

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.

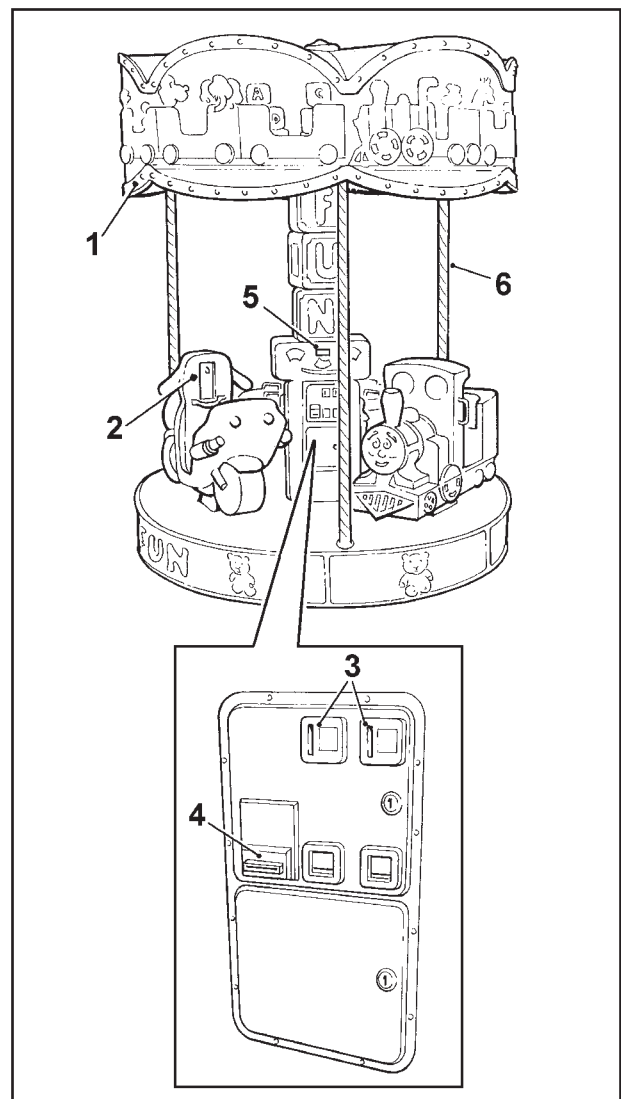
Immediately that the start button (5) has been pressed, the message "The ride is about to begin. Please stand clear" will be given.

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.

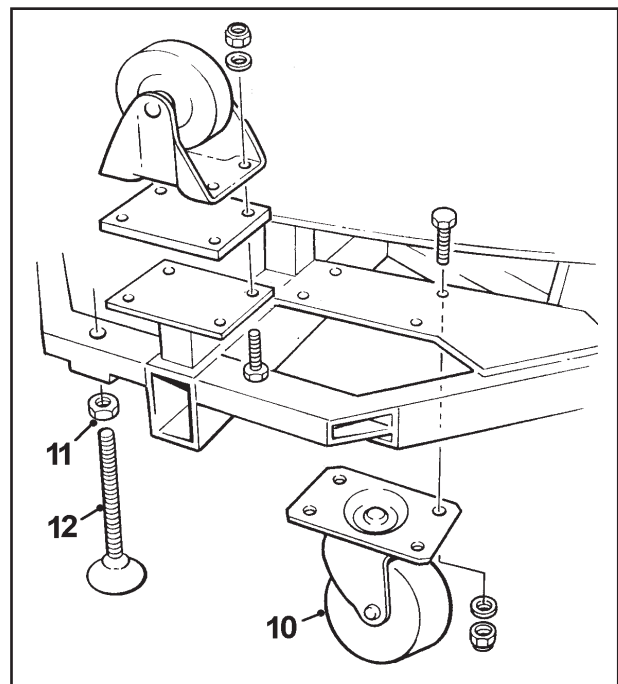
To move the ride, if the ride is not already resting on the castors, release the lock nuts (11) and screw the legs (12) upwards.

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).



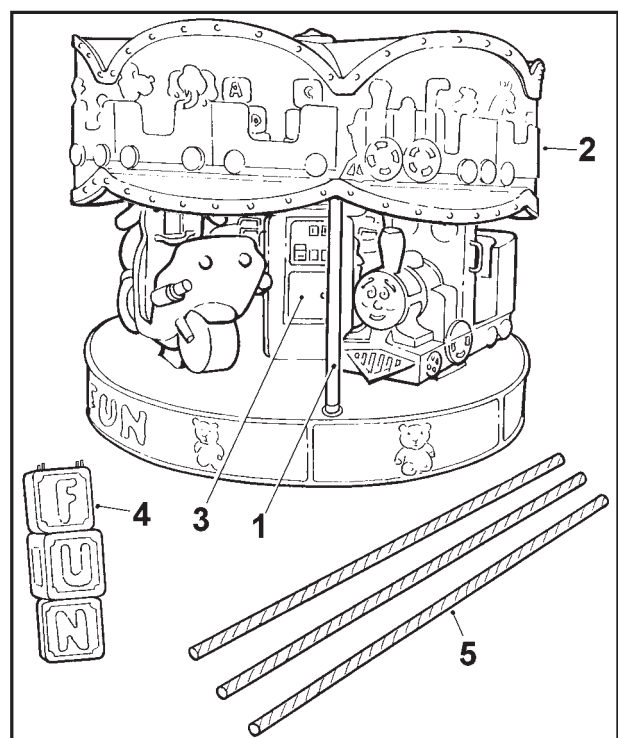
Installation

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.....



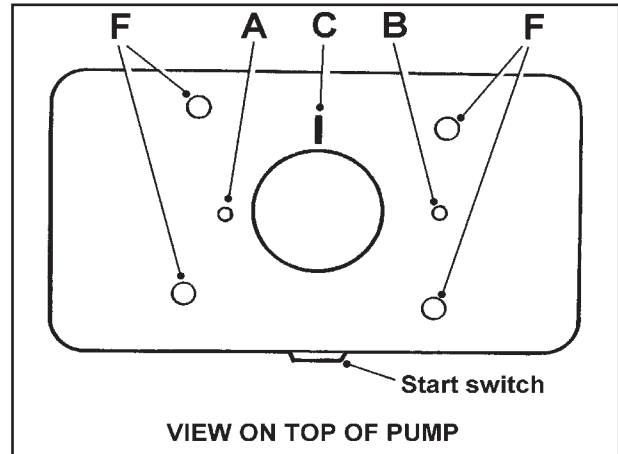
Assembly

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.

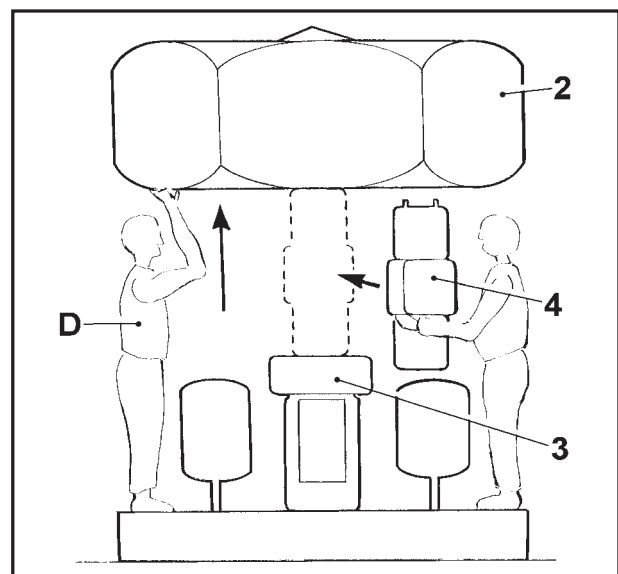
Remove the four nuts (18) and washers (19, 20 and 21) from the top of the column (4). DO NOT LOSE THEM as they are required later to fasten the column.



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

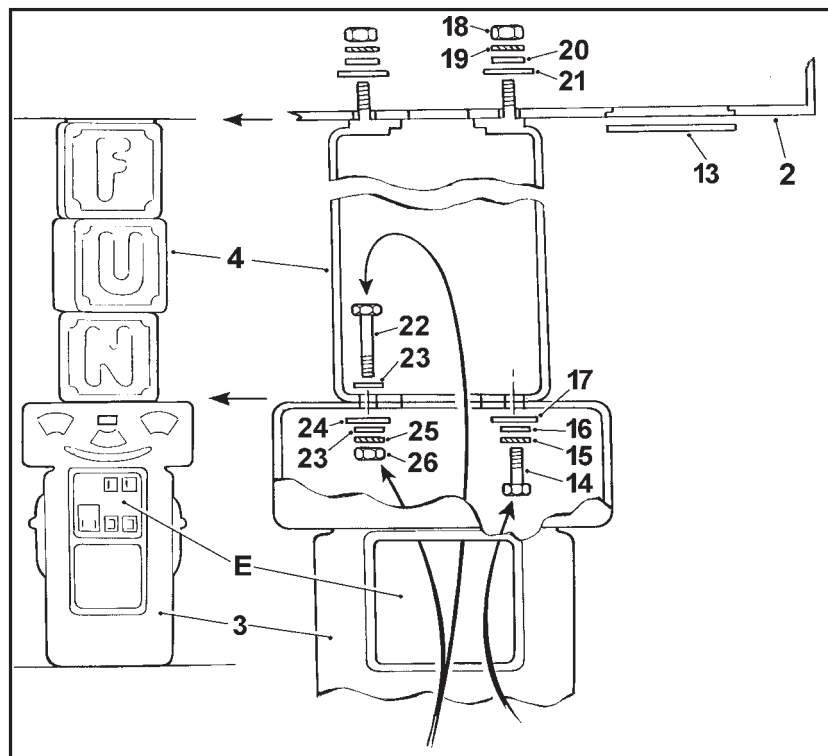
Gain access through the coin mechanism panel (E) to fasten the column (4) to the pump (3) as follows.....

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.

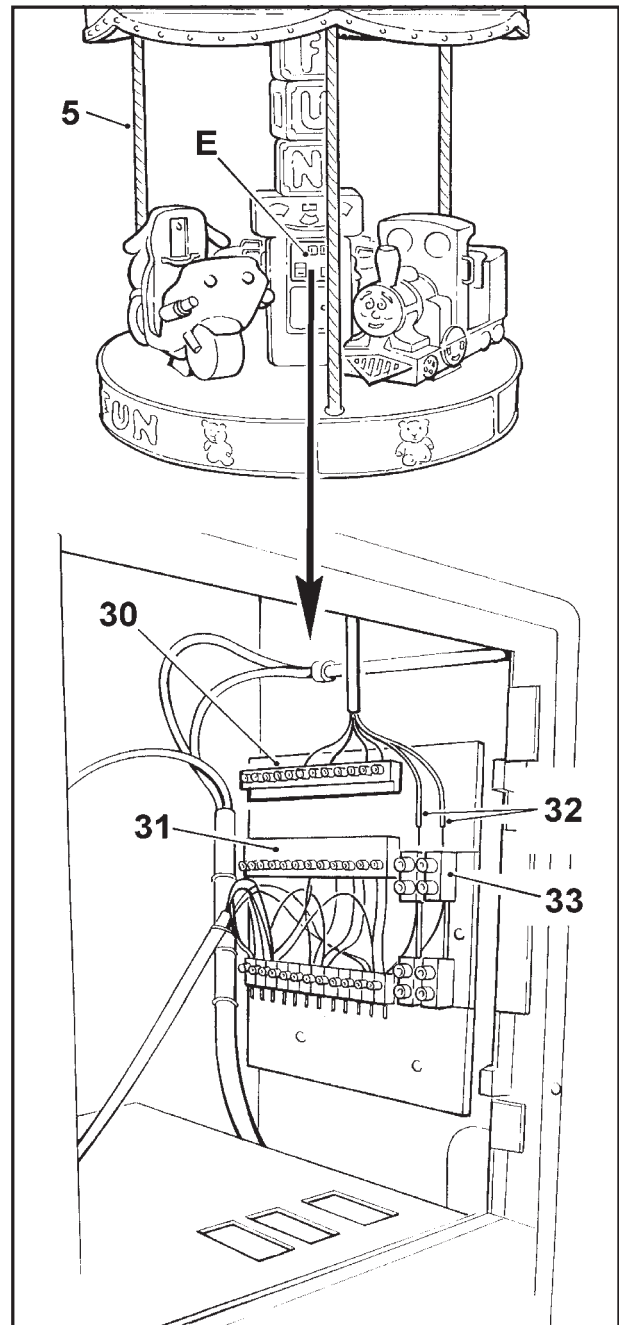
Open the coin mechanism door (E).

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.

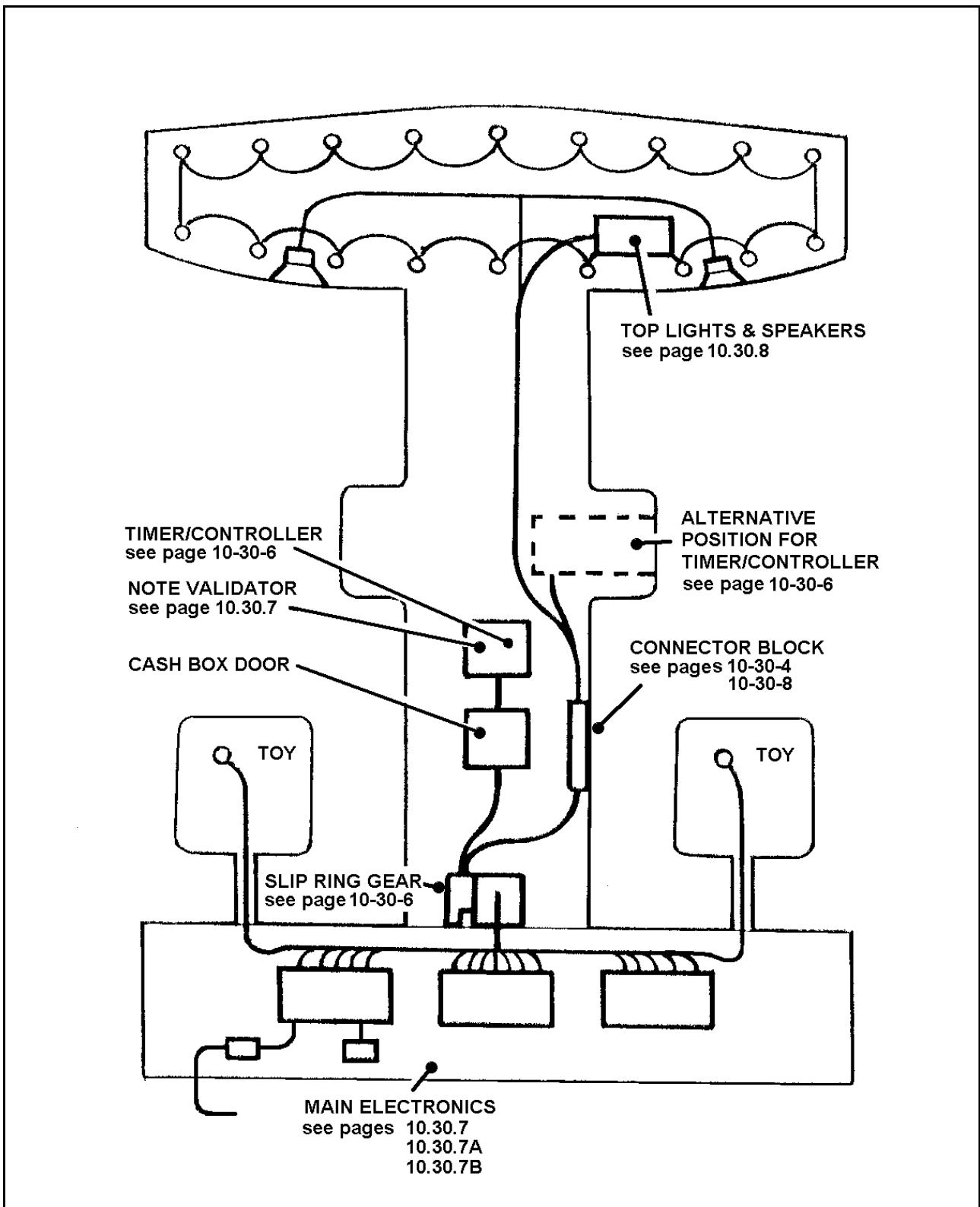
The carousel is now ready for operation

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.

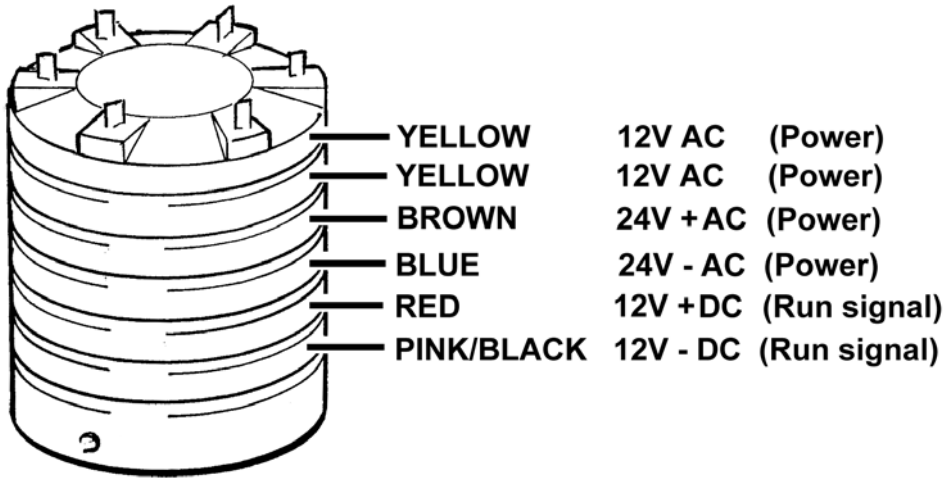


Electronics

Location of electronic components



Slip Ring Connections



37 Way Connections From Timer

Pin	Wire	Wire Destination
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

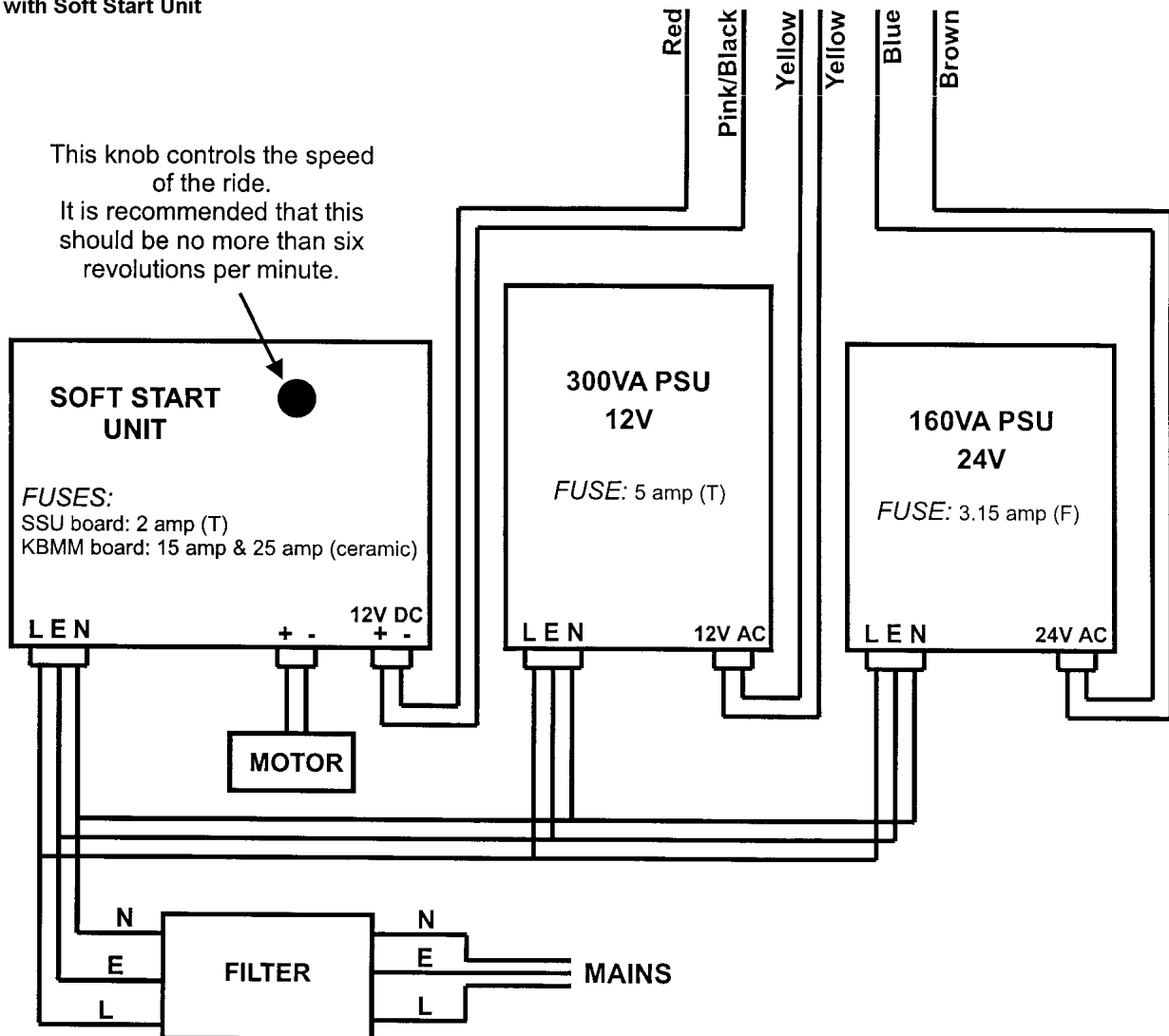
On some models of the carousel a note validator is not fitted. However wiring for a validator is fitted in a pull apart connector block as standard on all machines. The colours of the wiring in the connector are as follows.....

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.

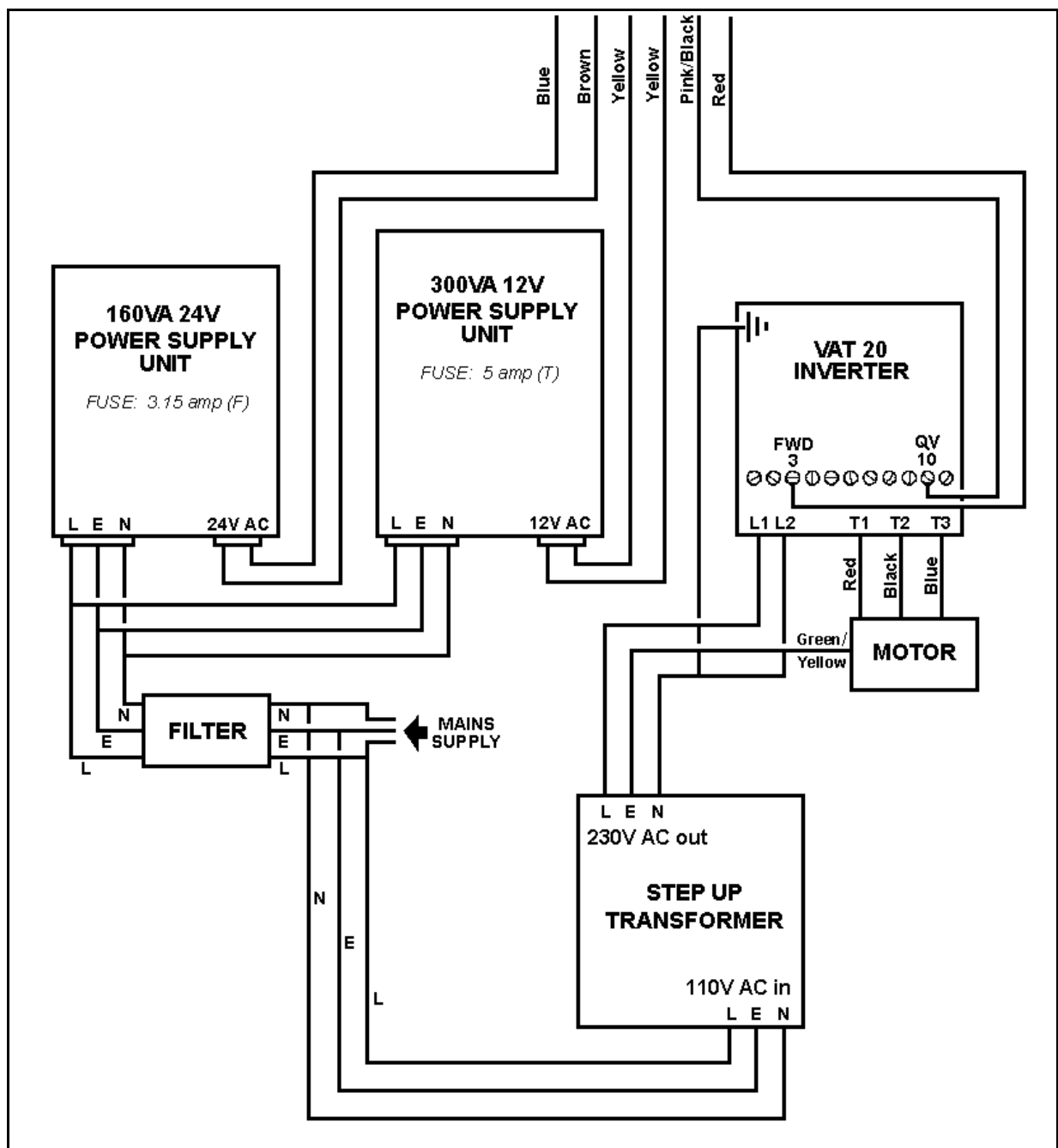
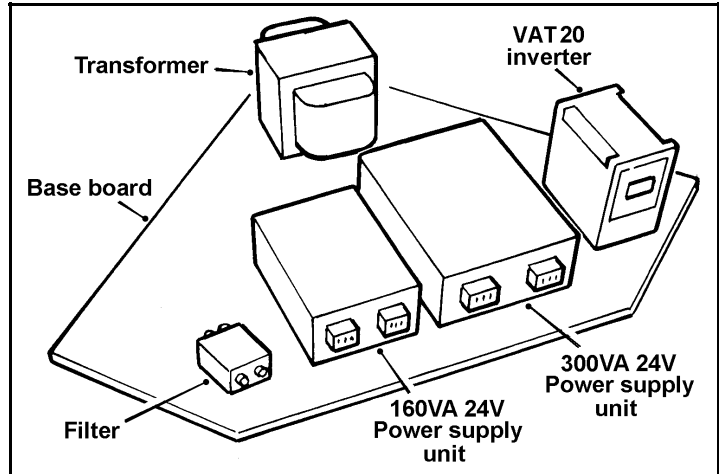


**Main electronics, AC system
with VAT 20 Inverter and Transformer.**
(manufactured from July 2004)

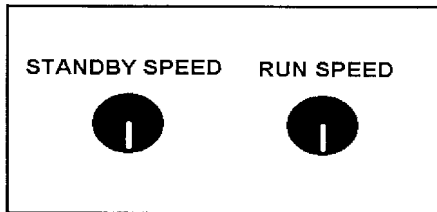
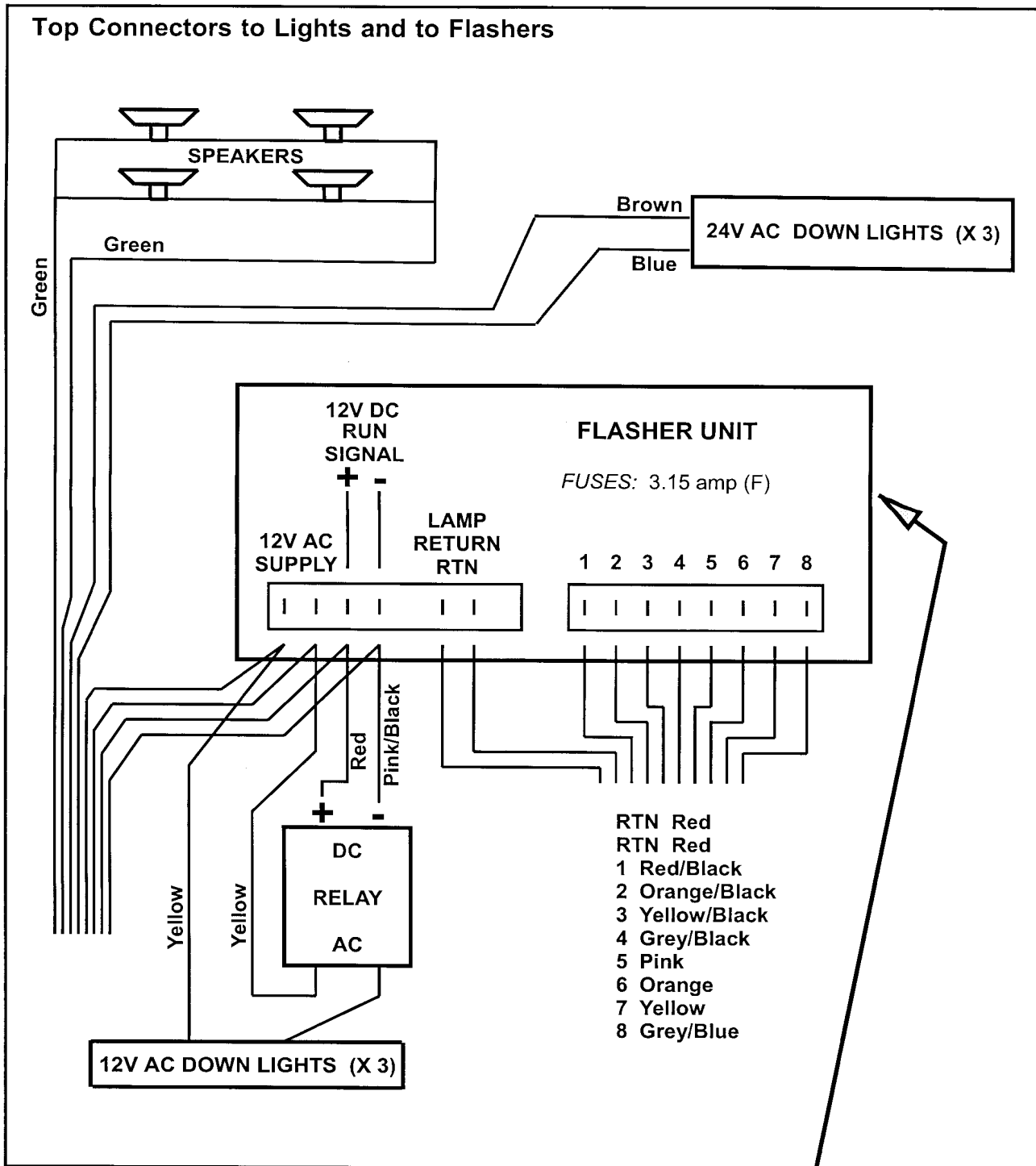
Supplied to USA

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.

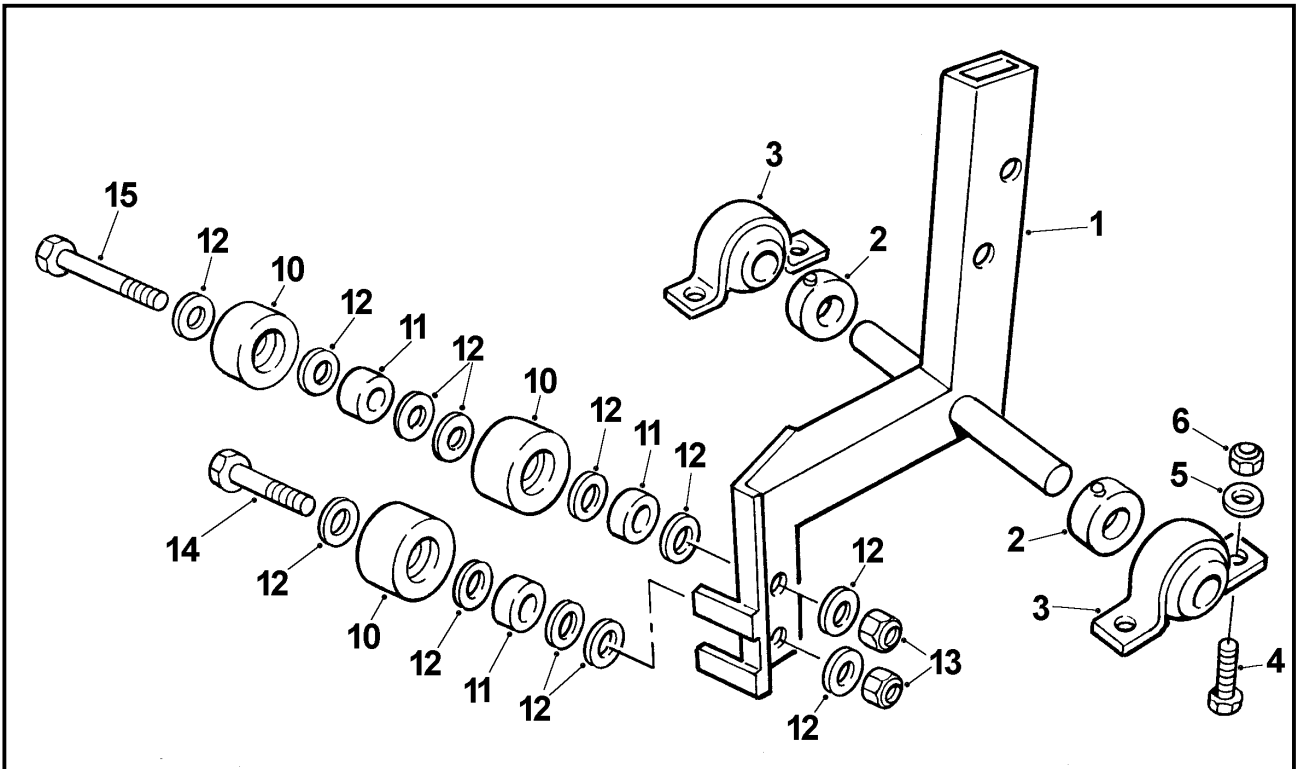


Top Connectors to Lights and to Flashers



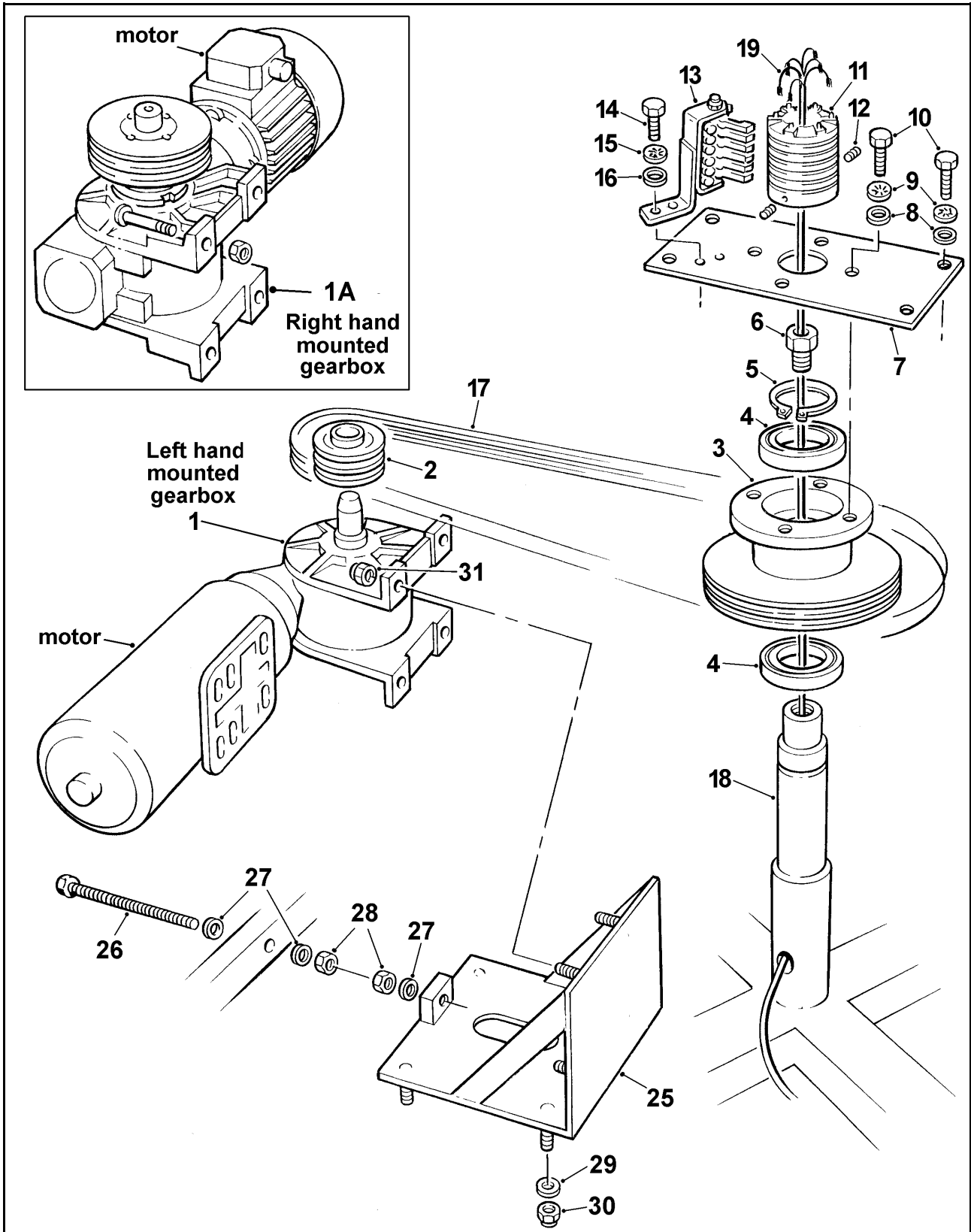
These knobs control the speed at which the canopy lights flash while the carousel is stationary (but on 'standby'), and when the ride is 'running'.

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.....

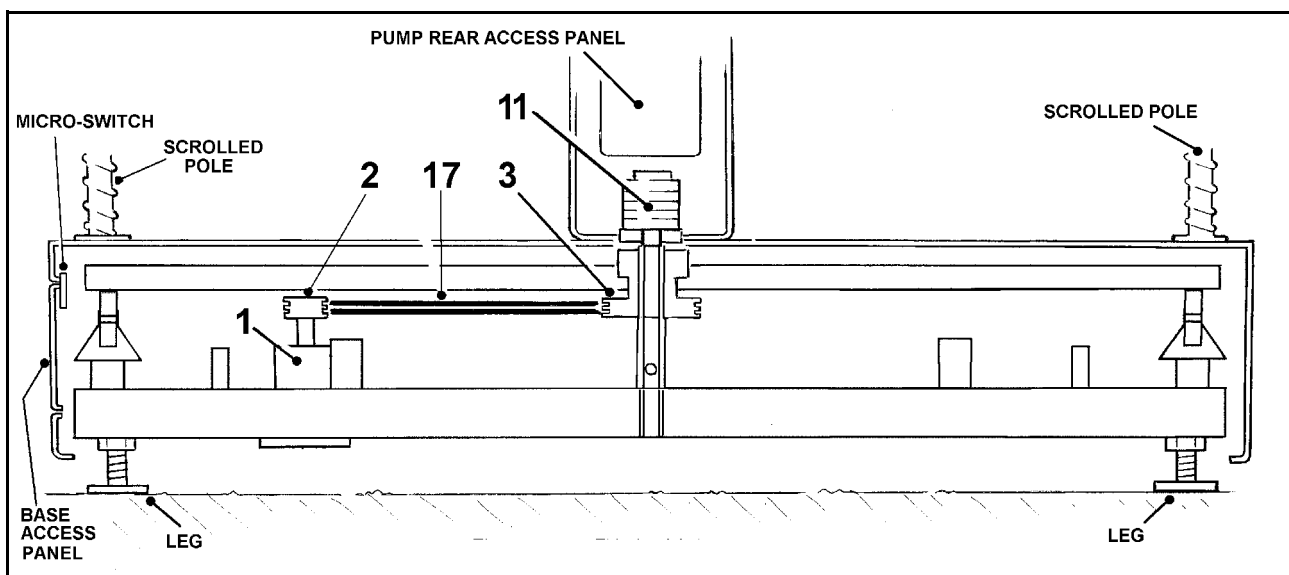
Slip the belts (17) over the gearbox and centre pulleys (2 & 3) and pull them out via the aperture of plate (7).

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.....

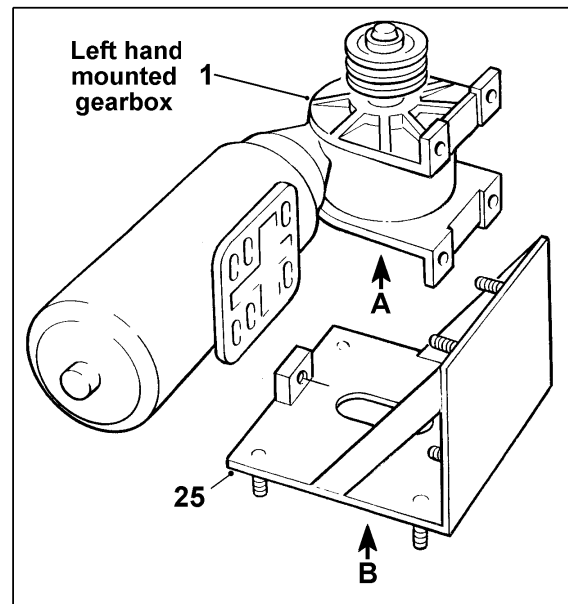
Left hand gearbox (1)

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.

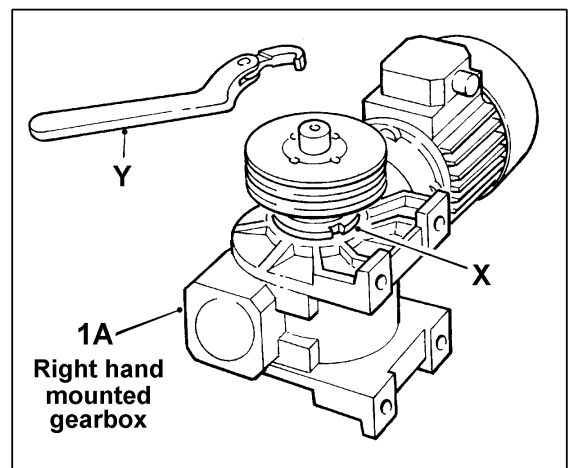


Right hand gearbox (1A)

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.

