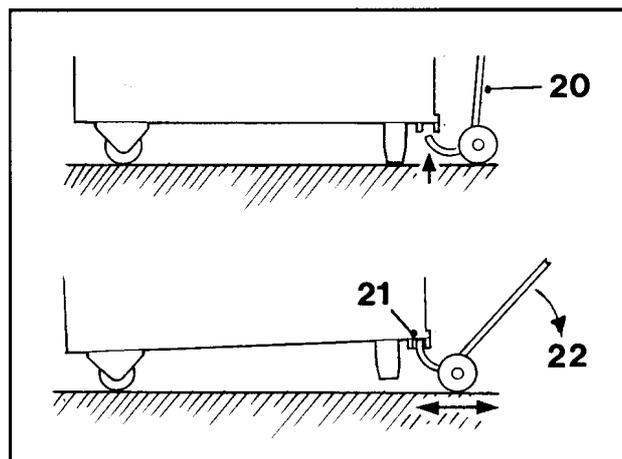


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine, is a towing eye. Insert the hook of the jack into the towing eye (21)

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



## Servicing

**WARNING** Read safety instructions first. Disconnect electrical power before opening any access panels.



### Base cover: removal / replacing

Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap.

Place on the floor a padded mat (80) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

The glass fibre cover (81) is fastened to the base frame by four screws (82).

Remove the four screws (82)

Release the power cable gland (84).

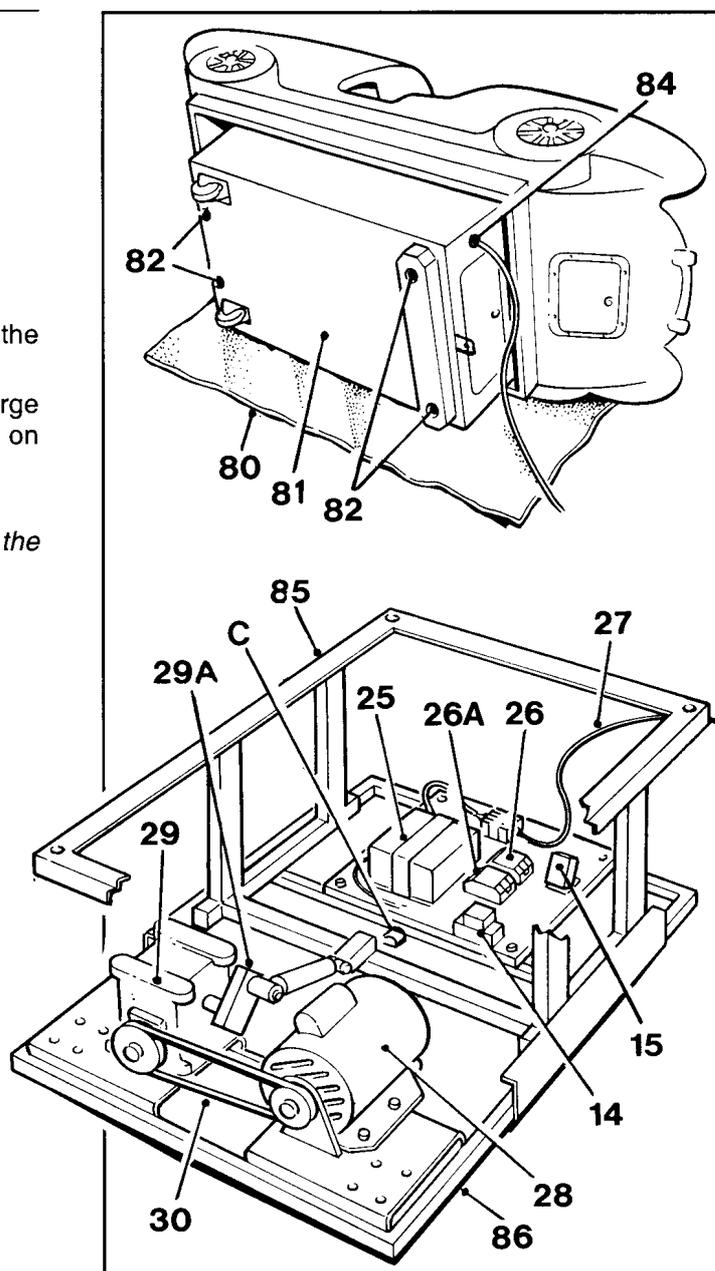
Pull the cover (81) clear of the machine.

The machine can now be stood upright.

**This gives access to:**

- Alarm (where fitted) (14)
- Coin counter (15)
- Power supply (P.S.) unit (25)
- Solid state relay, rolling road (26)
- Solid state relay, motor (26A)
- Mains power supply cable (27)
- Motor (28)
- Gearbox (29)
- Crank (29A)
- Belt (30)
- Frame, sliding (85)
- Frame, base (86)

Refit cover in the reverse order.



### Toy from base removal

If possible, place the complete machine onto a bench.

With the key, remove the timer/controller unit (35) and disconnect it from its plug.

Beneath the seat is located a cable terminal block. Disconnect the terminal block by pulling its two halves apart. Push the base half of the terminal block through the hole in the floor of the toy.

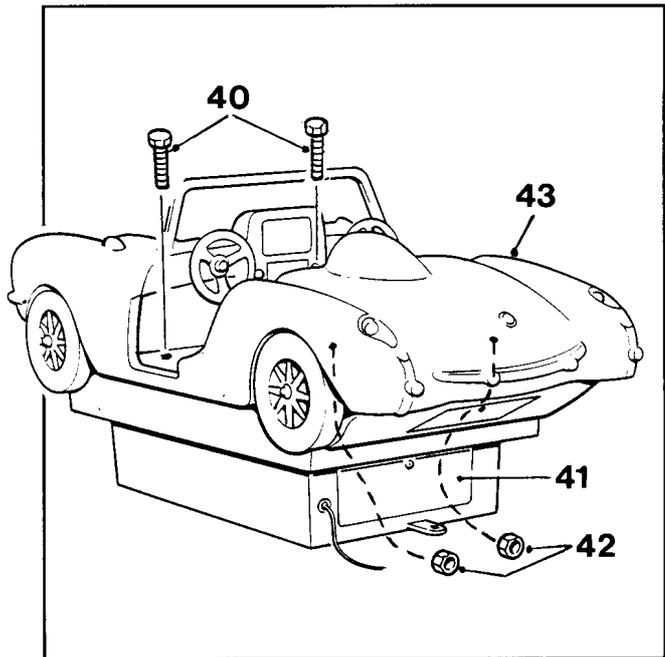
Remove the two front bolts (40) (The bolts are retained by captive nuts welded to the sliding frame.)

Remove the rear access cover (41).

From inside the rear access panel, remove the nuts (42) from the rear bolts.

Lift the toy (43) from the base.

Reassemble the toy (43) to the base in the reverse order.



### Timer/controller: removal / replacing

With the key, remove the timer/controller unit (35) and disconnect it from its plug.

### Coin Mechanism: removal / replacing

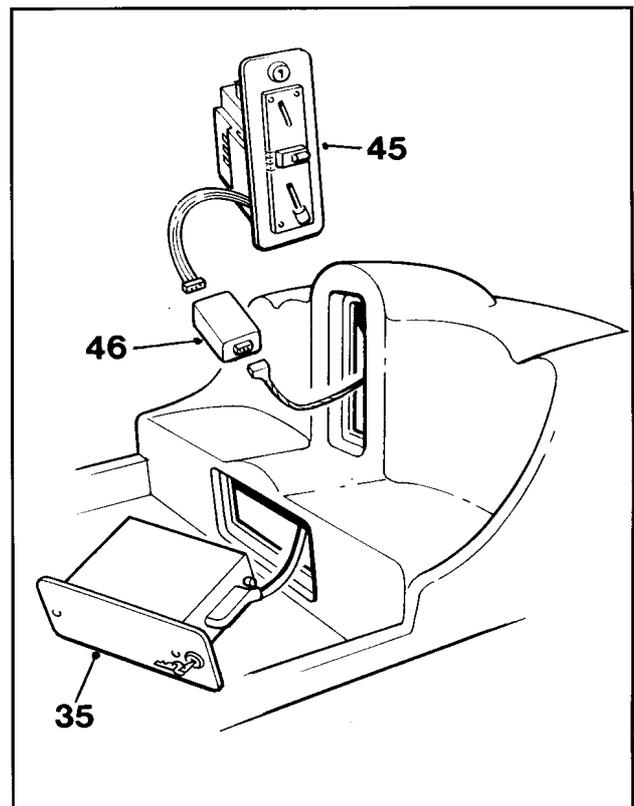
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit



The coin mechanism (45) is released by the use of a key. Once released, unplug the mechanism from the interface unit (46).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but two wires will need to be disconnected from the microswitch that is mounted on the coin mechanism.

For further details about the unit see the relevant Coin mechanism section in this manual.



### Rolling Road

The rolling road (2) consists of a film wrapped around the inside of a transparent drum (50), which is illuminated from the inside by a bulb (51). The drum is rotated by the motor (52).

**Note:** In the unlikely event of the motor failing, the heat from the bulb could melt the film.

## Rolling Road: removal / replacing

Remove the screen (53) by releasing its fixing screws.

Remove the rear half (54) of the centre console (55). (It is not necessary to remove the centre console (55) from the car.)

Remove the two screws (56) retaining the rolling road mounting bracket (57).

Extract the rolling road from behind the centre console.

## Rolling Road Bulb, or Film: replacement

To replace the bulb, or rolling road film, it is first necessary to remove the rolling road from the console as previously described.

Remove the drum as follows .....

At the motor end of the drum, where it attaches to the drive shaft, loosen the two diagonally opposed grub screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

**A Bulb:** Remove/replace the bulb (51). Refit drum.

**B 'Rolling Road' Film:** The film is held in place within the drum (50) by a strip of double-sided adhesive tape.

Peel the film free from the drum and slide it out. (Note the orientation of the film before removing it.)

Cut the new film to the same length as the old one.

Roll it and slide it into the drum, ensuring it is in the correct way around.

Fasten the film in place with double-sided adhesive tape.

Re-assemble the rolling road and install it back into the centre console.

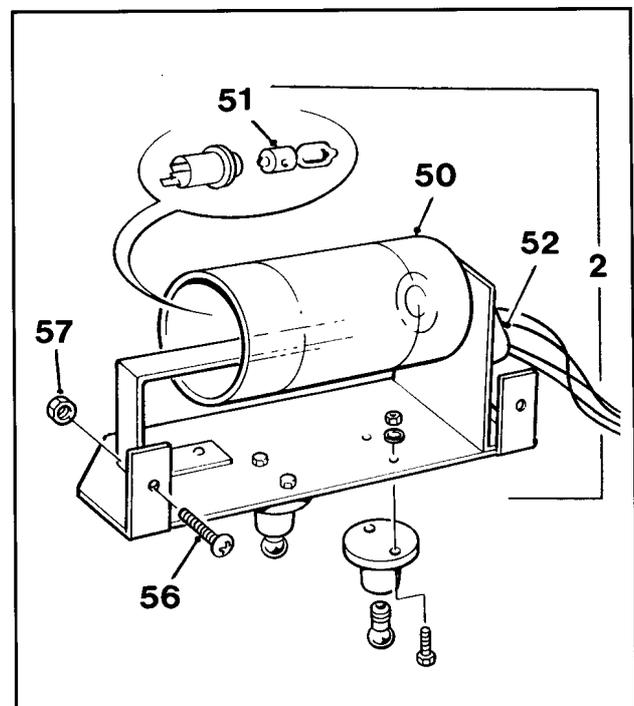
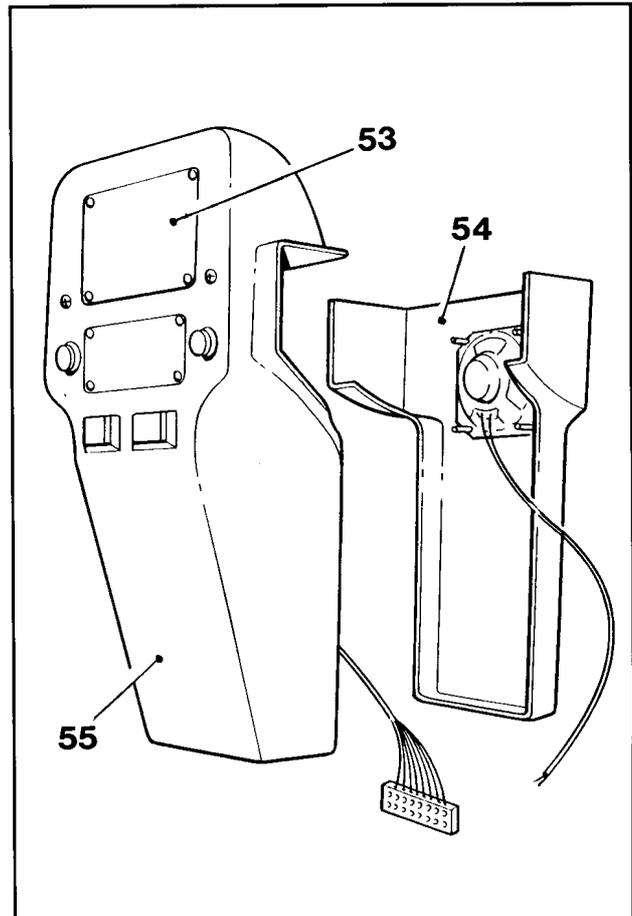
## Replacing the Rolling Road Motor

**Note:** There should never be a need to replace a Rolling Road Motor, but if there was proceed as follows .....

To replacing the rolling road motor, it is first necessary to remove the rolling road from the console as previously described.

Remove the drum (50) from where it is attached to the drive shaft by loosening the two diagonally opposed grub screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

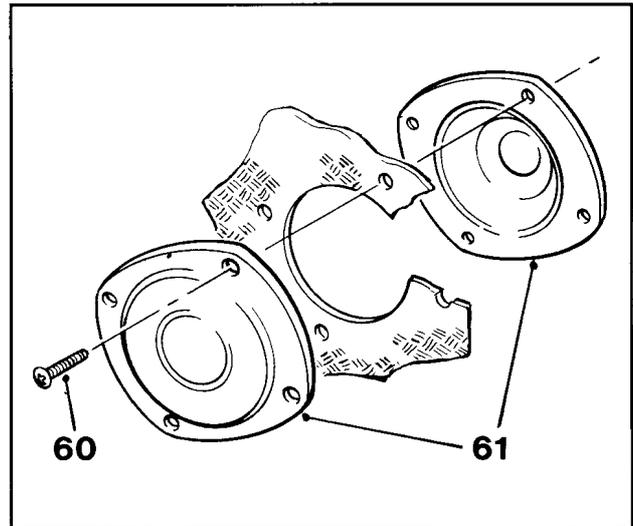


Remove the nuts and bolts that retain the motor/gearbox (52) and withdraw the complete assembly. (The motor and gearbox are replaced as a unit.)

Reassemble in the reverse order.

### Speaker removal

Remove the rear half (54) of the centre console.  
Remove the four screws (60) retaining the speaker (61). Disconnect the wires for the speaker.  
Reassemble in the reverse order.



### Headlamp bulb: replacement

Remove the screws retaining the headlamp cover.  
Remove the lens from headlamp. Replace bulb.  
Re-assemble in the reverse order.

### Rear tail light bulbs: replacement

Gain access to the rear tail lights via the cash box door. There is a panel in the roof of the cash box compartment that will need to be removed. The panel is retained by four screws.

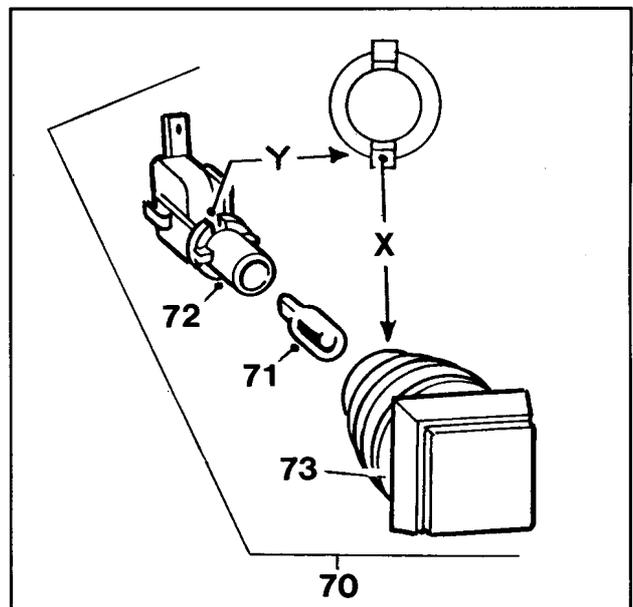
### Button switches

#### Radio, Horn & Start switch

From the front the radio, horn, and start button switches appear to be different, but from the rear they are of identical construction.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

(The retainer (72) also has a microswitch clipped to it.)



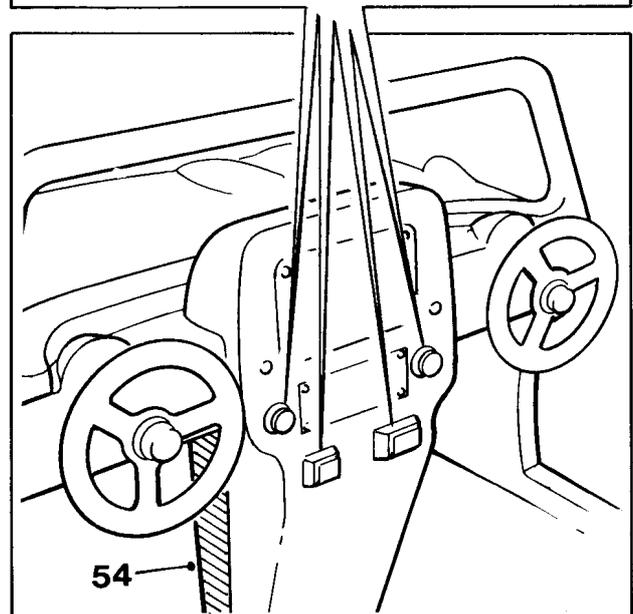
#### Bulb replacement:

Gain access by removing the rear of the centre console (54).

Locate the bulb retainer (72) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.



# SERVICE MANUAL section 10.9

for

## Tots TV

### Contents

|                             |             |
|-----------------------------|-------------|
| Customer operation of toy   | Page 10.9.1 |
| Emptying the cash box       | 10.9.2      |
| Alarm system (Where fitted) | 10.9.2      |
| Servicing                   | 10.9.3      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 120 cm |
| Width  | 84 cm  |
| Height | 130 cm |
| Weight | 130 kg |

### Customer operation of toy

*Tots TV* is a two seater Children's Ride.

Whilst the machine is connected to a live power supply, (and without it being credited, or being in motion), the Head Lights (1) flash constantly, and a teaser attraction sound track repeats every 120 seconds.

Once money has been inserted into the Coin Mechanism (4), the Timer/controller (5) will then determine if a ride can be given.

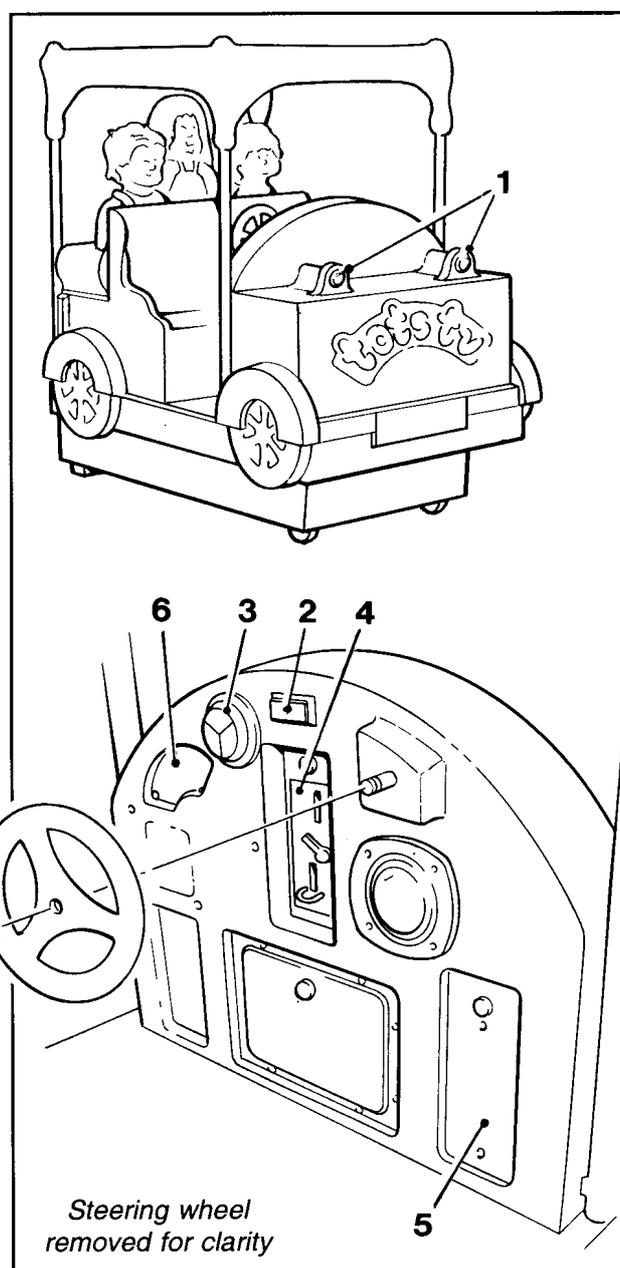
If the Timer/controller has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow Start Button (2) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the Start Button has been pressed, the toy will begin to move and a background sound will be heard and the Revolving Display (6) on the dashboard will be activated.

Additional sound effects are available on pressing any of the three coloured segments of the Triple Button (3).

When the duration of the ride has been reached, the toy will stop moving, and an oral message saying that the ride has finished will be given.



## Maintenance

### Emptying the cash box

*The cash box may be fitted with an alarm.*

Disarm the alarm (*where fitted*) by unlocking and removing the base access panel (10) using a key. Removal of the panel (10) operates the micro-switch (11) which disarms the alarm. If upon removal of the base panel no microswitch can be seen, then the ride has not been fitted with an alarm system.

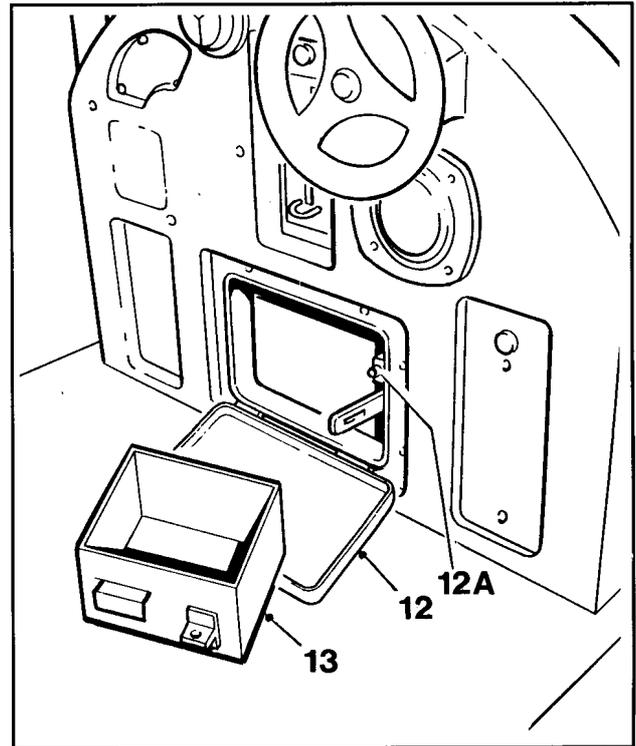
Once the alarm (*if fitted*) has been disarmed, unlock and open the cash box door (12) using the key.

Release the cash box (13) by removing the clip or padlock.

Slide the cash box out and empty.

Refit the cash box and replace the clip or padlock.

Close and lock the cash box door using a key.



### Base access panel

**WARNING** Read safety instructions first.  
Disconnect electrical power before opening any access panels.



The panel (10) at the rear of the base gives access to the Coin Counter, P.S. unit, Relays and Alarm (*where fitted*). Greater access can be gained by removing the glass fibre cover (81) from the base. (See Servicing)

### Alarm system: Cancelling or disarming (*where fitted*)

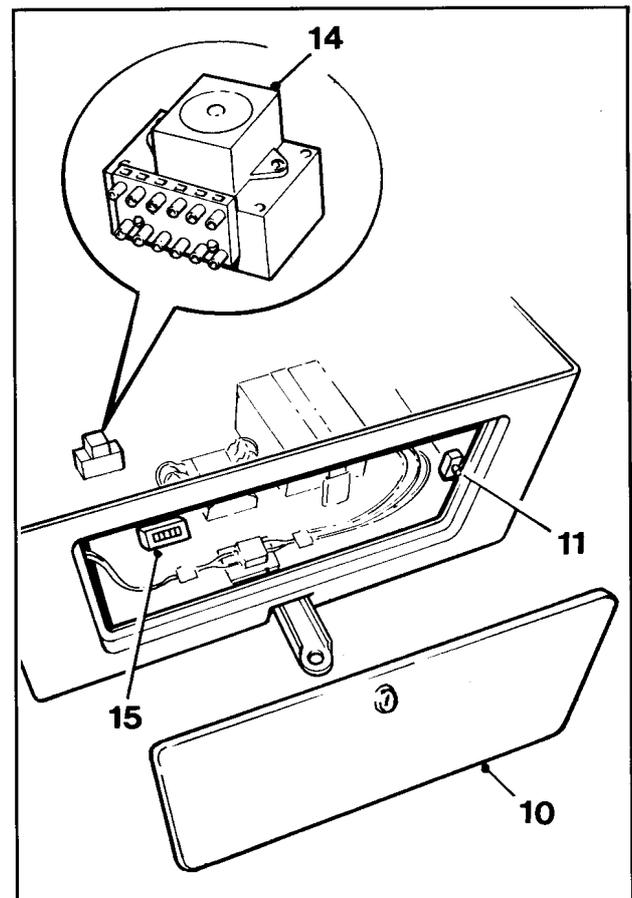
An alarm is fitted to protect the cash box.

The alarm is triggered by a micro-switch (12A) that is operated when the cash box door (12) is opened.

To disarm, or cancel an already activated alarm, unlock and remove the base access panel (10), this operates the microswitch (11) which disarms or cancels the alarm.

**Note:** The alarm is battery powered. Even with the ride disconnected from any mains power supply the alarm can still be activated.

To keep the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located in the alarm unit (14) which is situated within the base.



### Coin counter

The coin counter (15) is accessed by removing the base access panel (10).

## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

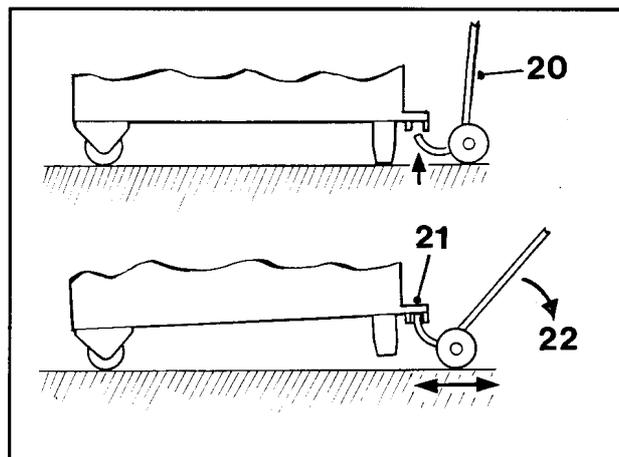


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine, is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



## Servicing

**WARNING** Read safety instructions first. Disconnect electrical power before opening any access panels.



### Base cover: removal / replacing

Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap.

Place on the floor a padded mat (80) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

The glass fibre cover (81) is fastened to the base frame by four screws (82).

Remove the four screws (82).

Release the power cable gland (83).

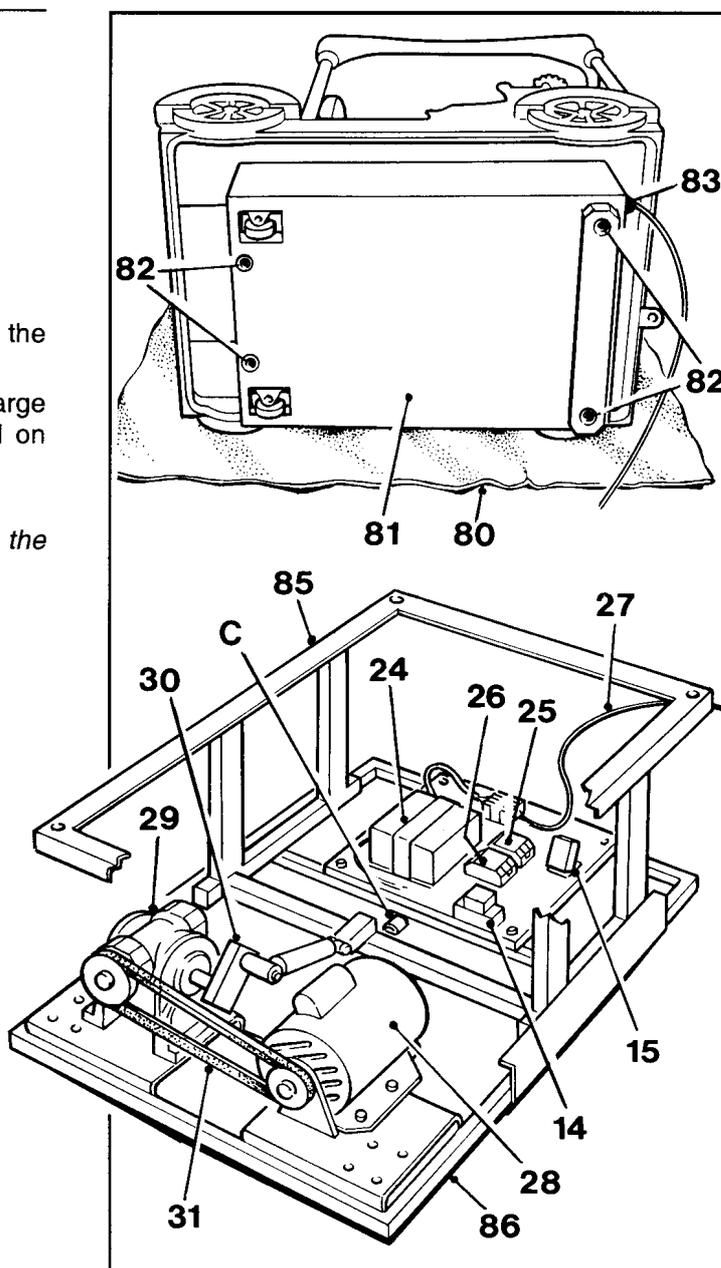
Pull the cover (81) clear of the machine.

The machine can now be stood upright.

#### This gives access to:

- Alarm (where fitted) (14)
- Coin counter (15)
- Power supply (P.S.) unit (24)
- Solid state relay: Revolving Disc (25)
- Solid state relay: Motor (26)
- Mains power supply cable (27)
- Motor (28)
- Gearbox (29)
- Crank (30)
- Belt (31)
- Frame, sliding (85)
- Frame, base (86)

Refit cover in the reverse order.



**Coin Mechanism: removal / replacing**

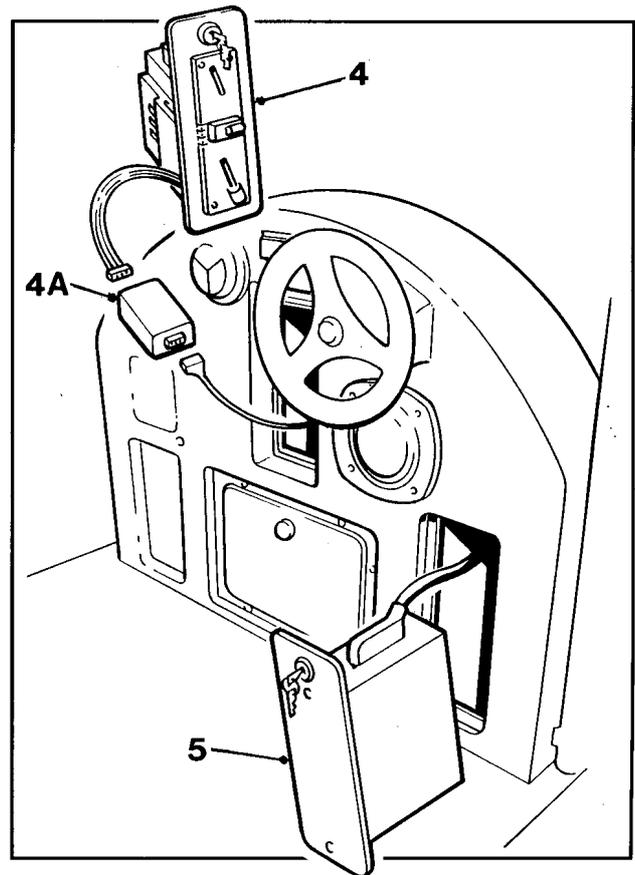
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit.



The coin mechanism (4) is released by the use of a key. Once released, unplug the mechanism from the interface unit (4A).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but two wires will need to be disconnected from the microswitch that is mounted on the coin mechanism.

For further details about the unit see the relevant Coin mechanism section in this manual.

**Timer/controller: removal / replacing**

With the key, remove the timer/controller unit (5) and disconnect it from its plug.

**Toy from base: removal / replacing**

The toy is retained to the base by .....

- A** Two bolts at the front that screw down into captivated nuts under the sliding frame.
- B** Two self-locking nuts at the rear beneath the sliding frame that screw upwards onto bolts bonded into the toy's body.
- C** There is also the main loom that must be disconnected.

To remove the toy, proceed as follows .....

Place on the floor a padded mat (80) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

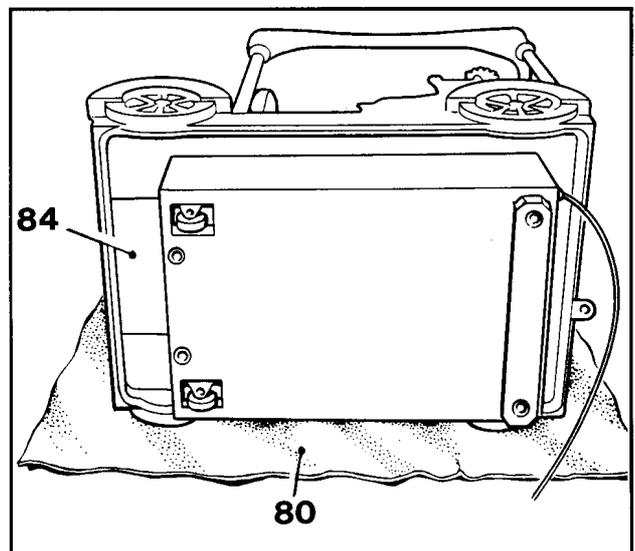
Remove the cover plate (84).

Locate the front left-hand bolt (85) and remove it.

Stand the machine back upright.

With a key, remove the Timer/controller unit (5).

Behind the timer/controller unit is the main loom terminal block. Disconnect the terminal block by pulling its two halves apart. Push the base half of the terminal block through the hole in the floor of the toy.



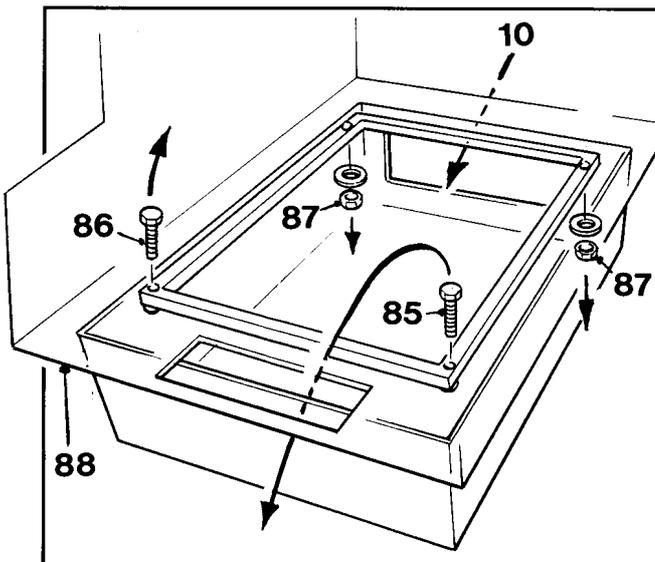
Locate the front right-hand bolt (86) and remove it.

Remove the rear access cover (10).

From inside the rear access panel, locate the self-locking nuts under the sliding frame. Remove the nuts (87) and washers from the rear bolts.

Lift the toy (88) from the base.

Reassemble the toy to the base in the reverse order.



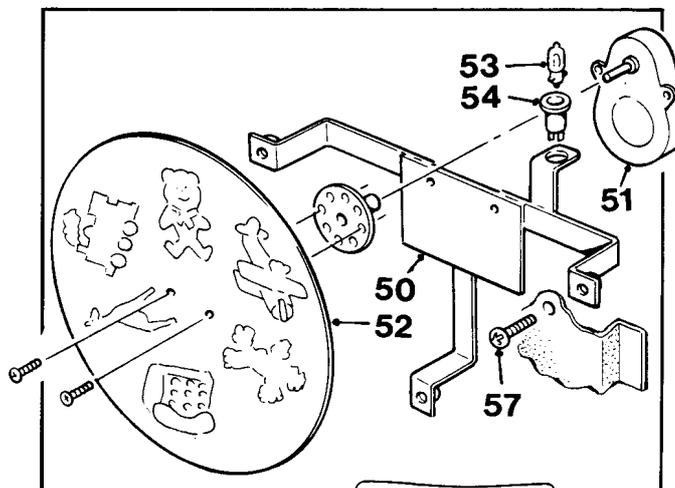
## Revolving Disc

The Revolving display consists of a bracket (50) on which is mounted a gearbox/motor (51). Connected to the shaft of the gearbox/motor is a plastic disc (52) on which are printed coloured pictures. Also mounted on the bracket is a bulb (53). This provides back lighting for the disc.

### Revolving Disc bulb: replacement

To gain access to the bulb (53), remove the Coin Mechanism (4).

The bulb is retained in a holder (54). It will be either a bayonet, or screw fitting.



### Disc, Gearbox/motor & Bracket: removal / replacement

The Disc, Gearbox/motor & bracket can only be accessed through the base of the toy.

To remove them proceed as follows.....

Unplug the machine from the mains power supply.

**WARNING** Read safety instructions first.  
Disconnect electrical power before opening any access panels.



Place on the floor a padded mat (80) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

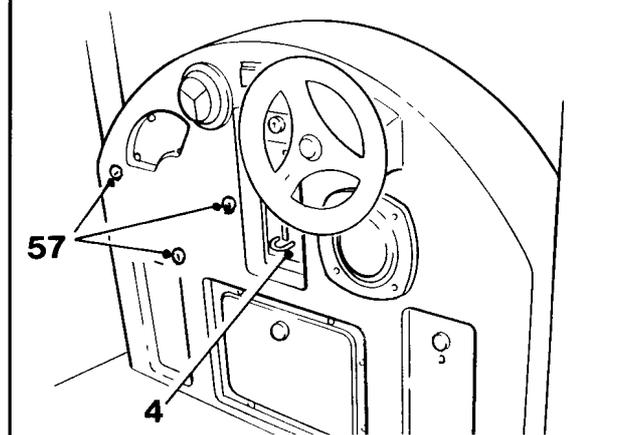
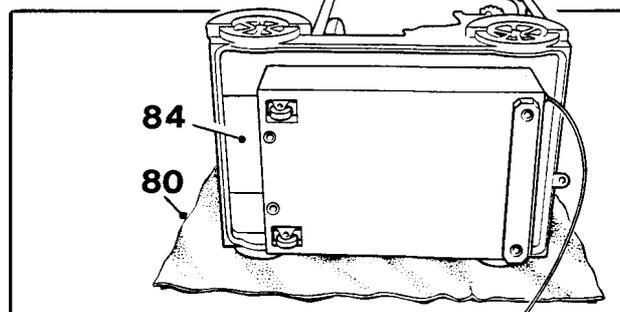
Remove the panel (84).

The bracket (50) is retained in the console by three screws (57) (These screws are held by captivated nuts on the bracket).

Remove the screws (57) and extract the complete disc assembly through the opening of panel (84) at the bottom of the toy.

Disconnect the wires from the motor.

Reassemble in the reverse order.



### Start Button Switch

The Start Button (70) is illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

(The retainer (72) also has a micro-switch clipped to it.)

#### Bulb replacement:

Gain access to the rear of the switch by removing the coin mechanism (4).

Locate the bulb retainer (72) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer & bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

#### Start Button replacement

Remove the bulb & retainer (72) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the button switch (70) from the console.

Refit in the reverse order.

### Triple Button Switch

The Triple Button Switch (40) is a device combining three switches into one circular body. At its rear is a clip ring (41) that has bolted to it three micro-switches (42).

There is no illumination, therefore no bulb to change.

#### Triple Button Switch: Removal

Gain access to the rear of the switch by removing the coin mechanism (4).

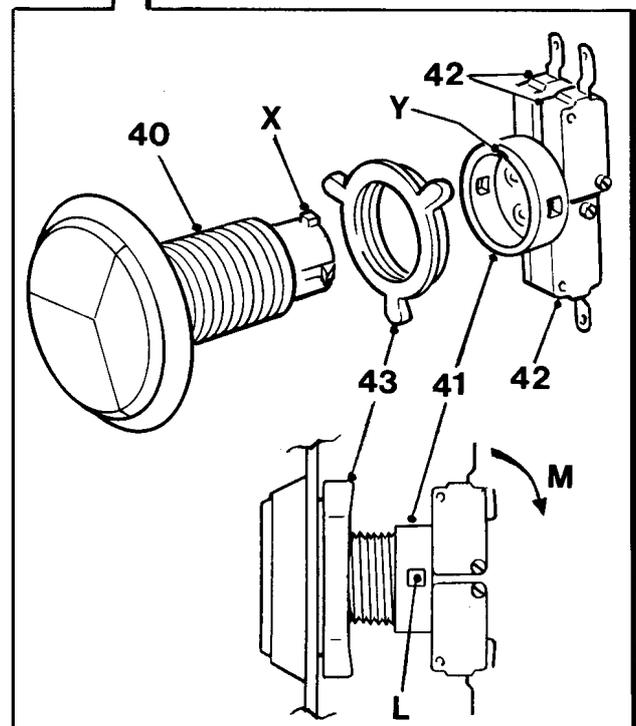
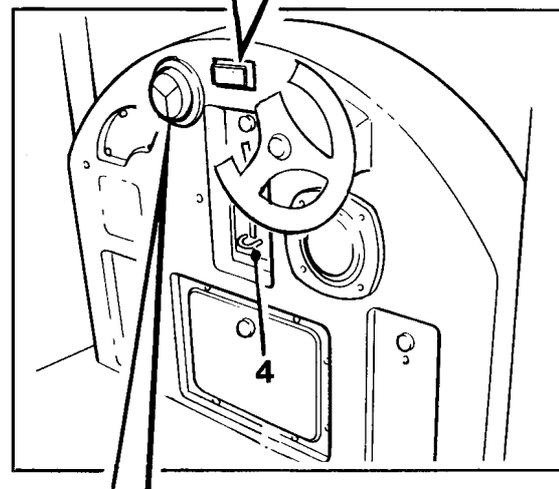
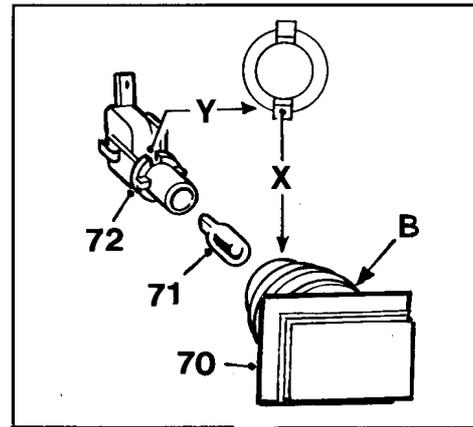
Remove from the rear of the switch the clip ring (41) with its micro-switches. Do this as follows:

Grip firmly the top of the micro-switches (M) then pull them down and backwards. This will twist the ring away from the two barbed lugs (L) of the body.

Unscrew the locking ring (43) and extract the switch from the console.

#### Triple Button Switch: replacement

Pass the threaded body (40) of the switch through the hole in the console and secure it with the locking ring (43).



Refit the clip ring (41), (complete with micro-switches) back onto the switch. **The tab (X) of the body must align with the slot (Y) of the clip ring.**

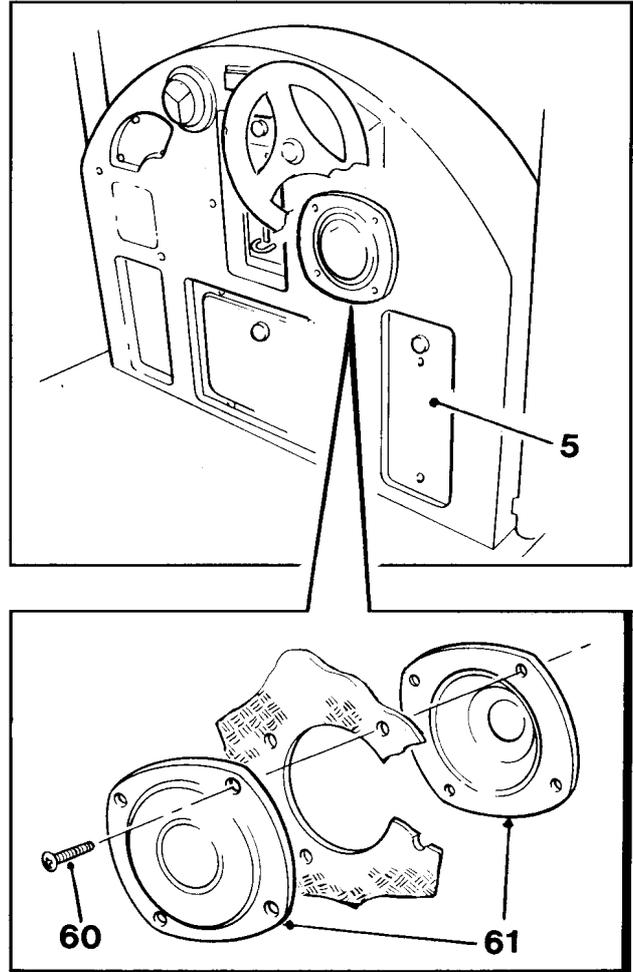
Push firmly on the clip ring until it clicks into place.

**Speaker: removal / replacement**

Gain access to the rear of the speaker by removing the timer/control unit (5).

Remove the four screws (60) retaining the speaker (61). Disconnect the wires from the speaker.

Reassemble in the reverse order.

**Headlamp bulb: removal / replacement**

Remove the lens from the headlamp by extracting the two screws.

Replace bulb.

Refit the lens.

# SERVICE MANUAL section 10.10

for

## *Postman Pat*

### Contents

|                             |              |
|-----------------------------|--------------|
| Customer operation of toy   | Page 10.10.1 |
| Emptying the cash box       | 10.10.2      |
| Alarm system (Where fitted) | 10.10.2      |
| Servicing                   | 10.10.3      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 140 cm |
| Width  | 73 cm  |
| Height | 115 cm |
| Weight | 105 kg |

### Customer operation of toy

Whilst the machine is connected to a live power supply the front lights (1) and the interior button switches (2) flash constantly.

A teaser attraction sound track repeats every 120 seconds when the ride is not in motion or has not been credited.

Once money has been inserted into the coin mechanism (3), the timer/controller will then determine if a ride can be given.

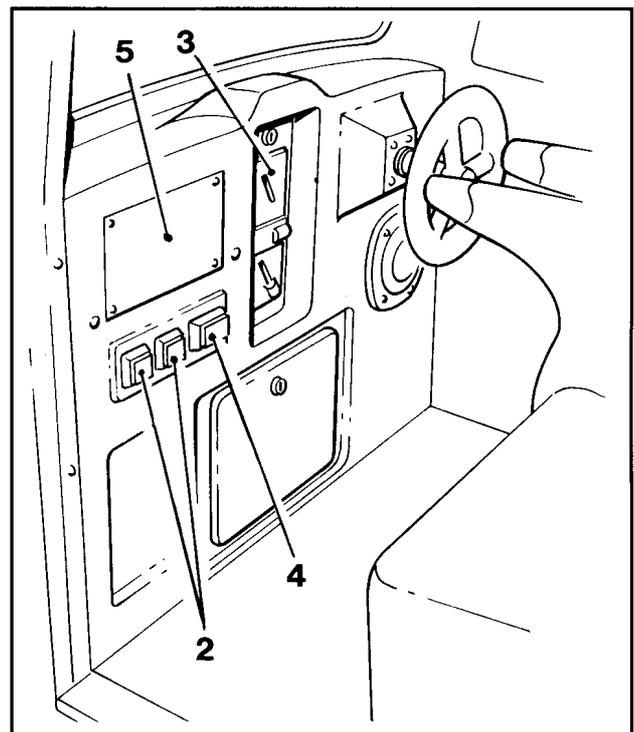
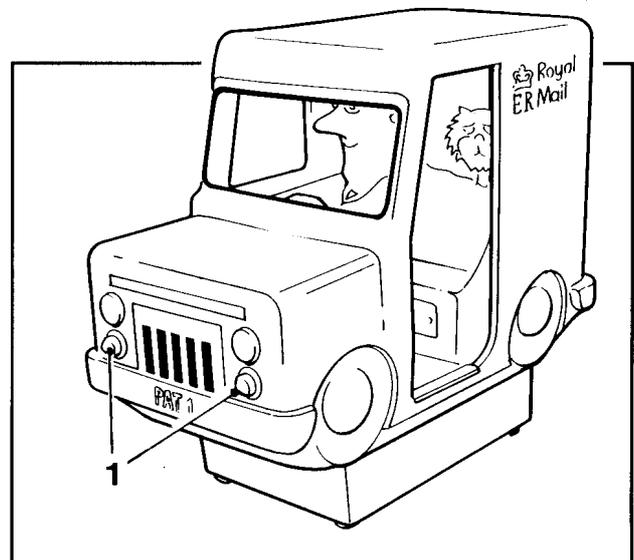
If the timer/controller has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow Start button (4) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the Start button has been pressed, the toy will begin to move and a background sound will be heard and the rolling road (5) on the dashboard will be activated.

The additional sound effects of a horn and a cat are available on pressing the button switches (2).

When the duration of the ride has been reached, the toy will stop moving, and an oral message saying that the ride has finished will be given.



## Maintenance

### Base access panel

**WARNING** Read safety instructions first.  
Disconnect electrical power before opening any access panels.



The panel (10) at the rear of the base gives access to the, P.S. unit, Relays and Alarm (where fitted). Greater access can be gained by removing the glass fibre cover (81) from the base. (See Servicing)

### Coin counter

The coin counter is situated either within the base unit (15), or inside the access door (16).

### Alarm system (where fitted): Cancelling or disarming

An alarm is fitted to protect the cash box.

The alarm is triggered by a micro-switch (9) that is operated when the cash box door (12) is opened.

To disarm, or cancel an already activated alarm, unlock and remove the base access panel (10), this operates the micro-switch (11) which disarms or cancels the alarm.

**Note:** The alarm is battery powered. Even with the ride disconnected from any mains power supply the alarm can still be activated.

To keep the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located in the alarm unit. The alarm unit (14) is situated under the seat, behind the timer/controller (see the following page).

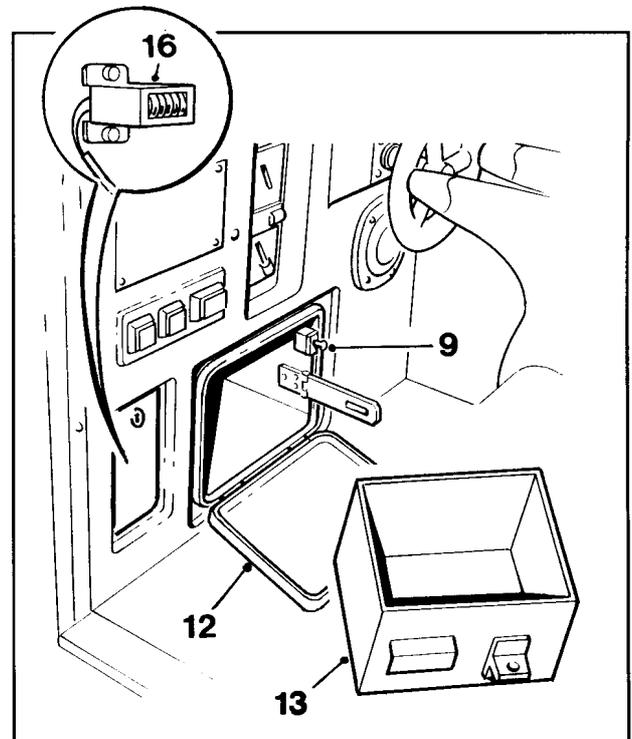
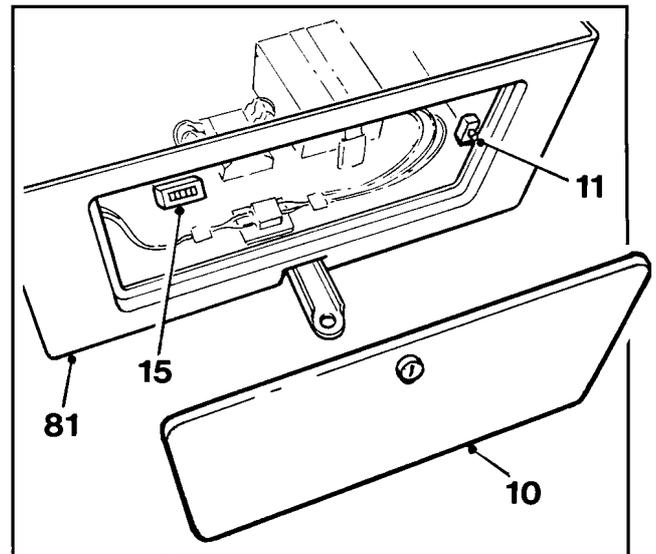
### Emptying the cash box

The cash box may be fitted with an alarm.

Disarm the alarm (where fitted) by unlocking and removing the base access panel (10) using a key. Removal of the panel (10) operates the micro-switch (11) which disarms the alarm. If upon removal of the base panel no micro-switch can be seen, then the ride has not been fitted with an alarm system.

Once the alarm (if fitted) has been disarmed, unlock and open the cash box door (12) using the key.

Release the cash box (13) by removing the clip or padlock.



Slide the cash box out and empty.  
Refit the cash box and replace the clip or padlock.  
Close and lock the cash box door using a key.

## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

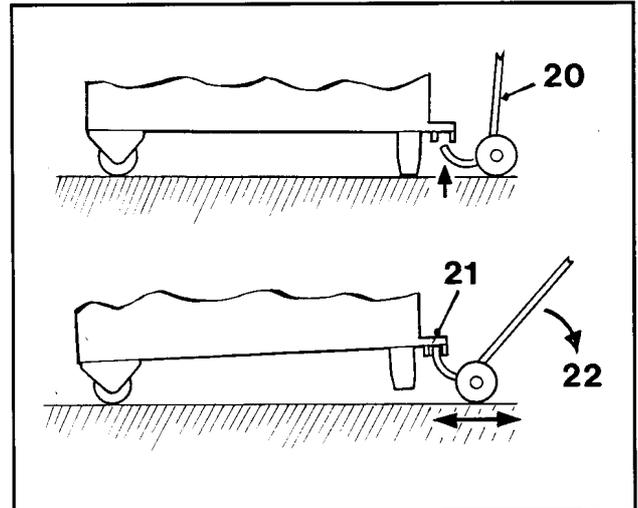


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine, is a towing eye. Insert the hook of the jack into the towing eye (21)

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



## Servicing

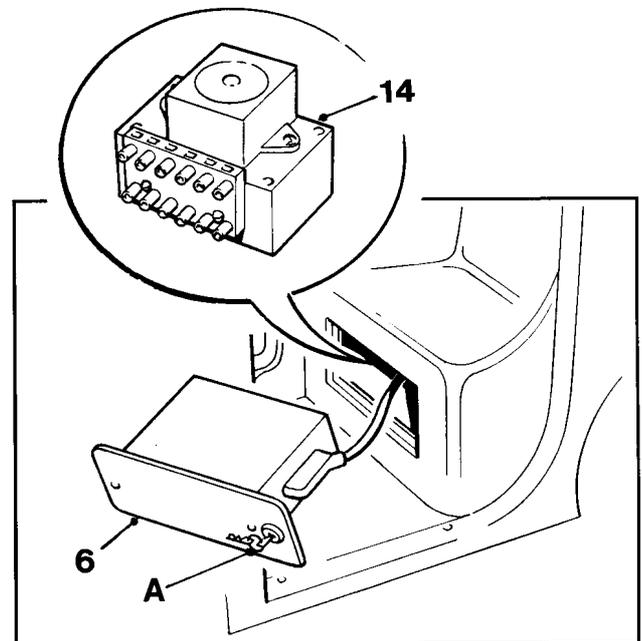
**WARNING** Read safety instructions first. Disconnect electrical power before opening any access panels.



### Timer/controller: removal / replacing

With the key (A), remove the timer/controller unit (6) and disconnect it from its plug.

**Note:** Behind the timer/controller is situated the alarm unit (14) (see previous page).



### Coin Mechanism: removal / replacing

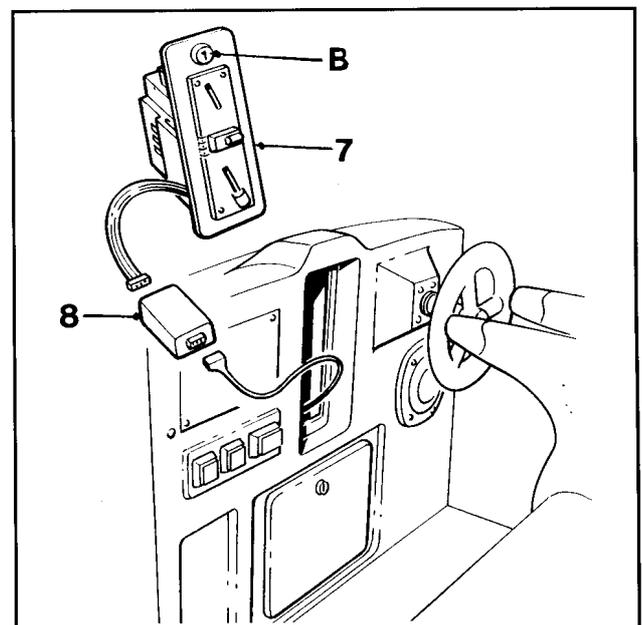
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit



The coin mechanism (7) is released by the use of a key (B). Once released, unplug the mechanism from the interface unit (8).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but two wires will need to be disconnected from the micro-switch that is mounted on the coin mechanism.

For further details about the unit see the relevant Coin mechanism section in this manual.



**Base cover: removal / replacing**

Within the base unit, release the loom from the cradle clip (35) by removing the rubber strap.

Place on the floor a padded mat (36) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

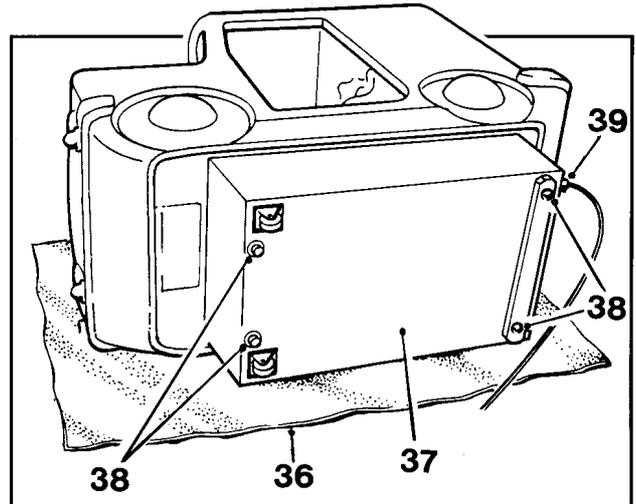
The glass fibre cover (37) is fastened to the base frame by four screws (38).

Remove the four screws (38)

Release the power cable gland (39).

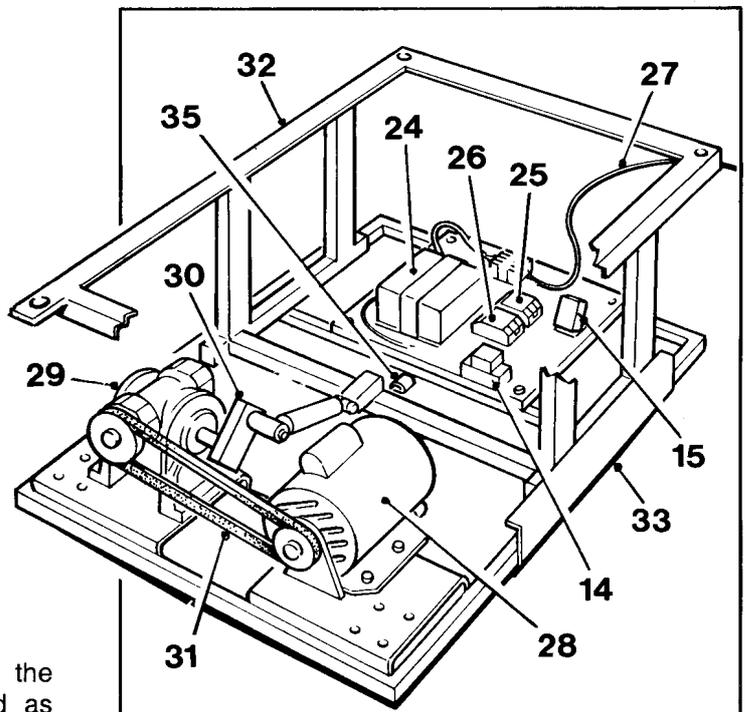
Pull the cover (37) clear of the machine.

The machine can now be stood upright.

**This gives access to:**

- Alarm (where fitted) (14)
- Coin counter (15)
- Power supply (P.S.) unit (24)
- Solid state relay, rolling road (25)
- Solid state relay, motor (26)
- Mains power supply cable (27)
- Motor (28)
- Gearbox (29)
- Crank (30)
- Belt (31)
- Frame, sliding (32)
- Frame, base (33)

Refit cover in the reverse order.

**Toy from base: removal / replacing**

Whilst the ride is in motion, wait for the mechanism to move the toy as far forward as possible, then switch the mains power supply off, this makes the removal of the toy from the base easier.

If possible, place the complete ride on a work bench.

From beneath the seat of the toy, remove the timer/controller as previously described in this section. Also from under the seat locate the loom main terminal block. Disconnect the terminal block by pulling its two halves apart.

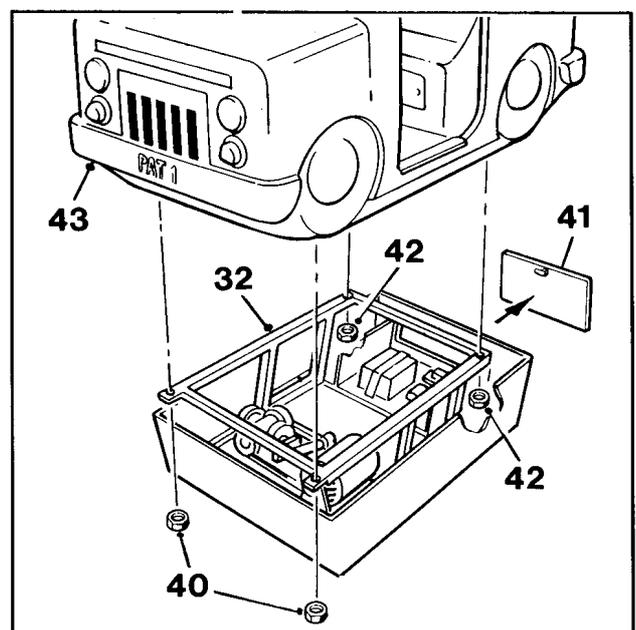
Push the base half of the terminal block through the hole in the floor of the toy.

The toy is fastened to the sliding frame (32) by four self-locking nuts. Remove nuts as follows .....

Remove the two front nuts (40) from under the lugs of the sliding frame.

Remove the rear access cover (41).

From inside the rear access panel, remove the two nuts (42) from under the sliding frame.



Carefully lift the toy (43) off the base, making sure that the four captive bolts in the floor of the toy are clear of the sliding frame (32).

Reassemble the toy (43) to the base in the reverse order.

## Start and Button Switches

From the front the Start Switch (4) and Button Switches (2) appear to be different, but from the rear they are of identical construction.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

(The retainer (72) also has a micro-switch clipped to it.)

### Bulb replacement:

Gain access to the rear of the switches by removing the coin mechanism (7).

Locate the bulb retainer (72) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

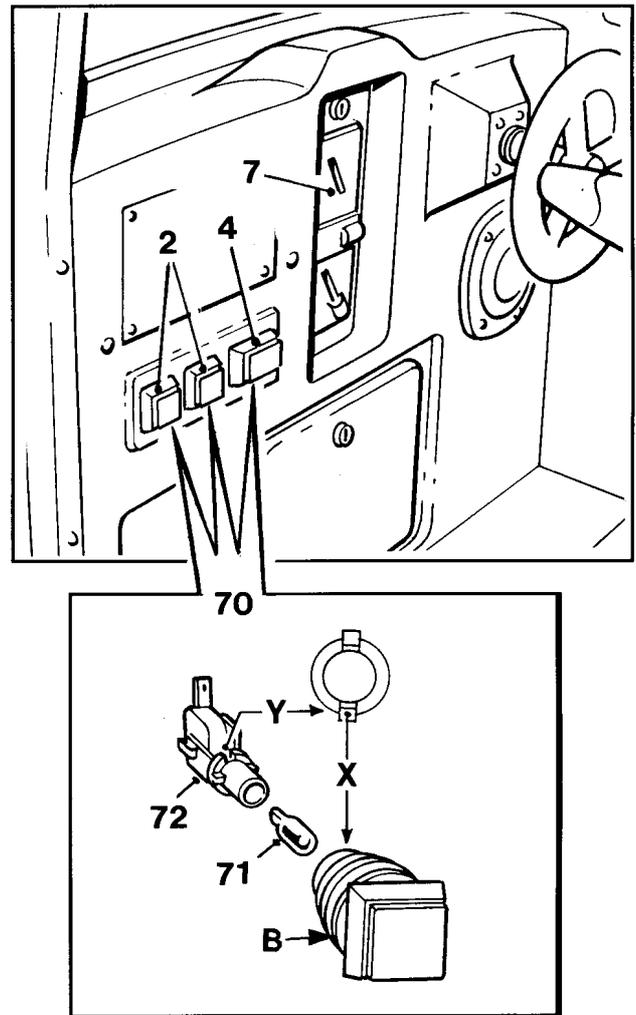
### Start and Button Switches: replacement

Remove the bulb & retainer (72) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the switch (70) from the console.

Refit in the reverse order.



### Rolling Road

The rolling road (5) consists of a film wrapped around the inside of a transparent drum (50), which is illuminated from the inside by a bulb (51). The drum is rotated by the motor (52).

**Note:** *In the unlikely event of the motor failing, the heat from the bulb could melt the film.*

#### Bulb, or 'Road' Film: replacement

Remove the screen (53) by releasing its fixing screws.

At the motor end of the drum, where it attaches to the drive shaft, loosen the two diagonally opposed screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

**A Bulb:** Replace the bulb (51). Refit drum.

**B 'Rolling Road' Film:** The film is held in place within the drum (50) by a strip of double-sided adhesive tape.

Peel the film free from the drum and slide it out. *(Note the orientation of the film before removing it)*

Cut new film to the same length as the old one. Roll it and slide it into the drum, ensuring it is in the correct way around.

Fasten the film in place with double-sided adhesive tape.

Reassemble the drum and fit the screen (53).

#### Rolling Road Motor: Replacement

**Note:** *There should never be a need to replace a motor, however if it is necessary proceed as follows .....*

Place on the floor a padded mat (36) large enough to take the machine when it is laid on its side. Carefully lay the machine down on the mat.

Remove the panel (45)

Remove the two screws (56) retaining the rolling road bracket (57) to the console.

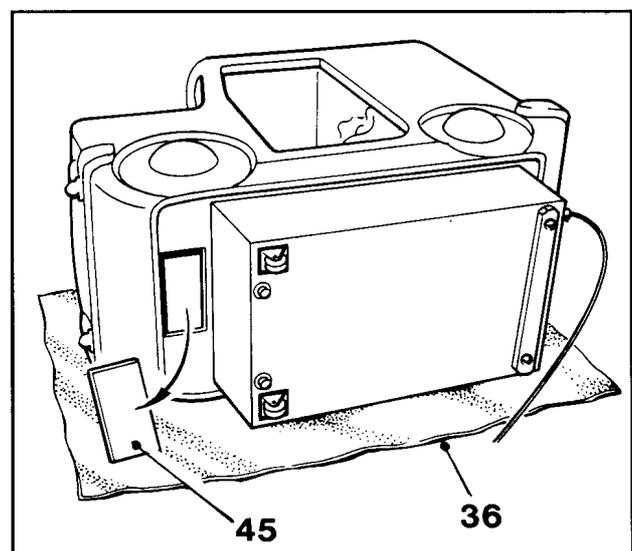
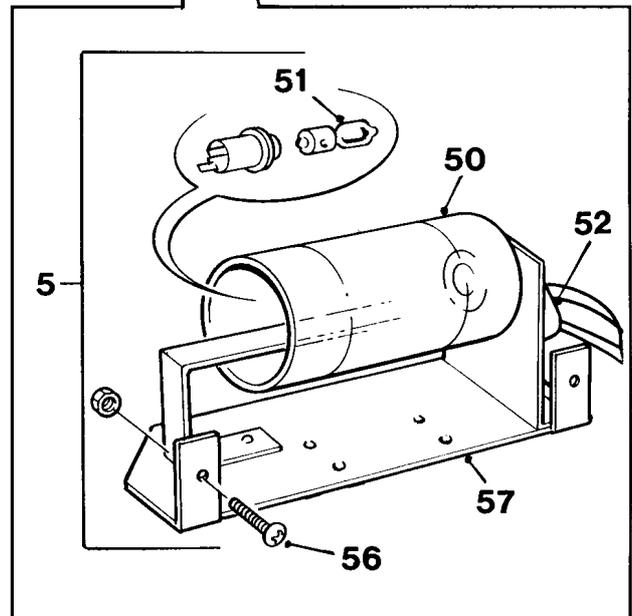
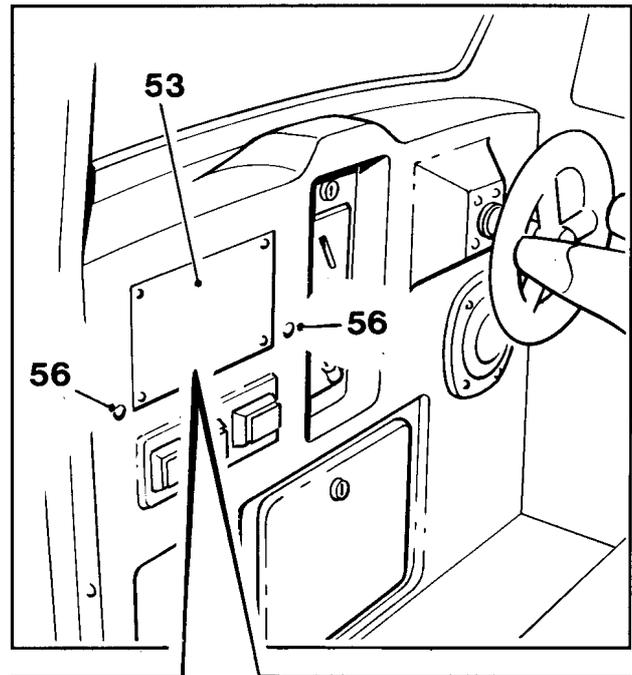
Extract the complete rolling road assembly through the opening of panel (45)

Remove the drum (50) from where it is attached to the drive shaft by loosening the two diagonally opposed screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

Remove the nuts and bolts that retain the motor/gearbox (52) and withdraw the complete assembly. *(The motor and gearbox are replaced as a unit.)*

Reassemble in the reverse order.



**Speaker: removal / replacing**

Place on the floor a padded mat (36) large enough to take the machine when it is laid on its side.

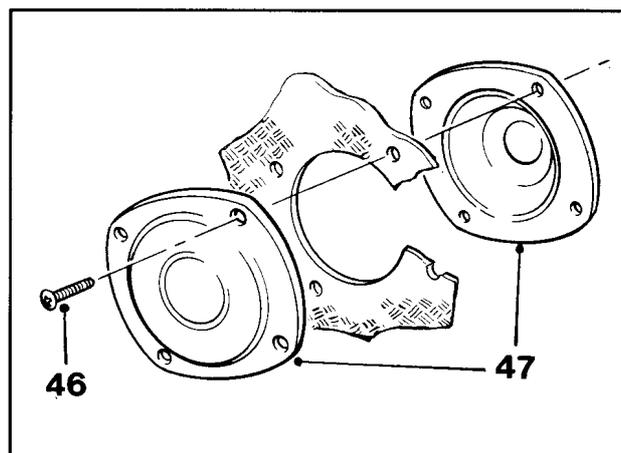
Carefully lay the machine down on the mat.

Remove the panel (45)

Remove the four screws (46) retaining the speaker (47). Disconnect the wires for the speaker.

Extract the speaker through the opening of panel (45).

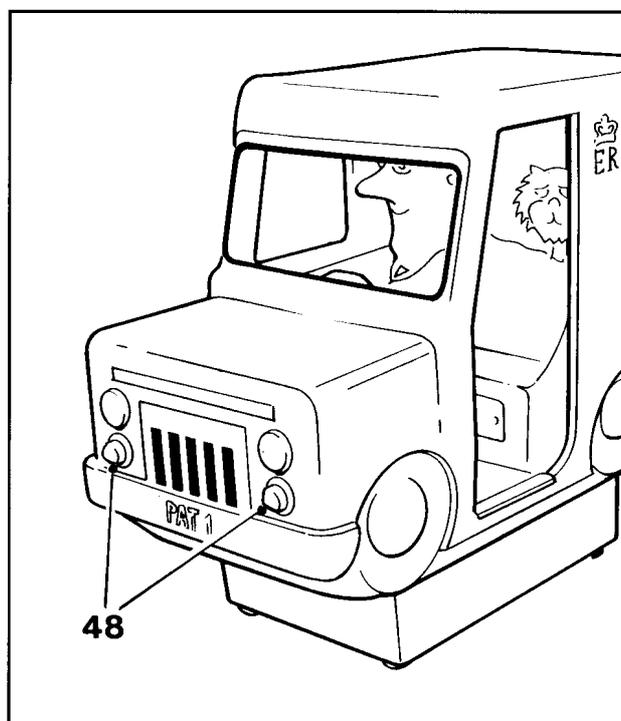
Reassemble in the reverse order.

**Front light bulb: removal / replacing**

Remove the screws retaining the lens (48).

Replace bulb.

Refit lens.



# SERVICE MANUAL section 10.11

for

## *The Story Teller*

### Contents

|                                      |              |
|--------------------------------------|--------------|
| Customer operation of toy            | Page 10.11.1 |
| Emptying the cash box                | 10.11.2      |
| Alarm system ( <i>Where fitted</i> ) | 10.11.2      |
| Servicing                            | 10.11.2      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Weight | 95 kg  |
| Length | 135 cm |
| Width  | 76 cm  |
| Height | 126 cm |

### Customer operation of toy

The *Story Teller* is a two seater Children's Ride.

Whilst the machine is connected to a live power supply the head lights, interior panels and button switches flash constantly.

A teaser attraction sound track repeats every 120 seconds when the ride is not in motion or has not been credited.

Once money has been inserted into the coin mechanism, the timer/controller will then determine if a ride can be given.

If the timer/controller has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

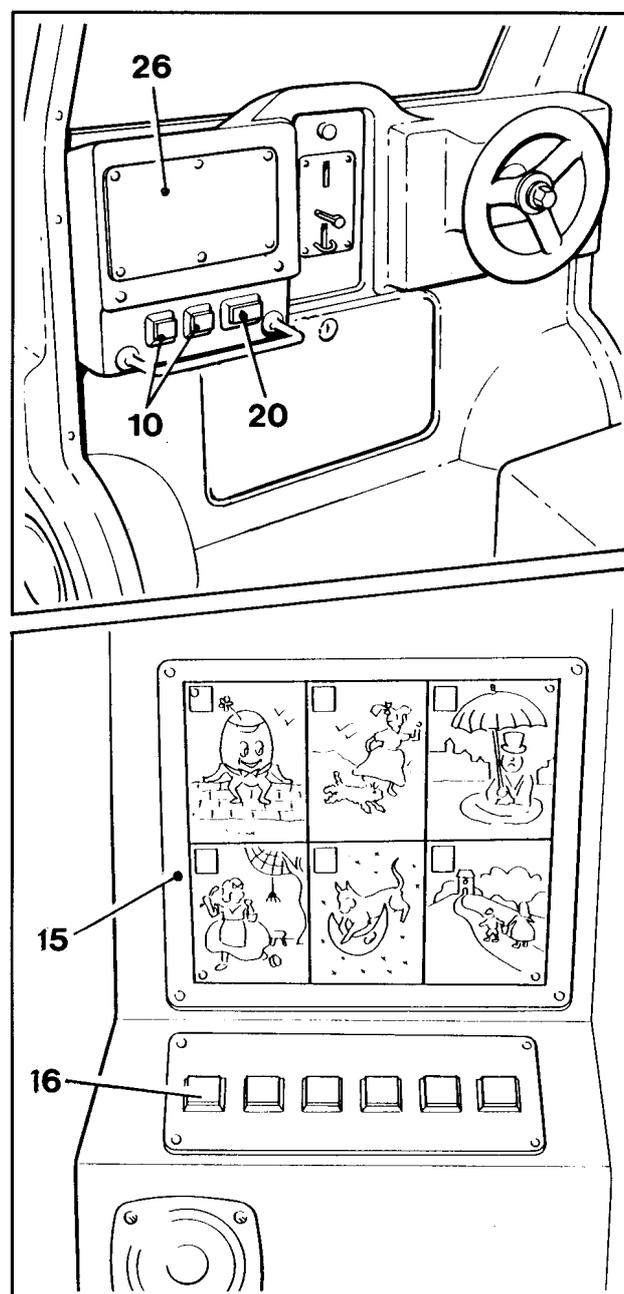
If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow Start Button (20) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the Start Button has been pressed, the toy will begin to move backwards and forwards on its base and the Rolling Road (26) on the dashboard will be activated. Additional sound effects are available on pressing the Buttons (10)

In the rear of the toy is the *Story display* (15). This is an interactive display with screen and button switches.

By pressing one of the buttons (16), the corresponding picture above will illuminate, accompanied by a voice telling the story relevant to that picture.

When the duration of the ride has been reached, the toy will stop moving, and an oral message saying that the ride has finished will be given.



## Maintenance

### Emptying the cash box

The cash box may be fitted with an alarm.

Disarm the alarm (where fitted) by opening the base access panel (60) at the rear of the machine. This deactivates a microswitch.

Unlock and open the cash box door (1).

Release the cash box (5) by removing the clip or padlock.

Slide the cash box out and empty.

Refit in the reverse order.

### Cancelling or disarming the alarm system (where fitted)

An alarm is fitted to protect the cash box.

The alarm unit (35) is usually to be found within the base unit, but may be installed within the toy, depending on the type of ride.

The alarm is triggered by a microswitch (2) that is released when the cash box door (5) is opened.

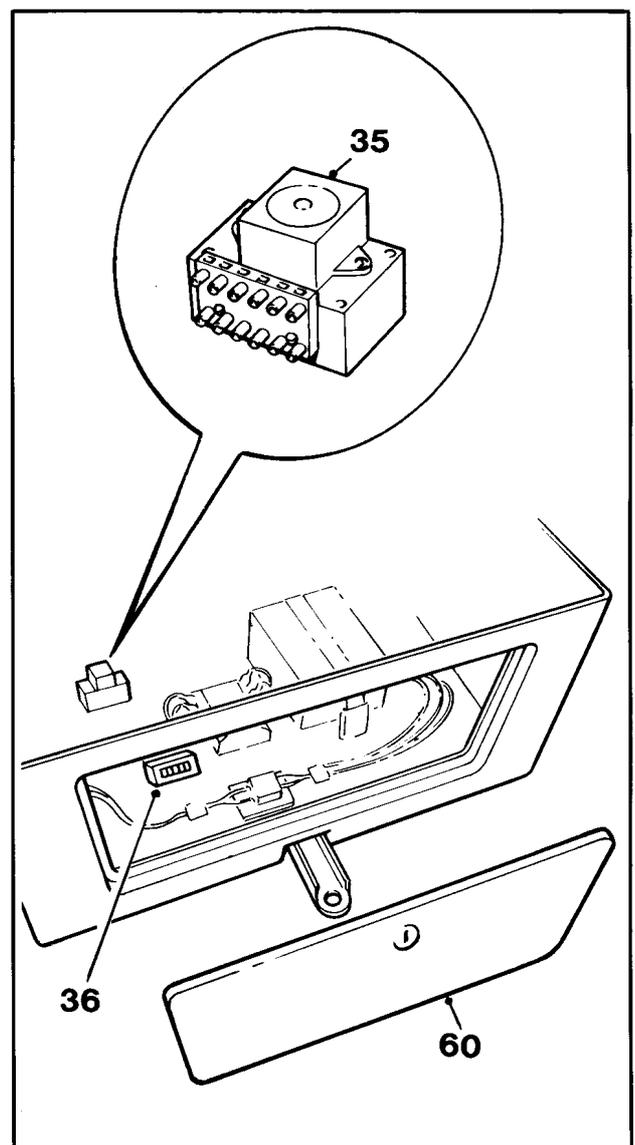
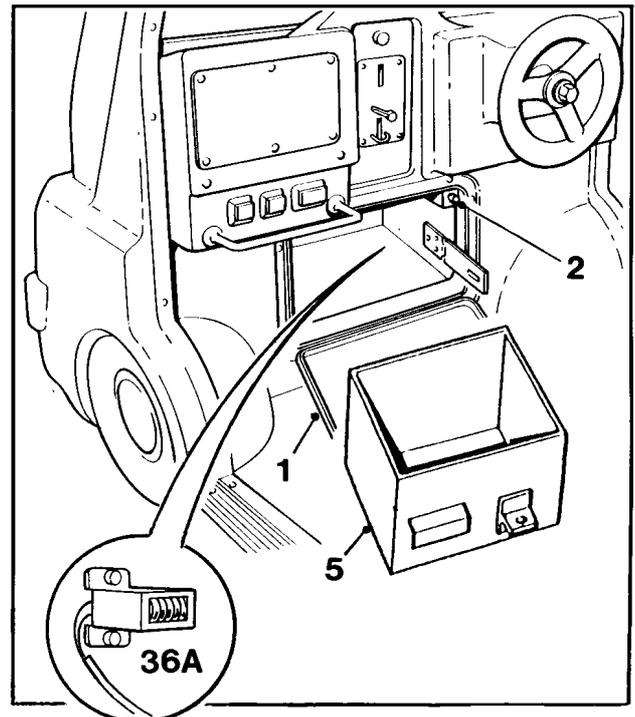
To disarm, or cancel an already activated alarm, open the base access panel (60). This deactivates a microswitch that is depressed by the panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

Should the alarm have been operating for some time, it will be necessary to replace the batteries. The batteries are located in the base of the alarm unit (35)

### Credits counter

The credits counter is either situated in the base of the machine (36), or inside the cash box compartment (36A).



## Servicing

**WARNING** Read safety instructions first.  
Disconnect electrical power before opening any access panels.



### Base access panel

The panel (60) at the rear of the base will give access for servicing the P.S. unit, relays and Alarm (where fitted). Greater access can be gained by removing the glass fibre cover from the base. (See following:)

## Base cover: removal / replacing

Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap

Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

The glass fibre cover (31) is fastened to the base frame by four screws (32).

Remove the four screws (32)

Release the power cable gland (4).

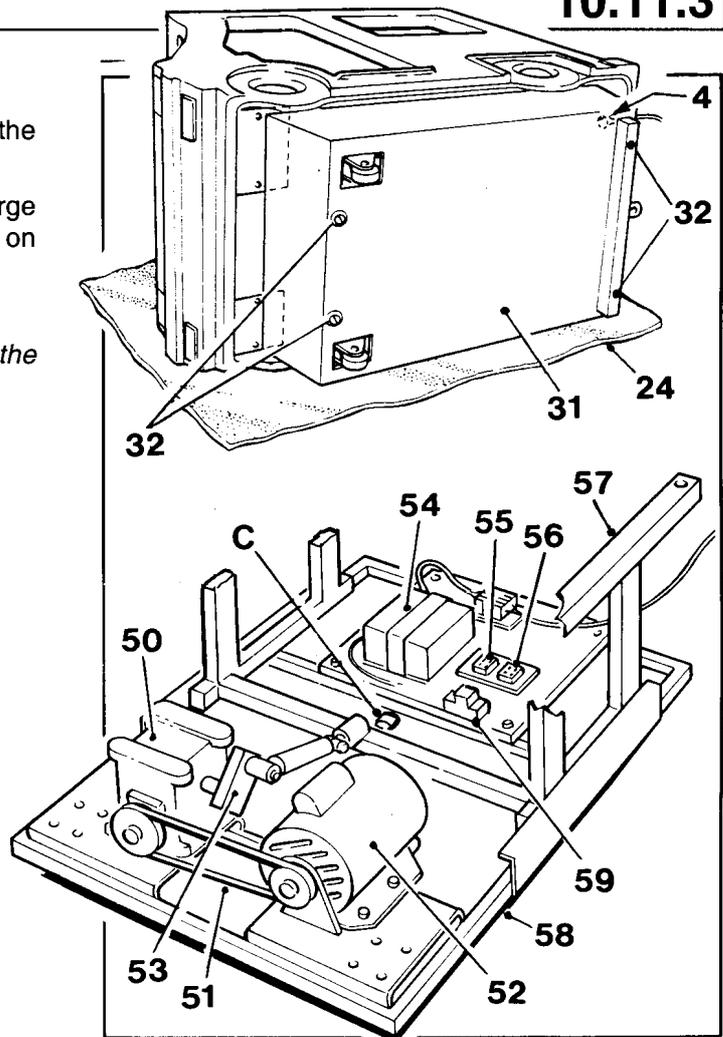
Pull the cover (31) clear of the machine.

The machine can now be stood upright.

### This gives access to:

- Gearbox (50)
- Belt (51)
- Motor (52)
- Crank (53)
- Power supply (P.S.) unit (54)
- Solid state relay, motor (55)
- Solid state relay, rolling road (56)
- Frame, sliding (57)
- Frame, base (58)
- Alarm (where fitted) (59)

Refit cover in the reverse order.



## Coin Mechanism: removal / replacing

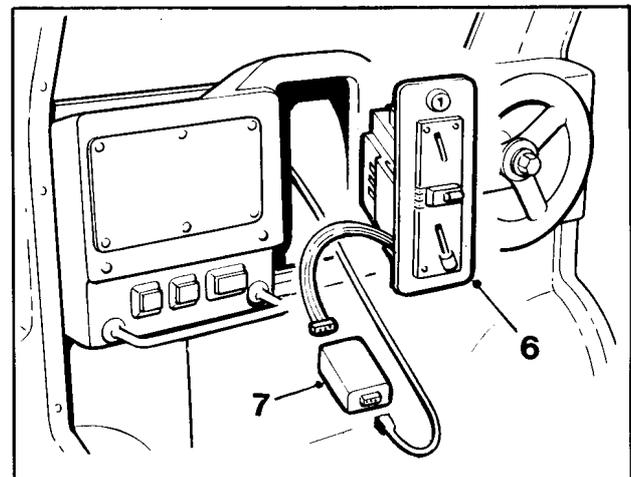
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit



The coin mechanism (6) is released by the use of a key (A). Once released, unplug the mechanism from the interface unit (7).

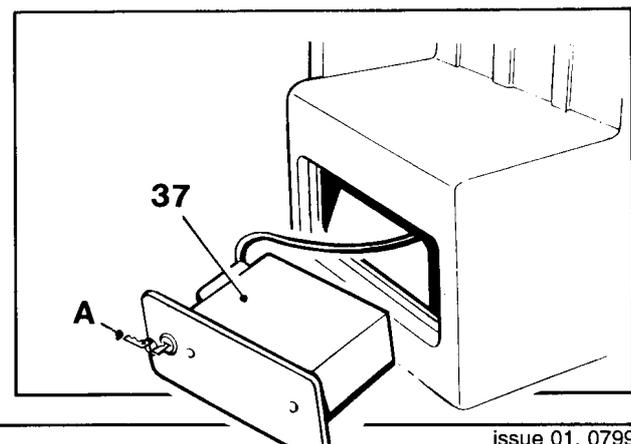
**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a microswitch.

For further details about the unit see the relevant Coin mechanism section in this manual.



## Timer/Control Unit

The Timer/Control Unit (37) is situated beneath the seat. To release the unit, use the key (A).



### Rolling Road

The rolling road (26) consists of a film wrapped around the inside of a transparent drum (27), which is illuminated from the inside by a bulb (28). The drum is rotated by the motor (29).

**Note:** Should the motor fail, the heat from the bulb could melt the film.

#### Replacing the Bulb, or 'Road' Film

Remove the screen (25) by releasing its fixing screws.

At the motor end of the drum, where it attaches to the drive shaft, loosen the two diagonally opposed grub screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

**A Bulb:** Remove/replace the bulb (28). Refit drum and screen.

**B 'Road' Film:** The film is held in place within the drum (27) by double-sided adhesive tape.

Peel the film free from the adhesive tape and slide it out. (*Note the orientation of the film before removing it.*)

Cut the new film to the same length as the old one.

Roll it and slide it into the drum, ensuring it is in the correct way around.

Fasten the film down to the adhesive tape.

Reassemble the drum and fit the screen (25).

#### Replacing the Rolling Road motor

**Note:** *There should never be a need to replace a Rolling Road Motor, but if there was proceed as follows .....*

To replace the rolling road motor it is necessary to remove the complete rolling road assembly (26) as follows:

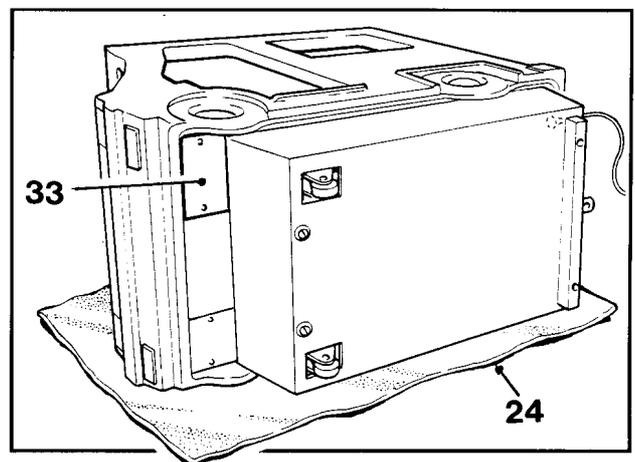
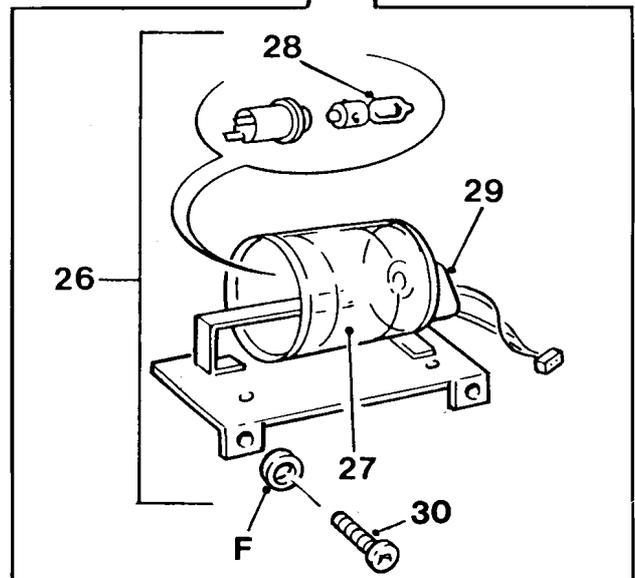
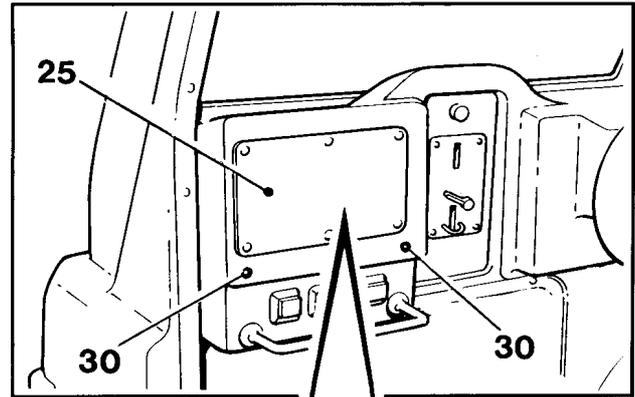
Start the toy into motion so that it is moving backwards and forwards. When the toy is at its farthest point forward, switch off the main power supply.

Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side. Carefully lay the machine down on the mat.

Remove the panel (33).

Release any rolling road cables from their clips down the forward face of the console.

Remove the two screws (30) supporting the rolling road. (*On some machines, spacers (F) are fitted between rolling road bracket and the fibre glass. Ensure these spacers are not lost.*)



Extract the complete rolling road assembly through the opening (33).

Remove the drum (27) from where it is attached to the drive shaft by loosening the two diagonally opposed grub screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

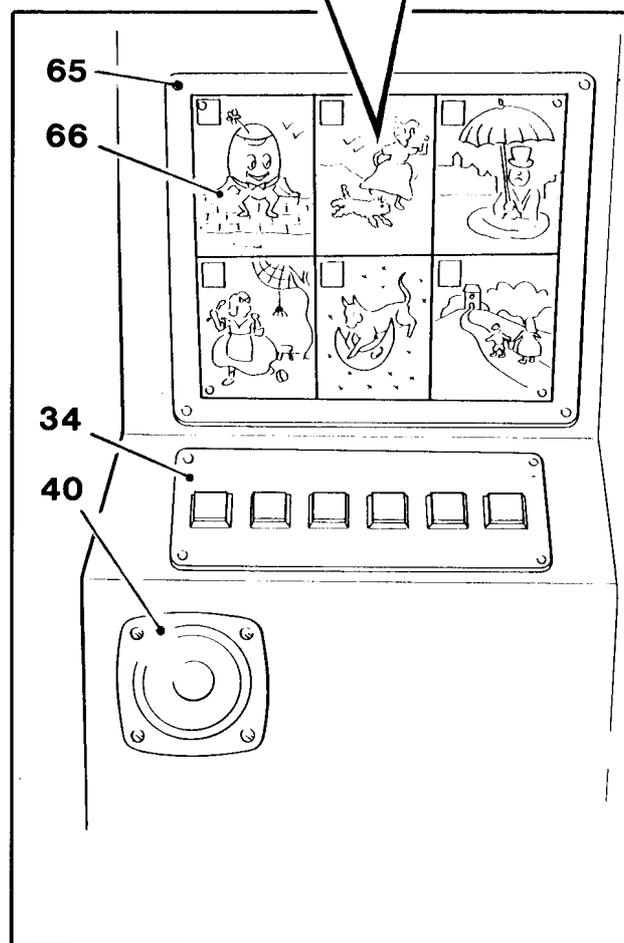
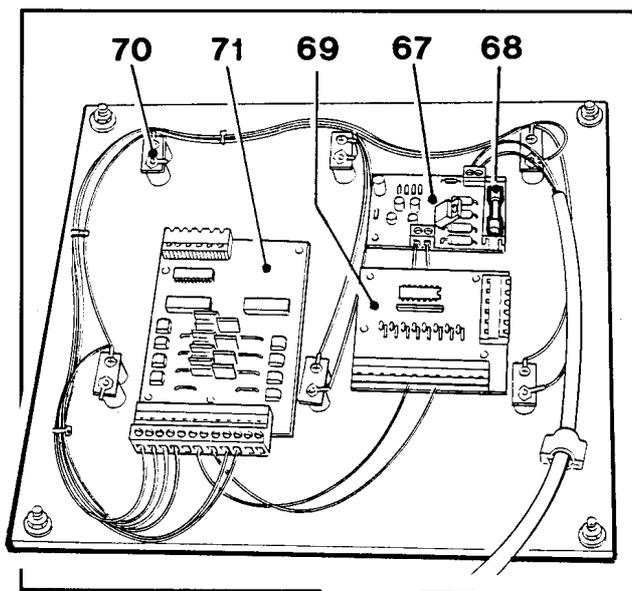
Remove the nuts and bolts that retain the motor/gearbox (29) and withdraw the complete assembly. (*The motor and gearbox are replaced as a unit.*)

## Electronics, "Story display" removal / replacing

Remove the screws (65) retaining the display (66).

This gives access to the electronics attached to the rear of the display, as follows:

- A The six bulbs that illuminate the pictures (70).
- B U2 main flashing circuit Board (67).  
This board is fitted with a 2 amp fuse (68).
- C Button interface board (69).
- D Light select interface (71).



## Speaker: removal / replacing

Gain access to the rear of the speaker by removing the Button panel (34).

Remove the four screws that retain the speaker (40). (The electrical cables may be soldered to the speaker.)

Extract the speaker.

Re-assemble in the reverse order.

### Button switches, and bulbs

The button switches (10) are illuminated by a bulb (11). The bulb is mounted within a snap-in retainer (12) that is pushed into the back of the switch.

(The retainer (12) also has a microswitch clipped to it.)

#### Bulb replacement:

Gain access to the rear of the switch as follows:

For dashboard mounted switches (10 & 20), remove the Rolling Road (26). See previous pages.

For Story display buttons (15), remove the button panel (34) See Previous page.

Take hold of the bulb retainer (12) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (11) from the retainer (12) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. *The tabs (X) of the switch must align with the slots (Y) of the retainer.* Push firmly on the retainer until it is heard to click into place.

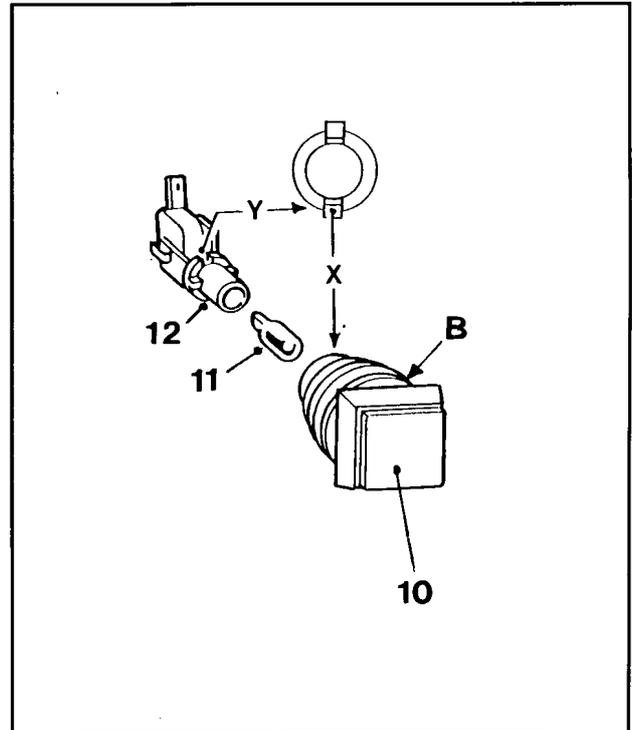
#### Button switch replacement

Remove the bulb/retainer (12) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the button switch (10) from the console.

Refit in the reverse order.



### Start switch

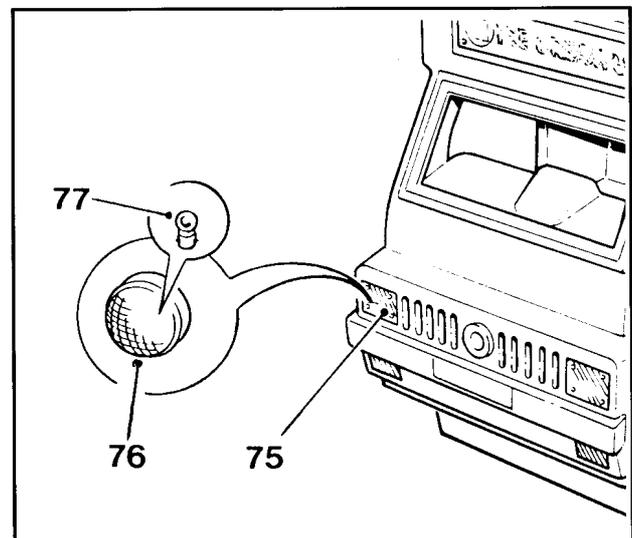
The Start switch (see page 10.11.1, item 20) contains the same components as the button switches (10) and is serviced in the same manner.

### Headlamp bulb: removal / replacing

Remove the screws retaining the headlamp cover (75).

Remove the lens from headlamp (76). Replace bulb (77).

Re-assemble in the reverse order.



# SERVICE MANUAL section 10.12

for

## *The Toytown Range*

### Contents

|                             |              |
|-----------------------------|--------------|
| Customer operation of toy   | Page 10.12.1 |
| Emptying the cash box       | 10.12.2      |
| Alarm system (Where fitted) | 10.12.2      |
| Servicing                   | 10.12.3      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 165 cm |
| Width  | 81 cm  |
| Height | 152 cm |
| Weight | 140 kg |

### Customer operation of toy

The Toytown Range ....

*Toy Town Police*

*Playtime Car*

*Fire Chief*

*Taxi*

....are two seater childrens' rides.

Whilst the machine is connected to a live power supply, (and without it being credited, or being in motion), the head, side (45) and roof (43) lights flash constantly, also a teaser attraction sound track repeats every 120 seconds.

Once money has been inserted into the coin mechanism (1), the timer/controller will then determine if a ride can be given.

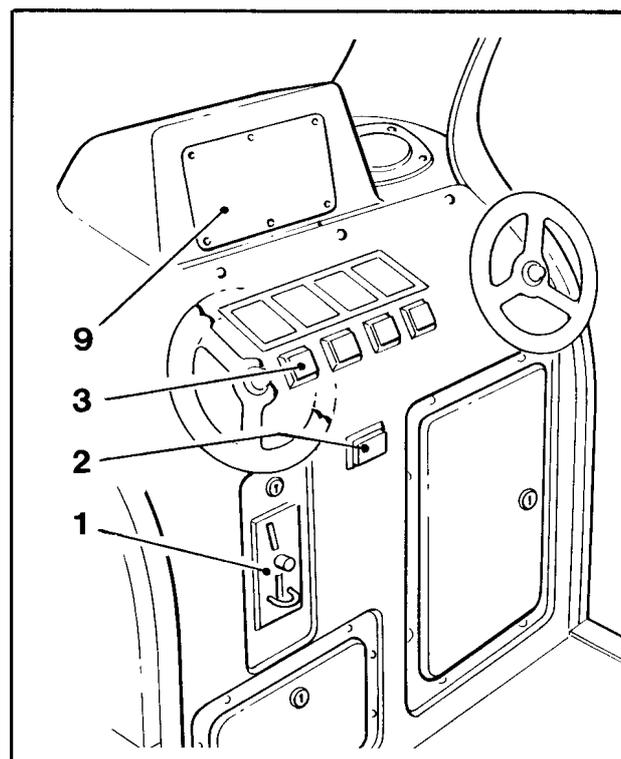
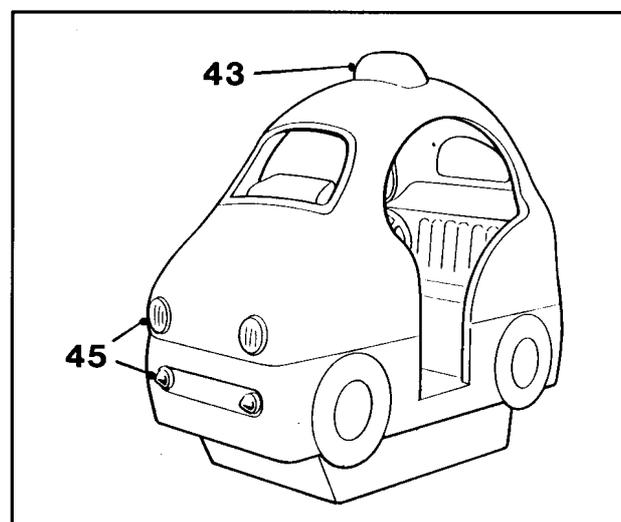
If the timer/controller has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button (2) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button has been pressed, the toy will begin to move backwards and forwards on its base, the rolling road (9) will be activated and a background sound will be heard.

Additional sound effects are available by pressing any of the coloured Buttons (3).

When the duration of the ride has been reached, the toy will stop moving, and an oral message saying that the ride has finished will be given.



## Maintenance

**WARNING** Read safety instructions first.  
Disconnect electrical power before opening any access panels.



### Emptying the cash box

The cash box may be fitted with an alarm.

Disarm the alarm (where fitted) by unlocking and removing the base access panel (10) using a key. Removal of the panel (10) operates the micro-switch (11) which disarms the alarm. If upon removal of the base panel no microswitch can be seen, then the ride has not been fitted with an alarm system.

Once the alarm (if fitted) has been disarmed, unlock and open the cash box door (12) using the key.

Release the cash box (13) by removing the clip or padlock.

Slide the cash box out and empty.

Refit the cash box and replace the clip or padlock.

Close and lock the cash box door using a key.

### Base access panel

The panel (10) at the rear of the base gives access to the P.S. (Power supply) unit, Relays and Alarm (where fitted). Greater access can be gained by removing the glass fibre base cover (37). (See Servicing)

### Alarm system: Cancelling or disarming (where fitted)

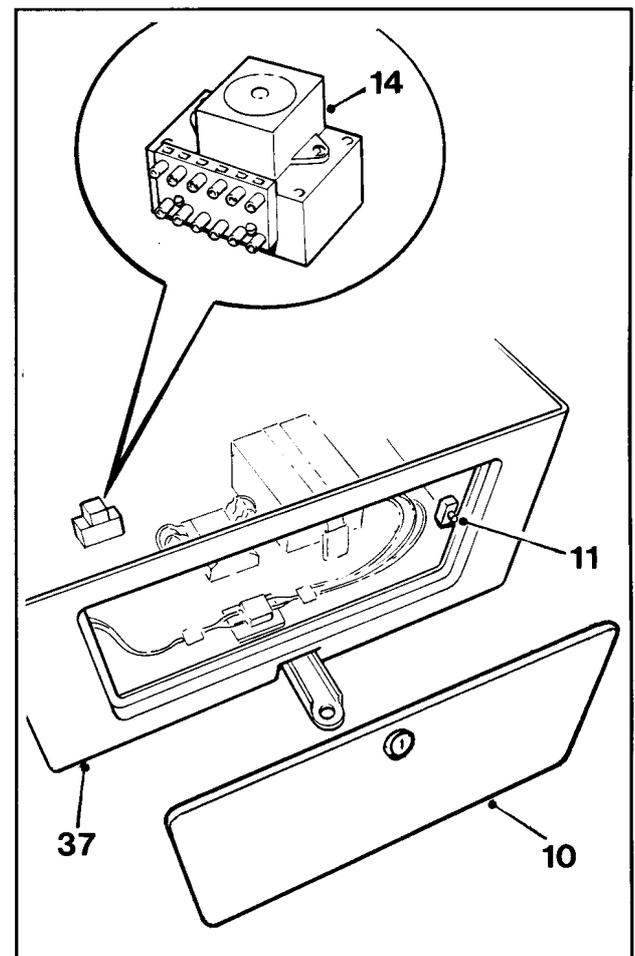
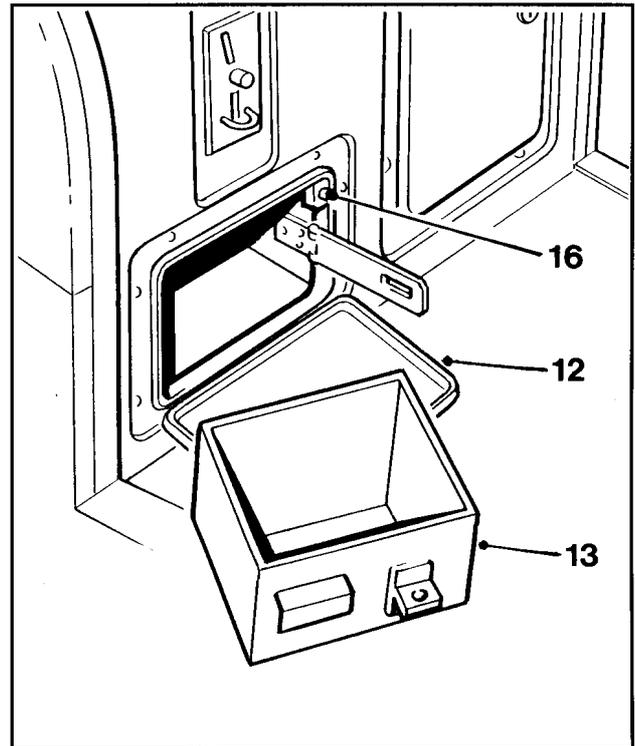
An alarm is fitted to protect the cash box.

The alarm is triggered by a micro-switch (16) that is operated when the cash box door (12) is opened.

To disarm, or cancel an already activated alarm, unlock and remove the base access panel (10), this operates the microswitch (11) which disarms or cancels the alarm.

**Note:** The alarm is battery powered. Even with the ride disconnected from any mains power supply the alarm can still be activated.

To keep the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located in the alarm unit (14) which is situated within the base.



### Coin counter

The coin counter (15) is situated behind door (6). See illustration on opposite page.

## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

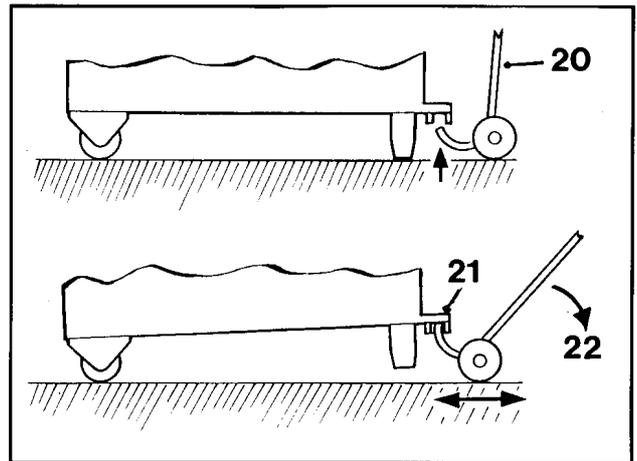


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine, is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



## Servicing

**WARNING** Read safety instructions first. Disconnect electrical power before opening any access panels.



### Coin Mechanism: removal / replacing

**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit.



The coin mechanism (1) is released by the use of a key. Once released, unplug the mechanism from the interface unit (4).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but two wires will need to be disconnected from the microswitch that is mounted on the coin mechanism.

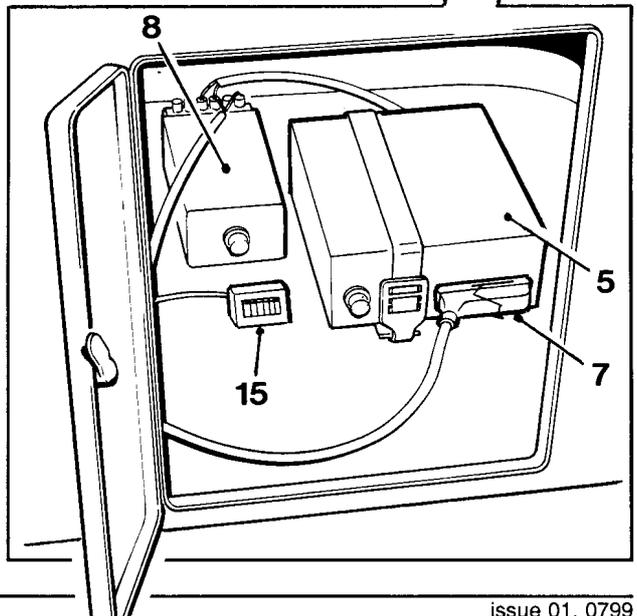
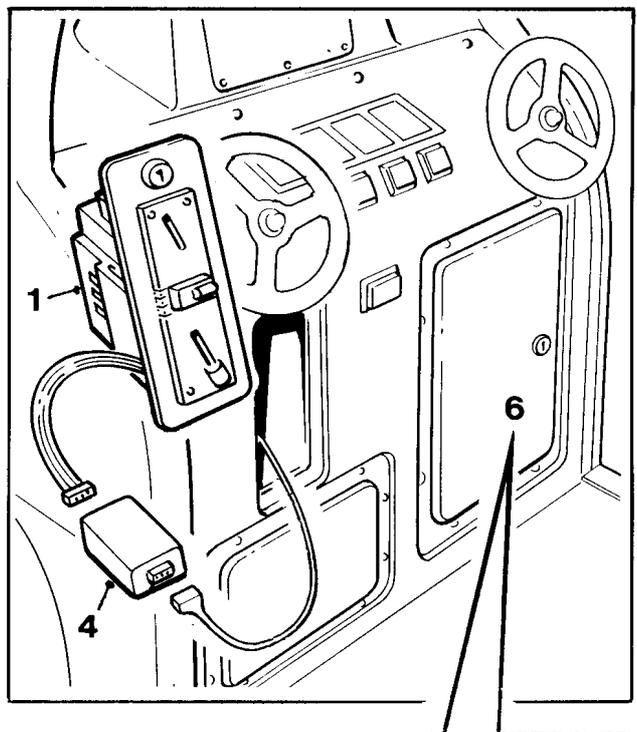
For further details about the unit see the relevant Coin mechanism section in this manual.

### Timer/controller: removal / replacing

The timer/controller unit (5) is located behind door (6). The unit is retained by a strap. Remove the strap and disconnect the cable plug (7).

### Chaser unit for roof lights removal / replacing

The chaser unit (8) is located behind door (6). The unit is retained by strips of 'Velcro' tape.



**Base cover: removal / replacing**

Within the base unit, release the loom from the cradle clip (35) by removing the rubber strap.

Place on the floor a padded mat (36) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

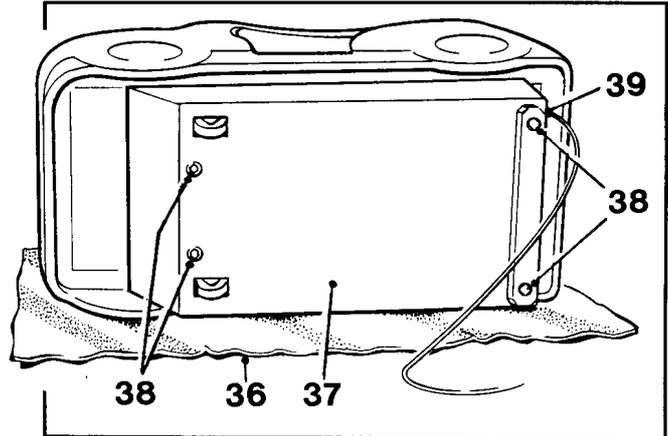
The glass fibre cover (37) is fastened to the base frame by four screws (38).

Remove the four screws (38).

Release the power cable gland (39).

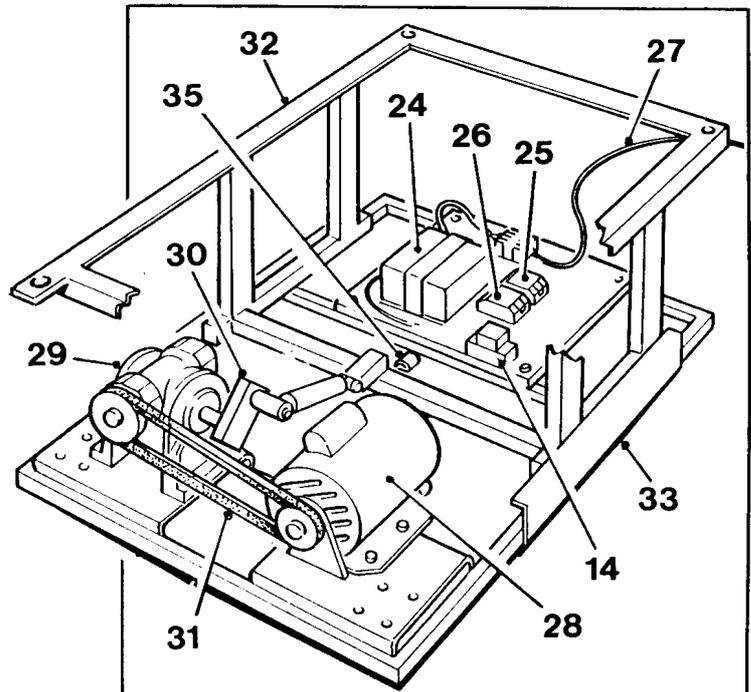
Pull the cover (37) clear of the machine.

The machine can now be stood upright.

**This gives access to:**

- Alarm (where fitted) (14)
- Power supply (P.S.) unit (24)
- Solid state relay: Rolling road (25)
- Solid state relay: Motor (26)
- Mains power supply cable (27)
- Motor (28)
- Gearbox (29)
- Crank (30)
- Belt (31)
- Frame, sliding (32)
- Frame, base (33)

Refit cover in the reverse order.

**Toy from base: removal / replacing**

If possible, place the complete machine onto a bench.

Remove the front (62) and rear covers (61).

To give access to the front retaining nuts (64), move the toy backwards either by using its own motor power or by manually turning the gearbox belt (31).

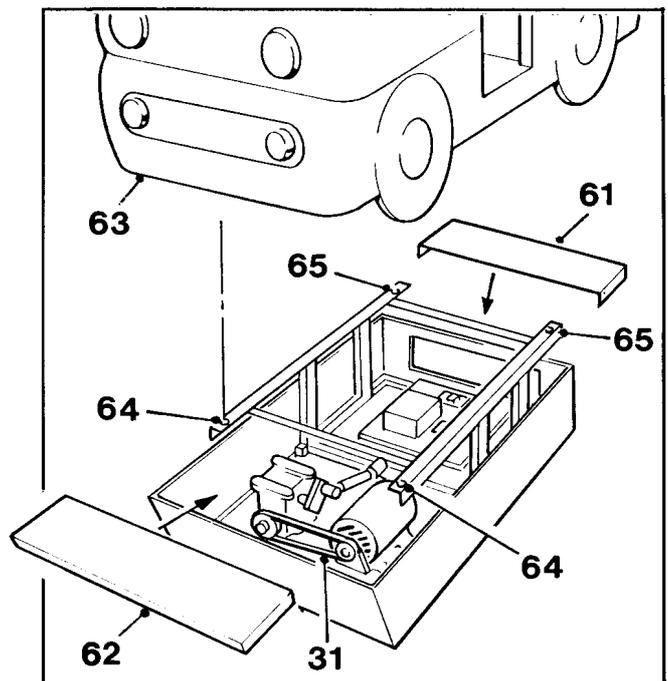
Remove the front nuts (64). (They are fastened onto screws that are captivated on the underside of the toy.)

Move the toy forwards and remove the rear nuts (65).

Unplug and release all cables connected between the toy to the base.

Lift the toy (63) from the base.

Re-assemble the toy (63) to the base in the reverse order.



## Rolling Road

The rolling road (9) consists of a film wrapped around the inside of a transparent drum (50), which is illuminated from the inside by a bulb (51). The drum is rotated by the motor (52).

**Note:** Should the motor fail, the heat from the bulb could melt the film.

### Removing rolling road

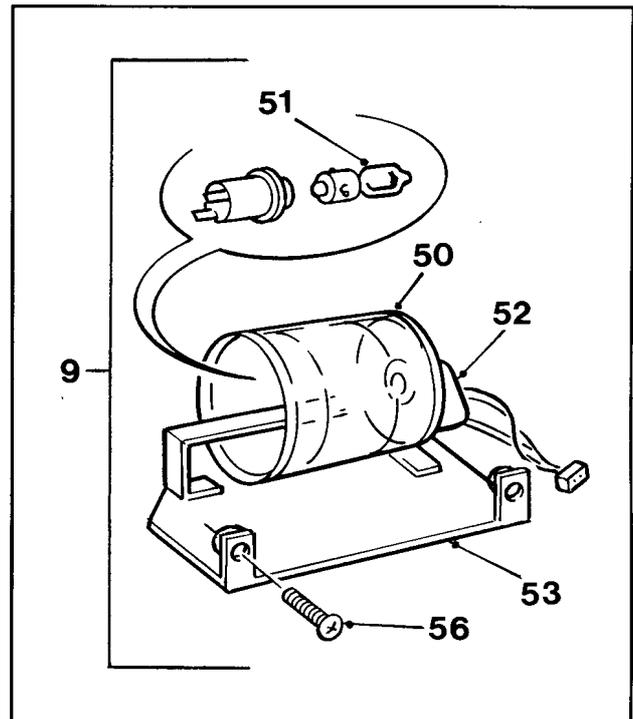
To replace any part of the rolling road, it is advisable to remove the complete unit from the toy, as follows .....

Remove the screen (55) by releasing its fixing screws.

Gain access to the rear of the rolling road via the door (6).

Remove the two screws (56) supporting the rolling road mounting bracket (53).

Extract the complete rolling road assembly through the door (6).



### Replacing the Bulb, or 'Road' Film

At the motor end of the drum, where it attaches to the drive shaft, loosen the two diagonally opposed grub screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

**Bulb:** Replace the bulb (51) and reassemble.

**'Road' film:** The film is held in place within the drum (50) by double-sided adhesive tape.

Peel the film free from the adhesive tape and slide it out. (*Note the orientation of the film before removing it.*)

Cut the new film to the same length as the old one.

Roll it and slide it into the drum, ensuring it is in the correct way around.

Fasten the film down to the adhesive tape.

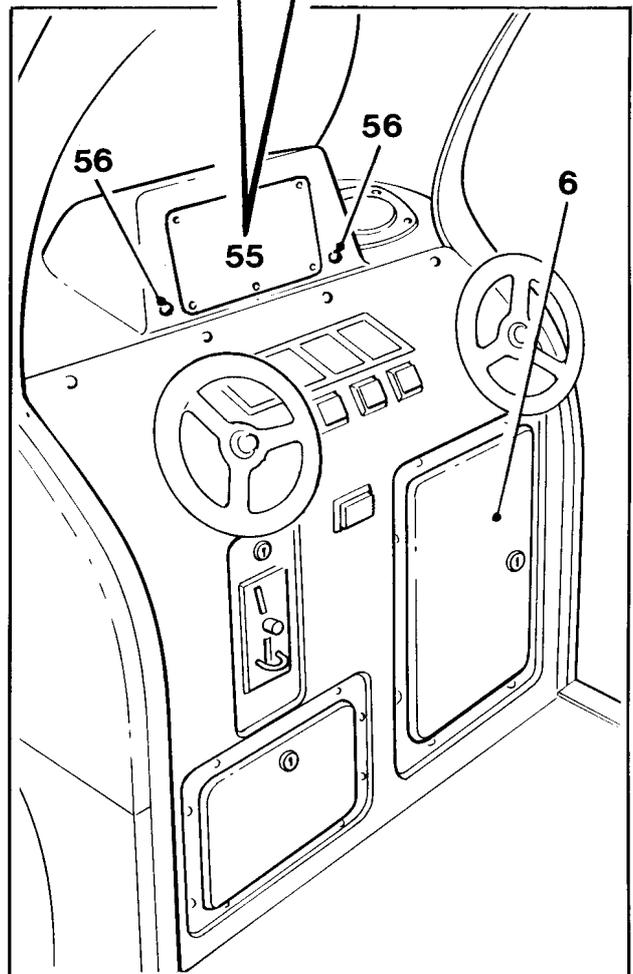
Reassemble the drum and fit the screen (55).

### Replacing the Rolling Road motor

**Note:** There should never be a need to replace a Rolling Road Motor, but if there was proceed as follows .....

Remove the drum (50) from where it is attached to the drive shaft by loosening the two diagonally opposed grub screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.



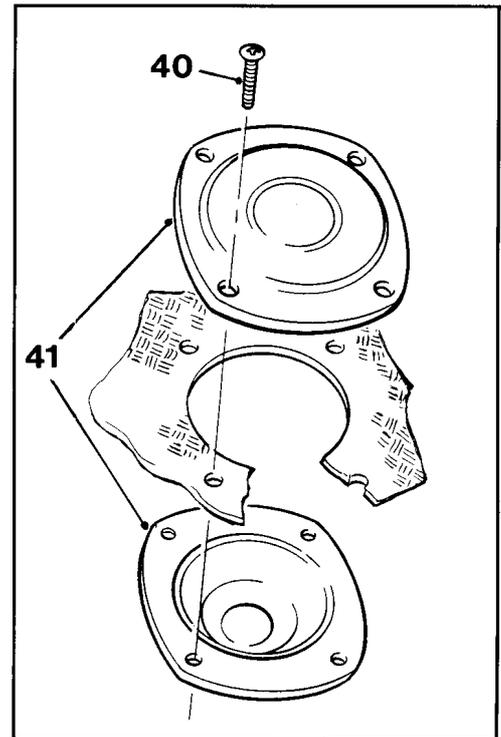
Remove the nuts and bolts that retain the motor/gearbox (52) and withdraw the complete assembly. (*The motor and gearbox are replaced as a unit.*)

### Speaker: removal / replacing

Gain access to the rear of the speaker through door (6).

Remove the four screws (40) retaining the speaker (41). Disconnect the wires from the speaker.

Reassemble in the reverse order.



### Picture bulbs: removal / replacing

Gain access to the bulbs (42) through the door (6).

The bulbs will be either bayonet or screw fitting.

Replace bulb.

### Start and Button Switches

From the front the Start Switch (2) and Button Switches (3) appear to be different, but from the rear they are of identical construction

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

(The retainer (72) also has a micro-switch clipped to it.)

#### Bulb replacing

Gain access to the rear of the switch through door (6)

Locate the bulb retainer (72) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer & bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

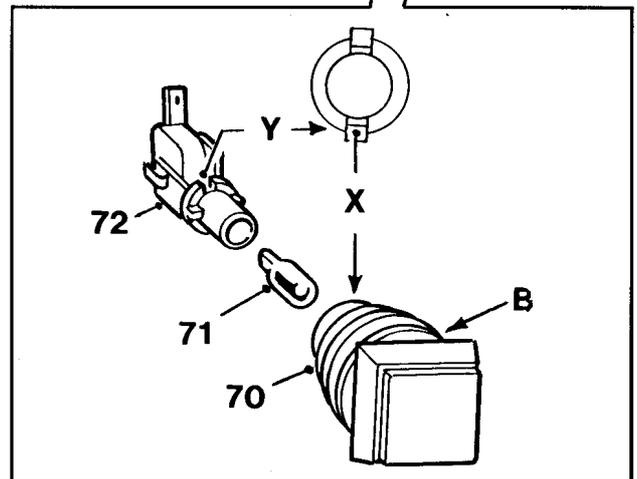
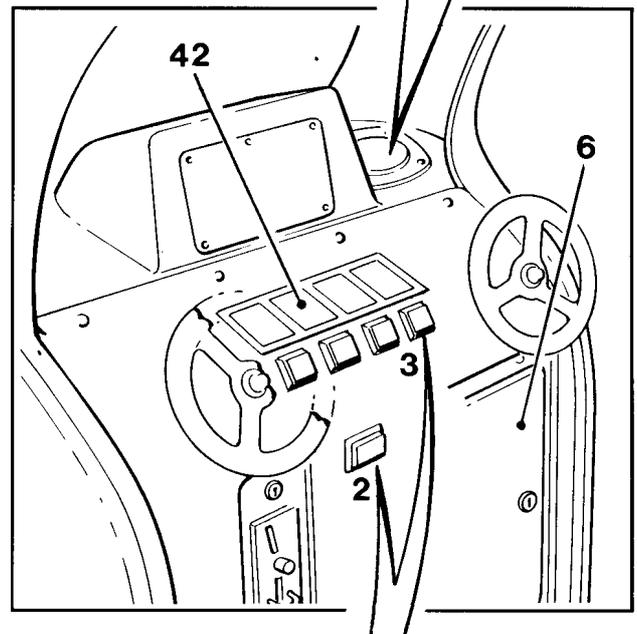
#### Start and Button switches replacing

Remove the bulb & retainer (72) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the button switch (70) from the console.

Reassemble in the reverse order.



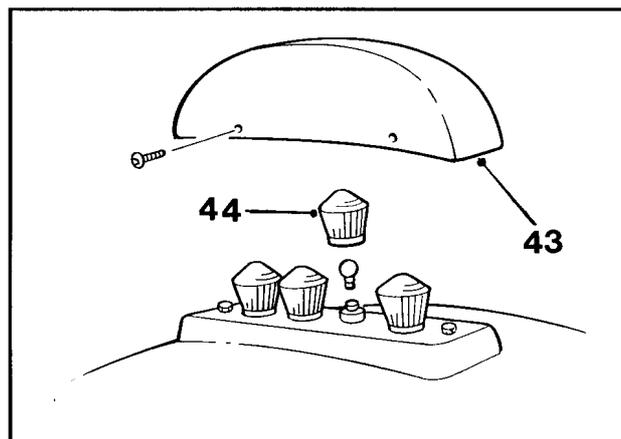
**Roof light bulbs: removal / replacing**

The cover (43) it is retained by four screws.  
Remove The cover.

Pull off the lens (44) from the defective bulb.

Unscrew the bulb, and replace.

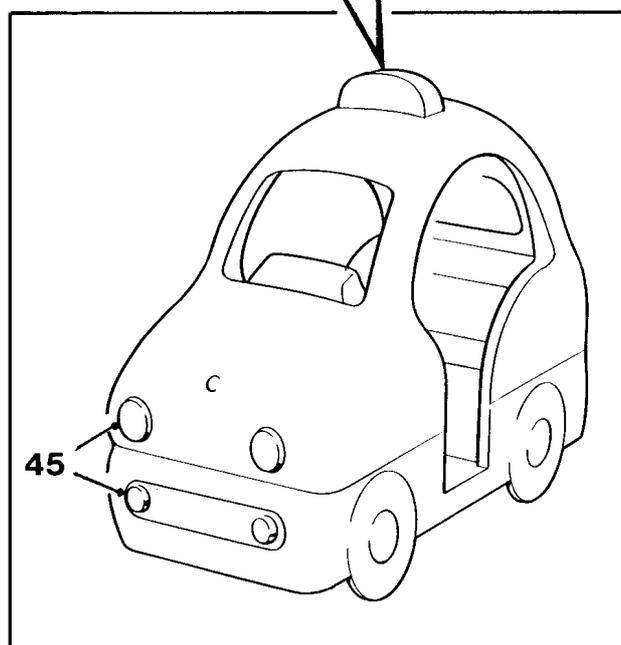
Reassemble in the reverse order.

**Head and side light bulbs:  
removal / replacing**

Remove the lens from the lights (45).

Replace bulb.

Refit the lens.



# SERVICE MANUAL section 10.13

for

## *Bertie's Fun Bug*

### Contents

|                             |              |
|-----------------------------|--------------|
| Customer operation of toy   | Page 10.13.1 |
| Emptying the cash box       | 10.13.2      |
| Alarm system (Where fitted) | 10.13.2      |
| Servicing                   | 10.13.3      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 135 cm |
| Width  | 76 cm  |
| Height | 120 cm |
| Weight | 80 kg  |

### Customer operation of toy

Bertie's Fun Bug is a single seater Children's Ride.

Whilst the machine is connected to a live power supply the head lights (1) and the interior button switches (2 & 4 to 7) flash constantly.

A teaser attraction sound track repeats every 120 seconds when the ride is not in motion or has not been credited.

Once money has been inserted into the coin mechanism (3), the timer/controller will then determine if a ride can be given.

If the timer/controller has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button (2) will flash, and an oral request to "Press Start Button" will be given.

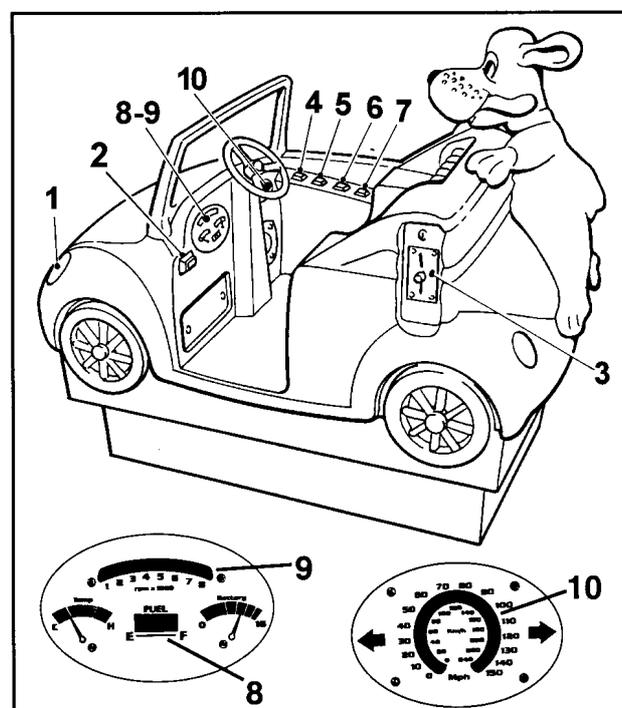
Immediately that the start button has been pressed, the toy will begin to move and a background sound will be heard.

When the duration of the ride has been reached, the toy will stop moving, and an oral message saying that the ride has finished will be given.

#### ACTIVITY BUTTONS

##### Fuel Gauge (8).

On the dashboard is a fuel gauge (8). At the beginning of the ride the gauge will indicate 'Full'. During the ride it will be seen to progressively decrease until at the end of the ride it will show 'Empty'



##### Accelerator (4) & Speedo(9)

When pressed once, the accelerator button (4) will make the speedo (9) reading rise. Pressing the button a second time will make the reading rise further.

##### Turbo (6)

When pressed, the turbo button (6) illuminates the tacho (10) and it also increases the reading on the speedo (9).

##### Brake (5)

When pressed, the brake button (5) will zero the speedo (9) and stop the turbo (6). There will also be heard the sound of screeching brakes.

##### Horn (7)

The sound of a vehicle horn will be heard when button (7) is pressed.

## Maintenance

### Base access panel

**WARNING** *Read safety instructions first.  
Disconnect electrical power before  
opening any access panels.*



The panel (16) at the rear of the base gives access to the Coin Counter, P.S. unit, Relays and Alarm (where fitted). Greater access can be gained by removing the glass fibre cover (81) from the base. (See Servicing)

### Emptying the cash box

*The cash box may be fitted with an alarm.*

Disarm the alarm (where fitted) by unlocking and removing the base access panel (16) using a key. Removal of the panel (16) operates the microswitch (11) which disarms the alarm. If upon removal of the base panel no microswitch can be seen, then the ride has not been fitted with an alarm system.

Once the alarm (if fitted) has been disarmed, unlock and open the cash box door (12) using the key.

Release the cash box (13) by removing the clip or padlock.

Slide the cash box out and empty.

Refit the cash box and replace the clip or padlock.

Close and lock the cash box door using a key.

### Alarm system: Cancelling or disarming (where fitted)

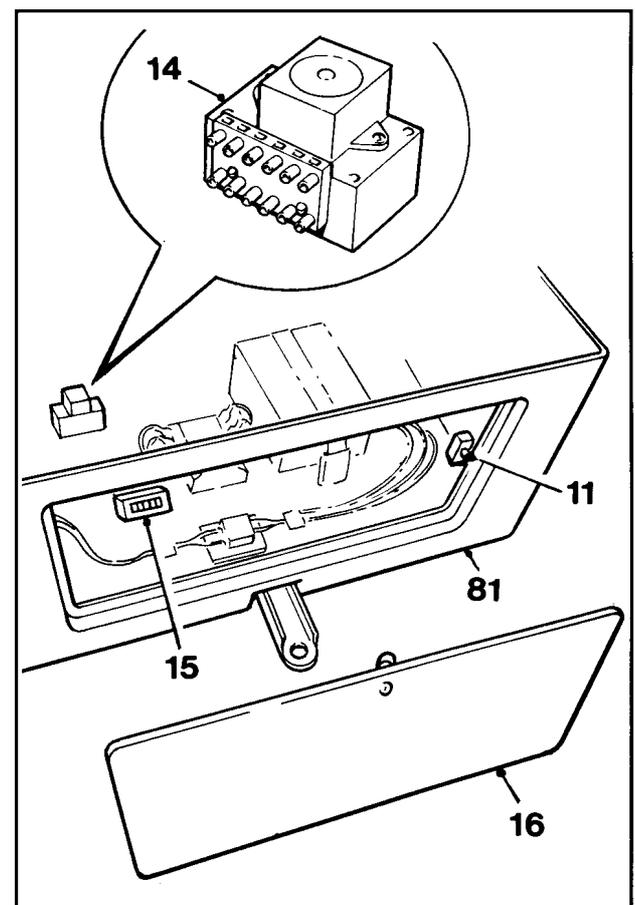
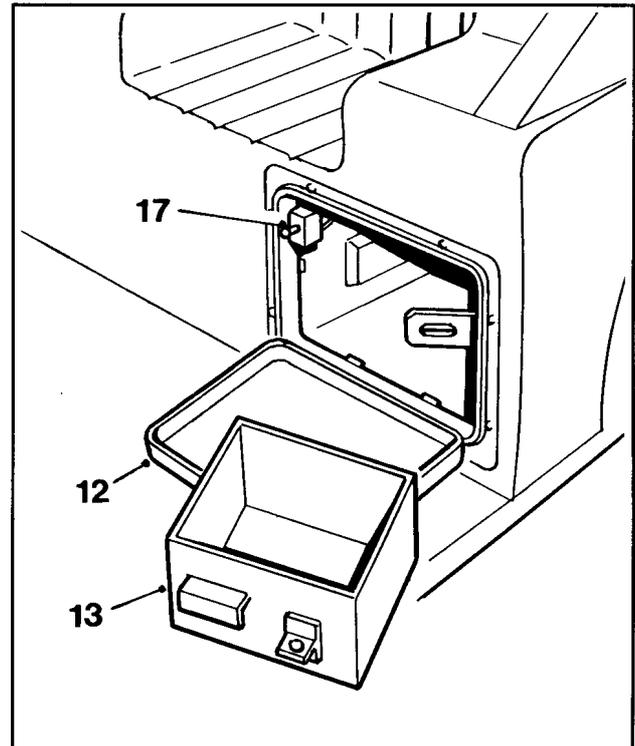
An alarm is fitted to protect the cash box.

The alarm is triggered by a microswitch (17) that is operated when the cash box door (12) is opened.

To disarm, or cancel an already activated alarm, unlock and remove the base access panel (16), this operates the microswitch (11) which disarms or cancels the alarm.

**Note:** The alarm is battery powered. Even with the ride disconnected from any mains power supply the alarm can still be activated.

To keep the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located in the alarm unit (14) which is situated within the base.



### Coin counter

The coin counter (15) is accessed by removing the base access panel (16).

## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

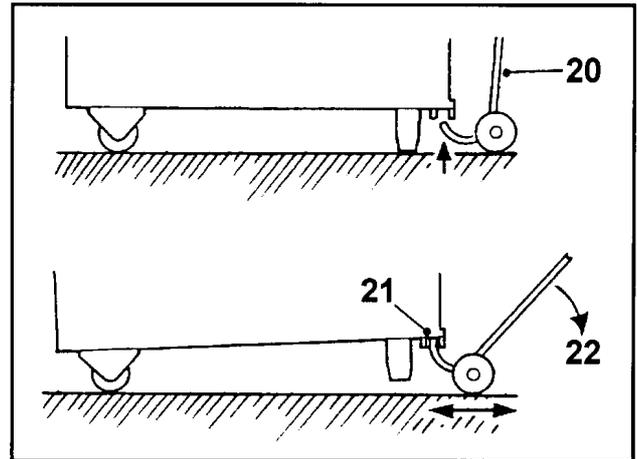


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21)

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



## Servicing

**WARNING** Read safety instructions first. Disconnect electrical power before opening any access panels.



### Base cover: removal / replacing

Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap.

Place on the floor a padded mat (80) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

The glass fibre cover (81) is fastened to the base frame by four screws (82).

Remove the four screws (82)

Release the power cable gland (84).

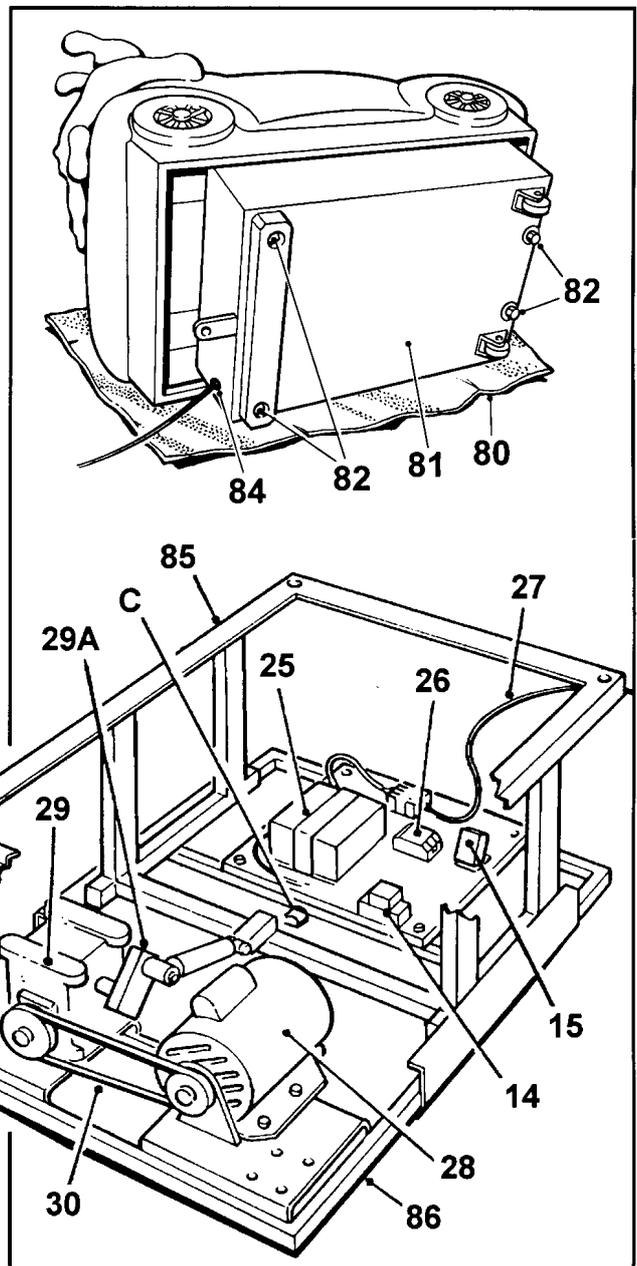
Pull the cover (81) clear of the machine.

The machine can now be stood upright.

#### **This gives access to:**

- Alarm (where fitted) (14)
- Coin counter (15)
- Power supply (P.S.) unit (25)
- Solid state relay, for motor (26)
- Mains power supply cable (27)
- Motor (28)
- Gearbox (29)
- Crank (29A)
- Belt (30)
- Frame, sliding (85)
- Frame, base (86)

Refit cover in the reverse order.



### Toy from base removal

If possible, place the complete machine onto a bench.

With the key, remove the timer/controller unit (35) and disconnect it from its plug.

Within the timer/controller compartment locate the loom terminal block.

Disconnect the terminal block by pulling its two halves apart. Push the base half of the terminal block through the hole in the floor of the toy.

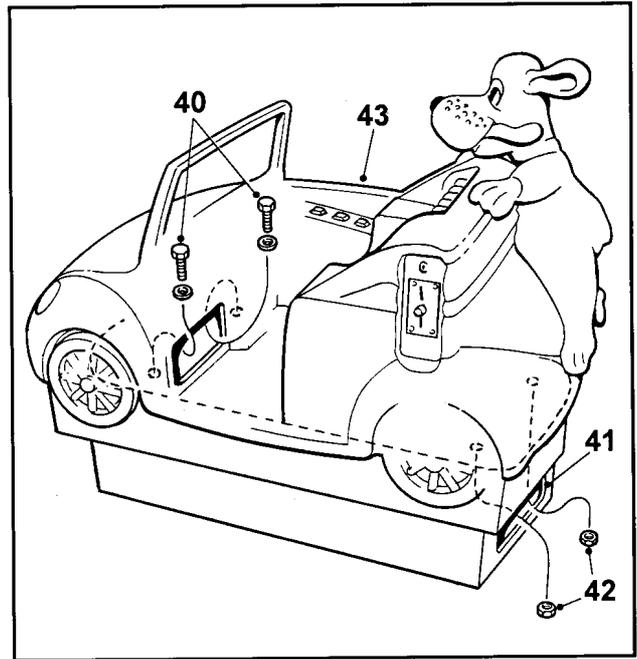
Remove the two front bolts (40) and their washers (*The bolts are retained by captive nuts welded to the underside of sliding frame.*)

Remove the rear access cover (41).

From inside the rear access panel, remove the nuts (42) from the rear bolts. (The bolts are captivated in the floor of the toy.)

Lift the toy (43) from the base.

Reassemble the toy (43) to the base in the reverse order.



### Coin Mechanism: removal / replacing

**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit



The coin mechanism (45) is released by the use of a key. Once released, unplug the mechanism from the interface unit (46).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but two wires will need to be disconnected from the microswitch that is mounted on the coin mechanism.

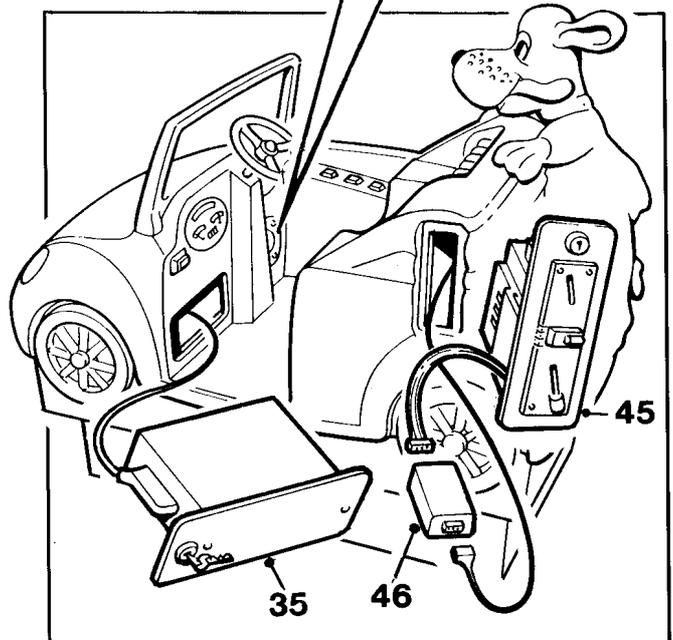
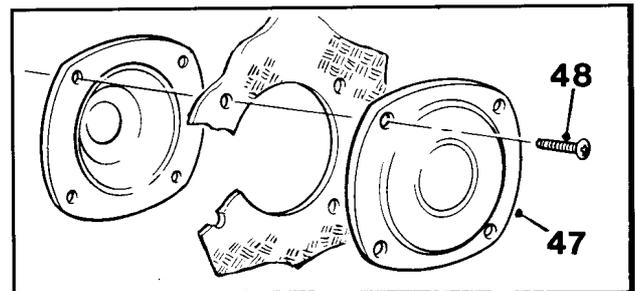
For further details about the unit see the relevant Coin mechanism section in this manual.

### Timer/controller: removal / replacing

With the key, remove the timer/controller unit (35) and disconnect it from its plug.

### Speaker removal

Gain access to the rear of the speaker (47) by removing the timer/controller unit (as described above).



Remove the four screws (48) retaining the speaker, then extract it from the console. Disconnect the wires from the rear of the speaker. Reassemble in the reverse order.

## Start switch & Button switches

From the front the start button (2), and the button switches (4 to 7) appear to be different, but from the rear they are of identical construction.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

(The retainer (72) also has a micro-switch clipped to it.)

### Bulb replacement

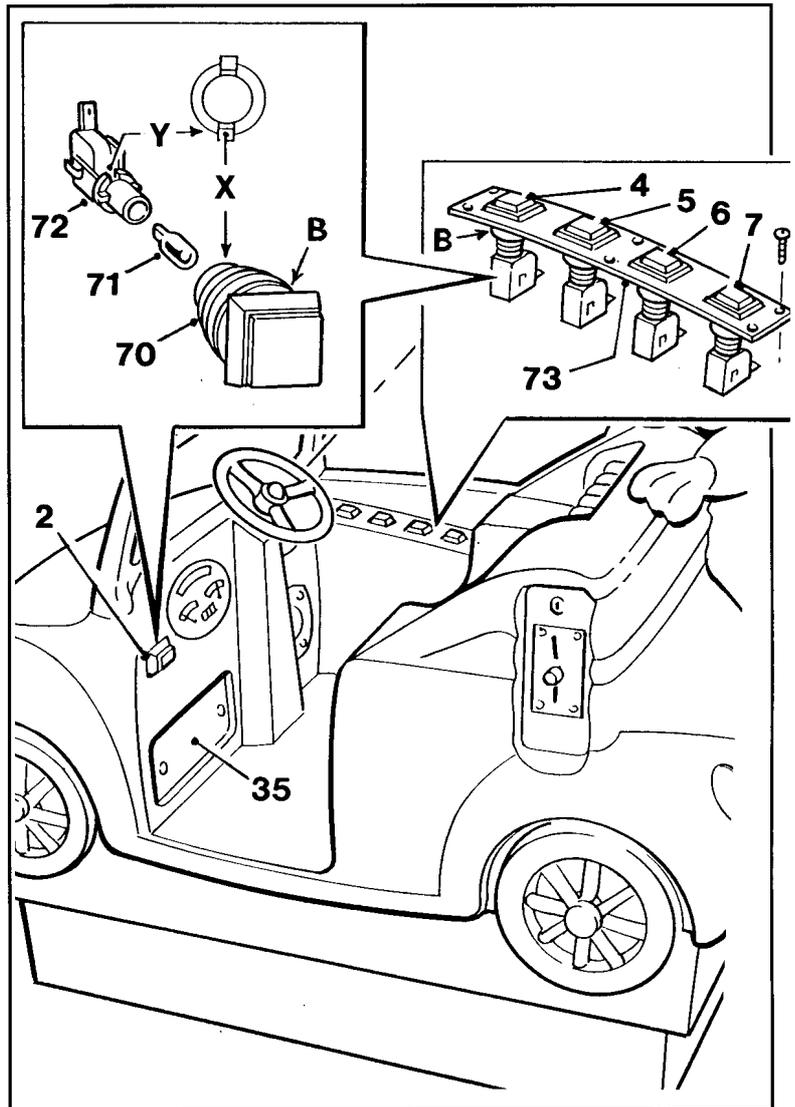
Gain access to the rear of the start button switch by removing the timer/controller (35).

Gain access to the rear of the side console button switches by unscrewing the mounting plate (73).

Locate the bulb retainer (72) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.



### Start and Button Switch replacement

Remove the bulb & retainer (72) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the switch (70).

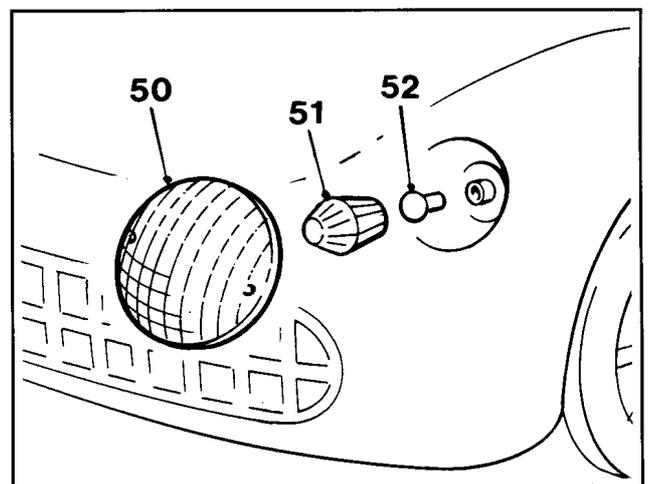
Refit in the reverse order.

### Headlamp bulb: replacment

Remove the screws retaining the headlamp cover (50).

Pull off the lens (51). Replace bulb (52).

Re-assemble in the reverse order.

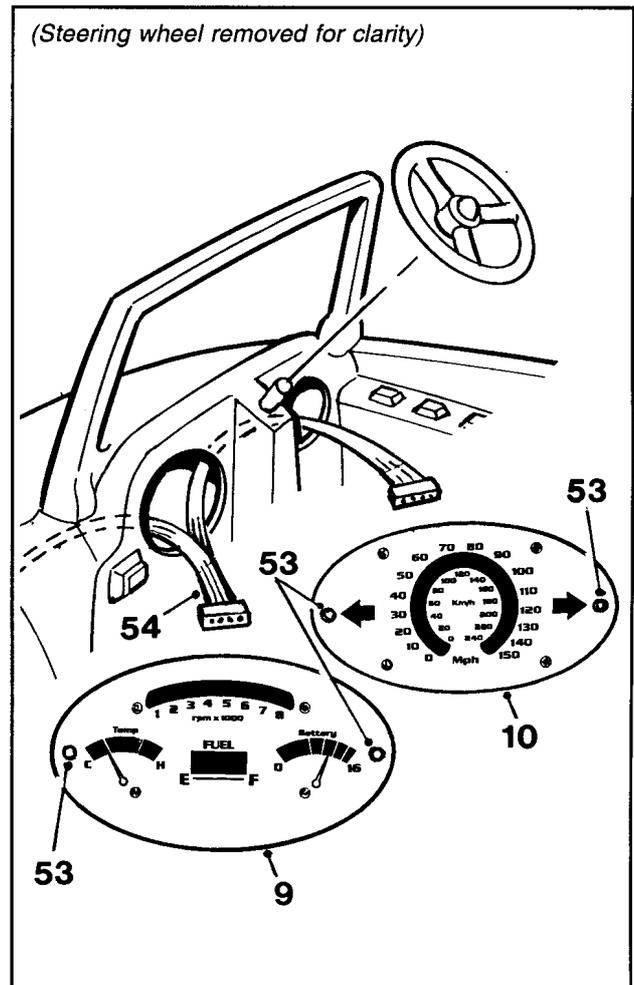


**Dashboard gauges: removal / replacing**

The two dashboard gauges (9 & 10) each consist of a display panel with an integral electronic circuit board attached to the rear.

The gauges are each attached to the dashboard by the two outer screws (53). Do not remove the four inner screws as these retain the circuit boards.

The loom (54) is first plugged into the Speedo display (9) from which a spur lead is then attached to the Tacho (10).



# SERVICE MANUAL section 10.14

for  
*Shuttle*

## Contents

|                           |              |
|---------------------------|--------------|
| Customer operation of toy | Page 10.14.1 |
| Cash box & Credit counter | 10.14.2      |
| Transportation            | 10.14.2      |
| Servicing                 | 10.14.2      |

## Weight & Dimensions

|        |        |
|--------|--------|
| Width  | 132 cm |
| Length | 117 cm |
| Height | 198 cm |
| Weight | 290 kg |

## Customer operation of toy

When the machine is connected to a live power supply (*but before a ride has been credited*), a teaser sound track repeats every 120 seconds, while the console button switches (2) and interior roof light flash constantly.

The ride is initiated by inserting a coin into the coin mechanism (3).

The yellow start button (1) then flashes to indicate that a ride has been credited by the coin.

This is followed by an oral request, either; **“Press Start Button”** or **“Insufficient Money”**.

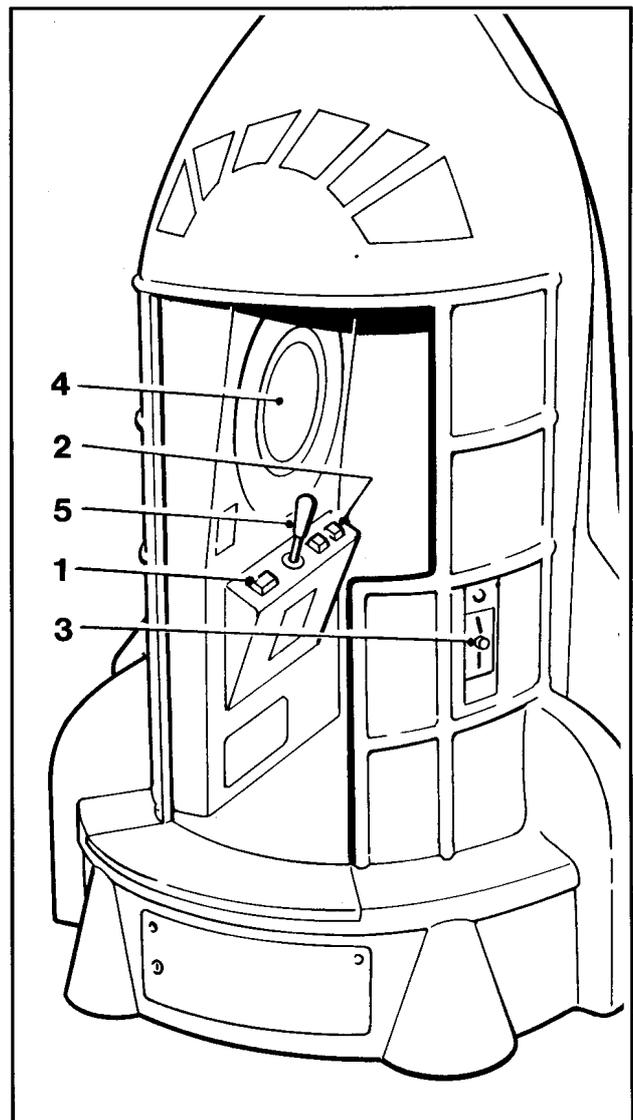
As soon as the start button (1) has been pressed the machine will begin to oscillate in a circular motion.

Whilst the machine is in motion, the plasma screen (4), joystick (5) and button switches (2) are operative as follows:

The plasma screen (4) generates varying images when the glass is touched, and also responds to the sounds made by the toy and the child's voice.

The joystick (5) and button switches (2), when moved or pressed, produce a series of sounds.

When the pre-set duration of the ride has been reached, the ride will stop, accompanied by the oral prompt of **“Thank You”**.



## Transportation

**WARNING** Read Safety section of this manual.  
Disconnect electrical power at mains  
before opening any access panels.

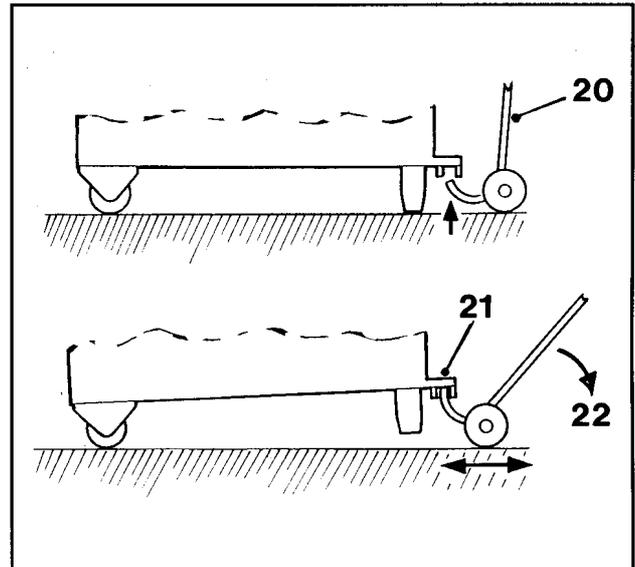


### Towing jack

The Towing jack (20) is provided to help in moving the machine.

Insert the hook of the jack into the eye (21) that is situated under the base between the two feet.

Lever the jack backwards (22) to raise the machine off its feet. The machine can now be pulled along with the jack handle.



## Maintenance

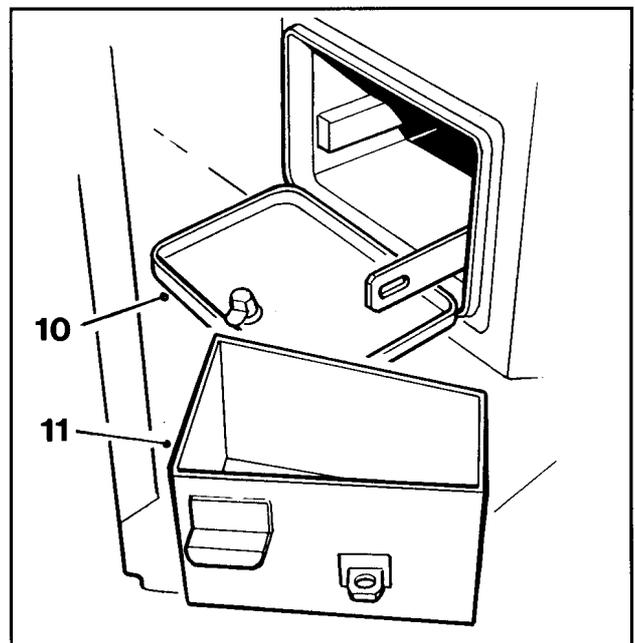
### Emptying the cash box

Unlock and open the cash box door (10).

Release the cash box (11) by removing the clip or padlock.

Slide the cash box out and empty.

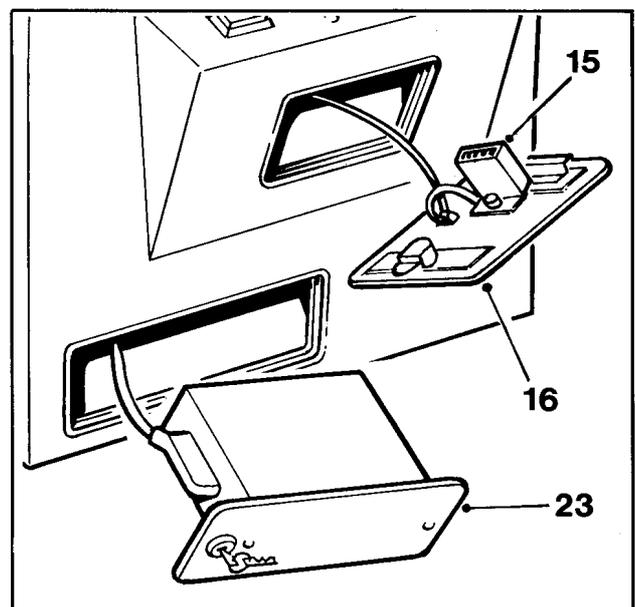
Refit in the reverse order.



### Credits Counter

The credits counter (15) is attached to the rear of access panel (16).

The access panel is locked and has to be opened with a key.



## Servicing

**WARNING** Read Safety section of this manual.  
Disconnect electrical power at mains  
before opening any access panels.



### Timer/controller: removal / replacing

With the key, remove the timer/controller unit (23) and disconnect it from its plug.

## SERVICING

10.14.3

### Speaker: removal / replacing

Gain access to the rear of the speaker (25) by removing the plasma screen. (see below).

Remove the four screws (26) retaining the speaker, then extract it from the console.

Disconnect the wires from the rear of the speaker.

Reassemble in the reverse order.

### Plasma screen: removal / replacing

The plasma unit (27) is retained within the console by the frame (28).

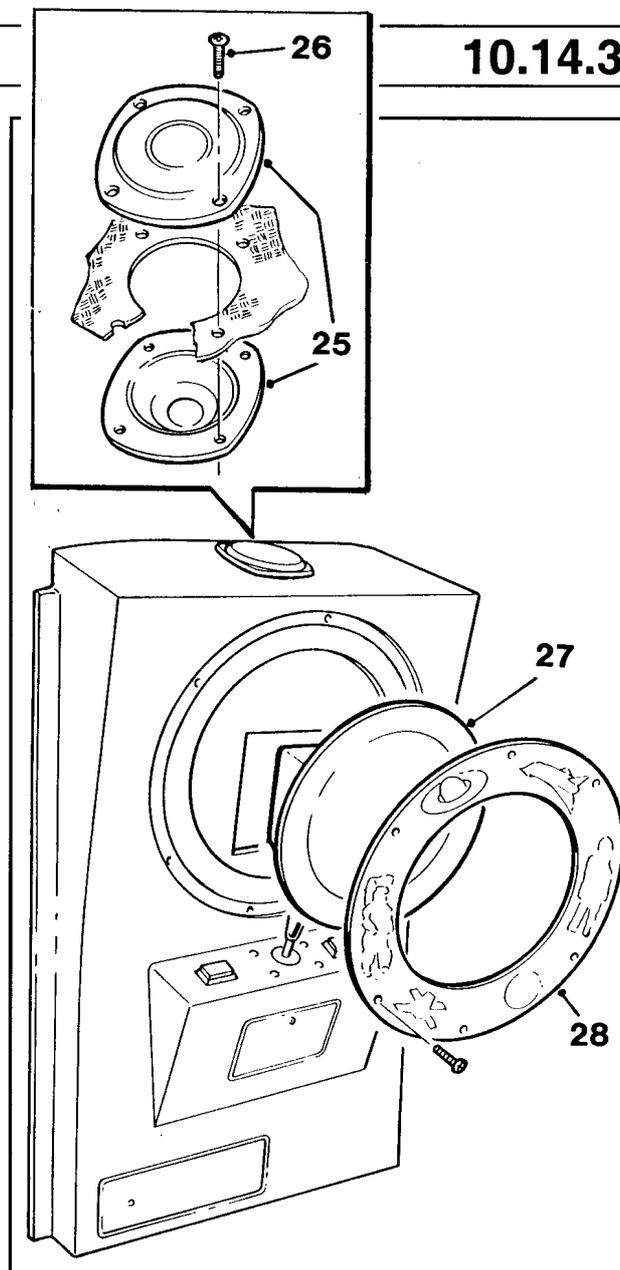
To access the plasma unit, first remove the frame (28), this is held by six screws.

Lift the plasma unit from the console.

Disconnect the wiring from the rear of the plasma unit.

*When installing a new plasma unit be sure to read and follow any setting instructions that may be enclosed with it.*

Reassemble components in reverse order.



### Coin Mechanism: removal / replacing

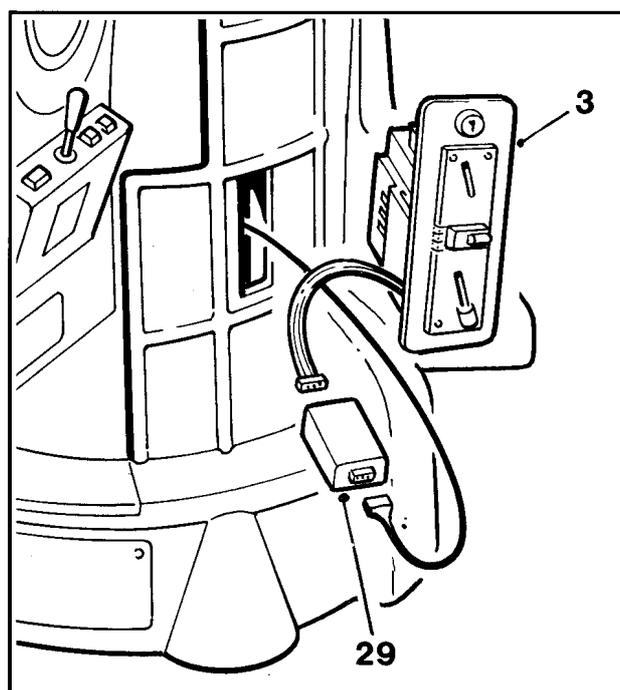
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit



The coin mechanism (3) is released by the use of a key. Once released, unplug the mechanism from the interface unit (29).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but two wires will need to be disconnected from the microswitch that is mounted on the coin mechanism.

For further details about the unit see the relevant coin mechanism section in this manual.



### Base unit access panels

The panels (40) at the front and rear give servicing access to .....

- Power supply unit (P.S.U.) (41)
- Relay (42)
- Motor (43)
- Drive belt (44)
- Plasma unit power supply (48)
- Gearbox (49) & connecting rod (58)

The panels are fitted with micro-switches. When the panels are removed, the micro-switches break and the machine becomes inoperative.

To give greater access to the components inside the base, the toy can be revolved from side to side by manually turning the drive belt (44).

### Base plate: removal / replacing

**Note:** Access to the gearbox (49) and swivel bearing (59) is made by removing the base plate (55).

Remove the base plate as follows:

Remove the front and rear access covers (40).

Unclip the wiring from the base plate (55) to provide sufficient loose cable to enable the plate, when it has been unfastened, to be pulled clear of the machine.

Place on the floor a padded mat (B) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

Disconnect the connecting rod (58) from the top base plate (56).

Loosen the two grub screws (57) that retain the swivel bearing (59).

Slide lower base plate (55) away from the machine.

To replace the base plate:

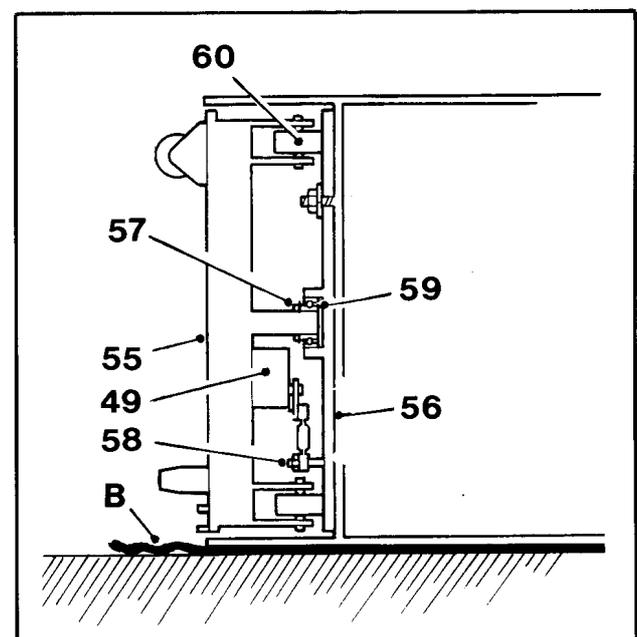
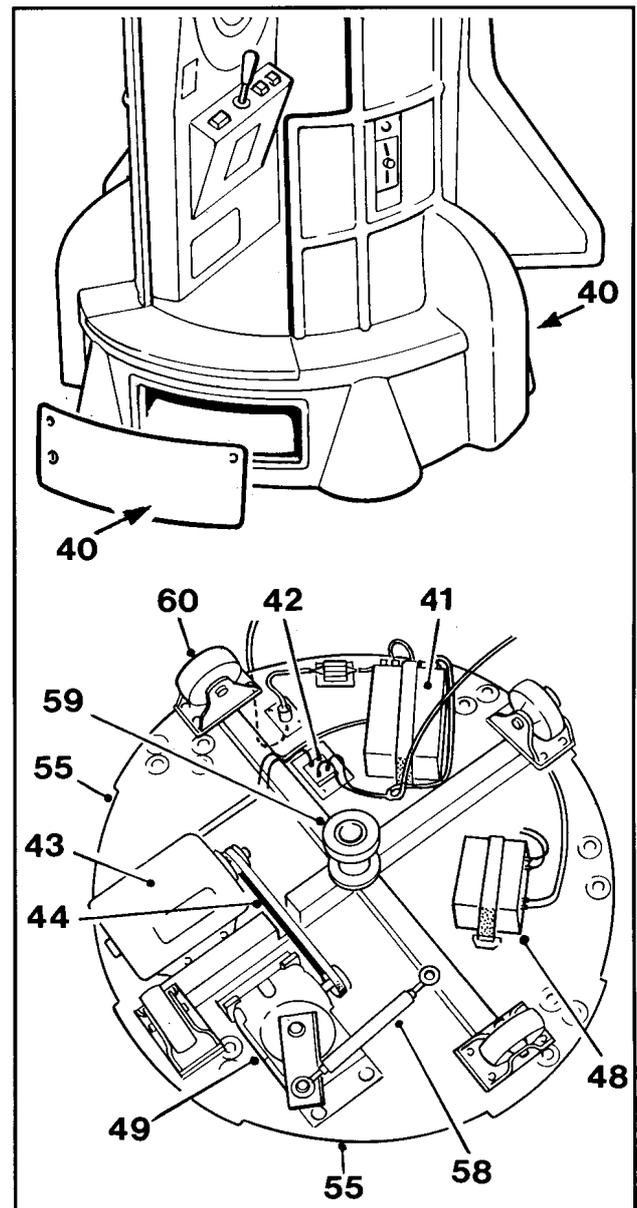
Slide the base plate (55) back into position until the casters (60) seat against the top plate (56).

Tighten the two grub screws (57) to retain the swivel bearing.

Fasten connecting rod (58) to the top plate.

Stand the machine upright.

Slacken the grub screws (57) to allow the bearing to settle centrally. Re-tighten grub screws.

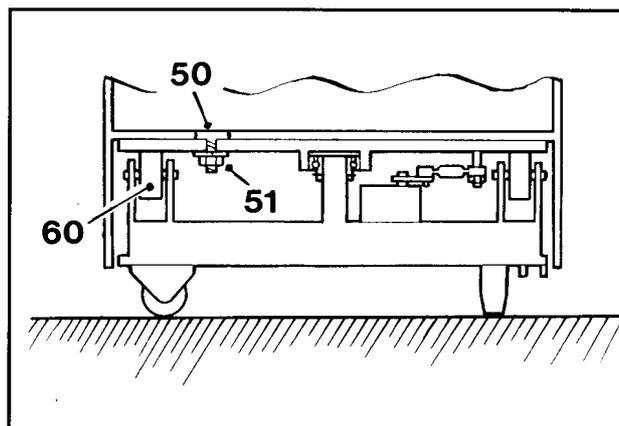


## Toy from base: removal / replacing

**Note:** Bonded into the floor of the toy are four captive bolts (50). These bolts protrude down through the top plate of the base unit and are secured by nuts (51) beneath that plate.

To remove the toy from the base proceed as follows:

- Remove the front and rear access panels (40).
- Disconnect all wiring from between the toy and the base unit.
- Remove the nuts (51) and lift the toy vertically clear of the base.
- Refit in the reverse order.



## Casters: removal / replacing

The casters (60) can be replaced via the base access panels (40). It is not necessary to dismantle the base unit.

## Start switch & Button switches

From the front the start button (1), and the button switches (2) appear to be different, but from the rear they are of identical construction.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

(The retainer (72) also has a micro-switch clipped to it.)

### Bulb replacement

Gain access to the rear of the start switch & button switches via panel (16).

Locate the bulb retainer (72) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

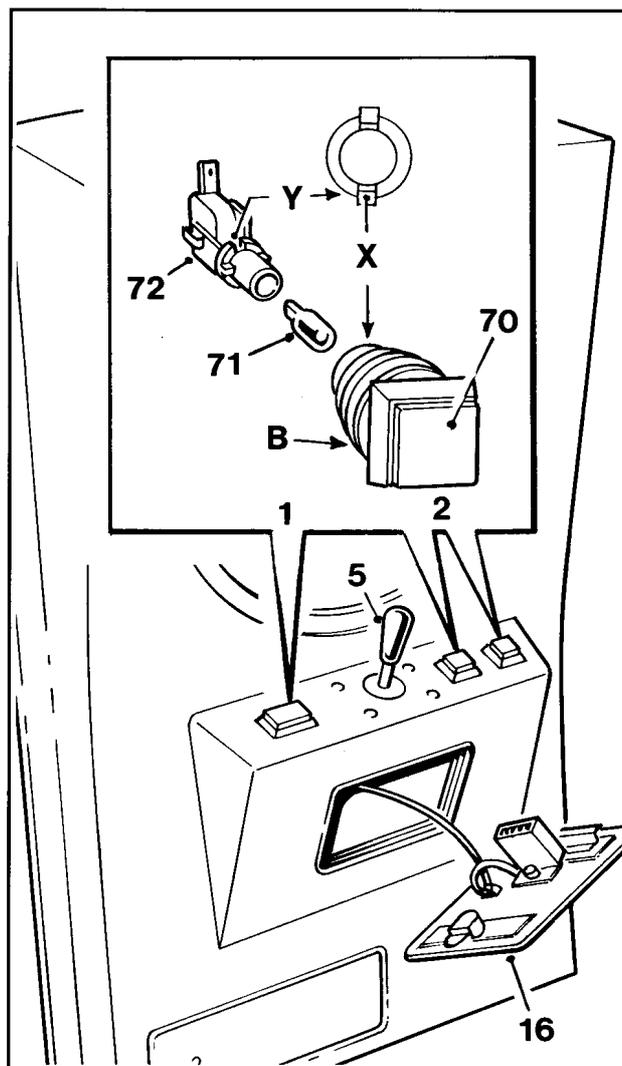
### Start switch & Button switches replacement

Remove the bulb & retainer (72) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the switch (70) from the console.

Refit in the reverse order.



## Joystick: removal / replacing

Access the rear of the joystick (5) via the panel (16).

# SERVICE MANUAL section 10.15

for

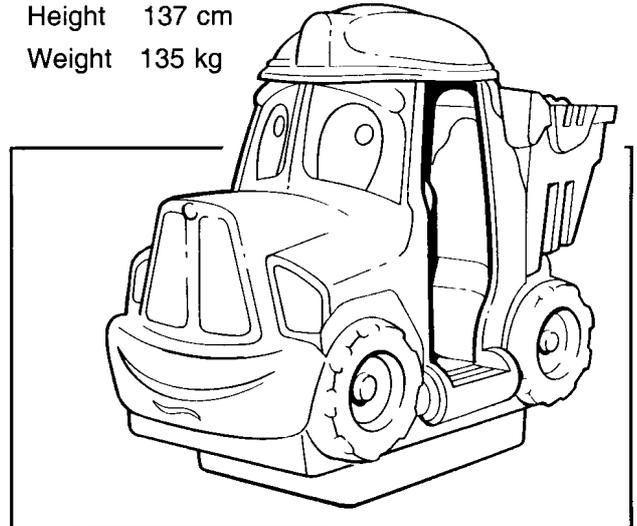
## *Mitch The Dumper Truck*

### Contents

|                             |              |
|-----------------------------|--------------|
| Customer operation of toy   | Page 10.15.1 |
| Emptying the cash box       | 10.15.2      |
| Alarm system (Where fitted) | 10.15.2      |
| Servicing                   | 10.15.3      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 165 cm |
| Width  | 88 cm  |
| Height | 137 cm |
| Weight | 135 kg |



### Customer operation of toy

'Mitch The Dumper Truck' is a two seater children's ride.

When the machine is connected to a live power supply (*but before a ride has been credited*), a teaser sound track repeats every 120 seconds, while the console button switches (2), interior light and headlights flash constantly.

The ride is initiated by inserting a coin into the coin mechanism (3).

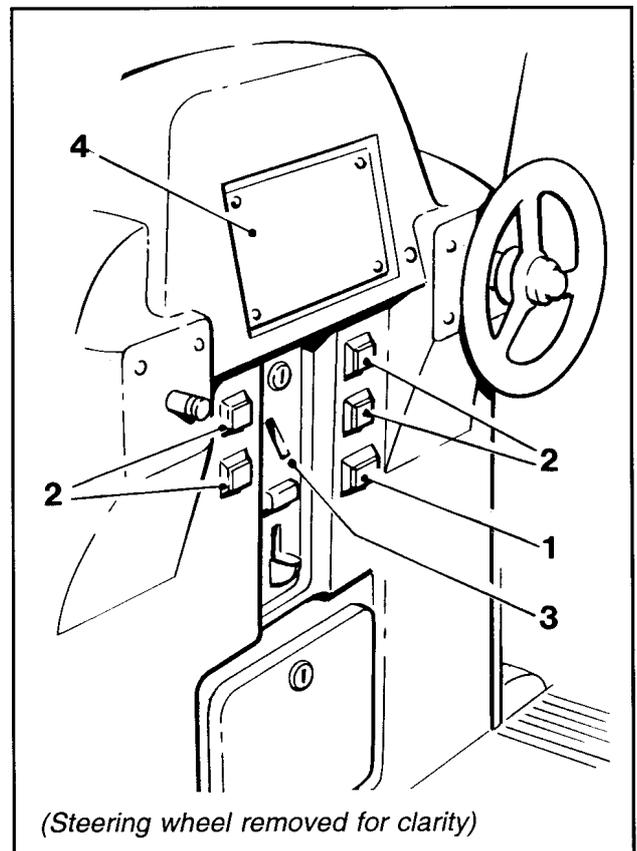
If the timer/controller (situated beneath the seat), has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button (1) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button has been pressed, the toy will begin to move and a background sound will be heard and the rolling road (4) on the dashboard will be activated.

Additional sound effects are available on pressing the buttons (2).

When the pre-set duration of the ride has been reached, the toy will stop moving, and an oral message saying that the ride has finished will be given.



## Maintenance

### Base access panel

**WARNING** *Read safety instructions first.  
Disconnect electrical power before  
opening any access panels.*



The panel (10) at the rear of the base gives access to the Coin Counter, P.S. unit, Relays and Alarm (where fitted). Greater access can be gained by removing the glass fibre cover (81) from the base. (See Servicing)

### Alarm system: cancelling or disarming (where fitted)

An alarm is fitted to protect the cash box.

The alarm is triggered by a micro-switch (9) that is operated when the cash box door (12) is opened.

To disarm, or cancel an already activated alarm, unlock and remove the base access panel (10), this operates the micro-switch (11) which disarms or cancels the alarm.

**Note:** The alarm is battery powered. Even with the ride disconnected from any mains power supply the alarm can still be activated.

To keep the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located in the alarm unit (14) which is situated within the base.

### Emptying the cash box

*The cash box may be fitted with an alarm.*

Disarm the alarm (where fitted) as follows....

With the aid of a key, unlock and remove the base access panel (10). Removal of the panel (10) operates the micro-switch (11) which disarms the alarm. If after removing the base panel no micro-switch can be seen, then the ride has not been fitted with an alarm system.

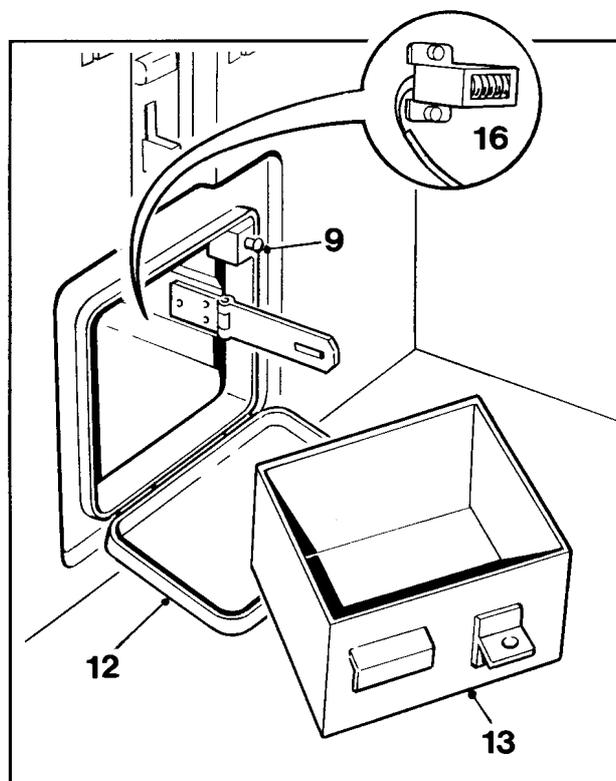
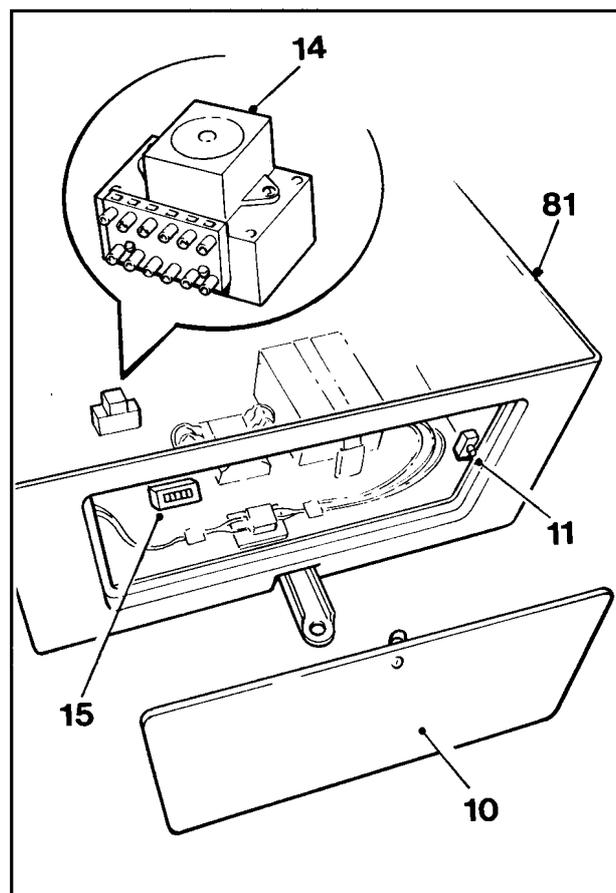
Once the alarm (if fitted) has been disarmed, unlock and open the cash box door (12) using the key.

Release the cash box (13) by removing the clip or padlock.

Slide the cash box out and empty.

Refit the cash box and replace the clip or padlock.

Close and lock the cash box door.



### Coin counter

The coin counter is situated either in the base unit (15), or inside the cash box compartment (16).

## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

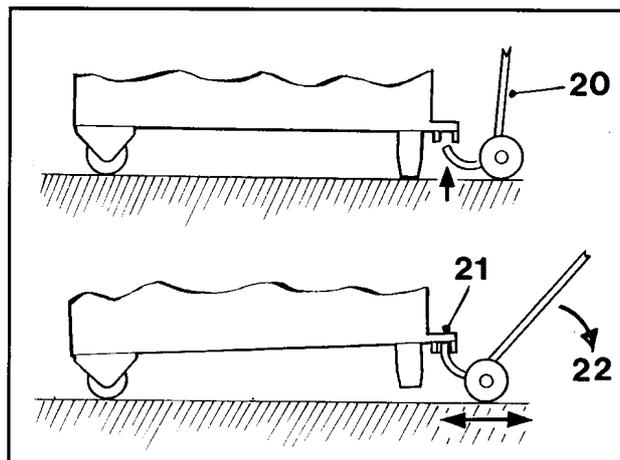


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine, is a towing eye. Insert the hook of the jack into the towing eye (21)

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



## Servicing

**WARNING** Read safety instructions first. Disconnect electrical power before opening any access panels.



### Base cover: removal / replacing

Within the base unit, release the loom from the cradle clip (35) by removing the rubber strap.

Place on the floor a padded mat (80) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

The glass fibre cover (81) is fastened to the base frame by four screws (82).

Remove the four screws (82)

Release the power cable gland (84).

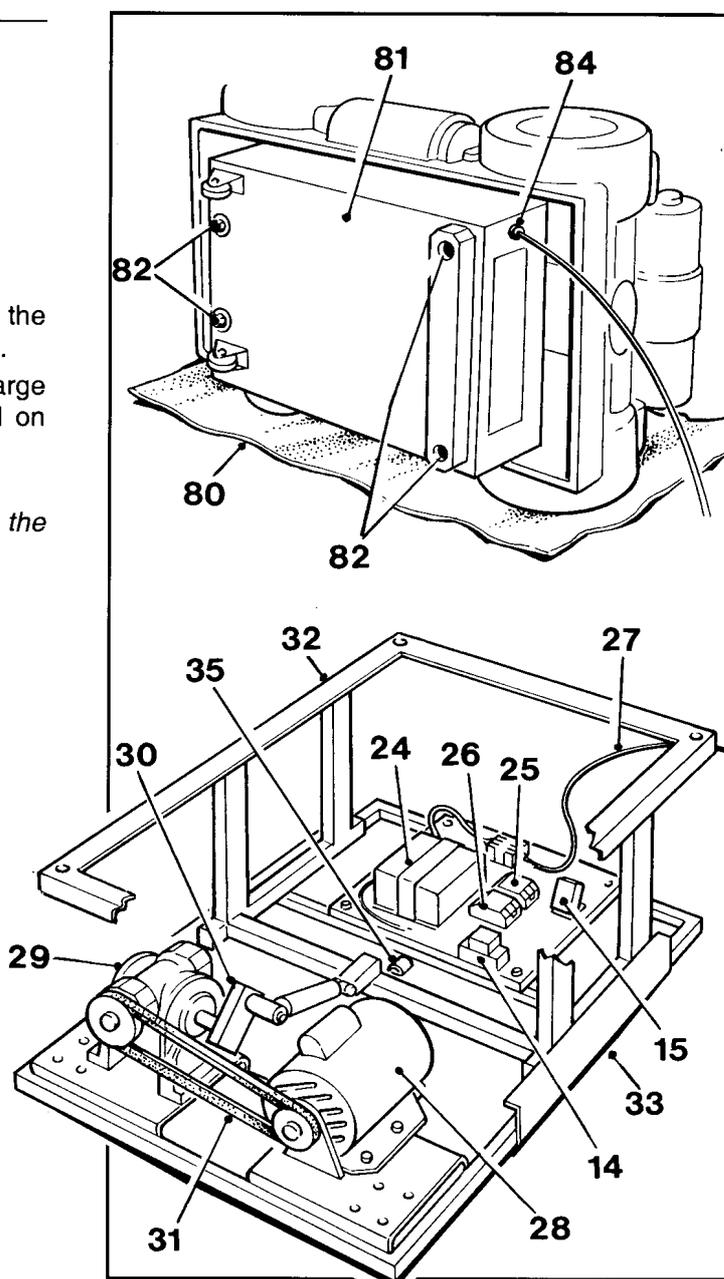
Pull the cover (81) clear of the machine.

The machine can now be stood upright.

#### This gives access to:

- Alarm (where fitted) (14)
- Coin counter (15)
- Power supply (P.S.) unit (24)
- Solid state relay, rolling road (25)
- Solid state relay, motor (26)
- Mains power supply cable (27)
- Motor (28)
- Gearbox (29)
- Crank (30)
- Belt (31)
- Frame, sliding (32)
- Frame, base (33)

Refit cover in the reverse order.



**Toy from base: removal / replacing**

If possible, place the complete machine onto a bench.

With the key, remove the timer/controller unit (35) from under the seat and disconnect it from its plug (36).

Under the seat, located a cable terminal block. Disconnect the terminal block by pulling its two halves apart. Push the base half of the terminal block through the hole in the floor of the toy.

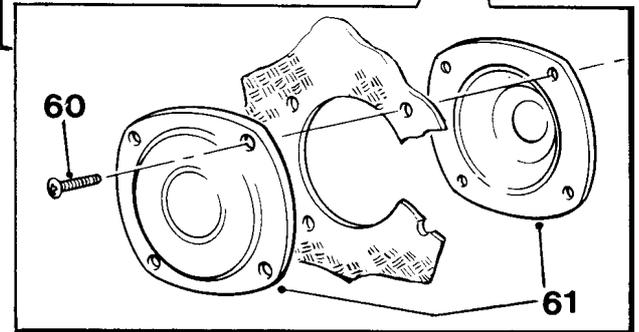
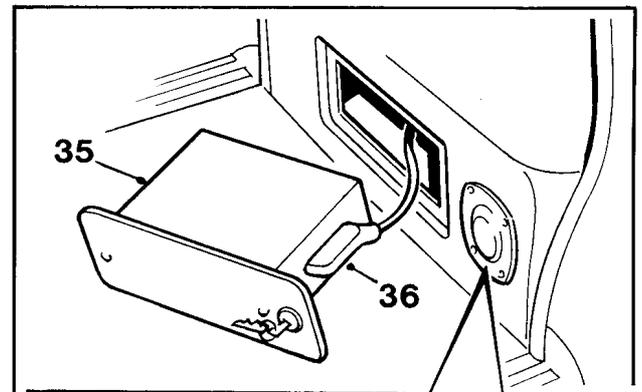
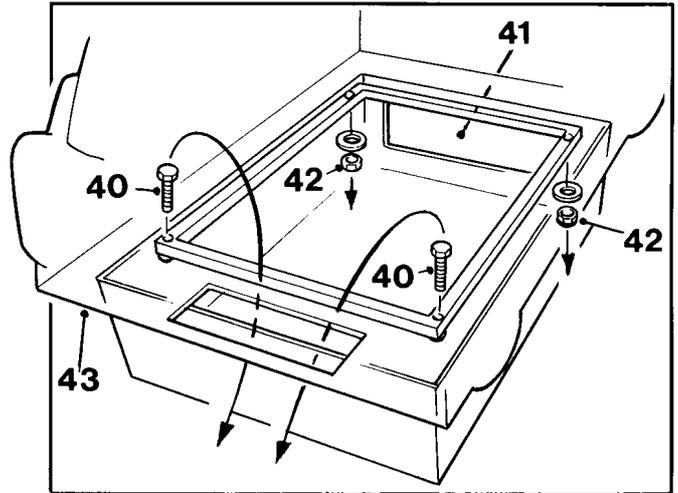
Via the access panel under the front of the toy, remove the two front bolts (40). (The bolts are screwed into captive nuts welded to the sliding frame.)

Remove from the base the rear panel (41).

From inside the rear of the base, remove the nuts (42) from the rear bolts.

Lift the toy (43) from the base.

Reassemble the toy to the base in the reverse order.

**Timer/controller: removal / replacing**

With the key, remove the timer/controller unit (35) and disconnect it from its plug (36).

**Speaker: removal / replacing**

Gain access to the rear of the speaker by unlocking and removing the timer/controller unit (35).

Remove the four screws (60) retaining the speaker (61). Disconnect the wires for the speaker.

Reassemble in the reverse order.

**Coin Mechanism: removal / replacing**

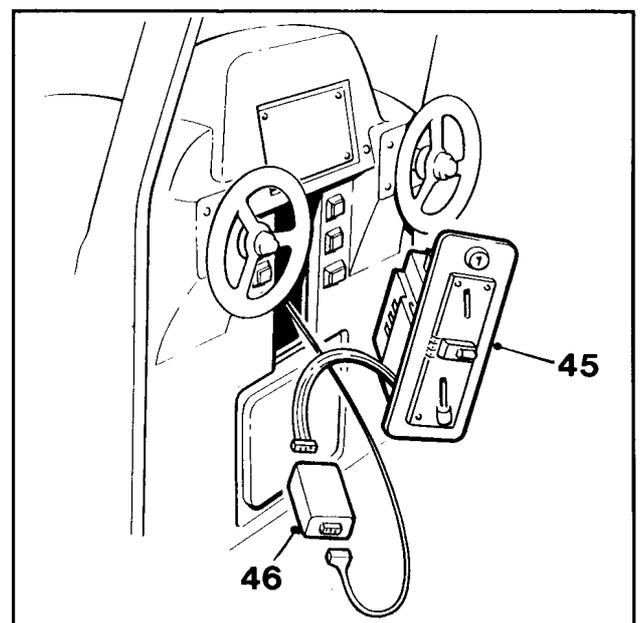
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit



The coin mechanism (45) is released by the use of a key. Once released, unplug the mechanism from the interface unit (46).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but two wires will need to be disconnected from the microswitch that is mounted on the coin mechanism.

For further details about the unit see the relevant coin mechanism section in this manual.



## Rolling Road

The rolling road (2) consists of a film wrapped around the inside of a transparent drum (50), which is illuminated from the inside by a bulb (51). The drum is rotated by the motor (52).

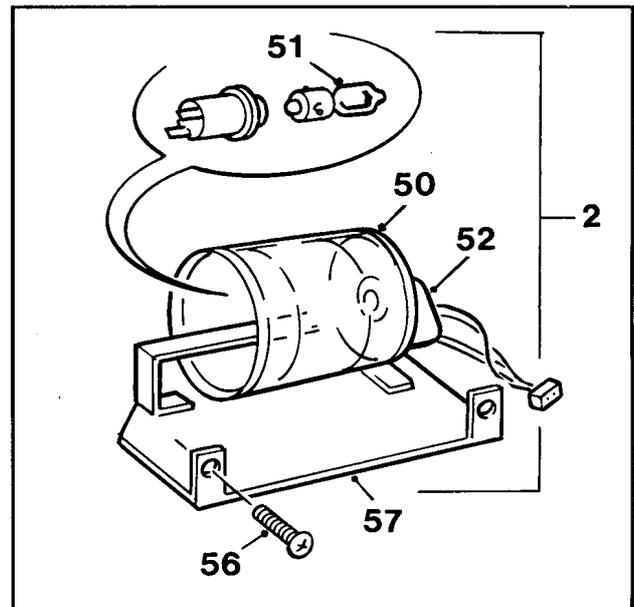
**Note:** *In the unlikely event of the motor failing, the heat from the bulb could melt the film.*

### Rolling Road: removal / replacing

Remove the screen (53) by releasing its fixing screws.

Remove the two screws (56) retaining the rolling road mounting bracket (57).

Manipulate the rolling road, complete with its bracket, down and out through the bottom of the toy.



### Rolling Road Film: replacement

To replacing the film, it is first necessary to remove the rolling road from the toy as described above.

The film is held in place within the drum (50) by a strip of double-sided adhesive tape.

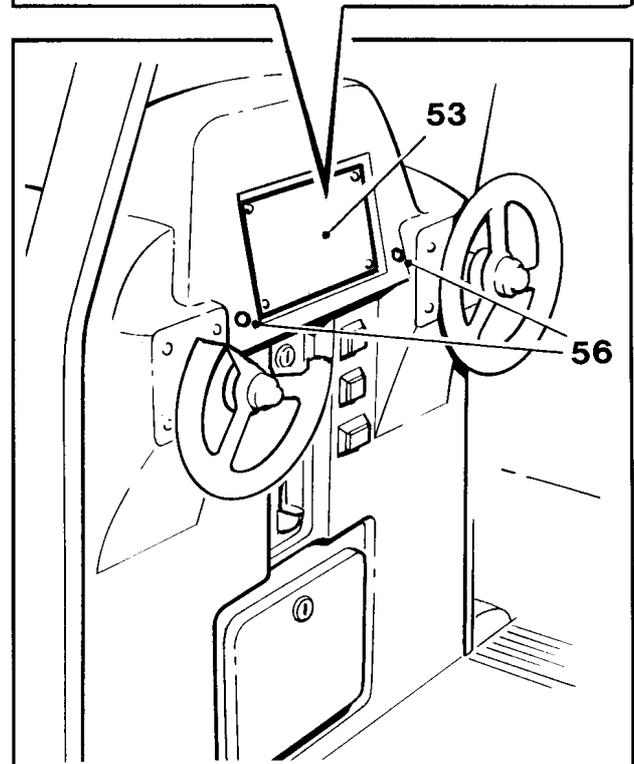
Peel the film free from the drum and slide it out. (Note the orientation of the film before removing it.)

Cut the new film to the same length as the old one.

Roll it and slide it into the drum, ensuring it is in the correct way around.

Fasten the film in place with double-sided adhesive tape.

Reassemble the drum and install rolling road back into the toy.



### Rolling Road Motor: replacement

**Note:** *There should never be a need to replace a rolling road motor, but if there was proceed as follows .....*

To replacing the rolling road motor, it is first necessary to remove the rolling road from the toy as previously described.

Remove the drum (50) from where it is attached to the drive shaft by loosening the two diagonally opposed screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

Remove the nuts and bolts that retain the motor/gearbox (52) and withdraw the complete assembly. (The motor and gearbox are replaced as a unit.)

Reassemble in the reverse order.

### Rolling Road Bulb: replacement

Remove the screen (53) by releasing its fixing screws.

Remove the drum (50) from where it is attached to the drive shaft by loosening the two diagonally opposed screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

*If it is not possible to pass the drum out through the screen aperture (53), move it backwards and rest it on top of the cash box liner.*

Remove and replace the bulb (51). Refit drum and screen.

### Start switch & Button switches

From the front the start switch & button switches appear to be different, but from the rear they are of identical construction.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

(The retainer (72) also has a micro-switch clipped to it.)

#### Bulb: replacement

Switch OFF the main power supply to the machine!

Gain access to the rear of the switches by removing coin mechanism (3).

Locate the bulb retainer (72) and pull it straight out of the switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

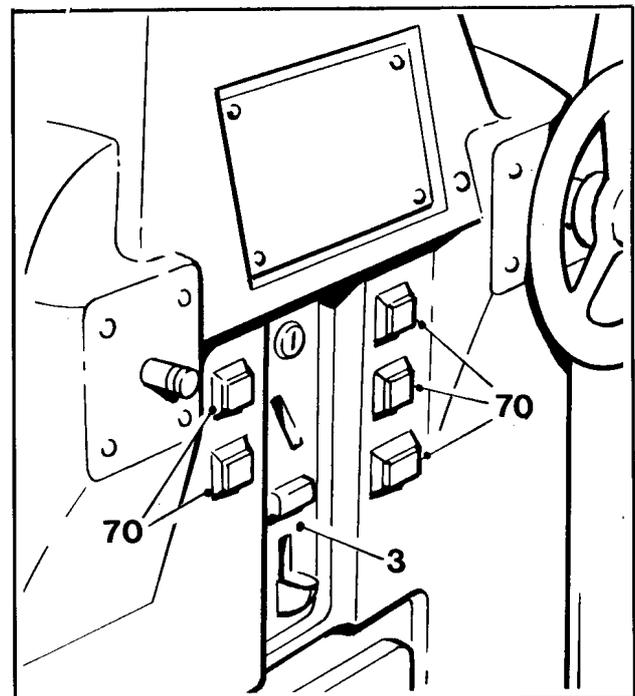
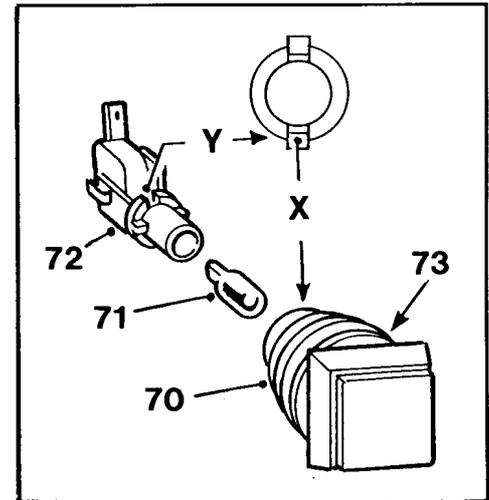
#### Start and Button switches: replacement:

Remove the bulb & retainer (72) as previously described.

Unscrew the locking ring (73) from the back of button switch.

Withdraw the button switch (70) from the console.

Reassemble in the reverse order.

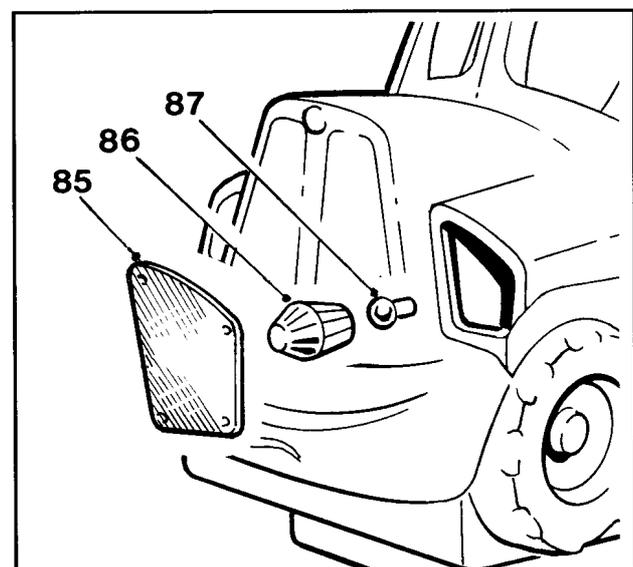


#### Headlamp bulb: removal / replacing

Remove the screws retaining the headlamp cover (85).

Pull the lens (86) from lamp. Replace bulb (87).

Reassemble in the reverse order.



# SERVICE MANUAL section 10.16

for

## *Captain Pugwash*

### Contents

|                             |              |
|-----------------------------|--------------|
| Customer operation of toy   | Page 10.16.1 |
| Emptying the cash box       | 10.16.2      |
| Alarm system (Where fitted) | 10.16.2      |
| Servicing                   | 10.16.3      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 162 cm |
| Width  | 88 cm  |
| Height | 140 cm |
| Weight | 140 kg |

### Customer operation of toy

'Captain Pugwash' is a two seater children's ride.

When the machine is connected to a live power supply (*but before a ride has been credited*), a teaser sound track repeats every 120 seconds, while the console button switches **(1)** flash constantly.

The ride is initiated by inserting a coin into the coin mechanism **(2)**.

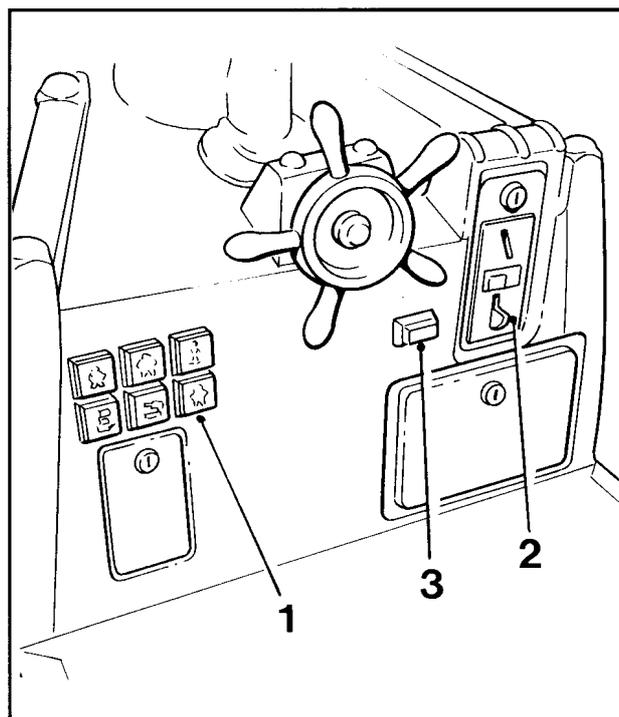
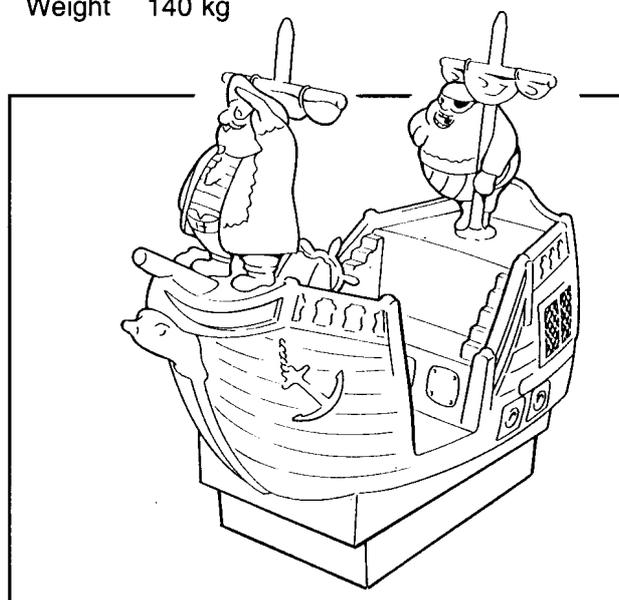
If the timer/controller (situated beneath the seat), has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button **(3)** will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button has been pressed, the toy will begin to move and a background sound will be heard.

Additional sound effects are available on pressing the buttons **(1)**.

When the pre-set duration of the ride has been reached, the toy will stop moving, and an oral message saying that the ride has finished will be given.



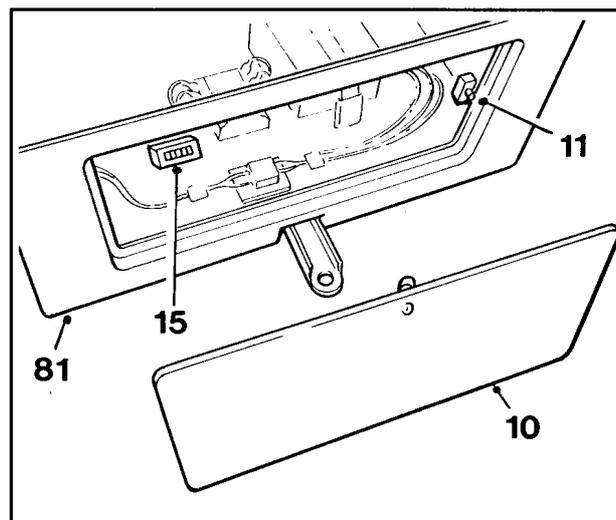
## Maintenance

### Base access panel

**WARNING** *Read safety instructions first.  
Disconnect electrical power before  
opening any access panels.*



The panel (10) at the rear of the base gives access to the coin counter, power supply unit and motor relay. Greater access can be gained by removing the glass fibre cover (81) from the base. (See Servicing)



### Alarm system: cancelling or disarming (where fitted)

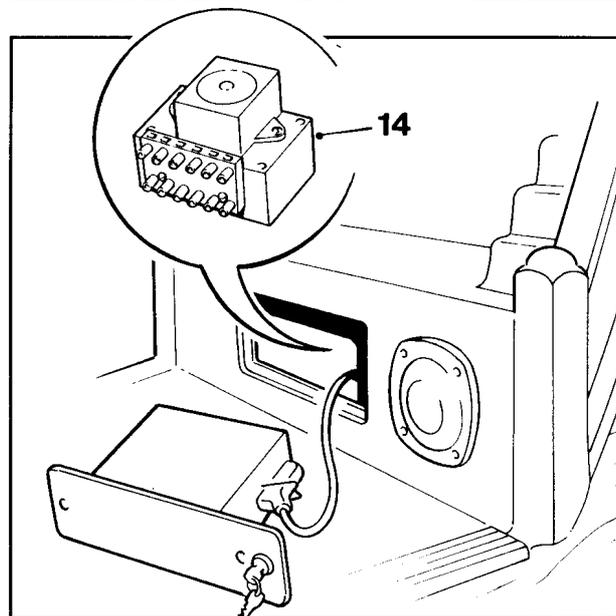
An alarm is fitted to protect the cash box.

The alarm is triggered by a micro-switch (9) that is operated when the cash box door (12) is opened.

To disarm, or cancel an already activated alarm, unlock and remove the base access panel (10), this operates the micro-switch (11) which disarms or cancels the alarm.

**Note:** The alarm is battery powered. Even with the ride disconnected from any mains power supply the alarm can still be activated.

To keep the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located in the alarm unit (14) which is situated beneath the seat.



### Emptying the cash box

*The cash box may be fitted with an alarm.*

Disarm the alarm (where fitted) as follows....

With the aid of a key, unlock and remove the base access panel (10). Removal of the panel (10) operates the micro-switch (11) which disarms the alarm. If after removing the base panel no micro-switch can be seen, then the ride has not been fitted with an alarm system.

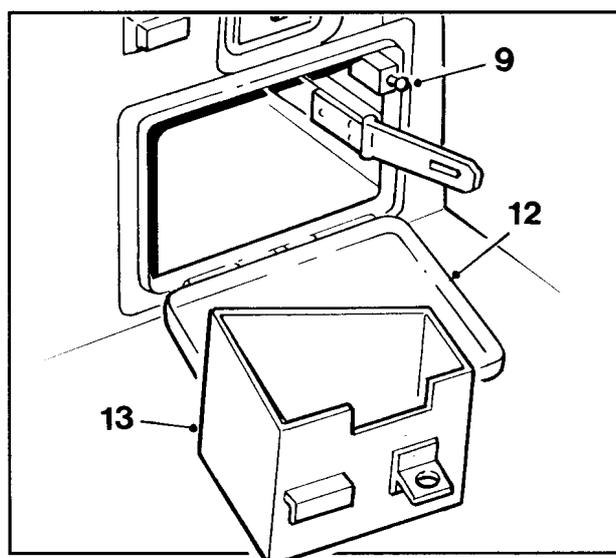
Once the alarm has been disarmed, unlock and open the cash box door (12) using the key.

Release the cash box (13) by removing the clip or padlock.

Slide the cash box out and empty.

Refit the cash box and replace the clip or padlock.

Close and lock the cash box door.



### Coin counter

The coin counter is situated either within the base unit (15), or inside the access door (16), see opposite page.

## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

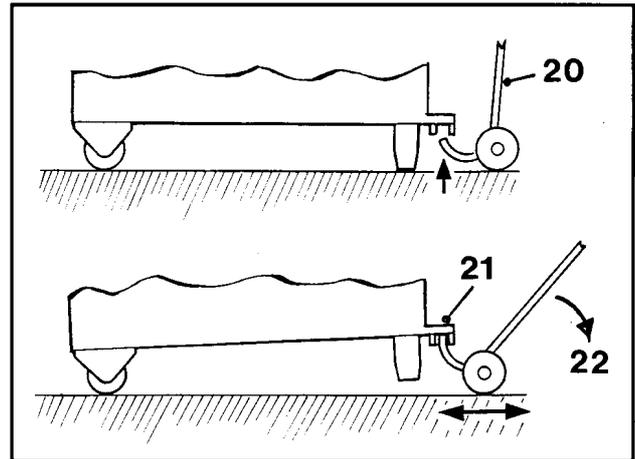


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine, is a towing eye. Insert the hook of the jack into the towing eye (21)

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



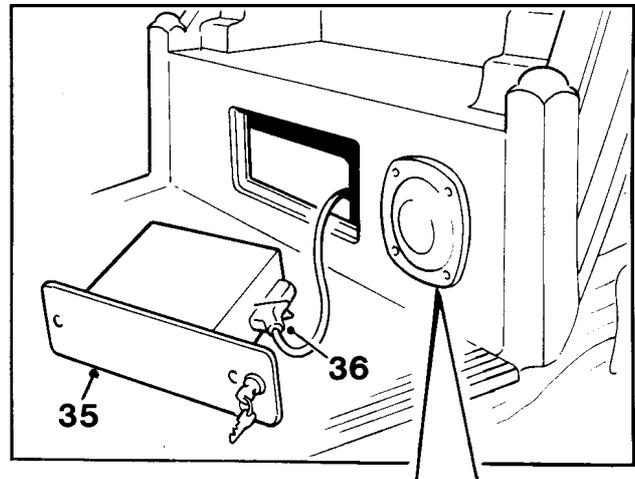
## Servicing

**WARNING** Read safety instructions first. Disconnect electrical power before opening any access panels.



### Timer/controller: removal / replacing

With the key, remove the timer/controller unit (35) and disconnect it from its plug (36).

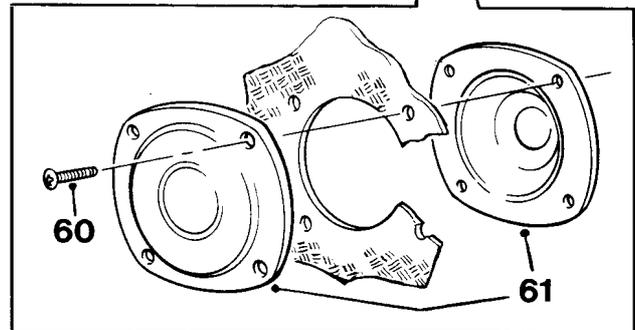


### Speaker: removal / replacing

Gain access to the rear of the speaker by unlocking and removing the timer/controller unit (35).

Remove the four screws (60) retaining the speaker (61). Disconnect the wires for the speaker.

Reassemble in the reverse order.



### Coin Mechanism: removal / replacing

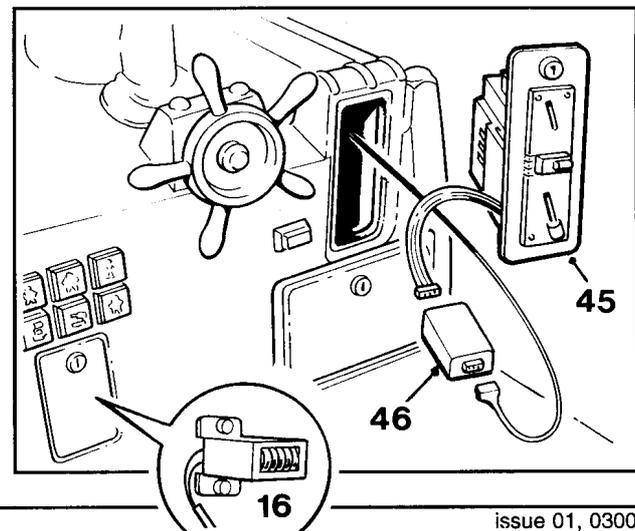
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit



The coin mechanism (45) is released by the use of a key. Once released, unplug the mechanism from the interface unit (46).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but two wires will need to be disconnected from the microswitch that is mounted on the coin mechanism.

For further details about the unit see the relevant coin mechanism section in this manual.



**Toy from base: removal / replacing**

If possible, place the complete machine onto a bench.

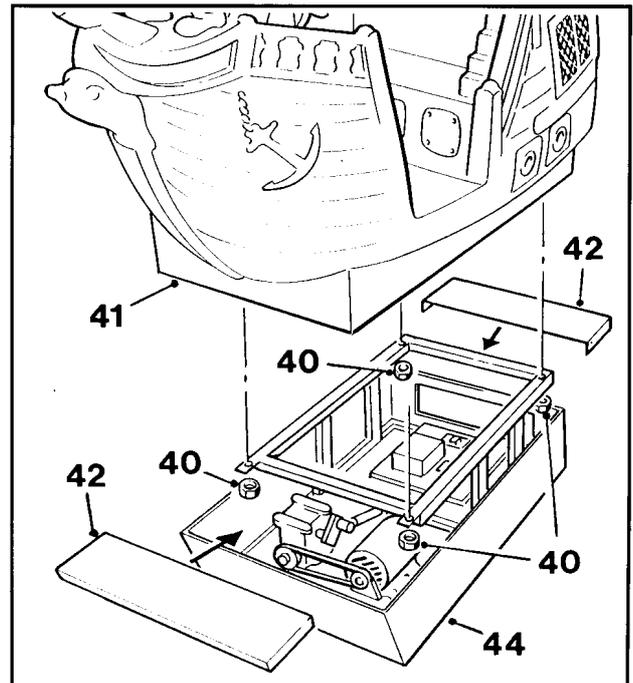
With the key, remove the timer/controller unit from under the seat and disconnect it from its plug (see previous page).

Under the seat is located a cable terminal block. Disconnect the terminal block by pulling its two halves apart. Push the base half of the terminal block through the hole in the floor of the toy.

The toy is fastened to the base sliding frame by four nuts. Remove these four nuts (40) making sure not to lose any washers that may be used.

Lift the toy (41) from the base.

Reassemble the toy to the base in the reverse order.

**Base cover: removal / replacing**

To remove the base cover it is first necessary to remove the toy. Do this as described above.

With the toy removed, remove the two top end covers (42).

Place on the floor a padded mat (43) large enough to take the base when it is laid on its side.

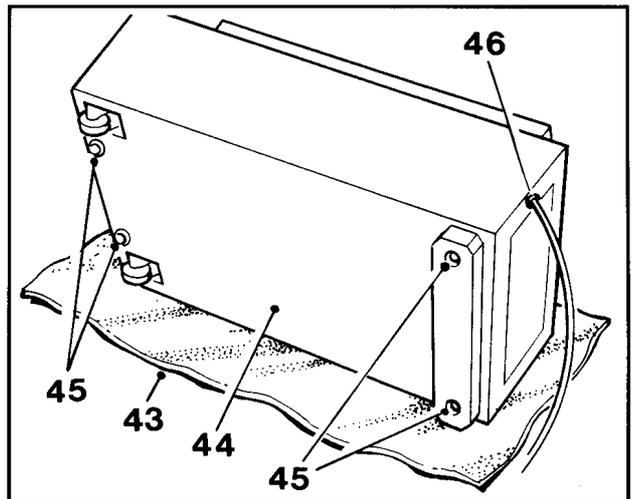
Carefully lay the base over onto the mat.

The glass fibre cover (44) is fastened to the base frame by four screws (45), remove these screws.

Release the power cable gland (46).

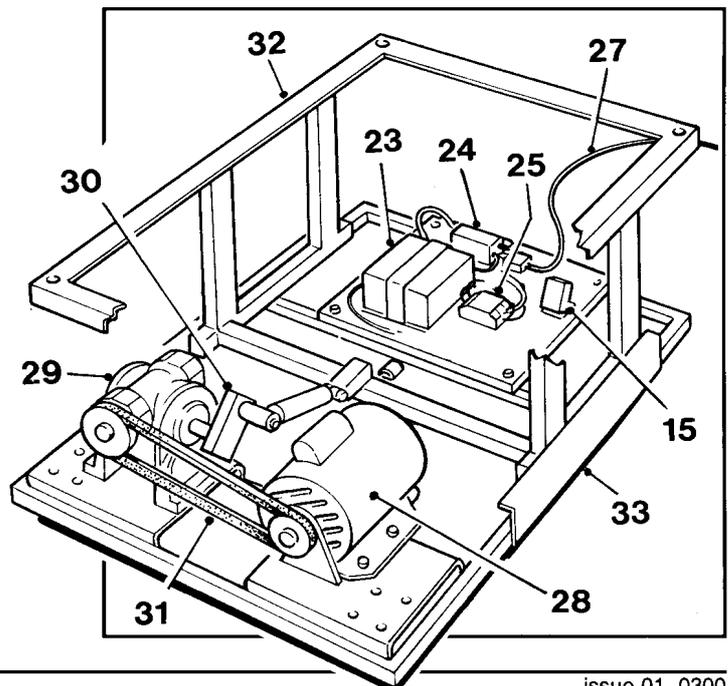
Pull the cover (44) clear of the base.

The base can now be stood upright.

**This gives access to:**

- Coin counter (15)
- Power supply (P.S.) unit (23)
- Mains filter (where fitted) (24)
- Solid state relay for motor (25)
- Mains power supply cable (27)
- Motor (28)
- Gearbox (29)
- Crank (30)
- Belt (31)
- Frame, sliding (32)
- Frame, base (33)

Reassemble the covers in the reverse order.



## Start switch & Button switches

From the front the start switch (3) & button switches (1) appear to be different, but from the rear they are of identical construction.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

(The retainer (72) also has a micro-switch clipped to it.)

### Bulb: replacement

Switch OFF the main power supply to the machine!

Gain access to the rear of the button switches (1) by removing the access panel (4), or to the rear of the start switch (3) by removing the coin mechanism (2).

Locate the bulb retainer (72) and pull it straight out of the switch. *The retainer is a tight fit and will require some effort to pull out.*

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. *The tabs (X) of the switch must align with the slots (Y) of the retainer.* Push firmly on the retainer until it is heard to click into place.

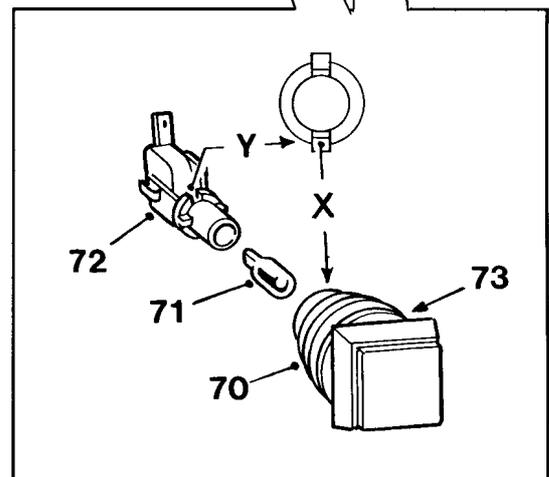
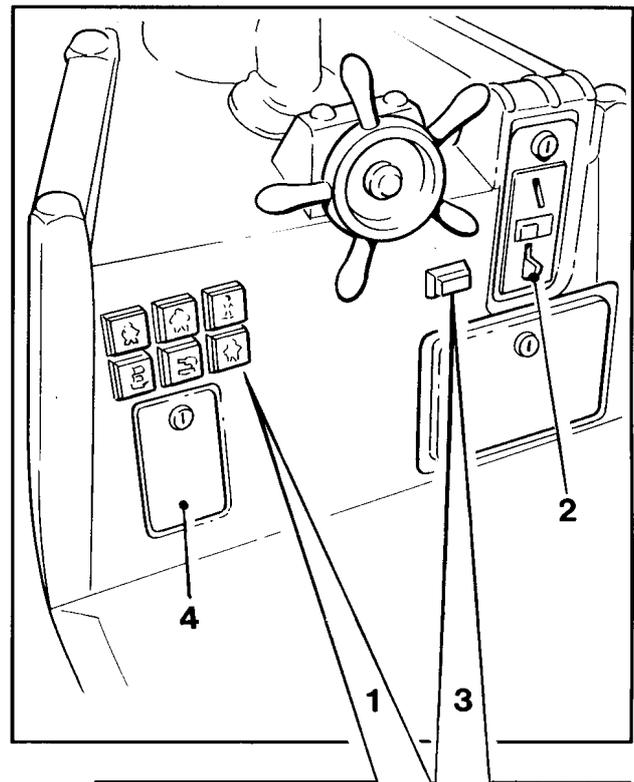
### Start and Button switches: replacement:

Remove the bulb & retainer (72) as previously described.

Unscrew the locking ring (73) from the back of button switch.

Withdraw the button switch (70) from the console.

Reassemble in the reverse order.



# SERVICE MANUAL section 10.17

for

## Coast Watch

### Contents

|                             |              |
|-----------------------------|--------------|
| Customer operation of toy   | Page 10.17.1 |
| Emptying the cash box       | 10.17.2      |
| Alarm system (Where fitted) | 10.17.2      |
| Servicing                   | 10.17.3      |

### Weight & Dimensions

|        |         |
|--------|---------|
| Length | 163 cm  |
| Width  | 76 cm   |
| Height | 109 cm  |
| Weight | 99.5 kg |

### Customer operation of toy

'Coast Watch' is a two seater children's ride.

When the machine is connected to a live power supply (*but before a ride has been credited*), a teaser sound track repeats every 120 seconds, while the console button switches **(1)** flash constantly.

The ride is initiated by inserting a coin into the coin mechanism **(2)**.

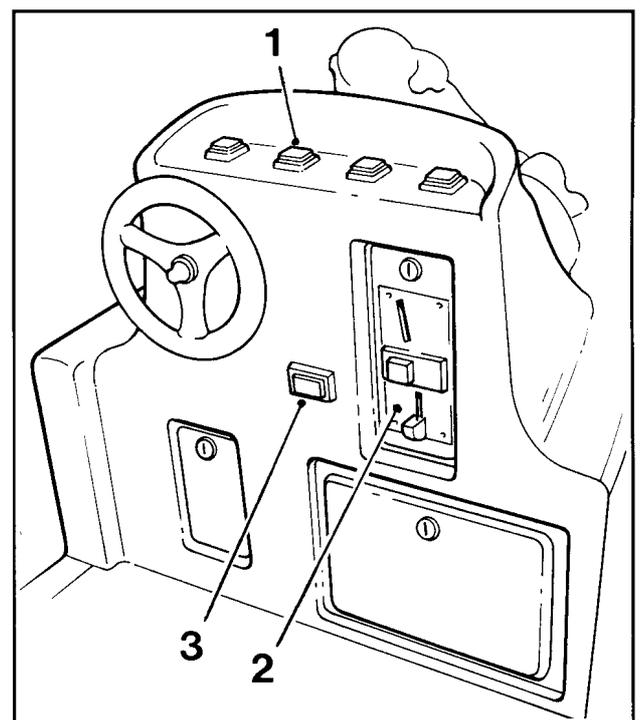
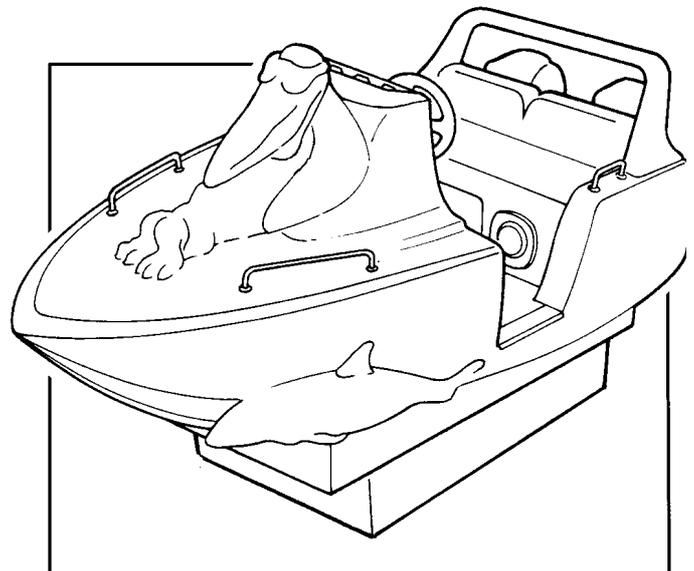
If the timer/controller (situated beneath the seat), has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button **(3)** will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button has been pressed, the toy will begin to move and a background sound will be heard.

Additional sound effects are available on pressing the buttons **(1)**.

When the pre-set duration of the ride has been reached, the toy will stop moving, and an oral message saying that the ride has finished will be given.



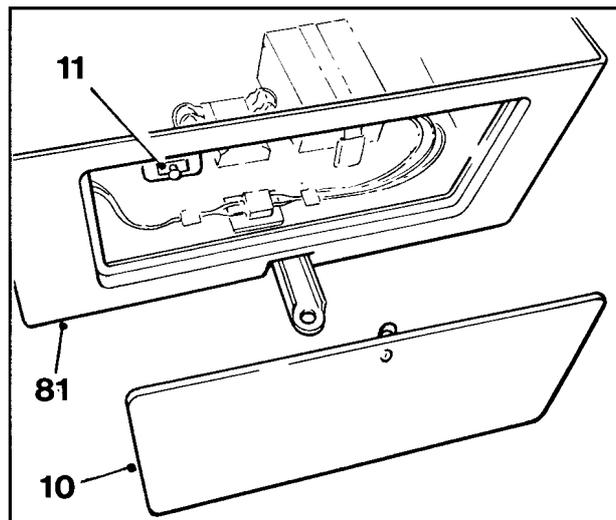
## Maintenance

### Base access panel

**WARNING** *Read safety instructions first.  
Disconnect electrical power before  
opening any access panels.*



The panel (10) at the rear of the base gives access to the power supply unit, motor relay and mains filter (where fitted). Greater access can be gained by removing the glass fibre cover (81) from the base. (See Servicing)



### Alarm system: cancelling or disarming (where fitted)

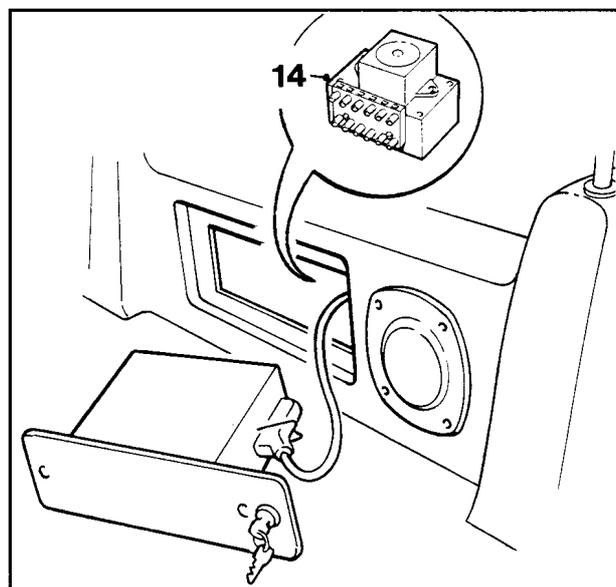
An alarm is fitted to protect the cash box.

The alarm is triggered by a micro-switch (9) that is operated when the cash box door (12) is opened.

To disarm, or cancel an already activated alarm, unlock and remove the base access panel (10), this operates the micro-switch (11) which disarms or cancels the alarm.

**Note:** The alarm is battery powered. Even with the ride disconnected from any mains power supply the alarm can still be activated.

To keep the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located in the alarm unit (14) which is situated beneath the seat.



### Emptying the cash box

*The cash box may be fitted with an alarm.*

Disarm the alarm (where fitted) as follows....

With the aid of a key, unlock and remove the base access panel (10). Removal of the panel (10) operates the micro-switch (11) which disarms the alarm. If after removing the base panel no micro-switch can be seen, then the ride has not been fitted with an alarm system.

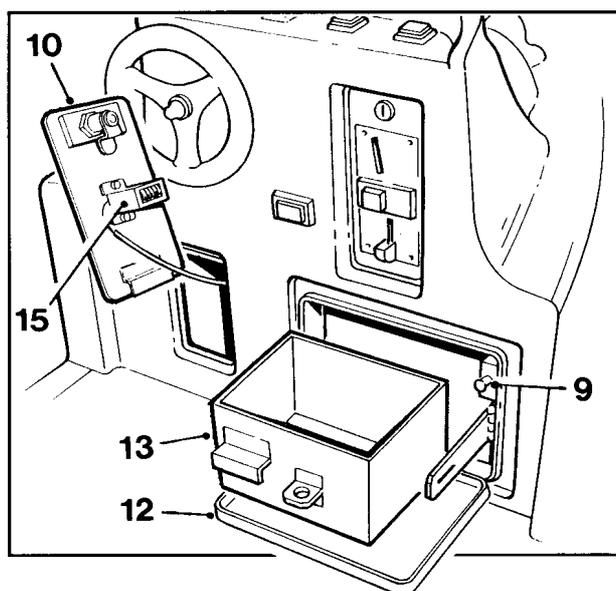
Once the alarm has been disarmed, unlock and open the cash box door (12) using the key.

Release the cash box (13) by removing the clip or padlock.

Slide the cash box out and empty.

Refit the cash box and replace the clip or padlock.

Close and lock the cash box door.



### Coin counter

The coin counter (15) is accessed by removing panel (10) with a key.

## Transportation

**WARNING** *Read Safety section of this manual, and disconnect electrical power before moving the machine.*

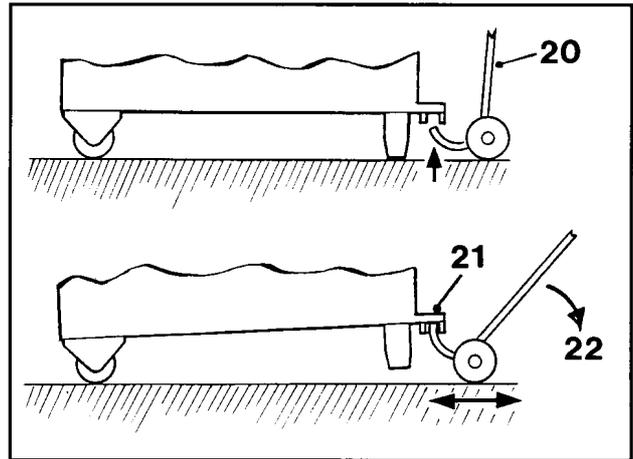


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine, is a towing eye. Insert the hook of the jack into the towing eye (21)

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



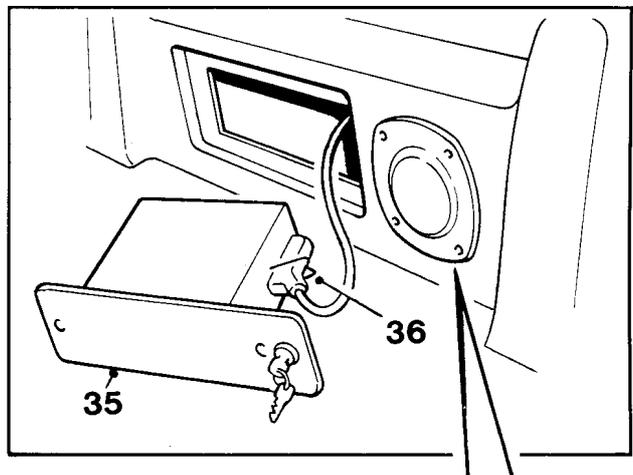
## Servicing

**WARNING** *Read safety instructions first. Disconnect electrical power before opening any access panels.*



### Timer/controller: removal / replacing

With the key, remove the timer/controller unit (35) and disconnect it from its plug (36).

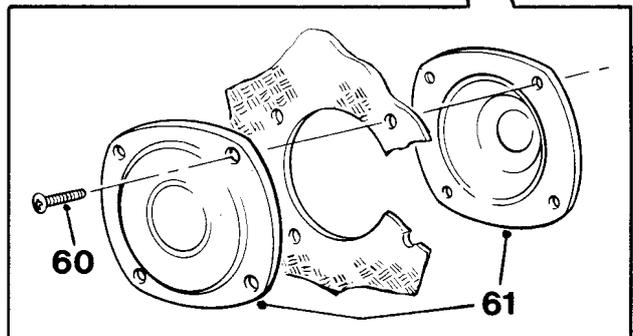


### Speaker: removal / replacing

Gain access to the rear of the speaker by unlocking and removing the timer/controller unit (35).

Remove the four screws (60) retaining the speaker (61). Disconnect the wires for the speaker.

Reassemble in the reverse order.



### Coin Mechanism: removal / replacing

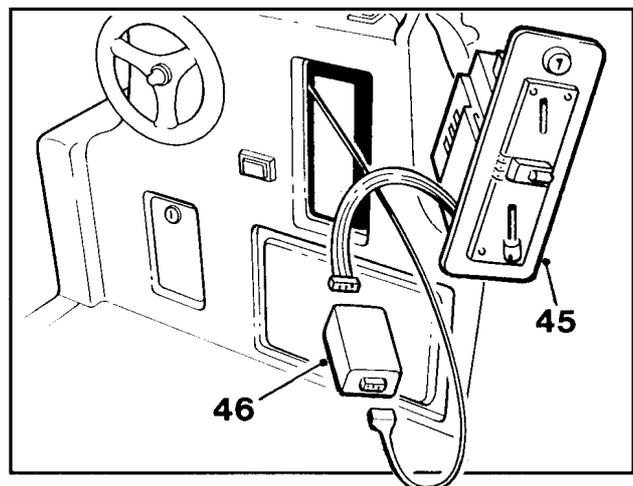
**WARNING** *Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit*



The coin mechanism (45) is released by the use of a key. Once released, unplug the mechanism from the interface unit (46).

**Note:** *If a mechanical coin mechanism is fitted there will be no interface, but two wires will need to be disconnected from the microswitch that is mounted on the coin mechanism.*

For further details about the unit see the relevant coin mechanism section in this manual.



**Toy from base: removal / replacing**

If possible, place the complete machine onto a bench.

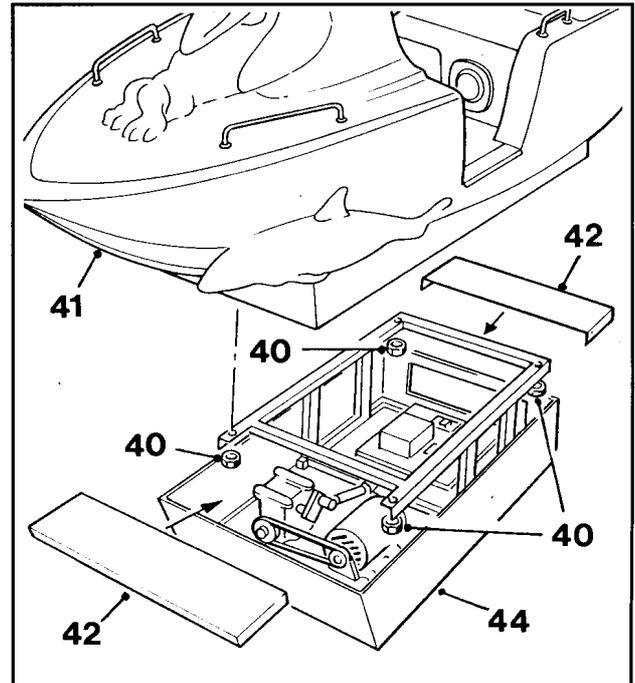
With the key, remove the timer/controller unit from under the seat and disconnect it from its plug (see previous page).

Under the seat is located a cable terminal block. Disconnect the terminal block by pulling its two halves apart. Push the base half of the terminal block through the hole in the floor of the toy.

The toy is fastened to the base sliding frame by four nuts. Remove these four nuts (40) making sure not to lose any washers that may be used.

Lift the toy (41) from the base.

Reassemble the toy to the base in the reverse order.

**Base cover: removal / replacing**

To remove the base cover it is first necessary to remove the toy. Do this as described above.

With the toy removed, remove the two top end covers (42).

Place on the floor a padded mat (43) large enough to take the base when it is laid on its side.

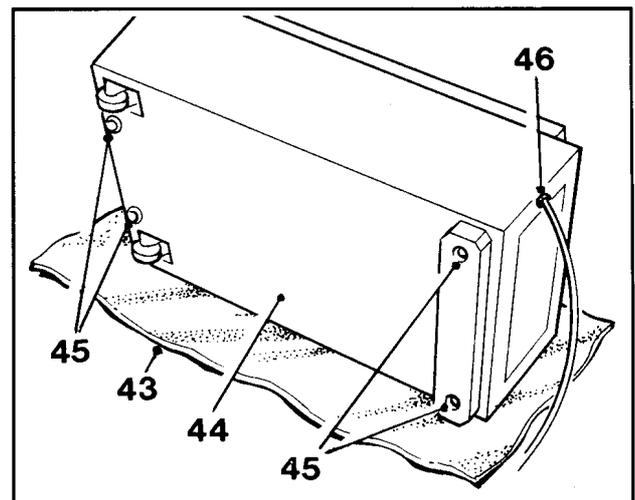
Carefully lay the base over onto the mat.

The glass fibre cover (44) is fastened to the base frame by four screws (45), remove these screws.

Release the power cable gland (46).

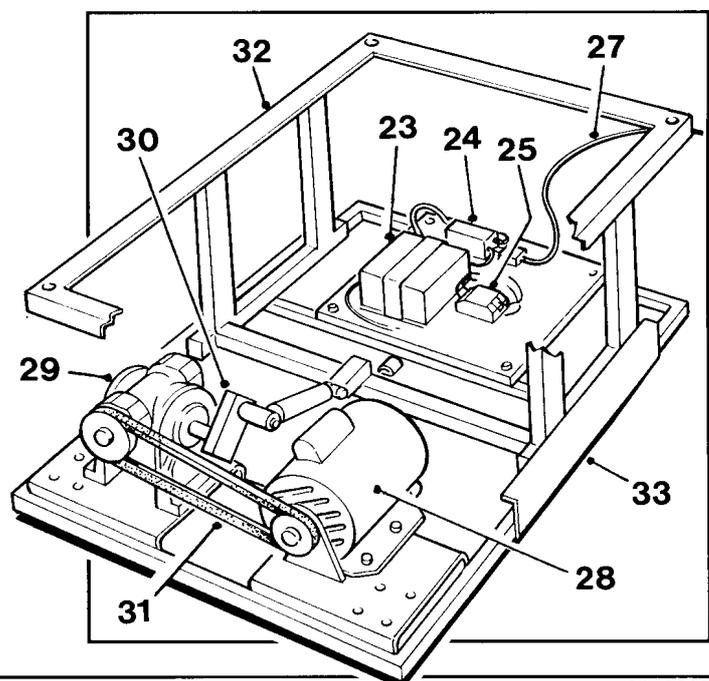
Pull the cover (44) clear of the base.

The base can now be stood upright.

**This gives access to:**

- Power supply (P.S.) unit (23)
- Mains filter (where fitted) (24)
- Solid state relay for motor (25)
- Mains power supply cable (27)
- Motor (28)
- Gearbox (29)
- Crank (30)
- Belt (31)
- Frame, sliding (32)
- Frame, base (33)

Reassemble the covers in the reverse order.



## Start switch & Button switches

From the front the start switch (3) & button switches (1) appear to be different, but from the rear they are of identical construction.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

(The retainer (72) also has a micro-switch clipped to it.)

### Bulb: replacement

Switch OFF the main power supply to the machine!

Gain access to the rear of the switches by removing the coin mechanism (2).

Locate the bulb retainer (72) and pull it straight out of the switch. *The retainer is a tight fit and will require some effort to pull out.*

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

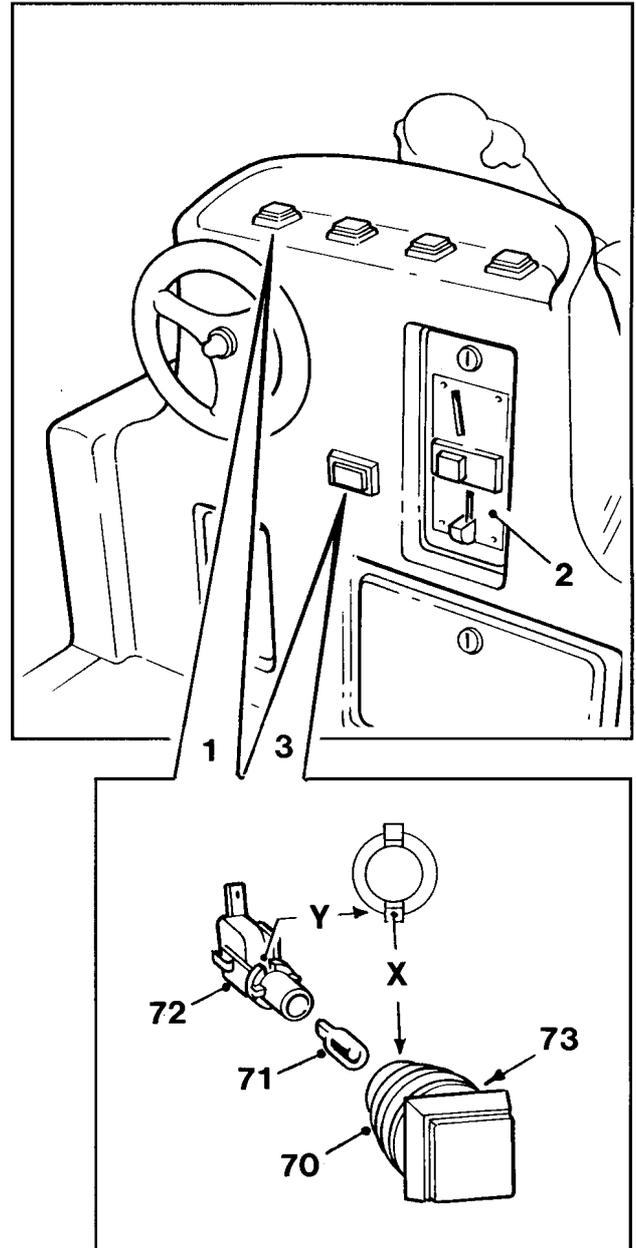
### Start and Button switches: replacement:

Remove the bulb & retainer (72) as previously described.

Unscrew the locking ring (73) from the back of button switch.

Withdraw the button switch (70) from the console.

Reassemble in the reverse order.



# SERVICE MANUAL section 10.18

for

## *Hank's Ice Cream & Hotdog Vans*

### Contents

|                                      |              |
|--------------------------------------|--------------|
| Customer operation of toy            | Page 10.18.1 |
| Emptying the cash box                | 10.18.2      |
| Alarm system ( <i>Where fitted</i> ) | 10.18.2      |
| Servicing                            | 10.18.3      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 145 cm |
| Width  | 82 cm  |
| Height | 145 cm |
| Weight | 125 kg |

### Description

'Hank's Ice Cream Van' and 'Hank's Hotdog Van' are two rides that are basically of the same construction both mechanically and electronically

The only differences between the two rides are the display graphics, sounds and trim of the toys.

### Customer operation of toy

Whilst the machine is connected to a live power supply (*but before a ride has been credited*) the interior panels and button switches flash constantly. A teaser sound track repeats every 120 seconds.

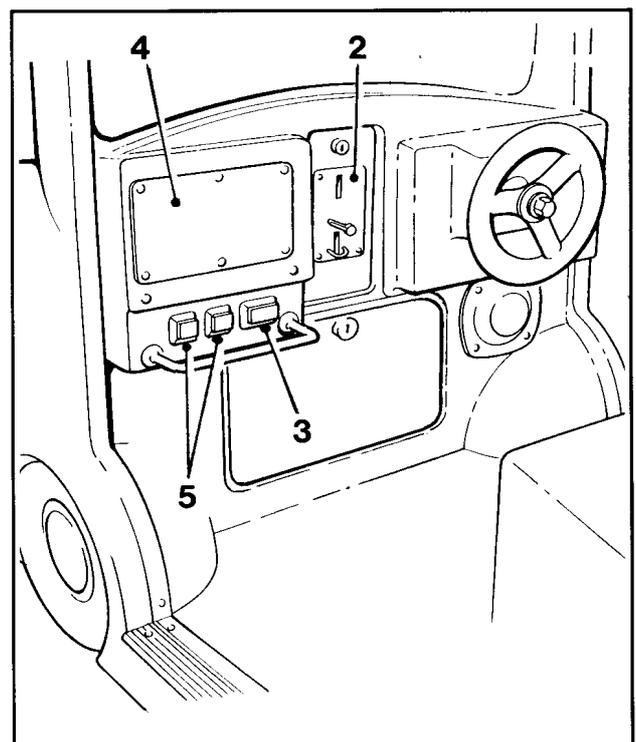
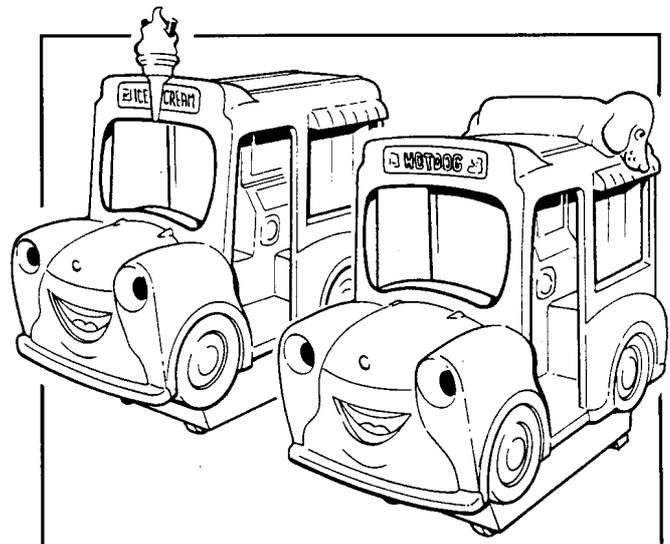
The ride is initiated by inserting a coin into the coin mechanism (2).

If the timer/controller (situated beneath the seat), has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button (3) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button (3) has been pressed the toy will begin to move backwards and forwards on its base. Whilst in motion a constant background sound will be heard.

The dashboard of the van displays a rolling road (4) and sound effects are available on pressing the coloured button switches (5).

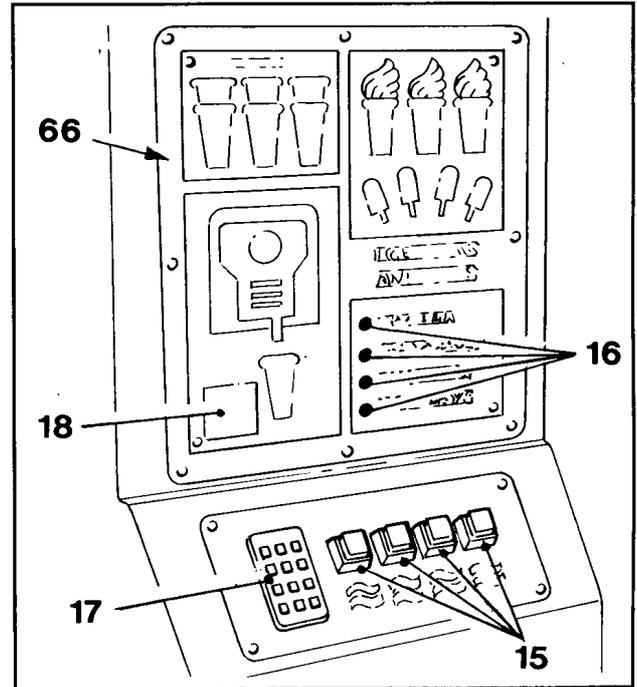


In the rear of the toy is an interactive display (66) with screen and button switches.

By pressing buttons (15) the corresponding pictures above will illuminate, accompanied by one of the lights (16), and also an oral message

The keypad (17), when pressed, displays random figures on the screen (18), accompanied by a beeping sound.

When the pre-set duration of the ride has been reached, the toy will stop moving, and an oral message saying that the ride has finished will be given.



## Maintenance

**WARNING** Read safety instructions first.  
Disconnect electrical power before opening any access panels.



### Alarm System

#### labelling Cancellling or disarming (where fitted)

An alarm is fitted to protect the cash box.

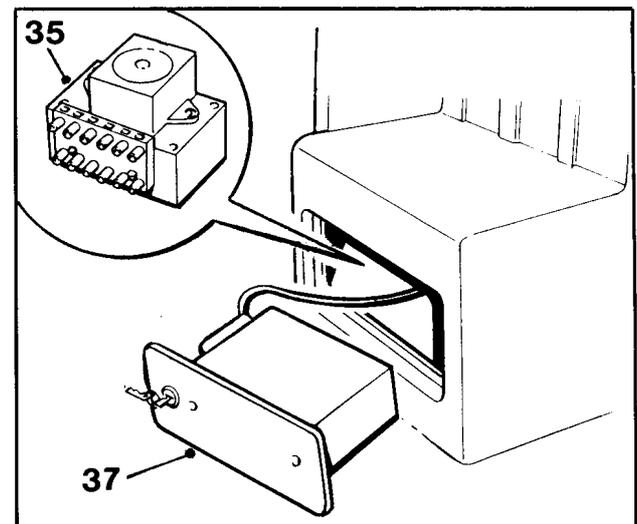
The alarm unit (35) is usually to be found beneath the seat, behind the control unit (37), but on some models it may be situated within the base unit.

The alarm is triggered by a micro-switch (2) that is released when the cash box door (1) is opened.

To disarm, or cancel an already activated alarm, open the base access panel (60) (see opposite page). This deactivates micro-switch (61) that is depressed by the panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

To maintain the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located within the base of the alarm unit.



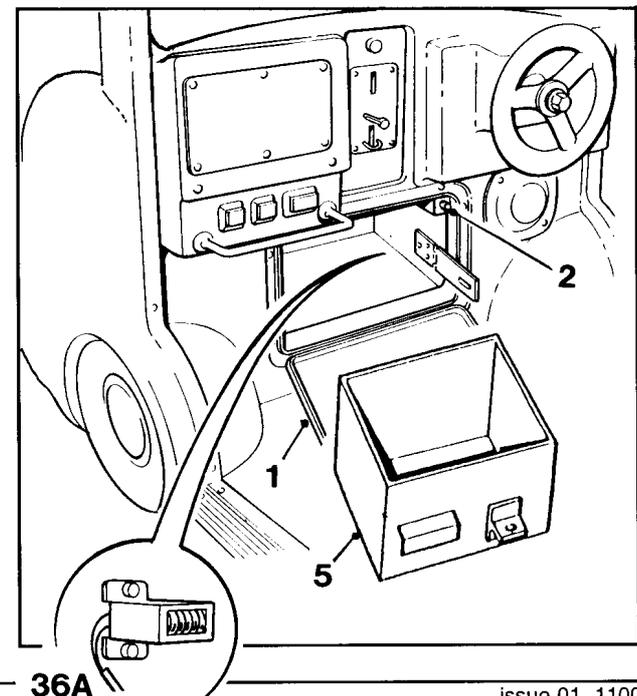
### Emptying the cash box

The cash box may be fitted with an alarm.

Disarm the alarm (where fitted) by opening the base access panel (60). This deactivates a micro-switch (61).

Unlock and open the cash box door (1). Release the cash box (5) by removing the clip or padlock. Slide the cash box out and empty.

Refit in the reverse order.



### Credit counter

The credits counter (36A) is situated within the cash box compartment. (On some machines it may be found inside the base unit)

## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

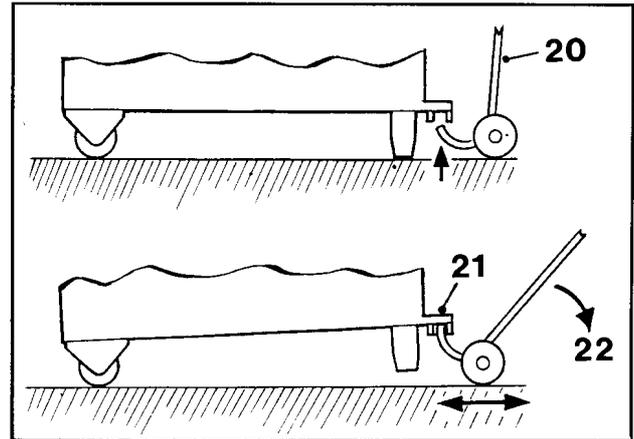


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



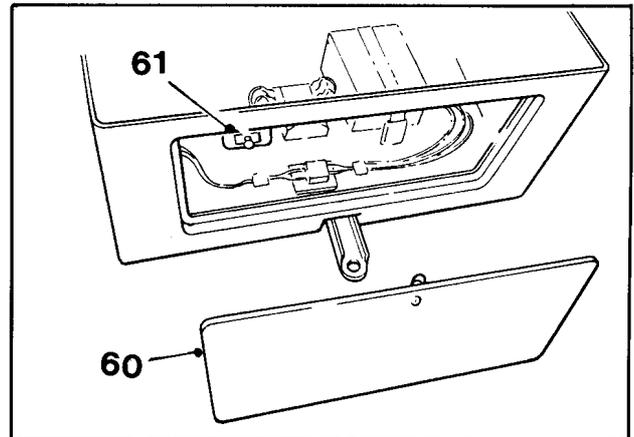
## Servicing

**WARNING** Read safety instructions first. Disconnect electrical power before opening any access panels.



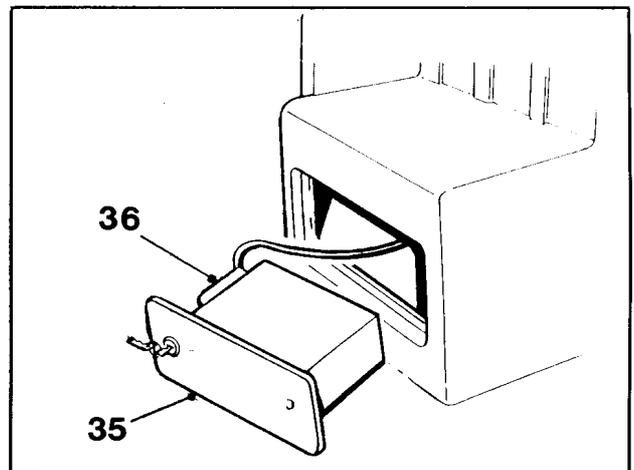
### Base access panel

The panel (60) at the rear of the base will give access for servicing the P.S. unit, and relays. Greater access can be gained by removing the glass fibre cover from the base. (See following;)



### Timer/controller: removal / replacing

With the key, remove the timer/controller unit (35) and disconnect it from its plug (36).



### Toy from base: removal / replacing

If possible, place the complete machine onto a bench.

With the key, remove the timer/controller unit (35) from under the seat and disconnect it from its plug (36).

Under the seat, located a cable terminal block. Disconnect the terminal block by pulling its two halves apart. Push the base half of the terminal block through the hole in the floor of the toy.

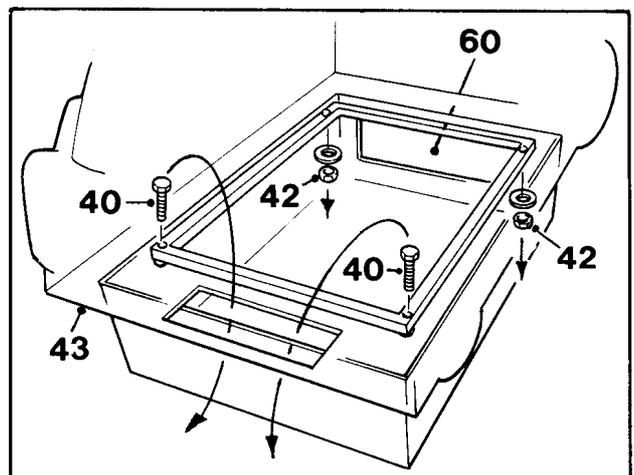
Via the access panel under the front of the toy, remove the two front bolts (40). (The bolts are screwed into captive nuts welded to the sliding frame.)

Remove from the base the rear panel (60).

From inside the rear of the base, remove the nuts (42) from the rear bolts.

Lift the toy (43) from the base.

Reassemble the toy to the base in reverse order.



**Base cover: removal / replacing**

Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap

Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

Release the power cable gland (4).

The glass fibre cover (31) is fastened to the base frame by four screws (32).

Remove the four screws (32).

Pull the cover (31) clear of the machine.

The machine can now be stood upright.

**This gives access to:**

Gearbox (50)

Belt (51)

Motor (52)

Crank (53)

Power supply (P.S.) unit (54)

Solid state relay, motor (55)

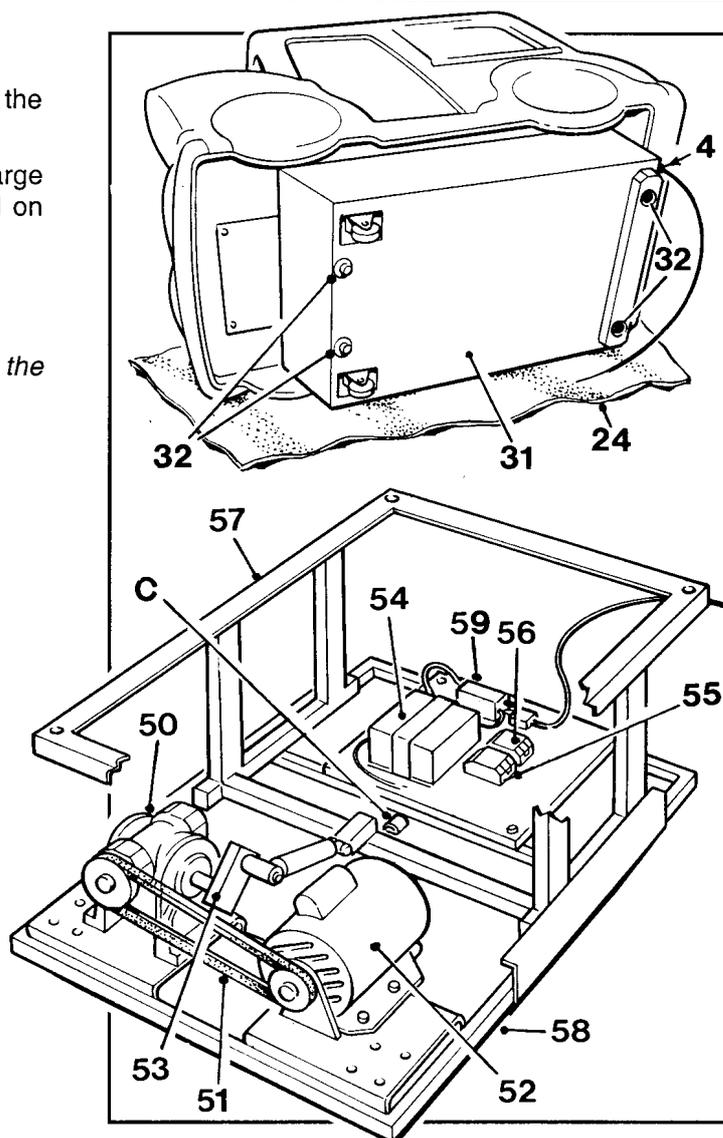
Solid state relay, rolling road (56)

Frame, sliding (57)

Frame, base (58)

Mains filter (where fitted) (59)

Refit cover in the reverse order.

**Speaker: removal / replacing**

When removing the speaker it is necessary to extract it through the floor of the toy, as follows:

Start the toy into motion so that it is moving backwards and forwards. When the toy is at its farthest point forward, switch off the main power supply.

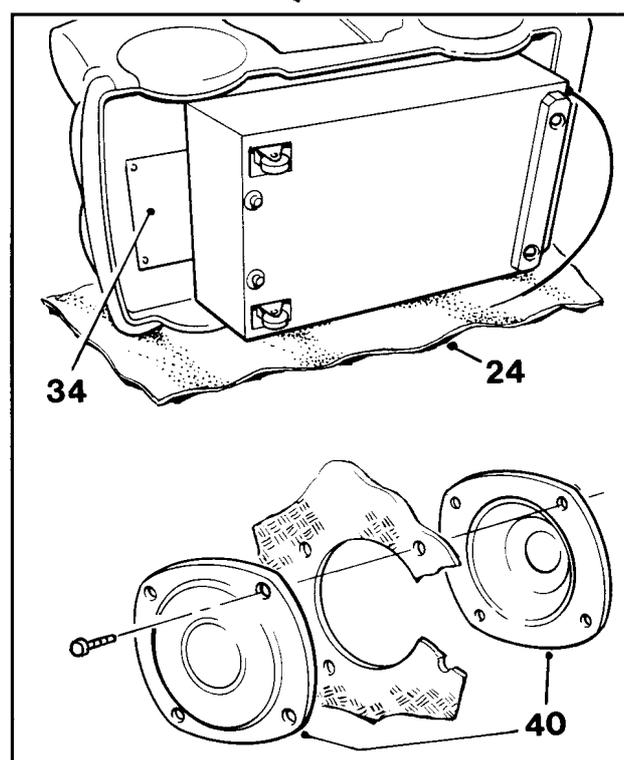
Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side. Carefully lay the machine down on the mat.

Remove the panel (34).

From within the cab, remove the four screws that retain the speaker (40). Disconnect the speaker cables.

Extract the speaker through the floor panel opening (34).

Reassemble in the reverse order.



## Rolling Road

The rolling road (26) consists of a film wrapped around the inside of a transparent drum (27), which is illuminated from the inside by a bulb (28). The drum is rotated by the motor (29).

**Note:** Should the motor fail, the heat from the bulb could melt the film.

### Replacing the Bulb

Remove the screen (25) by releasing its fixing screws.

At the motor end of the drum, where it attaches to the drive shaft, loosen the two diagonally opposed screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

Remove/replace the bulb (28). Refit drum and screen.

### Replacing the Rolling Road Motor or 'Road' film

To replace the rolling road motor or 'road' film it is necessary to remove the complete rolling road assembly (26) as follows.....

Start the toy into motion so that it is moving backwards and forwards. When the toy is at its farthest point forward, switch off the main power supply.

Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side. Carefully lay the machine down on the mat.

Remove the panel (33).

Release any rolling road cables from their clips down the forward face of the console.

Remove the two screws (30) supporting the rolling road.

Extract the complete rolling road assembly through the opening (33).

Remove the drum (27) from where it is attached to the drive shaft by loosening the two diagonally opposed screws.

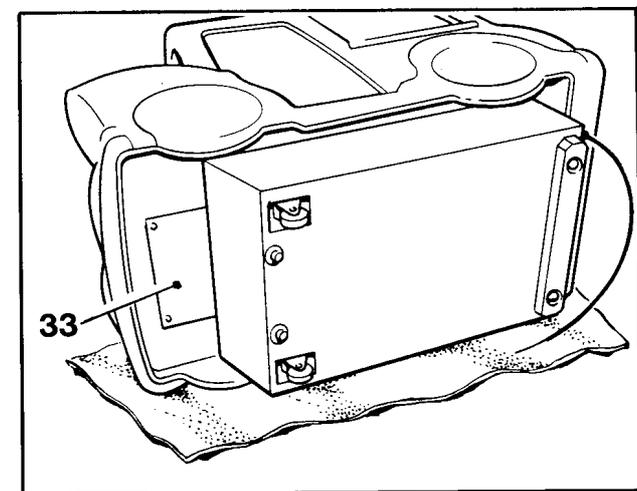
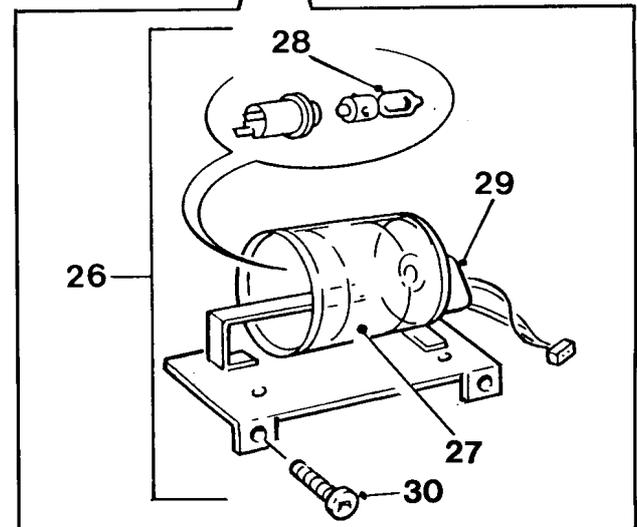
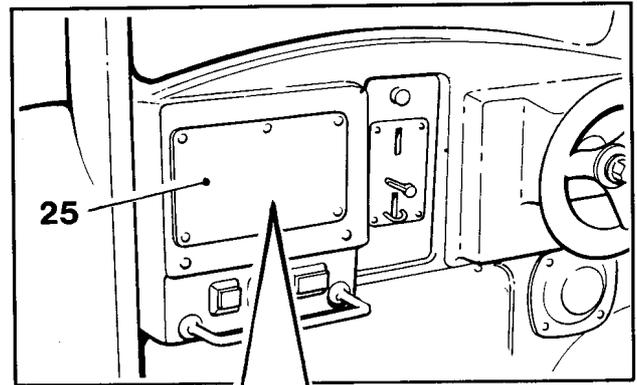
Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

**'Road' Film:** The film is held in place within the drum (27) by double-sided adhesive tape.

Peel the film free from the adhesive tape and slide it out. (*Note the orientation of the film before removing it.*)

Cut the new film to the same length as the old one.

Roll it and slide it into the drum, ensuring it is in the correct way around.



Fasten the film in place with adhesive tape.

Re-assemble the drum and refit the assembly back into the console.

### Rolling Road motor

**Note:** There should never be a need to replace a Rolling Road Motor, but if there was proceed as follows .....

Remove the drum as previously described. Remove the nuts and bolts that retain the motor/gearbox (29) and withdraw the complete assembly. (*The motor and gearbox are replaced as a unit.*)

### Activity display

**Note:** The accompanying descriptions and pictures refer to "Hank's Ice Cream Van", however the technical content is equally relevant to "Hank's Hotdog Van".

#### Electronics panel: removal / replacing

Remove the screws (65) retaining the screen (66).

This gives access to the electronics attached to the rear of the display i.e.,

#### Till Driver PCB (68) containing.....

The volume control (G) for the display.

2 amp fuse (H) for rear sounds.

#### U2 Lights Board (67) containing .....

2 amp fuse (I) for lighting the ice cream display and the three ice cream cones. (Any other lights are flashed by the Timer/Control Unit.)

#### Picture bulbs: removal / replacing

Remove the screws (65) retaining the display screen (66).

Remove the front of the display (69) from its base board (70). This gives access to the bulbs.

Replace the bulb (71).

Re-fit the display screen.

### Key pad & Button Switches

Gain access to the rear of the key pad (17) and button switches (15) by removing the lower panel (72).

Remove and replace the button switches (15) as described on the opposite page.

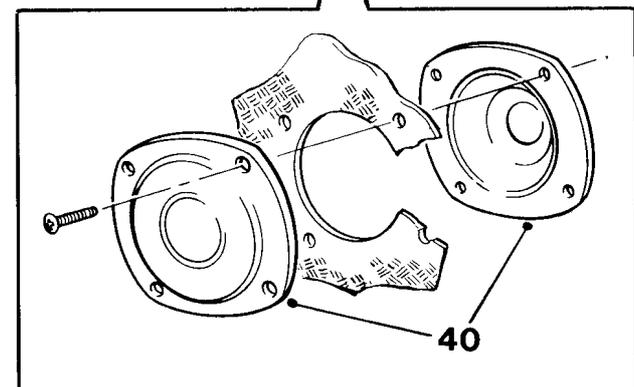
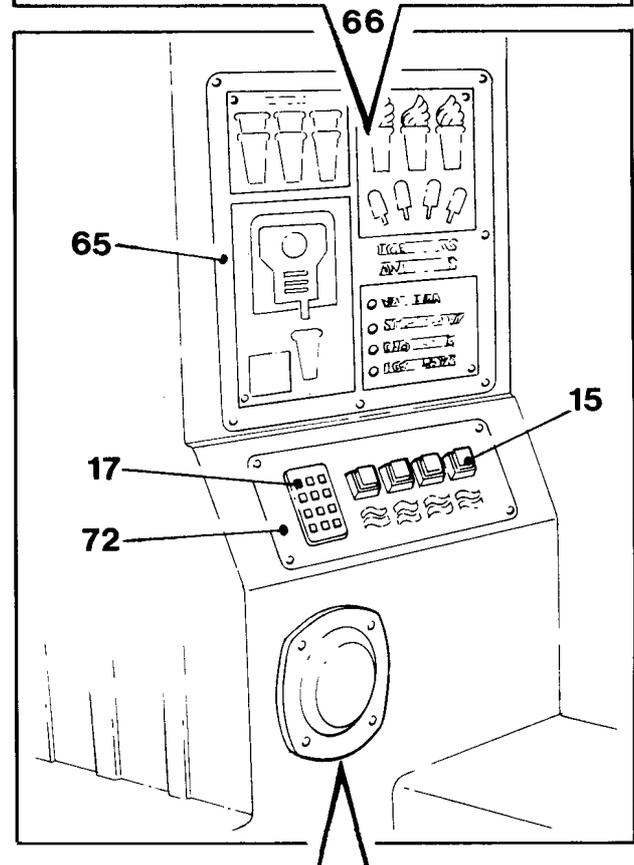
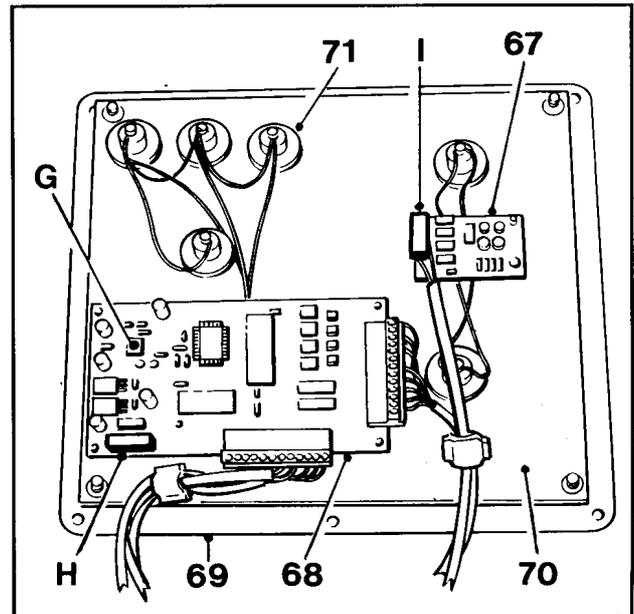
### Rear Speaker

Gain access to the rear of the speaker by removing the lower panel (72).

Unscrew the four screws retaining the speaker (40). Disconnect the speaker cables.

Extract the speaker through panel opening (72).

Reassemble in the reverse order.



## Coin Mechanism: removal / replacing

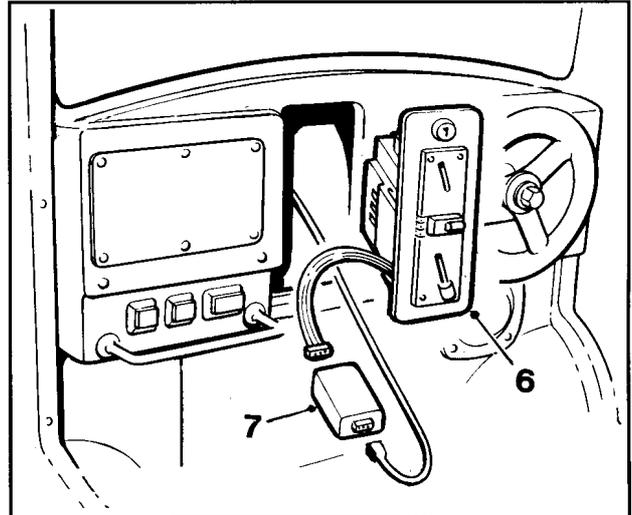
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit.



The coin mechanism (6) is released by the use of a key (5). Once released, unplug the mechanism from the interface unit (7).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a micro-switch.

For further details about the unit see the relevant coin mechanism section in this manual.



## Start switch & Button switches

From the front the start switch (3) & button switches (5) appear to be different, but from the rear they are of identical construction.

The switches (10) are illuminated by a bulb (11). The bulb is mounted within a snap-in retainer (12) that is pushed into the back of the switch.

(The retainer (12) also has a micro-switch clipped to it.)

### Bulb: replacement

Switch OFF the main power supply to the machine!

Gain access to the rear of the switches by removing the coin mechanism (6). (As described above).

Locate the bulb retainer (12) and pull it straight out of the switch. The retainer is a tight fit and will require some effort to pull out.

Pull the bulb (11) from the retainer (12) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. The tabs (X) of the switch must align with the slots (Y) of the retainer. Push firmly on the retainer until it is heard to click into place.

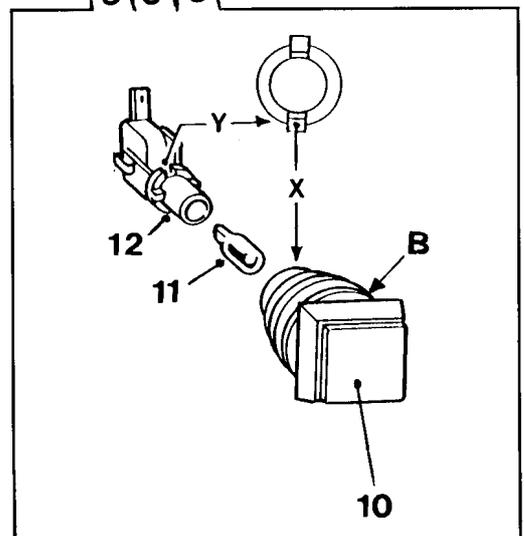
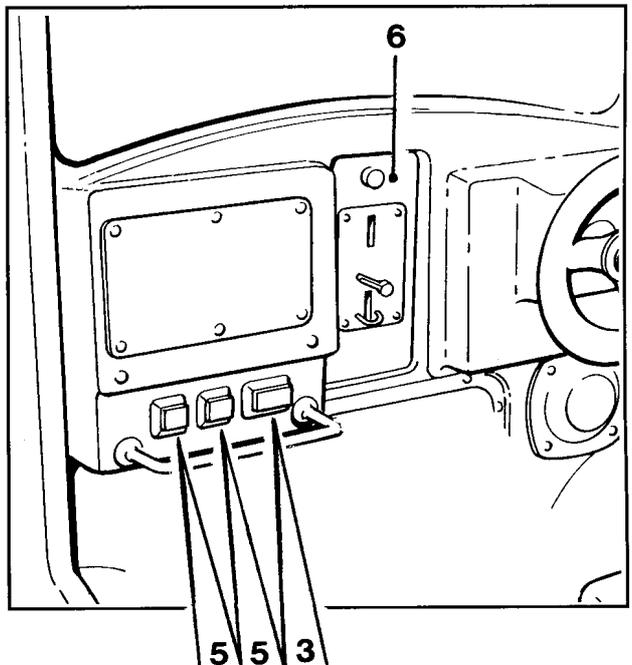
### Start and Button switches: replacement:

Remove the bulb & retainer (12) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the button switch (10) from the console.

Reassemble in the reverse order.



# SERVICE MANUAL section 10.19

for

## *School Bus & Bus Story Teller*

### Contents

|                             |              |
|-----------------------------|--------------|
| Customer operation of toy   | Page 10.19.1 |
| Emptying the cash box       | 10.19.2      |
| Alarm system (where fitted) | 10.19.2      |
| Servicing                   | 10.19.3      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 124 cm |
| Width  | 61 cm  |
| Height | 124 cm |
| Weight | 75 kg  |

### Description

The **School Bus** and the **Bus Story Teller** are two rides that are basically of the same construction. The main differences between the two models are the operation of the sound button switches (2) and the installation of a rolling road screen (5).

### Customer operation of toys

Whilst the machine is connected to a live power supply (*but before a ride has been credited*) the headlights (1) and the interior button switches (2) (*on the School Bus*) flash constantly. A teaser attraction sound track repeats every 120 seconds.

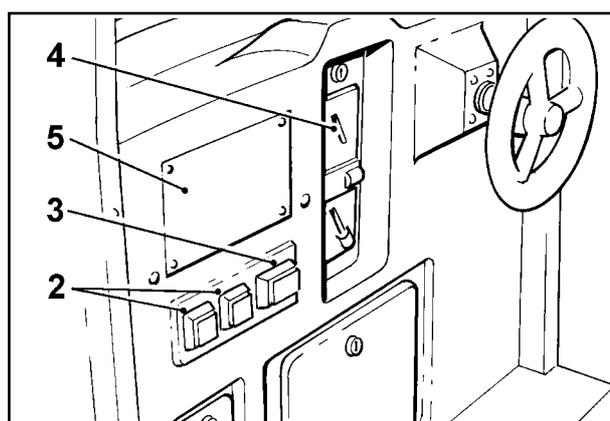
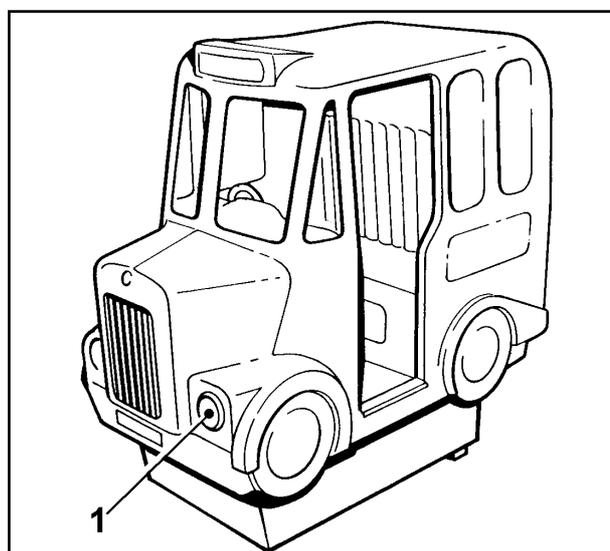
The ride is initiated by inserting a coin into the coin mechanism (4).

If the timer/controller (*situated beneath the seat*), has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button (3) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button (3) has been pressed the toy will begin to move backwards and forwards on its base. Whilst in motion a constant background sound will be heard.

The dashboard of the School Bus displays a rolling road (5) and sound effects are available on pressing the coloured button switches (2).



The Bus Story Teller has no rolling road, but is fitted with six large button switches (7).

Immediately that the start button (3) has been pressed, one of the button switches (7) will flash and an accompanying sound is heard. When another button is randomly pressed, the flashing and sound of the first button will stop, as the second button begins its sequence.

When the duration of the ride has been reached, the toy will stop moving, and an oral message will be given saying that the ride has finished.

## Maintenance

**WARNING** Read safety instructions first and disconnect electrical power before opening any access panels.



### Alarm System

#### Cancelling or disarming (where fitted)

An alarm is fitted to protect the cash box.

The alarm unit (12) is usually to be found beneath the seat, behind the control unit (13), but on some models it may be situated within the base unit.

The alarm is triggered by a micro-switch (14) that is released when the cash box door (15) is opened.

To disarm, or cancel an already activated alarm, open the base access panel (10). This deactivates micro-switch (11) that is depressed by the panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

To maintain the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located within the base of the alarm unit.

#### Emptying the cash box

The cash box may be fitted with an alarm.

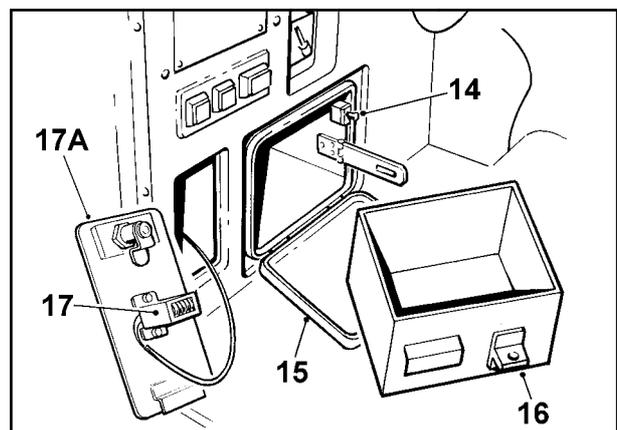
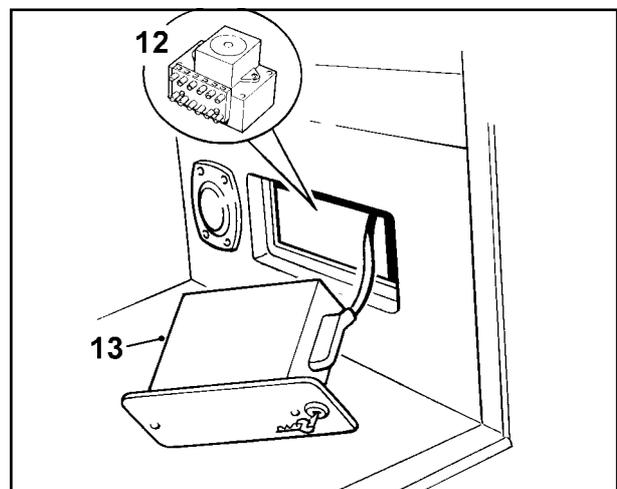
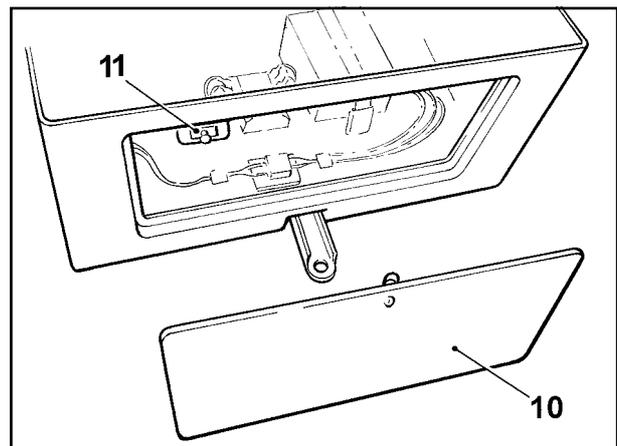
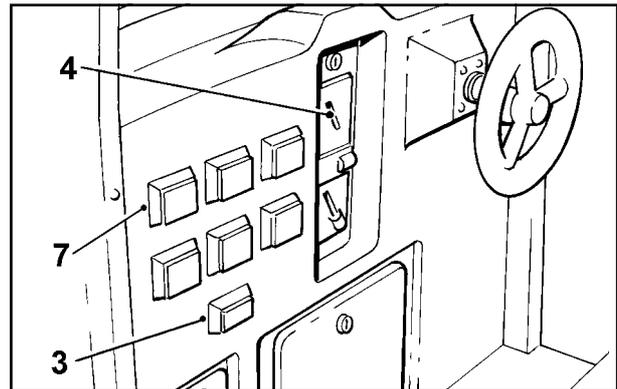
Disarm the alarm (where fitted) by opening the base access panel (10). This deactivates a micro-switch (11).

Unlock and open the cash box door (15). Release the cash box (16) by removing the clip or padlock. Slide the cash box out and empty.

Refit in the reverse order.

#### Credits counter

The credits counter (17) is attached to the rear of the access panel (17A). (On some machines the counter may be found either inside the base unit or in the cash box compartment.)



## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

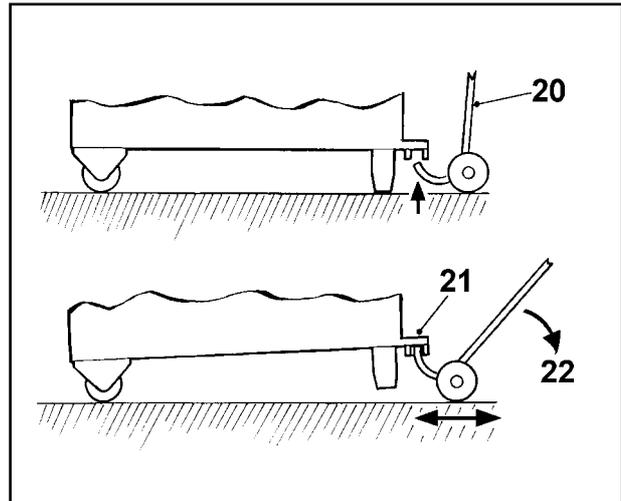


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



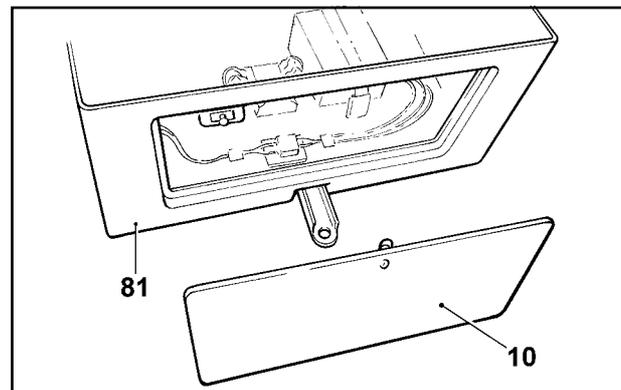
## Servicing

**WARNING** Read safety instructions first and disconnect electrical power before opening any access panels.



### Base access panel

The panel (10) at the rear of the base will give access for servicing the P.S. unit, and relays. Greater access can be gained by removing the glass fibre cover (81) from the base. (See page 10.19.5)



### Timer/controller: removal / replacing

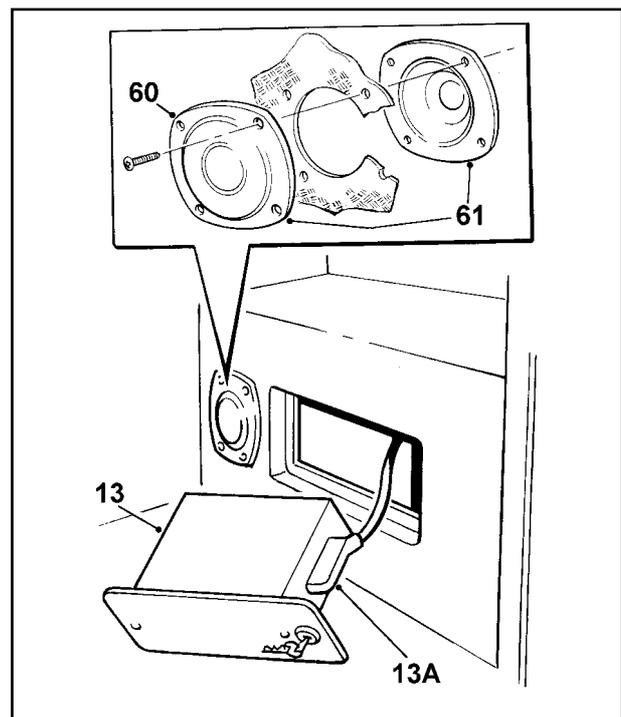
With the key, remove the timer/controller unit (13) and disconnect it from its plug (13A).

### Speaker: removal / replacing

Gain access to the rear of the speaker by unlocking and removing the timer/controller unit (13).

Remove the four screws (60) retaining the speaker (61). Disconnect the wires from the speaker.

Reassemble in the reverse order.



### Coin Mechanism: removal / replacing

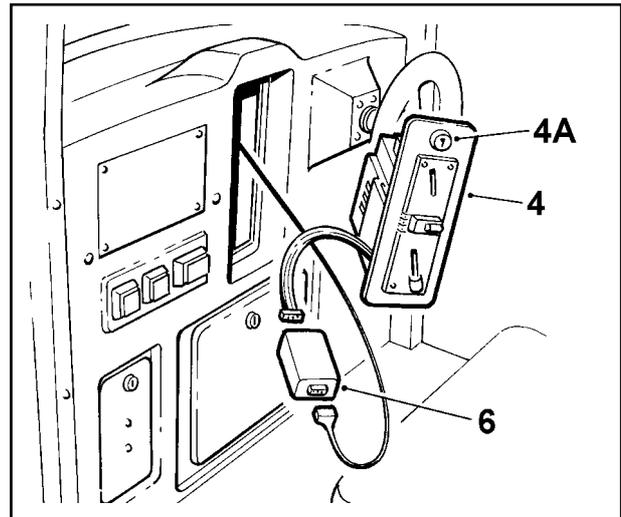
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit.



The coin mechanism (4) is released by the use of a key (4A). Once released, unplug the mechanism from the interface unit (6).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a micro-switch.

For further details about the unit see the relevant coin mechanism section in this manual.



### Start switch & Button switches

From the front the start switch (3) & button switches (2 & 7) appear to be different, but from the rear they are of identical construction.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

(The retainer (72) also has a micro-switch clipped to it.)

#### Bulb: replacement

Switch OFF the main power supply to the machine!

Gain access to the rear of the switches by removing the coin mechanism (4), (as described above).

Locate the bulb retainer (72) and pull it straight out of the switch. The retainer is a tight fit and will require some effort to pull out.

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

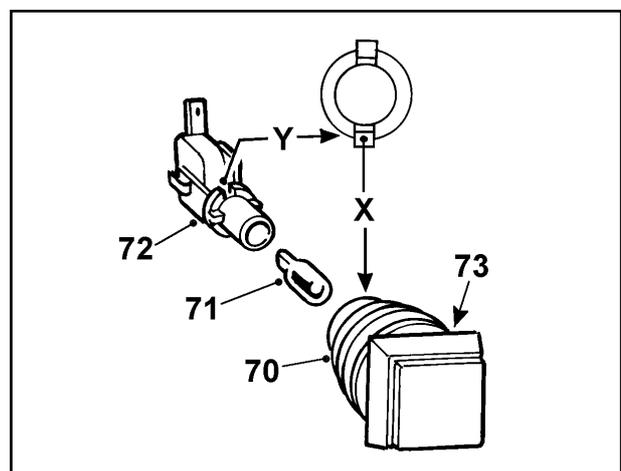
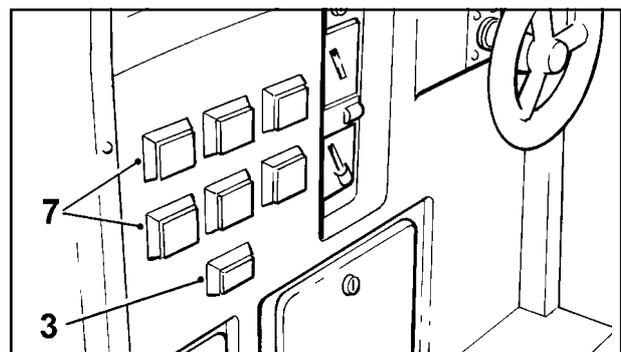
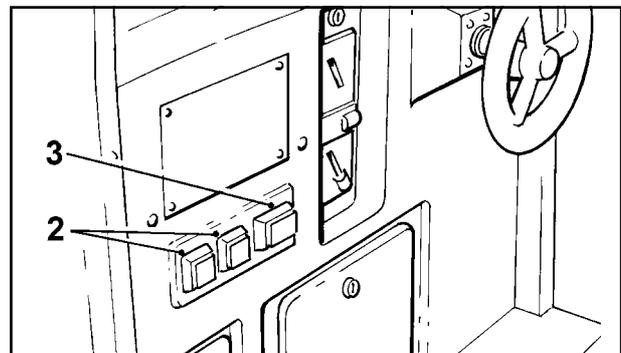
#### Start and Button switches: replacement

Remove the bulb & retainer (72) as previously described.

Unscrew the locking ring (73) from the back of button switch.

Withdraw the button switch (70) from the console.

Reassemble in the reverse order.



## Base cover: removal / replacing

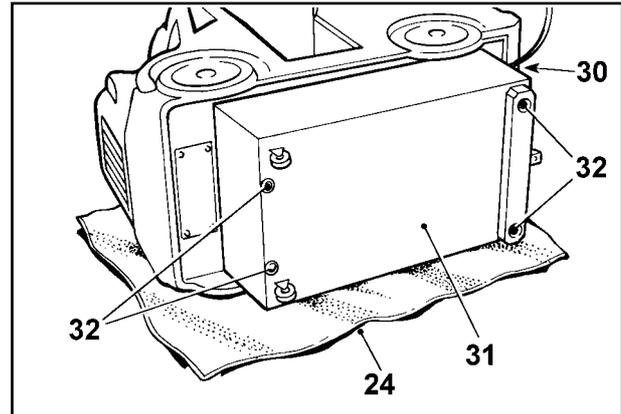
Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap. Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat. Release the power cable gland (30).

The glass fibre cover (31) is fastened to the base frame by four screws (32).

Remove the four screws (32).

Pull the cover (31) clear of the machine. The machine can now be stood upright.



### This gives access to:

Gearbox (50)

Belt (51)

Motor (52)

Crank (53)

Power supply (P.S.) unit (54)

Solid state relay, motor (55)

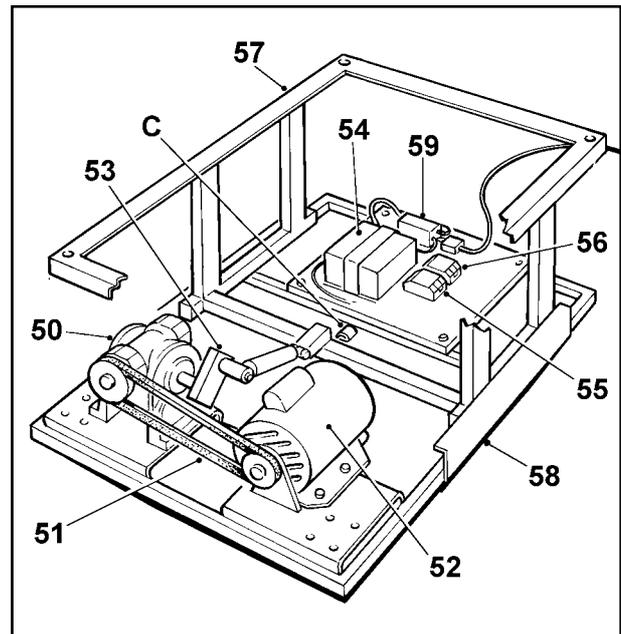
Solid state relay, rolling road (56)

Frame, sliding (57)

Frame, base (58)

Mains filter (where fitted) (59)

Refit cover in the reverse order.



## Toy from base: removal / replacing

If possible, place the complete ride on a work bench.

Remove the front (38) and rear covers (39).

To give access to the front retaining nuts (40), move the toy forwards either by using its own motor power or by manually turning the gearbox belt (51).

Remove the front nuts (40) from under the sliding frame. (They are fastened onto screws that are captivated on the underside of the toy.)

Remove the rear access cover (41).

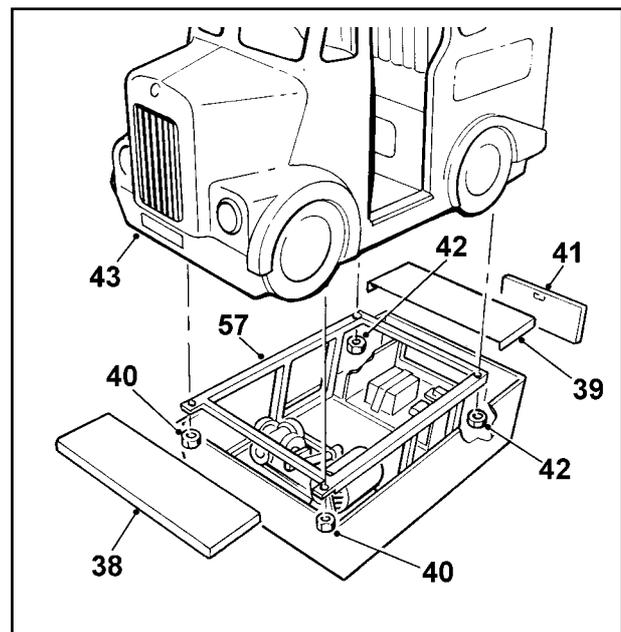
Through the rear access, remove the two nuts (42) from under the sliding frame.

Remove the timer/controller from beneath the seat as previously described (page 10.19.3). Under the seat locate the loom main terminal block. Disconnect the terminal block by pulling its two halves apart.

Push the base half of the terminal block through the hole in the floor of the toy.

Carefully lift the toy (43) off the base, making sure that the four captive bolts in the floor of the toy are clear of the sliding frame (57).

Reassemble the toy (43) to the base in the reverse order.



## Rolling Road

The rolling road (26) consists of a film wrapped around the inside of a transparent drum (27), which is illuminated from the inside by a bulb (28). The drum is rotated by the motor (29).

**Note:** Should the motor fail, the heat from the bulb could melt the film.

### Replacing the Bulb

Remove the screen (25) by releasing its fixing screws.

At the motor end of the drum, where it attaches to the drive shaft, loosen the two diagonally opposed screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

Remove/replace the bulb (28). Refit drum and screen.

### Replacing the Rolling Road Motor or 'Road' film

To replace the rolling road motor or 'road' film it is necessary to remove the complete rolling road assembly (26) as follows.....

Start the toy into motion so that it is moving backwards and forwards. When the toy is at its farthest point forward, switch off the main power supply.

Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side. Carefully lay the machine down on the mat.

Remove the panel (33).

Release any rolling road cables from their clips down the forward face of the console.

Remove the two screws (30) supporting the rolling road.

Extract the complete rolling road assembly through the opening (33).

Remove the drum (27) from where it is attached to the drive shaft by loosening the two diagonally opposed screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

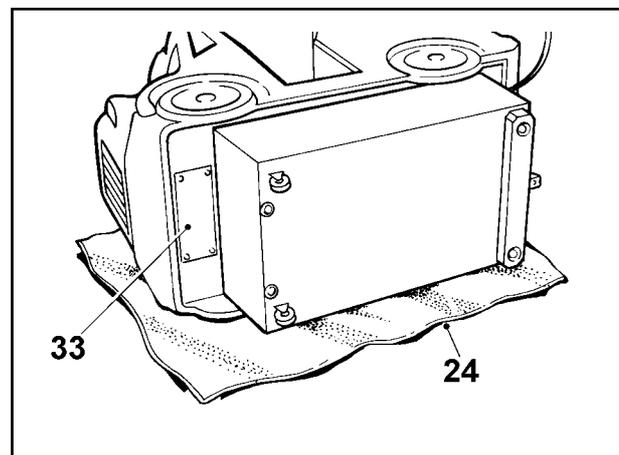
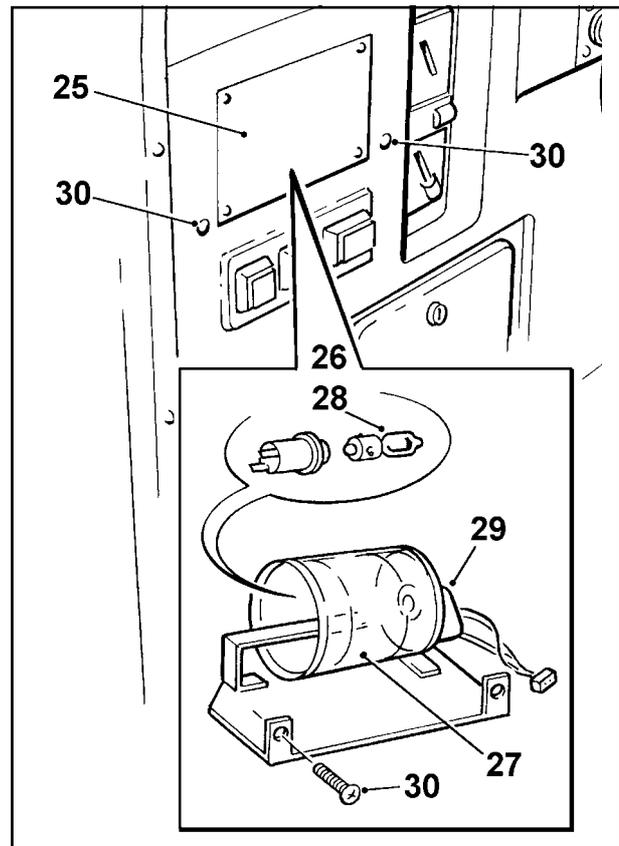
**'Road' Film:** The film is held in place within the drum (27) by double-sided adhesive tape.

Peel the film free from the adhesive tape and slide it out. (*Note the orientation of the film before removing it.*)

Cut the new film to the same length as the old one.

Roll it and slide it into the drum, ensuring it is in the correct way around.

Fasten the film in place with adhesive tape.



Re-assemble the drum and refit the assembly back into the console.

### Rolling Road motor

**Note:** There should never be a need to replace a Rolling Road Motor, but if there was proceed as follows .....

Remove the drum as previously described. Remove the nuts and bolts that retain the motor/gearbox (29) and withdraw the complete assembly. (*The motor and gearbox are replaced as a unit.*)

# SERVICE MANUAL section 10.20

for  
*Noddy*

## Contents

|                             |              |
|-----------------------------|--------------|
| Customer operation of toy   | Page 10.20.1 |
| Emptying the cash box       | 10.20.2      |
| Alarm system (where fitted) | 10.20.2      |
| Servicing                   | 10.20.3      |

## Weight & Dimensions

|        |        |
|--------|--------|
| Length | 148 cm |
| Width  | 82 cm  |
| Height | 130 cm |
| Weight | 115 kg |

## Customer operation of toy

Whilst the machine is connected to a live power supply (*but before a ride has been credited*) the headlights (1) and the console button switches (2) flash constantly. A teaser attraction sound track repeats every 120 seconds.

The ride is initiated by inserting a coin into the coin mechanism (4).

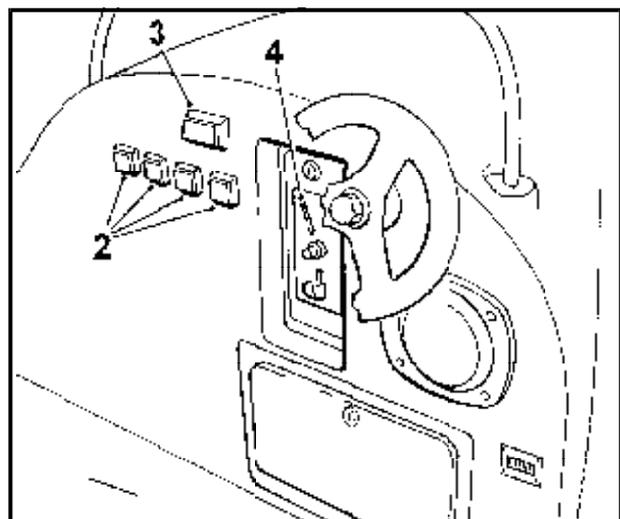
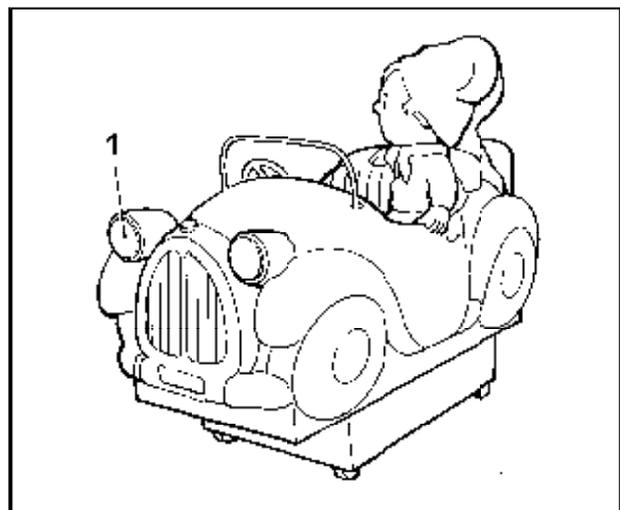
If the timer/controller (*situated beneath the seat*), has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button (3) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button (3) has been pressed the toy will begin to move backwards and forwards on its base. Whilst in motion a constant background sound will be heard.

Additional sound effects are available on pressing the coloured button switches (2).

When the pre-set duration of the ride has been reached, the toy will stop moving, and an oral message will be given saying that the ride has finished.



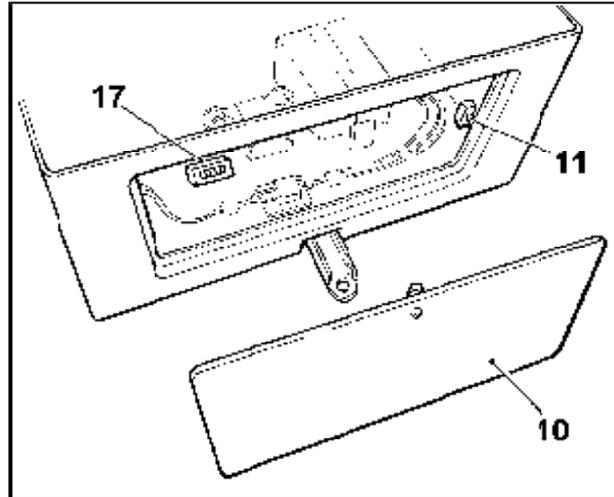
## Maintenance

**WARNING** Read safety instructions first and disconnect electrical power before opening any access panels.



### Credits counter

The credits counter is situated either within the rear of the base unit (17), or on later models, it is positioned to the right of the cash box door (56).



### Alarm System

#### Cancelling or disarming (where fitted)

An alarm is fitted to protect the cash box.

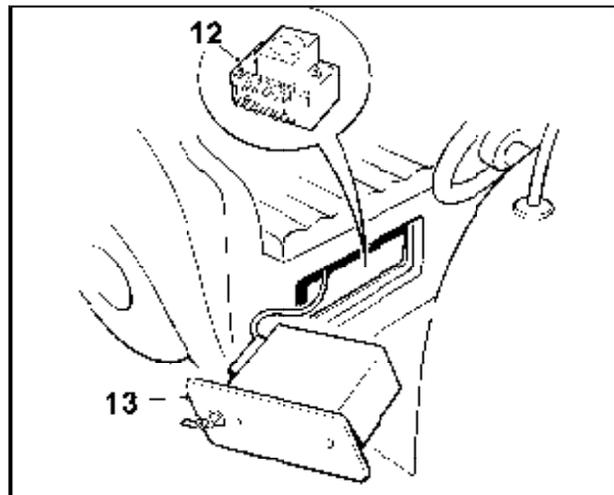
The alarm unit (12) is usually to be found beneath the seat, behind the control unit (13), but on some models it may be situated within the base unit.

The alarm is triggered by a micro-switch (14) that is released when the cash box door (15) is opened.

To disarm, or cancel an already activated alarm, open the base access panel (10). This deactivates micro-switch (11) that is depressed by the panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

To maintain the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located within the base of the alarm unit.



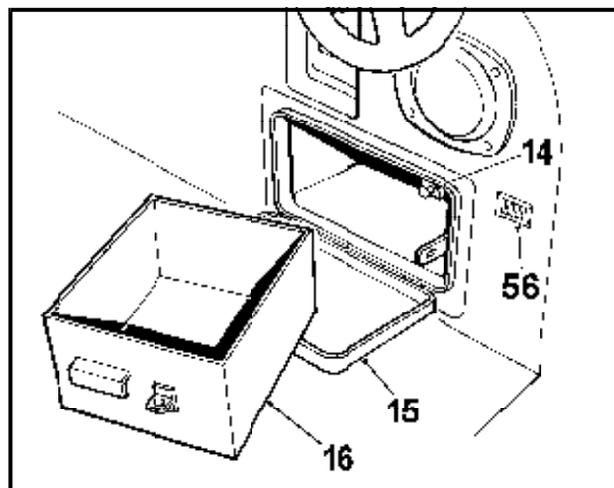
### Emptying the cash box

The cash box may be fitted with an alarm.

Disarm the alarm (where fitted) by opening the base access panel (10). This deactivates a micro-switch (11).

Unlock and open the cash box door (15). Release the cash box (16) by removing the clip or padlock. Slide the cash box out and empty.

Refit in the reverse order.



## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

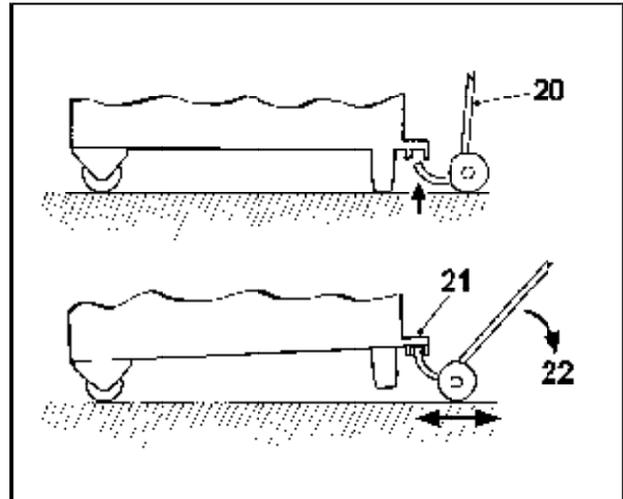


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



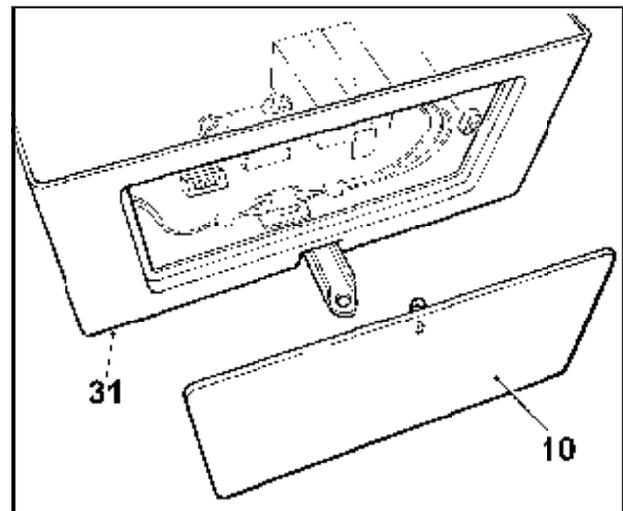
## Servicing

**WARNING** Read safety instructions first and disconnect electrical power before opening any access panels.



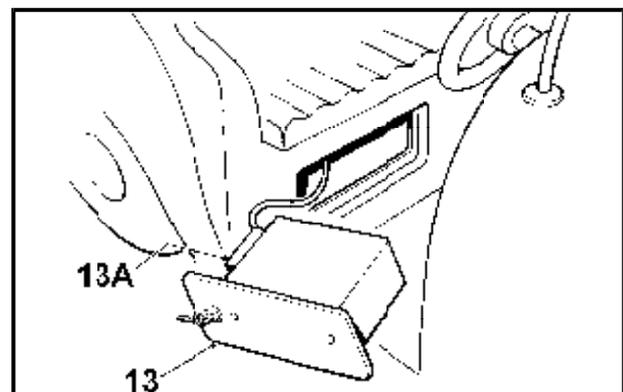
### Base access panel

The panel (10) at the rear of the base will give access for servicing the P.S. unit, relay and credits counter. Greater access can be gained by removing the glass fibre cover (31) from the base. (See page 10.20.5)



### Timer/controller: removal / replacing

With the key, remove the timer/controller unit (13) and disconnect it from its plug (13A).



### Coin Mechanism: removal / replacing

**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit.



The coin mechanism (4) is released by the use of a key (4A). Once released, unplug the mechanism from the interface unit (6).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a micro-switch.

For further details about the unit see the relevant coin mechanism section in this manual.

### Speaker: removal / replacing

Gain access to the rear of the speaker by removing the coin mechanism (4) (as described above).

Remove the four screws (60) retaining the speaker (61). Extract the speaker through the coin mechanism aperture.

Disconnect the wires from the speaker.

Reassemble in the reverse order.

### Start switch & Button switches

From the front the start switch (3) & button switches (2) appear to be different, but from the rear they are of identical construction.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

(The retainer (72) also has a micro-switch clipped to it.)

#### Bulb: replacement

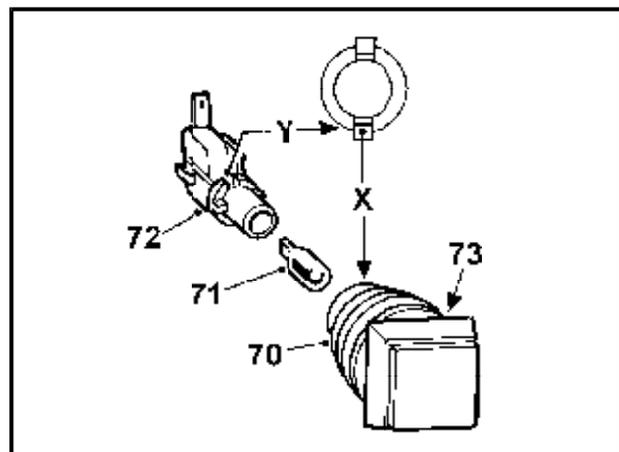
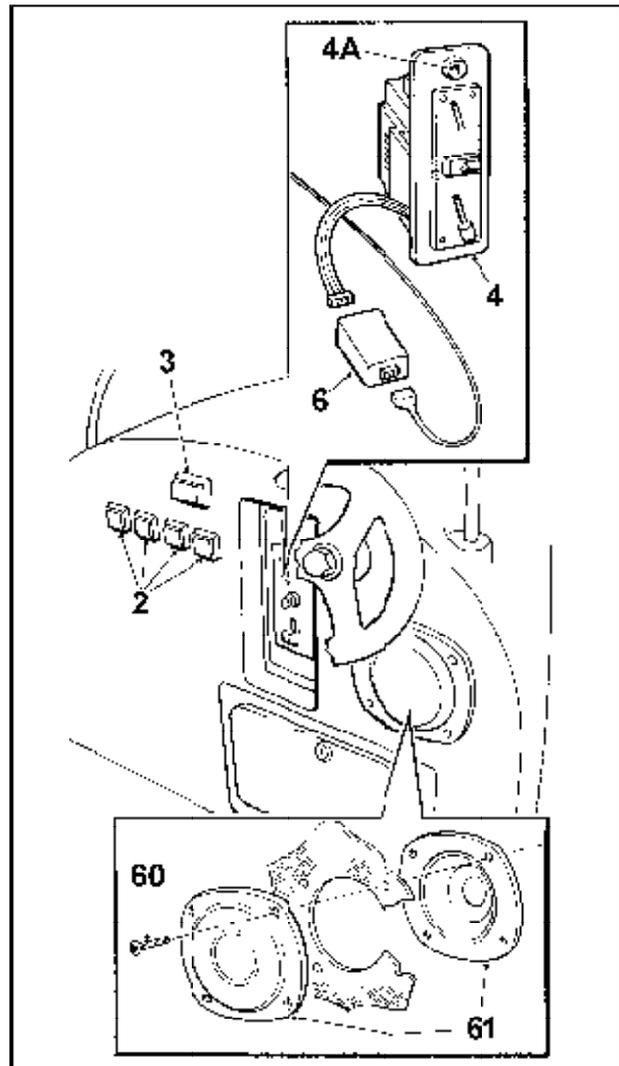
Switch OFF the main power supply to the machine!

Gain access to the rear of the switches by removing the coin mechanism (4), (as described above).

Locate the bulb retainer (72) and pull it straight out of the switch. The retainer is a tight fit and will require some effort to pull out.

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. The tabs (X) of the switch must align with the slots (Y) of the retainer. Push firmly on the retainer until it is heard to click into place.



#### Start and Button switches: replacement

Remove the bulb & retainer (72) as previously described.

Unscrew the locking ring (73) from the back of button switch.

Withdraw the button switch (70) from the console.

Reassemble in the reverse order.

## Base cover: removal / replacing

Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap. Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

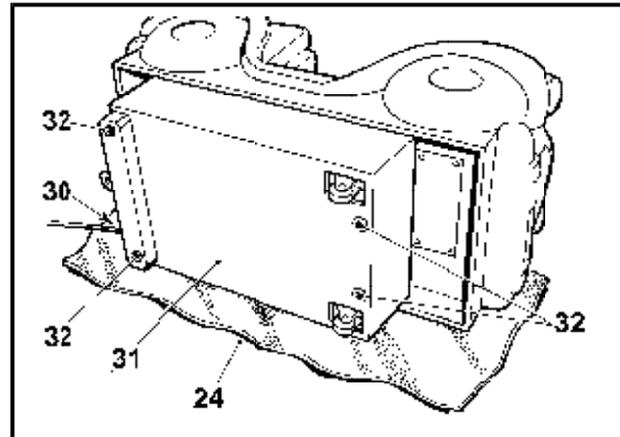
Release the power cable gland (30).

The glass fibre cover (31) is fastened to the base frame by four screws (32).

Remove the four screws (32).

Pull the cover (31) clear of the machine.

The machine can now be stood upright.



This gives access to:

Gearbox (50)

Belt (51)

Motor (52)

Crank (53)

Power supply (P.S.) unit (54)

Solid state relay for motor (55)

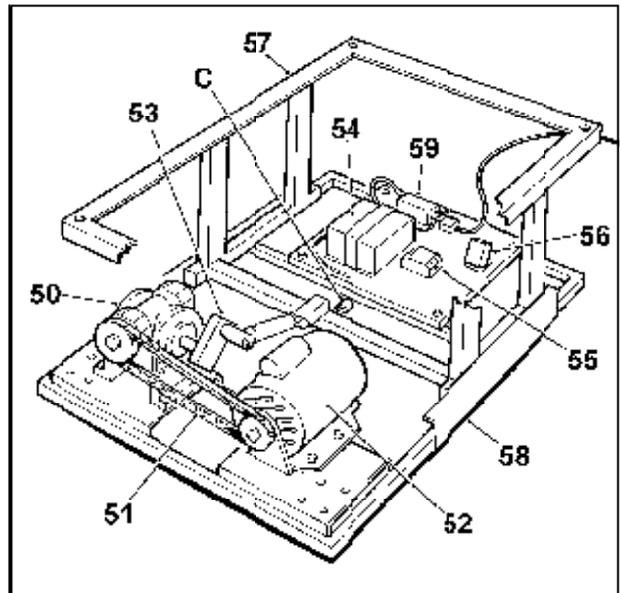
Credits counter (56) [Some rides have the Credits counter on the dashboard of the toy]

Frame, sliding (57)

Frame, base (58)

Mains filter (where fitted) (59)

Refit cover in the reverse order.



## Toy from base: removal / replacing

If possible, place the complete ride on a work bench.

Remove the timer/controller from beneath the seat as previously described (page 10.20.3). Under the seat locate the loom main terminal block. Disconnect the terminal block by pulling its two halves apart.

Push the base half of the terminal block through the hole in the floor of the toy.

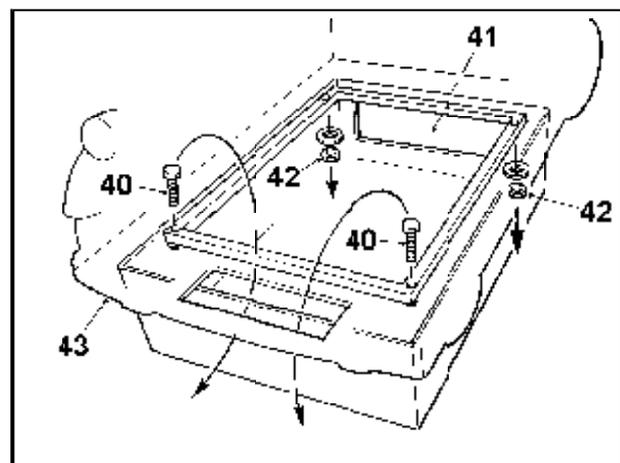
Via the access panel under the front of the toy, remove the two front bolts (40). (The bolts are screwed into captive nuts welded to the sliding frame.)

Remove from the base the rear panel (41).

From inside the rear of the base, remove the two nuts (42) from under the sliding frame.

Carefully lift the toy (43) off the base.

Reassemble the toy (43) to the base in the reverse order.





# SERVICE MANUAL section 10.21

for

## *Budgie*

### Contents

|                             |              |
|-----------------------------|--------------|
| Customer operation of toy   | Page 10.21.1 |
| Emptying the cash box       | 10.21.1      |
| Alarm system (where fitted) | 10.21.2      |
| Servicing                   | 10.21.2      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Weight | 120 kg |
| Length | 180 cm |
| Width  | 74 cm  |
| Height | 168 cm |

### Customer operation of toy

The Budgie is a two seater Children's Ride.

Whilst the machine is connected to a live power supply the external and interior console (9) lights flash constantly.

A teaser sound track repeats every 120 seconds when the ride is not credited.

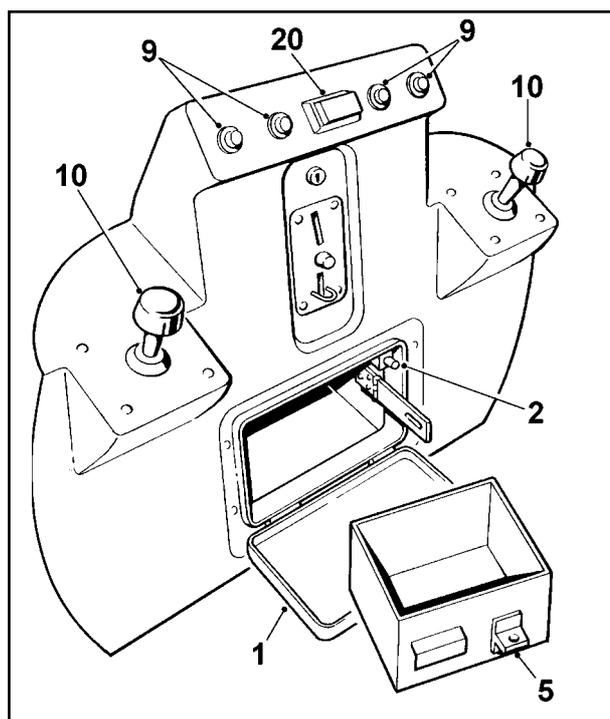
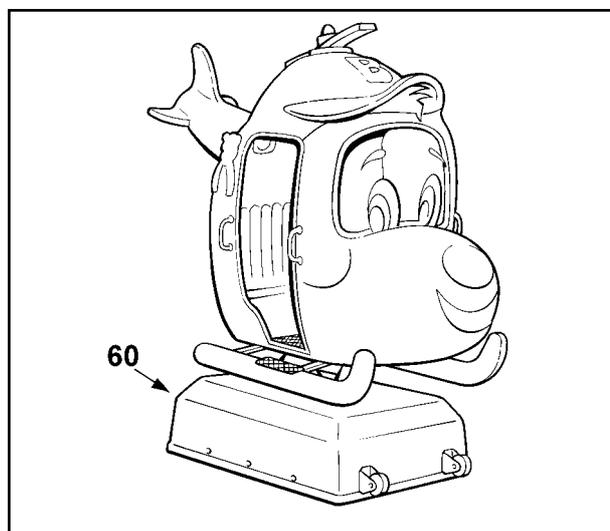
A yellow "Start" button (20) flashes when a ride has been credited.

This is followed by an oral request, either; "Press Start Button" or "Insufficient Money".

Immediately that the "Start" button (20) has been pressed the toy will begin to move up and down on its base. Whilst in motion there is a constant engine sound.

On the console are mounted two joysticks (10). When the joysticks are moved, different sounds are heard.

When the pre-set duration of the ride has been reached, the ride will stop, accompanied by the oral prompt of "Thank You".



### Maintenance

#### Emptying the cash box

The cash box may be fitted with an alarm.

Disarm the alarm (where fitted) by opening the base access panel (60). This deactivates a micro-switch (2).

Unlock and open the cash box door (1).

Release the cash box (5) by removing the clip or padlock. Slide the cash box out and empty.

Refit in the reverse order.

### labelling="Section-Header">Cancelling or disarming the alarm system (where fitted)

An alarm is fitted to protect the cash box.

The alarm unit (35), (when fitted), is within the base unit.

The alarm is triggered by a micro-switch that is released when the cash box door is opened.

To disarm, or cancel an already activated alarm, open the base access panel (60). This deactivates a micro-switch that is depressed by the panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

Should the alarm have been operating for some time, it will be necessary to replace the batteries. The batteries are located in the base of the alarm unit (35).

### Credits counter

The credits counter is either situated within the base of the machine (36), or inside the cash box compartment (36A). (See opposite page.)

## Servicing

**WARNING** Read safety instructions first.  
Disconnect electrical power before opening any access panels.



### Base access panel

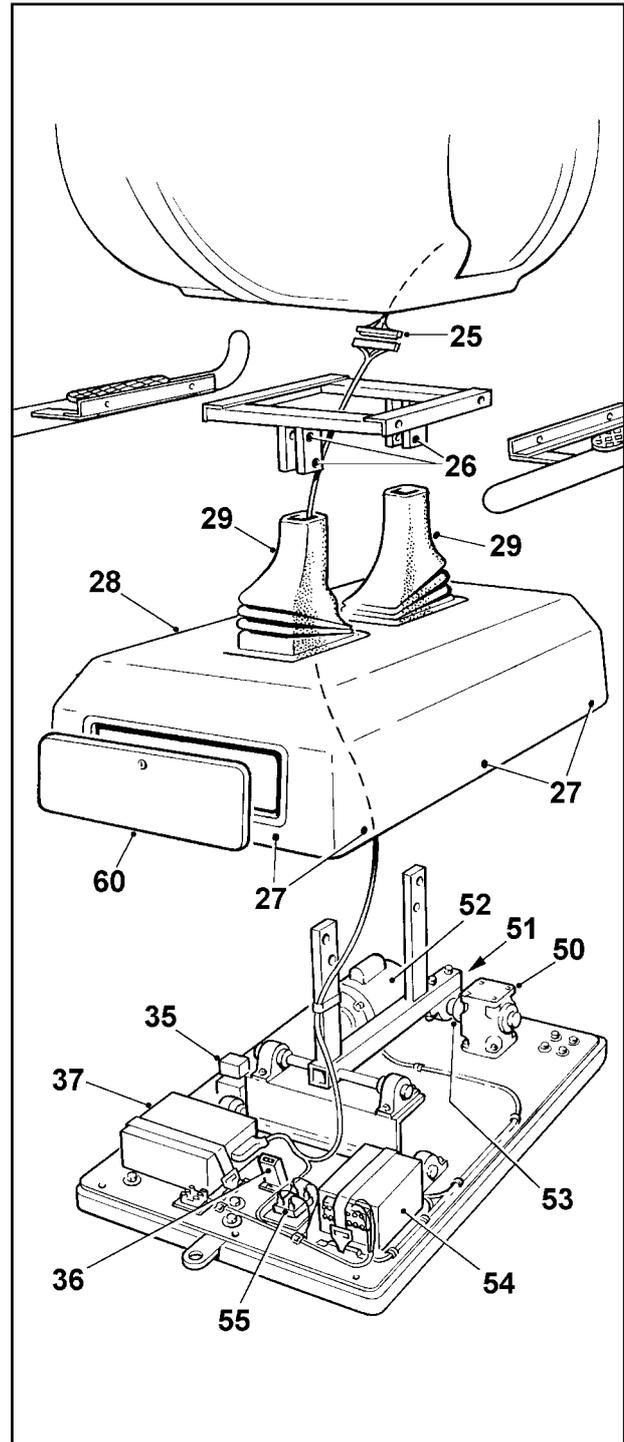
The panel (60) at the rear of the base will give access for servicing the P.S. Unit, Timer/Control Unit, Relay and Alarm (where fitted). Greater access can be gained by removing the glass fibre cover (28) from the base. (See following.)

### Base cover: removal / replacing

Disconnect the loom connector (25) under toy.  
Remove the four bolts (26) from the toy mounting brackets, and lift the toy clear of the base.

Remove the screws (27) from around the base cover. Lift the cover (28), complete with gaiters (29), clear of the base. Care should be taken when feeding the loom through the gaiter.

Pull the cover (28) clear of the base.



#### This gives access to:

- Alarm (where fitted) (35)
- Timer/Control Unit (37)
- Gearbox (50)
- Belt (51)
- Motor (52)
- Crank (53)
- Power supply (P.S.) unit (54)
- Solid state relay (55)

Refit cover in the reverse order.

## Coin Mechanism: removal / replacing

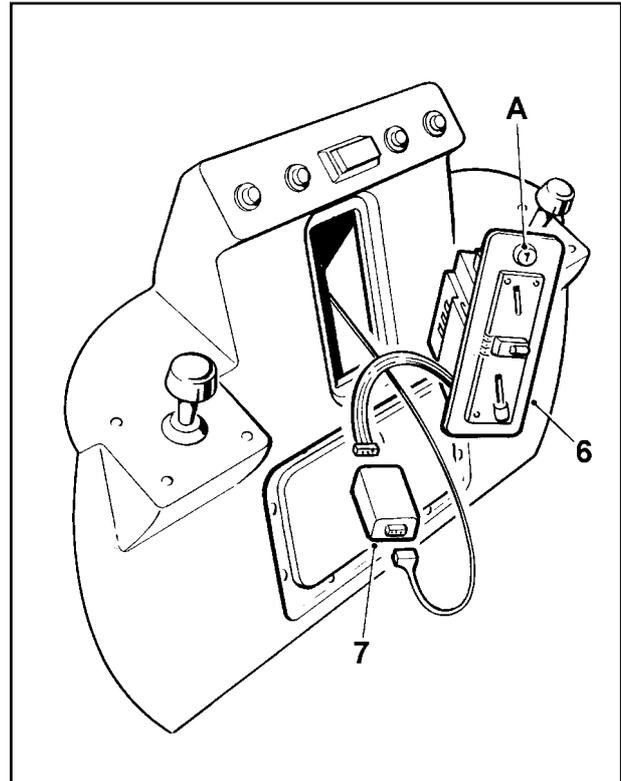
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit



The coin mechanism (6) is released by the use of a key (A). Once released, unplug the mechanism from the interface unit (7).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a micro-switch.

For further details about the unit see the relevant Coin mechanism section in this manual.



## Console: removal / replacing

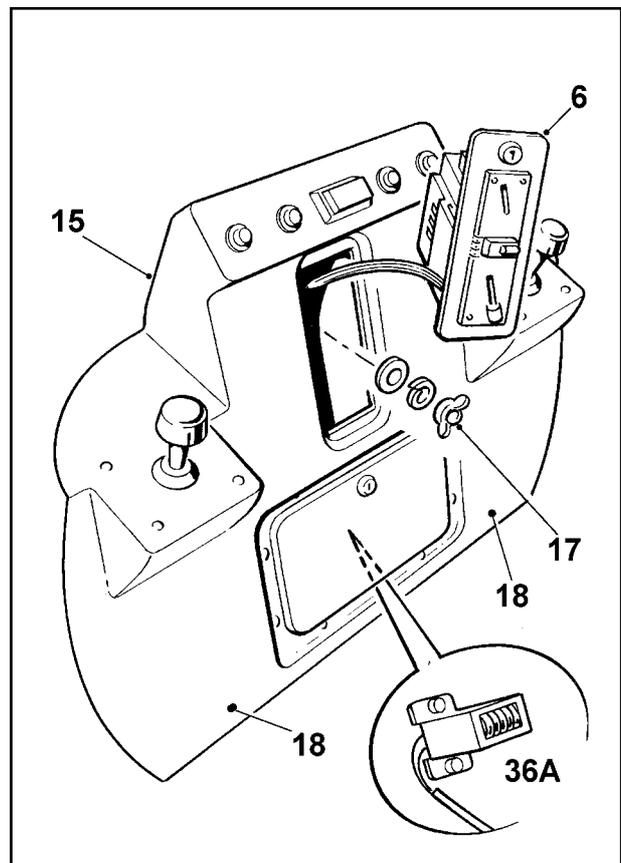
The top of the console (15) is retained by washers and two wing nuts (17) screwed on to two captive bolts situated below the windscreen.

To access the wing nuts it is necessary to remove the coin mechanism (6).

Remove the two wing nuts (17).

Remove the two screws (18) at the base of the console.

Reassemble in the reverse order.



### Console lights: removal / replacing

To gain access to the rear of the Lights (19), remove the Coin Mechanism (6). *If greater access is required it will be necessary to remove the console (15).*

To replace a bulb; dismantle the light by unscrewing it.

Reassemble in the reverse order.

### Start Button Switch: removal/replacing

To gain access to the rear of the Start Button (20), remove the Coin Mechanism (6). *If greater access is required it will be necessary to remove the console (15).*

#### Start Button

The Start Button (20) is illuminated by a bulb (11). The bulb is mounted within a snap-in retainer (12) that is pushed into the back of the switch.

(The retainer (12) also has a micro-switch clipped to it.)

#### Bulb replacement:

Gain access to the rear of the switch by removing the Coin Mechanism (6).

Locate the bulb retainer (12) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (11) from the retainer (12) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.**

Push firmly on the retainer until it is heard to click into place.

#### Start Button replacement

Remove the bulb/retainer (12) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the button switch (20) from the console.

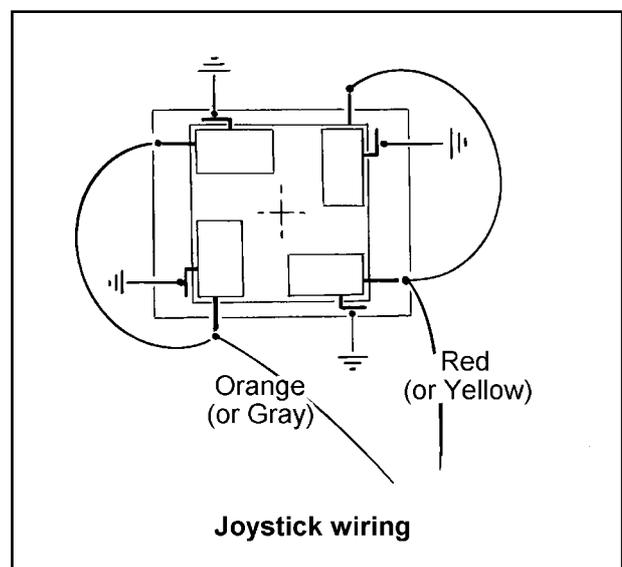
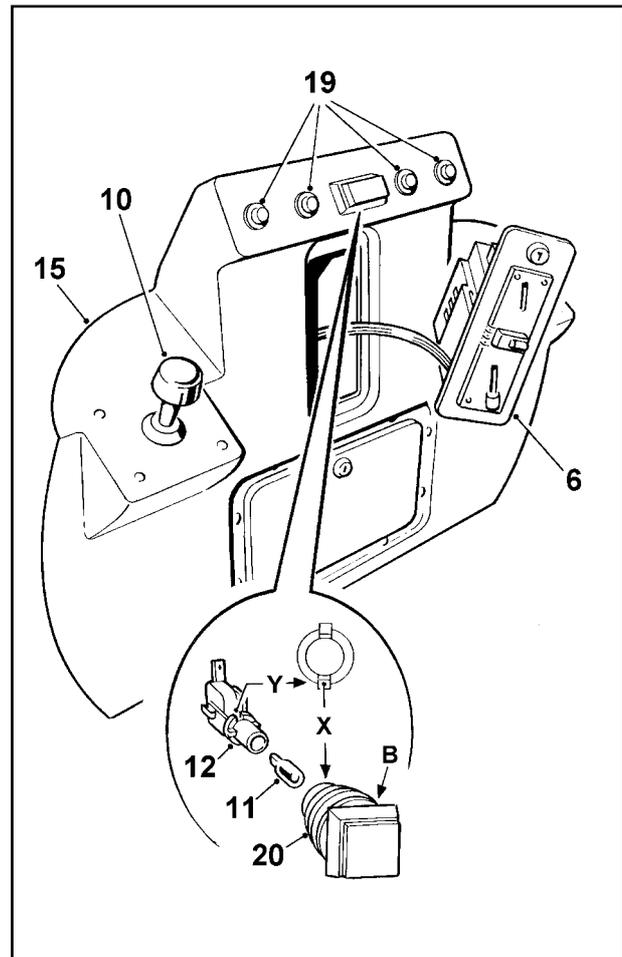
Refit in the reverse order.

### Joysticks: removal / replacing

It is necessary to remove the console (15) (see previous page), to access the underside of the Joysticks (10).

Remove the four screws retaining the Joystick.

Remove the Joystick, noting the wire colours and their terminal positions (see Joystick wiring diagram).



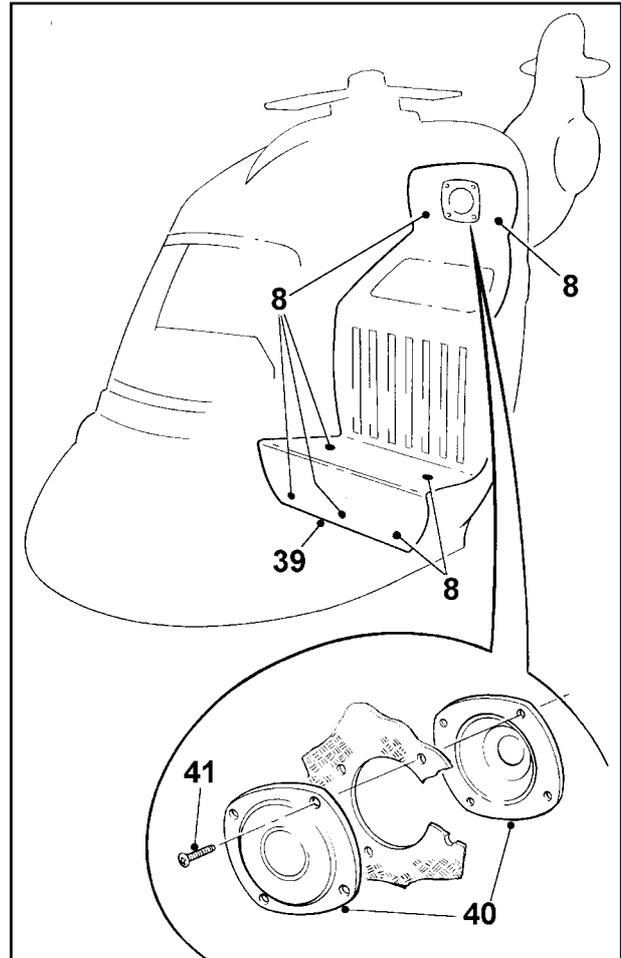
## Seat: removal / replacing

The seat (39) is retained by screws (8).

Remove the screws and lift out seat.

**Caution:** Mounted within the seat is a speaker (40), this has wires connected to it which will need to be disconnected.

Reassemble in the reverse order.



## Speaker: removal / replacing

It is necessary to remove the seat to access the speaker (see above).

Disconnect the wires from the back of the speaker.

The speaker (40) is retained in the seat by the screws (41). Remove these screws.

Reassemble in the reverse order.

## Helicopter rotor

### Rotor light

To remove the light (42), unscrew the two screws retaining its lens cover, then remove the screws holding the light base to the rotor. Disconnect the wiring.

### Rotor blade

To remove the rotor proceed as follows:

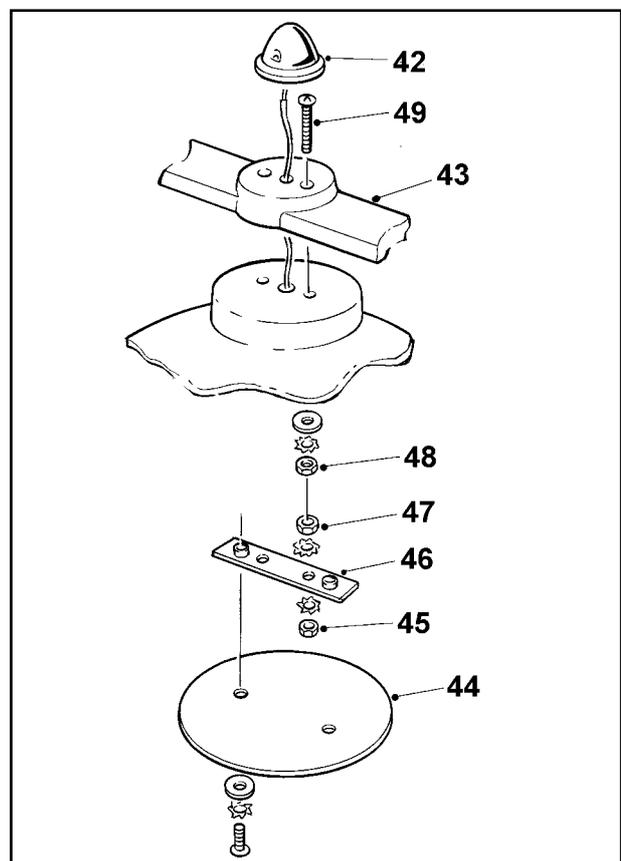
Remove the rotor light as described above.

From inside the cockpit, unfasten the screws retaining the cover plate (44).

Remove the nuts (45) holding the cover retaining bar (46), the spacer nuts (47) and the nuts (48) securing the rotor fixing bolts (49).

Lift off the rotor (43).

Reassemble in the reverse order.



# SERVICE MANUAL section 10.22

for  
*Dodgem*

## Contents

|                             |              |
|-----------------------------|--------------|
| Customer operation of toy   | Page 10.22.1 |
| Emptying the cash box       | 10.22.2      |
| Alarm system (where fitted) | 10.22.2      |
| Servicing                   | 10.22.3      |

## Weight & Dimensions

|        |        |
|--------|--------|
| Weight | 148 kg |
| Length | 158 cm |
| Width  | 99 cm  |
| Height | 185 cm |

## Customer operation of toy

This children's ride is a realistic simulation of a dodgem.

Whilst the machine is connected to a live power supply, a teaser demonstration of the ride's features is repeated every 15 minutes.

The ride is activated by inserting the correct amount of money into the coin mechanism (1), or note validator. If the amount inserted is insufficient a verbal request to add more money will be given.

Assuming that the coins or notes inserted are sufficient, the start button will flash and a verbal request will be given to 'Press the start button' (3). If the start button is not pressed within 30 seconds, the ride will auto start.

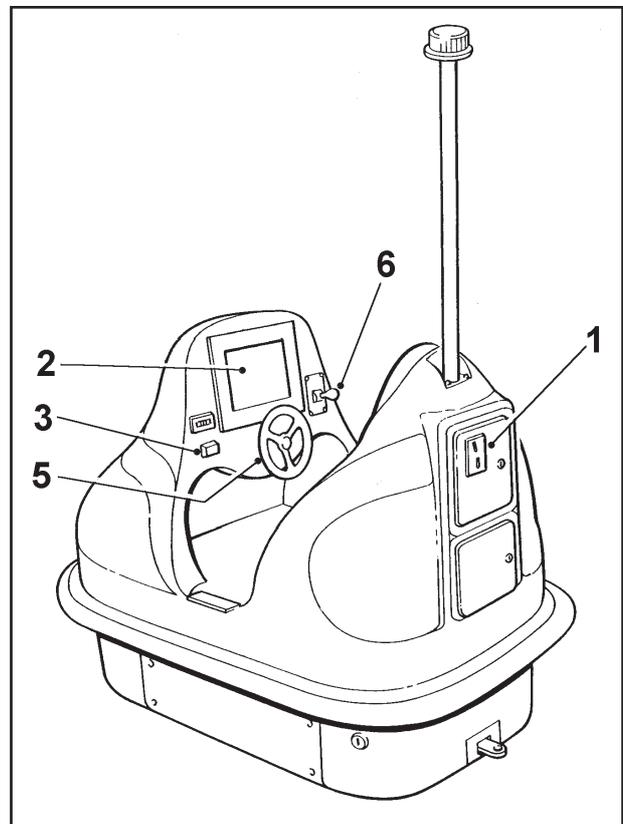
The console screen (2) displays a computer generated image of a dodgem stadium with several cars driving randomly around.

As the steering wheel (5) is turned, the dodgem can be driven into one of the dodgems on the screen. When a collision occurs the ride will judder.

Turning the steering wheel also controls the sideways motion of the ride. When it is released, the steering wheel will self centre, as will the sideways motion of the ride.

The speed of the action on the screen display can be increased or decreased by moving the High/Low gear lever (6).

When the duration of the ride has been reached, the toy will stop moving, and a verbal message will be given saying that the ride has ended.



**NOTE:** There are two of methods of crediting the dodgem.

(A) A single coin mechanism (as shown above, item 1).

(B) A double coin mechanism with a note validator (as shown at the bottom of page 10.22.2).

## Maintenance

### Emptying the cash box

The cash box may be fitted with an alarm.

Disarm the alarm (where fitted) by inserting and turning key (10). This deactivates the micro-switch (11).

Unlock and open the cash box door (12).

Some cash boxes are secured with a locked latch (14). Release the latch and slide the cash box out. Empty the box and refit in the reverse order.

### Cancelling or disarming the alarm system (where fitted)

An alarm is fitted to protect the cash box.

The alarm unit, (where fitted), is situated within the base unit.

The alarm is triggered by a micro-switch (11) that is released when the cash box door is opened.

To disarm, or cancel an already activated alarm, insert and turn key (10). This deactivates the micro-switch (11).

Note: Even with the ride disconnected from the power supply, the alarm will be activated.

Should the alarm have been operating for some time, it will be necessary to replace the batteries. The batteries are located in the base of the alarm unit.

### Credits counter (console or rear compartment)

The credits counter (4) is mounted either on the console or within the top rear compartment. It displays the total number of coins and notes inserted into the coin and note mechanisms.

### Credits counter (on screen)

Inside the top rear compartment are two buttons (15 & 16). These buttons are used to adjust the credits value. Press either button and the value of the credit will appear on the console screen (2) for five seconds.

Also on the screen will be the total number of rides, and the total monies collected.

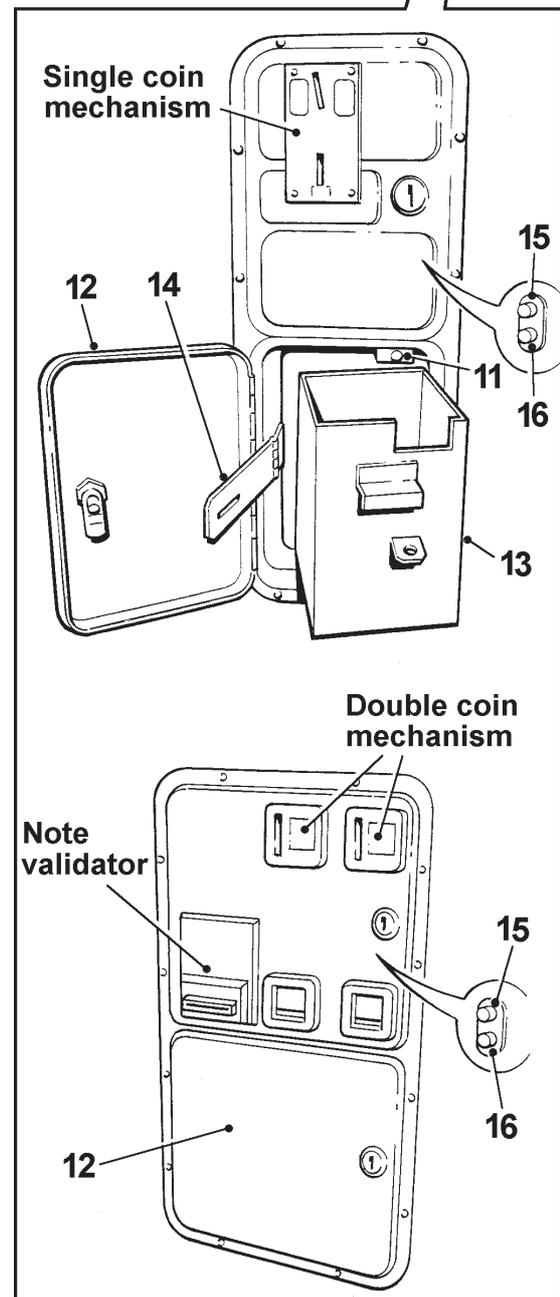
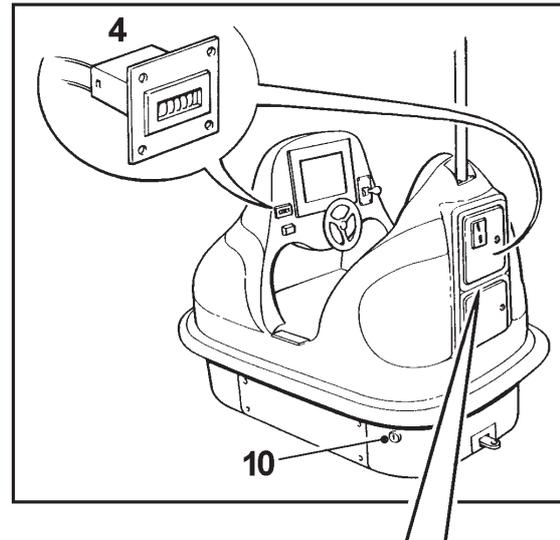
### Regulating value of credits

Use buttons (15 & 16) as follows.....

Press and hold, for at least five seconds, button (15) to increase the value of each credit by increments of 10 for every pulse.

Press button (16), and hold, to decrease it.

The new value of the credit appears on the console screen (2).



## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

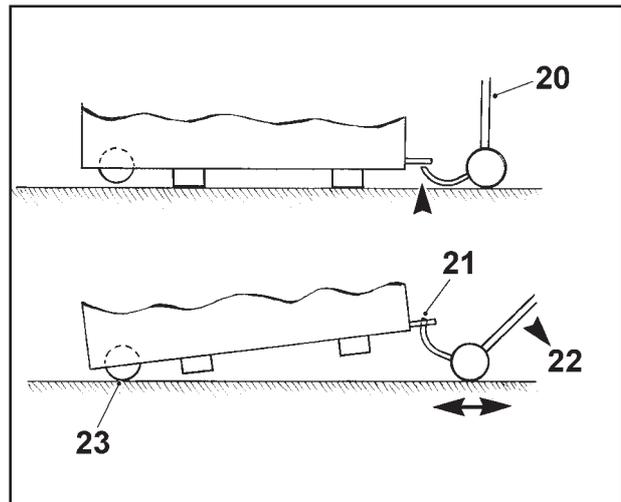


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its four rubber feet and onto the front castors (23). The machine can now be pulled along with the jack handle.



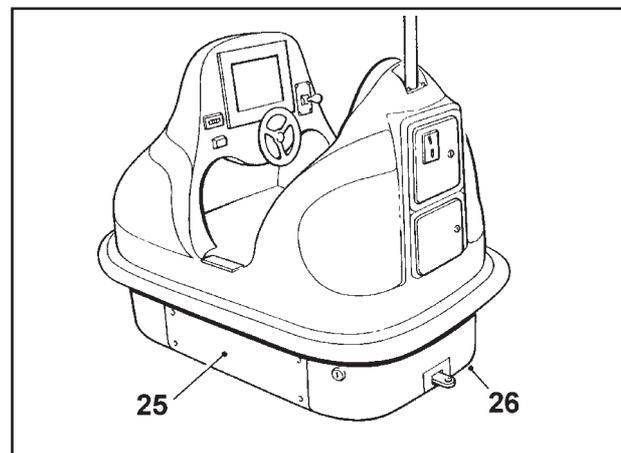
## Servicing

**WARNING** Read safety instructions first. Disconnect electrical power before opening any access panels.



### Base access panels

The two panels (25) either side of the base cover (26) give access to all electronic components.



### Base electronic components (Up to April 2004)

Base cover (26) removed for clarity.

It is not necessary to remove the base cover to access any electronics.

27 Keyboard, (attached to the base side panel).

28 Mouse

29 Speakers

30 Actuator driver board

31 Power supply

32 Alarm (where fitted)

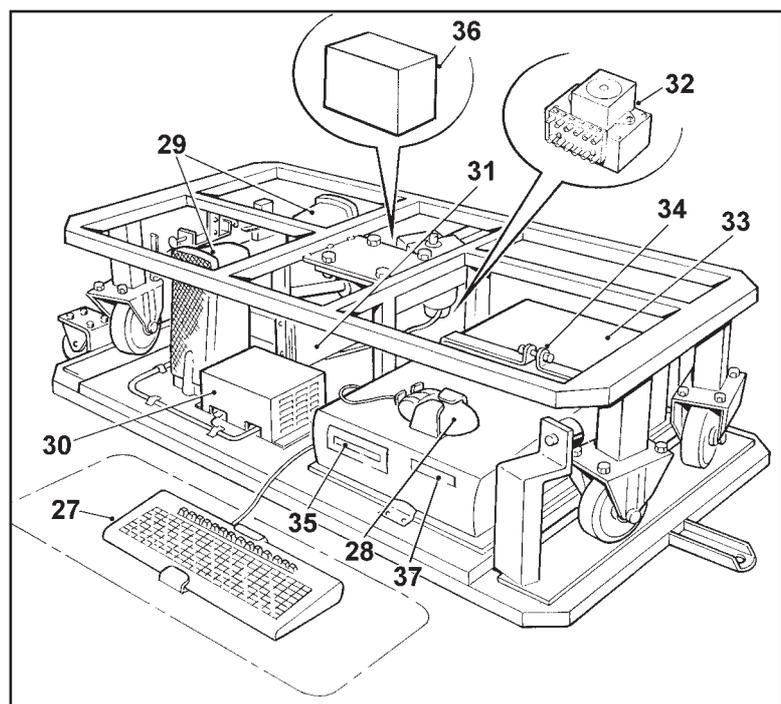
33 Computer case

(Note that to remove the computer case it is necessary to unscrew the bolt (34) securing the locking strap).

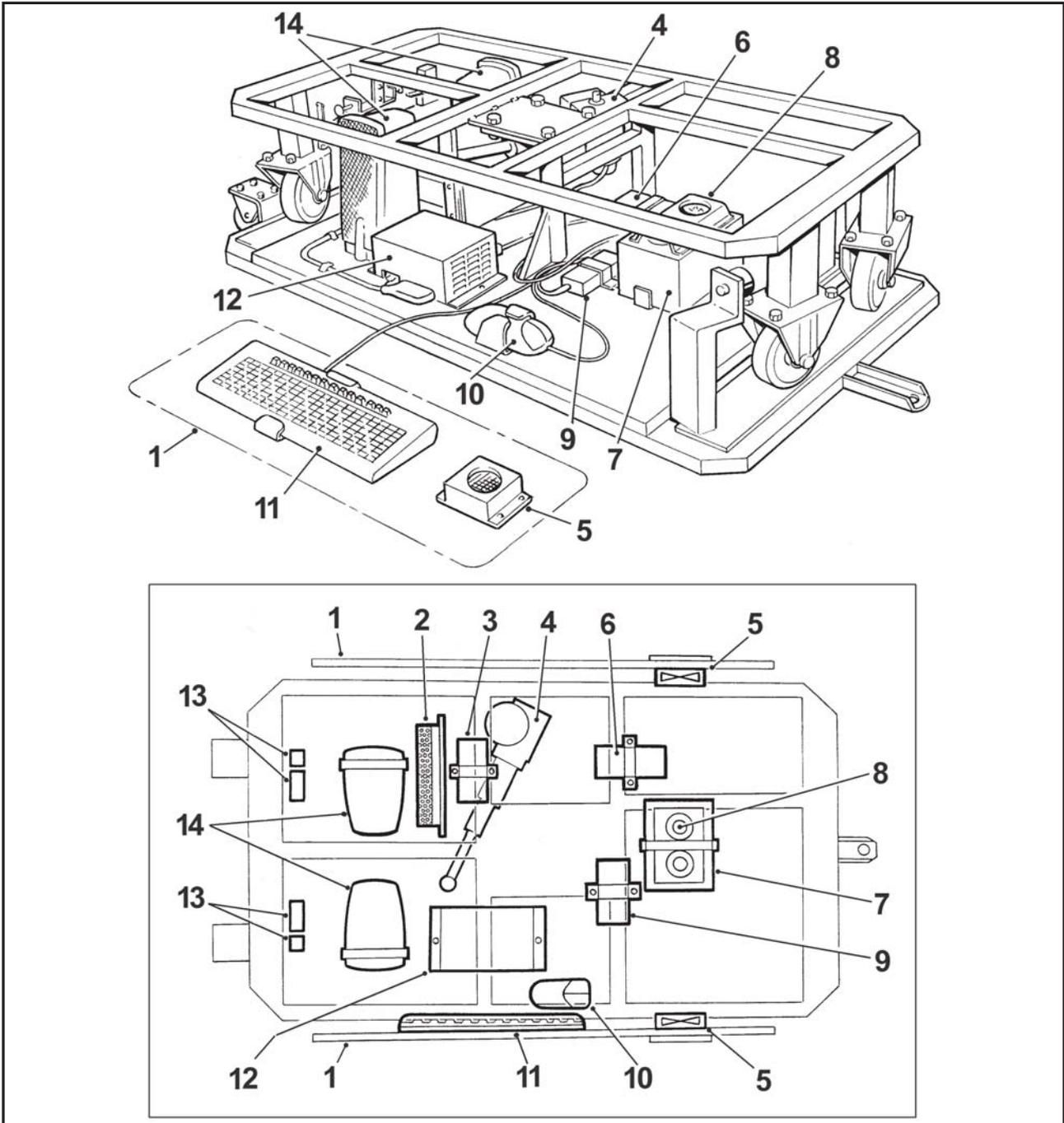
35 CD drive

36 Console screen power supply

37 Flash card



**Electronic components**  
(From April 2004)



- |   |                                       |
|---|---------------------------------------|
| 1 Side panel  | 9 Power supply, computer              |
| 2 Power supply, actuator                                  | 10 Mouse                              |
| 3 Power supply, screen                                    | 11 Key board (attached to side panel) |
| 4 Actuator  | 12 Driver board, actuator             |
| 5 Cooling fan, side panel                                 | 13 Stop switches                      |
| 6 Power supply, cooling fans on computer and side panels. | 14 speakers                           |
| 7 Computer  |                                       |
| 8 Cooling fans, computer                                  |                                       |

### Base mechanical components

- 35 Base frame
- 36 Swivel frame
- 37 Swivel actuator
- 38 Centre bearing
- 39 Bump stops

### Centralizing switches

- 40 Left & right travel switches
- 41 Left & right end stop switches

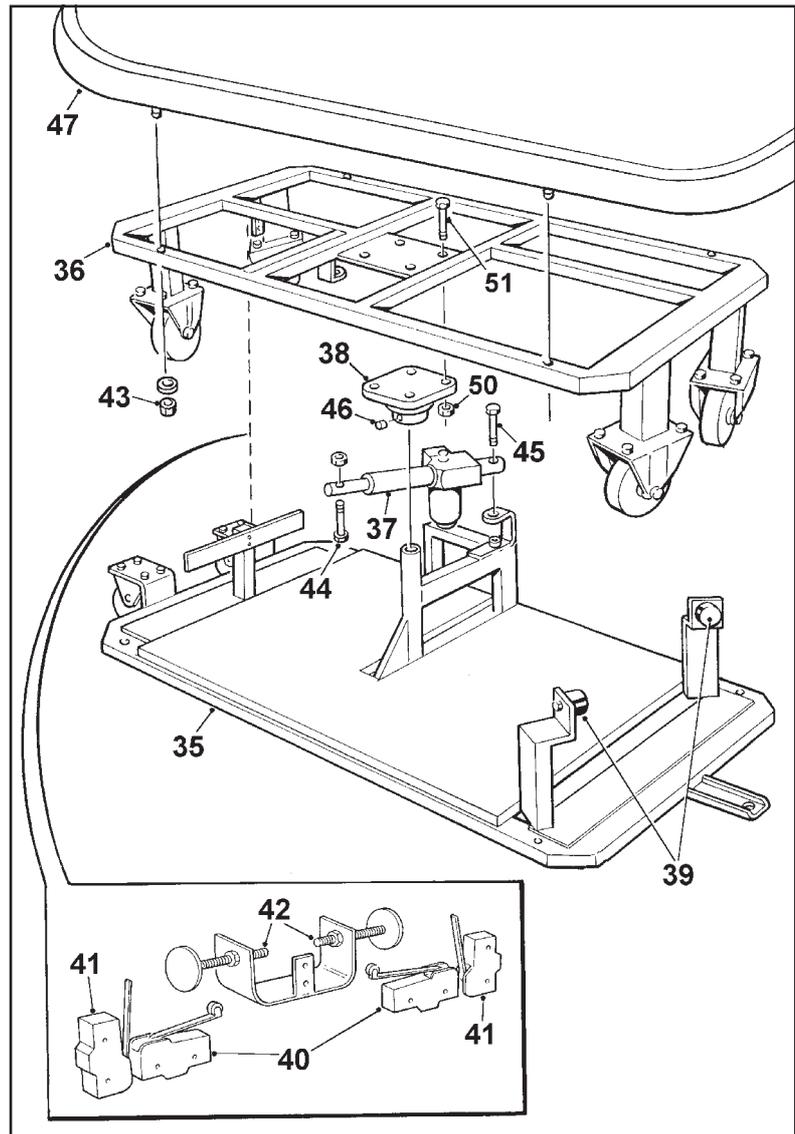
The travel switches & end stop switches control the amount of movement permitted to the actuator. The distance of travel is set by adjusting the stop screws (42).

### Toy to base: removal / replacing

The toy (47) is fastened to the swivel frame (36) by four captivated bolts bonded into the base of the toy. The bolts pass through the swivel frame and are secured on the underside with washers and locking nuts (43).

To remove the toy: Remove the four locking nuts (43). Disconnect all cables connecting the toy to the base, then lift off the toy.

Reassemble in the reverse order.



### Swivel actuator: removal / replacing

The actuator is retained at each end by a bolt. The bolts (44 & 45) are accessed via the side panels. It should not be necessary to remove the toy.

Unscrew the bolts and disconnect the wires from the connector block.

Reassemble in the reverse order.

### Centre bearing: removal / replacing

Remove the toy (47) from the swivel frame (36) (as previously described on this page). This gives access to the heads of the four bolts (51) retaining the centre bearing (38).

Unfasten bolt (44) retaining the actuator (37).

Release the two opposed grub screws (46) retaining the bearing.

Lift off the swivel frame complete with bearing.

Grip the heads of the bolts (51) and remove the nuts (50) retaining the bearing.

Withdraw the bearing.

Reassemble in the reverse order.

## Beacon pole: removal / replacing

Gain access to the base of the pole (80) by unlocking and opening the coin mechanism door (88).

From under the metal plate (89) that is bonded to the body, unscrew the large locking nut (81). Do not lose washer (82).

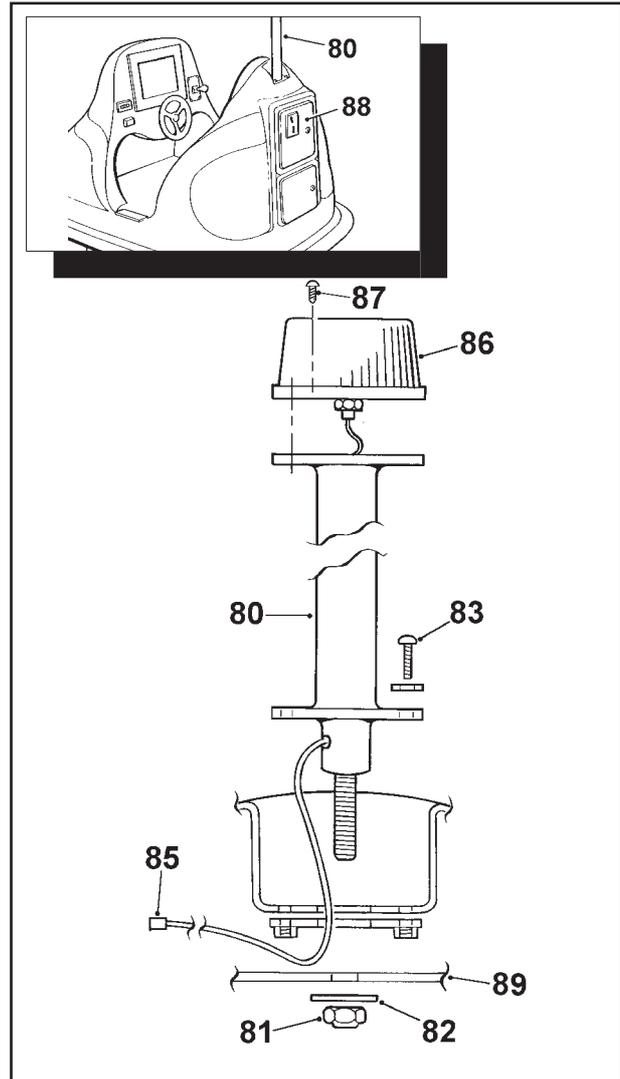
Remove the four screws (83) and washers from the pole mounting flange.

Carefully lift the pole (80) clear of the toy.

Disconnect the wiring block (85).

To change the bulb in the flashing light (86) at the top of the pole, it is necessary to remove the lens by unfastening the screws (87).

Reassemble in the reverse order.



## Base feet: removal / replacing

Lay a padded mat on the floor large enough to take the dodgem when laid on its side.

Lay the dodgem over onto the mat.

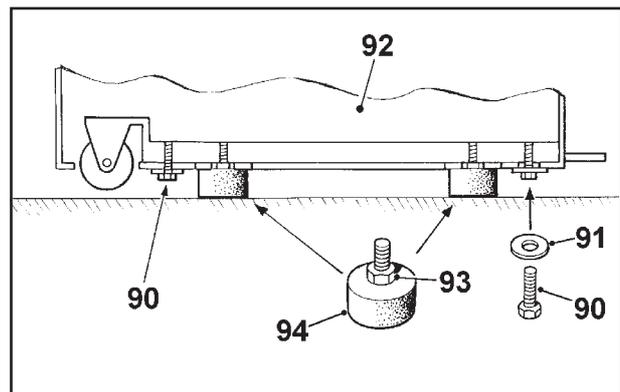
Remove the four screws (90) and washers (91) retaining the base cover (92).

Pull the cover clear of the base.

There is now access to the nuts (93) that are bonded to the feet (94).

With a spanner on the nuts (93), unscrew the feet.

Reassemble in the reverse order.



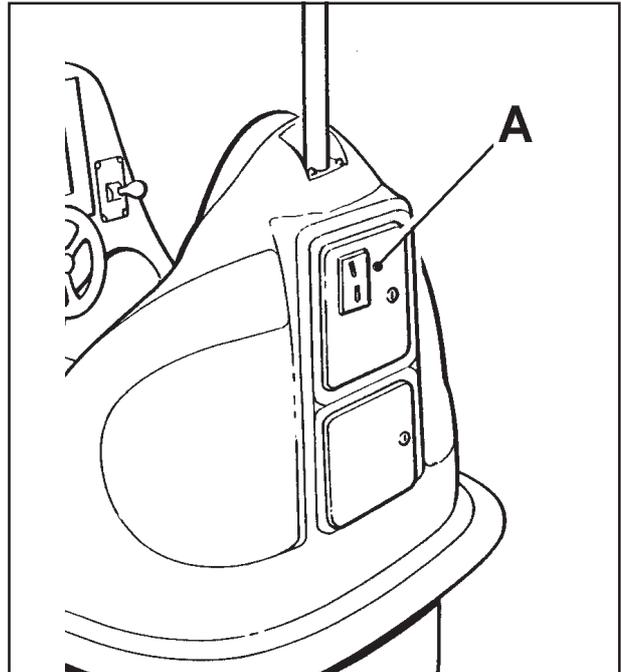
## Coin Mechanism: removal / replacing

**WARNING** Always switch OFF mains power before removing coin mechanisms or note validators. Working on the units or ribbon cable with power ON can cause damage to the coin mechanisms, validators and timer/control unit.



The coin mechanisms and note validator are mounted in the door (A).

To gain access to the rear of a unit, simply open the door with a key.



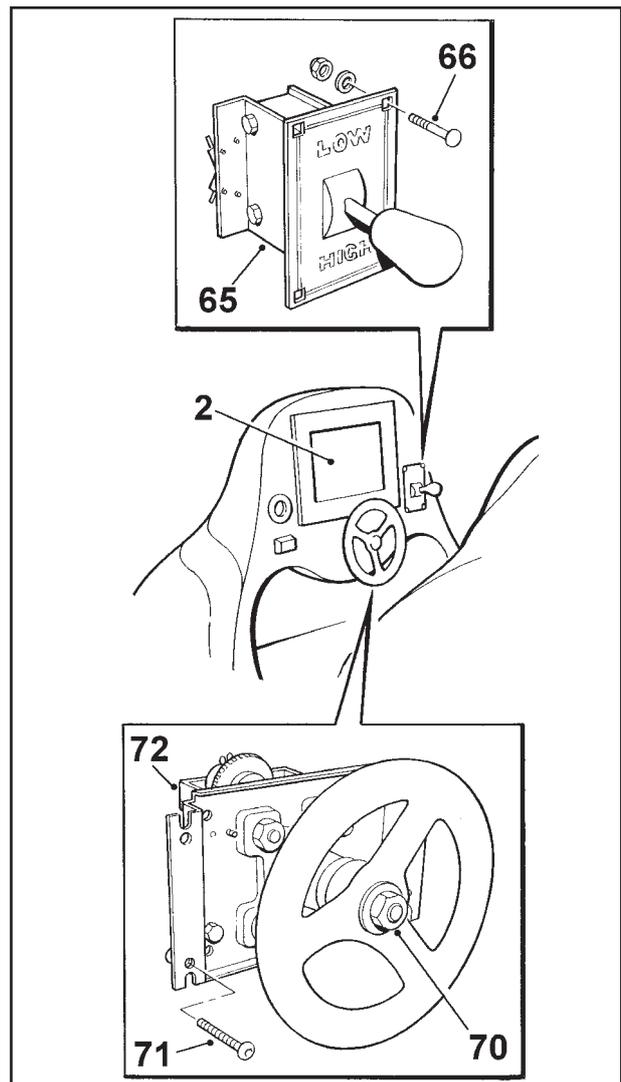
## Gear lever: removal/replacing

Remove the console screen (2) to gain access to rear of the gear lever assembly (65).

Remove the four screws (66) retaining the gear lever to the console. Withdraw the assembly from the console.

Noting to which terminals they are connected, disconnect attached wires.

Reassemble in the reverse order.



## Steering mechanism: removal/replacing

Remove the console screen (2) to gain access to rear of the mechanism (72).

Remove the steering wheel by unscrewing the centre nut (70).

Remove the four screws (71) retaining the mechanism to the console. Withdraw the assembly from the console.

Noting to which terminals they are connected, disconnect attached wires.

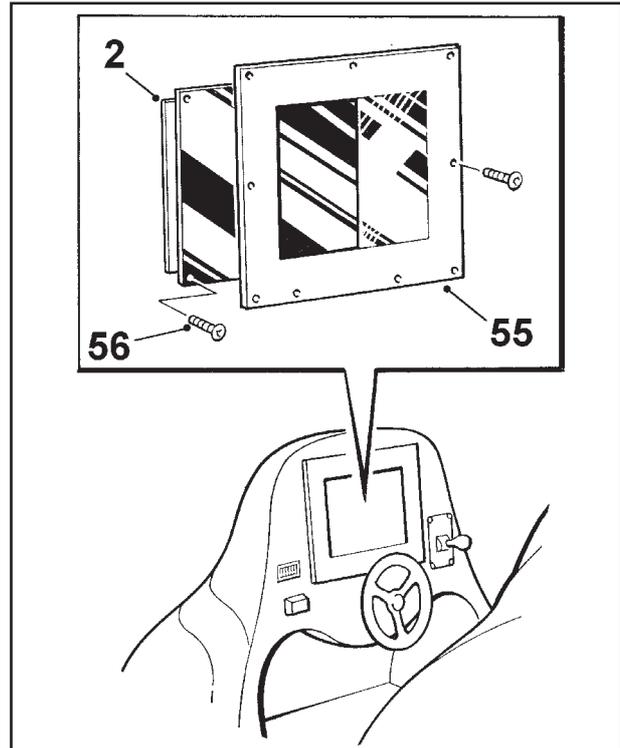
Reassemble in the reverse order.

## Console screen: removal / replacing

Remove the screws retaining the screen surround (55).

Remove the screws (56) holding the screen (2). Lift the screen carefully from the console. Disconnect the cables from its rear.

Reassemble in the reverse order.



## Start switch: removal/replacing

Gain access to the rear of the switch by removing the screen (2).

The switch (70) is illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72). At the rear of the retainer there is clipped a micro-switch (73). The whole retainer assembly is pushed in to the back of the switch (70).

## Bulb: replacement

Switch OFF the main power supply to the machine!

Locate the bulb retainer (72) and pull it straight out of the switch. The retainer is a tight fit and will require some effort to pull it out.

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the switch. The tabs (X) of the switch must align with the slots (Y) of the retainer. Push firmly on the retainer until it is heard to click into place.

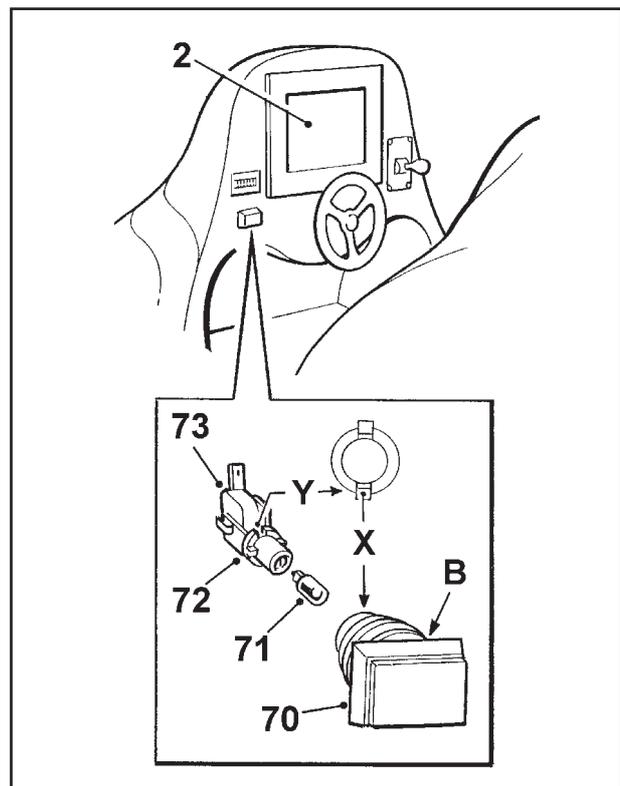
## Start switch: replacement

Remove the bulb/retainer (72) as previously described.

Unscrew the locking ring (B) from the back of switch.

Withdraw the button switch (70) from the console.

Refit in the reverse order.



Settings screen (PRESS F1)

Pressing F1 will take you to the engineers screen (see illustration below).

In this screen you can test all Switch Status.

By pressing the appropriate switch a (tick) will appear in the box for the switch you are testing. If a (tick) does not appear check the switch for a problem.

Coin/Stats is the coin value on the multi-mech channels 1-6.

M-Coin is the value of the mechanical mechanism and Notes is the value of the note acceptor.

These values can be changed to suit using the keyboard and mouse.

To change the values use the mouse, move the cursor to the required box and click on the left button on the mouse, using the keyboard enter the value you require.

Eg If the **Game Price** was set at 0.50 and the **M-Coin** was set to 0.25, the customer would be required to enter two 25 value coins into the mechanical mechanism.

If you want to have one 50 value coin for one play, change the **M-Coin** value to 0.50

When changing the value settings always click save before pressing F1 to return to the game.

DO NOT CLICK EXIT to exit the F1 screen

Setting the ride time

Using the mouse click in the box Play (s). Using the keyboard delete and enter the required time. Remember to save!

PLEASE NOTE THAT THE TIME IS SET IN SECONDS AND NOT MINUTES.

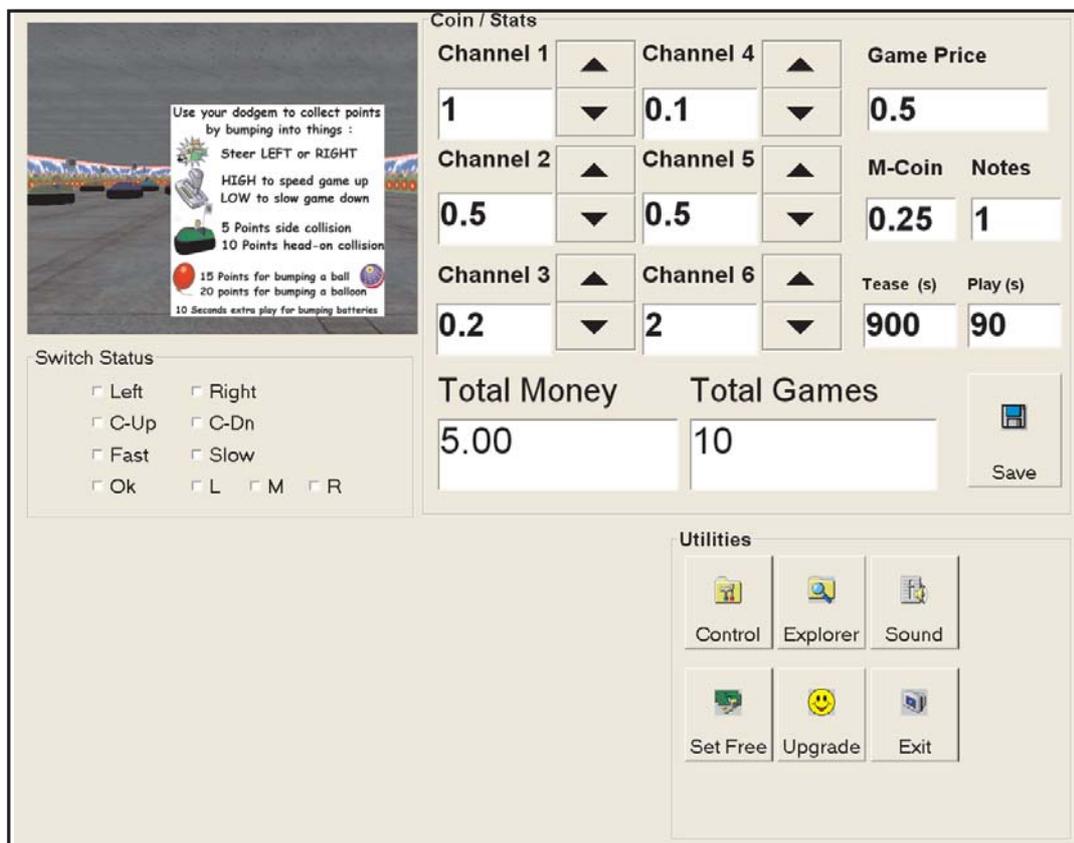
Setting the ride teaser attract time

Using the mouse click in the box Tease (s). Using the keyboard delete and enter the required time. Remember to save!

PLEASE NOTE THAT THE TIME IS SET IN SECONDS AND NOT MINUTES.

Press F1 to return to the game. DO NOT CLICK EXIT!

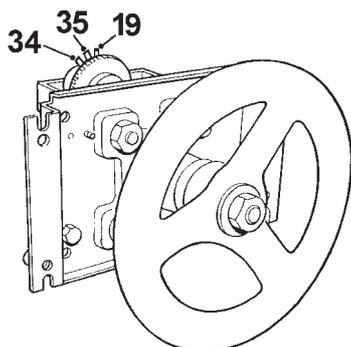
**Please note the Total Money and Total Games cannot be reset.**



## Wiring terminals

37 way connector

|    |              |              |                                |
|----|--------------|--------------|--------------------------------|
| 1  | Brown        |              | Right end stop                 |
| 2  | Brown        | (0.5mm wire) |                                |
| 3  | Blue         |              | Left end stop                  |
| 4  | Blue         | (0.5mm wire) |                                |
| 5  | Yellow/Red   |              | Start lamp (12 volt bulb)      |
| 6  | Yellow/Red   |              |                                |
| 7  | Purple/Red   |              | Low gear                       |
| 8  | Purple/Red   |              |                                |
| 9  | Yellow/Black |              | High gear                      |
| 10 | Yellow/Black |              |                                |
| 11 | Grey/Black   |              | Right turn switch              |
| 12 | Grey/Black   |              |                                |
| 13 | Orange/Black |              | Left turn switch               |
| 14 | Orange/Black |              |                                |
| 15 | Grey/Blue    |              | Mechanical coin mechanism      |
| 16 | Grey/Blue    |              |                                |
| 17 | White/Black  |              | Start switch                   |
| 18 | White/Black  |              |                                |
| 19 | Red/Brown    |              | Steering pot (see diagram)     |
| 20 | Blue         | (0.5mm wire) | to Actuator                    |
| 21 | Brown        |              |                                |
| 22 | White/Red    |              | 12 volt Rear flasher           |
| 23 | White/Red    |              |                                |
| 24 | Blue         |              | Coin counter                   |
| 25 | Blue         |              |                                |
| 26 | -----        |              |                                |
| 27 | -----        |              |                                |
| 28 | Green/Red    |              | Price up switch                |
| 29 | Green/Red    |              |                                |
| 30 | Red/Blue     |              | Price down switch              |
| 31 | Red/Blue     |              |                                |
| 32 | White        |              | Note acceptor input            |
| 33 | White        |              |                                |
| 34 | Pink         |              | Steering pot (see diagram)     |
| 35 | Pink/Black   |              | Steering pot (see diagram)     |
| 36 | Red +        |              | 24 volt DC Note acceptor power |
| 37 | Black -      |              |                                |



# SERVICE MANUAL section 10.23

for

## *Animal Ambulance*

### Contents

|                             |              |
|-----------------------------|--------------|
| Customer operation of toy   | Page 10.23.1 |
| Emptying the cash box       | 10.23.2      |
| Alarm system (where fitted) | 10.23.2      |
| Servicing                   | 10.23.3      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 122 cm |
| Width  | 63 cm  |
| Height | 140 cm |
| Weight | 85 kg  |

### Customer operation of toy

Whilst the machine is connected to a live power supply (*but before a ride has been credited*) the interior button switches **(1)** flash constantly, and a teaser attraction sound track repeats every 120 seconds.

The ride is initiated by inserting a coin into the coin mechanism **(2)**.

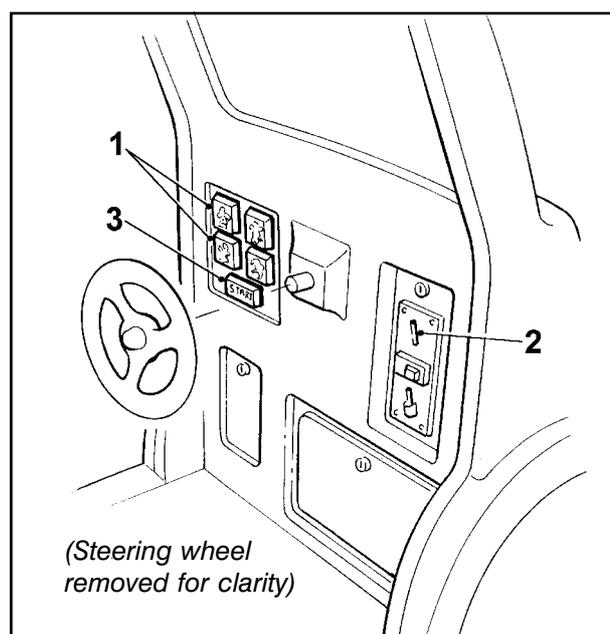
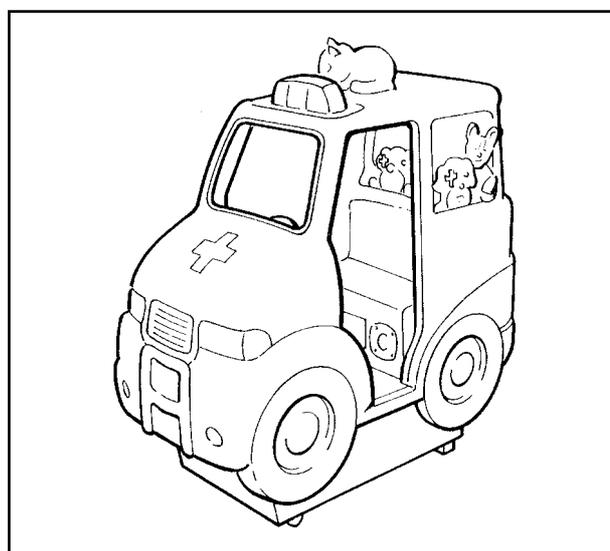
If the timer/controller (*situated beneath the seat*), has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button **(3)** will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button **(3)** has been pressed the toy will begin to move backwards and forwards on its base. Whilst in motion a constant background sound will be heard.

On the dashboard are picture button switches **(1)**. Pressing these switches will produce a series of sound effects.

When the duration of the ride has been reached, the toy will stop moving, and an oral message will be given saying that the ride has finished.



## Maintenance

**WARNING** Read Safety section of this manual and disconnect electrical power before opening any access panels.



### Alarm System

#### labelling Cancellling or disarming (where fitted)

An alarm is fitted to protect the cash box.

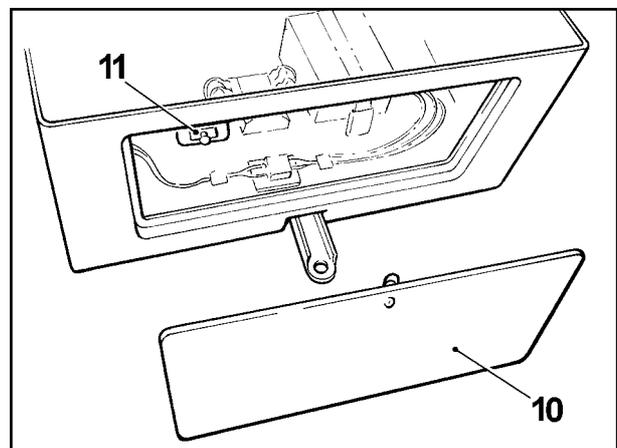
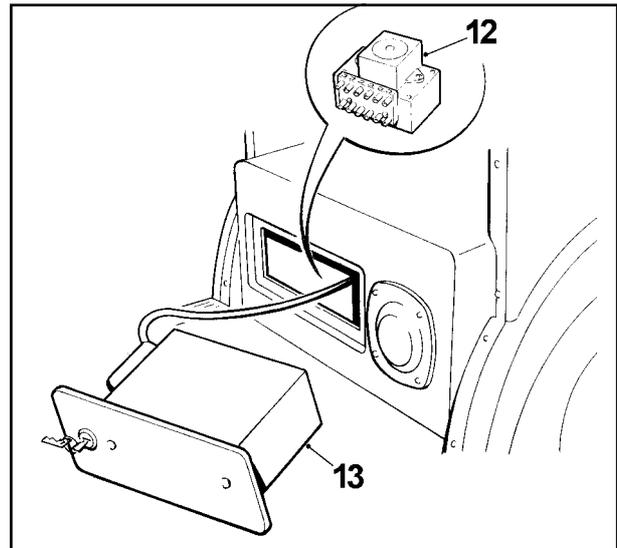
The alarm unit (12) is situated under the seat, behind the control unit (13). (On some models it may be situated within the base unit.)

The alarm is triggered by a micro-switch (14) that is released when the cash box door (15) is opened.

To disarm, or cancel an already activated alarm, open the base access panel (10). This deactivates micro-switch (11) that is depressed by the panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

To maintain the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located within the base of the alarm unit.



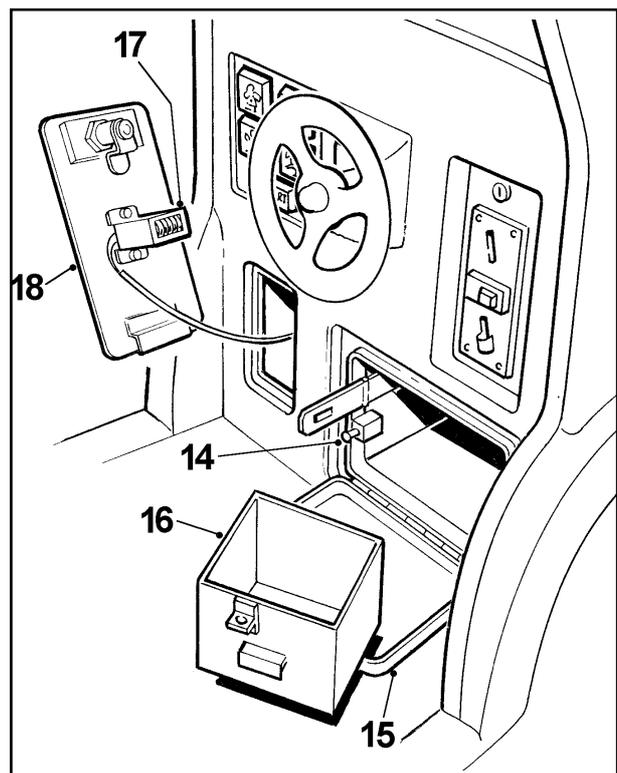
### Emptying the cash box

The cash box may be fitted with an alarm.

Disarm the alarm (where fitted) by opening the base access panel (10). This deactivates a micro-switch (11).

Unlock and open the cash box door (15). Release the cash box (16) by removing the clip or padlock. Slide the cash box out and empty.

Refit in the reverse order.



### Credits counter

The credits counter (17) is attached to the rear of the access panel (18).

## Transportation

**WARNING** Read Safety section of this manual and disconnect electrical power before moving the machine.

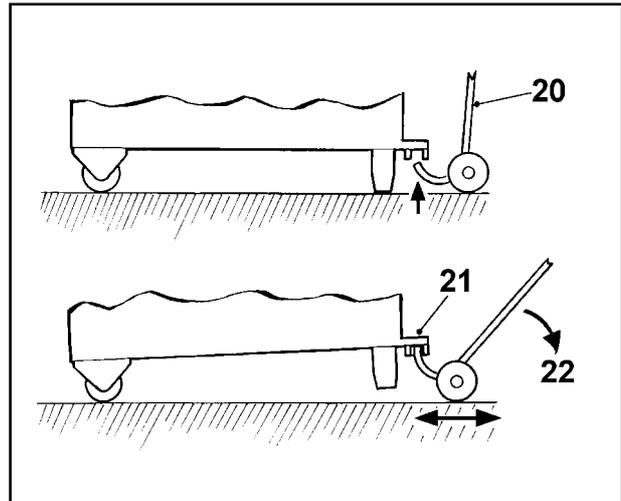


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



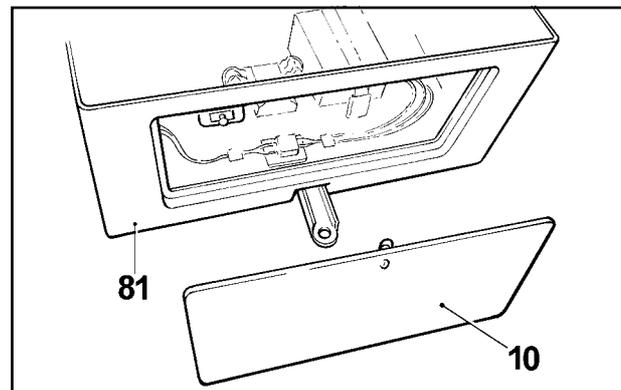
## Servicing

**WARNING** Read Safety section of this manual and disconnect electrical power before opening any access panels.



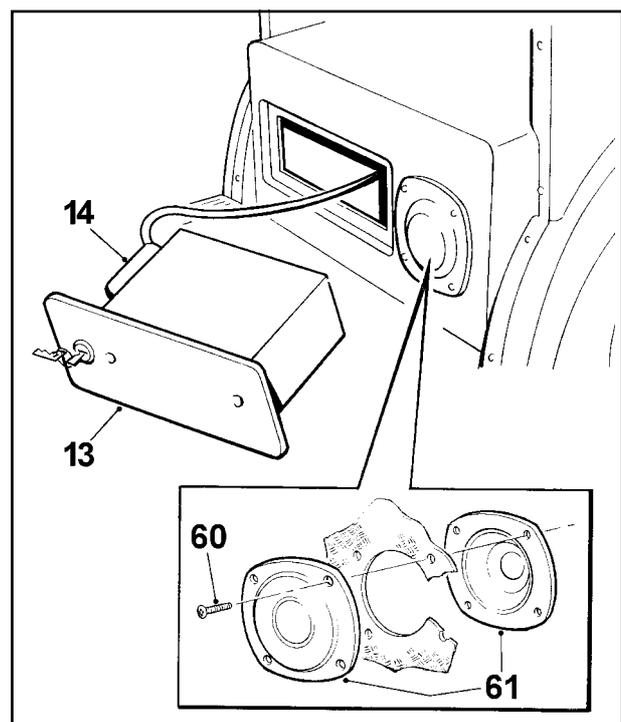
### Base access panel

The panel (10) at the rear of the base will give access for servicing the P.S. unit, and relays. Greater access can be gained by removing the glass fibre cover (81) from the base. (See page 10.23.5)



### Timer/controller: removal / replacing

With the key, remove the timer/controller unit (13) and disconnect it from its plug (14).



### Speaker: removal / replacing

Gain access to the rear of the speaker by unlocking and removing the timer/controller unit (13).

Remove the four screws (60) retaining the speaker (61). Disconnect the wires from the speaker.

Reassemble in the reverse order.

**Coin Mechanism: removal / replacing**

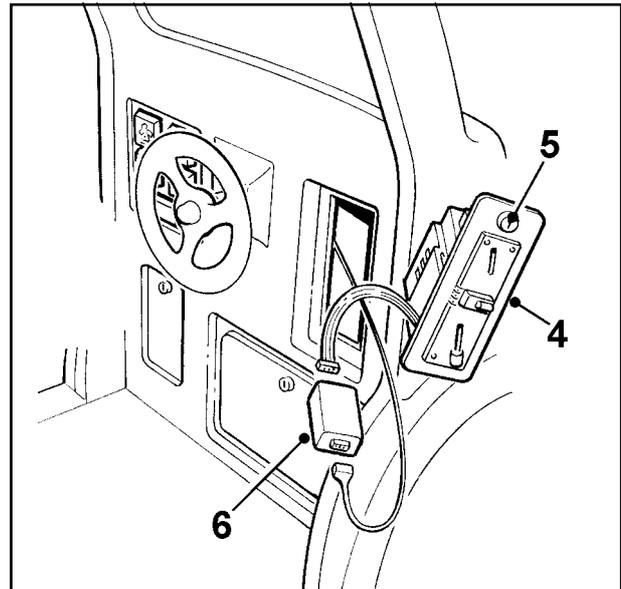
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit.



The coin mechanism (4) is released by the use of a key (5). Once released, unplug the mechanism from the interface unit (6).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a micro-switch.

For further details about the unit see the relevant coin mechanism section in this manual.

**Start switch & Button switches**

From the front the start switch (3) & button switches (1) appear to be different, but from the rear they are of identical construction.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

The retainer (72) also has a micro-switch clipped to it.

**Bulb: replacement**

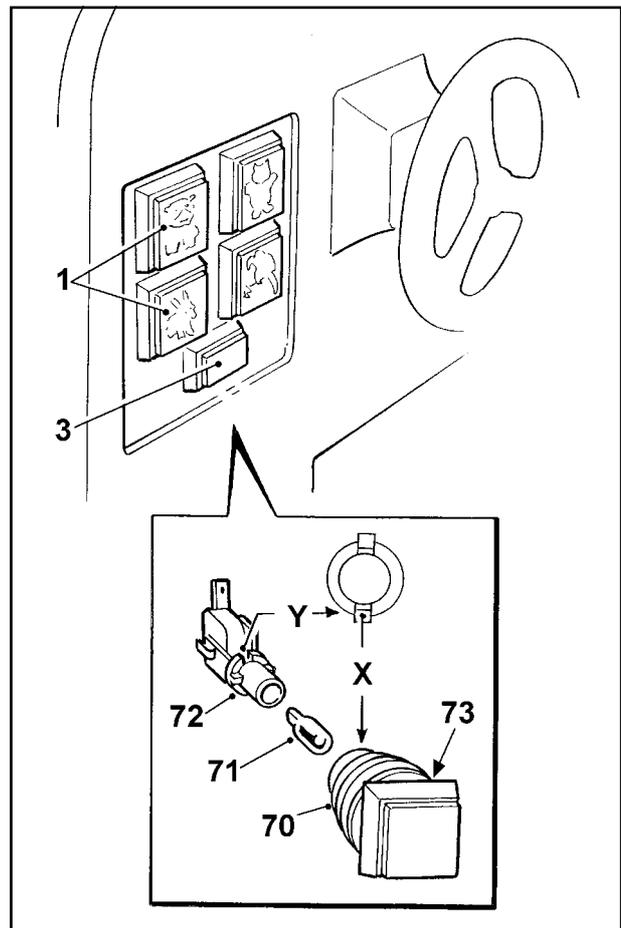
Switch OFF the main power supply to the machine!

Gain access to the rear of the switches by unlocking and removing the counter access panel (4).

Locate the bulb retainer (72) and pull it straight out of the switch. The retainer is a tight fit and will require some effort to pull out.

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. The tabs (X) of the switch must align with the slots (Y) of the retainer. Push firmly on the retainer until it is heard to click into place.

**Start and Button switches: replacement**

Pull out the retainer (72) as previously described.

Unscrew the locking ring (73) from the back of button switch.

Withdraw the button switch (70) from the console.

Reassemble in the reverse order.

## Toy from base: removal / replacing

If possible, place the complete ride on a work bench.

To give access to the front retaining nuts (40), move the toy forwards either by using its own motor power or by manually turning the gearbox belt (51).

Remove the front nuts (40), from under the sliding frame. (They are fastened onto screws that are captivated on the underside of the toy.)

Remove the rear access cover (41).

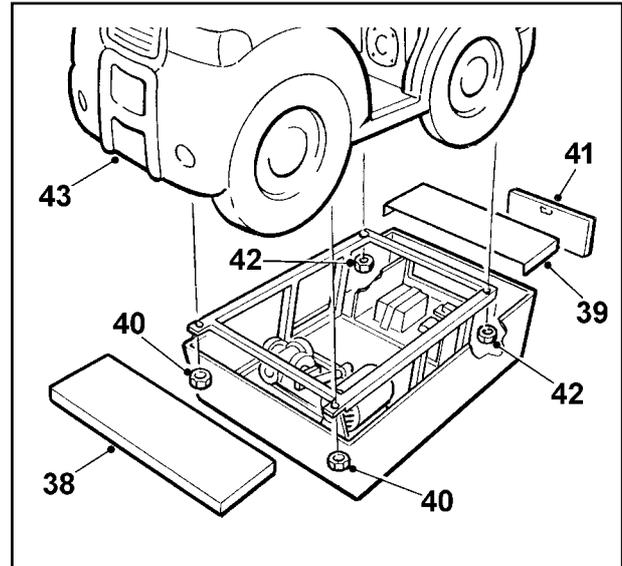
Through the rear access, remove the two nuts (42) from under the sliding frame.

Remove the timer/controller unit from beneath the seat as previously described (page 10.23.3). Under the seat locate the loom main terminal block. Disconnect the terminal block by pulling its two halves apart.

Push the base half of the terminal block through the hole in the floor of the toy.

Carefully lift the toy (43) off the base.

Reassemble the toy (43) to the base in the reverse order.



## Base cover: removal / replacing

To remove the base cover (31) it is necessary to first remove the toy as described above.

Remove panels (38 & 39) also shown above.

Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap.

Place on the floor a padded mat (24) large enough to take the base when it is laid on its side.

Carefully lay the base down on the mat.

Release the power cable gland (30).

The glass fibre cover (31) is fastened to the base frame by four screws (32).

Remove the four screws (32).

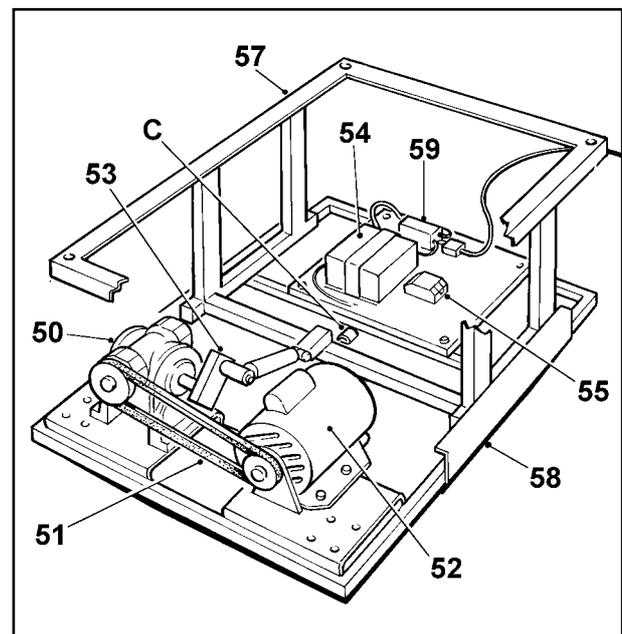
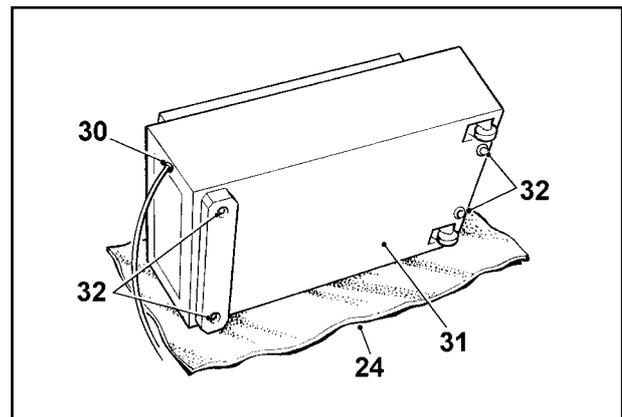
Pull the cover (31) clear of the base.

The base can now be stood upright.

*This gives access to:*

- Gearbox (50)
- Belt (51)
- Motor (52)
- Crank (53)
- Power supply (P.S.) unit (54)
- Solid state relay for motor (55)
- Frame, sliding (57)
- Frame, base (58)
- Mains filter (where fitted) (59)

Refit cover in the reverse order.



# SERVICE MANUAL section 10.24

for

## *Percy Police Car*

### Contents

|                             |              |
|-----------------------------|--------------|
| Customer operation of toy   | Page 10.24.1 |
| Emptying the cash box       | 10.24.2      |
| Alarm system (where fitted) | 10.24.2      |
| Servicing                   | 10.24.3      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 147 cm |
| Width  | 90 cm  |
| Height | 100 cm |
| Weight | 100 kg |

### Customer operation of toy

Whilst the machine is connected to a live power supply (*but before a ride has been credited*) the interior button switches (1), side lights (2) and beacon (3) flash constantly, and a teaser attraction sound track repeats every 120 seconds.

The ride is initiated by inserting a coin into the coin mechanism (4).

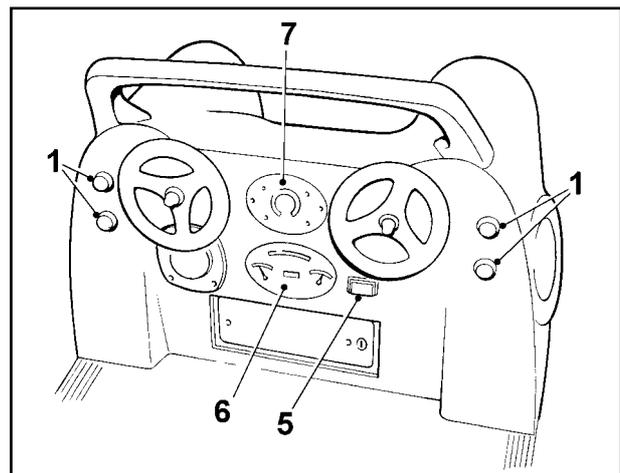
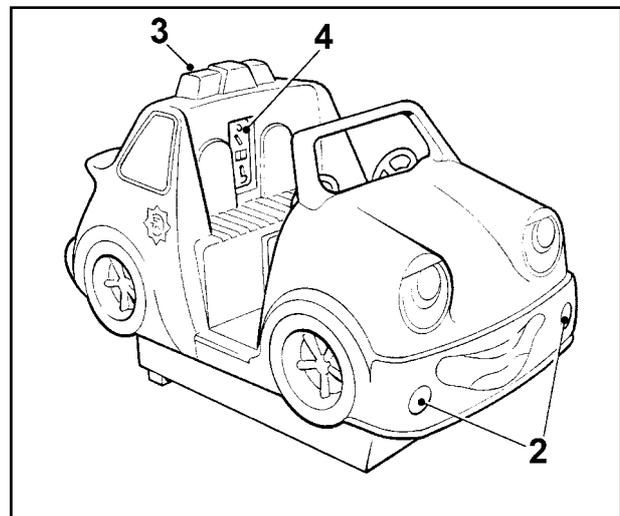
If the timer/controller has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button (5) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button (5) has been pressed the toy will begin to move backwards and forwards on its base. Whilst in motion a constant background sound will be heard and the speedo (6) and tacho (7) lights will be activated.

On the dashboard are four button switches (1), which when pressed produce additional sound effects.

When the duration of the ride has been reached, the toy will stop moving, and an oral message will be given saying that the ride has finished.



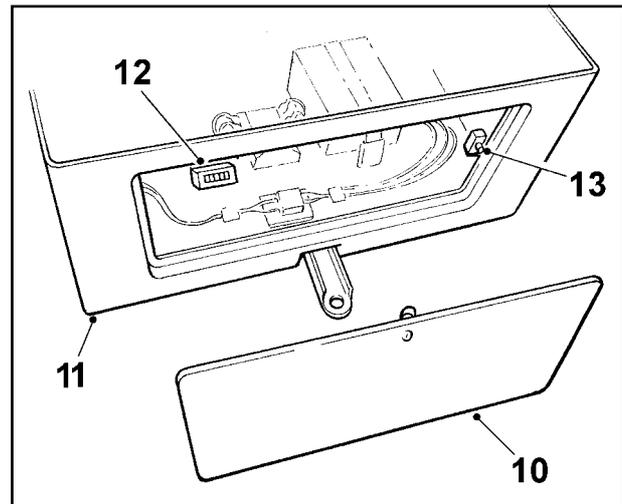
## Maintenance

### Base access panel

**WARNING** *Read safety instructions first.  
Disconnect electrical power before  
opening any access panels.*



The panel (10) at the rear of the base gives access to the coin counter, P.S. unit, relay and chaser unit. Greater access can be gained by removing the glass fibre cover (11) from the base. (See Servicing)



### Coin counter

The coin counter (12) is accessed by removing the base access panel (10).

### Emptying the cash box

*The cash box may be fitted with an alarm.*

Disarm the alarm (where fitted) by unlocking and removing the base access panel (10) using a key. Removal of the panel operates the micro-switch (13) which disarms the alarm. If upon removal of the base panel no micro-switch can be seen, then the ride has not been fitted with an alarm system.

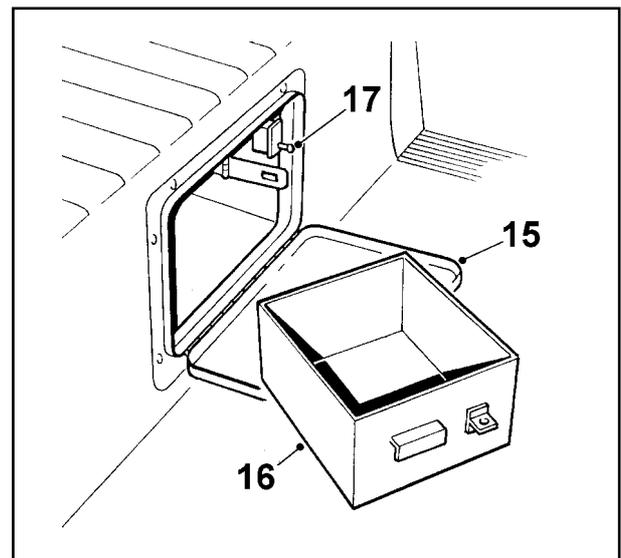
Once the alarm has been disarmed, unlock and open the cash box door (15) using the key.

Release the cash box (16) by removing the clip or padlock.

Slide the cash box out and empty.

Refit the cash box and replace the clip or padlock.

Close and lock the cash box door using a key.



### Alarm system: Cancelling or disarming

*(where fitted)*

An alarm is fitted to protect the cash box.

The alarm is triggered by a micro-switch (17) that is operated when the cash box door (15) is opened.

To disarm, or cancel an already activated alarm, unlock and remove the base access panel (10). This operates the micro-switch (13) which disarms or cancels the alarm.

The alarm unit (25) is situated behind the timer/control unit. (See the following page)

The alarm is battery powered. Even with the ride disconnected from any mains power supply the alarm can still be activated.

To maintain the reliability of the alarm, it may be necessary to periodically replace the batteries, which are located within the base of the alarm unit.

## Transportation

**WARNING** *Read safety instructions, and disconnect the electrical power supply before moving the machine.*

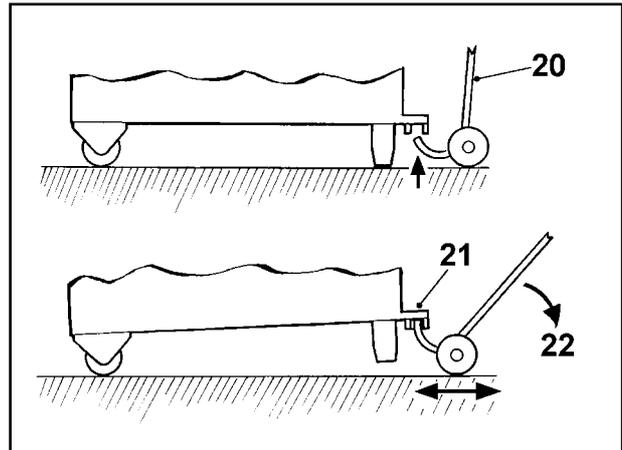


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21)

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



## Servicing

**WARNING** *Read safety instructions, and disconnect the electrical power supply before opening any access panels.*



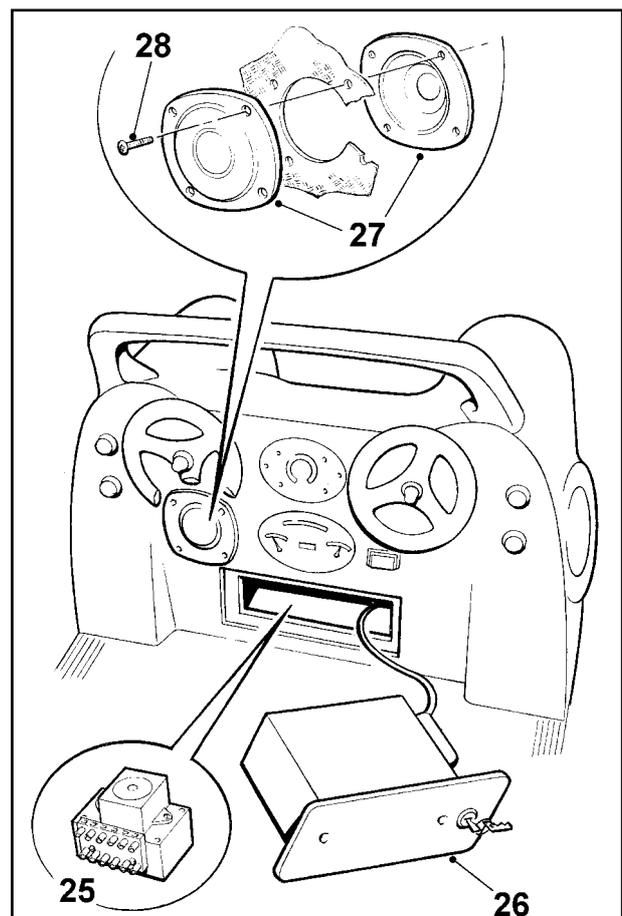
### Timer/controller: removal / replacing

With the key, remove the timer/controller unit (26) and disconnect it from its plug.

### Speaker: removal / replacing

Gain access to the rear of the speaker (27) by removing the timer/controller unit (as described above).

Remove the four screws (28) retaining the speaker, then extract it from the console. Disconnect the wires from the rear of the speaker. Reassemble in the reverse order.



**Coin Mechanism: removal / replacing**

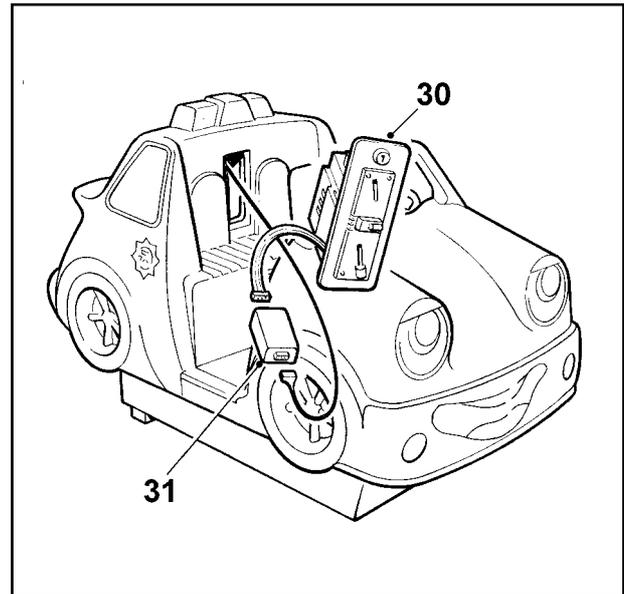
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit



The coin mechanism (30) is released by the use of a key. Once released, unplug the mechanism from the interface unit (31).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but two wires will need to be disconnected from the microswitch that is mounted on the coin mechanism.

For further details about the unit see the relevant Coin mechanism section in this manual.

**Start switch & Button switches**

From the front the start button (5), and the button switches (1) appear to be different, but from the rear they are of identical construction.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch. The retainer (72) also has a micro-switch clipped to it.

**Bulb replacement**

Gain access to the rear of the start button switch by removing the timer/controller (26).

Locate the bulb retainer (72) and pull it straight out of the button switch. The retainer is a tight fit and will require some effort to pull it out.

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. The tabs (X) of the switch must align with the slots (Y) of the retainer. Push firmly on the retainer until it is heard to click into place.

Reassemble in the reverse order.

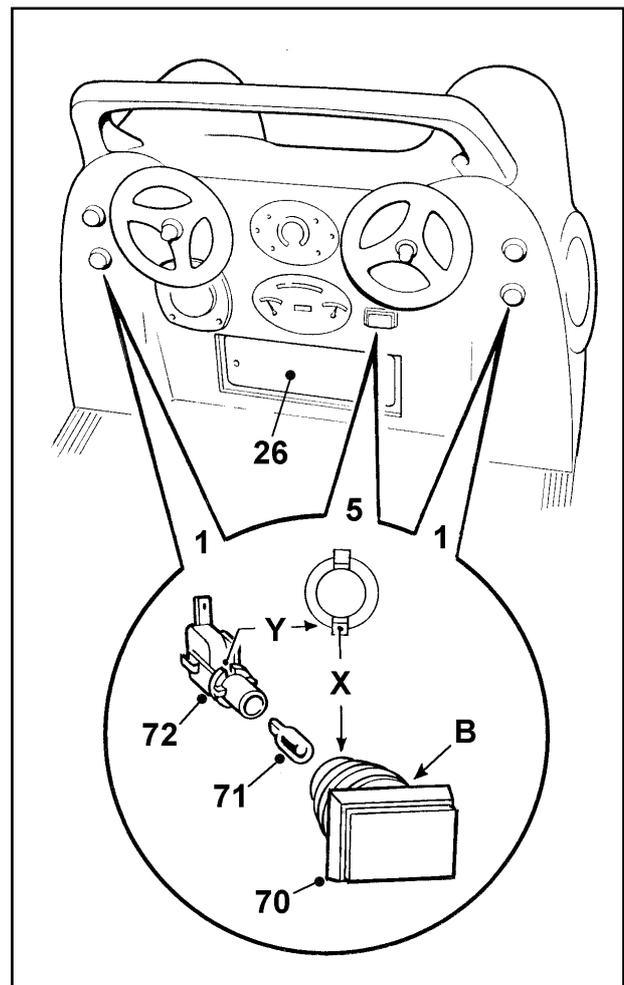
**Start and Button Switch replacement**

Remove the bulb & retainer (72) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the switch (70).

Reassemble in the reverse order.

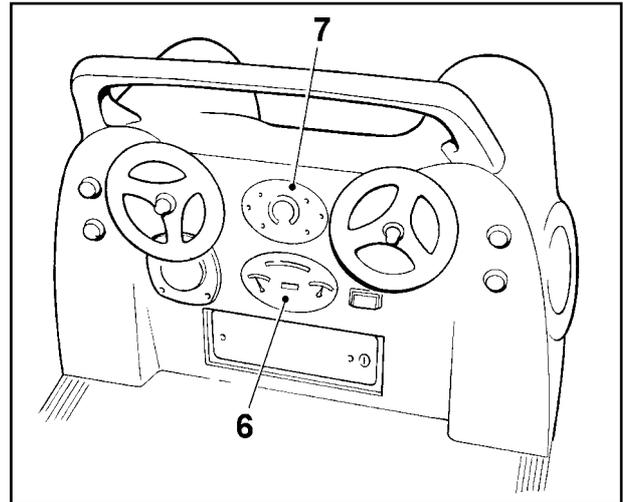


## Dashboard gauges: removal / replacing

The two dashboard gauges (6 & 7) each consist of a display panel with an integral electronic circuit board attached to the rear.

The gauges are each attached to the dashboard by the two outer screws. *Do not remove the four inner screws as these retain the circuit boards.*

The loom is first plugged into the Speedo display (6) from which a spur lead is then attached to the Tacho (7).

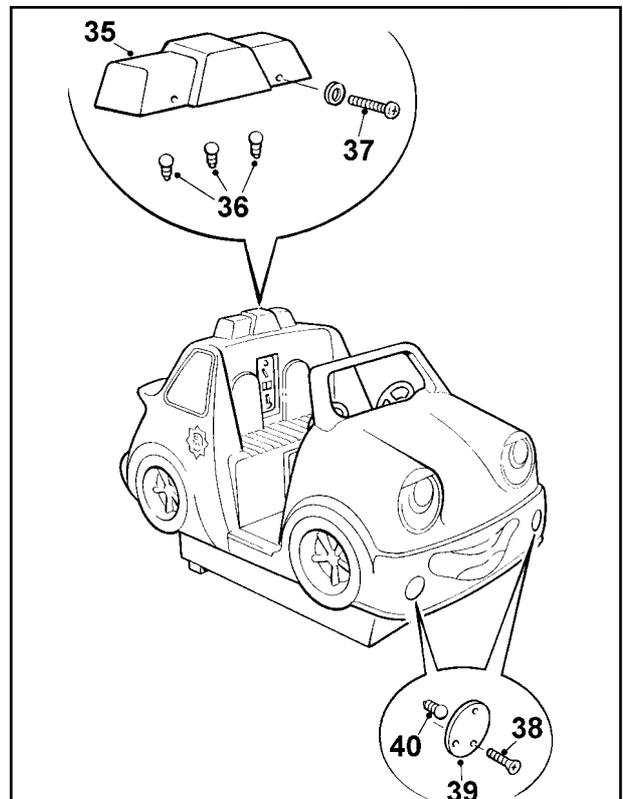


## Beacon bulbs: replacement

Remove the four screws (37) retaining the beacon lens (35).

Replace bulb (36).

Reassemble in the reverse order.



## Side light bulb: replacement

Remove the screws (38) retaining the side light lens (39).

Replace bulb (40).

Reassemble in the reverse order.

**Base cover: removal / replacing**

Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap.

Place on the floor a padded mat (80) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

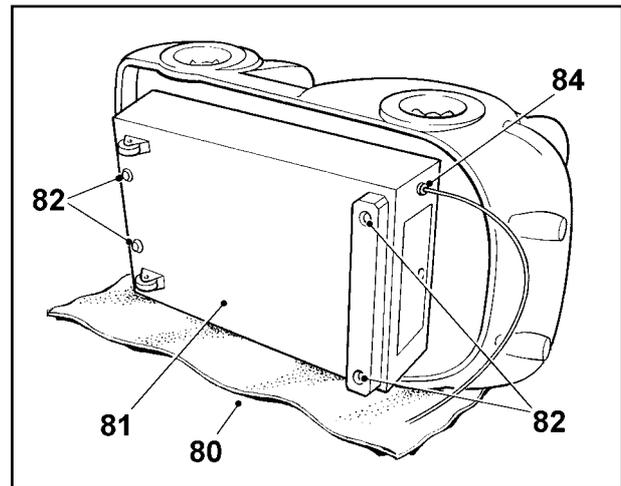
The glass fibre cover (81) is fastened to the base frame by four screws (82).

Remove the four screws (82).

Release the power cable gland (84).

Pull the cover (81) clear of the machine.

The machine can now be stood upright.



This gives access to:

Coin counter (50)

Power supply (P.S.) unit (51)

Solid state relay for motor (52)

Mains power supply cable (53)

Motor (54)

Gearbox (55)

Crank (56)

Belt (57)

Mains filter (58)

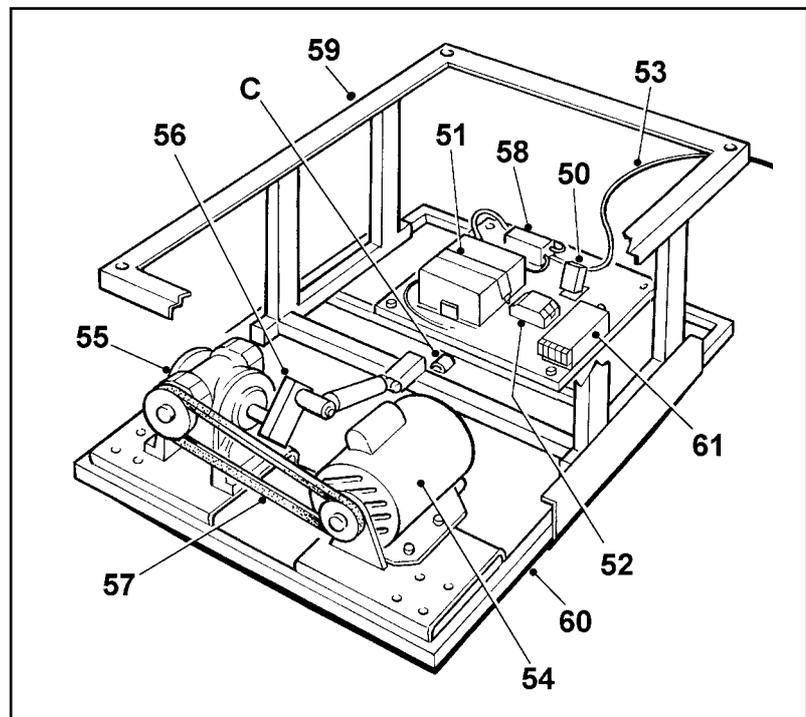
Frame, sliding (59)

Frame, base (60)

\* Chaser unit for beacon (61)

\* **Note:** The beacon chaser unit is fitted with a knob which when turned controls the rate at which the beacon flashes.

Refit cover in the reverse order.



**Toy from base: removal / replacing**

If possible, place the complete machine onto a bench.

With the key, remove the timer/controller unit and disconnect it from its plug.

Within the timer/controller compartment locate the loom terminal block.

Disconnect the terminal block by pulling its two halves apart. Push the base half of the terminal block through the hole in the floor of the toy.

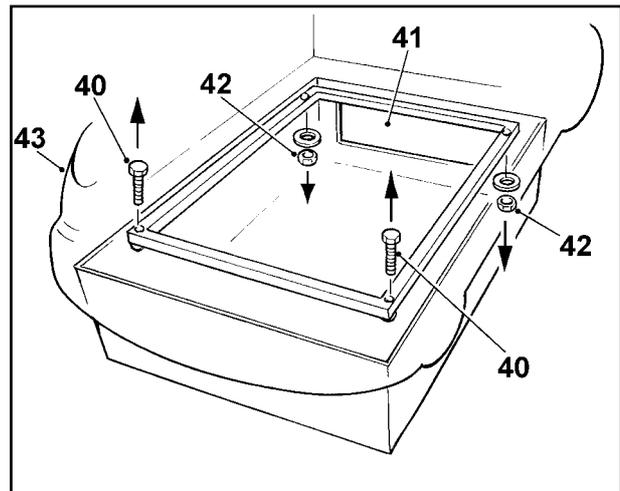
From within the timer/controller compartment, remove the two front bolts **(40)** and their washers. The bolts are retained by captive nuts welded to the underside of sliding frame.

Remove the base rear access cover **(41)**.

From inside the rear access panel, remove the nuts **(42)** from the rear bolts. The bolts are captivated in the floor of the toy.

Lift the toy **(43)** from the base.

Reassemble the toy **(43)** to the base in the reverse order.



# SERVICE MANUAL section 10.25

for

## *Bill & Ben*

### Contents

|                             |              |
|-----------------------------|--------------|
| Customer operation of toy   | Page 10.25.1 |
| Emptying the cash box       | 10.25.2      |
| Alarm system (where fitted) | 10.25.2      |
| Servicing                   | 10.25.3      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 127 cm |
| Width  | 79 cm  |
| Height | 147 cm |
| Weight | 120 kg |

### Customer operation of toy

Whilst the machine is connected to a live power supply (*but before a ride has been credited*) the interior button switches **(1)** flash constantly, and a teaser attraction sound track repeats every 120 seconds.

The ride is initiated by inserting a coin into the coin mechanism **(2)**.

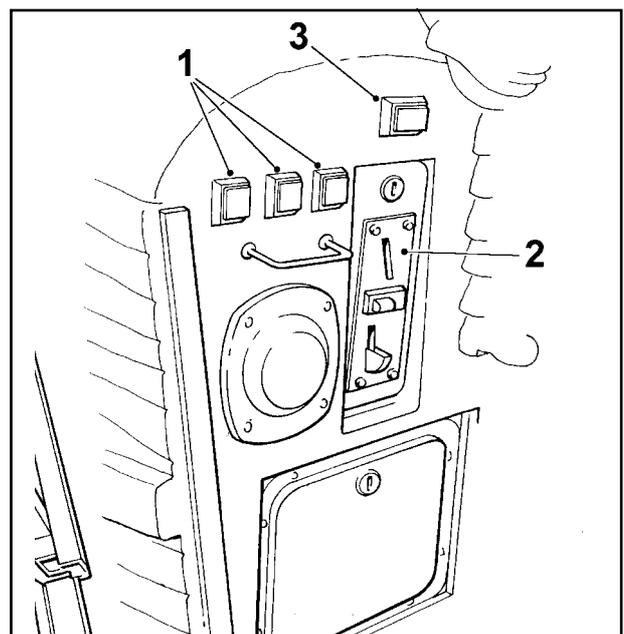
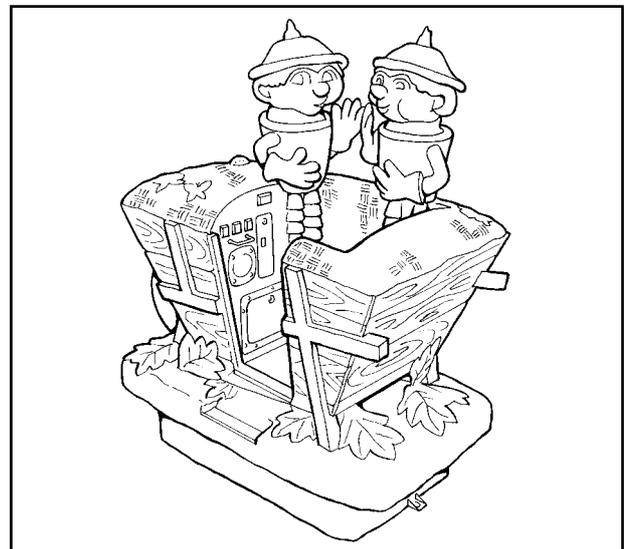
If the timer/controller (*situated beneath the seat*), has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button **(3)** will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button **(3)** has been pressed the toy will begin to move backwards and forwards on its base. Whilst in motion a constant background sound will be heard.

On the dashboard are button switches **(1)**. Pressing these switches will produce a series of sound effects.

When the duration of the ride has been reached, the toy will stop moving, and an oral message will be given saying that the ride has finished.



## Maintenance

**WARNING** Read Safety section of this manual and disconnect electrical power before opening any access panels.



### Alarm System

#### labelling Cancellling or disarming (where fitted)

An alarm is fitted to protect the cash box.

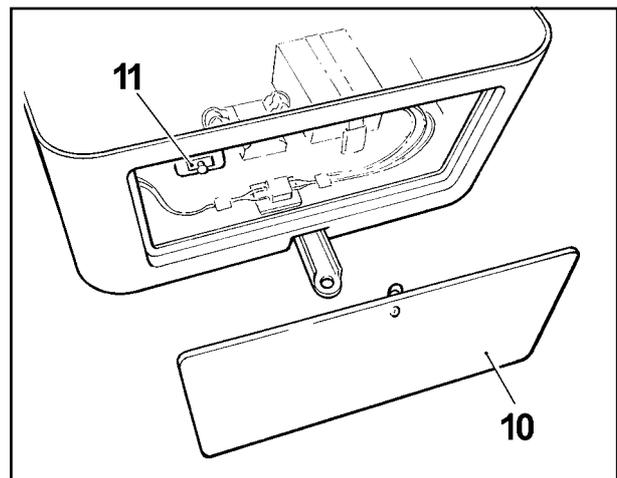
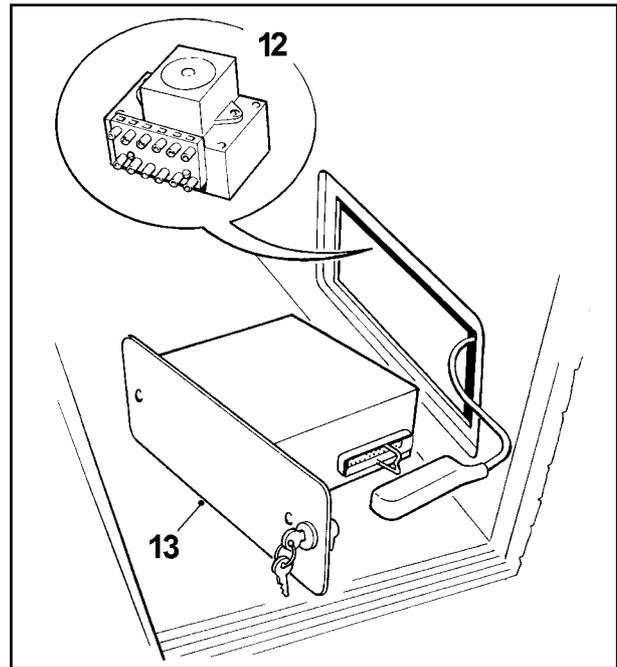
The alarm unit (12) is situated under the seat, behind the control unit (13). (On some models it may be situated within the base unit.)

The alarm is triggered by a micro-switch (14) that is released when the cash box door (15) is opened.

To disarm, or cancel an already activated alarm, open the base rear access panel (10). This deactivates the micro-switch (11) that is depressed by the panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

To maintain the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located within the base of the alarm unit.



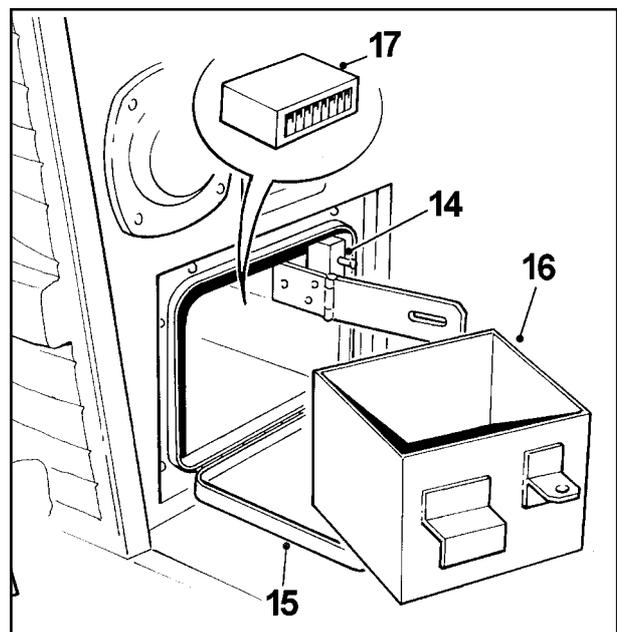
### Emptying the cash box

The cash box may be fitted with an alarm.

Disarm the alarm (where fitted) by opening the base rear access panel (10). This deactivates a micro-switch (11).

Unlock and open the cash box door (15). Release the cash box (16) by removing the clip or padlock. Slide the cash box out and empty.

Refit in the reverse order.



### Credits counter

The credits counter (17) is located inside the cash box compartment.

## Transportation

**WARNING** Read Safety section of this manual and disconnect electrical power before moving the machine.

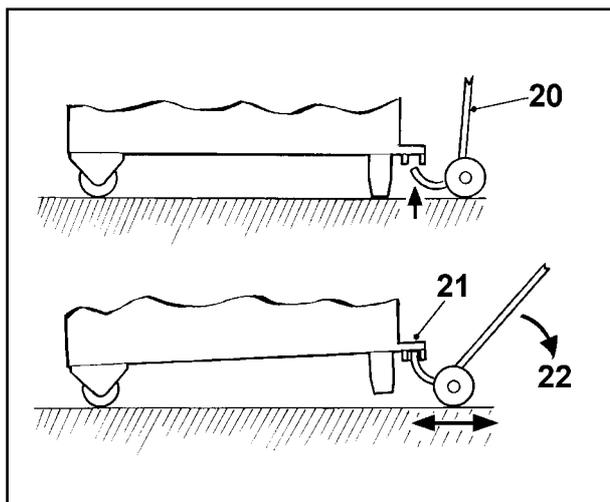


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



## Servicing

**WARNING** Read Safety section of this manual and disconnect electrical power before opening any access panels.

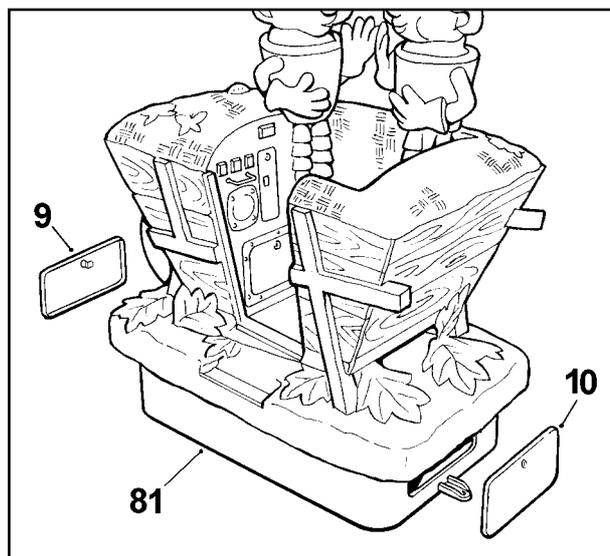


### Base access panels

The panel (10) at the rear of the base will give access for servicing the P.S. unit, and relay. This panel also depresses the alarm micro-switch

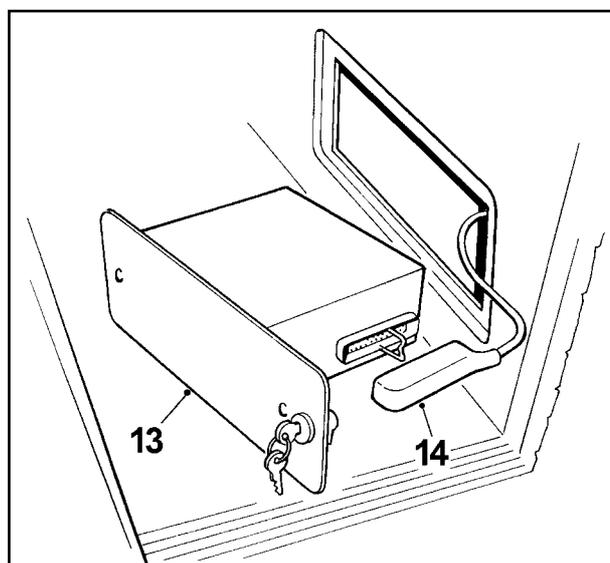
The panel (9) at the front gives access to the drive belt, gearbox, crank & motor. This panel also depresses a micro-switch that once released stops the motor.

Greater access to mechanical components can be gained by removing the glass fibre cover (81) from the base. (See page 10.25.6)



### Timer/controller: removal / replacing

With the key, remove the timer/controller unit (13) and disconnect it from its plug (14).



**Coin Mechanism: removal / replacing**

**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit.



The coin mechanism (2) is released by the use of a key (5). Once released, unplug the mechanism from the interface unit (6).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a micro-switch.

For further details about the unit see the relevant coin mechanism section in this manual.

**Start switch & Button switches**

From the front the start switch (3) & button switches (1) appear to be different, but from the rear they are of identical construction.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

The retainer (72) also has a micro-switch clipped to it.

**Bulb: replacement**

Switch OFF the main power supply to the machine!

Gain access to the rear of the switches by removing the coin mechanism (2).

Locate the bulb retainer (72) and pull it straight out of the switch. The retainer is a tight fit and will require some effort to pull out.

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. The tabs (X) of the switch must align with the slots (Y) of the retainer. Push firmly on the retainer until it is heard to click into place.

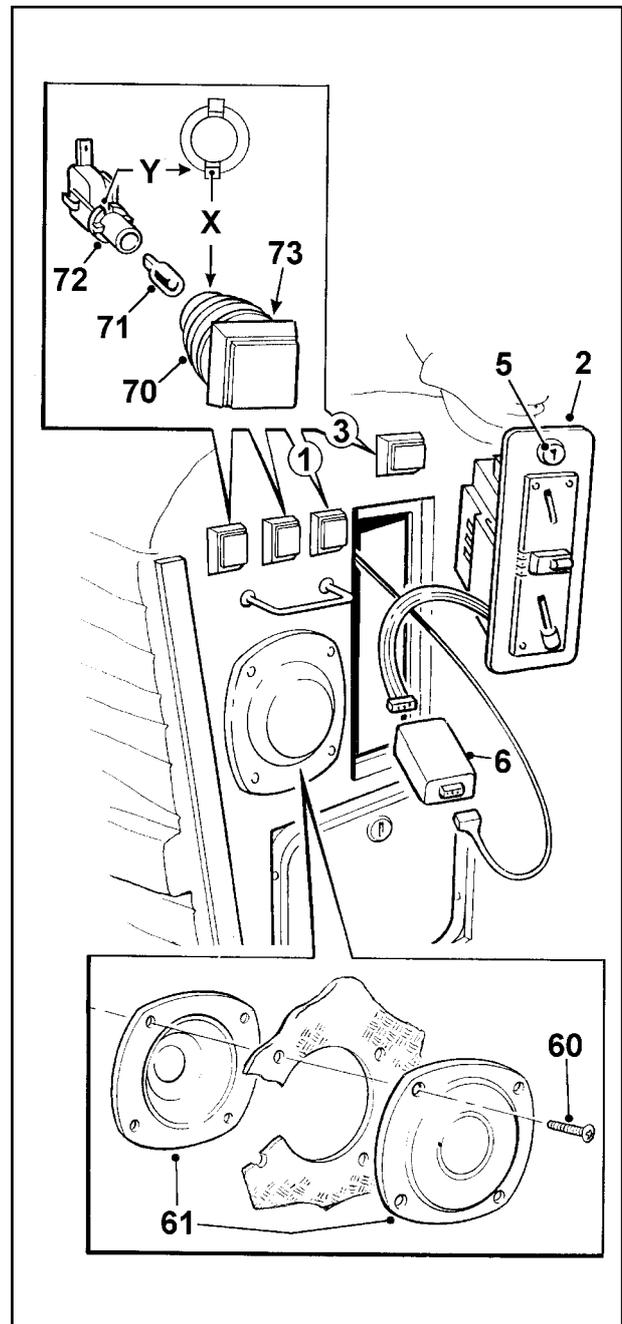
**Start and Button switches: replacement**

Pull out the retainer (72) as previously described.

Unscrew the locking ring (73) from the back of button switch.

Withdraw the button switch (70) from the console.

Reassemble in the reverse order.



## Speaker: removal / replacing

Gain access to the rear of the speaker by unlocking and removing the coin mechanism (2).

Remove the four screws (60) retaining the speaker (61). Disconnect the wires from the speaker.

Reassemble in the reverse order.

## Base cover: removal / replacing

With a key, remove the access panel (26). Detach the micro-switch (25) from the base.

Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

Release the power cable gland (30).

The glass fibre cover (31) is fastened to the base frame by four screws (32).

Remove the four screws (32).

Pull the cover (31) clear of the base.

The base can now be stood upright.

*This gives access to:*

Gearbox (50)

Belt (51)

Motor (52)

Crank (53)

Power supply (P.S.) unit (54)

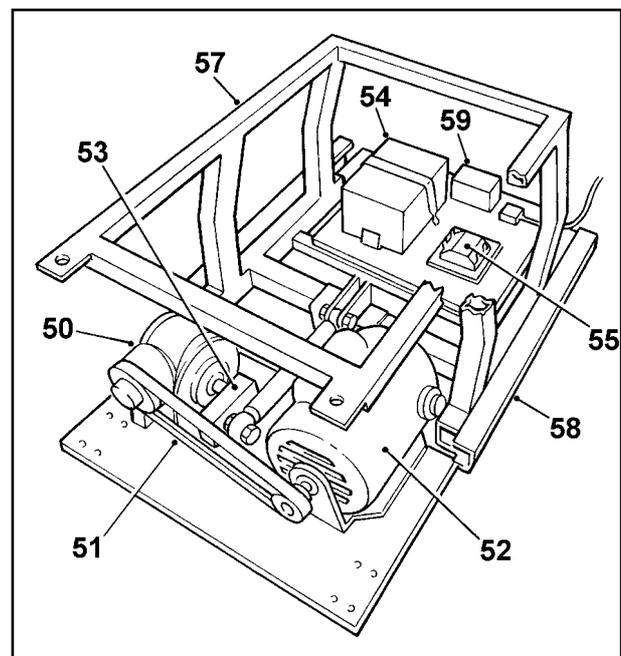
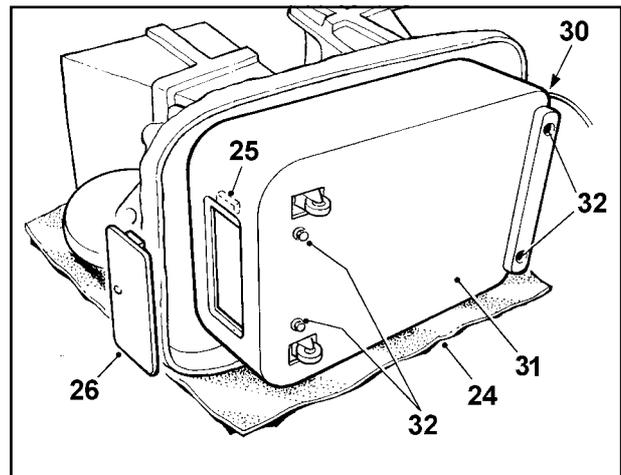
Solid state relay for motor (55)

Frame, sliding (57)

Frame, base (58)

Mains filter (where fitted) (59)

Refit cover in the reverse order.



## 10.25.6

## SERVICING

### Toy from base: removal / replacing

If possible, place the complete ride on a work bench.

Remove the timer/controller unit from beneath the seat as previously described (page 10.25.3). Under the seat locate the loom main terminal block. Disconnect the terminal block by pulling its two halves apart.

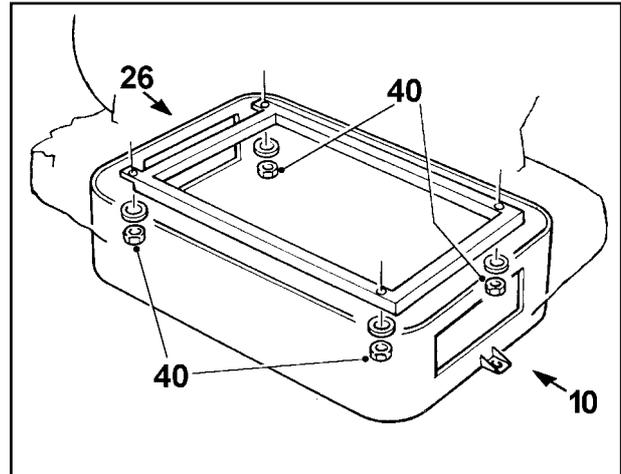
Push the base half of the terminal block through the hole in the floor of the toy.

Remove the front (26) and rear (10) access panels.

Remove the four nuts (40), from under the sliding frame. (They are fastened onto screws that are captivated on the underside of the toy.)

Carefully lift the toy off the base.

Reassemble the toy to the base in the reverse order.



### Figures: removal / replacing

The two figures of Bill (75) with the orange scarf and Ben (76) with the green scarf are of similar construction but they are not interchangeable.

*Assemble the figures as follows:*

Screw the rod (80) into the captive nut within the head (77).

Lock the rod into the head with the locknut (78)

Screw the collar (79) up to the locknut

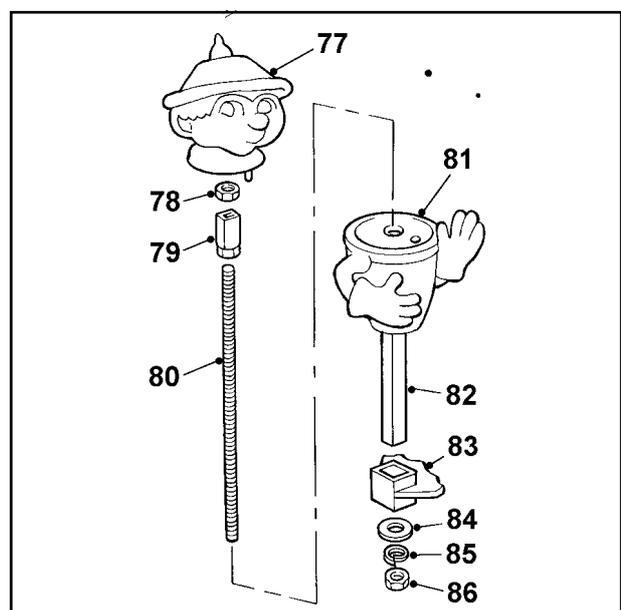
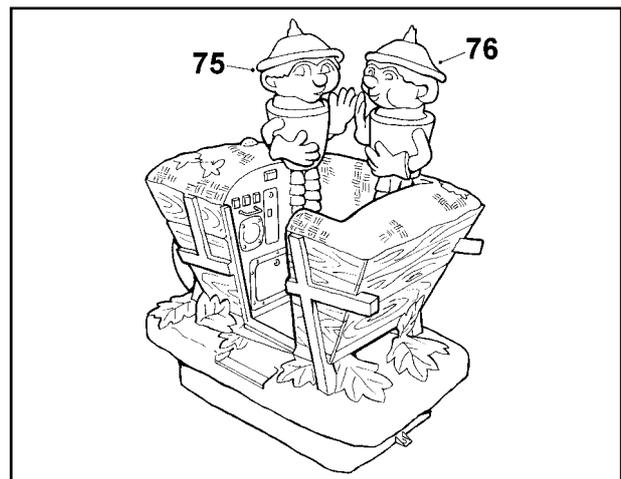
Insert the rod (80) through the body (81). Ensure that the location pin of the head fits into its hole in the body.

Bonded within the toy is a square section bracket (83). Insert the square section tube (82) of the body down through the bracket (83).

Fit the washers (84 & 85) and nut (86) on to the rod.

Access to fit the washers and nut are:

For Bill (75) through the coin mechanism aperture, and for Ben (76) through the timer/controller unit aperture



# SERVICE MANUAL section 10.26

for

## *Huggy Bear*

### Contents

|  |         |
|--|---------|
| Customer operation of toy              | 10.26.1 |
| Emptying the cash box                  | 10.26.2 |
| Alarm system (where fitted)<br>10.26.2 |         |
| Servicing                              | 10.26.3 |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 148 cm |
| Width  | 82 cm  |
| Height | 130 cm |
| Weight | 115 kg |

### Customer operation of toy

Whilst the machine is connected to a live power supply (*but before a ride has been credited*) the headlights (1) and the console button switches (2) flash constantly. A teaser attraction sound track repeats every 120 seconds.

The ride is initiated by inserting a coin into the coin mechanism (4).

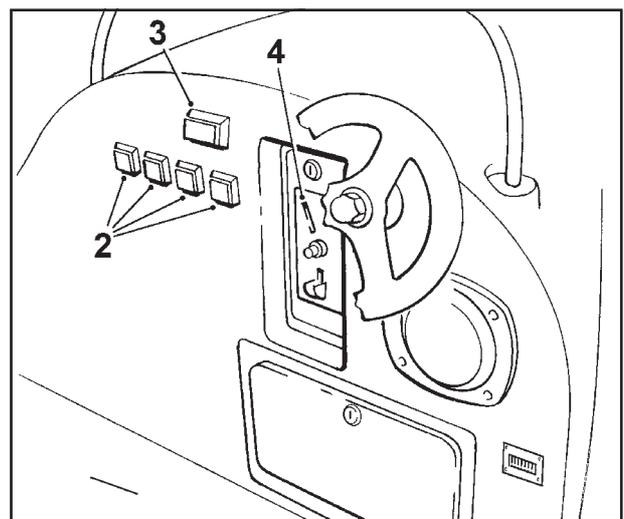
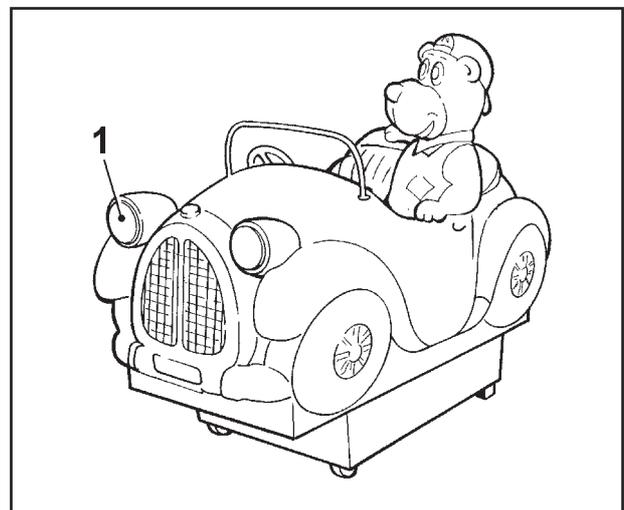
If the timer/controller (*situated beneath the seat*), has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button (3) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button (3) has been pressed the toy will begin to move backwards and forwards on its base. Whilst in motion a constant background sound will be heard.

Additional sound effects are available on pressing the coloured button switches (2).

When the pre-set duration of the ride has been reached, the toy will stop moving, and an oral message will be given saying that the ride has finished.



## Maintenance

**WARNING** Read safety instructions first and disconnect electrical power before opening any access panels.



### Alarm System

#### Cancelling or disarming (where fitted)

An alarm is fitted to protect the cash box.

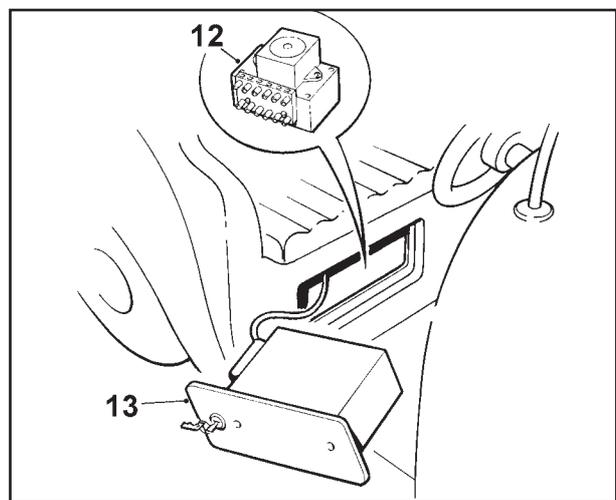
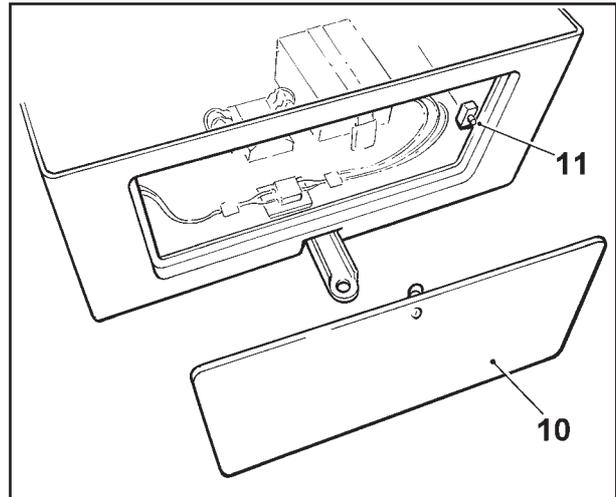
The alarm unit (12) is usually to be found beneath the seat, behind the control unit (13), but on some models it may be situated within the base unit.

The alarm is triggered by a micro-switch (14) that is released when the cash box door (15) is opened.

To disarm, or cancel an already activated alarm, open the base access panel (10). This deactivates micro-switch (11) that is depressed by the panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

To maintain the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located within the base of the alarm unit.



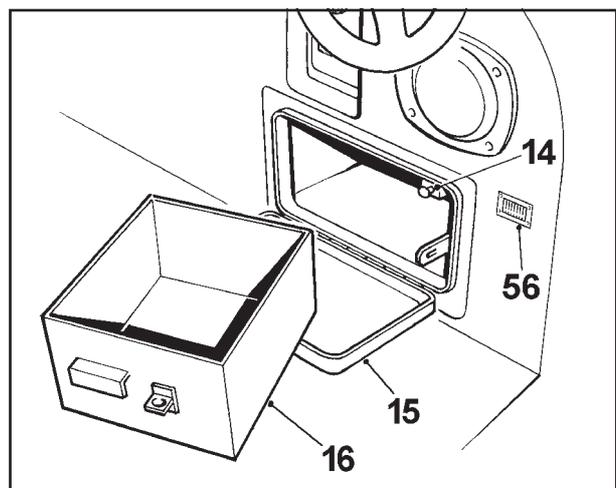
### Emptying the cash box

The cash box may be fitted with an alarm.

Disarm the alarm (where fitted) by opening the base access panel (10). This deactivates a micro-switch (11).

Unlock and open the cash box door (15). Release the cash box (16) by removing the clip or padlock. Slide the cash box out and empty.

Refit in the reverse order.



### Credits counter

The credits counter (56) is situated to the right of the cash box door

## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

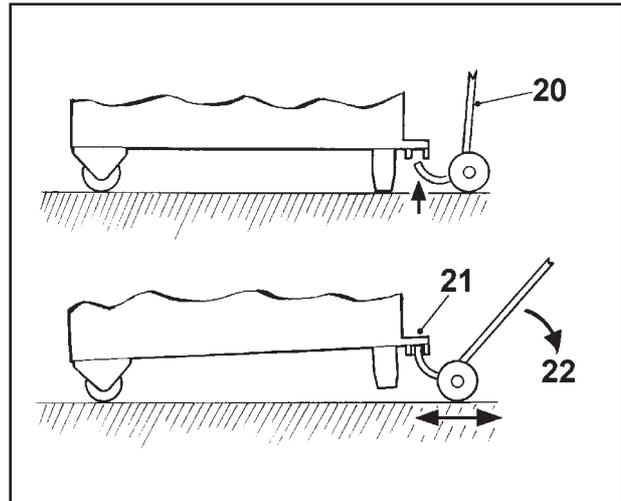


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



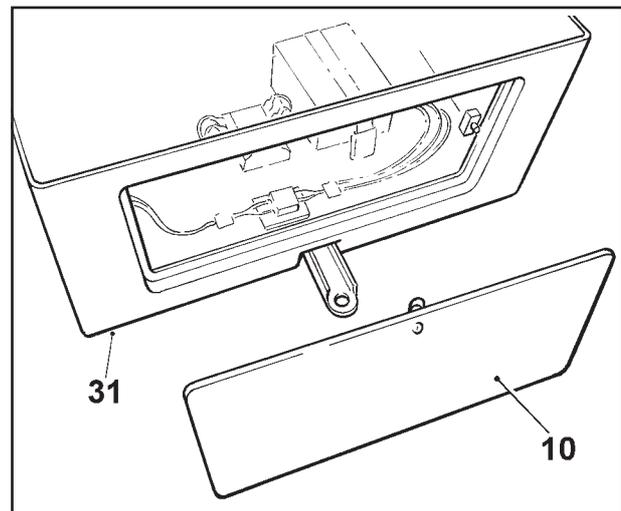
## Servicing

**WARNING** Read safety instructions first and disconnect electrical power before opening any access panels.



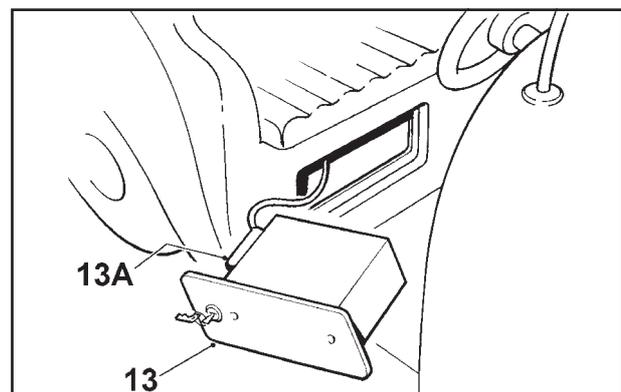
### Base access panel

The panel (10) at the rear of the base will give access for servicing the P.S. Unit and relay. Greater access can be gained by removing the glass fibre cover (31) from the base. (See page 10.26.5)



### Timer/controller: removal / replacing

With the key, remove the timer/controller unit (13) and disconnect it from its plug (13A).



**Coin Mechanism: removal / replacing**

**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit.



The coin mechanism (4) is released by the use of a key (4A). Once released, unplug the mechanism from the interface unit (6).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a micro-switch.

For further details about the unit see the relevant coin mechanism section in this manual.

**Speaker: removal / replacing**

Gain access to the rear of the speaker by removing the coin mechanism (4) (as described above).

Remove the four screws (60) retaining the speaker (61). Extract the speaker through the coin mechanism aperture.

Disconnect the wires from the speaker.

Reassemble in the reverse order.

**Start switch & Button switches**

From the front the start switch (3) & button switches (2) appear to be different, but from the rear they are of identical construction.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

(The retainer (72) also has a micro-switch clipped to it.)

**Bulb: replacement**

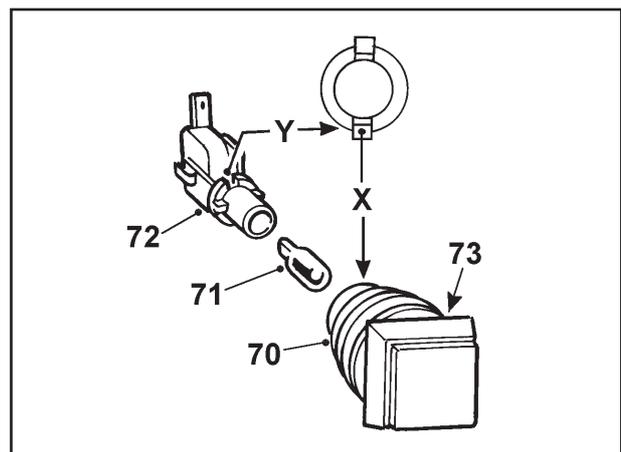
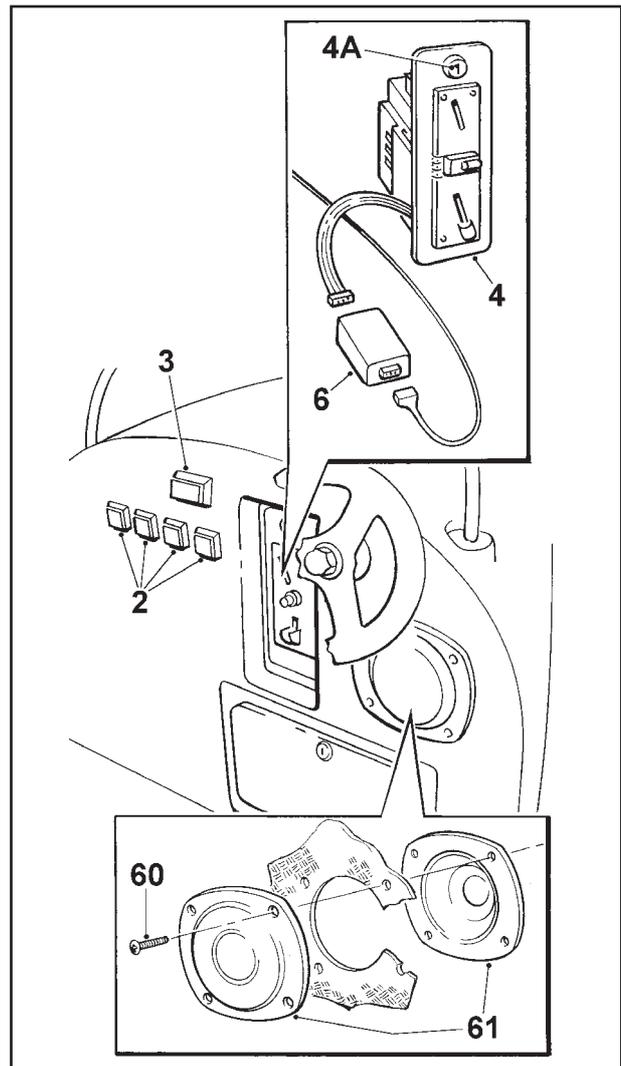
Switch OFF the main power supply to the machine!

Gain access to the rear of the switches by removing the coin mechanism (4), (as described above).

Locate the bulb retainer (72) and pull it straight out of the switch. The retainer is a tight fit and will require some effort to pull out.

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. The tabs (X) of the switch must align with the slots (Y) of the retainer. Push firmly on the retainer until it is heard to click into place.

**Start and Button switches: replacement**

Remove the bulb & retainer (72) as previously described.

Unscrew the locking ring (73) from the back of button switch.

Withdraw the button switch (70) from the console.

Reassemble in the reverse order.

## Base cover: removal / replacing

Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap. Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

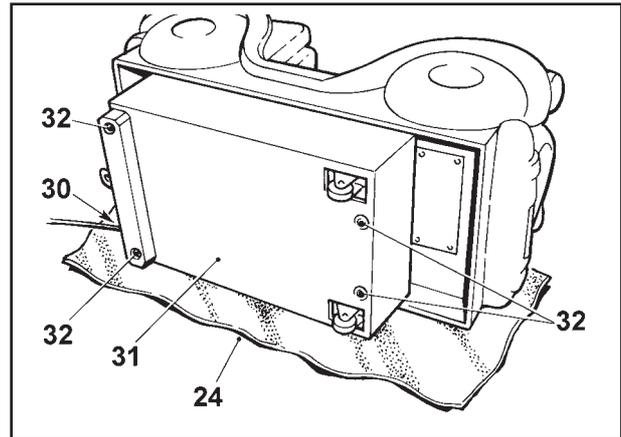
Release the power cable gland (30).

The glass fibre cover (31) is fastened to the base frame by four screws (32).

Remove the four screws (32).

Pull the cover (31) clear of the machine.

The machine can now be stood upright.



### This gives access to:

Gearbox (50)

Belt (51)

Motor (52)

Crank (53)

Power supply (P.S.) unit (54)

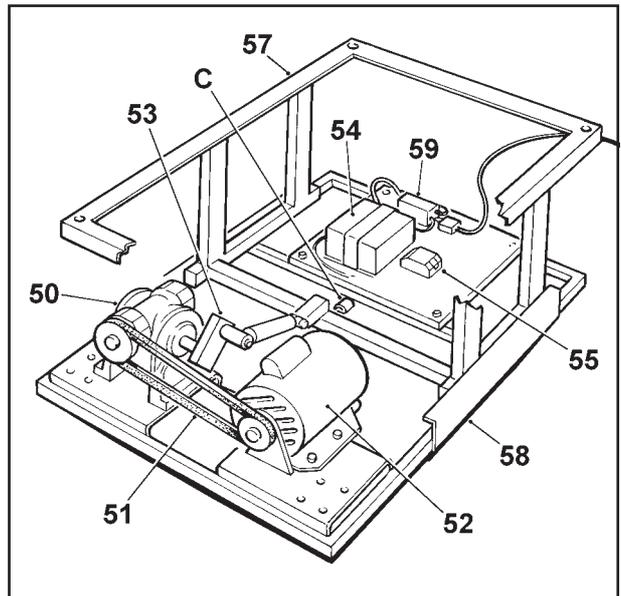
Solid state relay for motor (55)

Frame, sliding (57)

Frame, base (58)

Mains filter (where fitted) (59)

Refit cover in the reverse order.



## Toy from base: removal / replacing

If possible, place the complete ride on a work bench.

Remove the timer/controller from beneath the seat as previously described (page 10.26.3). Under the seat locate the loom main terminal block. Disconnect the terminal block by pulling its two halves apart.

Push the base half of the terminal block through the hole in the floor of the toy.

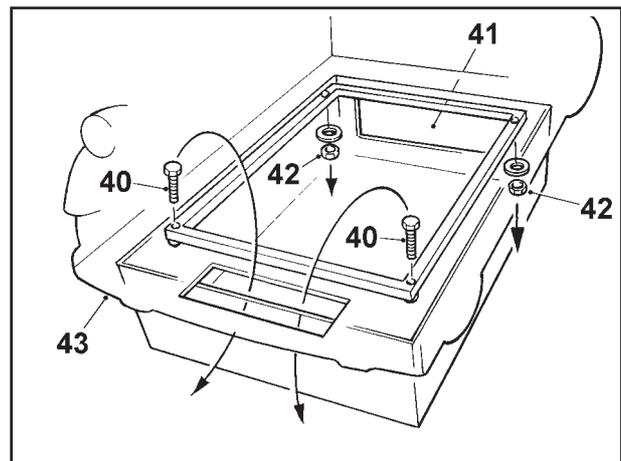
Via the access panel under the front of the toy, remove the two front bolts (40). (The bolts are screwed into captive nuts welded to the sliding frame.)

Remove from the base the rear panel (41).

From inside the rear of the base, remove the two nuts (42) from under the sliding frame.

Carefully lift the toy (43) off the base.

Reassemble the toy (43) to the base in the reverse order.



# SERVICE MANUAL section 10.27

for  
*Buggy*

| Contents  | Page    | Weight & Dimensions |
|---|---------|---------------------|
| Customer operation of toy                       | 10.27.1 | Weight 75 kg        |
| Emptying the cash box                           | 10.27.2 | Length 115 cm       |
| Alarm system ( <i>Where fitted</i> )<br>10.27.2 |         | Width 69 cm         |
| Servicing                                       | 10.27.3 | Height 102 cm       |

## Customer operation of toy

Whilst the machine is connected to a live power supply (*but before a ride has been credited*) the interior button switch (1) and headlights (4) flash constantly, and a teaser attraction sound track repeats every 120 seconds.

The ride is initiated by inserting a coin into the coin mechanism (2).

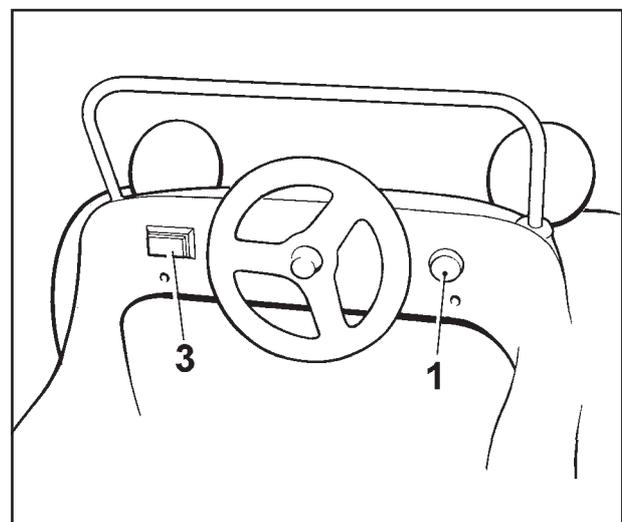
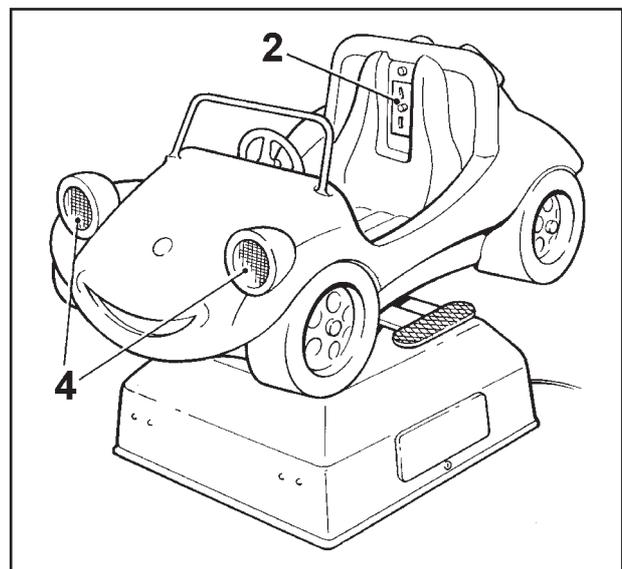
If the timer/controller (*situated in the base*), has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button (3) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button (3) has been pressed the toy will begin to move upon its base. Whilst in motion a constant background sound will be heard.

The button switch (1) on the dashboard, when pressed, produces an additional sound.

When the pre-set duration of the ride has been reached, the toy will stop moving, and an oral message will be given saying that the ride has finished.



## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

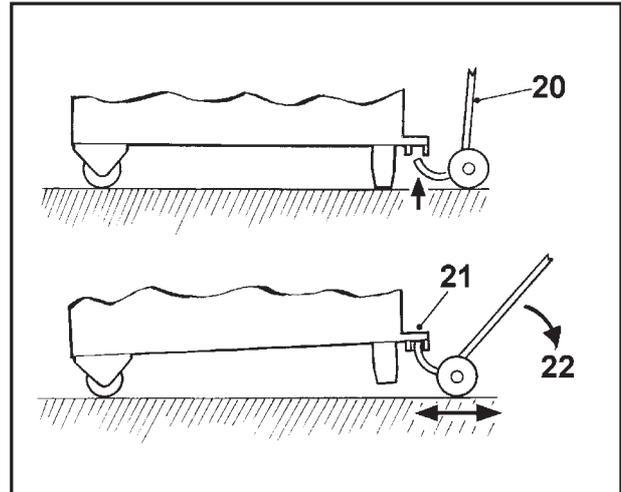


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



## Maintenance

### Emptying the cash box

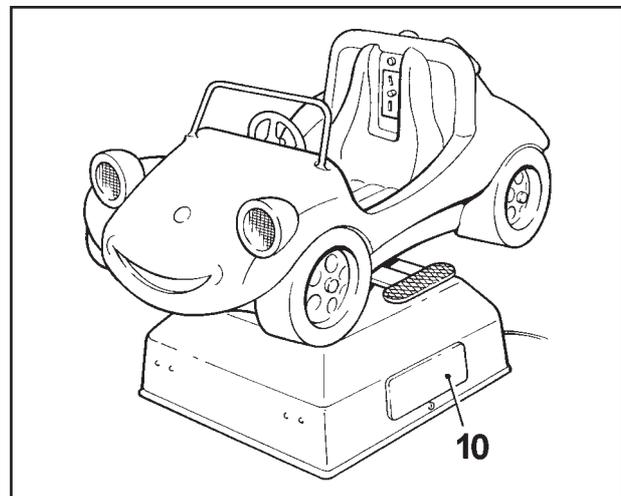
The cash box may be fitted with an alarm.

Disarm the alarm (where fitted) by opening the base side access panel (10). This deactivates a micro-switch.

Unlock and open the cash box door (12).

Release the cash box (13) by removing the clip or padlock. Slide the cash box out and empty.

Refit in the reverse order.



### Cancelling or disarming the alarm system (where fitted)

An alarm is fitted to protect the cash box.

The alarm unit (14), (when fitted), is within the base unit. (See opposite page)

The alarm is triggered by a micro-switch (15) that is released when the cash box door is opened.

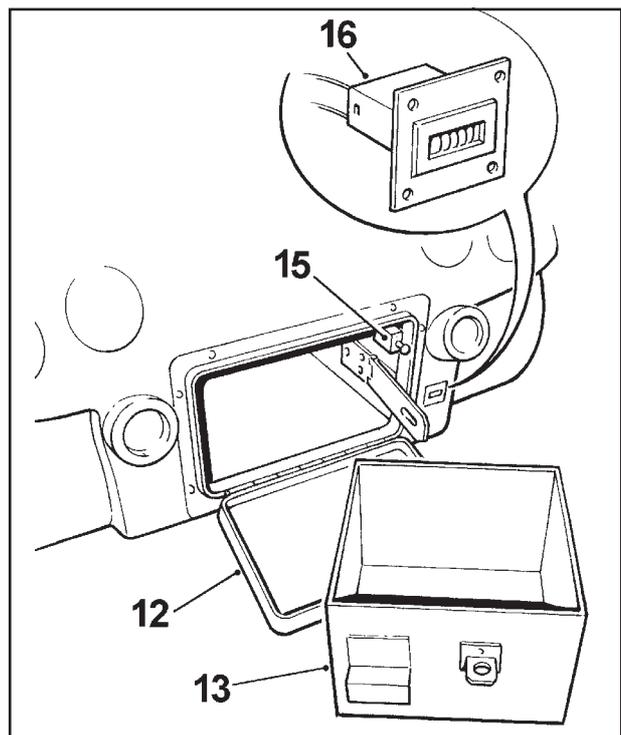
To disarm, or cancel an already activated alarm, open the base side access panel (10). This deactivates a micro-switch that is depressed by the panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

Should the alarm have been operating for some time, it will be necessary to replace the batteries. The batteries are located in the base of the alarm unit (14).

### Credits counter

The credits counter is situated at the rear of the toy (16).



## Servicing

**WARNING** Read safety instructions first.  
 Disconnect electrical power before opening any access panels.



### Base side access panels

The panels (10 & 11) at each side of the base give access for servicing the power supply unit (P.S. unit), timer/control unit, motor relay and alarm (where fitted). Greater access can be gained by removing the glass fibre cover (25) from the base. (See following)

### Base cover: removal / replacing

Remove the panel (26) from under the rear of the toy and disconnect the loom connector (27).

Push down the two gaiters (28) to expose the four screws (29) retaining the toy mounting brackets

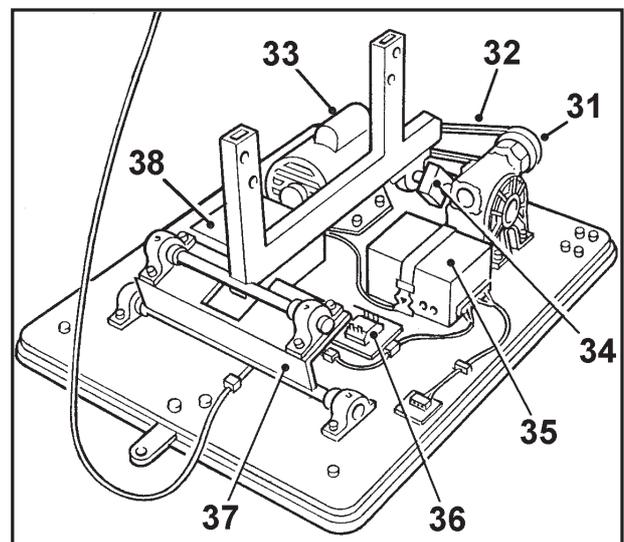
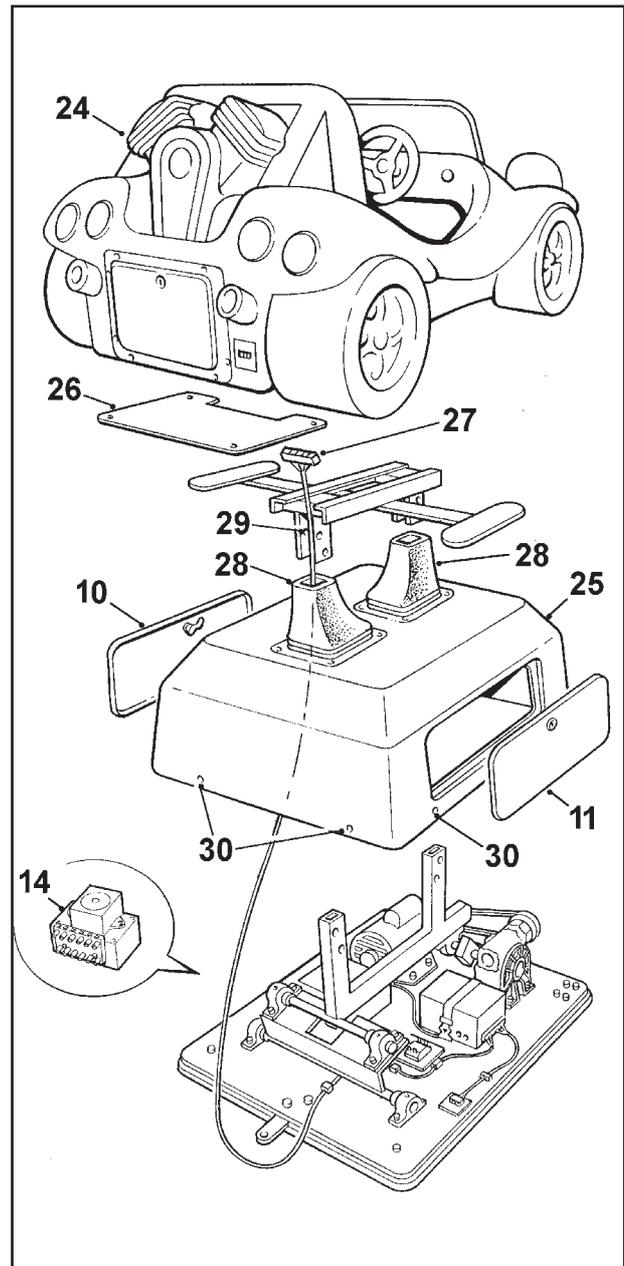
Remove the four screws (29) and lift the toy clear of the base.

Remove the screws (30) from around the base cover. Lift the cover (25), complete with gaiters (28), clear of the base. Care should be taken when feeding the loom through the gaiter.

#### This gives access to:

- Alarm (where fitted) (14)
- Gearbox (31)
- Belt (32)
- Motor (33)
- Crank (34)
- Power supply (P.S.) unit (35)
- Motor solid state relay (36)
- Pivot (37)
- Timer/control unit (38)

Refit cover in the reverse order.



### Start switch & Button switches

From the front the start switch (3) & button switch (1) appear to be different, but from the rear they are of identical construction.

To gain access to the rear of the switches it is necessary to remove the speaker mounting plate (40) from beneath the dashboard. This is done by removing the two screws (41) and dropping the plate down. Take care not to damage the wiring.

The switches (70) are illuminated by a bulb (71). The bulb is mounted within a snap-in retainer (72) that is pushed into the back of the switch.

The retainer (72) also has a micro-switch clipped to it.

#### Bulb: replacement

Switch OFF the main power supply to the machine!

Gain access to the rear of the switches by removing the speaker mounting plate (40) as described above.

Locate the bulb retainer (72) and pull it straight out of the button switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (71) from the retainer (72) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

#### Start switch & Button switch replacement

Remove the bulb/retainer (72) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the button switch (70) from the dashboard.

Refit in the reverse order.

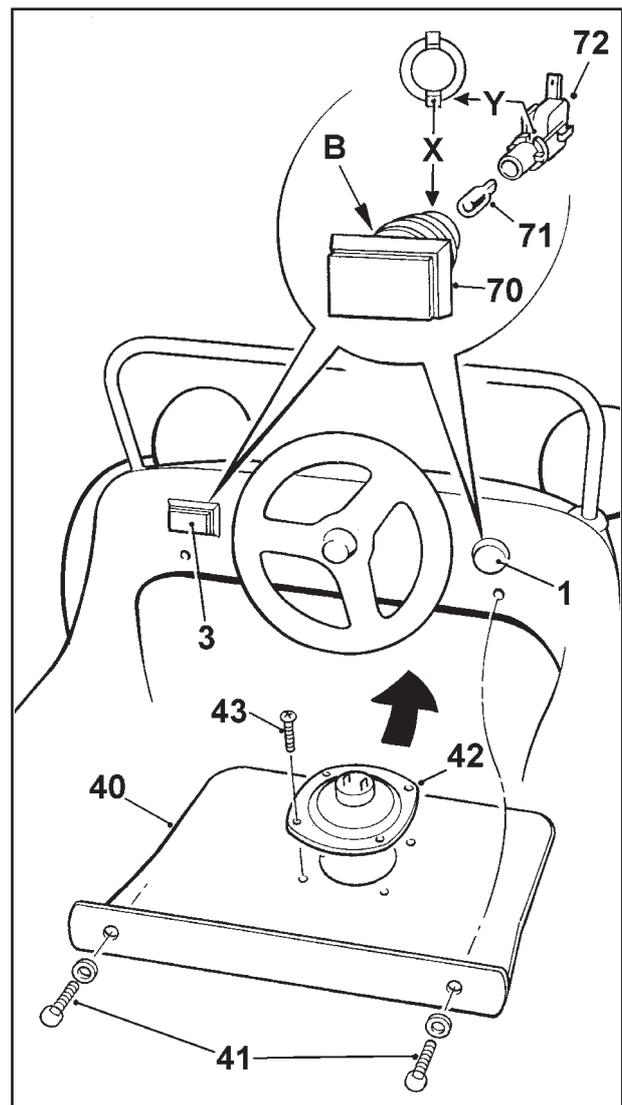
#### Speaker: removal / replacing

It is necessary to drop down the speaker mounting plate (40) to access the speaker (42). Do this by removing the two screws (41).

Disconnect the wires from the back of the speaker.

Release the speaker (42) from the mounting plate by removing the screws (43).

Reassemble in the reverse order.



## Coin Mechanism: removal / replacing

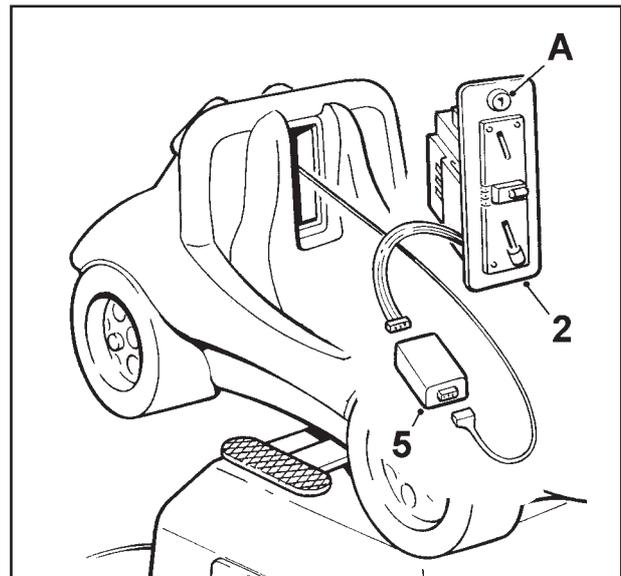
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit



The coin mechanism (2) is released by the use of a key (A). Once released, unplug the mechanism from the interface unit (5).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a micro-switch.

For further details about the unit see the relevant Coin mechanism section in this manual.





# SERVICE MANUAL section 10.28

for

## *Teddy Bears' Picnic*

### Contents

|                             |         |
|-----------------------------|---------|
| Customer operation of toy   | 10.28.1 |
| Emptying the cash box       | 10.28.2 |
| Alarm system (where fitted) | 10.28.2 |
| Servicing                   | 10.28.3 |

### Weight & Dimensions

|        |        |
|--------|--------|
| Length | 160 cm |
| Width  | 160 cm |
| Height | 130 cm |
| Weight | 160 kg |

### Customer operation of toy

The Teddy Bears' Picnic is a three seater children's ride.

Whilst the machine is connected to a live power supply (*but before a ride has been credited*) a teaser attraction sound track repeats every 120 seconds.

The ride is initiated by inserting a coin into the coin mechanism (1).

If the timer/controller (*situated within the base*), has decided that the value of money which was received by the coin mechanism (1) was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

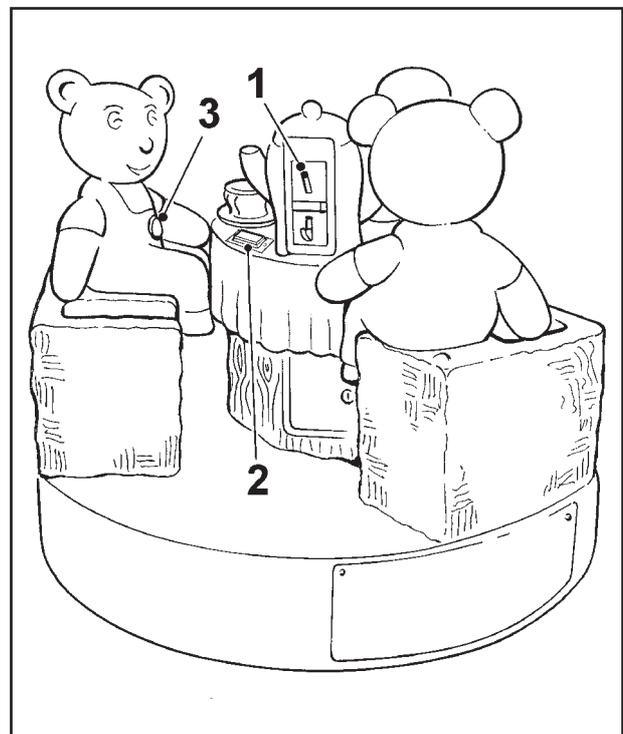
If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button (2) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button (2) has been pressed the toy will begin to oscillate in a rotary motion upon its base. Whilst in motion a constant background sound will be heard.

Additional sound effects are available on pressing the coloured button switches (3) mounted in the centre of the bears' chests.

The speakers that produce the sounds are mounted in the bales beneath the feet of the bears.

When the pre-set duration of the ride has been reached, the toy will stop moving, and an oral message will be given saying that the ride has ended.



## Maintenance

**WARNING** Read safety instructions first and disconnect electrical power before opening any access panels.



A safety proximity switch (16) is fitted behind panel (13). When released the switch cuts off power to the ride.

### Alarm System

#### labelling Cancellling or disarming (where fitted)

An alarm is fitted to protect the cash box.

The alarm unit (10) is usually to be found on the electronics mounting board (9).

The alarm is triggered by a micro-switch (11) that is released when the cash box door (12) is opened.

To disarm, or cancel an already activated alarm, open the electronics access panel (13). This deactivates a plunger type micro-switch (15) that is depressed by the panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

To maintain the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located within the base of the alarm unit.

### Emptying the cash box

The cash box may be fitted with an alarm.

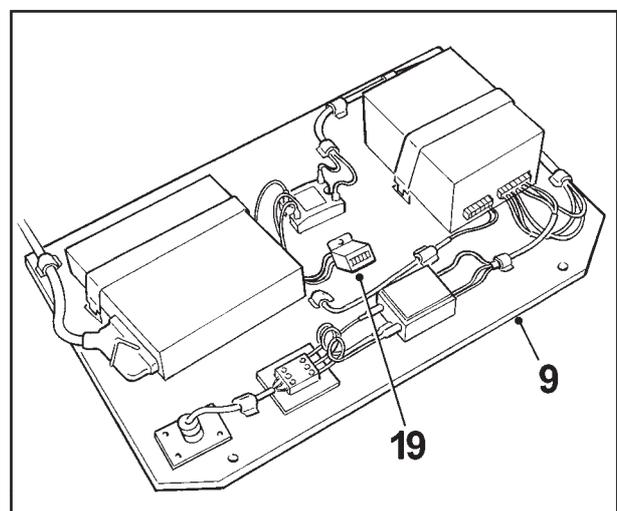
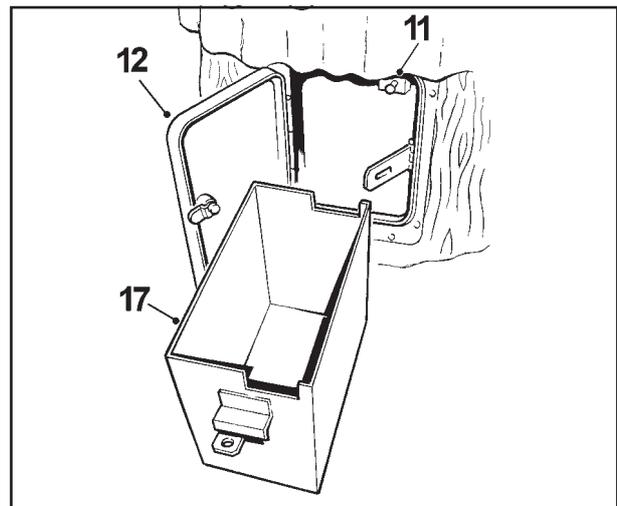
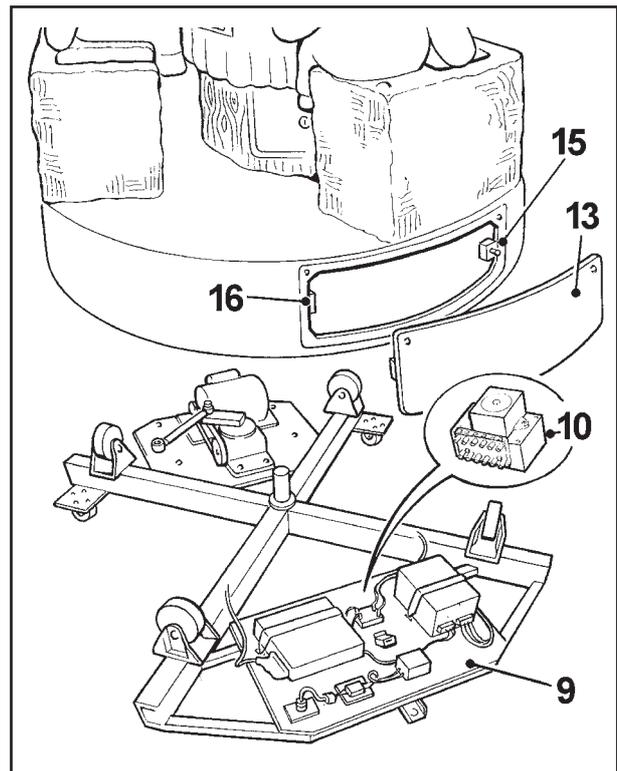
Disarm the alarm (where fitted) by opening the electronics access panel (13). This deactivates a micro-switch (15).

Unlock and open the cash box door (12). Release the cash box (17) by removing the clip or padlock. Slide the cash box out and empty.

Refit in the reverse order.

### Credits counter

The credits counter (19) is mounted on the electronics board (9). Access it by removing panel (13).



## Transportation

**WARNING** Read Safety section of this manual, and disconnect electrical power before moving the machine.

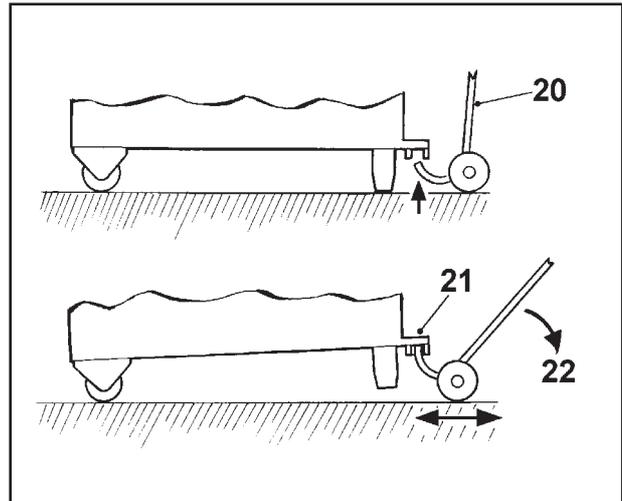


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated beneath the base, below the electronic access panel, is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its feet. The machine can now be pulled along with the jack handle.



## Servicing

**WARNING** Read safety instructions first and disconnect electrical power before opening any access panels.



### Base access panels

Panel (13) gives access for servicing the electronics.

Panel (14) gives access for servicing the motor, gearbox and drive linkage.

Greater access can be gained by removing the toy (45) from the base (46).

### Toy from base: removal

To remove the toy from the base proceed as follows.....

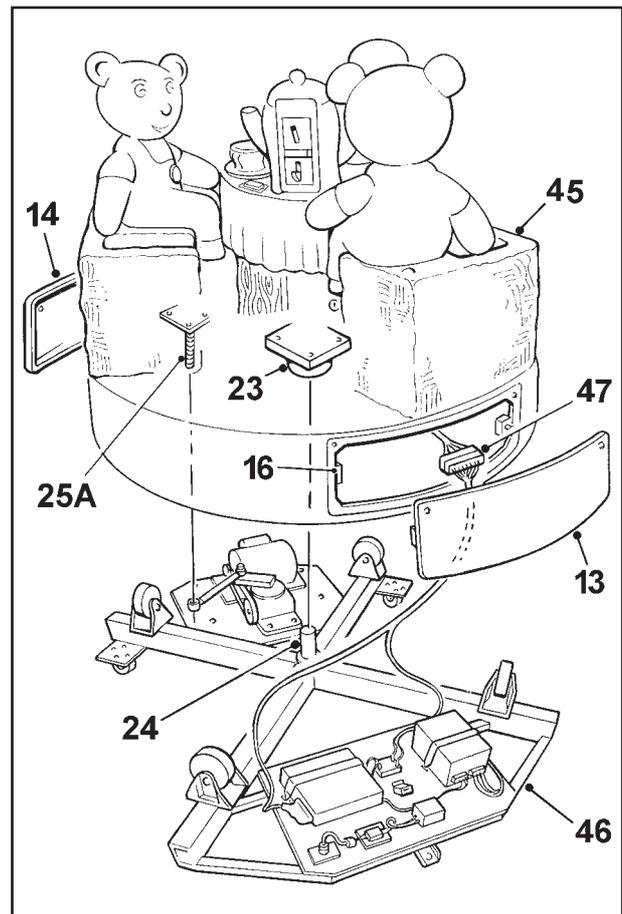
Remove both access panels (13 & 14).

As panel (13) is removed a safety proximity switch (16) is disengaged. This cuts off the electrical supply to the ride.

Through panel opening (13), locate the main loom connection block (47) and pull its two halves apart.

Through panel opening (14), locate the centre pivot bearing (23). Loosen the grub screw that is locking the bearing to the centre shaft (24).

**Note:** If the bearing grub screw is in a position that cannot be reached, revolve the toy by turning the drive belt.



Locate and remove the nut (25) that secures the connecting rod (26) to the toy.

**Note:** The bolt (25A) is fixed to the under side of the toy.

Ensure that the spacer washers (27) are not mislaid as it is important that they are correctly positioned on reassembly.

The toy is now free to be lifted vertically clear of the base.

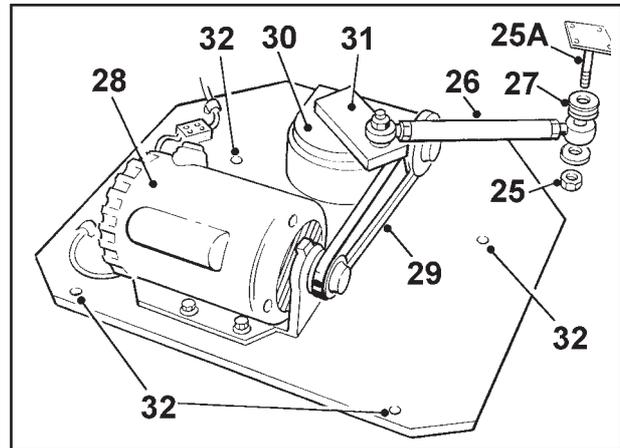
Reassemble in the reverse order.

### Drive mechanism

The drive mechanism is mounted on a removeable board retained by four bolts (32).

It consists of.....

- Electric motor (28)
- Drive belt (29)
- Gearbox (30)
- Crank (31)
- Connecting rod (26)
- Spacer washers (27)
- Nut (25), securing connecting rod to toy

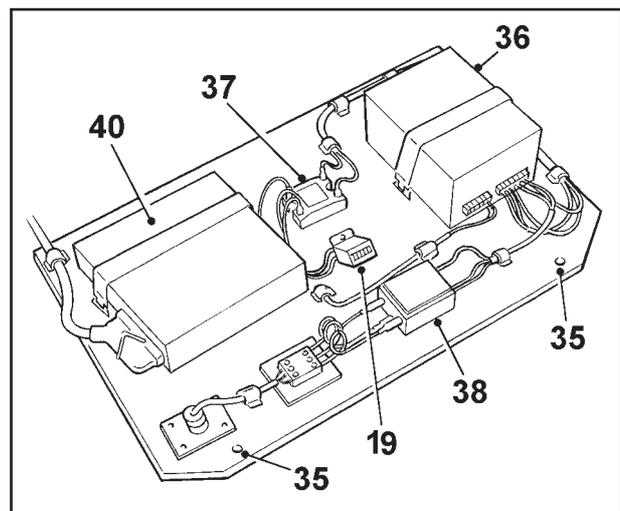


### Electronics board

The electronics are mounted on a removeable board retained by two bolts (35).

They consist of.....

- Power supply unit [PSU] (36)
- Relay (37)
- Coin counter (19)
- Filter (38)
- Timer/controller (40)



## Coin Mechanism: removal / replacing

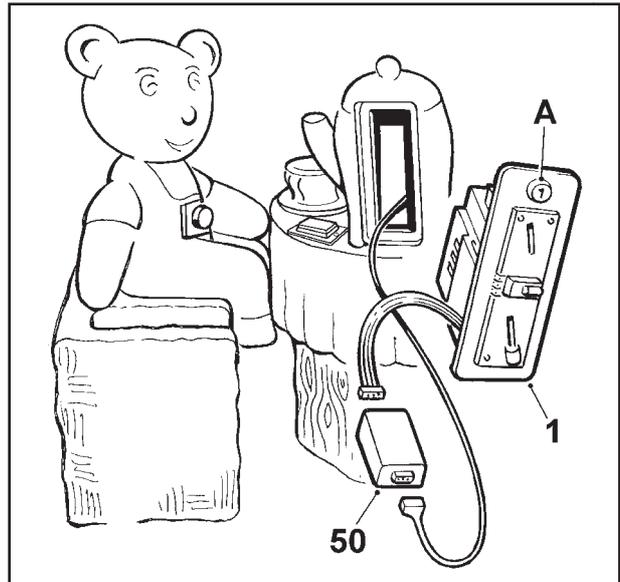
**WARNING** Always switch OFF mains power before removing Coin Mechanism. Working on the Coin Mechanism or Ribbon Cable with power ON can cause damage to chips in the Coin Mechanism and Timer/Control Unit.



The coin mechanism (1) is released by the use of a key (A). Once released, unplug the mechanism from the interface unit (50).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a micro-switch.

For further details about the unit see the relevant coin mechanism section in this manual.



## Start switch & Button switches

From the front the start switch (2) & button switches (3) appear to be different, but from the rear they are of similar construction.

The switches (51) are illuminated by a bulb (52). The bulb is mounted within a snap-in retainer (53) that is pushed into the back of the switch. The retainer also has a micro-switch (54) clipped to it.

### Bulb: replacement

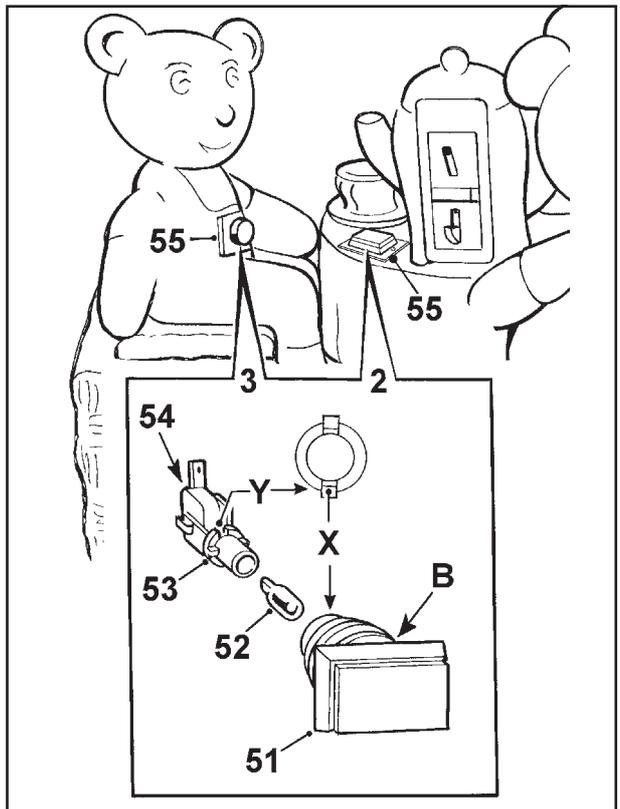
Switch OFF the main power supply to the machine!

Gain access to the rear of the switches by removing their mounting plate (55) from the toy.

Locate the bulb retainer (53) and pull it straight out of the switch. *The retainer is a tight fit and will require some effort to pull out.*

Pull the bulb (52) from the retainer (53) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.



### Start and Button switches: replacement

Remove the bulb & retainer (53) as previously described.

Unscrew the locking ring (B) from the back of button switch.

Withdraw the button switch (51) from the mounting plate.

Reassemble in the reverse order.

**Speaker: removal / replacing**

The speakers are fastened to mounting plates that are positioned in the bales beneath the bears' feet.

To remove the speaker:

Remove the mounting plate (60) from the bale (61).

Unfasten the four screws (62) retaining the speaker (63) to the plate.

Disconnect the wires from the speaker.

Reassemble in the reverse order.

**Bale & bear: removal / replacing**

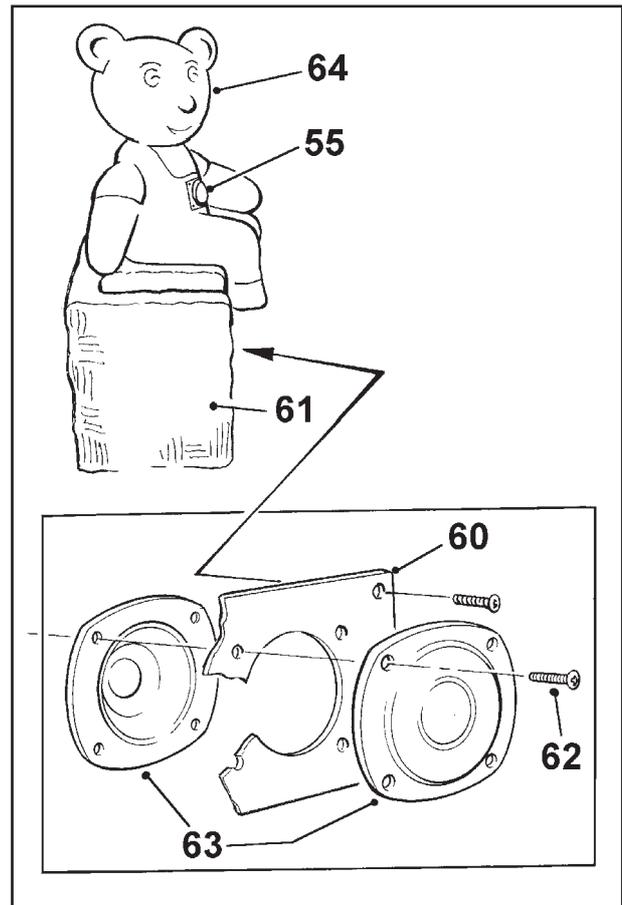
Remove the button switch plate (55) and disconnect the wires from the switch.

Remove the access panels (13 & 14) [see page 10.28.3]. Reach under the toy and remove the nuts retaining the bale.

Lift the bale from the toy.

Unbolt the bear from the bale.

Reassemble in the reverse order.



# SERVICE MANUAL section 10.29

for

## *Fred's Fire Truck*

### Contents

|                                      |              |
|--------------------------------------|--------------|
| Customer operation of toy            | Page 10.29.1 |
| Emptying the cash box                | 10.29.3      |
| Alarm system ( <i>where fitted</i> ) | 10.29.3      |
| Servicing                            | 10.29.4      |

### Weight & Dimensions

|        |        |
|--------|--------|
| Weight | 125 kg |
| Length | 165 cm |
| Width  | 101 cm |
| Height | 136 cm |

### Customer operation of toy

"Fred's Fire Truck" is a two seater children's ride.

Whilst the machine is connected to a live power supply (*but before the ride has been credited*) the head lights (1), interior panels (2), button switches and roof beacons (3) flash constantly. A teaser attraction sound track repeats every 120 seconds.

The ride is initiated by inserting a coin into the coin mechanism (4).

If the timer/controller (situated beneath the seat), has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given repeated every 30 seconds.

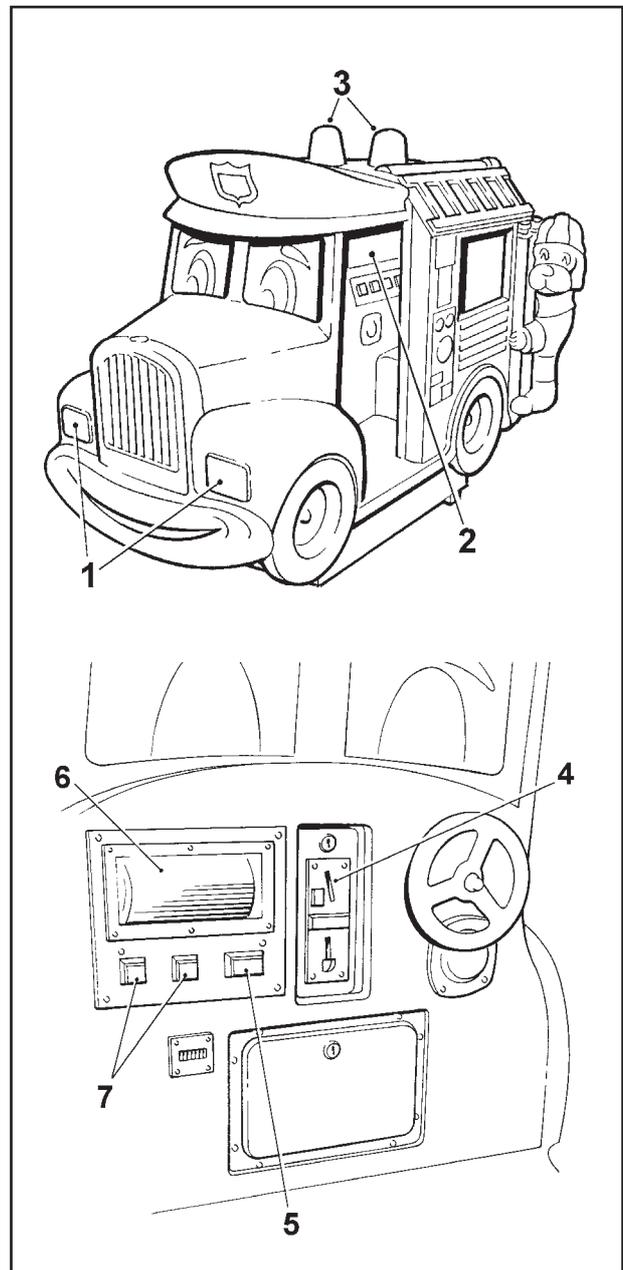
If the value of money received by the coin mechanism (4) is enough to give one or more rides, then the yellow start button (5) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button (5) has been pressed the toy will begin to move backwards and forwards on its base. Whilst in motion there is a constant engine sound.

The dashboard displays a rolling road (6) and additional sound effects are available on pressing the coloured button switches (7).

In the rear of the toy is the *Fire Fighters* game display (2). This is an interactive display with screen and button switches. (*Instructions for playing the game are on the following page.*)

When the pre-set duration of the ride has been reached, the ride will stop, accompanied by the oral prompt of "Thank You".

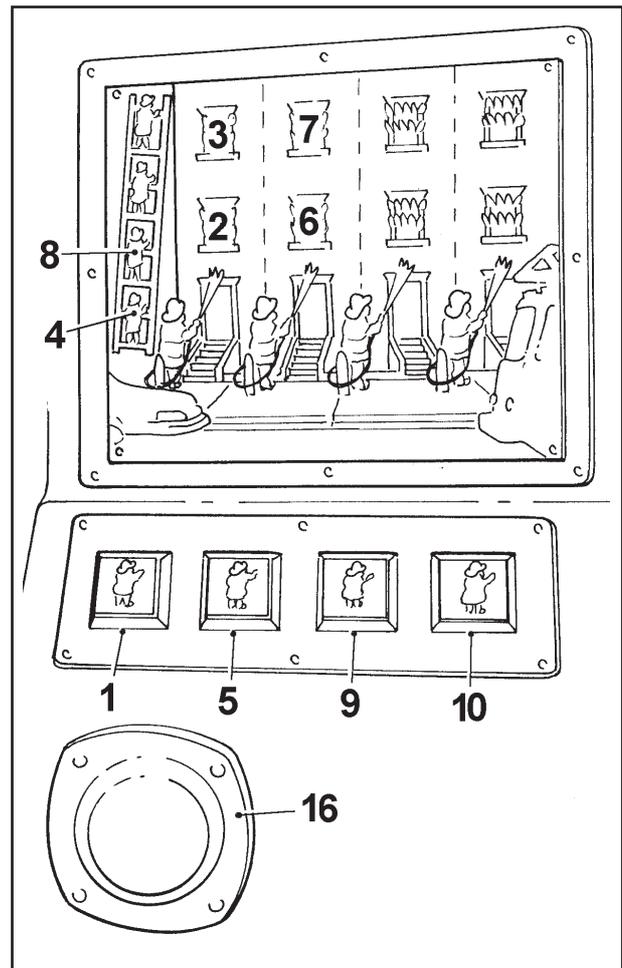


### Playing "Fire Fighters" game

At the beginning of the game all the windows have fires in them.

- A Press button (1) to put out the fires in windows (2 & 3). The first fire fighter (4) on the ladder will then illuminate.
- B Press button (5) to put out the fires in windows (6 & 7). The second fire fighter (8) on the ladder will then illuminate.
- C Repeat sequence with buttons (9 & 10).
- D When the fire fighter at the top of the ladder is illuminated, the game is then repeated at level two which is at a faster speed.

The sound for the game comes from the speaker (16).



### Transportation

**WARNING** Read Safety section of this manual and disconnect electrical power before moving the machine.

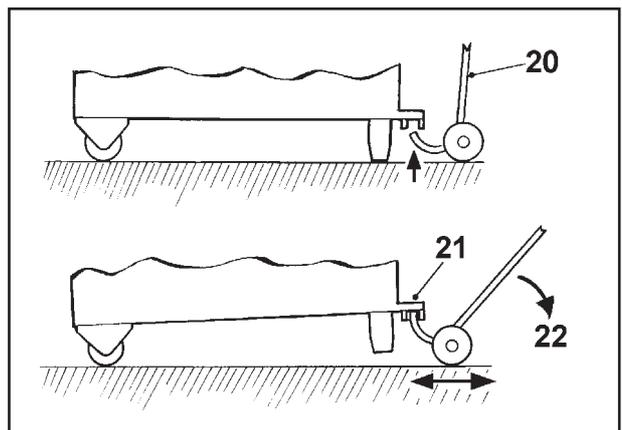


#### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



## Maintenance

**WARNING** Read Safety section of this manual and disconnect electrical power before opening any access panels.



### Alarm System

#### Cancelling or disarming (where fitted)

An alarm is fitted to protect the cash box.

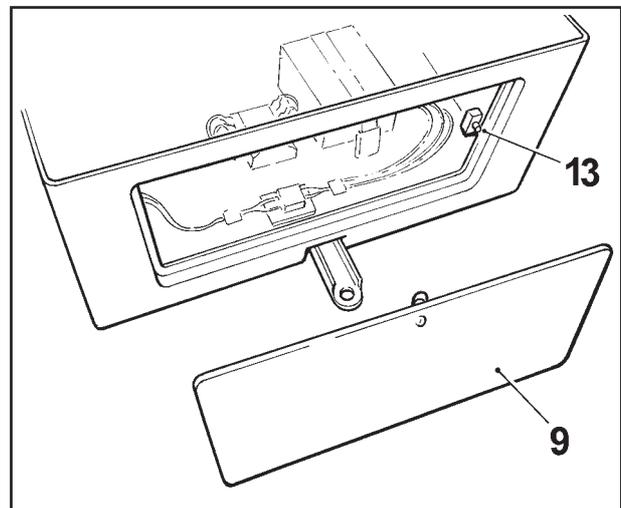
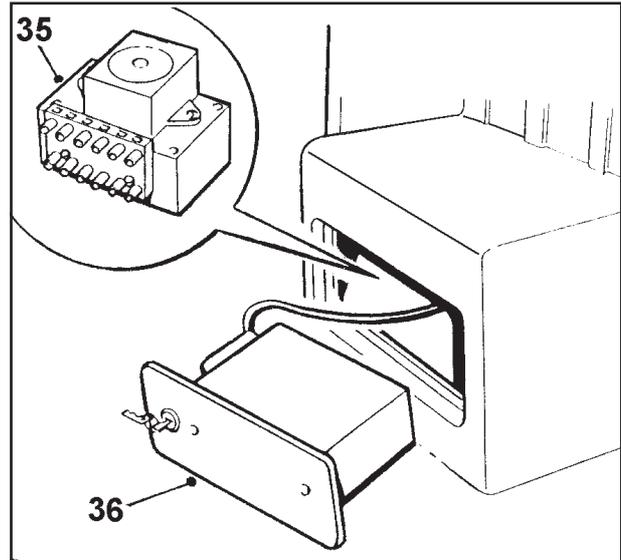
The alarm unit (35) is situated under the seat, behind the timer/control unit (36).

The alarm is triggered by a micro-switch (12) that is released when the cash box door (10) is opened.

To disarm, or cancel an already activated alarm, open the base access panel (9). This deactivates the micro-switch (13) that is depressed by the panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

Should the alarm have been operating for some time, it will be necessary to replace the batteries. The batteries are located in the base of the alarm unit (35).



### Emptying the cash box

The cash box may be fitted with an alarm.

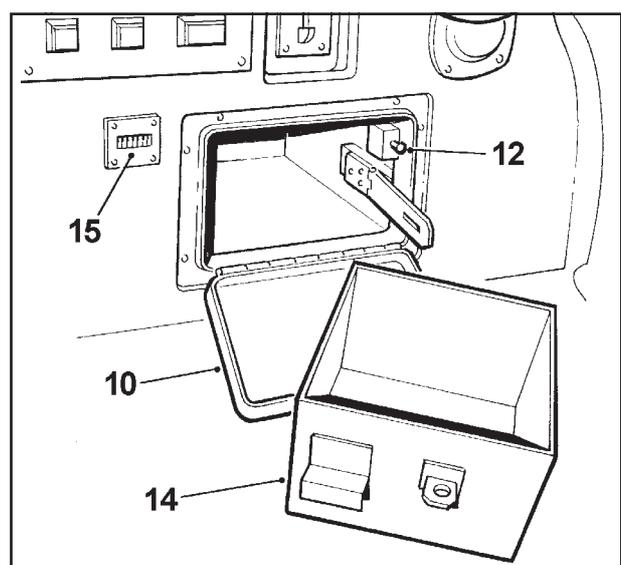
Disarm the alarm (where fitted) by opening the base access panel (9). This deactivates micro-switch (13).

Unlock and open the cash box door (10).

Release the cash box (14) by removing the clip or padlock.

Slide the cash box out and empty.

Refit in the reverse order.



### Credits counter

The credits counter (15) is situated on the console. The counter totals the number of coins inserted into the coin mechanism.

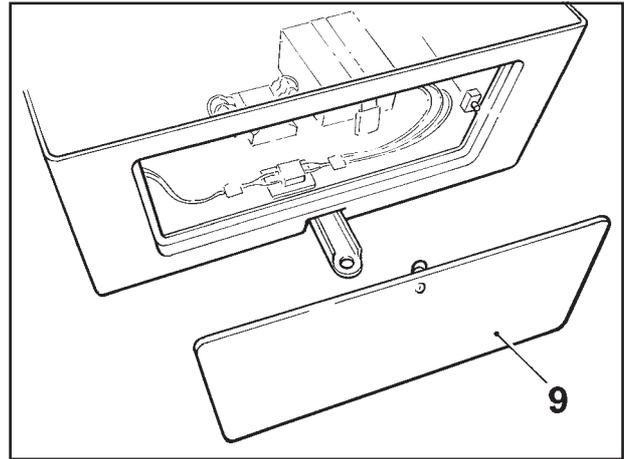
## Servicing

**WARNING** Read Safety section of this manual and disconnect electrical power before opening any access panels.



### Base access panel

The panel (9) at the rear of the base will give access for servicing the power supply (P.S.) unit, relays and filter. Greater access can be gained by removing the glass fibre cover from the base. (See following)



### Base cover: removal / replacing

Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap.

Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side.

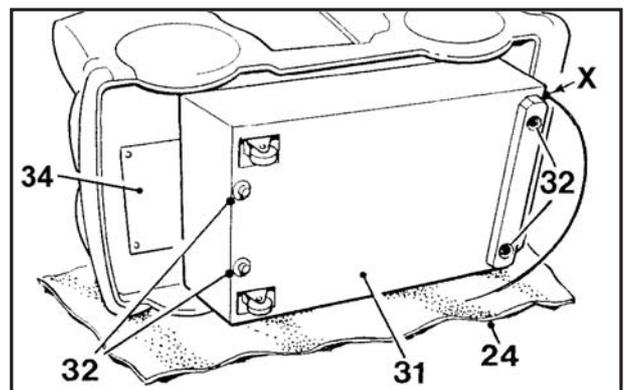
Carefully lay the machine down on the mat.

The glass fibre cover (31) is fastened to the base frame by four screws (32). Remove these screws.

Release the power cable gland (X).

Pull the cover (31) clear of the machine.

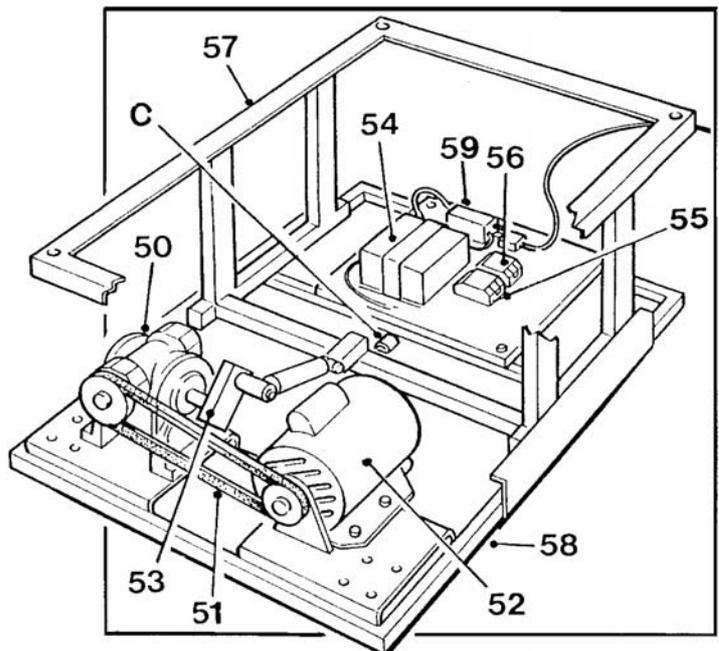
The machine can now be stood upright.



#### **This gives access to:**

- Gearbox (50)
- Belt (51)
- Motor (52)
- Crank (53)
- Power supply (P.S.) unit (54)
- Solid state relay, motor (55)
- Solid state relay, rolling road (56)
- Frame, sliding (57)
- Frame, base (58)
- Filter (59)

Refit cover in the reverse order.



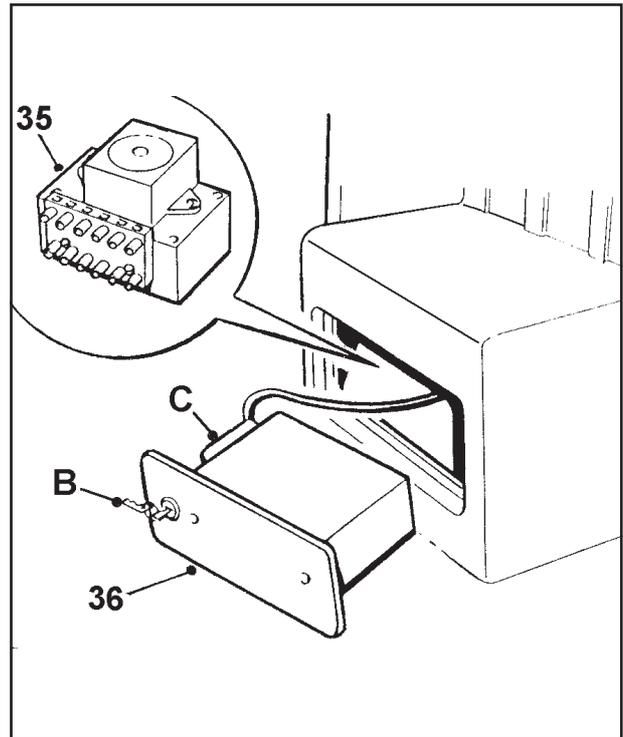
## Timer/Control Unit

The timer/control unit (36) is situated beneath the seat. To release the unit, use the key (B). Disconnect the unit from its socket (C).

## Alarm Unit

The alarm (35) is situated under the seat behind the timer/control unit (36).

Gain access to the alarm by first removing the timer/controller, as described above.



## Toy from base: removal / replacing

If possible, place the complete machine onto a bench.

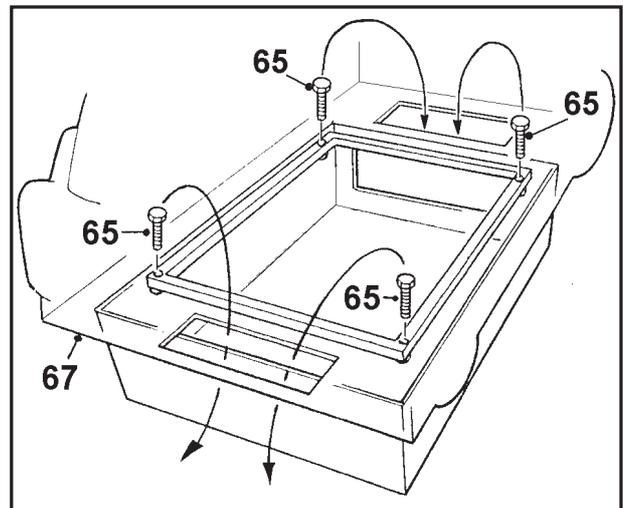
With the key (B), remove the timer/controller unit (36) from under the seat and disconnect it from its plug (C).

Under the seat is located a cable terminal block. Disconnect the terminal block by pulling its two halves apart. Push the base half of the terminal block through the hole in the floor of the toy.

Via the access panels under the front and rear of the toy, remove the four bolts (65). (The bolts are screwed into captive nuts welded to the under side of the sliding frame.)

Lift the toy (67) from the base.

Reassemble the toy to the base in reverse order.



### Console speaker: removal / replacing

When removing the speaker it is necessary to extract it through the floor of the toy, as follows:

Start the toy into motion so that it is moving backwards and forwards. When the toy is at its farthest point forward, switch off the main power supply.

Place on the floor a padded mat (24) large enough to take the machine when it is laid on its side. (See previous page.) Carefully lay the machine down on the mat.

Remove the panel (34).

From the front of the console, remove the four screws (41) that retain the speaker (40). Disconnect the speaker cables.

Extract the speaker through the floor panel opening (34).

Reassemble in the reverse order.

### Coin Mechanism: removal / replacing

**WARNING** Always switch OFF mains power before removing coin mechanism. Working on the coin mechanism or ribbon cable with power ON can cause damage to chips in the coin mechanism and timer/control unit.



The coin mechanism (37) is released by the use of a key (A). Once released, unplug the mechanism from the interface unit (38).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a micro-switch.

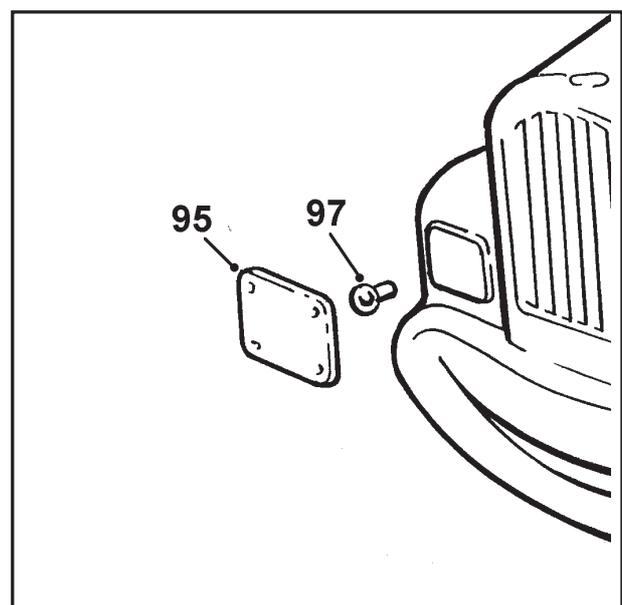
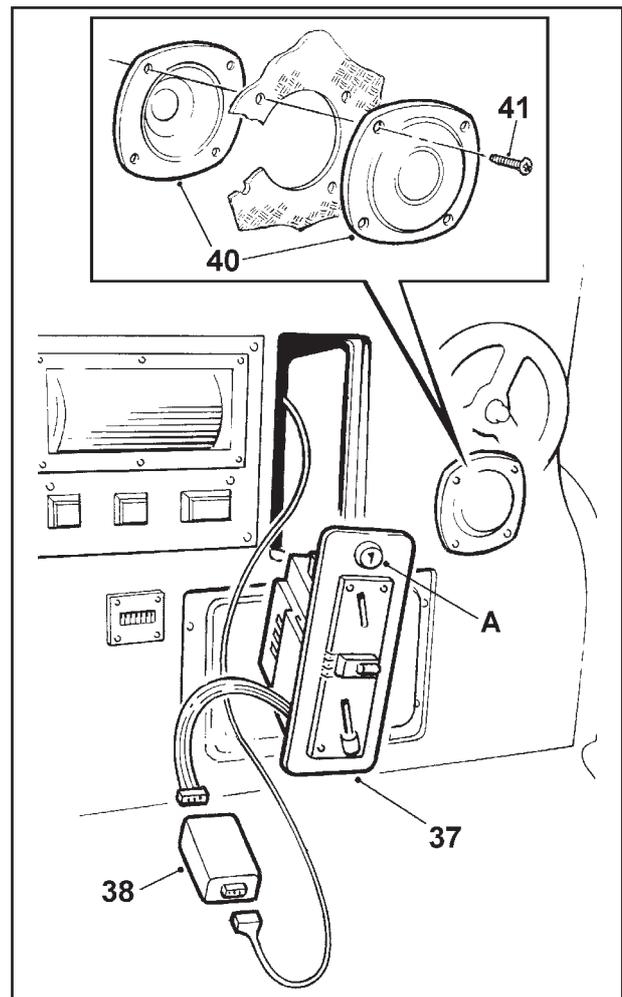
For further details about the unit see the relevant Coin mechanism section in this manual.

### Headlamp bulb: removal / replacing

Remove the screws retaining the headlamp cover (95).

Replace bulb (97).

Reassemble in the reverse order.



**Rolling Road**

The rolling road (42) consists of a film wrapped around the inside of a transparent drum (43), which is illuminated from the inside by a bulb (44). The drum is rotated by the motor (45).

**Note:** *Should the motor fail, the heat from the bulb could melt the film.*

**Replacing the Bulb, or 'Road' Film**

The rolling road is retained on the back of the panel (46). Remove the panel by releasing its four fixing screws (47).

At the motor end of the drum, where it attaches to the drive shaft, loosen the two diagonally opposed grub screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

**Bulb:** Remove/replace the bulb (44). Refit drum and screen.

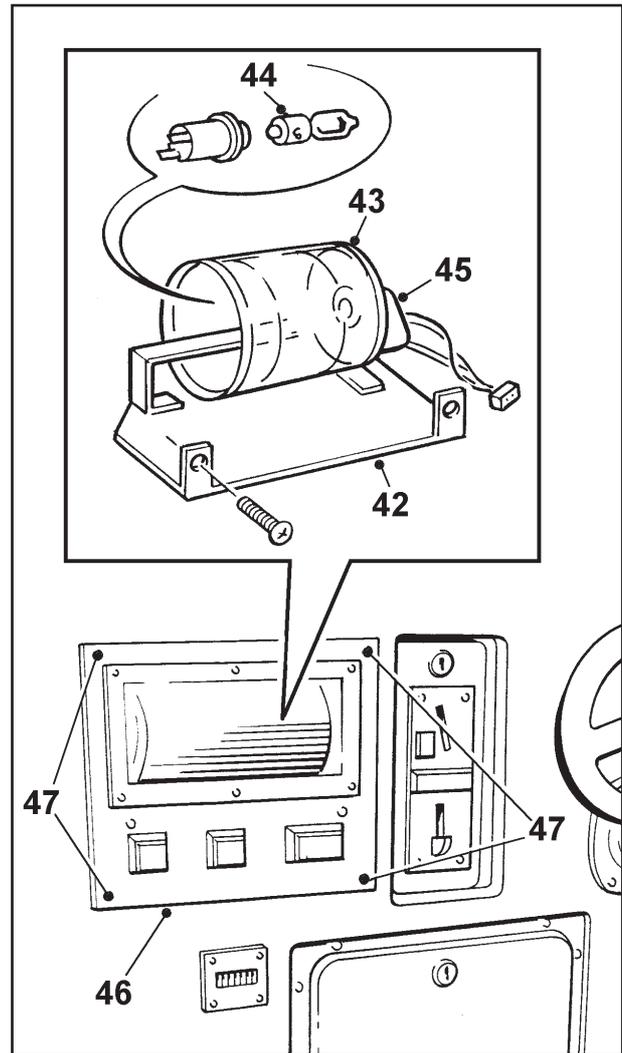
**'Road' Film:** The film is held in place within the drum (43) by double-sided adhesive tape.

*Note the orientation of the film before removing it.* Peel the film free from the adhesive tape and slide it out.

Cut the new film to the same length as the old one.

Roll it and slide it into the drum, ensuring it is in the correct way around.

Fasten the film down to the adhesive tape. Reassemble the drum and fit the screen (46).



**Replacing the Rolling Road motor**

**Note:** *There should never be a need to replace a Rolling Road Motor, but if there was proceed as follows .....*

Remove the panel (46) that retains the rolling road and button switches by releasing the four screws (47). There is no need to remove the rolling road from the panel (46).

Remove the drum (43) from where it is attached to the drive shaft by loosening the two diagonally opposed grub screws.

Slide the drum off the shaft. Once clear of the shaft, the drum can be tilted and slid clear of the bulb.

Remove the nuts and bolts that retain the motor/gearbox (45) and withdraw the complete assembly. *(The motor and gearbox are replaced as a single unit.)*

Reassemble in the reverse order.

### Start switch & Button switches

From the front the start switch (60) & button switches (61) appear to be different, but from the rear they are of identical construction.

The switches are illuminated by a bulb (62). The bulb is mounted within a snap-in retainer (63) that is pushed into the back of the switch. The retainer (63) also has a micro-switch clipped to it.

#### Bulb replacement:

Gain access to the rear of the switch by removing the switch/rolling road panel (46). This is retained by the four screws (47).

Locate the bulb retainer (63) and pull it straight out of the switch. *The retainer is a tight fit and will require some effort to pull it out.*

Pull the bulb (62) from the retainer (63) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. **The tabs (X) of the switch must align with the slots (Y) of the retainer.** Push firmly on the retainer until it is heard to click into place.

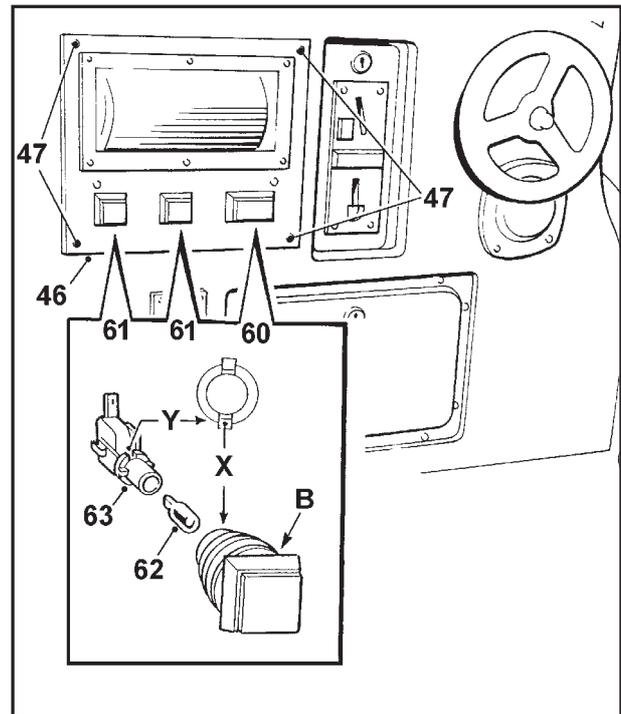
#### Switch replacement:

Remove the bulb/retainer (63) as previously described.

Unscrew the locking ring (B) from the back of switch.

Withdraw the switch from the panel.

Reassemble in the reverse order.



## Game console, "Fire Fighters" display removal / replacing

Remove the eight screws (70) retaining the "Fire Fighters" display (71) to the console.

Pull the display away from the console.

## Bulb replacement

The "Fire Fighters" display (71) is in two halves; they are the picture display (72) and illumination board (73).

To access the bulbs (74), remove the two wing-nuts (75). This will release the illumination board (73) from the picture display (72).

The bulbs can now be replaced.

Reassemble in the reverse order.

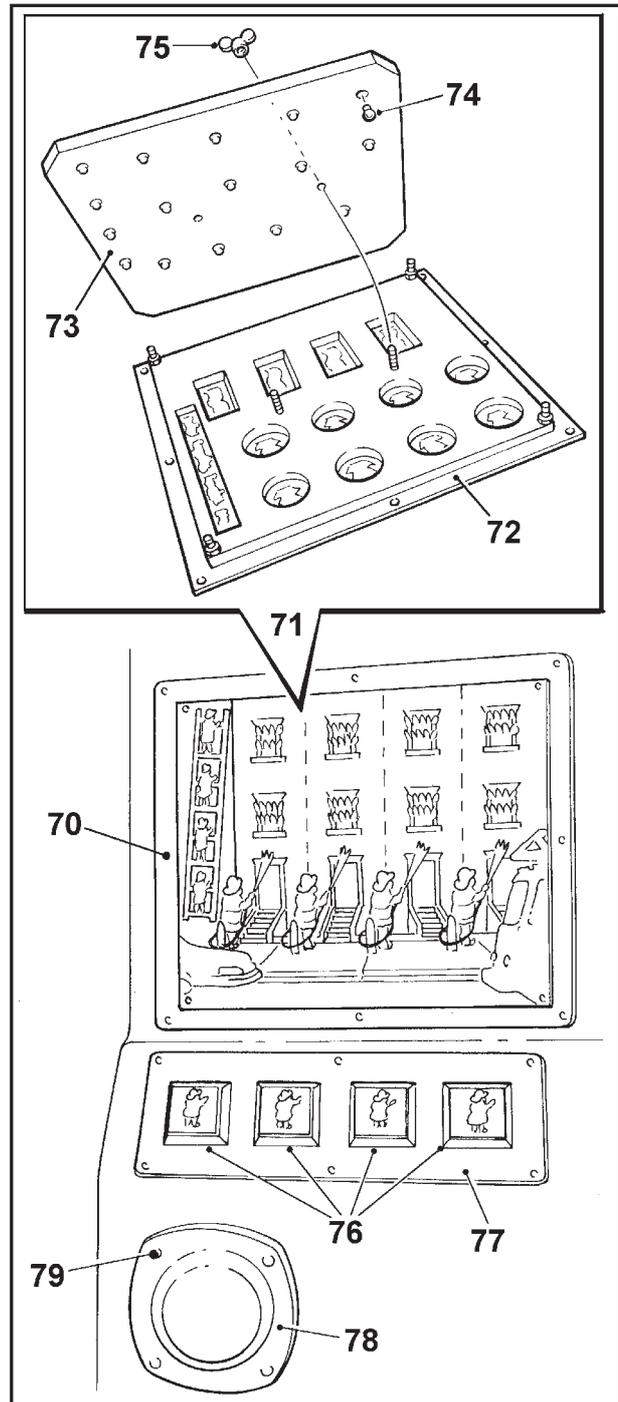
## Picture button switches

The picture button switches (76) are of the same construction as the switches (61) on the front console (see previous page).

To access the rear of switches (76) it is necessary to remove panel (77).

## Game speaker

To remove the game speaker (78), gain access to its rear by removing panel (77), then release screws (79).



### Game console electronics

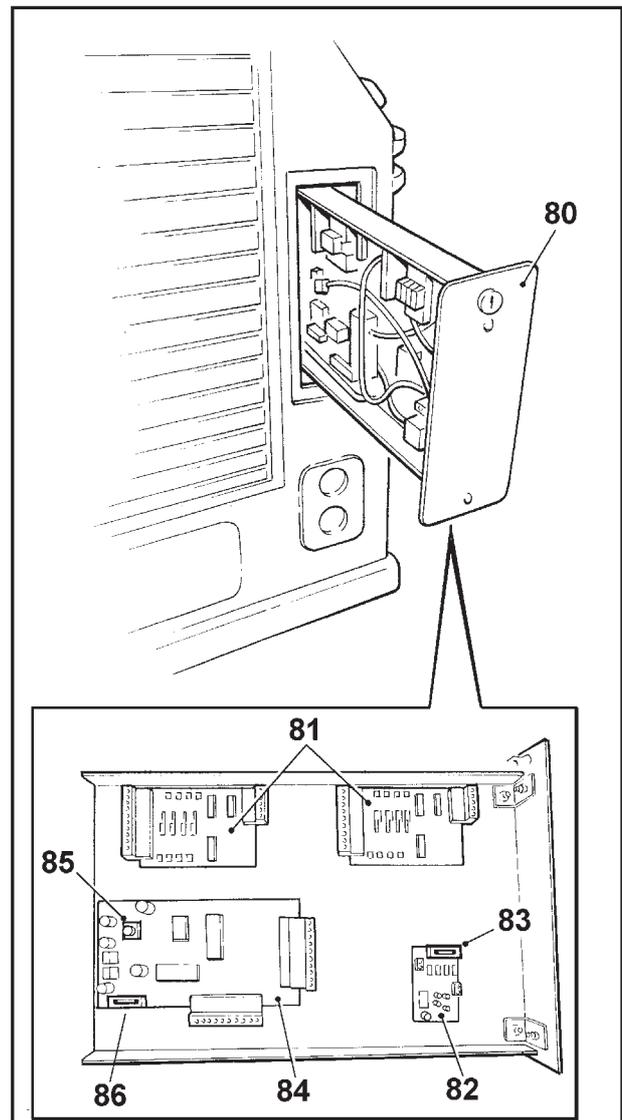
Situated at the rear of the toy is a removable panel (80) that houses the game console electronics.

On the panel are mounted:

Light boards (81)

Flashing light board (82) with...  
2 amp flashing light fuse (83)

Game board (84), with...  
Volume control (85)  
2 amp power fuse (86)

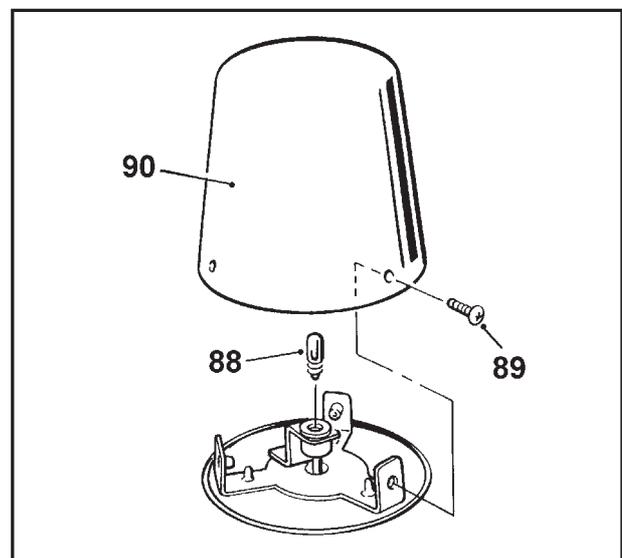


### Beacon bulb: removal / replacing

To change the beacon bulb (88) .....

Remove the three screws (89) retaining the lens (90). Lift off the lens, and change the bulb.

Reassemble in the reverse order.



# SERVICE MANUAL section 10.30

for

## *Funtime Carousel*

### Contents

Operation of Carousel  
 Installation of Carousel  
 Electronics  
 Toy movement mechanism

### Weight & Dimensions

Weight 400 kg  
 Length 218 cm  
 Width 218 cm  
 Height 290 cm

### Customer operation

The "Funtime Carousel" provides rides for one to three children on a choice of three toys.

Whilst the machine is connected to a live power supply (*but before the ride has been credited*) the canopy lights (1) and toy button switches (2) flash constantly. A teaser attraction sound track repeats every 120 seconds.

The ride is initiated by inserting coins into the coin mechanism (3), (or note validator (4) where fitted).

If the timer/controller has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given repeated every 30 seconds.

If the value of money received by the coin mechanism (3) is enough to give one or more rides, then the yellow start button (5) will flash, and the oral request "When you are ready, press the start button" will be given.

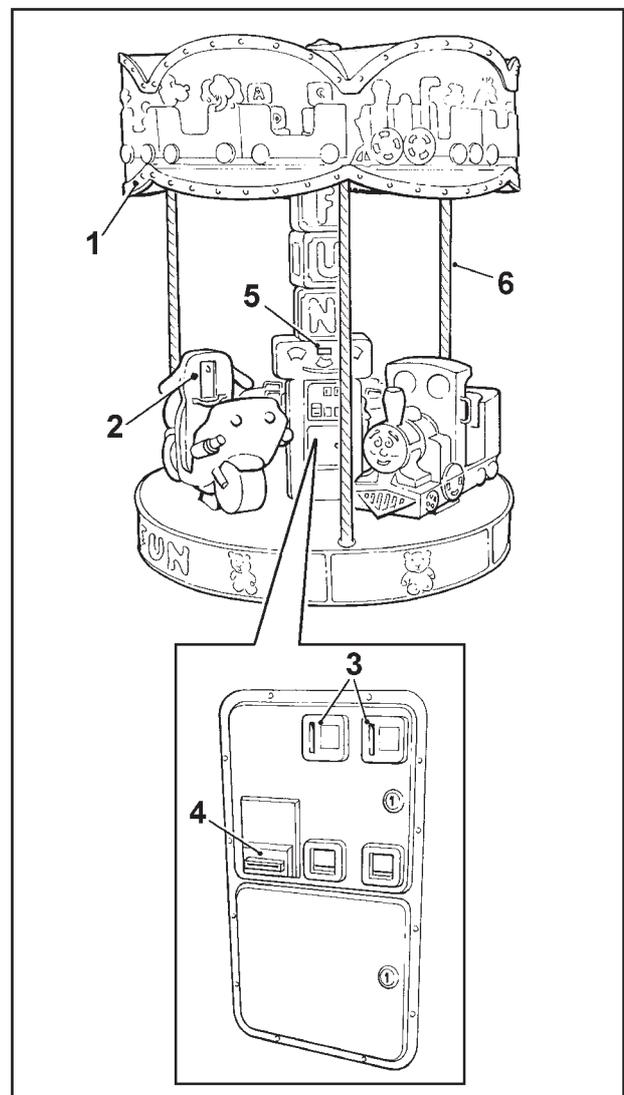
Immediately that the start button (5) has been pressed, the message "The ride is about to begin. Please stand clear" will be given.

The carousel will begin to rotate accompanied by a musical sound track.

Additional sound effects are available on pressing the coloured button switches (2) situated on the toys.

When the pre-set duration of the ride has been reached, the oral message "Please remain in your seat until the ride stops" is given.

The ride will then slow down and stop.



**IMPORTANT!** In an emergency the ride can be stopped by pulling on one of the poles (6). This stops the ride by dragging on a slipper clutch in the gearbox.

## Transportation

### Moving the Carousel

The carousel can be moved with a forklift truck. THIS SHOULD BE DONE ONLY BY A QUALIFIED FORKLIFT TRUCK DRIVER.

Alternatively the carousel can be moved over short distances using the castors (10) attached to the base of the ride.

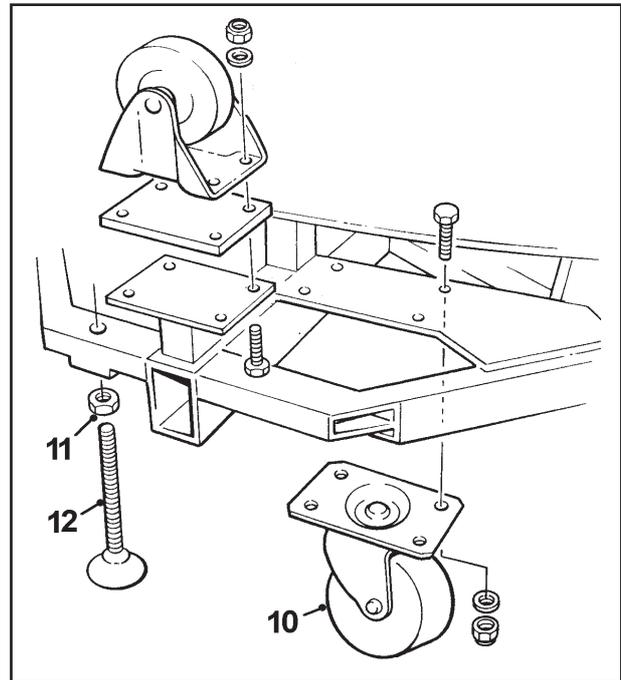
To move the ride, if the ride is not already resting on the castors, release the lock nuts (11) and screw the legs (12) upwards.

### Positioning the Carousel

The carousel, when in its working position, rests on four adjustable screw legs (12).

The legs are screwed down to jack the castors (10) clear of the ground.

The legs should be adjusted to ensure that the ride is perfectly level. Don't forget to tighten the lock nuts (11).



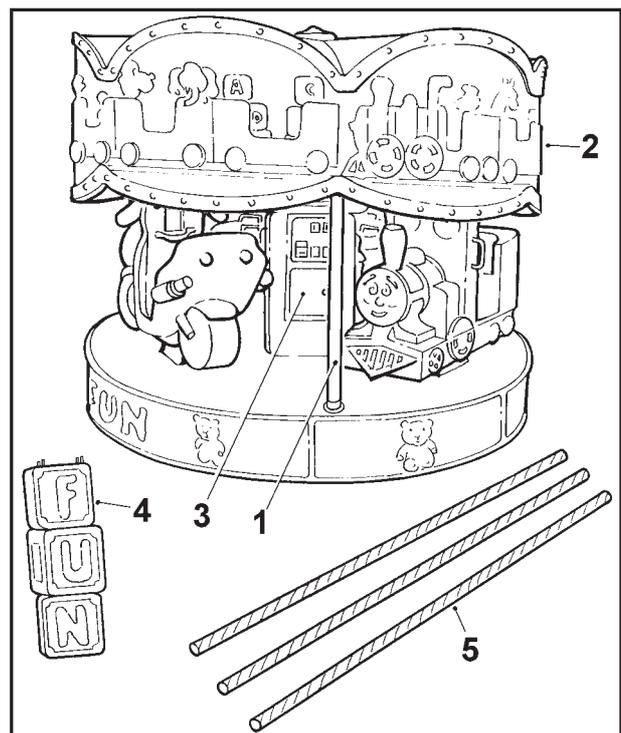
## Installation

### General description of assembly

The carousel is delivered to the customer as a "flat pack". To install the carousel to its working condition the following has to be carried out.....

- A The transportation poles (1) are removed, and the canopy (2) is unbolted from the pump (3).
- B The canopy (2) is lifted and the column (4) is inserted between it and the pump (3).
- C The scrolled poles (5) are fitted in place of the Transportation poles (1).
- D A wiring terminal block is connected within the pump (3).
- E Within the pump (3) cash box are packed three socket keys, five bolts and keys to open access panels. These items are required for assembly.

A detailed description of assembly follows.....



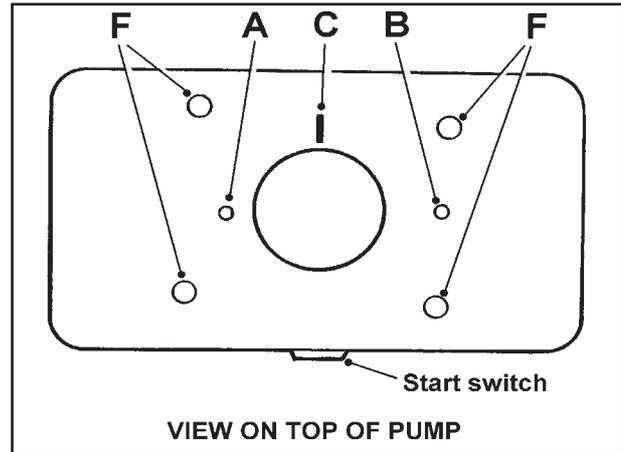
**Assembly**

With a key from the cash box, remove one of the access panels (13) from the canopy (2). Remove the two bolts (A & B) retaining the canopy to the pump

Remove the nuts and bolts from the tops and bottoms of the three transportation poles. (See illustration on previous page). DO NOT LOSE THE NUTS AND BOLTS as they are required later.

Remove the three transportation poles.

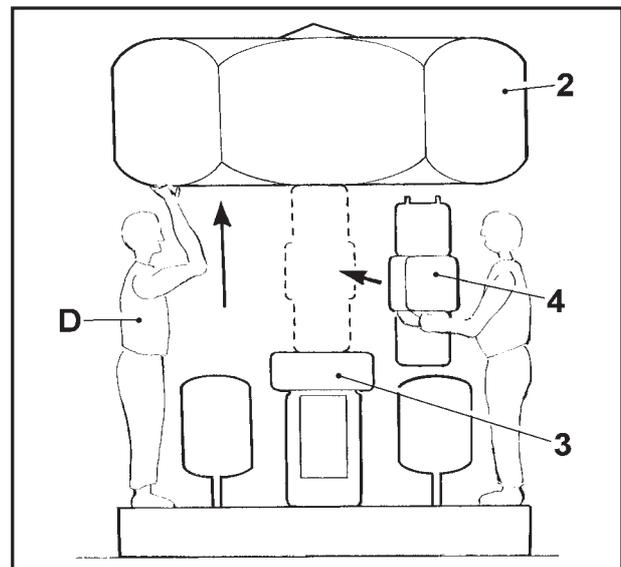
Remove the four nuts (18) and washers (19, 20 and 21) from the top of the column (4). DO NOT LOSE THEM as they are required later to fasten the column.



**Positioning the column**

With a minimum of four men (D), raise the canopy to a height that is sufficient for the column (4) to be positioned between the pump (3) and the canopy (2).

**Note:** There are black location marks on the top and bottom of the column (4), and bottom of the canopy (2). These location marks MUST align with the mark (C) at the rear of the pump.



**Bolting the canopy to the column**

Gain access through canopy panel (13) and refit the four nuts (18) and washers (19, 20 and 21).

**Bolting the column to the pump**

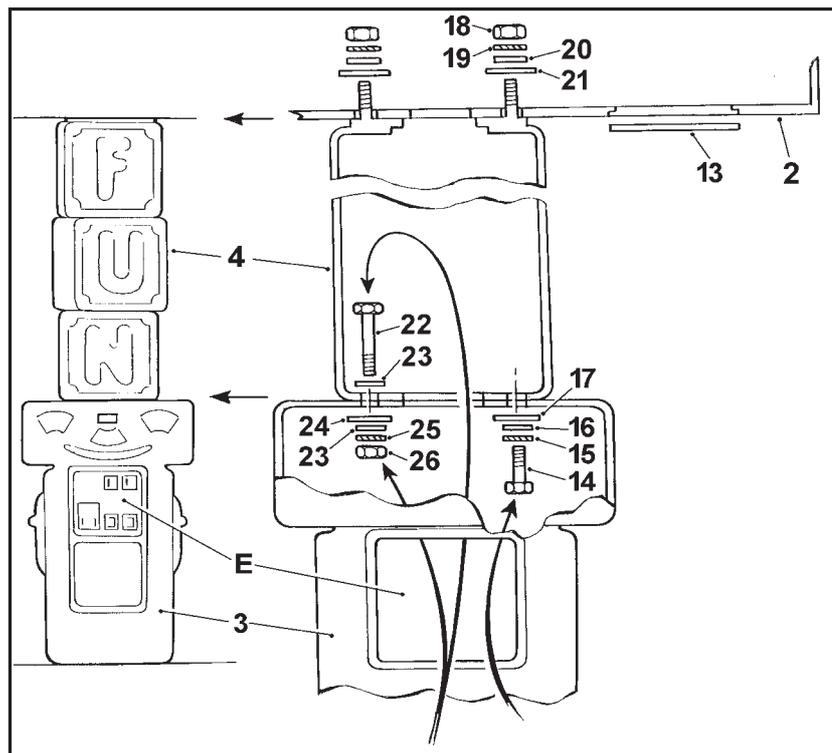
Gain access through the coin mechanism panel (E) to fasten the column (4) to the pump (3) as follows.....

Fit the M8x50 bolt (14), and washers (15, 16 and 17) (to be found in the cash box), through hole (B) of the pump and into the tapped hole of the column.

**Note:** Bolt (14) MUST be fitted before bolts (22).

Fit the four M8x65 bolts (22), washers (23, 24 and 25) and nuts (26) (to be found in the cash box), through holes (F) of the pump and column.

**Note:** From February 2004 the bolts (22) are captivated in the base of the column (4).



### Fitting scrolled poles

Fit the three long scrolled poles (5), and secure them at the top and bottom with the nuts and bolts saved from removing the short transportation poles.

### Connecting the wiring

Feed the loom from the canopy down through the column.

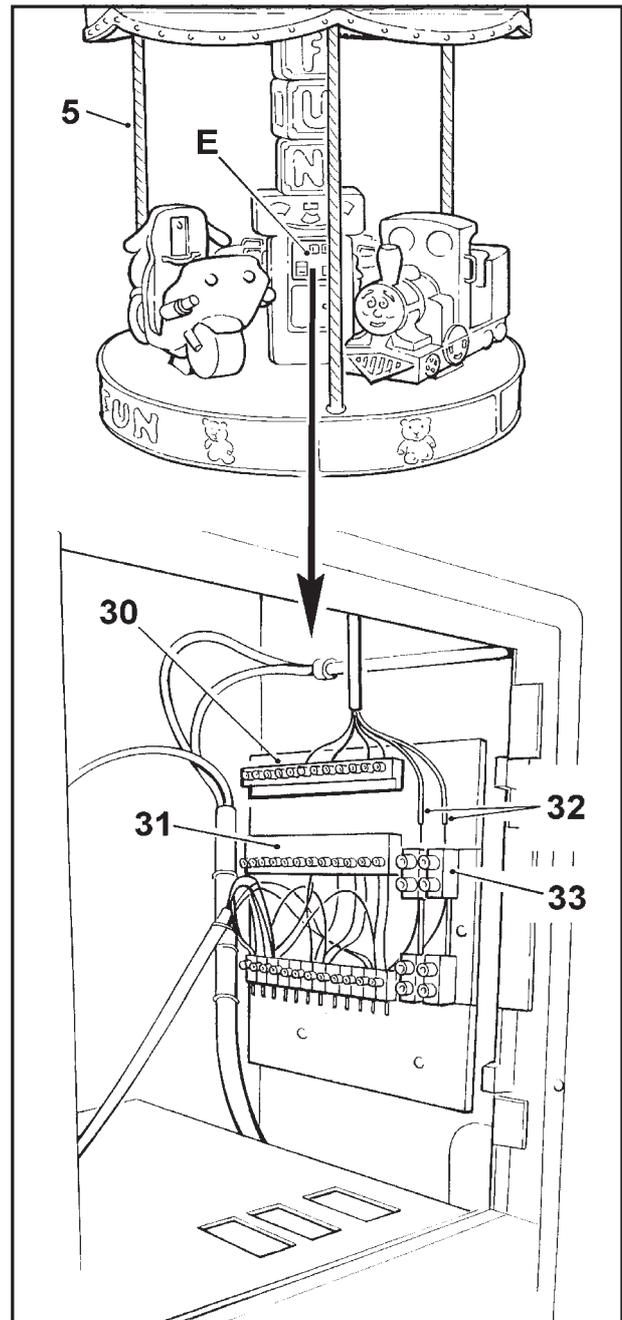
Open the coin mechanism door (E).

Locate the connection block (30) at the end of the loom and plug it into the wiring panel (31).

Connect the two yellow wires (32) into the two blocks (33). The wires can be fitted into either block.

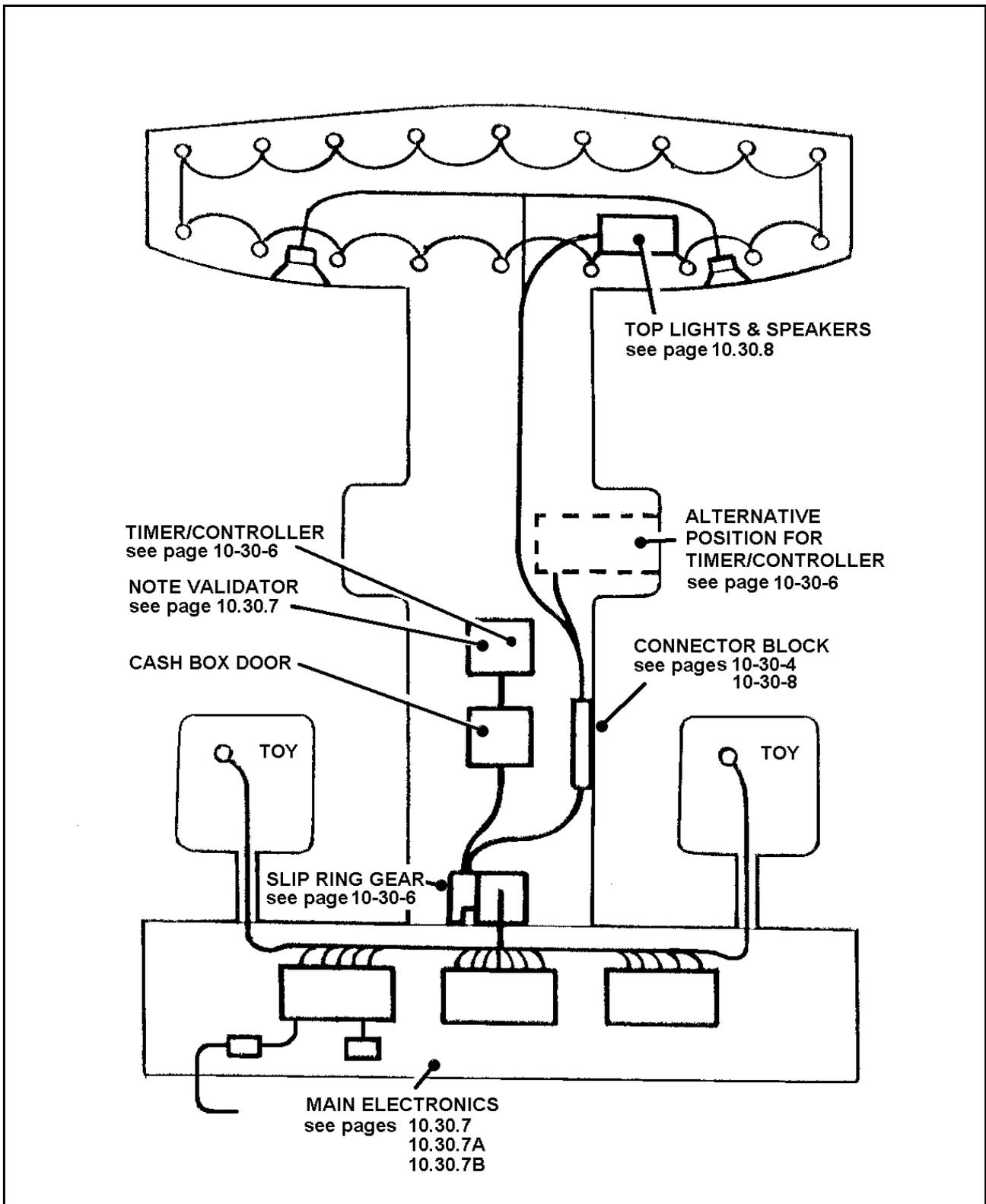
### The carousel is now ready for operation

All necessary adjustments to gearbox clutch, drive belt and electronics are pre-set at the factory and should not be changed without consultation with your distributor.

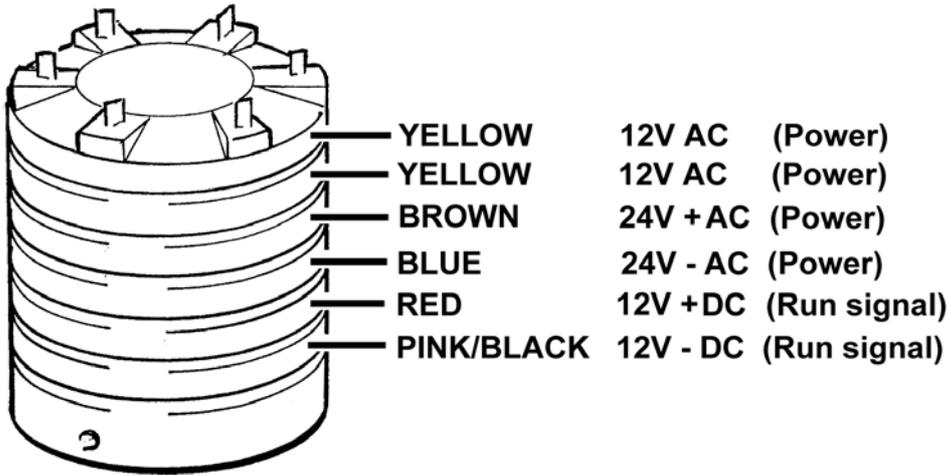


Electronics

Location of electronic components



**Slip Ring Connections**



**37 Way Connections From Timer**

| <b>Pin</b> | <b>Wire</b> | <b>Wire Destination</b> |
|------------|-------------|-------------------------|
| 1          | GREY        | Flashing button lights  |
| 2          | GREY        | Flashing button lights  |
| 4          | YELLOW      | 12V AC                  |
| 5          | YELLOW      | 12V AC                  |
| 7          | RED         | 12V+ DC                 |
| 8          | BLACK       | Ground (Ov)             |
| 9          | RED/WHITE   | Accumulator input       |
| 12         | GREEN       | Speaker                 |
| 13         | GREEN       | Speaker                 |
| 15         | YELLOW/RED  | Start button light      |
| 16         | YELLOW/RED  | Start button light      |
| 19         | PINK/BLACK  | 12V- DC (Run signal)    |
| 20         | WHITE/BLACK | Coin meter              |
| 23         | WHITE       | Start button            |
| 27         | RED/BLACK   | Sound buttons (FX1)     |

**Note Validator (Bill/Note Acceptor)**

*The following is only relevant when fitting the MEI Note Acceptor (Model AE 2412 U7) 24V AC*

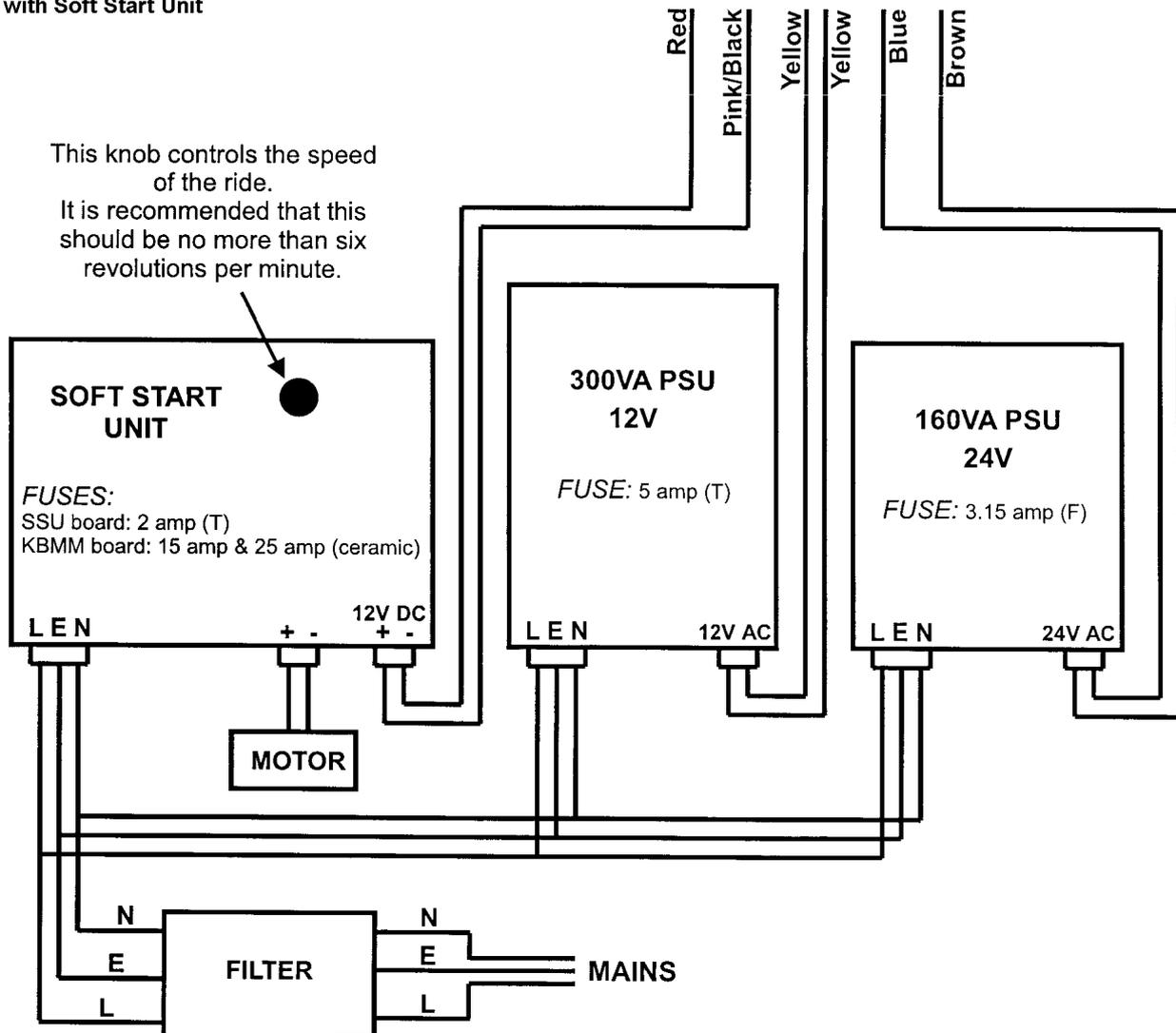
On some models of the carousel a note validator is not fitted. However wiring for a validator is fitted in a pull apart connector block as standard on all machines. The colours of the wiring in the connector are as follows.....

| Validator |               | Carousel  |                   |
|-----------|---------------|-----------|-------------------|
| ORANGE    | Credit output | WHITE/RED | Accumulated input |
| BROWN     | Credit output | BLACK     | GND/COM           |
| WHITE     | Power in      | BLUE      | 24V AC            |
| BLACK     | Power in      | BROWN     | 24V AC            |

**Main electronics, DC system**

with Soft Start Unit

This knob controls the speed of the ride.  
It is recommended that this should be no more than six revolutions per minute.



# 10.30.7A

# SERVICING

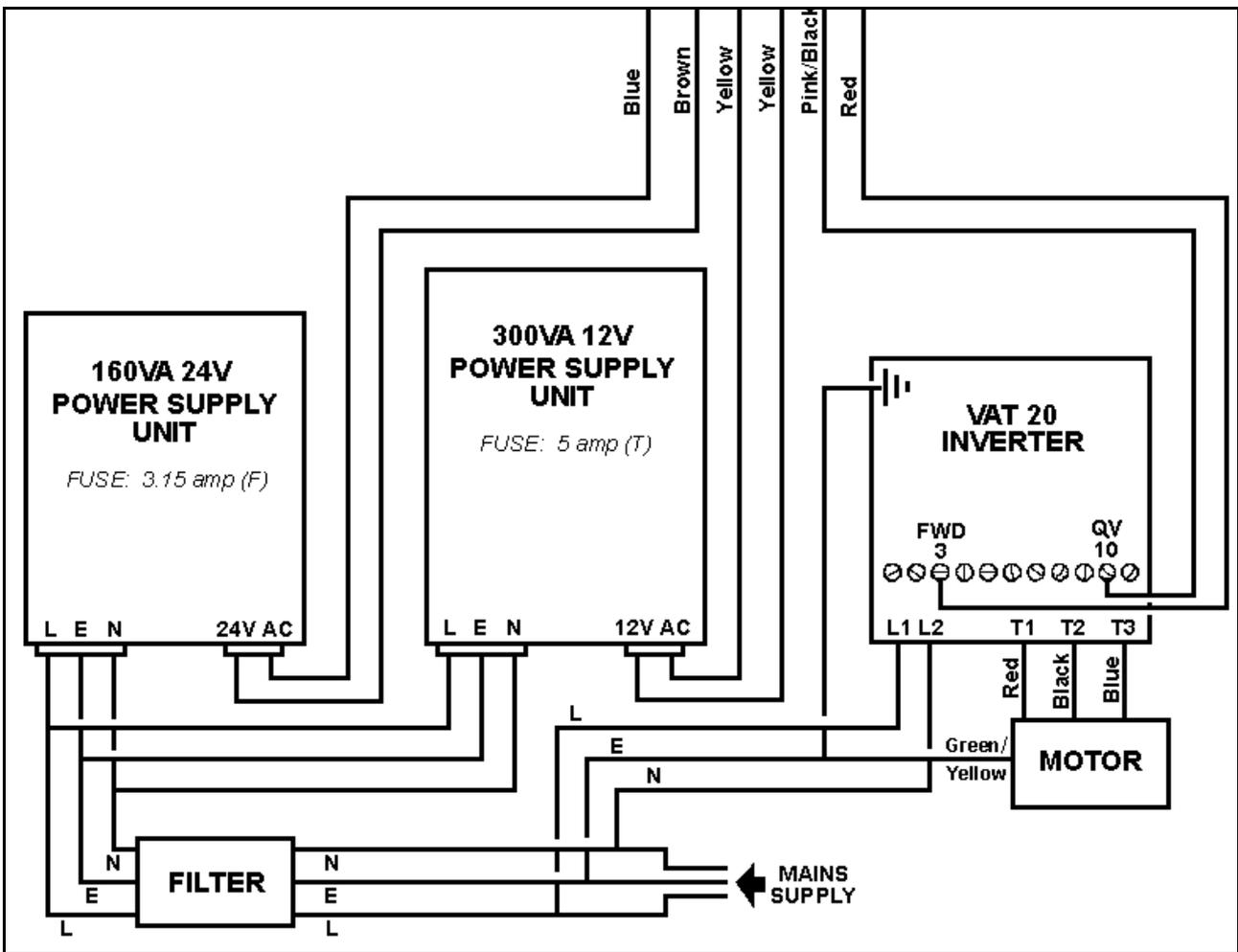
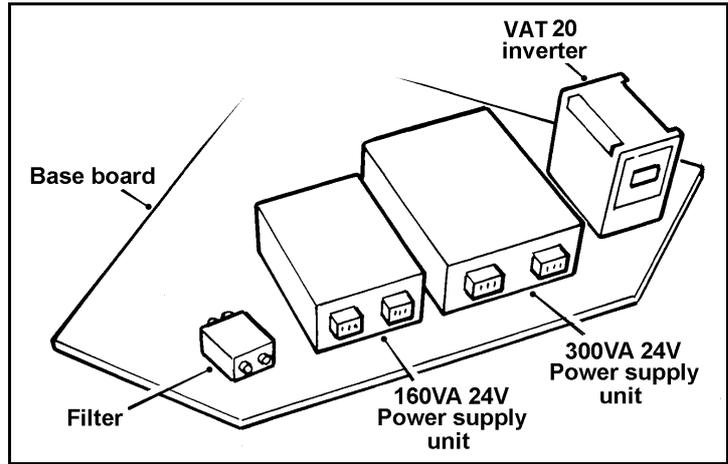
## Main electronics, AC system

with VAT 20 Inverter.  
(manufactured from July 2004)

**Not supplied to USA**

The **VAT 20 Inverter** controls the motor soft start and speed. It is factory pre-set and should not require changing.

Consult the factory for further advice on settings.

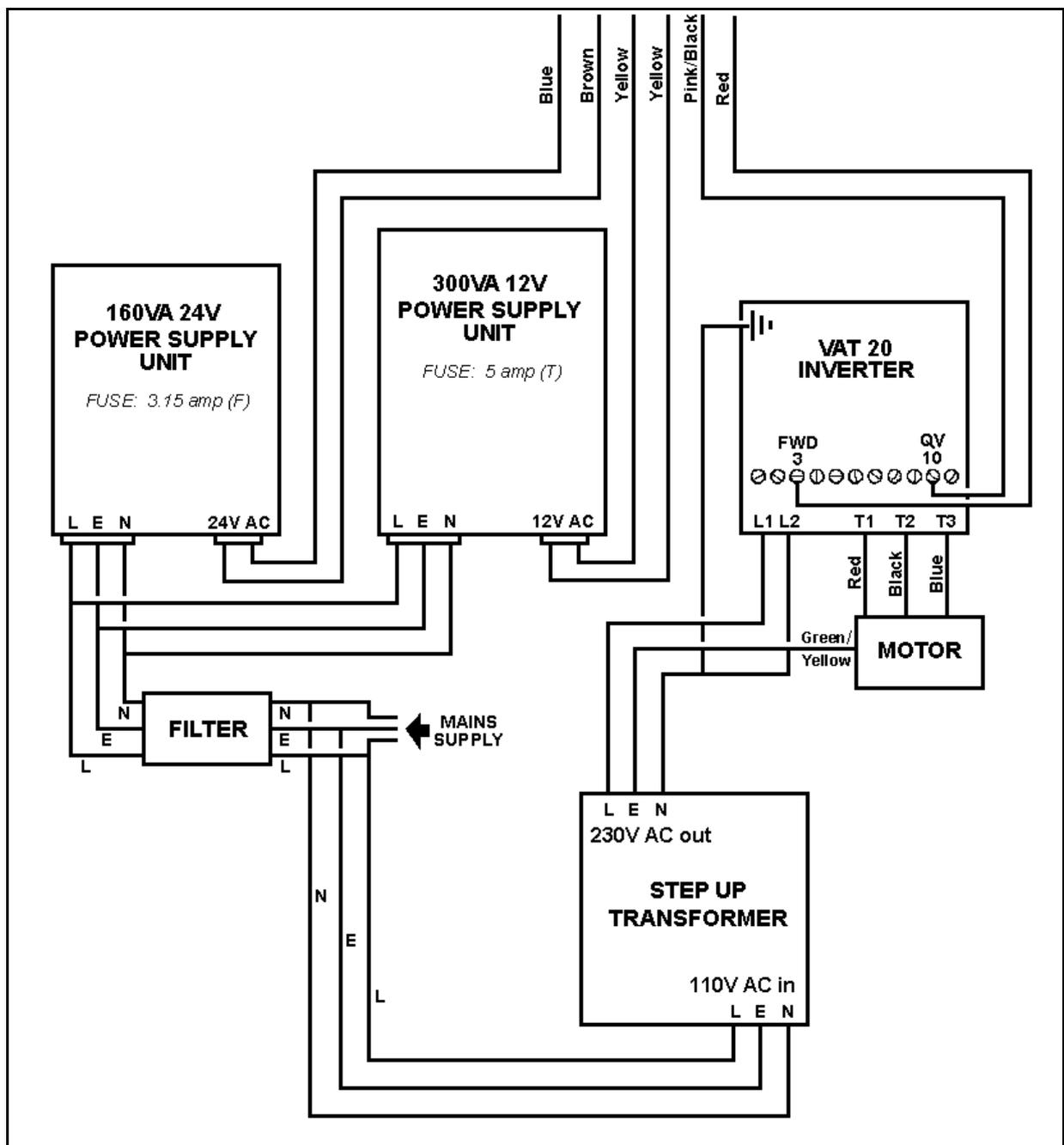
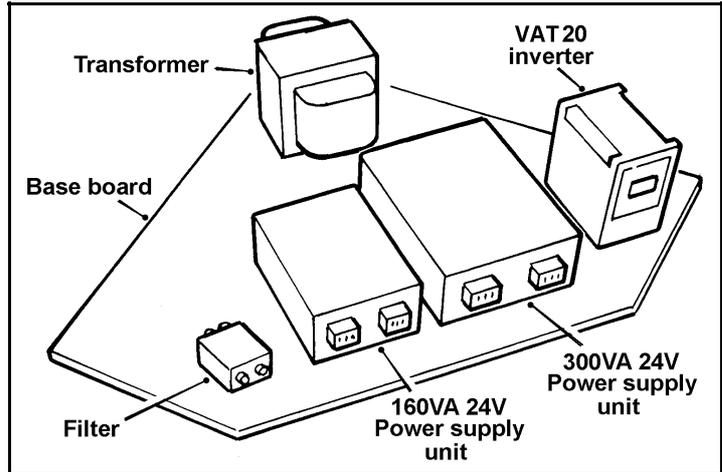


**Main electronics, AC system  
with VAT 20 Inverter and Transformer.**  
(manufactured from July 2004)

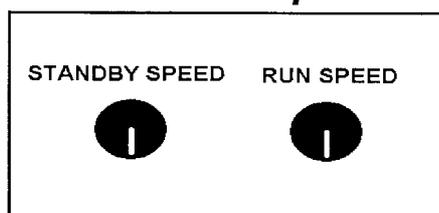
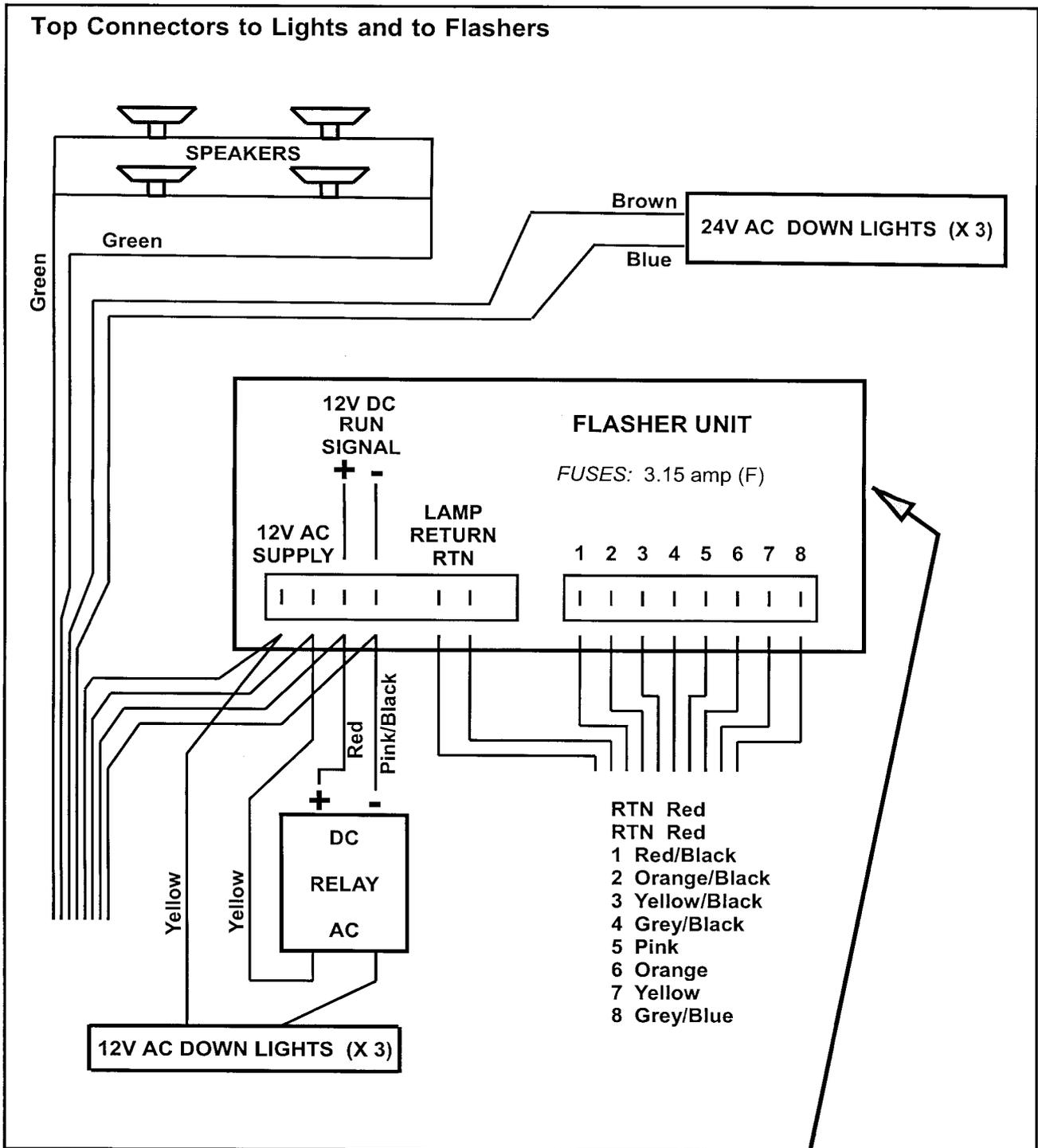
**Supplied to USA**

The **VAT 20 Inverter** controls the motor soft start and speed. It is factory pre-set and should not require changing.

Consult the factory for further advice on settings.

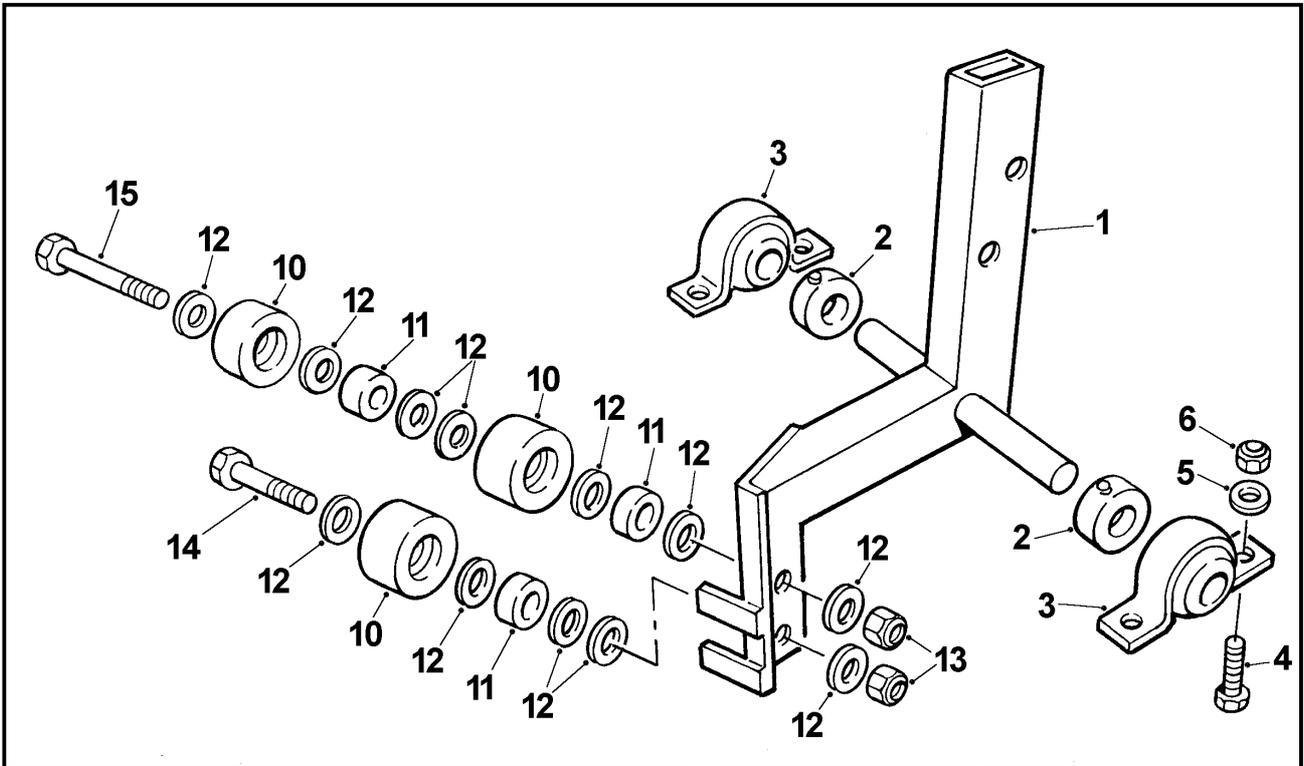


Top Connectors to Lights and to Flashers



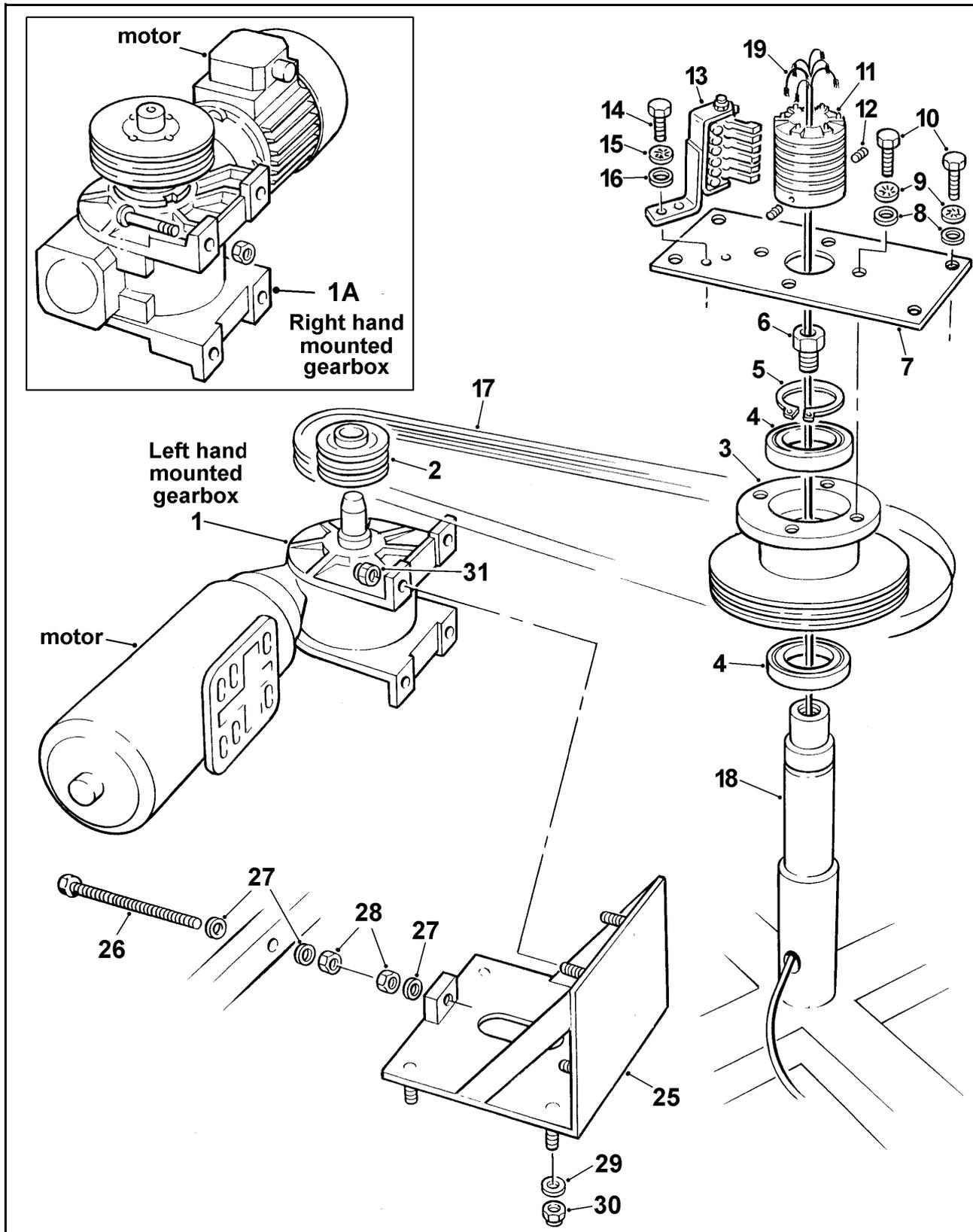
These knobs control the speed at which the canopy lights flash while the carousel is stationary (but on 'standby'), and when the ride is 'running'.

Toy movement mechanism



- 1 BRACKET, toy mounting
- 2 COLLAR
- 3 BEARING
- 4 SCREW
- 5 WASHER, plain
- 6 NUT, self locking
- 10 ROLLER
- 11 SPACER
- 12 WASHER, plain
- 13 NUT, self locking
- 14 BOLT, 3in long
- 15 BOLT, 4.5in long

Drive assembly



## Removing and replacing drive belts

Lower the base legs to aid access to the belt tensioning screw (26) and the nuts (30) below bracket (25).

Remove the base access panel.

Manually revolve the carousel until the access panel opening is adjacent to the motor/gearbox (1).

### **To gain access to belts at the centre pulley....**

Remove the access panel at the rear of the pump to gain access to the ring gear (11).

Disconnect the wiring (19) from the top of the ring gear.

Remove the ring gear (11) by slackening the two horizontal screws (12).

Unfasten screws (14) and remove the bush gear (13).

Remove the eight screws (10) and lift out the plate (7).

### **To slacken the drive belts.....**

From under the base, slacken the four nuts (30) retaining the motor/gearbox mounting plate (25).

Release the locking nuts (28) and screw the tensioning screw (26) anticlockwise. This will allow the bracket (25) to move inwards, therefore relieving the tension on the belts.

### **Removing and replacing belts.....**

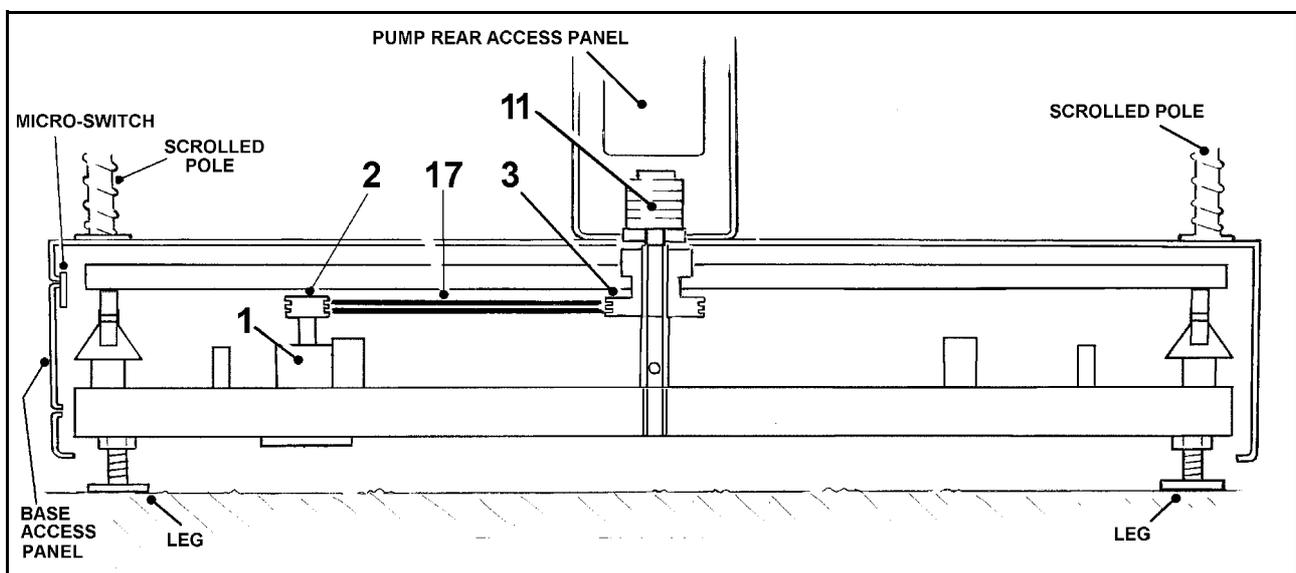
Slip the belts (17) over the gearbox and centre pulleys (2 & 3) and pull them out via the aperture of plate (7).

Fit new belts and reassemble in the reverse order.

### **Tension belts**

Check the tension on the belts by depressing one of the belts half way along its length. The deflection should be approximately 2mm. If the deflection is more than 2mm, then increase the tension. Do this as follows.....

Slacken the four nuts (30) retaining the motor/gearbox mounting plate (25). Release the locking nuts (28) and turn the tensioning screw (26) clockwise until the 2mm deflection is achieved.



## Clutch torque limiter

Fitted within the gearbox (1 or 1A) is a torque limiter mechanism. This feature is fitted so that in an emergency the carousel, when in motion, can be brought to a stop by manually pulling on one of the scrolled poles.

**Caution:** The torque limiter is pre-set at the factory and in normal circumstances should never require adjustment. The only occasion it will require adjustment is if new drive belts are fitted.

**Never adjust the clutch before first reading the following page 10.30.13**

### Adjusting the torque limiter .....

**Note:** The carousel is fitted with the gearbox mounted either to the left (1) or to the right (1A) of the motor.

The two different gearboxes have different adjustment procedures, as follows.....

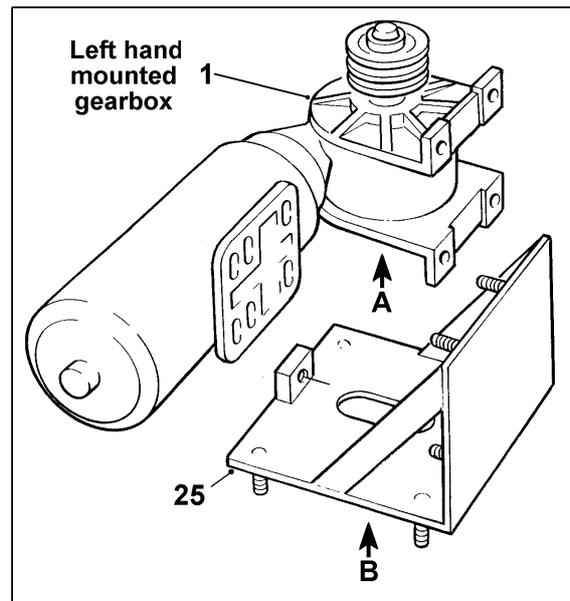
#### Left hand gearbox (1)

Adjust the torque limiter with nut (A) which is located beneath the gearbox (1).

Access to the nut is through hole (B) in the mounting plate (25).

The size of nut (A) is 15/16".

Turn the nut anti-clockwise to reduce the clutch tension, or clockwise to increase it.

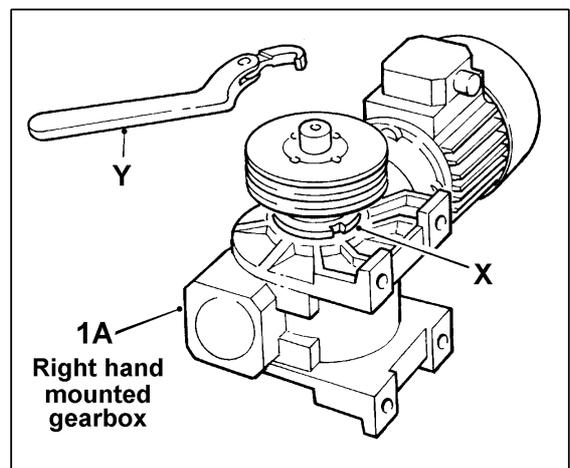


#### Right hand gearbox (1A)

The torque limiter is adjusted by turning the collar (X) that is situated beneath the pulley.

Adjust the collar (X) using the key (Y) that is supplied with the carousel.

Turn the collar anti-clockwise to reduce the clutch tension, or clockwise to increase it.



## Adjusting belt and clutch torque limiter tension

**Note:** When checking for the belts slipping, a torch or inspection lamp is required to see properly.

**To adjust belt and clutch torque limiter tension proceed as follows.....**

Switch off the power to the carousel.

Remove the base access panel, then remove the micro-switch from the panel.

Tape the panel micro-switch onto the micro-switch located in the panel recess.

Switch on the power.

Start up the carousel and allow it to ramp up to the running speed, (approximately 10 seconds).

Having established where the gearbox **(1)** is, have someone stall the carousel, by holding onto one of the scrolled poles.

The panel recess should be stopped in front of the gearbox.

Looking through the panel opening, determine whether the belts **(17)** are slipping or the clutch is operating as it should be.

If the belts are slipping, stop the carousel, by switching off the power.

Before attempting to adjust the clutch it is important that the belt tension is correct.

### **Belt tension**

Check the tension on the belts by depressing one of the belts half way along its length. The deflection should be approximately 2mm. If the deflection is more than 2mm, then increase the tension. (see page 10. 30.11 "Tension belts")

### **Clutch torque limiter adjustment**

There are two types of gearbox. Establish which gearbox is fitted by seeing the previous page.

If the belts are slipping, turn the adjusting nut **(A)** or collar **(X)** in an anti-clockwise direction to reduce the clutch tension. This should be done using small adjustments each time. Repeat until the clutch slips before the belts slip.

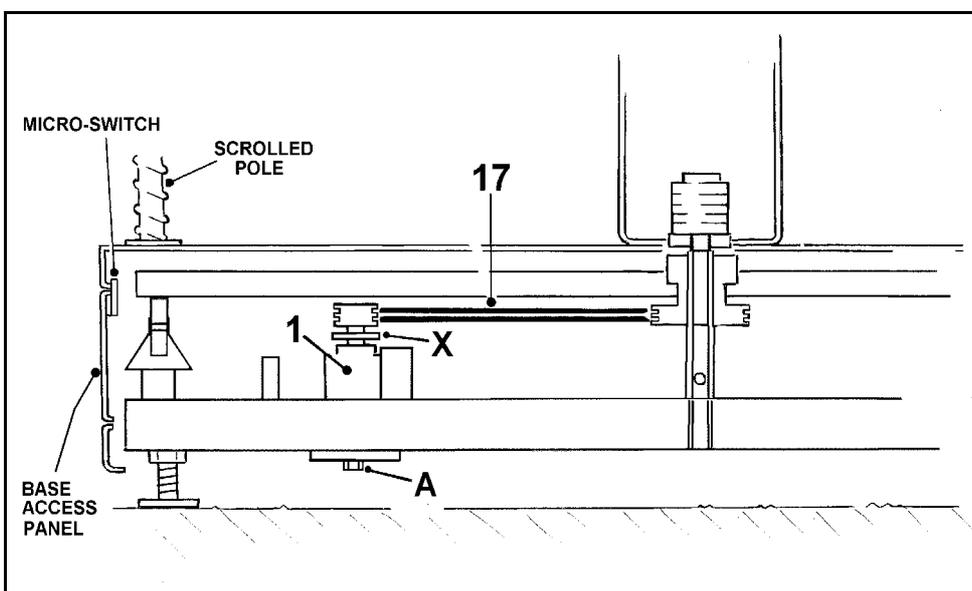
If the carousel is having trouble starting up and the belts are not slipping, the clutch tension should be increased by turning the adjusting nut or collar in a clockwise direction, making small adjustments each time.

When the carousel starts up correctly, and the belts do not slip when you apply pressure to stop it rotating, you are ready to do a final test with children riding in the toys.

With children riding in each toy and even two adults standing on the platform, start the carousel up.

If everything appears to be correct, stall the carousel and once again check that the belts are not slipping. Under these conditions you should be able to hold onto the scrolled poles and stall the carousel easily.

Replace the micro-switch onto the access panel, and fit the panel to the base.



# SERVICE MANUAL section 10.31

for

## *Engie Benjy*

### Contents

|                             | Page    |
|-----------------------------|---------|
| Customer operation of toy   | 10.31.1 |
| Emptying the cash box       | 10.31.2 |
| Alarm system (where fitted) | 10.31.2 |
| Servicing                   | 10.31.3 |

### Weight & Dimensions

|        |                  |
|--------|------------------|
| Length | 163 cm (64")     |
| Width  | 87 cm (34")      |
| Height | 163 cm (64")     |
| Weight | 115 kg (253 lbs) |

### Customer operation of toy

Whilst the machine is connected to a live power supply (but before a ride has been credited) the beacons (1) and interior button switches (2) flash constantly, while a teaser attraction sound track repeats every 120 seconds.

The ride is initiated by inserting a coin into the coin mechanism (3).

If the timer/controller has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

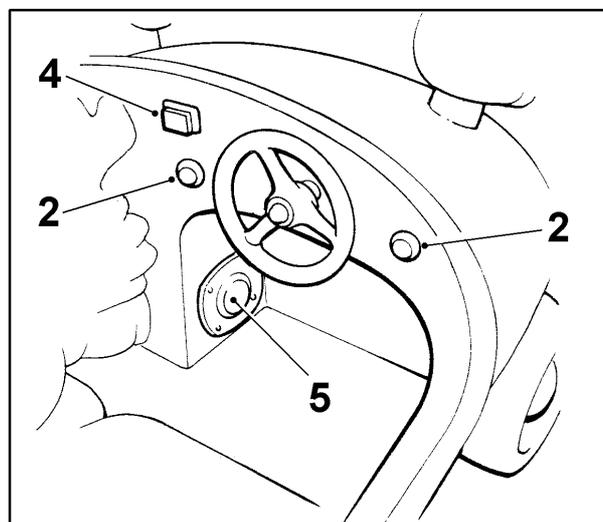
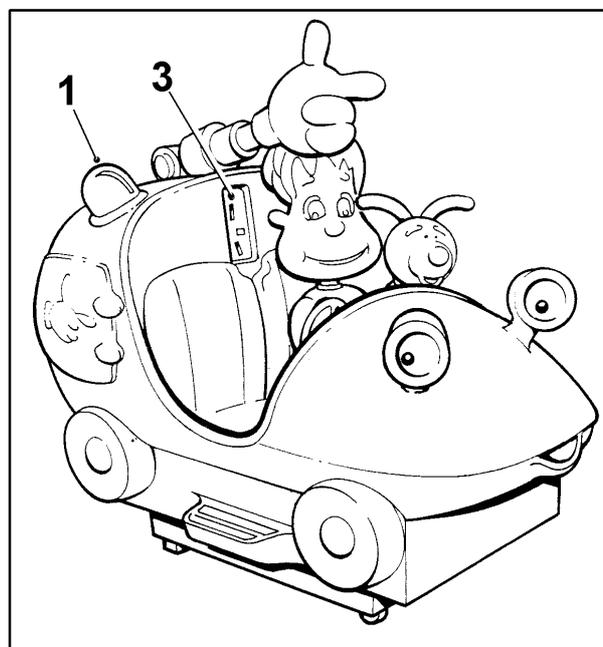
If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button (4) will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button (4) has been pressed the toy will begin to move backwards and forwards on its base. Whilst in motion a constant background sound will be heard.

On the dashboard are round button switches (2). Pressing these switches will produce additional sound effects.

All sound effects come from the speaker (5) situated in the foot well.

When the duration of the ride has been reached, the toy will stop moving, and an oral message will be given saying that the ride has finished.



## 10.31.2

### Maintenance

**WARNING** Read Safety section of this manual and disconnect electrical power before opening any access panels.



#### Alarm System

##### labelling Cancelling or disarming (where fitted)

An alarm is fitted to protect the cash box. The alarm unit (12) is situated at the front of the toy, behind the timer/control unit (13).

The alarm is triggered by a micro-switch (11) that is released when the cash box door (15) is opened.

To disarm, or cancel an already activated alarm, open the base access panel (10). This deactivates a micro-switch that is depressed by the closed panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

To maintain the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located within the base of the alarm unit.

#### Emptying the cash box

The cash box may be fitted with an alarm. The alarm is triggered by the micro-switch (11) being released when the cash box door is opened.

To disarm the alarm; open the base access panel (10). This releases a second micro-switch that deactivates the micro-switch (11).

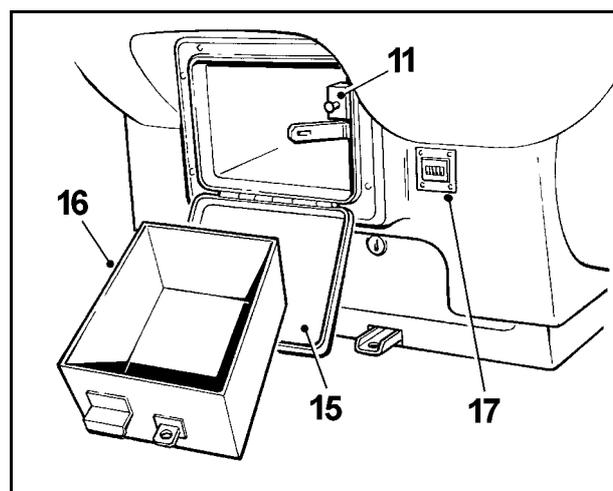
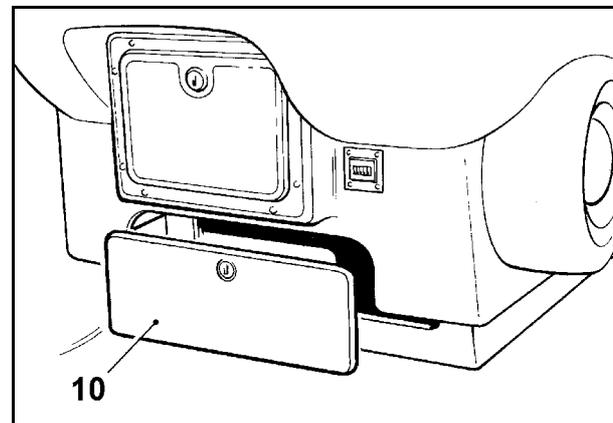
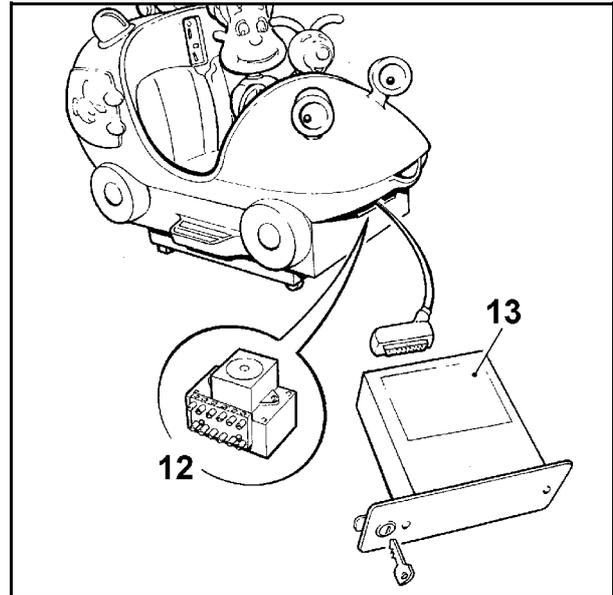
Unlock and open the cash box door (15). Release the cash box (16) by removing the clip or padlock.

Slide the cash box out and empty.

Refit in the reverse order.

#### Credits counter

The credits counter (17) is attached to the rear of the toy adjacent to the cash box door.



## Transportation

**WARNING** Read Safety section of this manual and disconnect electrical power before moving the machine.

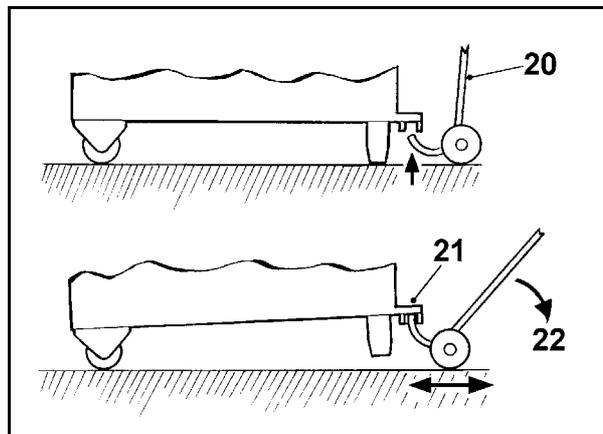


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



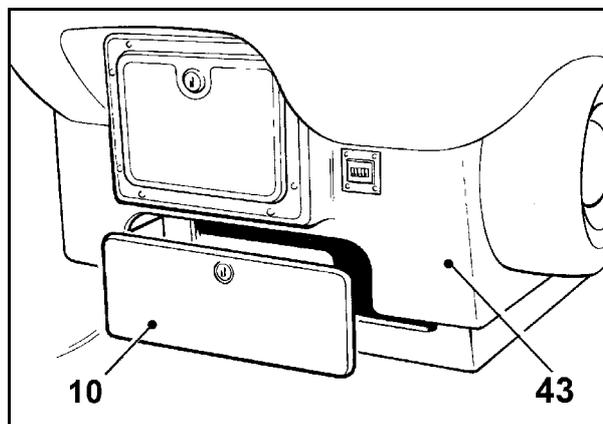
## Servicing

**WARNING** Read Safety section of this manual and disconnect electrical power before opening any access panels.



### Base access panel

The panel (10) at the rear of the base will give access for servicing the power supply unit, relay and filter. Greater access can be gained by removing the glass fibre cover (43) from the base. (See page 10.31.6)



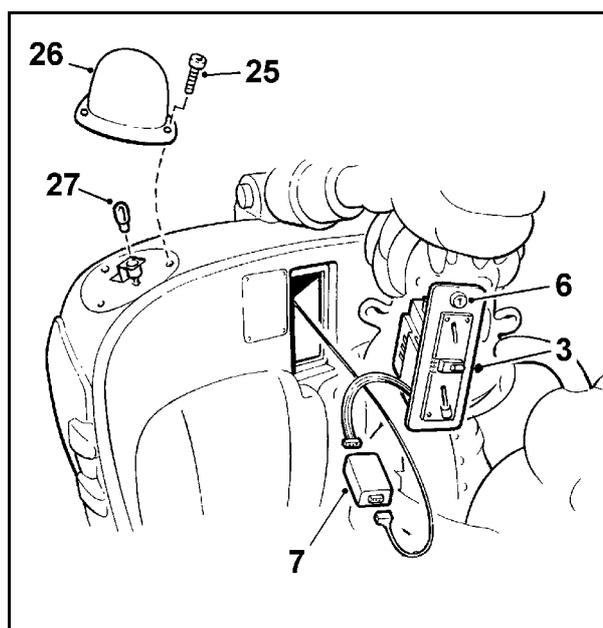
### Coin mechanism, removal /replacing

**WARNING** Always switch OFF mains power before removing coin mechanism. Working on the coin mechanism or ribbon cable with power ON can cause damage to chips in the coin mechanism and timer/control unit.



The coin mechanism (3) is released by the use of a key (6). Once released, unplug the mechanism from the interface unit (7).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a micro-switch. For further details about the unit see the relevant coin mechanism section in this manual.



### Beacon, Bulb change

To change the beacon bulb....

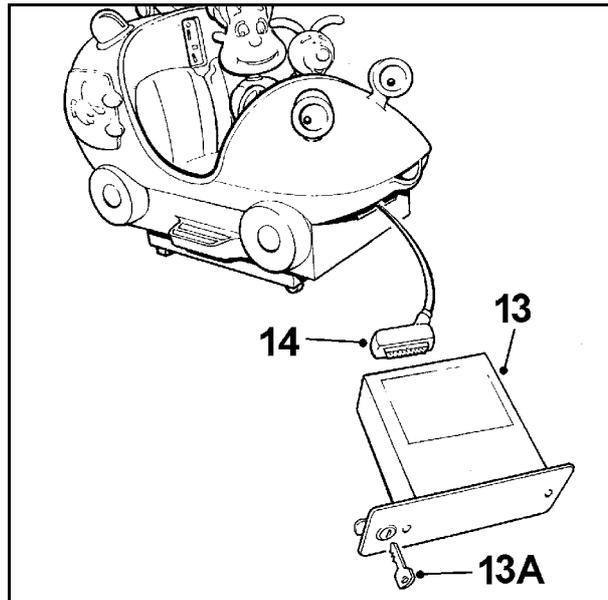
Remove the three screws (25) and lift off the cover (26). Replace the bulb (27) and re-fit the cover.

## 10.31.4

### Timer/controller: removal / replacing

The timer/controller is situated at the front of the toy beneath the "mouth".

With the key (13A), remove the timer/controller (13) and disconnect it from its plug (14).



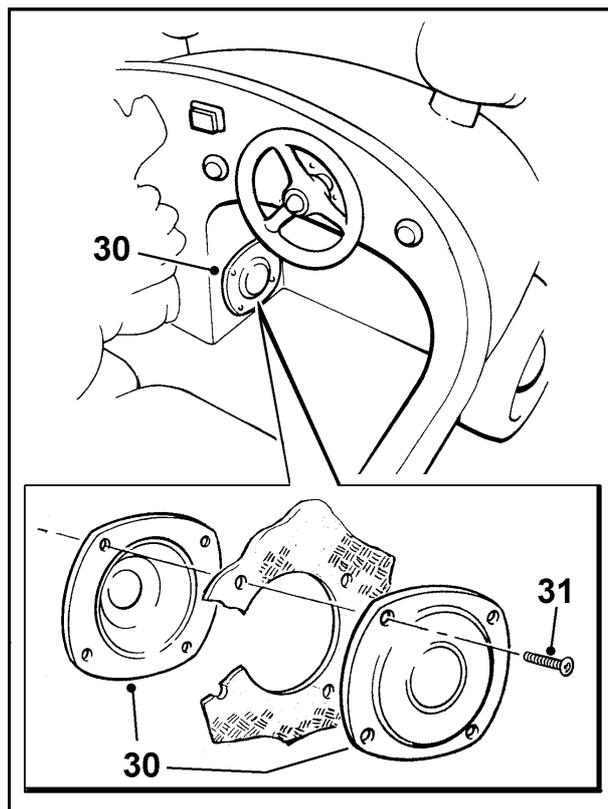
### Speaker: removal / replacing

Gain access to the rear of the speaker (30) by unlocking and removing the timer/controller (13) as described above.

Remove the four screws (31) retaining the speaker (30).

Disconnect the wires from the speaker.

Reassemble in the reverse order.



### Start switch & Button switches

From the front the start switch (4) & button switches (2) appear to be different, but from the rear they are of identical construction.

The switches (35) are illuminated by a bulb (36). The bulb and a micro-switch are mounted within a snap-in retainer (37).

The whole retainer assembly is pushed into the rear of the switch body (35).

#### Bulb: replacement

*Switch OFF the main power supply to the machine!*

Gain access to the rear of the switches by removing the panel (38) from under the console.

Locate the bulb retainer (37) and pull it straight out of the switch. The retainer is a tight fit and will require some effort to pull out.

Pull the bulb (36) from the retainer (37) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. The tabs (X) of the switch must align with the slots (Y) of the retainer. Push firmly on the retainer until it is heard to click into place.

#### Start and Button switches: replacement

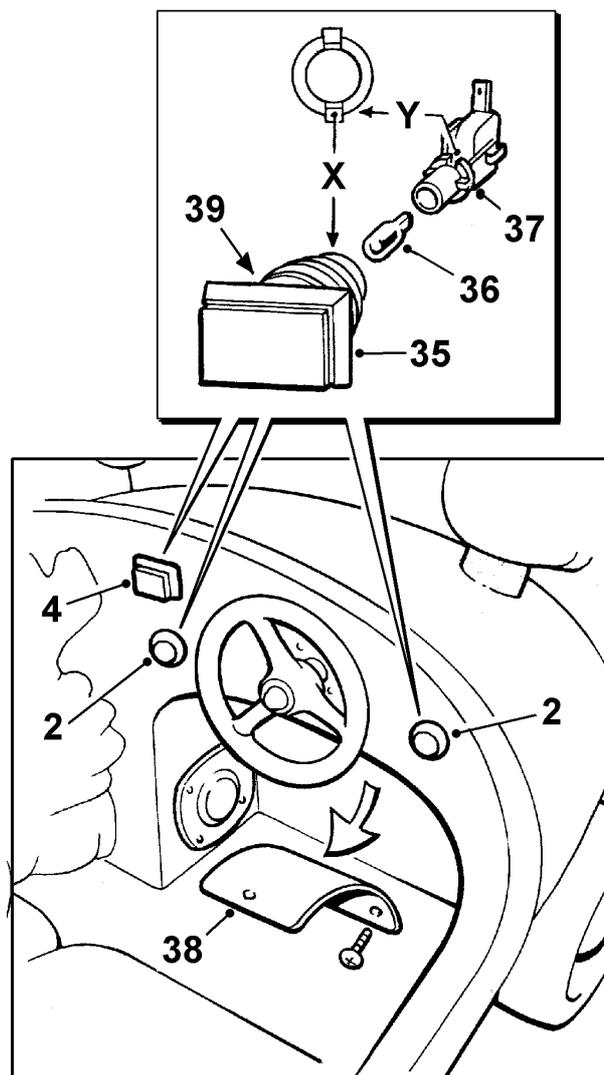
*Switch OFF the main power supply to the machine!*

Remove the bulb retainer (37) as previously described.

Unscrew the locking ring (39) from the back of switch.

Withdraw the switch (35) from the console.

Reassemble in the reverse order.



## 10.31.6

### Base cover: removal / replacing

Remove the rear panel (10).

Remove the wires from the micro-switch (40).

Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap.

Place on the floor a padded mat (41) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

Release the power cable gland (42).

The glass fibre cover (43) is fastened to the base frame by four screws (44).

Remove the four screws (44) and the support strip (45).

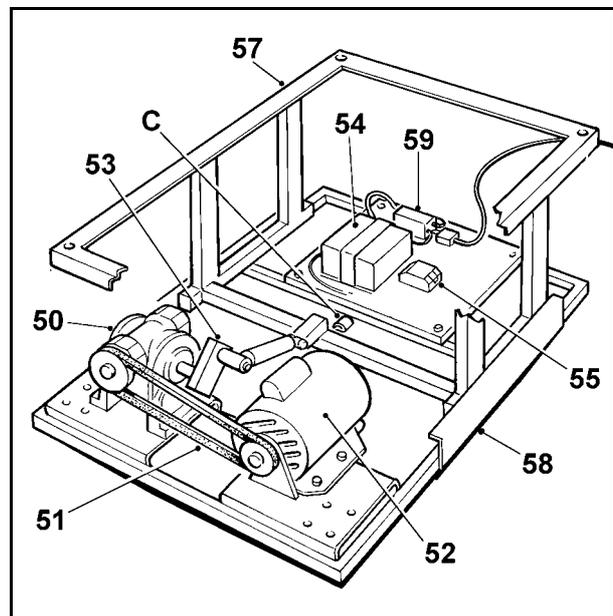
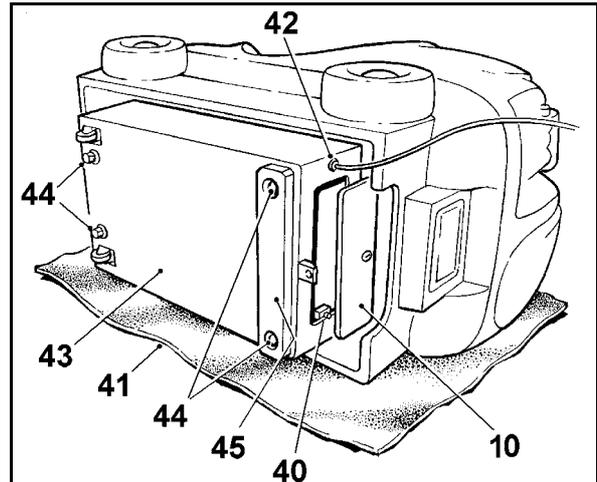
Pull the cover (43) clear of the machine.

The machine can now be stood upright.

This gives access to:

- Gearbox (50)
- Belt (51)
- Motor (52)
- Crank (53)
- Power supply (P.S.) unit (54)
- Solid state relay for motor (55)
- Frame, sliding (57)
- Frame, base (58)
- Mains filter (where fitted) (59)

Refit cover in the reverse order.



### Toy from base: removal / replacing

Switch the toy (60) ON and drive it as far forward on its base as it will travel. Stop the toy at its furthest point forward.

Disconnect the power supply.

If possible, place the complete ride on a work bench.

Remove the timer/controller (13) from the front, (beneath the "mouth"), of the toy. Through this opening, locate the loom main terminal block. Disconnect the terminal block by pulling its two halves apart.

Push the base half of the terminal block through the hole in the floor of the toy.

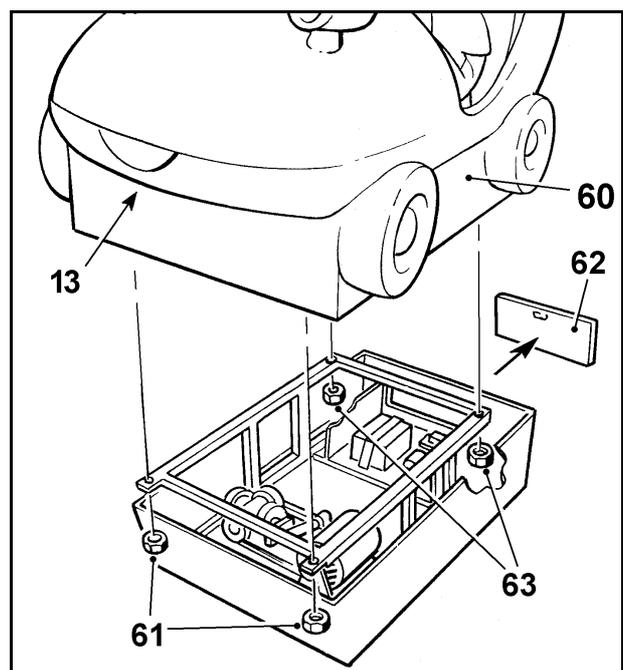
Remove the two front nuts (61) from under the sliding frame. (The nuts are screwed onto bolts that are bonded into the floor of the toy.)

Remove from the base the rear panel (62).

From inside the rear of the base, remove the two nuts (63) from under the sliding frame.

Carefully lift the toy (60) off the base.

Reassemble the toy to the base in the reverse order.



# SERVICE MANUAL section 10.32

for

## *Brad's Pickup Truck*

### Contents

|                             | Page    |
|-----------------------------|---------|
| Customer operation of toy   | 10.32.1 |
| Emptying the cash box       | 10.32.2 |
| Alarm system (where fitted) | 10.32.2 |
| Servicing                   | 10.32.3 |

### Weight & Dimensions

|        |                  |
|--------|------------------|
| Length | 148 cm (58")     |
| Width  | 86 cm (34")      |
| Height | 134 cm (53")     |
| Weight | 125 kg (275 lbs) |

### Customer operation of toy

Whilst the machine is connected to a live power supply (but before a ride has been credited), the interior button switches **(1)** flash, the sun and bear on the game console **(2)** illuminate and the headlights **(3)** flash constantly. A teaser attraction sound track repeats every 120 seconds.

The ride is initiated by inserting a coin into the coin mechanism **(4)**.

If the timer/controller has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button **(5)** will flash, and an oral request to press the start button will be given.

Immediately that the start button **(5)** has been pressed the toy will begin to gyrate on its base. Whilst in motion a constant background sound will be heard.

Once the ride is in motion a voice will describe how to play the game on the console **(2)**, i.e. The child has to press the button that is flashing. The faster the buttons are pressed the faster they flash.

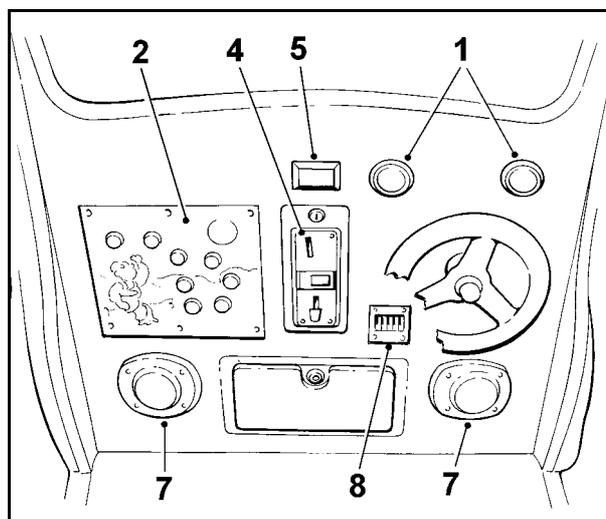
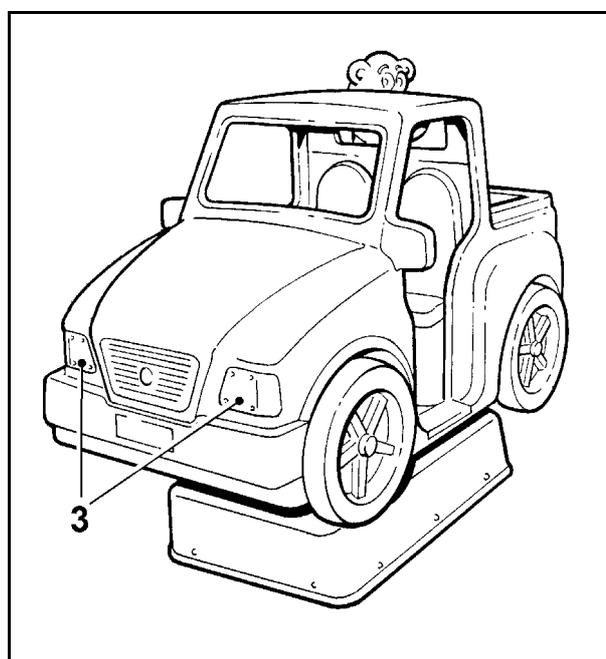
The two buttons **(1)** on the dashboard, when pressed produce additional sound effects.

All sound effects come from the speakers **(7)**.

When the duration of the ride has been reached, the toy will stop moving, and an oral message will be given saying that the ride has finished.

#### Credits counter

The credits counter **(8)** reads the total number of rides made on the toy.



## 10.32.2

### Maintenance

**WARNING** Read Safety section of this manual and disconnect electrical power before opening any access panels.



#### Alarm System

##### labelling Cancelling or disarming (where fitted)

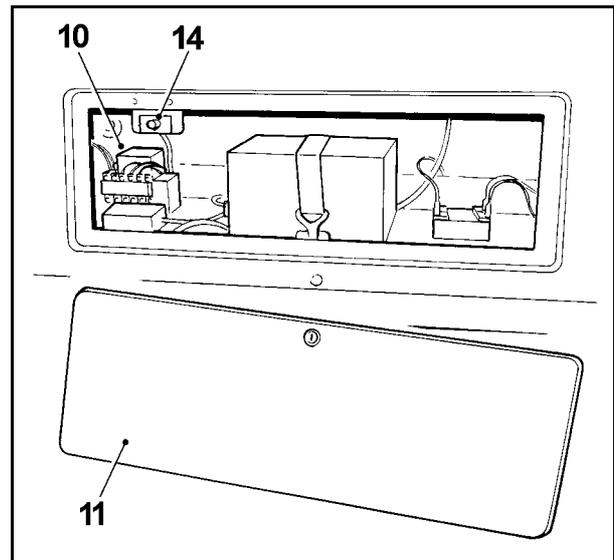
An alarm is fitted to protect the cash box. The alarm unit (10) is situated within the base behind the base access panel (11).

The alarm is triggered by a micro-switch (12) that is released when the cash box door (13) is opened.

To disarm, or cancel an already activated alarm, open the base access panel (11). This deactivates a micro-switch (14) that is depressed by the closed panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

To maintain the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located within the base of the alarm unit.



#### Emptying the cash box

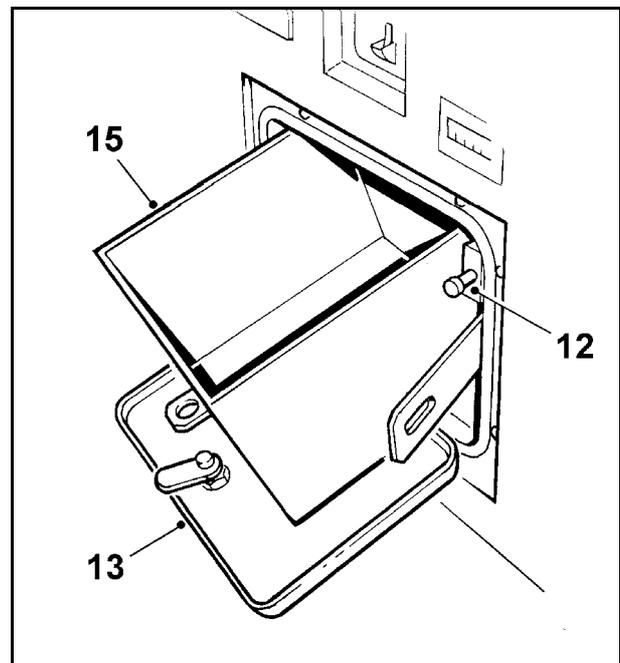
The cash box may be fitted with an alarm (10). The alarm is triggered by the micro-switch (12) being released when the cash box door (13) is opened.

To disarm the alarm; open the base access panel (11). This releases a second micro-switch (14) that deactivates the micro-switch (12).

Unlock and open the cash box door (13). Release the cash box (15) by removing the clip or padlock.

Slide the cash box out and empty.

Refit in the reverse order.



## Transportation

**WARNING** Read Safety section of this manual and disconnect electrical power before moving the machine.

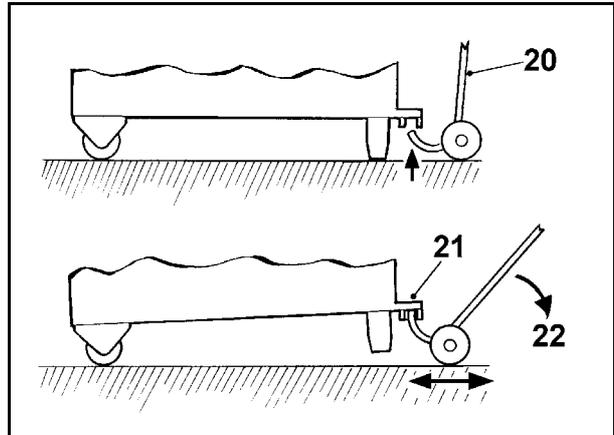


### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



## Servicing

**WARNING** Read Safety section of this manual and disconnect electrical power before opening any access panels.

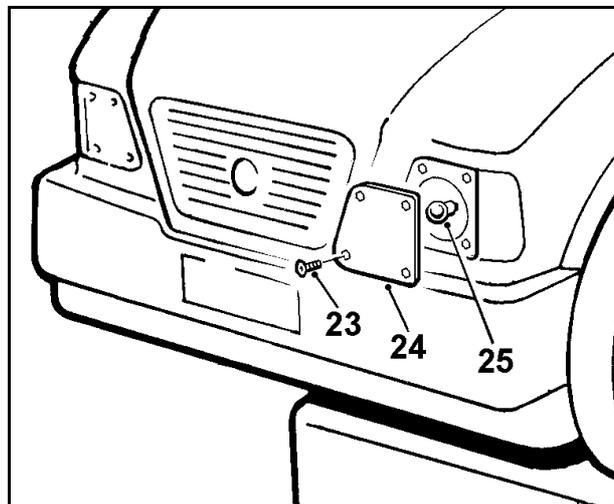


### Headlight, bulb change

To change the headlight bulb...

Remove the screws (23) retaining the lens (24).

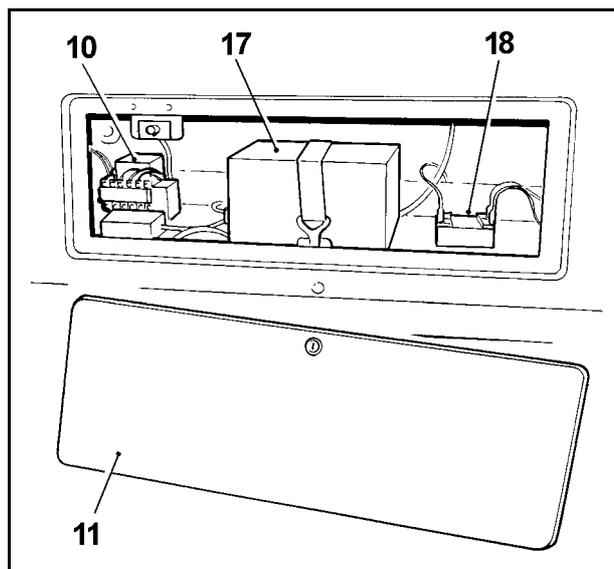
Replace the bulb (25) and re-fit the lens.



### Base access panel

The panel (11) at the side of the base gives access for servicing the power supply unit (17), alarm (where fitted) (10) and relay (18) for motor.

Greater access can be gained by removing the glass fibre cover from the base. (See the following page)



## 10.32.4

### Toy & Base cover: removal / replacing

To remove the toy (26) .....

From under the seat, behind the timer/contoller unit, locate the main loom connector block (27).

Pull the two halves of the block apart.

Push the base half of the loom (27) down through the hole in the floor of the toy.

Remove the bolts (28) from under the mounting brackets (29). (The bolts (28) are screwed into captive nuts bonded into the floor of the toy.)

Lift off the toy (26).

To remove the base cover (30) .....

Remove the toy as described above.

Remove the lock-nuts (31) and unscrew the screws (32) from the tapped holes in the brackets (35).

With a key remove the access panel (11).

Disconnect the wiring from the micro-switch (14) that is attached to the cover.

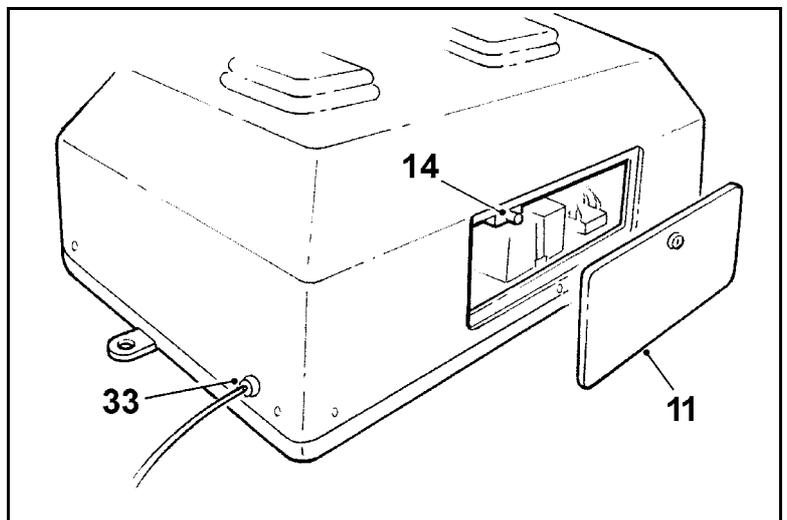
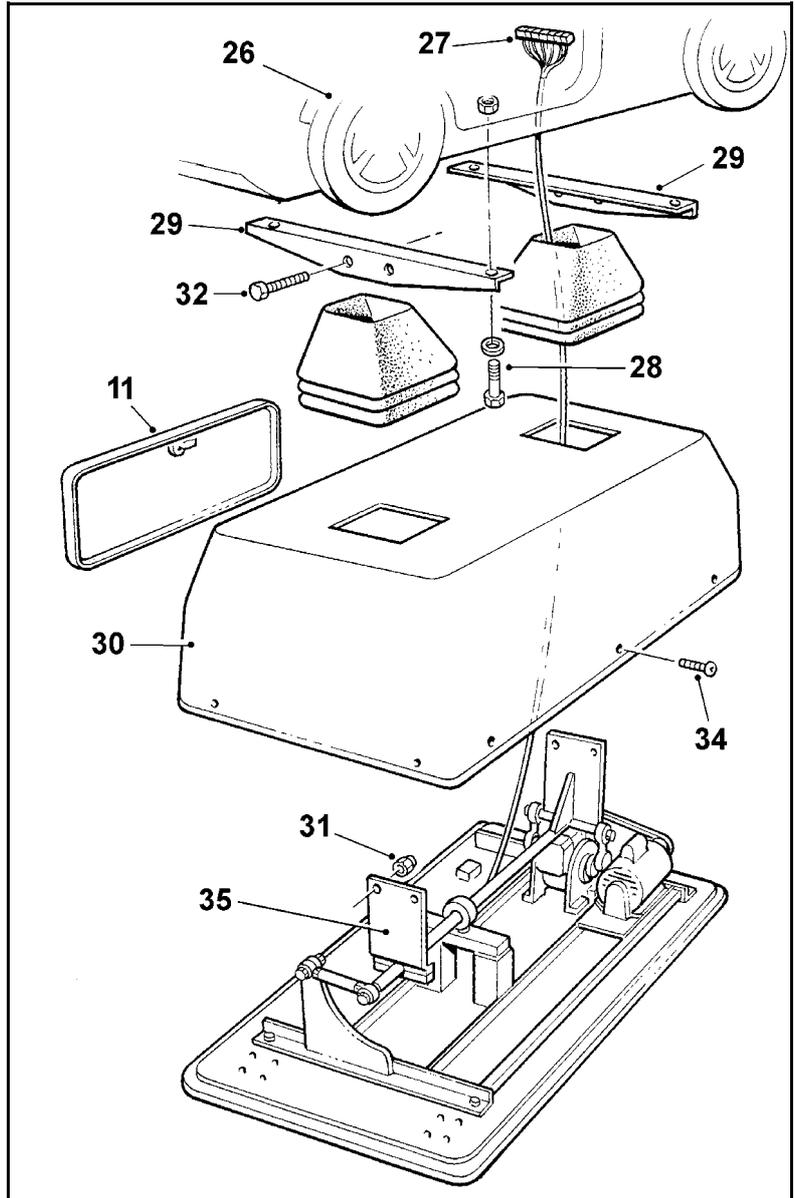
Release the power cable gland (33) at the rear of the base cover.

Remove the screws (34) from around the base of the cover.

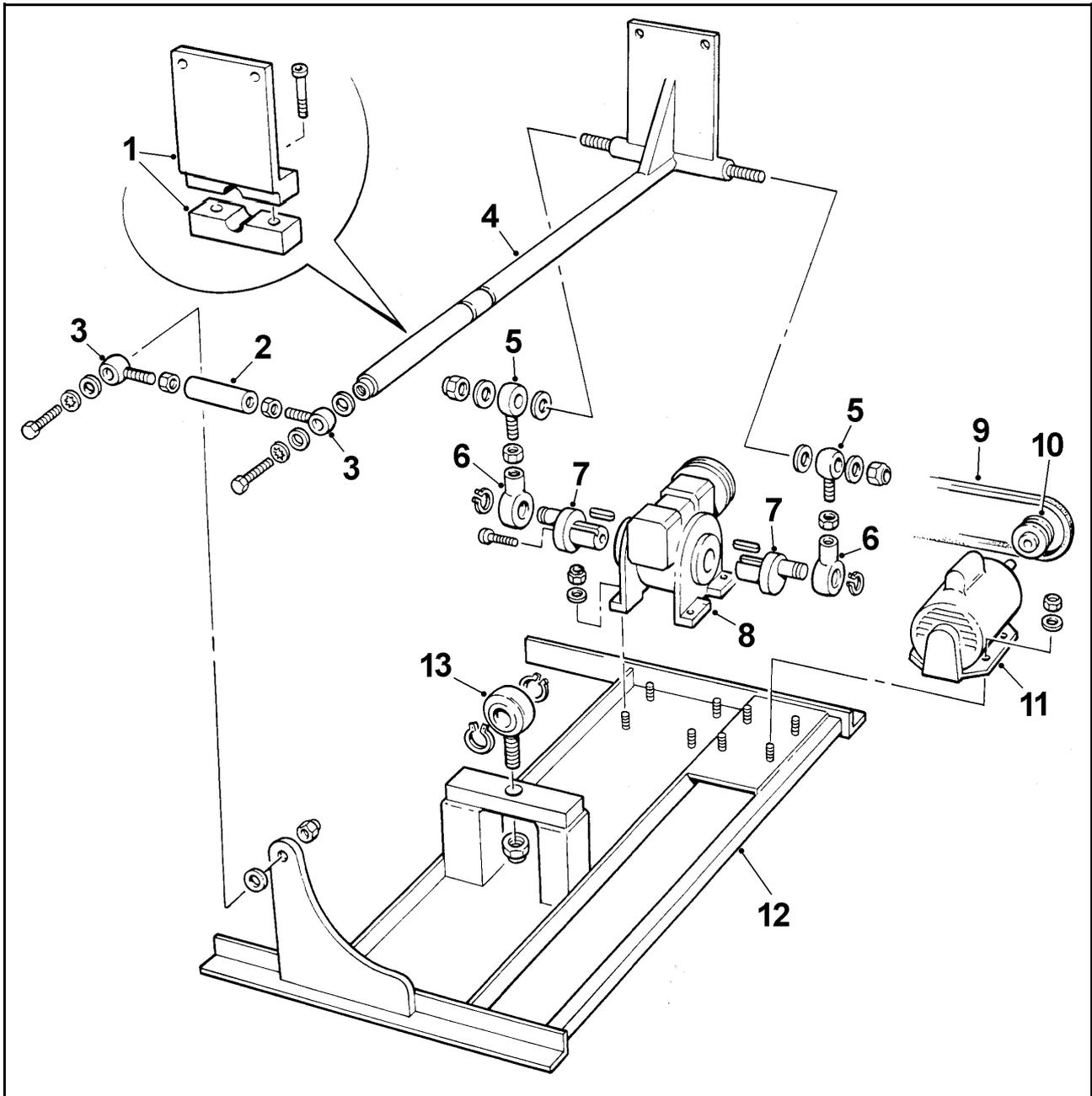
Lift off the cover (30).

This gives access to the rides movement (35). (See the following page.)

Reassemble in the reverse order.



## Movement



- 1 Angle holder
- 2 Link bar
- 3 Bearing, link bar
- 4 Main shaft
- 5 Bearing, main shaft
- 6 Bearing, crank shaft
- 7 Crank shaft assembly (two halves)
- 8 Gearbox
- 9 Belt
- 10 Pulley
- 11 Motor
- 12 Base frame
- 13 Pivot bearing

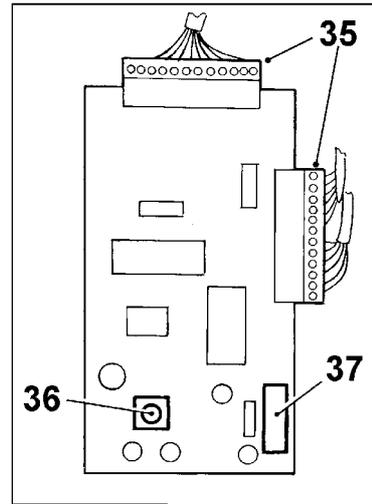
## 10.32.6

### Game circuit board

Beneath the seat is situated the game circuit board (40). The board is connected to the main loom by two pull apart connector blocks (35).

On the board are situated the volume control for the game (36) and a 2 amp fuse (37).

If a fault should occur with the game electronics it is recommended that you consult the manufacturer.

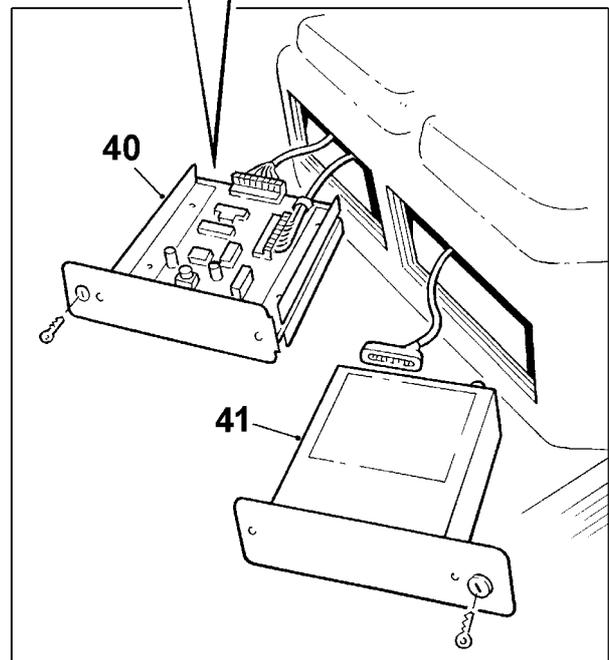


### Timer/controller

The timer/controller (41) is situated beneath the seat beside the game circuit.

The unit controls ....

- A The duration of the ride.
- B The sound effects (other than those of the game).
- C The price of each ride and counts the coins through the coin counter.



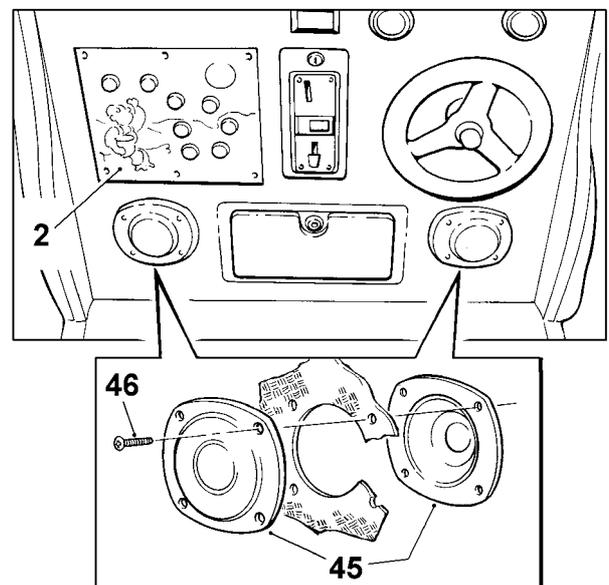
### Speaker: removal / replacing

Access to both the speakers (45) can be made through the panel beneath the toy. In addition access to the left hand speaker only can be made by unscrewing and removing the game console (2).

Remove the four screws (46) retaining each speaker (45).

Disconnect the wires from the speaker.

Reassemble in the reverse order.



## Start switch & Button switches

From the front the start switch (5) & button switches (1) appear to be different, but from the rear they are of identical construction.

The switches (50) are illuminated by a bulb (51). The bulb and a micro-switch are mounted within a snap-in retainer (52).

The whole retainer assembly is pushed into the rear of the switch body (50).

### Bulb: replacement

*Switch OFF the main power supply to the machine!*

Gain access to the rear of the switches by unscrewing and removing the game panel (2).

Locate the bulb retainer (52) and pull it straight out of the switch. The retainer is a tight fit and will require some effort to pull out.

Pull the bulb (51) from the retainer (52) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. The tabs (X) of the switch must align with the slots (Y) of the retainer. Push firmly on the retainer until it is heard to click into place.

### Start and Button switches: replacement

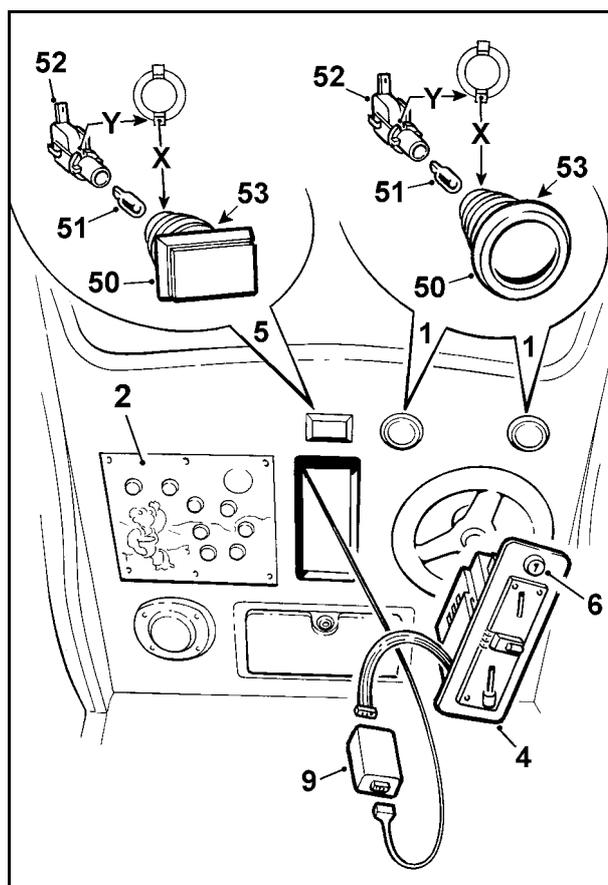
*Switch OFF the main power supply to the machine!*

Remove the bulb retainer (52) as previously described.

Unscrew the locking ring (53) from the back of switch.

Withdraw the switch (50) from the console.

Reassemble in the reverse order.



### Coin mechanism, removal /replacing

**WARNING** *Always switch OFF mains power before removing coin mechanism. Working on the coin mechanism or ribbon cable with power ON can cause damage to chips in the coin mechanism and timer/control unit.*



The coin mechanism (4) is released by the use of a key (6). Once released, unplug the mechanism from the interface unit (9).

**Note:** *If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a micro-switch. For further details about the unit see the relevant coin mechanism section in this manual.*

**10.32.8**

# SERVICE MANUAL section 10.33

for

## *Captain Nemo*

### Contents

|                             | Page    |
|-----------------------------|---------|
| Customer operation of toy   | 10.33.1 |
| Emptying the cash box       | 10.33.3 |
| Alarm system (where fitted) | 10.33.3 |
| Servicing                   | 10.33.4 |

### Weight & Dimensions

|        |                  |
|--------|------------------|
| Length | 170 cm (67")     |
| Width  | 89 cm (35")      |
| Height | 170 cm (67")     |
| Weight | 125 kg (275 lbs) |

### Customer operation of toy

Whilst the machine is connected to a live power supply, but before a ride has been credited, the interior button switches **(1, 2 & 3)** flash constantly, while a teaser attraction sound track repeats every 120 seconds.

The ride is initiated by inserting a coin into the coin mechanism **(4)**.

If the timer/controller has decided that the value of money which was received by the coin mechanism was not enough to give a ride, then an oral request to add more money will be given and repeated every 30 seconds.

If the value of money received by the coin mechanism is enough to give one or more rides, then the yellow start button **(2)** will flash, and an oral request to "Press Start Button" will be given.

Immediately that the start button **(2)** has been pressed the toy will begin to move backwards and forwards on its base. Whilst in motion a constant background sound will be heard.

All sound effects come from the speaker situated beneath the seat.

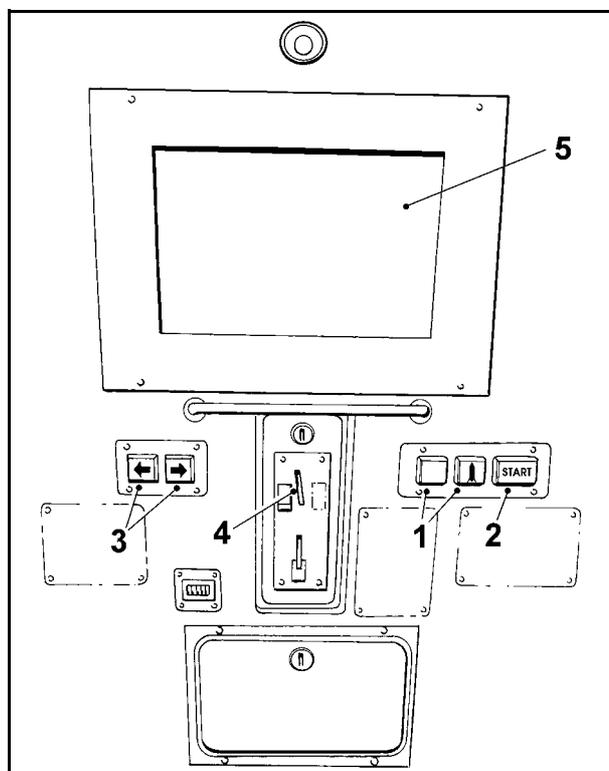
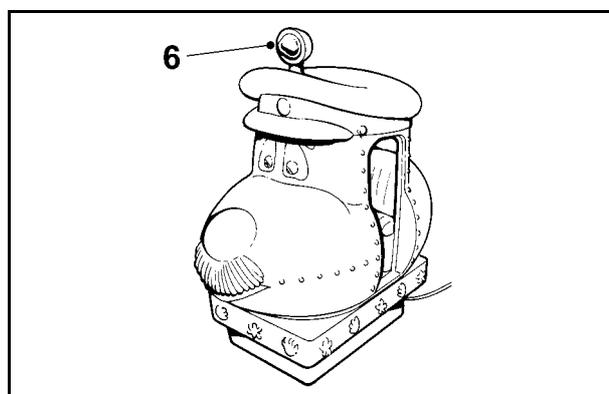
Within the toy there is a screen **(5)** that displays a game. There are two variants of the game. The toy will be fitted with either.....

**Game A:** Shows on the screen the images from a motorised camera mounted in the periscope **(6)**. It also has additional features and sound effects.

or

**Game B:** Has no camera, but shows on the screen looped video clips. It also has additional sound effects.

NOTE: The illustration on the right shows the console with **game A** using the motorised camera. The different games are described on the following page.



When the duration of the ride has been reached, the toy will stop moving, and an oral message will be given saying that the ride has finished.

## 10.33.2

### Game A

Before toy is credited....

An attraction sound is heard every 120 seconds, and the console button switches **(3,7 & 9)** flash.

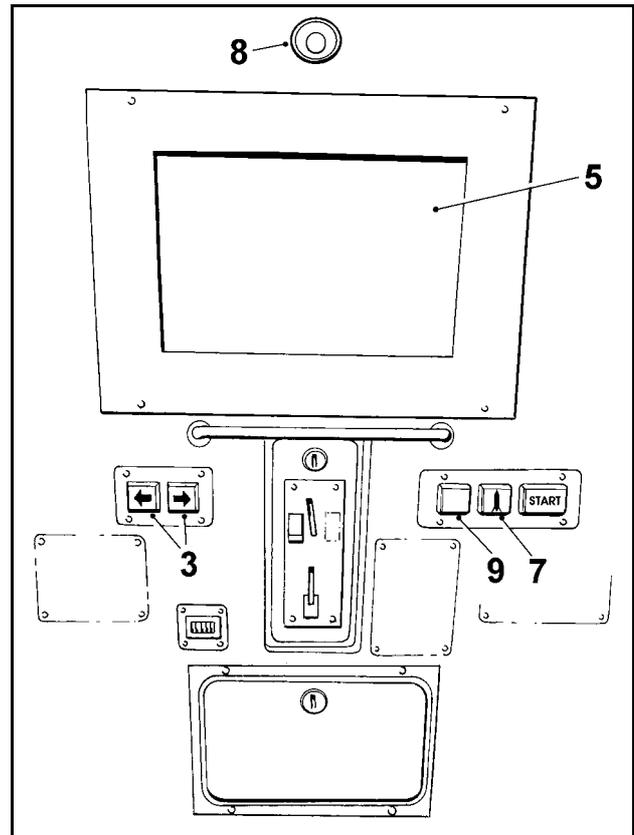
After the toy has been credited and the game becomes live.....

On the screen **(5)** is displayed the image from a motorised camera mounted within the periscope.

The camera is moved from side to side by the child using the buttons **(3)**.

The torpedo button **(7)**, when pressed, produces an explosive sound, while simultaneously the light **(8)** above the screen illuminates.

Additional sound effects are made by pressing button **(9)**.



### Game B

Before toy is credited....

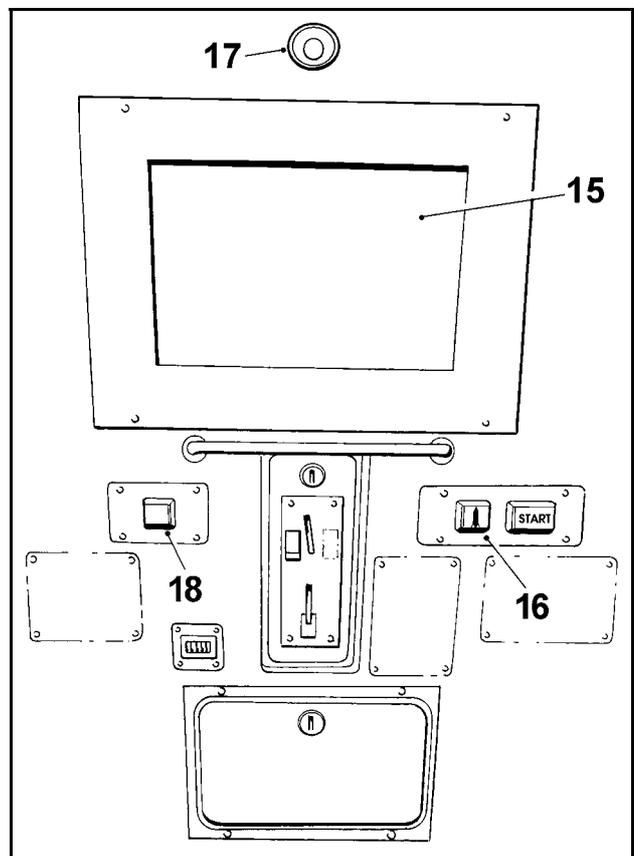
A light fitted in the periscope flashes constantly and the screen **(15)** displays a constantly looped welcoming video, plus there is an attraction sound every 120 seconds.

After the toy has been credited and the game becomes live.....

On the screen is displayed, randomly, one of four movie player video clips.

The torpedo button **(16)**, when pressed, produces an explosive sound, while simultaneously the light **(17)** above the screen illuminates.

Additional sound effects are made by pressing button **(18)**.



## Maintenance

**WARNING** Read Safety section of this manual and disconnect electrical power before opening any access panels.



### Alarm System

#### Cancelling or disarming (where fitted)

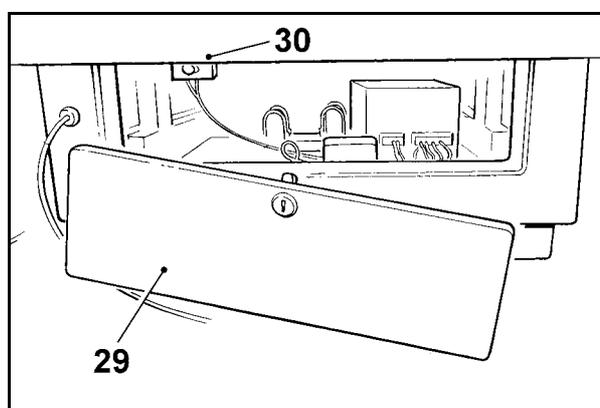
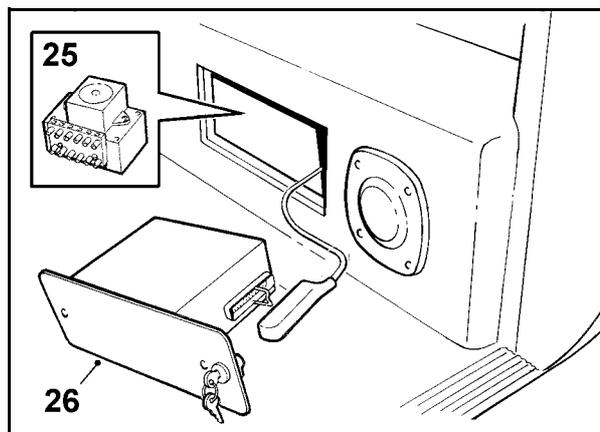
An alarm is fitted to protect the cash box. The alarm unit (25) is situated under the seat, behind the timer/control unit (26).

The alarm is triggered by a micro-switch (27) that is released when the cash box door (28) is opened.

To disarm, or cancel an already activated alarm, open the base access panel (29). This deactivates a micro-switch (30) that is depressed by the closed panel.

**Note:** Even with the ride disconnected from the power supply, the alarm will be activated.

To maintain the reliability of the alarm, it may be necessary to periodically replace the battery. The batteries are located within the base of the alarm unit.



### Emptying the cash box

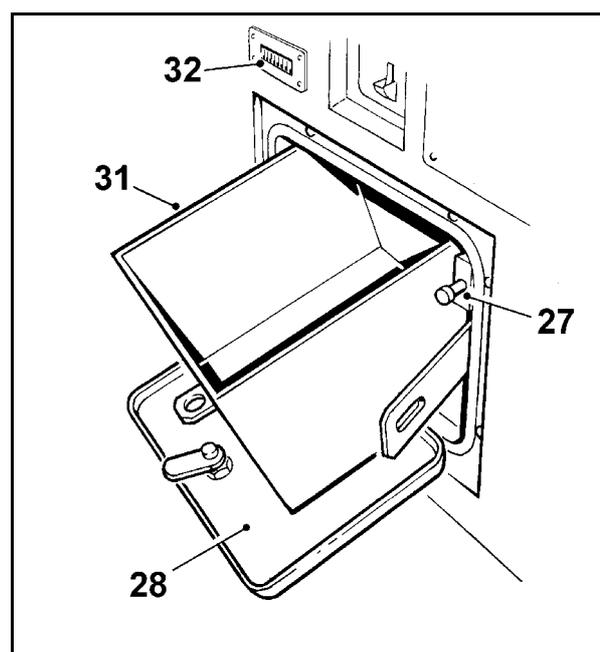
The cash box may be fitted with an alarm. The alarm is triggered by the micro-switch (27) being released when the cash box door (28) is opened.

To disarm the alarm, open the base access panel (29). This releases a second micro-switch (30) that deactivates the micro-switch (27).

Unlock and open the cash box door. Release the cash box (31) by removing the clip or padlock.

Slide the cash box out and empty.

Refit in the reverse order.



### Credits counter

The credits counter (32) is situated above the cash box. The counter records the number of credited rides given by the machine.

## 10.33.4

### Transportation

**WARNING** Read Safety section of this manual and disconnect electrical power before moving the machine.

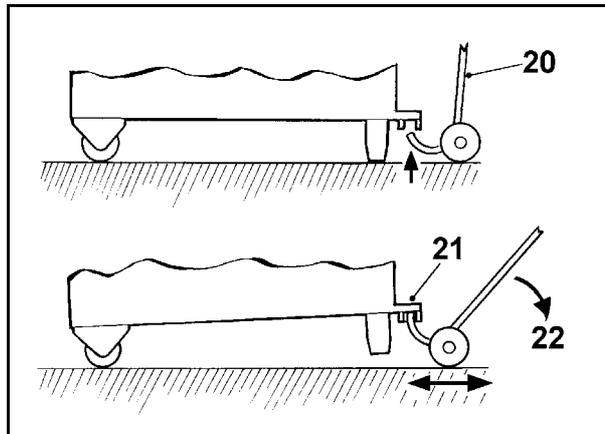


#### Towing jack

The towing jack (20) is provided to help in moving the machine.

Situated at the rear of the machine is a towing eye. Insert the hook of the jack into the towing eye (21).

Lever the jack backwards (22) to raise the machine off its plinth. The machine can now be pulled along with the jack handle.



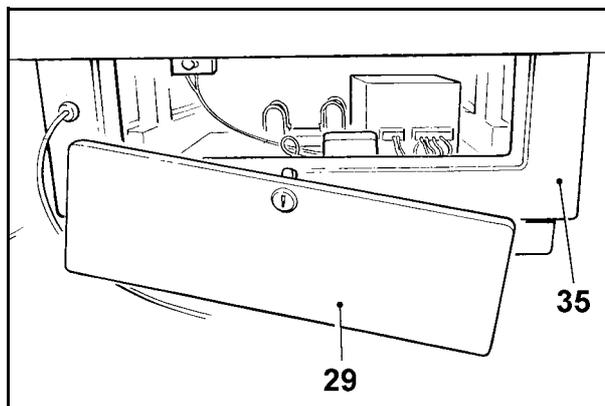
### Servicing

**WARNING** Read Safety section of this manual and disconnect electrical power before opening any access panels.



#### Base access panel

The panel (29) at the rear of the base will give access for servicing the power supply units, relay and filter. Greater access can be gained by removing the glass fibre cover (35) from the base. (See page 10.33.7)



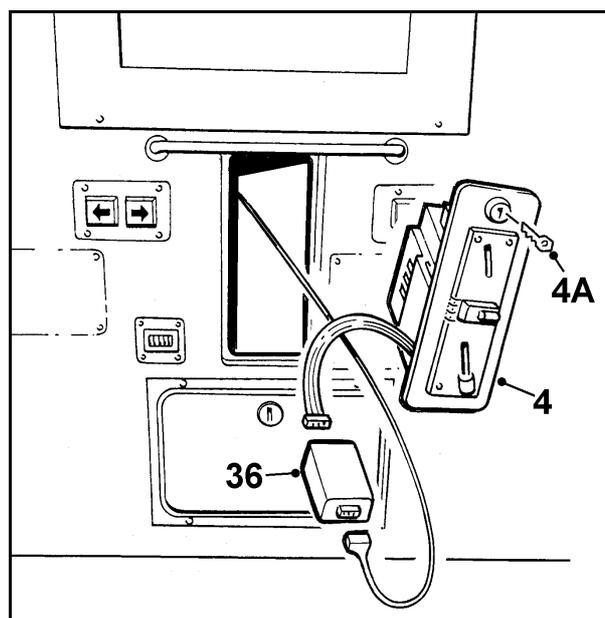
#### Coin mechanism, removal /replacing

**WARNING** Always switch OFF mains power before removing coin mechanism. Working on the coin mechanism or ribbon cable with power ON can cause damage to chips in the coin mechanism and timer/control unit.



The coin mechanism (4) is released by the use of a key (4A). Once released, unplug the mechanism from the interface unit (36).

**Note:** If a mechanical coin mechanism is fitted there will be no interface, but it will need to be disconnected from a micro-switch. For further details about the unit see the relevant coin mechanism section in this manual.



**Speaker: removal / replacing**

Gain access to the rear of the speaker (38) by unlocking and removing the timer/controller (41) as described below.

Remove the four screws (39) retaining the speaker.

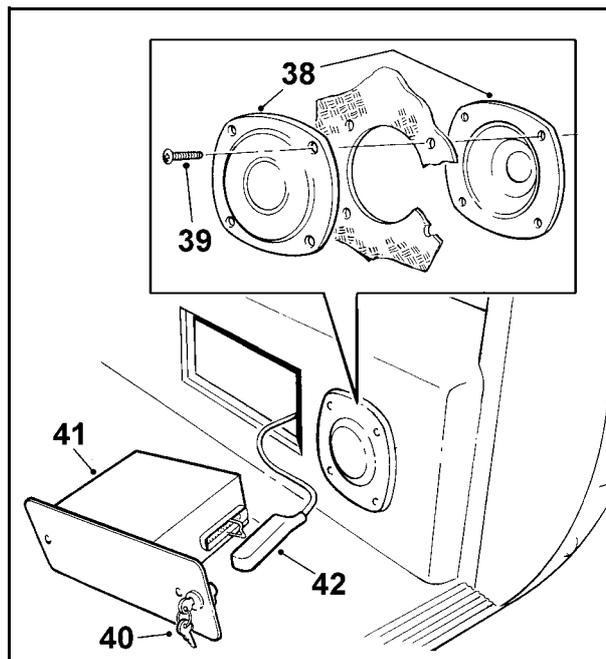
Disconnect the wires from the speaker.

Reassemble in the reverse order.

**Timer/controller: removal / replacing**

The timer/controller is situated beneath the seat.

With the key (40), remove the timer/controller (41) and disconnect it from its plug (42).

**Periscope camera****Important**

When the ride is delivered from the factory the periscope is not attached to the roof.

It is wrapped separately along with three screws and an allen key. These are stored on the seat of the toy.

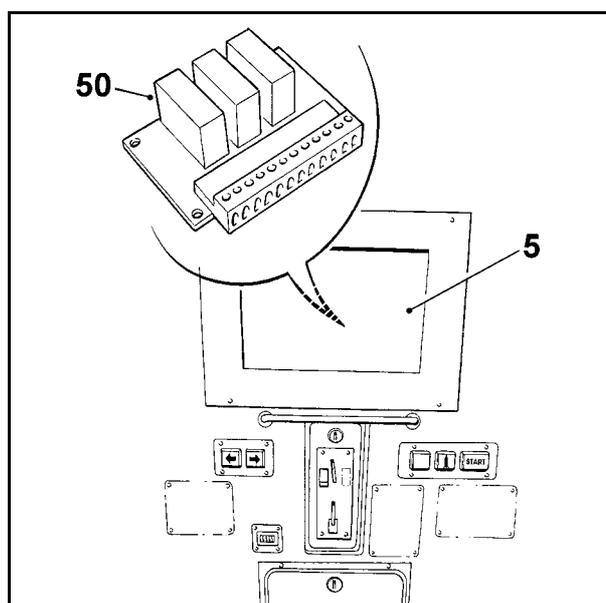
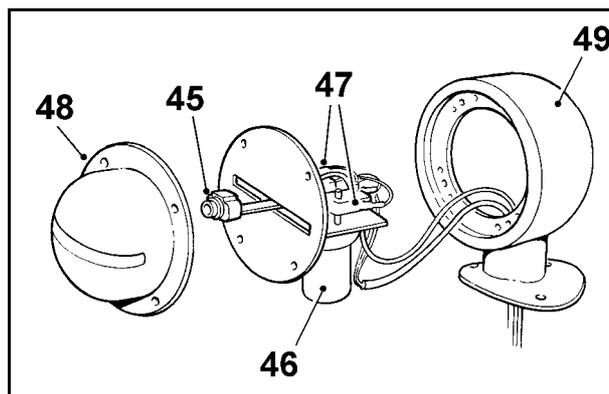
To install the periscope; connect the periscope wiring block to the loom through the hole in the roof. The periscope is then fastened to the roof using the screws and allen key.

The camera is moved from side to side by a motor (46).

The travel of the camera is controlled by two stop switches (47).

In front of the camera is a cover (48). The cover is painted black except for a narrow slit that gives vision to the camera.

The whole assembly is mounted in the body of the periscope (49).



Behind the screen (5) are fastened the relays (50) that control the camera's side to side travel.

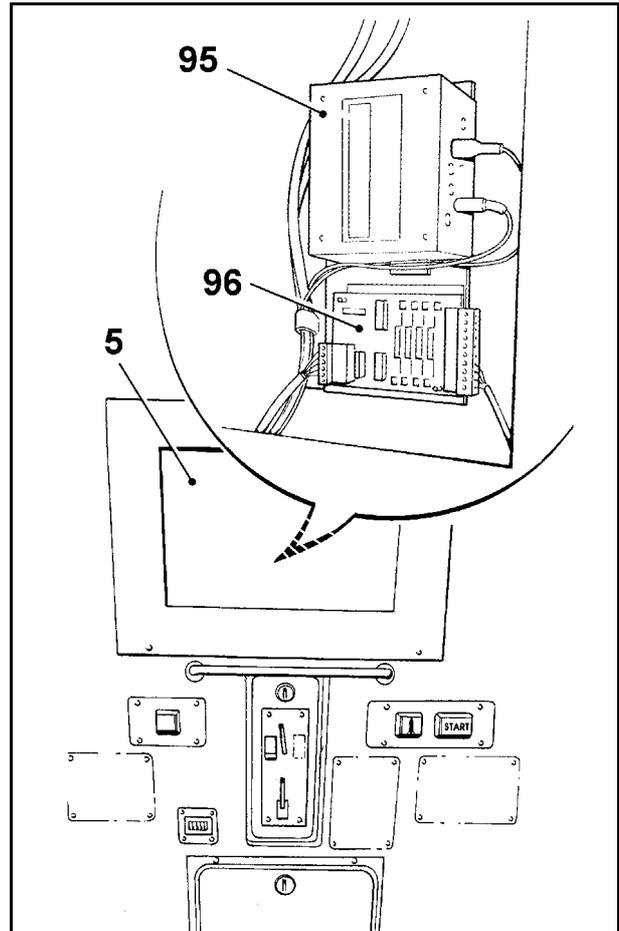
## 10.33.6

### Non camera screen

With the game that is not fitted with a camera the video clips shown on the screen are not connected to the button switches.

Behind the screen (95) is the Movie Player. This produces four randomly played video clips.

Below the Movie Player is the PCB control board (96).



### Start switch & Button switches

From the front the start switch (55) & four button switches (56) appear to be different, but from the rear they are of identical construction.

The switches (57) are illuminated by a bulb (58). The bulb and a micro-switch are mounted within a snap-in retainer (59).

The whole retainer assembly is pushed into the rear of the switch body (57).

### Bulb: replacement

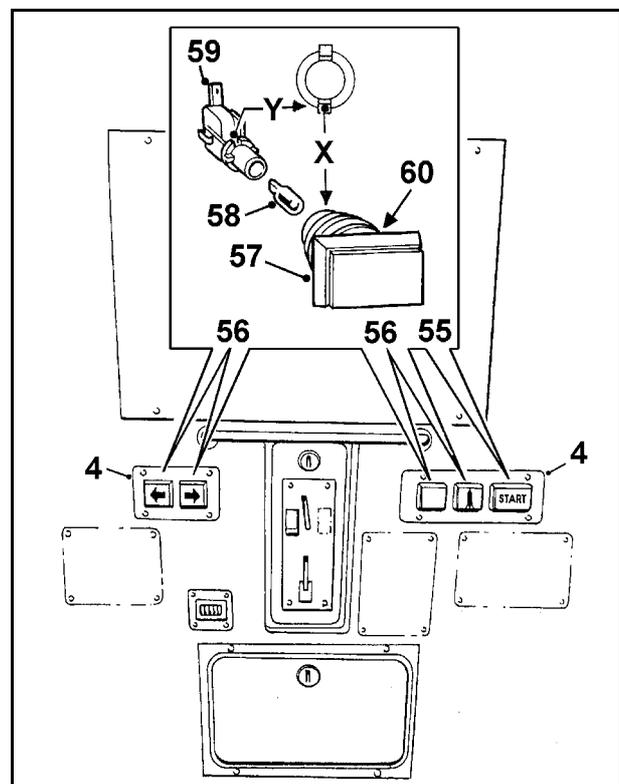
*Switch OFF the main power supply to the machine!*

Gain access to the rear of the switches by unscrewing and removing the panels (4) on which they are mounted.

Locate the bulb retainer (59) and pull it straight out of the switch. The retainer is a tight fit and will require some effort to pull out.

Pull the bulb (58) from the retainer (59) and replace it with a new one.

Refit the retainer/bulb into the back of the button switch. The tabs (X) of the switch must align with the slots (Y) of the retainer. Push firmly on the retainer until it is heard to click into place.



### Start and Button switches: replacement

*Switch OFF the main power supply to the machine!*

Remove the bulb retainer (59) as previously described.

Unscrew the locking ring (60) from the back of switch.

Withdraw the switch (57) from its panel (4) the console.

Reassemble in the reverse order.

**Base cover: removal / replacing**

Remove the rear panel (65).

Remove the wires from the micro-switch (66).

Within the base unit, release the loom from the cradle clip (C) by removing the rubber strap.

Place on the floor a padded mat (67) large enough to take the machine when it is laid on its side.

Carefully lay the machine down on the mat.

Release the power cable gland (68).

The glass fibre cover (35) is fastened to the base frame by four screws (69).

Remove the four screws (69) and the support strip (70).

Pull the cover (35) clear of the machine.

The machine can now be stood upright.

This gives access to:

Gearbox (75)

Belt (76)

Motor (77)

Crank (78)

Main power supply (P.S.) unit (79)

Screen power supply (P.S.) unit (80)

Solid state relay for motor (81)

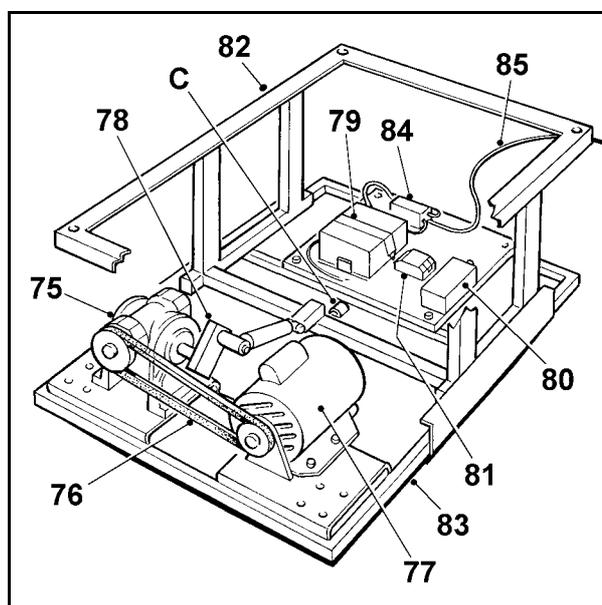
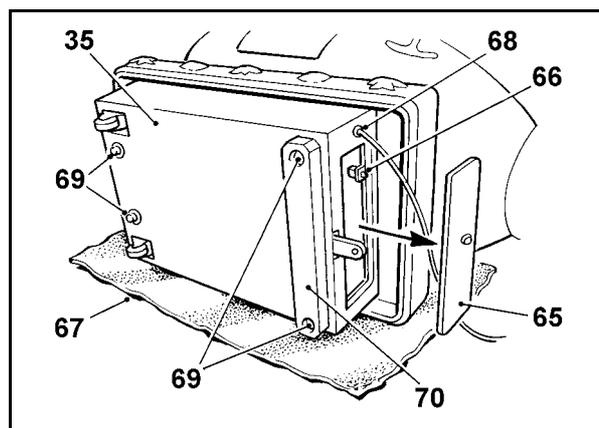
Frame, sliding (82)

Frame, base (83)

Mains filter (where fitted) (84)

Power cable (85)

Refit cover in the reverse order.

**Toy from base: removal / replacing**

Switch the toy (90) ON and drive it as far forward on its base as it will travel. Stop the toy at its furthest point forward.

Disconnect the power supply.

If possible, place the complete ride on a work bench.

Remove the timer/controller from under the seat of the toy. Through this opening, locate the loom main terminal block. Disconnect the terminal block by pulling its two halves apart.

Push the base half of the terminal block through the hole in the floor of the toy.

Remove the two front nuts (92) from under the sliding frame. (The nuts are screwed onto bolts that are bonded into the floor of the toy.)

Remove from the base the rear panel (93).

From inside the rear of the base, remove the two nuts (94) from under the sliding frame.

Carefully lift the toy (90) off the base.

Reassemble the toy to the base in the reverse order.

