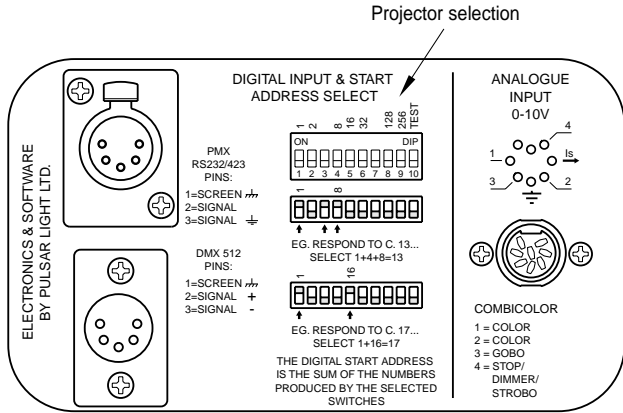**• Projector address codes (for digital signals)**

A single COMBICOLOR utilizes 4 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 COMBICOLOR by setting the dip-switches as indicated in the table below.

Projector selection

DIGITAL INPUT & START
ADDRESS SELECT

ANALOGUE
INPUT
0-10V

ELECTRONICS & SOFTWARE
BY PULSAR LIGHT LTD.

PMX
RS232/423
PINS:
1=SCREEN
2=SIGNAL
3=SIGNAL

DMX 512
PINS:
1=SCREEN
2=SIGNAL +
3=SIGNAL -

EG. RESPOND TO C. 13...
SELECT 1+4+8=13

EG. RESPOND TO C. 17...
SELECT 1+16=17

THE DIGITAL START ADDRESS
IS THE SUM OF THE NUMBERS
PRODUCED BY THE SELECTED
SWITCHES

COMBICOLOR
1 = COLOR
2 = COLOR
3 = GOBO
4 = STOP/
DIMMER/
STROBO

| CODE | | 1 | 2 | 4 | 8 | 16 | 32 | 64 | 128 | 256 | TEST |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Projector 1 - Channels 1-4 | ON / OFF | ▲ | ▽ | ▽ | ▽ | ▽ | ▽ | ▽ | ▽ | ▽ | ▽ |
| Projector 2 - Channels 5-8 | ON / OFF | ▲ | ▽ | ▲ | ▽ | ▽ | ▽ | ▽ | ▽ | ▽ | ▽ |
| Projector 3 - Channels 9-12 | ON / OFF | ▲ | ▽ | | ▲ | ▽ | ▽ | ▽ | ▽ | ▽ | ▽ |
| Projector 4 - Channels 13-16 | ON / OFF | | ▽ | ▲ | ▲ | ▽ | ▽ | ▽ | ▽ | ▽ | ▽ |
| Projector 5 - Channels 17-20 | ON / OFF | ▲ | ▽ | ▽ | ▲ | ▽ | ▽ | ▽ | ▽ | ▽ | ▽ |
| Projector 6 - Channels 21-24 | ON / OFF | ▲ | ▽ | ▲ | | ▲ | ▽ | ▽ | ▽ | ▽ | ▽ |
| Projector 7 - Channels 25-28 | ON / OFF | ▲ | ▽ | ▽ | | ▲ | ▽ | ▽ | ▽ | ▽ | ▽ |
| Projector 8 - Channels 29-32 | ON / OFF | ▲ | ▽ | ▲ | ▲ | ▲ | ▽ | ▽ | ▽ | ▽ | ▽ |
| Projector 9 - Channels 33-36 | ON / OFF | ▲ | ▽ | ▽ | ▽ | ▲ | ▽ | ▽ | ▽ | ▽ | ▽ |
| Projector 10 - Channels 37-40 | ON / OFF | ▲ | ▽ | ▲ | ▽ | ▲ | ▽ | ▽ | ▽ | ▽ | ▽ |
| | ON / OFF | | | | | | | | | | ▲ ▽ |

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.

## 3  POSITIONING THE PROJECTOR

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

| CHANNEL | POSITION OF SLIDER |
|---|---|
| 1 COLOUR WHEEL 1 | 0% (white beam) |
| 2 COLOUR WHEEL 2 | 0% (white beam) |
| 3 GOBO SELECTION | - |
| 4 DIMMER/STOPPER-STROBE | 100% (white beam) |

**• Aligning the beam**

Having completed all the operations indicated thus far, loosen the knobs (**3**), manoeuvre the projector on the bracket (**2**) until the beam is directed at centre stage, then retighten the knobs (**3**).
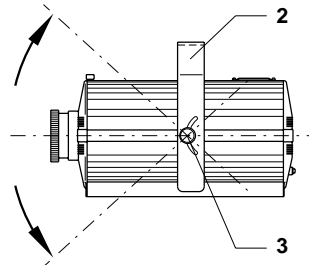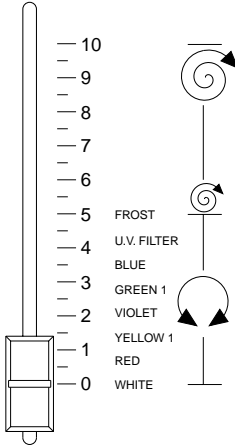
**• Adjusting the lens**

Move the lens (**8**) back and forward until the projected image is satisfactorily focused, then tighten the knob(**9**).
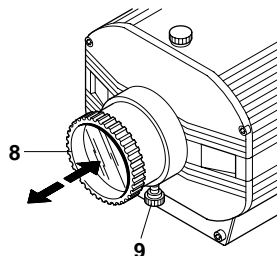
## 4  CHANNEL FUNCTIONS

| CHANNEL | FUNCTION |
|---|---|
| 1 | COLOUR WHEEL 1 |
| 2 | COLOUR WHEEL 2 |
| 3 | GOBO SELECTION |
| 4 | DIMMER/STOPPER-STROBE |

**• COLOUR WHEEL 1 - channel 1**

10
9
8
7
6
5  FROST
4  U.V. FILTER
   BLUE
3  GREEN 1
2  VIOLET
   YELLOW 1
1  RED
0  WHITE

In the 0% to 50% range of adjustment, the change of colour 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.
From 50% to 100% the wheel rotates continuously with speed increasing steadily from 0 to 300 rpm.

**• COLOUR WHEEL 2 - channel 2**
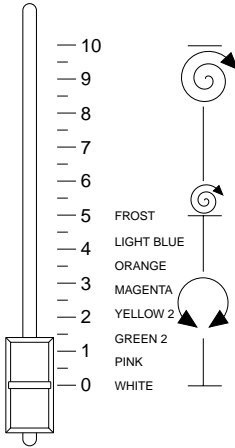
10
9
8
7
6
5  FROST
4  LIGHT BLUE
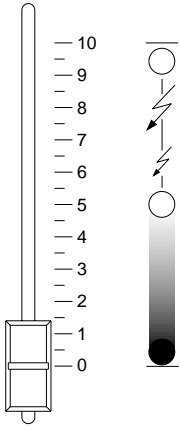   ORANGE
3  MAGENTA
2  YELLOW 2
   GREEN 2
1  PINK
0  WHITE

In the 0% to 50% range of adjustment, the change of colour 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.
From 50% to 100% the wheel rotates continuously with speed increasing steadily from 0 to 300 rpm.

**• GOBO SELECTION - channel 3**

10
9
8
7
6
5
4
3
2
1
0
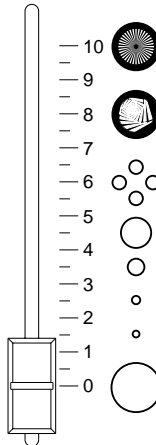
The change occurs instantaneously as the slider reaches different preset levels on the graduated scale. Between 95% and 100% in the range of adjustment, the gobo changes automatically every 15 seconds.

**• 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 11 flashes per second.
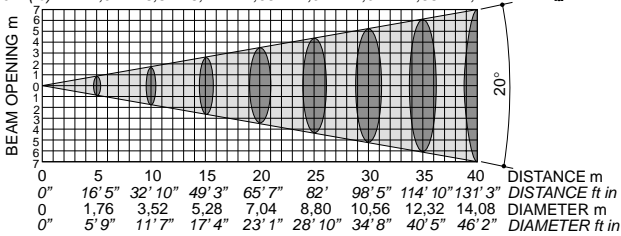The aperture remains fixed between 95% and 100% of the range.

## 5        LENS UNITS

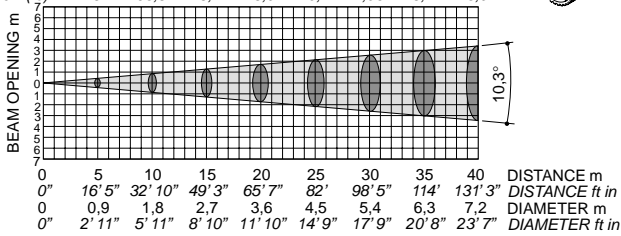GRAPHS SHOWING BEAM DATA AND ILLUMINATION VALUES

**Objective lens 1:2,2/100 -** *Standard equipment*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **HMI 575W** (lux) | 2.320 | 580 | 258 | 145 | 93 | 64 | 47 | 36 |
| *HMI 575W* (fc) | *216* | *53,9* | *24* | *13,5* | *8,64* | *5,95* | *4,37* | *3,34* |
| **HTI 300W** (lux) | 1.120 | 280 | 124 | 70 | 45 | 31 | 23 | 18 |
| *HTI 300W* (fc) | *104* | *26* | *11,5* | *6,5* | *4,18* | *2,88* | *2,14* | *1,67* |
| **HMD 300W** (lux) | 806 | 202 | 89 | 50 | 32 | 22 | 17 | 13 |
| *HMD 300W* (fc) | *74,9* | *18,8* | *8,27* | *4,65* | *2,97* | *2,04* | *1,58* | *1,21* |



BEAM OPENING m — 20°

| DISTANCE m | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
|---|---|---|---|---|---|---|---|---|---|
| *DISTANCE ft in* | *0"* | *16'5"* | *32'10"* | *49'3"* | *65'7"* | *82'* | *98'5"* | *114'10"* | *131'3"* |
| DIAMETER m | 0 | 1,76 | 3,52 | 5,28 | 7,04 | 8,80 | 10,56 | 12,32 | 14,08 |
| *DIAMETER ft in* | *0"* | *5'9"* | *11'7"* | *17'4"* | *23'1"* | *28'10"* | *34'8"* | *40'5"* | *46'2"* |

**Objective lens 1:1,9/190 -** *Available on request*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **HMI 575W** (lux) | 8.200 | 2.050 | 911 | 513 | 328 | 228 | 167 | 128 |
| *HMI 575W* (fc) | *762* | *190* | *84,6* | *47,7* | *30,5* | *21,2* | *15,5* | *11,9* |
| **HTI 300W** (lux) | 3.800 | 950 | 422 | 238 | 152 | 106 | 78 | 59 |
| *HTI 300W* (fc) | *353* | *88,3* | *39,2* | *22,1* | *14,1* | *9,85* | *7,25* | *5,48* |
| **HMD 300W** (lux) | 2.736 | 684 | 304 | 171 | 109 | 76 | 56 | 42 |
| *HMD 300W* (fc) | *254* | *63,5* | *28,2* | *15,9* | *10,1* | *7,06* | *5,2* | *3,9* |



BEAM OPENING m — 10,3°

| DISTANCE m | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
|---|---|---|---|---|---|---|---|---|---|
| *DISTANCE ft in* | *0"* | *16'5"* | *32'10"* | *49'3"* | *65'7"* | *82'* | *98'5"* | *114'* | *131'3"* |
| DIAMETER m | 0 | 0,9 | 1,8 | 2,7 | 3,6 | 4,5 | 5,4 | 6,3 | 7,2 |
| *DIAMETER ft in* | *0"* | *2'11"* | *5'11"* | *8'10"* | *11'10"* | *14'9"* | *17'9"* | *20'8"* | *23'7"* |

**Objective lens 1:3,3/300 -** *Available on request*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **HMI 575W** (lux) | 22.000 | 5.500 | 2.444 | 1375 | 880 | 611 | 449 | 344 |
| *HMI 575W* (fc) | *2.044* | *511* | *227* | *128* | *81,8* | *56,8* | *41,7* | *32* |
| **HTI 300W** (lux) | 10.800 | 2.700 | 1.200 | 675 | 432 | 300 | 220 | 189 |
| *HTI 300W* (fc) | *1.003* | *251* | *111* | *62,7* | *40,1* | *27,9* | *20,4* | *17,6* |
| **HMD 300W** (lux) | 7.776 | 1.944 | 864 | 486 | 311 | 216 | 158 | 136 |
| *HMD 300W* (fc) | *722* | *181* | *80,3* | *45,1* | *28,9* | *20,1* | *14,7* | *12,6* |



BEAM OPENING m — 6°

| DISTANCE m | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
|---|---|---|---|---|---|---|---|---|---|
| *DISTANCE ft in* | *0"* | *16'5"* | *32'10"* | *49'3"* | *65'7"* | *82'* | *98'5"* | *114'* | *131'3"* |
| DIAMETER m | 0 | 0,52 | 1,04 | 1,56 | 2,08 | 2,6 | 3,12 | 3,64 | 4,16 |
| *DIAMETER ft in* | *0"* | *1'8"* | *3'5"* | *5'1"* | *6'10"* | *8'6"* | *10'3"* | *11'11"* | *13'8"* |
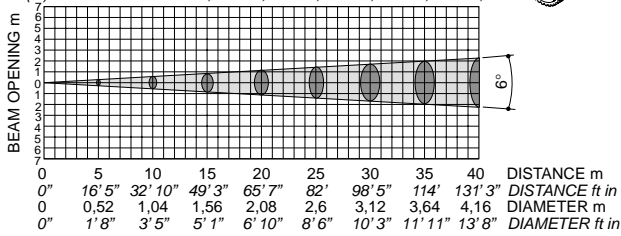
## 6        MAINTENANCE

*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 indicated on the lamp change label (1).*
*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 15 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 (**11**) by loosening the knobs (**10**), and remove from the projector.
Once the necessary work has been completed, refit the cover (**11**) and retighten the knobs (**10**).
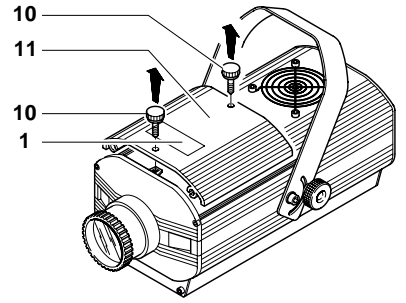


**• Changing the lamp**

Open the projector, loosen the two side nuts (**12**) of the lamp to be changed and remove it from the supports (**13**).
Remove the new lamp from its packaging, loosen the two side nuts (**12**) and locate the lamp in the supports (**13**). Finally, retighten the nuts.
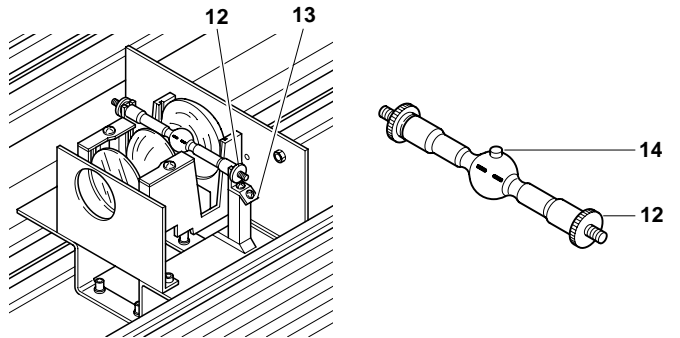


**IMPORTANT:** *for uniform distribution of the light beam, the lamp must be positioned so that the glass pip (14), on the bulb does not coincide with the optical axis of the projector. With this in mind, locate the pip as high up as possible.*

⚠ **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.**

**• Changing colour filters**

Having opened the projector, identify the filter to be changed, grip firmly between thumb and forefinger and push against the spring clip (**15**) until free of the fixed clips (**16**). Bend the filter outwards and remove. Offer the new filter to the spring clip (**15**) and anchor behind the fixed clips (**16**).
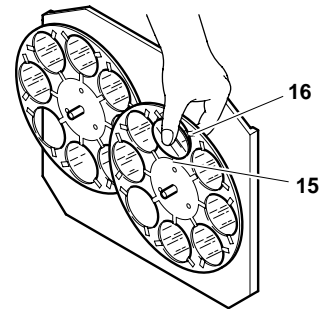


**• Changing metal gobos**

Having opened the projector, identify the gobo to be replaced and push gently toward the clips (**17**) until free.
Offer the new gobo to the first two clips, push gently and locate behind the remaining clips, checking for flatness.
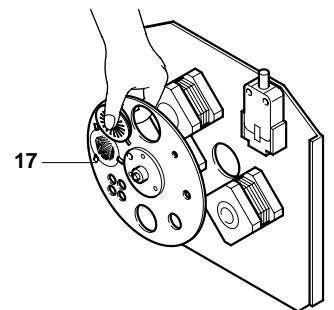


**• Changing fuses**

To change the fuses, press the tab (**18**) and pull out the fuse holder (**19**). Replace any blown fuse with one of the same type and rating as indicated on the label (**20**) attached to the holder (**19**). Insert the fuse holder and push in to engage the tab (**18**).