



PROFESSIONAL SHOW LIGHTING

# SUPER SCAN ZOOM

HMI 1200

## INSTRUCTION MANUAL

**IMPORTANT:** Read carefully. It is essential for the correct and safe use of the equipment that erectors and operators should be fully conversant with the information and instructions given in this manual.

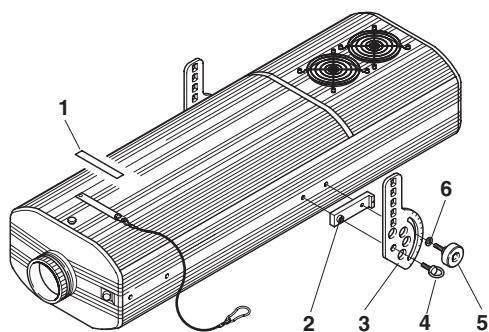
### 1 INSTALLING THE PROJECTOR

#### • Unpacking

Open the box, remove the projector from the packing and place it on a flat horizontal surface.

Unpack the standard accessories supplied with the equipment. Inspect the lamp change label (1) and replace with one of the optional language versions if necessary.

**Make certain that the label is never removed, as it displays important safety information.**



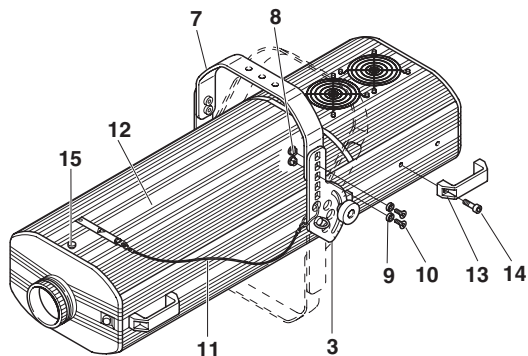
#### • Initial assembly operations

Position the block (2) over the threaded holes on the projector housing, offer the graduated plate (3) and secure with the eyebolt (4), then fit the knob (5) and washer (6).

Align the bracket (7) with the plates (3) so as to give the desired height, insert the bushing (8), the countersunk washer (9) and the screw (10) in the selected holes and secure with the Allen key supplied.

The bracket (7) can also be fitted from the underside of the projector by reversing the position of the graduated plates (3). If the projector has been shipped with plate (3) already fitted, before removing the plate (if necessary) remove the safety bolt located inside the fixture in correspondence with eyebolt (4).

Adjust the bracket to the desired angle and secure by tightening the knobs (5). Fix the safety wire (11) of the lamp access cover (12) to the graduated plate (3). Fit the four side handles (13) with the screws (14) provided.

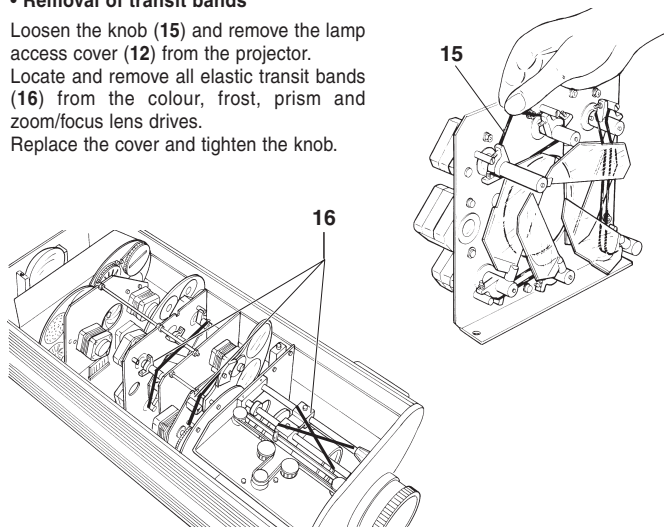


#### • Fitting the lamp

Refer to directions for replacement of the lamp given under heading 6 MAINTENANCE.

#### • Removal of transit bands

Loosen the knob (15) and remove the lamp access cover (12) from the projector. Locate and remove all elastic transit bands (16) from the colour, frost, prism and zoom/focus lens drives. Replace the cover and tighten the knob.



#### • Installing the projector

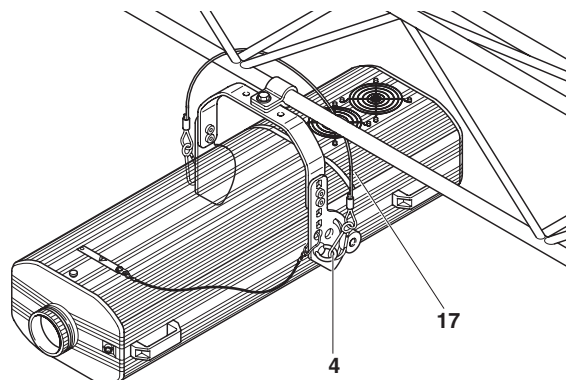
The projector can be mounted any position without its operating characteristics being affected.

**IMPORTANT:** fix the projector in the desired position utilizing the holes in the bracket (7). Secure preferably using two  $\varnothing 12$  bolts with nuts and lock washers.

**Make certain that the anchorage is stable before positioning the projector.**

#### • Fitting the safety wire

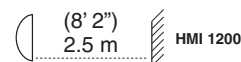
The projector must never be erected without the safety wire (17). The wire is secured to the gantry or other structure, then anchored to the eye bolts (4) on the projector itself.



**IMPORTANT:** the safety wire must be secured to the projector and to the supporting structure in such a way that if the bracket should fail, the projector will fall as short a distance as possible. Following any such failure, the safety wire must be replaced with a genuine Clay Paky spare.

#### • Minimum distance from target objects

The projector must be positioned in such a way that objects struck by the beam are located at least 2.5 m (8' 2") from the lens.



• Minimum distance of inflammable materials from any part of the equipment: 0.10 m (4").



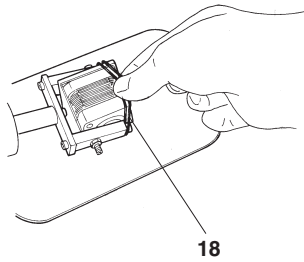
The appliance may be mounted on surfaces rated normally inflammable.

**IMPORTANT:** For better and more reliable operation of the projector, the ambient temperature must not exceed 35° C (95° F). Protection factor IP 20: the appliance is protected against penetration of solid bodies more than 12mm (0.5") in diameter (first digit 2), but can be damaged by spray, jet, drip or rain water (second digit 0).

## 2 INSTALLING THE MIRROR HEAD

### • Unpacking

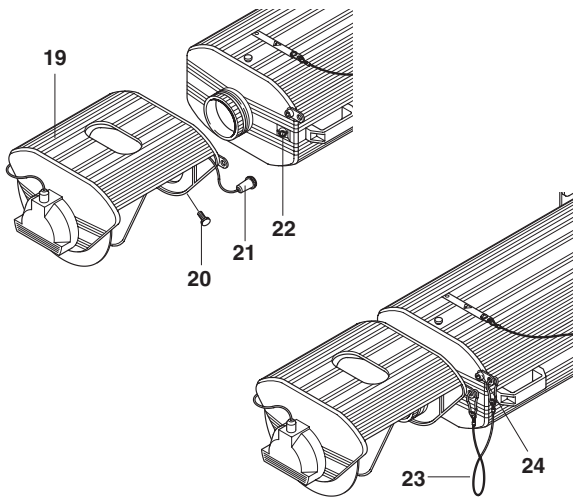
Open the box, take out the mirror head, position it on a horizontal surface and remove the elastic transit bands (18) from the Tilt motor.



### • Fitting the mirror head

Fit the mirror head (19) to the projector and secure with the three knobs (20). Connect the mirror head plug (21) to the socket (22) located on the front of the projector.

Connect the metal safety wire (23) to the tag (24) on the projector.



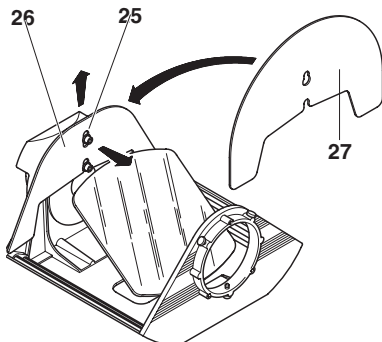
### • Changing the lens hood

Loosen the screws (25) a few turns without removing completely, then dislodge the standard lens hood (26) by drawing it upwards and inwards, taking care to avoid contact with the mirror.

Take the wide-angle mirror head lens hood (27) out of the projector packing, and fit it in place of the standard hood.

Check that the lens hood is in the correct position (slots located fully behind the screw heads), then retighten the screws.

Verify that the lens hood produces the required effect by selecting 100% TILT (with dip-switch 6 off) and sliding the PAN control from 0% to 100%.

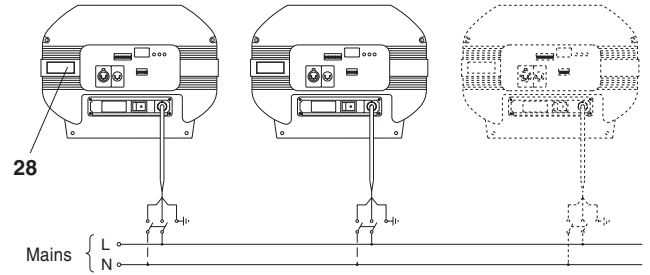


## 3 POWER SUPPLY AND INTERFACE

### • Connecting to the electrical power supply

The operations described in this heading must be carried out by a licensed electrician.

It is good policy to connect projectors to the power supply by way of dedicated switches, so that each can be turned on and off individually from a remote station.

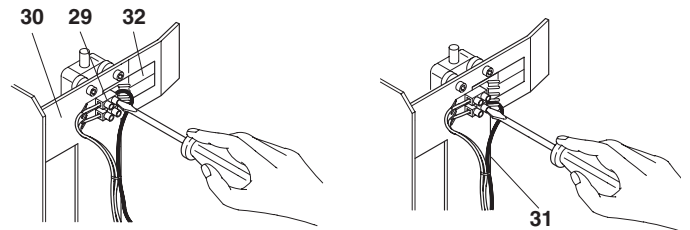


The projector is designed to operate at the voltage and frequency indicated on the electrical data plate (28) affixed to the rear end. Check that these two values correspond to the mains voltage and frequency, or if not, proceed as indicated below.

### • Selection of voltage/frequency

Open up the effects compartment of the projector by lifting the relative cover (see heading 6 MAINTENANCE) and locate the voltage change terminal (29) mounted to the effects assembly frame (30).

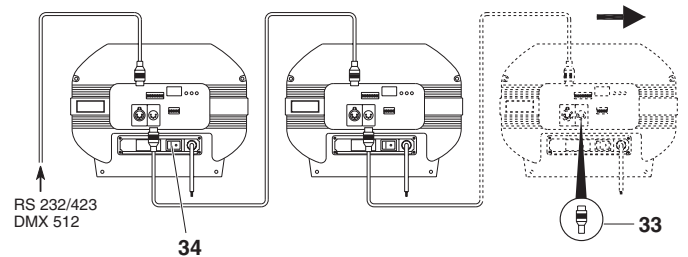
Use a screwdriver to disconnect the cable (31) from the terminal it occupies, and reconnect to the terminal alongside, referring to the label (32) alongside the terminal. Having completed the operation, refit the cover.



**IMPORTANT: the projector must be connected to a power supply circuit having a proper earth system (Class I appliance).**

### • Connecting the control signals

RS 232/423 (PMX) - DMX 512



Projectors are wired up to the controller and one to the next using two-core screened cable and Cannon 5 pin XLR type plug/socket connectors.

To connect a DMX line, a terminating plug (33) with a 100Ω resistor wired between pins 2 and 3 must be fitted to the last projector connected in series; the plug is not required when using a RS232/423(PMX) signal.

**The wires must not come into contact with each other or with the metal casing of the plug.**

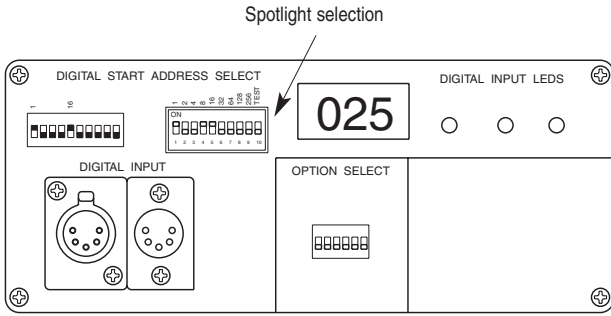
**The casing of the plug/socket must be connected to the screen and to pin 1 of the connectors.**

Having completed the operations described above, press the on/off switch (34). Check that the warning light comes on and that the auto-reset sequence starts.



**• Projector address codes**

A single SUPER SCAN ZOOM projector utilizes 12 (Normal) or 16 (Expanded) control channels. To ensure that the different projectors are addressed correctly by the controller, a code must be assigned to each one. The operation is carried out on each SUPER SCAN ZOOM by setting the dip-switches as indicated in the table below.



CODE	1	2	4	8	16	32	64	128	256	TEST
Projector 1- Channels 1-12	ON	▲	▼	▼	▼	▼	▼	▼	▼	▼
Projector 2- Channels 13-24	ON	▲	▼	▲	▲	▼	▼	▼	▼	▼
Projector 3- Channels 25-36	ON	▲	▼	▼	▲	▲	▼	▼	▼	▼
Projector 4- Channels 37-48	ON	▲	▼	▲	▼	▼	▲	▼	▼	▼
Projector 5- Channels 49-60	ON	▲	▼	▼	▼	▲	▼	▼	▼	▼
Projector 6- Channels 61-72	ON	▲	▼	▲	▲	▲	▼	▼	▼	▼
Projector 7- Channels 73-84	ON	▲	▼	▼	▲	▼	▲	▼	▼	▼
Projector 8- Channels 85-96	ON	▲	▼	▲	▲	▲	▼	▼	▼	▼
Projector 9- Channels 97-108	ON	▲	▼	▼	▼	▲	▼	▲	▼	▼
Projector 10- Channels 109-120	ON	▲	▼	▲	▲	▲	▼	▼	▼	▼
	ON	▲	▼	▼	▼	▼	▼	▼	▼	▼

Setting the TEST switch to the ON position for a few seconds with the projector powered-up, an auto-reset routine is carried out. Leaving the TEST switch at the ON position for a longer period, a full self-test program will be completed; once the operation has terminated, return the switch to the OFF position.

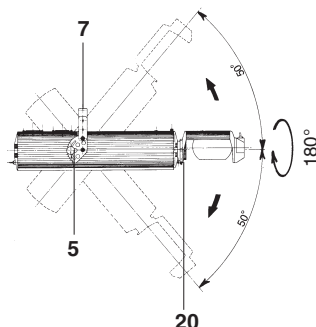
**4 POSITIONING THE PROJECTOR**

**• Alignment procedure**

Before positioning the projector, set the channels as shown in the following table:

CHANNEL	POSITION OF SLIDER
1 IRIS/GOBO ROTATION	100% (maximum aperture)
2 COLOUR EFFECTS WHEEL	-
3 GOBO SELECTION	-
4 DIMMER/STOPPER-STROBE	100 % (white beam)
5 PAN	50%
6 TILT	50%
7 FROST/PRISM SELECTION AND ROTATION	0 % (white beam)
8 ZOOM	-
9 FOCUS	-
10 CYAN	100% (white beam)
11 MAGENTA	100% (white beam)
12 YELLOW	100% (white beam)

Having completed all the operations indicated thus far, loosen the knobs (5), manoeuvre the projector on the bracket (7) until the beam is directed at centre stage, then retighten the knobs (5).



**• Adjusting the mirror head**

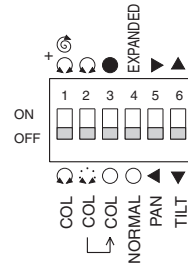
The beam can be positioned not only by moving the entire projector, but also by adjusting the mirror head. To do this, loosen the three knobs (20), turn the mirror head to the desired position, and retighten the knobs.

**5 CHANNEL FUNCTIONS AND OPTIONS**

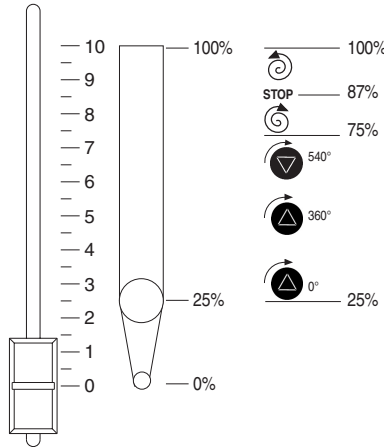
CHANNEL	12 CHANNEL OPERATION (option 4 OFF)	16 CHANNEL OPERATION (option 4 ON)
1	IRIS/ GOBO ROTATION	IRIS
2	COLOUR EFFECTS WHEEL	COLOUR EFFECTS WHEEL
3	STATIC GOBO SELECTION	STATIC GOBO SELECTION
4	DIMMER/STOPPER-STROBE	DIMMER/STOPPER-STROBE
5	PAN	PAN
6	TILT	TILT
7	FROST/PRISM SELECTION AND ROTATION	FROST
8	ZOOM	ZOOM
9	FOCUS	FOCUS
10	CYAN	CYAN
11	MAGENTA	MAGENTA
12	YELLOW	YELLOW
13		ROTATING GOBO SELECTION
14		GOBO ROTATION
15		PRISM SELECTION
16		PRISM ROTATION

Select the options by setting the dip-switches as indicated.

**OPTIONS**



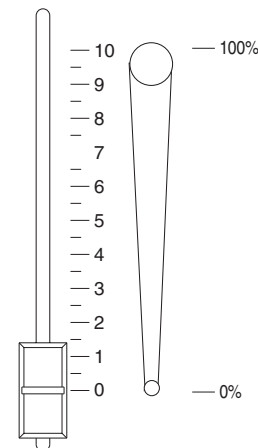
**• IRIS/GOBO ROTATION (12 channel operation) - channel 1**



The response of the iris to the movement of the potentiometer is linear and continuous through 0...25% of the adjustment range, within which the slider can be stopped in any position to obtain the desired aperture diameter. From 25% to 100% the diameter remains fixed.

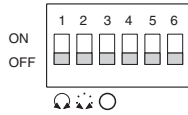
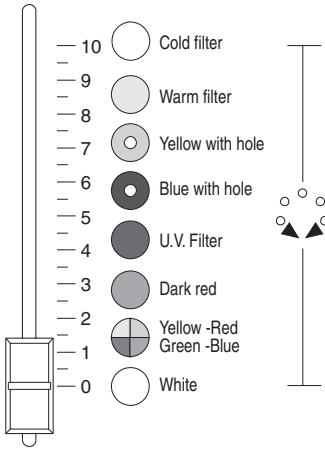
From 25% to 75% the gobo rotates through 540° (1° turns). From 75% all'87% the gobo turns more quickly at first, then slows down to a complete stop. From 87% at 100% the gobo begins turning in the opposite direction, slowly at first and then more quickly.

**• IRIS (16 channel operation) - channel 1**



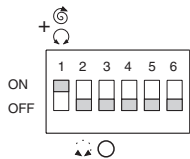
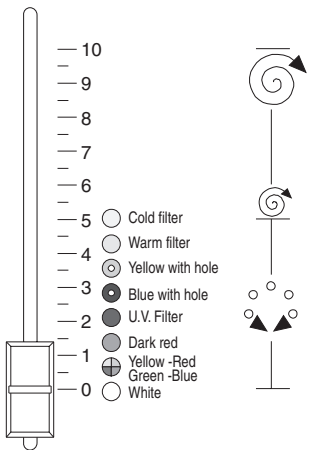
The response of the iris to the movement of the potentiometer is linear and continuous through the full 0...100% range, so that the slider can be stopped in any position to obtain the desired aperture diameter.

• COLOUR EFFECTS WHEEL - channel 2



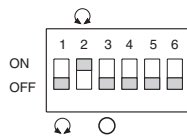
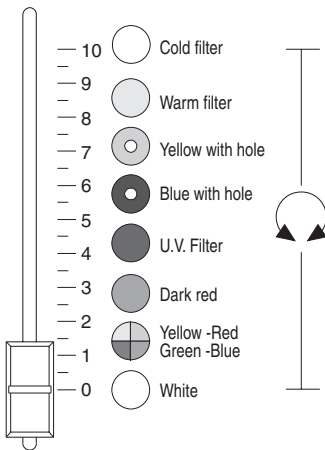
**Standard operation**

Changes of effect occur instantaneously across the full range of adjustment from 0% to 100% as the slider reaches different present levels on the graduated scale.



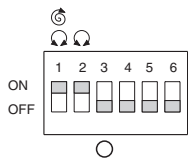
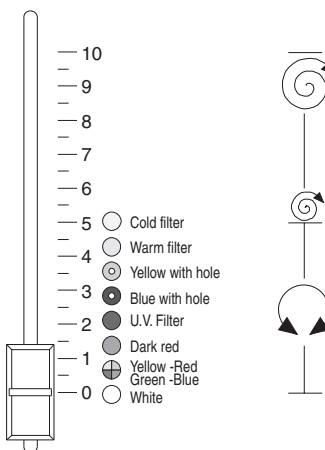
**Operation with option 1 ON**

In the 0% to 50% range of adjustment, operation is standard; from 50% to 100% the wheel rotates continuously with speed increasing steadily from 0 to 300 rpm.



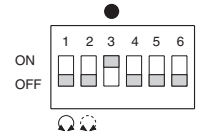
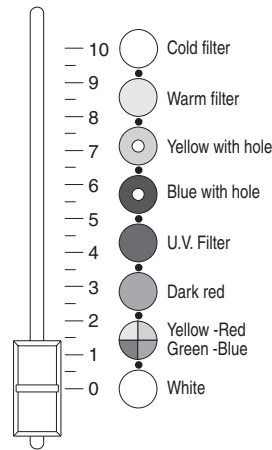
**Operation with option 2 ON**

The change of effect in response to the movement of the potentiometer is linear and continuous, so that the slider can be stopped in intermediate positions to obtain a two colour beam.



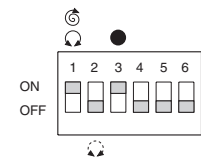
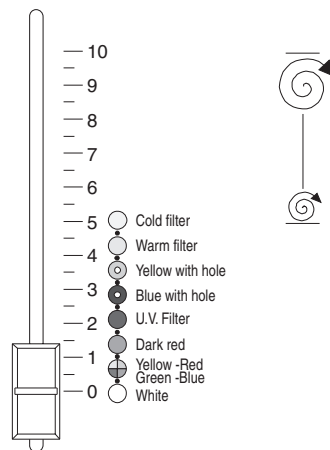
**Operation with options 1 and 2 ON**

In the 0% to 50% range of adjustment, operation is the same as with option 2 ON. From 50% to 100% the wheel rotates continuously with speed increasing steadily from 0 to 300 rpm.



**Operation with option 3 ON**

The sequence of effects is produced as in standard operation, though the beam darkens during the changeover. This option remains inhibited during continuous rotation of the wheel (option 2 ON).

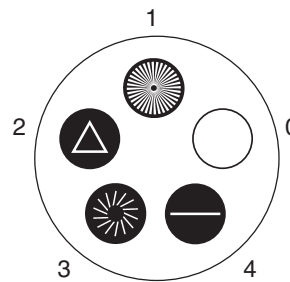


**Operation with options 1 and 3 ON**

In the 0% to 50% range of adjustment, operation is the same as with option 3 ON. From 50% to 100% the wheel rotates continuously with speed increasing steadily from 0 to 300 rpm.

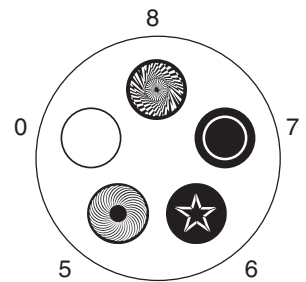
• GOBO SELECTION (12 channel operation) - channel 3

**WHEEL 1 with rotating gobos**



- 1 : 081314/001
- 2 : 081311/001
- 3 : 081325/001
- 4 : 081324/001

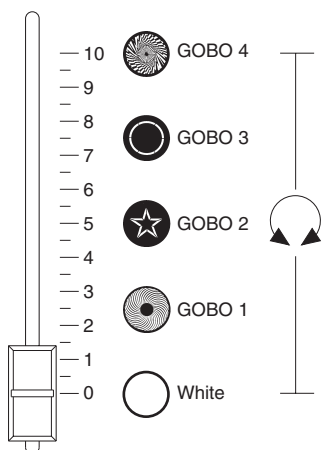
**WHEEL 2 with fixed gobos**



- 5 : 081308/001
- 6 : 081307/001
- 7 : 081306/001
- 8 : 081316/001

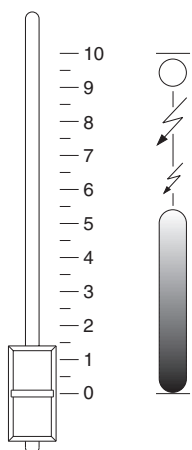
	WHEEL 1	WHEEL 2	OPERATION OF WHEEL N°2
10	0	0	CHANGE
9	0	5	CHANGE
8	0	6	CHANGE
7	0	7	CHANGE
6	0	8	CHANGE
5	1	8	CHANGE + REGULATION
4	1	7	CHANGE + REGULATION
3	1	6	CHANGE + REGULATION
2	1	5	CHANGE + REGULATION
1	2	5	CHANGE + REGULATION
0	2	6	CHANGE + REGULATION
-1	2	7	CHANGE + REGULATION
-2	2	8	CHANGE + REGULATION
-3	4	0	WHITE
-4	3	0	WHITE
-5	2	0	WHITE
-6	1	0	WHITE
-7	0	0	WHITE

• STATIC GOBO SELECTION (16 channel operation) - channel 3



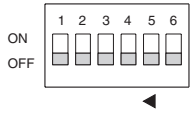
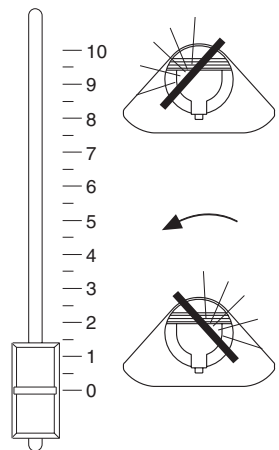
The change from one gobo to the next in response to the movement of the potentiometer is linear and continuous, so that the wheel can also be stopped in intermediate positions.

• DIMMER/STOPPER/STROBE - channel 4

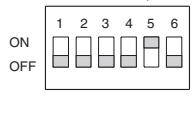
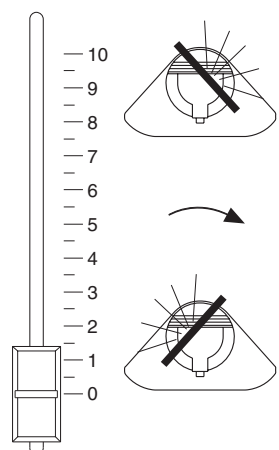


In the 0% to 50% range of adjustment, the dimmer opens gradually to maximum aperture. Strobe effect is produced from 55% to 95%, with frequency increasing from 1 to 7 flashes per second. The aperture remains fixed between 95% and 100% of the range.

• PAN - channel 5

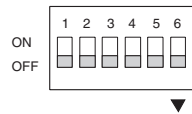
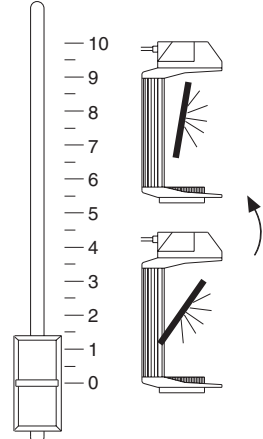


**Standard operation**  
Horizontal movement (Pan) of the mirror is linear and continuous in response to the movement of the slider, occurring gradually and uniformly between 0 and 10 on the scale. The mirror can be stopped at any angle within the range of adjustment.

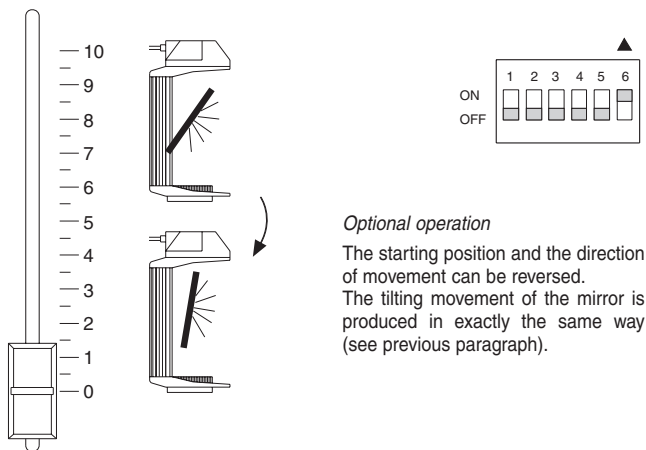


**Optional operation**  
The starting position and the direction of movement can be reversed. The panning movement of the mirror is produced in exactly the same way (see previous paragraph).

• TILT - channel 6



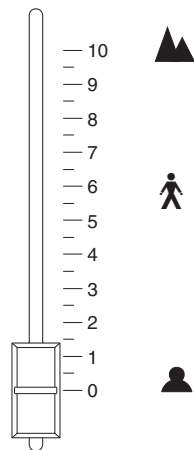
**Standard operation**  
Vertical movement (Tilt) of the mirror is linear and continuous in response to the movement of the slider, occurring gradually and uniformly between 0 and 10 on the scale. The mirror can be stopped at any angle within the range of adjustment.



**Optional operation**

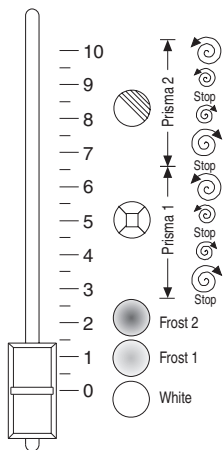
The starting position and the direction of movement can be reversed. The tilting movement of the mirror is produced in exactly the same way (see previous paragraph).

**• FOCUS - channel 9**



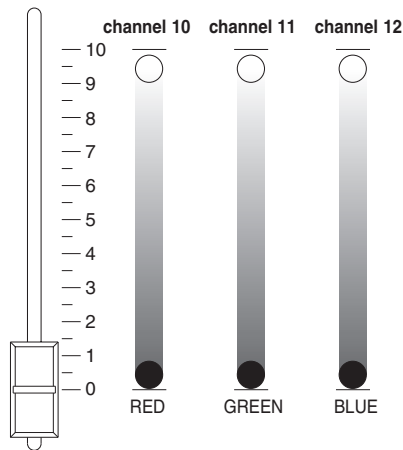
Electronic focus control is directly proportional to the movement of the slider and the projection distance.

**• FROST/PRISM SELECTION AND ROTATION (12 channel operation) - channel 7**



The change of the frost filters and prisms from one to another occurs instantaneously in response to the movement of the slider, whereas the speed at which the prism rotates (in the direction indicated) varies gradually.

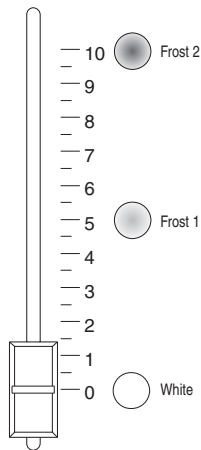
**• COLOUR MIX - channels 10 - 11 - 12**



RGB colour variation is linear and continuous in response to the movement of the sliders, which can be stopped at any position to obtain the desired hue.

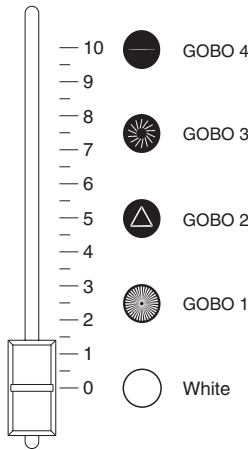
The three colour channels can be combined one with another to obtain an infinite variety of shades and hues.

**• FROST (16 channel operation) - channel 7**



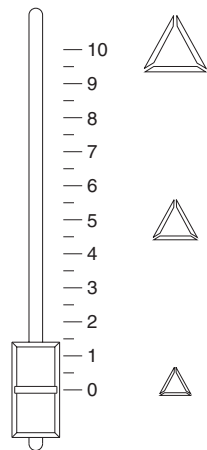
The change from one frost filter to the next occurs gradually in response to the movement of the slider.

**• ROTATING GOBO SELECTION (16 channel operation) - channel 13**



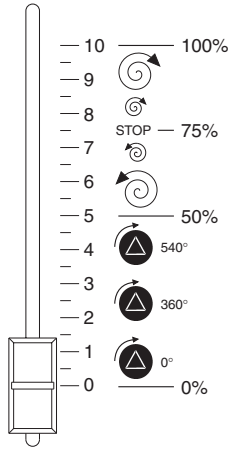
The change occurs instantaneously as the slider reaches different preset levels on the graduated scale.

**• ZOOM - channel 8**



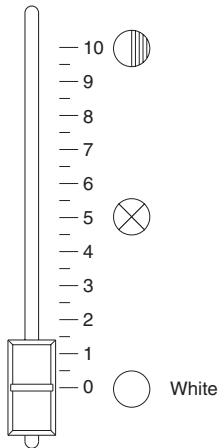
The projected image expands and contracts gradually in response to the movement of the slider, which can therefore be set at any given position to obtain a desired size.

**• GOBO ROTATION (16 channel operation) - channel 14**



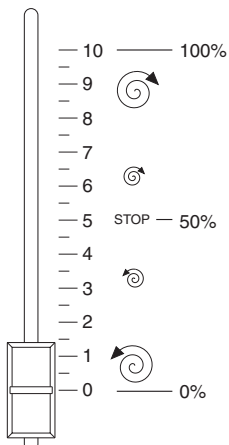
From 0% to 49.7% the gobo rotates through 540° (1 \_ turns). From 50% to 75% the gobo turns more quickly at first, then slows down to a complete stop. From 75.5% to 100% the gobo begins turning in the opposite direction, slowly at first and then more quickly.

• PRISM SELECTION (16 channel operation) - channel 15



The change of prism occurs instantaneously as the slider reaches different preset levels on the graduated scale.

• PRISM ROTATION (16 channel operation) - channel 16



From 0% to 49.7% the prism rotates through 540° (1 1/2 turns).  
 From 50% to 75% the prism turns more quickly at first, then slows down to a complete stop.  
 From 75.5% to 100% the prism begins turning in the opposite direction, slowly at first and then more quickly.

**6 MAINTENANCE**

**IMPORTANT:** isolate the projector from the electrical power supply before commencing maintenance work of any description.

The maximum temperature on the outer surface of the projector under normal operating conditions is 90 °C (194° F).

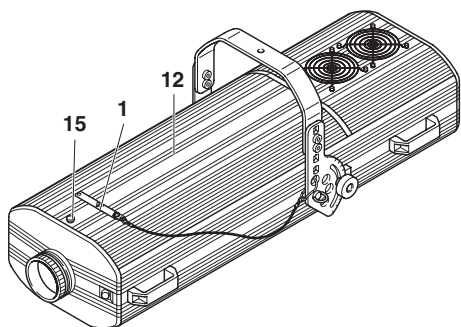
After switching off, do not remove any part of the projector for at least 10 minutes, as indicated on the lamp change label (1).

Once this time has elapsed, the risk of a lamp exploding is practically zero. If the lamp needs changing, wait a further 20 minutes to avoid the risk of burns.

In the event of a lamp exploding, the appliance is designed to prevent fragments of glass from being scattered. Lenses and clear filters supplied with the appliance must be fitted at all times, and if visibly damaged must be replaced promptly with genuine spares.

• Opening the projector

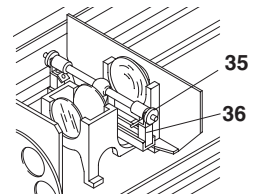
Free the access cover (12) by loosening the knob (15), and remove from the projector. Once the necessary work has been completed, refit the cover (12) and retighten the knob (15).



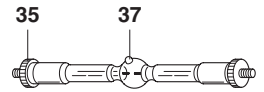
• Changing the lamp

Open the projector, loosen the two side nuts (35) of the lamp to be changed and remove it from the supports (36).

Remove the new lamp from its packaging, loosen the two side nuts (35) and locate the lamp in the supports (36). Finally, retighten the nuts.



**IMPORTANT:** for uniform distribution of the light beam, the lamp must be positioned so that the glass pip (37) on the bulb does not coincide with the optical axis of the projector. With this in mind, locate the pip as high up as possible.



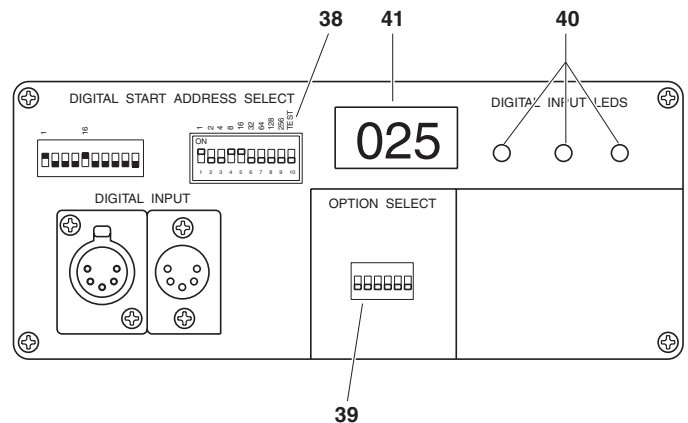
**CAUTION:** The projector uses a high pressure discharge lamp with external starter.

- When fitting a new lamp, read the manufacturer's instructions carefully.
- The lamp must always be changed without delay if damaged or deformed by heat.

• Zero setting the working hours and number of times the lamp is switched on

To zero the hours of the lamp's life ("Bulb hours") and the number of times it is switched on ("Bulb strikes") which are stored in the DMX Receiver microprocessor, proceed as follows:

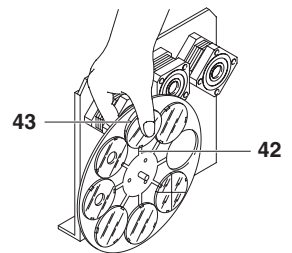
1. Set the TEST microswitch (38) to the ON position.
2. Shift the option 1 microswitch (39) from ON to OFF (or from OFF to ON) and vice versa 3 times within a time of 6 seconds. If the procedure has been carried out correctly, the three signal control LEDs (40) will light up simultaneously, while the display (41) will go completely blank. This situation lasts for approximately 5 seconds.
3. Return the TEST microswitch (38) to the OFF position.



• Changing the colour filters

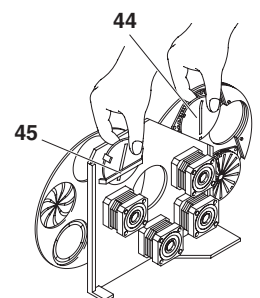
Having opened the projector, identify the filter to be changed, grip firmly between thumb and forefinger and push against the spring clip (42) until free of the fixed clips (43).

Bend the filter outwards and remove. Offer the new filter to the spring clip (42) and anchor behind the two fixed clips (43).



• Changing metal gobos

Having opened the projector, identify the gobo to be replaced and push gently toward the clips (44) until free. Take the selected replacement from the holder (45) on the gobos/iris plate. Offer the new gobo to the two clips, push gently and locate behind the third, checking for flatness.



### • Routine cleaning

To maintain the light output of the projector undiminished, parts that tend to accumulate dust and grease must be cleaned periodically. In most circumstances the projector will give long and trouble-free service if these simple guidelines are followed.

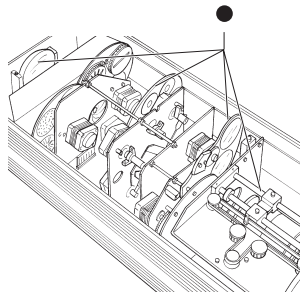
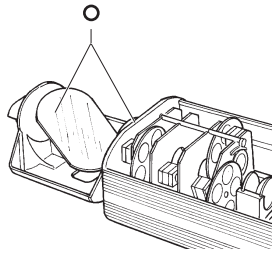
To remove dirt from the lenses and filters, use a soft cloth moistened with any liquid detergent suitable for cleaning glass.

**IMPORTANT:** do not use solvents or alcohol

- Parts that need cleaning frequently.
- Parts that need cleaning monthly.

The gobo wheel can be cleaned with a paintbrush.

Internal components should also be given a general clean once a year, dislodging dust and dirt with a brush and removing it simultaneously with a vacuum cleaner.

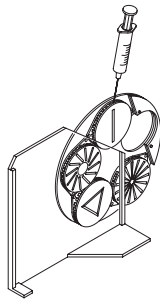


### • Lubrication

To ensure that rotating gobos and prisms continue to operate smoothly, the bearings should be lubricated with oil every six months: use only Kernite LUBE K AHT (p/n 164028/801).

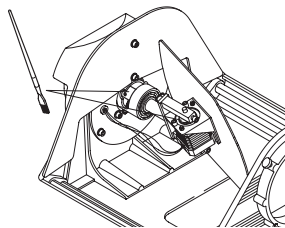
Apply the oil using a syringe with a fine needle. Avoid over-lubricating, as excess oil could be spattered during rotation.

The rails of the focusing mechanism should be cleaned and lubricated using a cloth moistened with Kernite WAY-LUBE oil (p/n 172063/801).



### • Lubrication of mirror head clutches

Check periodically that the grease applied to the mirror pan and tilt clutches is in good condition; if not, remove and regrease with Kernite LUBE-K-AC (p/n 104034/801) to ensure smooth and even movement of the mirror.



## 8

## TECHNICAL DATA

### ELECTRICAL/MECHANICAL SPECIFICATIONS

#### Power supply

- 220 - 240V 50Hz
- 200 - 220V 60Hz

#### Lamp

Metal iodide type with special built-in power supply unit.

- Type of lamp: HMI 1200W
- Cap Sfc 15.5-6
- Colour temperature 6000 K
- Luminous flux 110,000 lumen
- Average life 750 h

#### Power consumption

- 1500 VA at 220V 50Hz
- correction factor 140µF standard

#### Motors

N. 20 microstepping motors with full microprocessor control.

#### OPTICAL SYSTEM

Main optical unit in diecast aluminium, incorporating twin lens condenser and a reflector of high luminous efficiency.

#### CONTROL SYSTEMS

##### Channels

- N.12 control channels (normal operation).
- N.16 control channels (extended operation).

##### Inputs

The SUPER SCAN ZOOM is set up to accept digital signals from controllers or computers.

- Digital serial input:  
RS232/423(PMX) or DMX 512

#### MIRROR HEAD

- Head rotatable through 360° on projector housing.
- Graduated scale for easy and accurate positioning.
- Anchorage for safety wire.
- Mirror of ultra high luminous efficiency.

#### Movement

- Produced by two µP controlled microstepping motors.
- Infinitely variable speed of rotation; maximum values:
  - horizontal (PAN) = 0.4 sec (150°)
  - vertical (TILT) = 0.3 sec (110°)
- Continuous and uniform movement. Resolution:
  - PAN = ±0.3° (150°)
  - TILT = ±0.2° (110°)

#### CONSTRUCTION FEATURES

##### Safety devices

- Power supply shuts off automatically in the event of overheating or cooling system failure.
- Power shuts off automatically when cover is opened.

##### Cooling

Forced ventilation cooling system using axial flow fans.

##### Housing

- Extruded die-cast aluminium.
- Epoxy powder coated finish.
- Four side handles.

##### Mounting

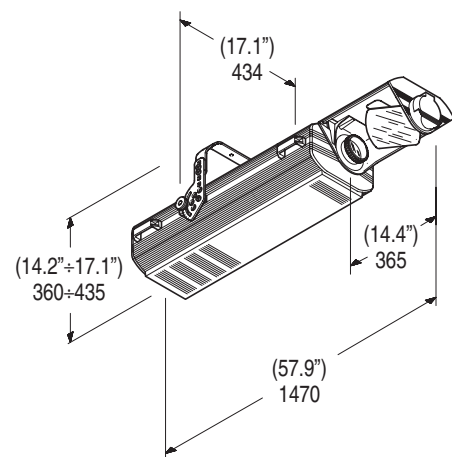
- Steel bracket with epoxy powder coated finish.
- Six installation positions, 25 mm (1") apart.
- Bracket adjustable through 100° with graduated scale to assist positioning.
- Anchorage for safety wire.

##### Operating position

Will function in any position.

##### Weights and dimensions

- Projector 44.5 kg (97 lbs 14 ozs)
- Mirror head 3.1 kg ( 6 lbs 13 ozs)



## 7

## TROUBLESHOOTING

PROJECTOR DOES NOT LIGHT UP				FAULTS
ELECTRONICS NOT WORKING				
PROJECTION FAULTY FAULTS				
REDUCED BRIGHTNESS				
		POSSIBLE CAUSES	CHECKS AND REMEDIES	
●		No electrical power supply.	Check that power is available at the mains socket.	
●	●	Lamp expended or faulty.	Change lamp (see instructions).	
	●	Signal transmission cable short-circuiting or disconnected.	Change cables.	
	●	Address codes incorrect.	See projector coding instructions.	
	●	Defect in electronic circuits.	Contact an authorized technician.	
	●	Lenses broken.	Contact an authorized technician.	
	●	Deposit of dust or grease.	Clean (see instructions).	