CLAY PAKY®
www.claypaky.it

ALPHA SPOT HPE 700 C61355

INSTRUCTION MANUAL

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Congratulations on choosing a Clay Paky product!
We thank you for your custom.
Please note that this product, as all the others in the rich Clay Paky range, has been designed and made with total quality to ensure excellent performance and best meet your expectations and requirements.

Carefully read this instruction manual in its entirety and keep it safe for future reference. It is essential to know the information and comply with the instructions given in this manual to ensure the fitting is installed, used and serviced correctly and safely.

CLAY PAKY S.p.A. disclaims all liability for damage to the fitting or to other property or persons deriving from installation, use and maintenance that have not been carried out in conformity with this instruction manual, which must always accompany the fitting.

CLAY PAKY S.p.A. reserves the right to modify the characteristics stated in this instruction manual at any time and without prior notice.

SAFETY INFORMATION

• Installation
Make sure all parts for fixing the projector are in a good state of repair.
Make sure the point of anchorage is stable before positioning the projector.
The safety chain must be properly hooked onto the fitting and secured to the framework, so that, if the primary support system fails, the fitting falls as little as possible.
If the safety chain gets used, it needs to be replaced with a genuine spare.

• Minimum distance of illuminated objects
The projector needs to be positioned so that the objects hit by the beam of light are at least 3 metres (10' 9") from the lens of the projector.

700W ⊂·······3······m

• Minimum distance from flammable materials
The projector must be positioned so that any flammable materials are at least 0.20 metres (8") from every point on the surface of the fitting.

• Mounting surfaces
It is permissible to mount the fitting on normally flammable surfaces.

t_a 40°C

• Maximum ambient temperature
Do not operate the fixture if the ambient temperature (Ta) exceeds 40° C (104° F).

IP20

• IP20 protection rating
The fitting is protected against penetration by solid bodies of over 12mm (0.47") in diameter (first digit 2), but not against dripping water, rain, splashes or jets of water (second digit 0).

• Protection against electrical shock
Connection must be made to a power supply system fitted with efficient earthing (**Class I** appliance according to standard EN 60598-1).
It is, moreover, recommended to protect the supply lines of the projectors from indirect contact and/or shorting to earth by using appropriately sized residual current devices.

• Connections to mains supply
Connection to the electricity mains must be carried out by a qualified electrical installer.
Check that the mains frequency and voltage correspond to those for which the projector is designed as given on the electrical data label.
This label also gives the input power to which you need to refer to evaluate the maximum number of fittings to connect to the electricity line, in order to avoid overloading.

t_c 150°C

• Temperature of the external surface
The maximum temperature that can be reached on the external surface of the fitting, in a thermally steady state, is 150°C (302°F).

• Maintenance
Before starting any maintenance work or cleaning the projector, cut off power from the mains supply.
After switching off, do not remove any parts of the fitting for at least 10 minutes. After this time the likelihood of the lamp exploding is virtually nill. If it is necessary to replace the lamp, wait for another 20 minutes to avoid getting burnt.
The fitting is designed to hold in any splinters produced by a lamp exploding. The lenses must be mounted and, if visibly damaged, they have to be replaced with genuine spares.

• Lamp
The fitting mounts a high-pressure lamp that needs an external igniter. This igniter is fitted onto the apparatus.
- Carefully read the "operating instructions" provided by the lamp manufacturer.
- Immediately replace the lamp if damaged or deformed by heat.

• Battery
This product contains a rechargeable lead-acid battery. To preserve the environment, please dispose the battery at the end of its life according to the regulation in force. Instructions on how to remove the battery from the product are available on **www.claypaky.it**
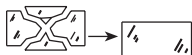
Pb

The products referred to in this manual conform to the European Community Directives to which they are subject:
• Low Voltage 2006/95/CE
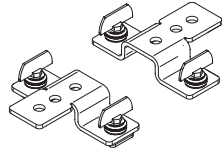• Electromagnetic Compatibility 2004/108/CE

CE

UNPACKING AND PREPARATION

099102

Lamp 700W
(fitted into projector)

2 x 183102/802

Packing contents - Fig. 1

UNLOCKED

LOCKED

90°   90°

°06   .06

45°   45°

45°   45°

45°   45°

45°   45°

LOCKED

UNLOCKED
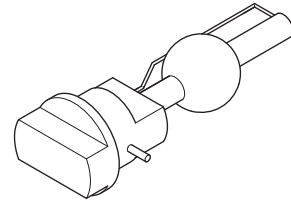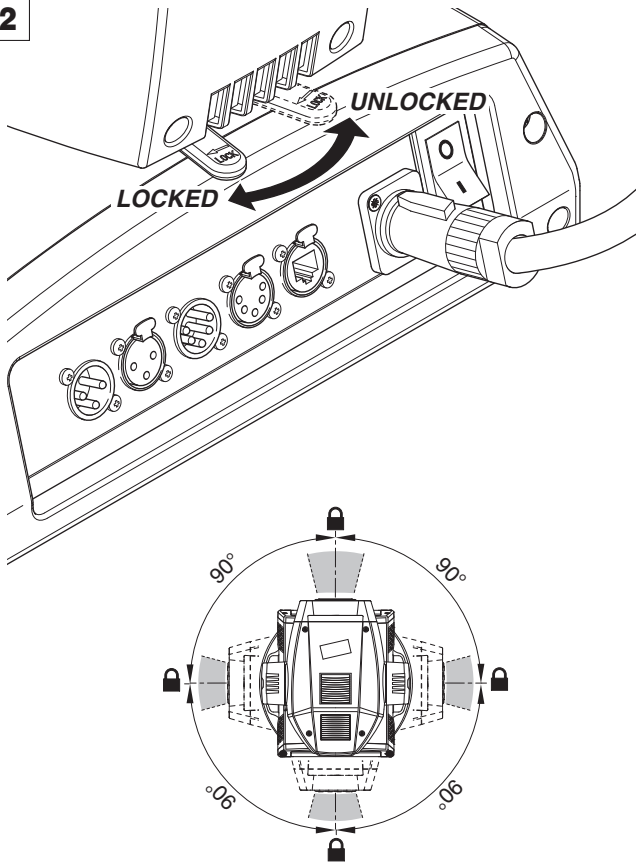
PAN Mechanism Lock and Release (every 90°) - Fig. 2
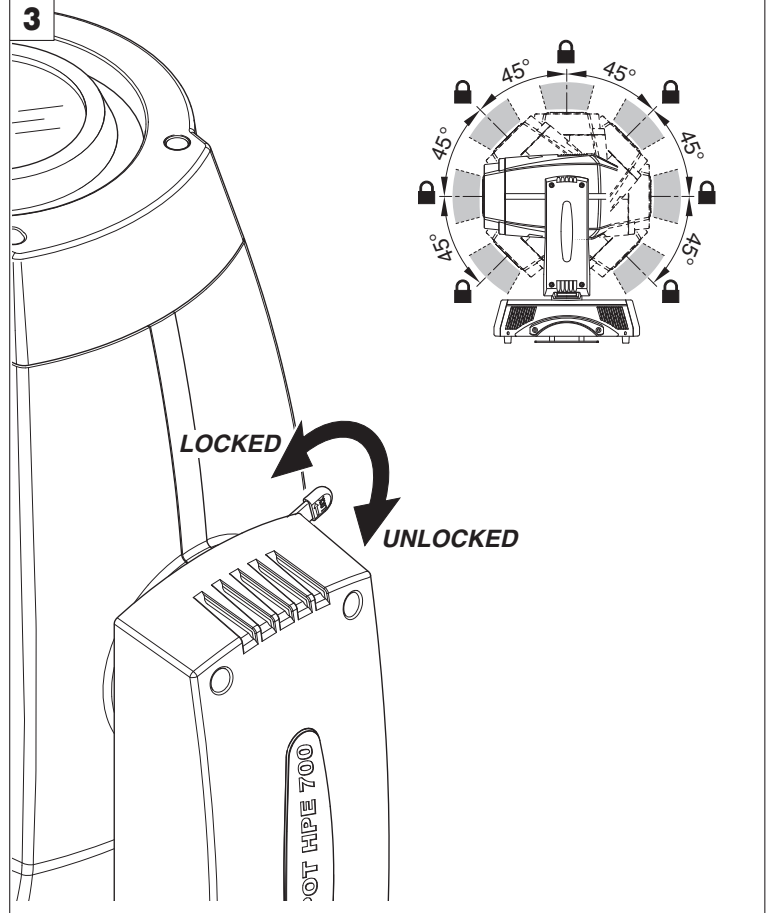
TILT Mechanism Lock and Release (every 45°) - Fig. 3

4
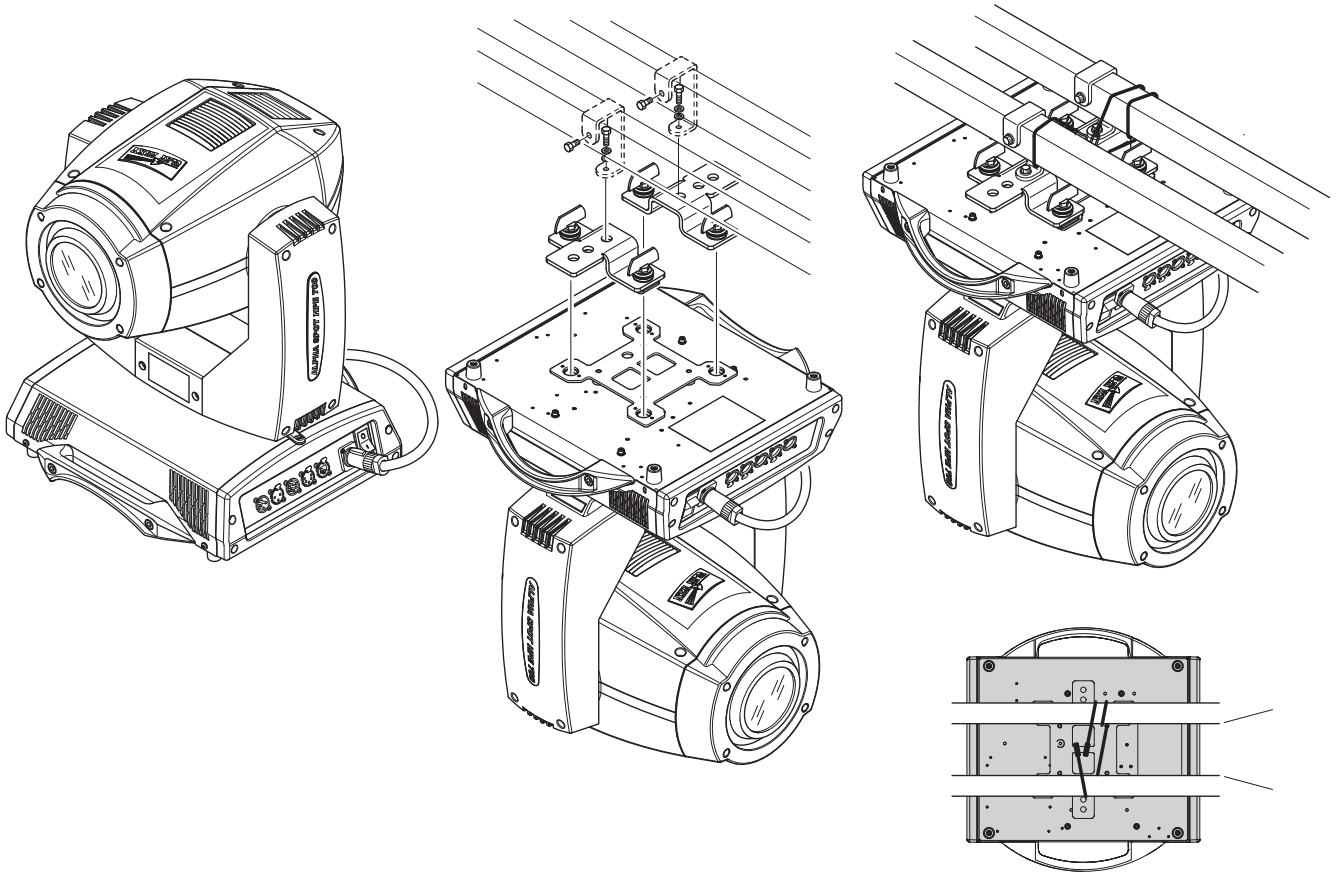
Installing the projector - Fig. 4
The projector can be installed on the floor resting on special rubber feet, on a truss or on the ceiling or wall.
WARNING: *with the exception of when the projector is positioned on the floor, the safety cable must be fitted. (Cod. 105041/003 available on request).*
This must be securely fixed to the support structure of the projector and then connected to the fixing point at the centre of the base.

5
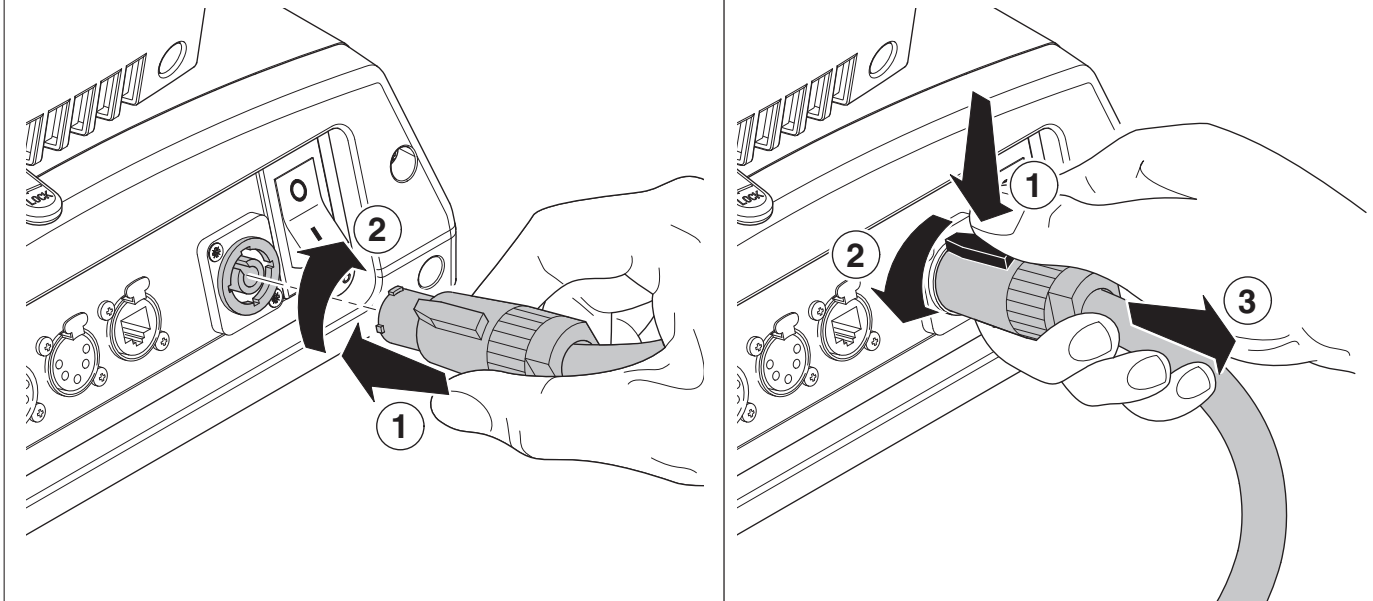
Connecting and disconnecting power cable - Fig. 5

6

Mains

L
N

Connecting to the mains supply - Fig. 6

7

DMX 512

DMX 512
5 PIN

5 1
4 2
3

SCREEN
− SIGNAL
+ SIGNAL

DMX 512
3 PIN

SIGNAL −
SIGNAL +

2 1
3

SCREEN

Connecting to the control signal line (DMX) - Fig. 7
Use a cable conforming to specifications EIA RS-485: 2-pole twisted, shielded, 120Ohm characteristic impedance, 22-24 AWG, low capacity. Do not use microphone cable or other cable with characteristics differing from those specified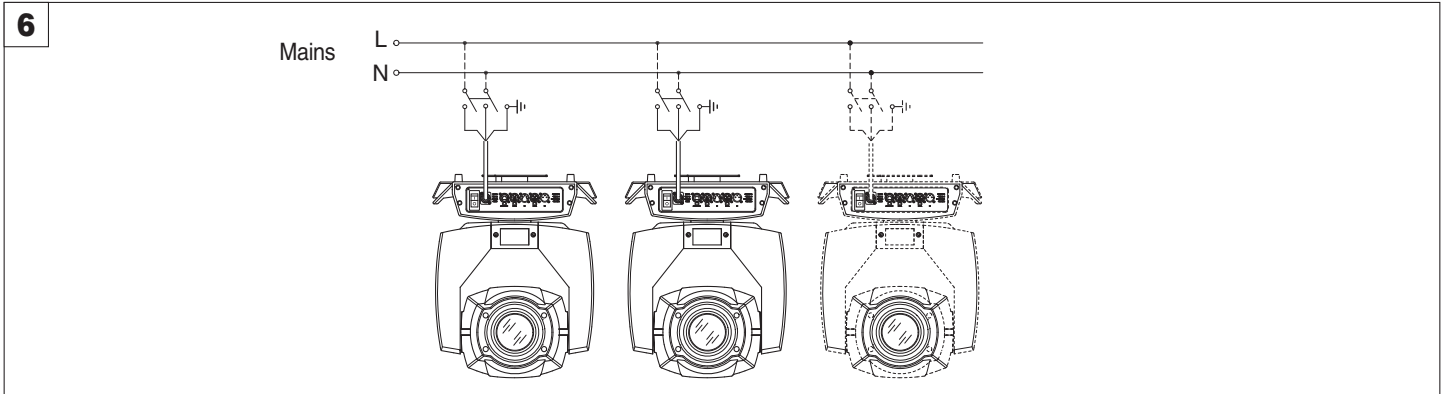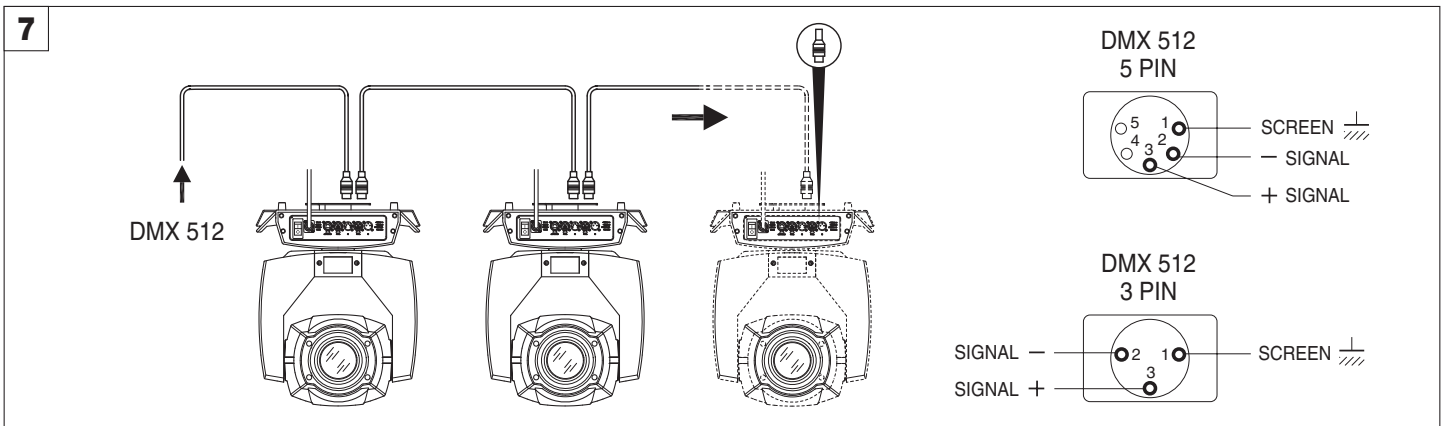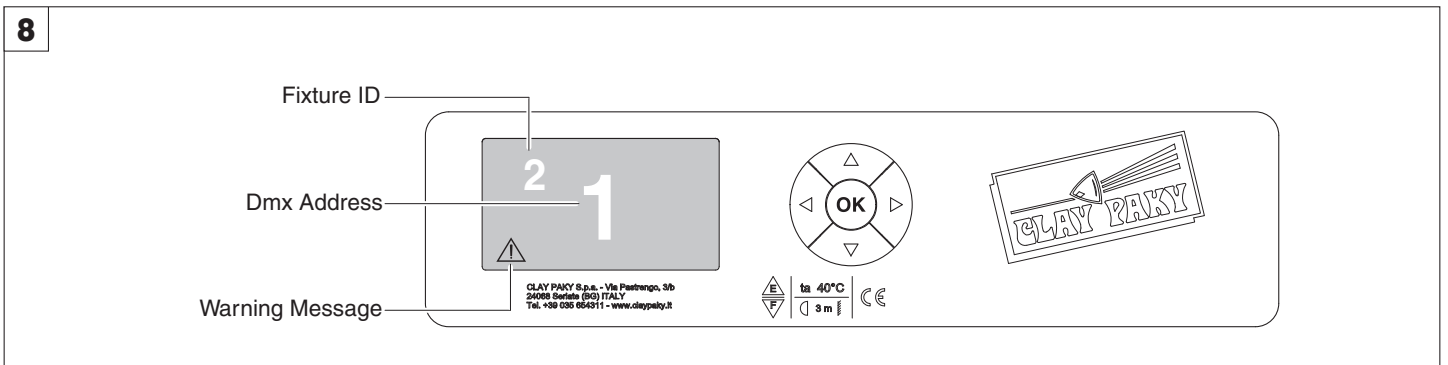. The end connections must be made using XLR type 3 or 5-pin male/female connectors. A terminating plug must be inserted into the last projector with a resistance of 120Ohm (minimum 1/4 W) between terminals 2 and 3.
IMPORTANT: The wires must not make contact with each other or with the metal casing of the connectors. The casing itself must be connected to the shield braid and to pin 1 of the connectors.

8

Fixture ID

Dmx Address

2 1

OK

CLAY PAKY

⚠

CLAY PAKY S.p.a. - Via Pastrengo, 3/b
24068 Seriate (BG) ITALY
Tel. +39 035 654311 - www.claypaky.it

E/F
ta 40°C
3 m

Warning Message

Switching on the projector - Fig. 8
Press the switch. The projector starts resetting the effects. At the same time, the following information scrolls on the display:

CLAY PAKY	Model Alpha SPOT HPE 700	Firmware Version X.X.X Date - Hour	xxx (Fixture ID) Dmx Address xxx	System errors E: .... W: ....

On conclusion of resetting in case of absence of the dmx signal, Pan and Tilt move to the "Home" position (Pan 50% - Tilt 50%). The control panel (Fig. 8) has a display and buttons for the complete programming and management of the projector menu. The display can be in one of two conditions: rest status and setting status. When it is in the rest status, the display shows the projector's DMX address and the Fixture ID address (if set).
During menu setting status, after a wait time (about 30 seconds) without any key having been pressed, the display automatically returns to rest status. It should be noted than when this condition occurs, any possible value that has been modified but not yet confirmed with the OK key will be cancelled.

9
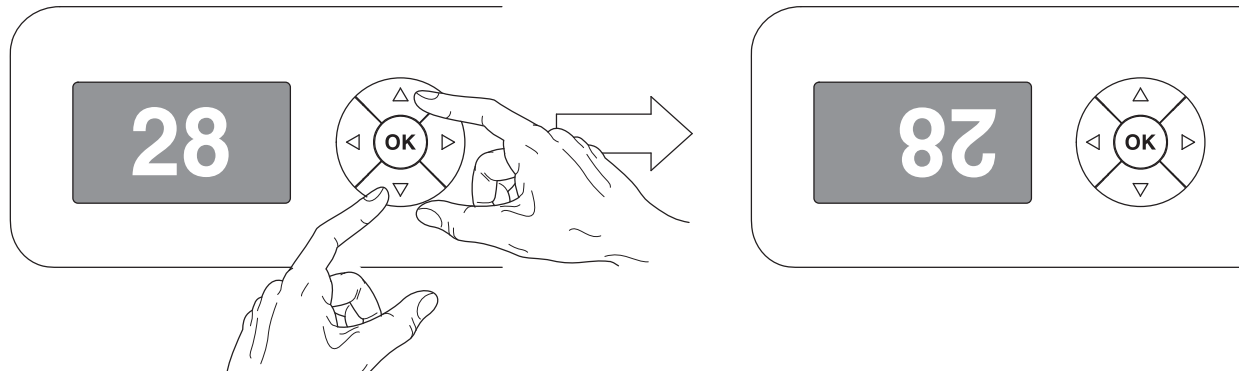
Reversal of the display - Fig. 9

To activate this function, press UP ⊕ and DOWN ⊕ keys simultaneously while the display is in the rest mode. This status will be memorised and maintained even for the next time it will be switched on. To return to the initial state, repeat the operation all over again.

Setting the projector starting address

On each projector, the starting address must be set for the control signal (addresses from 1 to 512).

The address can also be set with the projector switched off.

Setting the address: see pag. 8.

Setting the projector Fixture ID

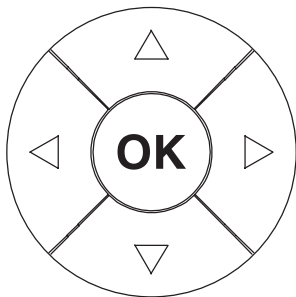On each projector, the Fixture ID address must be set for an easy identification of the fixtures in an installation (ID from 1 to 255).

The Fixture ID address can be set with the projector switched off.

Setting the Fixture ID: see pag. 8.

Functions of the buttons - Using the menu

OK	Confirms the displayed value, or activates the displayed function, or enters the successive menu.
DOWN	Decreases the value displayed (with auto-repetitions) or passes to the next item in the menu.
UP	Increases the value displayed (with auto-repetitions) or passes to the previous item in a menu.
LEFT	Return to the top level
RIGHT	Commute from units, tens, hundreds, in the "Address", "Fixture ID" and "Calibration" menù.

USING THE MENU:

1) Press ⊕ once – "Main Menu" appears on the display.

2) Use the UP ⊕ and DOWN ⊕ keys to select the menu to be used:
   • Setup (Setup Menu): To set the setting options.
   • Option (Option Menu): To set the operating options
   • Informations (Informations Menu): To read the counters, software version and other information.
   • Manual Control (Manual control Menu): To trigger the test and manual control functions.
   • Test (Test Menu): To check the proper functionning of effects
   • Advanced (Advanced Menu): Access to the "Advanced menu" is recommended for a trained technical personnel.
   To enable the "Advanced" see pag. 13.

3) Press ⊕ to display the first item in the selected menu.

4) Use the UP ⊕ and DOWN ⊕ keys to select the MENU items.

Setting addresses and options with the projector disconnected

The projector's DMX address, as well as other possible operating options, can also be set when the appliance is disconnected from the electricity supply. All that is needed is to press ⊕ to momentarily activate the display and thus access the settings. Once the required operations have been carried out, the display will switch off again after a wait time of 30 seconds.

MENU SETTING

MAIN MENU

1

Set Up
- Dmx Address
- Channel Mode
- Fixture ID
- Ethernet Interface

Option

Information

Manual Control

Test

Advanced

2

Option
- Lamp Dmx
- Pan / Tilt
  - Invert Pan
  - Invert Tilt
  - Swap Pan-Tilt
  - Encoder Pan-Tilt
- Color
  - Color Mixing
  - Color mixing curve
  - Fixed Wheel Shortcut
- Shutter
  - Shutter On Error
  - Dimmer On Shutter
- Power Mode
  - 4-700W Full fan speed
  - 400W Low fan speed
  - 4-700W Auto fan speed
- Display
- Setting
  - Default Preset
  - User Preset 1
  - User Preset 2
  - User Preset 3

3

Information
- System Errors
- Fixture Hours
- Lamp Hours
- Lamp Strikes
- System Version
- Board Diagnost.
- Dmx Monitor
- Fans Monitor
- Network params

4

Manual Control
- Lamp
- Reset
- Channel

5

Test
- Pan / Tilt
- Colour
- Beam
- Gobo
- All

6

Advanced
- Access code 1234
  - Upload Firmware
  - Setup Model
  - Calibration

NOTE: On grey the default options

```
┌────────┐   ┌──────────┐   ┌──────────────┐
│ Set Up │───│   Dmx    │───│  Address xxx │
└────────┘   │ Address  │   └──────────────┘
    │        └──────────┘
    │
    │        ┌──────────┐   ┌──────────────┐
    │        │ Channel  │───│   Standard   │
    │        │  Mode    │   └──────────────┘
    │        └──────────┘   ┌──────────────┐
    │                       │    Vector    │
    │                       └──────────────┘
    │
    │        ┌──────────┐   ┌──────────────┐
    │        │Fixture ID│───│   Value xxx  │
    │        └──────────┘   └──────────────┘
    │
    │        ┌──────────┐
    │        │ Ethernet │
    │        │Interface │
    │        └──────────┘
    │                       ┌──────────────┐
    │                       │   Control    │
    │                       │   Protocol   │
    │                       └──────────────┘
    │                       ┌──────────────┐
    │                       │  Repeat on   │
    │                       │    DMX       │
    │                       └──────────────┘
    │                       ┌──────────────┐
    │                       │   Universe   │
    └───────────────────────└──────────────┘
```
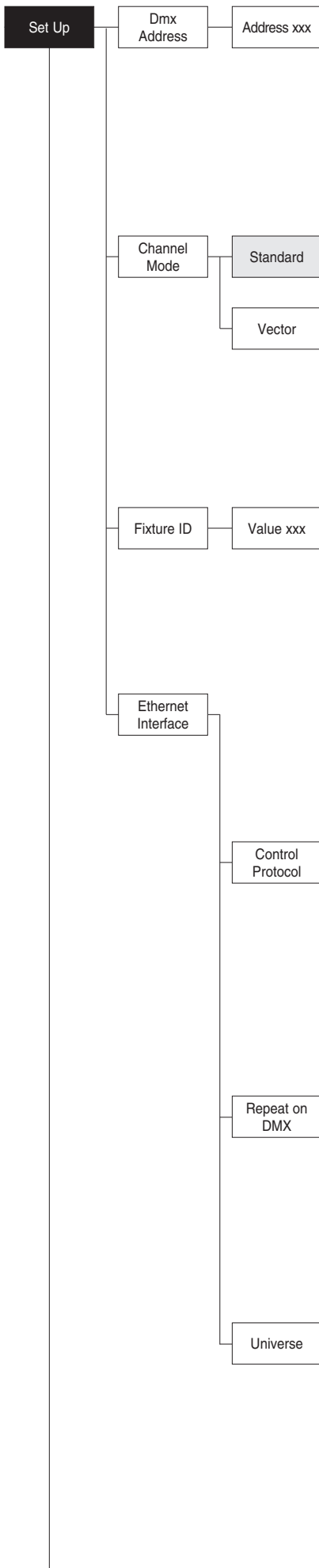
DMX ADDRESS
NOTE: without the DMX signal the Address (XXX) flashing
Allows you to select the DMX ADDRESS.
1) Press ⊙ - the current DMX Adress appear on the display.
2) Use the UP ⊙ and DOWN ⊙, RIGHT ⊙ keys to plan the DMX Address.
3) Press ⊙ to confirm the selection or LEFT ⊙ to keep current settings.

CHANNEL MODE
Allows you to select a channel arrangement from the two available.
1) Press ⊙ - the current settings appear on the display (Standard or Vector).
2) Use the UP ⊙ and DOWN ⊙ keys to select one of the following settings:
   - **Standard**
   - **Vector**
3) Press ⊙ to confirm the selection or LEFT ⊙ to keep current settings.

FIXTURE ID
Allows you to select the FIXTURE ID.
1) Press ⊙ - the current Fixture ID appear on the display.
2) Use the UP ⊙, DOWN ⊙, RIGHT ⊙ keys to plan the Fixture ID.
3) Press ⊙ to confirm the selection or LEFT ⊙ to keep current settings.

ETHERNET INTERFACE
It lets you set the Ethernet settings to be attributed to the projector.
1) Premere ⊙.
2) Use the UP ⊙ and DOWN ⊙ keys to select the "Ethernet Interface" options to set:

Control Protocol
It lets you select the "Control Protocol" Art-net to assign according to the control unit used:
1) Press ⊙ the current setting appears on the display.
2) Use the UP ⊙ and DOWN ⊙ keys to select one of the following settings:
   - **Disabled**
   - **Art-net on IP 2**
   - **Art-net on IP 10**
3) Press ⊙ to confirm the selection or LEFT ⊙ to keep the current setting.

Repeat on DMX
It lets you enable the transmission of the Ethernet protocol by DMX signal to all the connected projectors.
1) Press ⊙ the current setting appears on the display.
2) Use the UP ⊙ and DOWN ⊙ keys to select one of the following settings:
   - **Disabled:** DMX transmission disabled.
   - **Enabled on primary:** DMX transmission enabled.
3) Press ⊙ to confirm the selection or LEFT ⊙ to keep the current setting.

Universe
It lets you assign the "Universe" number to be assigned to a series of projectors.
1) Press ⊙ – the current Universe address appears on the display.
2) Use the UP ⊙, DOWN ⊙, RIGHT ⊙ keys to set the Universe address.
3) Press ⊙ to confirm the selection or LEFT ⊙ to keep the current setting.

OPTIONS MENU

Option → Lamp Dmx → On / Off

Pan / Tilt →
- Invert Pan → On / Off
- Invert Tilt → On / Off
- Swap Pan-Tilt → On / Off
- Encoder Pan-Tilt → On / Off

Color →
- Color Mixing → Rgb / Cmy
- Color Mixing curve → Curve 1 / Curve 2
- Fixwheel Shortcut → On / Off
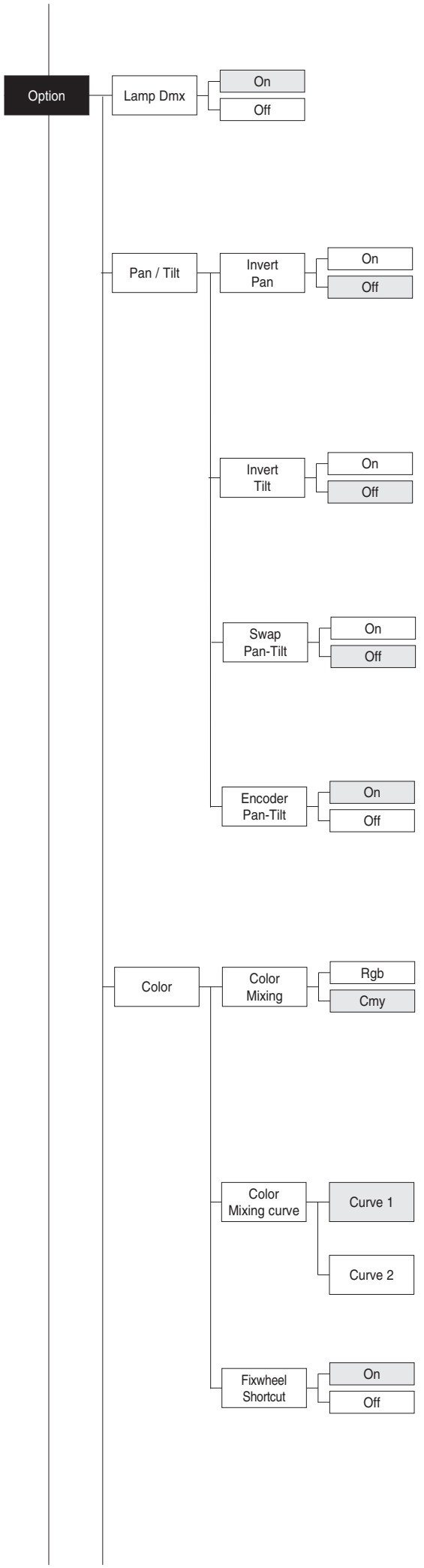
LAMP DMX

Used for enabling lamp remote control channel.
1) Press OK - the current settings appear on the display (On or Off).
2) Use the UP ▲ and DOWN ▼ keys to enable (On) or disable (Off) the lamp remote control channel.
3) Press OK to confirm the selection or LEFT ◀ to keep current settings.

PAN / TILT

Invert pan

Used for reversing Pan movement.
1) Press OK - the current settings appear on the display (On or Off).
2) Use the UP ▲ and DOWN ▼ keys to enable (On) or disable (Off) PAN inversion.
3) Press OK to confirm the selection or LEFT ◀ to keep current settings.

Invert tilt

Used for reversing tilt movement.
1) Press OK - the current settings appear on the display (On or Off).
2) Use the UP ▲ and DOWN ▼ keys to enable (On) or disable (Off) Tilt inversion.
3) Press OK to confirm the selection or LEFT ◀ to keep current settings.

Swap Pan-Tilt

Used for swapping Pan and Tilt channels (as well as Pan fine and Tilt fine).
1) Press OK - the current settings appear on the display (On or Off).
2) Use the UP ▲ and DOWN ▼ keys to enable (On) or disable (Off) Pan and Tilt channel swap.
3) Press OK to confirm the selection or LEFT ◀ to keep current settings.

Encoder Pan-Tilt

Used for enabling the Pan / Tilt encoders.
1) Press OK - the current settings appear on the display (On or Off).
2) Use the UP ▲ and DOWN ▼ keys to enable (On) or disable (Off) Pan / Tilt encoders.
3) Press OK to confirm the selection or LEFT ◀ to keep current settings.

COLOR

Color mixing

Used for reversing the CMY color mixing system.
1) Press OK - the current settings appear on the display (On or Off).
2) Use the UP ▲ and DOWN ▼ keys select one of the following settings:
   RGB color mixing mode
   CMY color mixing mode
3) Press OK to confirm the selection or LEFT ◀ to keep current settings.

Color mixing curve

It lets you select the "Color mixing curve" from the two available.
1) Press OK the current setting appears on the display.
2) Use the UP ▲ and DOWN ▼ keys to select one of the following settings:
   Curve 1
   Curve 2
3) Press OK to confirm the selection or LEFT ◀ to keep the current setting.

Fixed wheel short-cut

Used for optimizing color change time so that the disc turns in the direction that requires shorter movement.
1) Press OK – the current settings appear on the display (On or Off).
2) Use the UP ▲ and DOWN ▼ keys to enable (On) or disable (Off) color change optimization.
3) Press OK to confirm the selection, or LEFT ◀ to keep current settings.

Flowchart (left column)

- Shutter
  - Shutter On Error
    - On
    - **Off**
  - Dimmer On Shutter
    - On
    - **Off**
- Power Mode
  - **4-700W Full fan speed**
  - 400W Low fan speed
  - 4-700W Auto fan speed
- Display
  - **On**
  - Off
- Setting
  - Default Preset
    - Reset To Dafault
    - Go Back
  - User Preset 1
    - Load Preset 1
    - Save To Preset 1
  - User Preset 2
    - Load Preset 2
    - Save To Preset 2
  - User Preset 3
    - Load Preset 3
    - Save To Preset 3
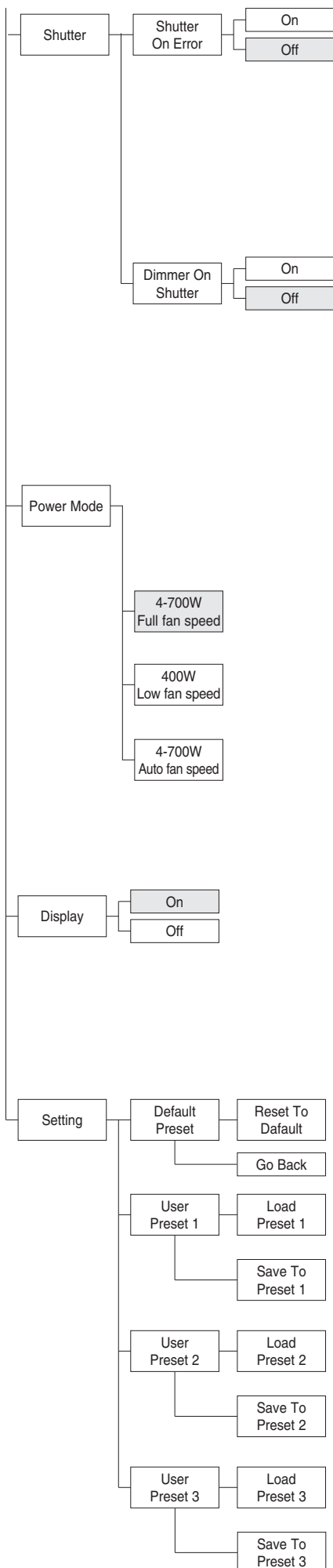
SHUTTER

Shutter on error

Used for automatically closing the stop/strobe in the event of Pan/Tilt position error.

1) Press ⊙K - the current settings appear on the display (On or Off).
2) Use the UP ⊙ and DOWN ⊙ keys to enable (On) or disable (Off) automatic stop/strobe closing in the event of Pan/Tilt position error.
3) Press ⊙K to confirm the selection, or LEFT ⊙ to keep current settings.

Dimmer on Shutter

Enables automatic closing of the dimmer when the strobe is completely closed.

1) Press ⊙K – the current settings appear on the display (On or Off).
2) Use the UP ⊙ and DOWN ⊙ keys to enable (On) or disable (Off) the automatic closing of the dimmer.
3) Press ⊙K to confirm the selection, or LEFT ⊙ to keep current settings.

POWER MODE

Allows you to select a Power Mode from the three available.

1) Press ⊙K - the current settings appear on the display.
2) Use the UP ⊙ and DOWN ⊙ keys to select one of the following settings:
   - **4-700W Full fan speed**: Lamp can change from full-power (700W) to half-power (400W) using the LAMP CONTROL channel. Fans always work at Full speed.
   - **400W Low fan speed**: Lamp constantly works in half-power mode (400W) while the Fan always works at Low speed. With LAMP CONTROL channel you can only switch the lamp ON and OFF.
   - **4-700W Auto fan speed**: Lamp can change from full-power (700W) to half-power (400W) using the LAMP CONTROL channel. Automatically the fans switch from Full speed to Low speed respectively.
3) Press ⊙K to confirm the selection or LEFT ⊙ to keep current setting.

DISPLAY

Used for automatically reduce brightness on the display after about 30 seconds in idle.

1) Press ⊙K - the current settings appear on the display (On or Off).
2) Use the UP ⊙ and DOWN ⊙ keys to enable (On) or disable (Off) the decreasing of display brightness.
3) Press ⊙K to confirm the selection or LEFT ⊙ to keep current settings.

SETTING

Used to save 3 different settings of the items in the options menu and relative submenus.

1) Press ⊙K - "Default preset" appears on the display.
2) Use the UP ⊙ and DOWN ⊙ keys to select one of the following configurations:
   - Default preset (*)
   - User preset 1
   - User preset 2
   - User Preset 3
3) Press ⊙K - "Load preset X" appears on the display.
4) Use the UP ⊙ and DOWN ⊙ keys to select:
   - Load preset X to recall a previously stored configuration.
   - Save to preset X to store the current configuration.
   a confirmation message (Are you sure?) appears on the display.
5) Select YES to confirm the selection or NO to keep the current setting and return to the next higher level.

(*) DEFAULT PRESET

Used for restoring default values on all options menu items and relevant submenus.
1) Press ⊙K , a confirmation message (Are you sure?) appears on the display.
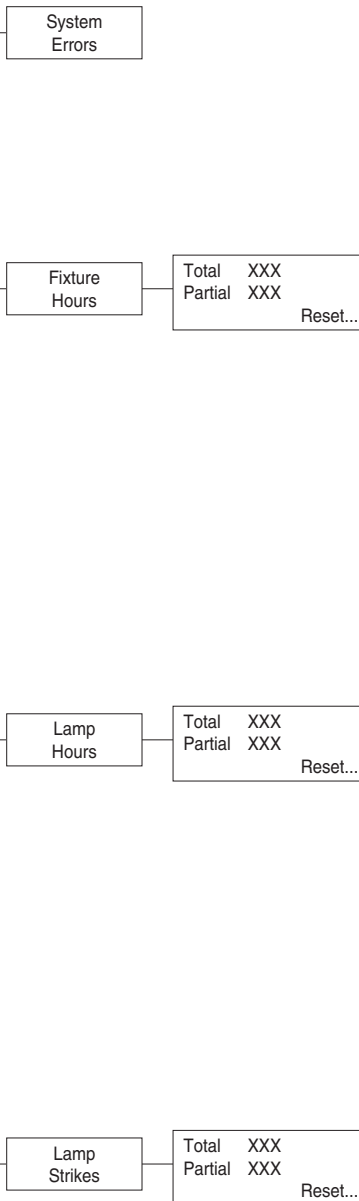
2) Select YES to confirm the selction or NO to keep current setting.

OPTION	DEFAULT
Lamp DMX	On
Invert Pan	Off
Invert Tilt	Off
Swap Pan-Tilt	Off
Encoder Pan-Tilt	On
Color mixing	CMY
Color mixing curve	Curve 1
Fixed Wheel Shortcut	On
Shutter on error	Off
Dimmer on Shutter	Off
Power Mode	4-700 Full fan speed
Display	On

INFORMATION MENU

SYSTEM ERRORS

Shows a list of warnings and messages relevant to errors occurred since the fixtures switching-on.

1) Pressing (OK) you are allowed to reset the SYSTEM ERRORS list.
A confirmation message (Are you sure you want to clear error list ?) appears on the display.
2) Select YES to reset the list or NO to go back.

FIXTURE HOURS

Used for displaying projector operating hours (total and partial).

1) Press (OK) - Hours total and partial appears on the display.
   Total counter
   Counts the number of projector working life hours (from manufacture to date).
   Partial counter
   Counts the number of partial projector working life hours since the last reset to date.
2) Press (OK) to reset partial projector working hours a confirmation message (Are you sure?) appears on the display.
3) Select YES to reset partial projectors counter or NO to keep the current setting and return to the top menu level.

LAMP HOURS

Used for displaying the lamp working hours (total and partial).

1) Press (OK) - Hours total and partial appears on the display.
   Total counter
   Counts the number of projector working hours with the lamp on (from manufacture to date).
   Partial counter
   Counts the number of lamp working hours since the last reset to date.
2) Press (OK) to reset partial lamp working hours, a confirmation message (Are you sure ?) appears on the display.
3) Select YES to reset partial counter or NO to keep the current setting and return to the top menu level

LAMP STRIKES

Used for displaying the number of times the lamp was turned on (total and partial).

1) Press (OK) - the number of times the lamp was turned on (total and partial) appears on the display.
   Total counter
   Counts the number of times the lamp was turned on (from manufacture to date).
   Partial counter
   Counts the number of times the lamp was turned on since the last reset to date.

Information

System Errors

Fixture Hours

Total XXX
Partial XXX
Reset...

Lamp Hours

Total XXX
Partial XXX
Reset...

Lamp Strikes

Total XXX
Partial XXX
Reset...

2) Press ⊙K to reset partial lamp strikes hours, a confirmation message (Are you sure ?) appears on the display.

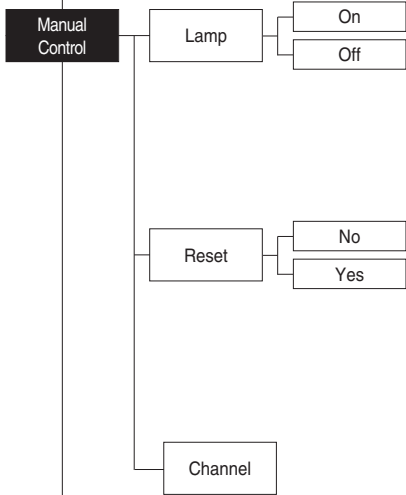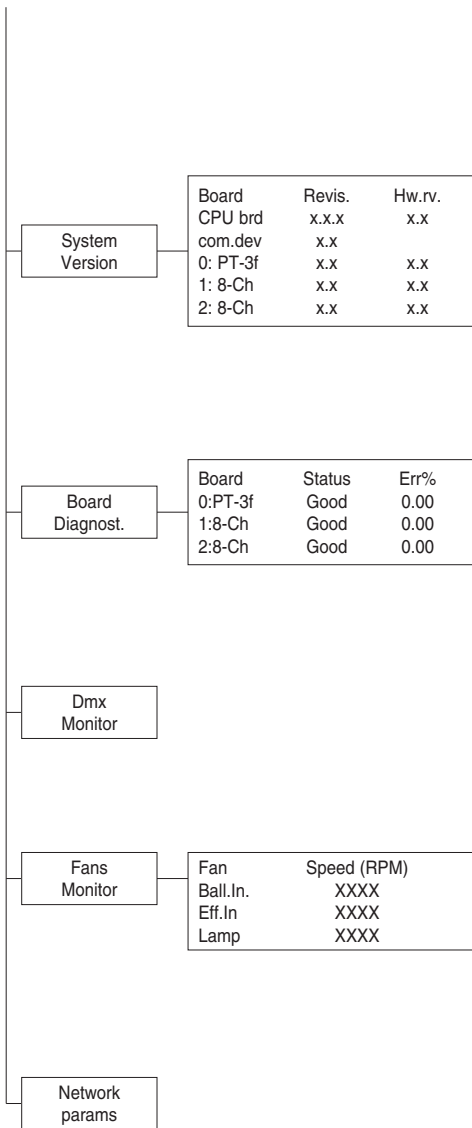3) Select YES to reset partial counter or NO to keep the current setting and return to the top menu level

SYSTEM VERSION

Used for displaying the software and hardware version of each board installed in the projector.

CPU brd (CPU board)
0: PT-3f (Pan / Tilt board)
1: 8-Ch (8 channel board)
2: 8-Ch (8 channel board)

Board	Revis.	Hw.rv.
CPU brd	x.x.x	x.x
com.dev	x.x	
0: PT-3f	x.x	x.x
1: 8-Ch	x.x	x.x
2: 8-Ch	x.x	x.x

System Version

BOARD DIAGNOSTIC

Used for displaying the status error of each board installed in the projector:

0: PT-3f (Pan / Tilt board)
1: 8-Ch (8 channel board)
2: 8-Ch (8 channel board)

Board	Status	Err%
0:PT-3f	Good	0.00
1:8-Ch	Good	0.00
2:8-Ch	Good	0.00

Board Diagnost.

DMX MONITOR

Used for displaying the projector DMX channel level in bit (Val) and in percentage (Perc).

Dmx Monitor

FANS MONITOR

Used for displaying the speed of each fan installed in the projector:

Ball. IN (Ballast IN Fan)
Eff.IN (Effects IN Fan)
Lamp (Lamp Fan)

Fan	Speed (RPM)
Ball.In.	XXXX
Eff.In	XXXX
Lamp	XXXX

Fans Monitor

NETWORK PARAMS

Allows the "Network" parameters of the projector to be displayed or:

IP address: Internet Protocol address (two projectors must not have the same IP address)
IP mask: 255.0.0.0
Mac address: Media Access Control: the projector's Ethernet Address

Network params

MANUAL CONTROL

LAMP

Used for turning lamp on and off from the projector control panel.

1) Press ⊙K - the current settings appear on the display (On or Off).
2) Use the UP ⊙ and DOWN ⊙ keys to turn the lamp on (On) or off (Off)
3) Press ⊙K to confirm the selection or LEFT ◑ to keep current settings and return to the top level.

Manual Control → **Lamp** → **On** / **Off**

RESET

Used for resetting the projector.

1) Press ⊙K to reset the projectors, a confirmation message (Are you sure ?) appears on the display.
2) Select YES to starting reset the fixture or NO to keep the current setting and return to the top menu level.

Reset → **No** / **Yes**

CHANNEL

Used for setting channel levels from the projector control panel.

1) Press ⊙K - the first channel appears on the display.
2) Use the UP ⊙ and DOWN ⊙ keys to select the required channel:
3) Press ⊙K and use the UP ⊙ and DOWN ⊙ keys to select the required DMX level (value between 0 and 255).
4) Press LEFT ◑ to return to the top menu level.

Channel

Diagram (left column)

```
Test ──┐
       │   ┌─────────────┐
       │   │ Pan-Tilt    │
       │   │ Colour      │
       │   │ Beam        │
       │   │ Gobo        │
       │   │ All         │
       │   └─────────────┘
       │
Advanced ──┐
           │   ┌──────────┐
           │   │ Code     │
           │   │ 1234     │
           │   └──────────┘
           │
           │   ┌──────────┐   ┌────────────────────────────┐
           │   │ Upload   │   │ Transfer the firmware on all│
           │   │ Firmware │   │ the connected fixtures ?    │
           │   └──────────┘   │ Are you sure ?              │
           │                  │ Yes/No                      │
           │                  └────────────────────────────┘
           │   ┌──────────┐   ┌────────────────────────────┐
           │   │ Setup    │   │ Changing to a wrong model  │
           │   │ Model    │   │ may damage the fixture.     │
           │   └──────────┘   │ Are you sure ?              │
           │                  │ Yes/No                      │
           │                  └────────────────────────────┘
           │   ┌──────────┐
           │   │ Calibration│
           │   └──────────┘
```
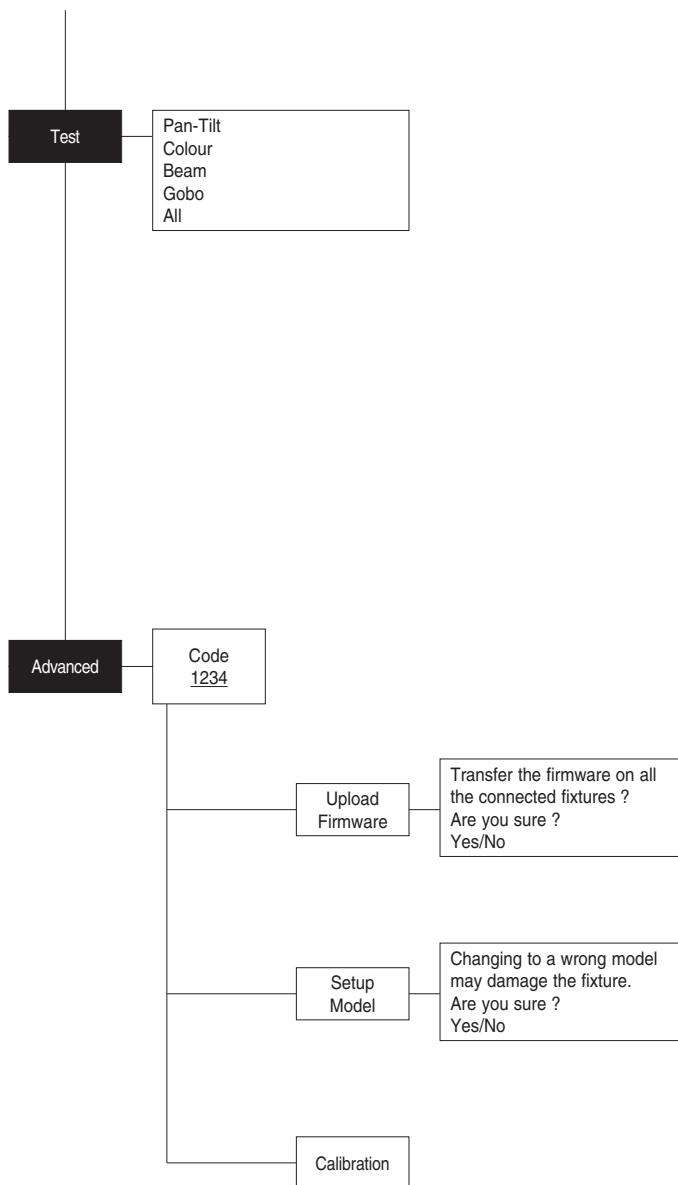
TEST MENU

TEST

Allows you to check the proper functioning of effects.
1) Press ⓄⓀ to return to the top menu level.
2) Use the UP ⬆ and DOWN ⬇ keys to select the required test.
3) Press ⓄⓀ to confirm the selection or LEFT ◀ to keep current settings.

Test sequence:
Pan - Tilt effects (Pan & Tilt)
Colour effects (CMY, colour wheel)
Beam effects (Stopper-Strobe / Dimmer / Iris / Prism / Frost)
Gobo effects (Fixed gobo / Rotating gobo)
All effects

ADVANCED MENU

To enable the "Advanced Menu" set up the "Access code" (1234) using the UP ⬆ , DOWN ⬇ , RIGHT ▶ keys.
Press ⓄⓀ - "Menu advanced" appears on the display

UP LOAD FIRMWARE

Allows you to transfer the firmware from 1 fixture to all the connected fixtures.
1) Press ⓄⓀ , a confirmation message appears on the display.
2) Select YES to start the firmware loading or NO to keep the current setting and return to the top menu level

SETUP MODEL

Allows you to change the default model of projector.
1) Press ⓄⓀ a confirmation message appears on the display.
2) Select YES to define the model of projector or NO to keep the current setting and return to the top menu level.

CALIBRATION

Allows you to adjust effects from the control panel to obtain perfect uniformity between the projectors.
1) Press ⓄⓀ - "channels" appears on the display.
2) Using the UP ⬆ and DOWN ⬇ keys, select the effect you wish to regulate.
3) Press ⓄⓀ and use the RIGHT ▶ , UP ⬆ and DOWN ⬇ buttons to make the adjustment by setting a value between 0 and 255.
4) Press ⓄⓀ to confirm the selection or LEFT ◀ to keep current settings and return to the top level.

FACTORY DEFAULT

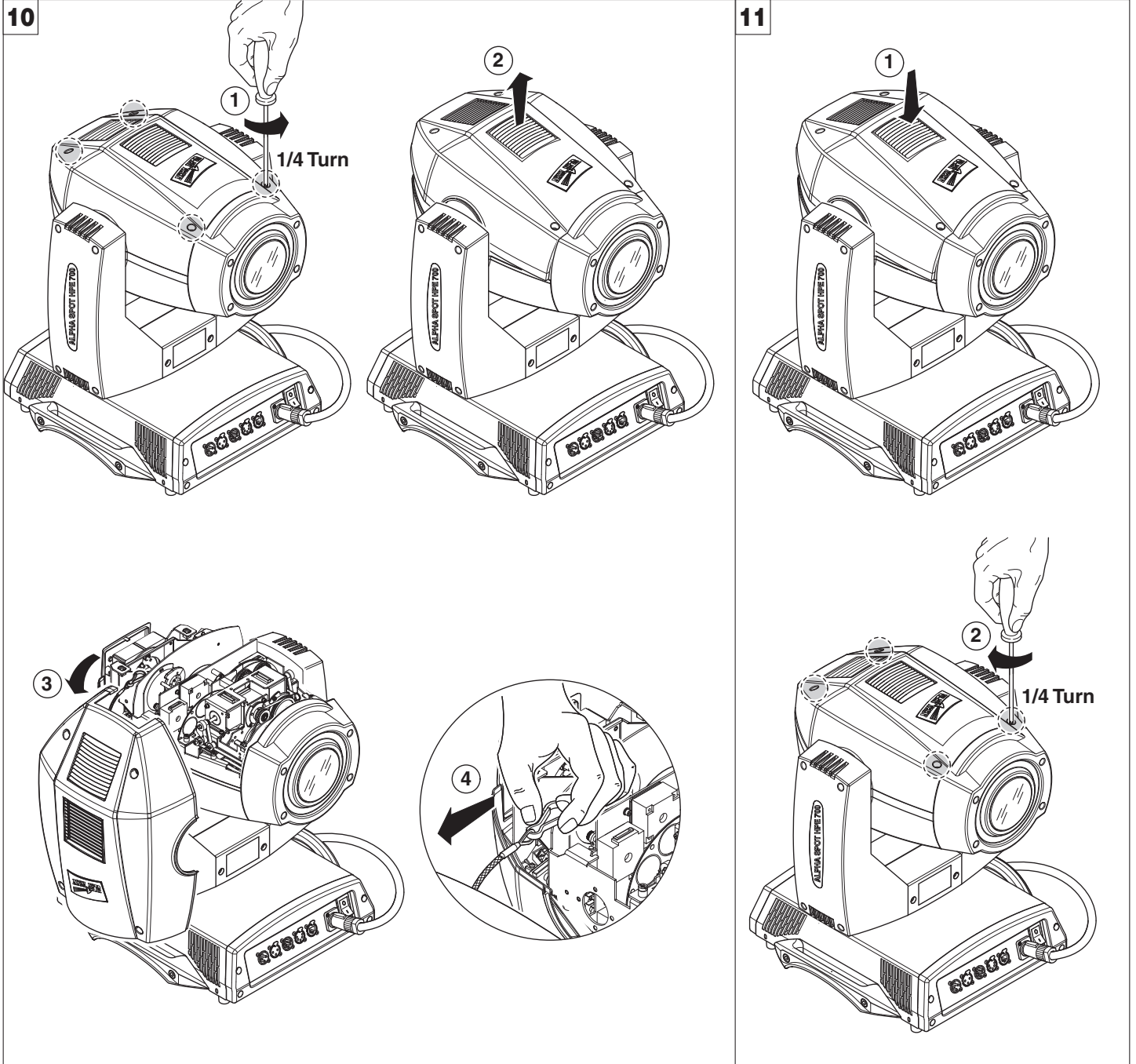Allows you to restore default values of all channels (128).
1) Press ⓄⓀ – a confirmation message appears on the display (Reset calibration to factory default ?).
2) Select YES to reset calibration to factory default or NO to keep the current setting and return to the top menu level.

10

1/4 Turn

11

1/4 Turn

Locking and releasing Pan and Tilt movements - Refer to the instructions in the UNPACKING AND PREPARATION section.
Opening the head covers - Fig. 10.

Closing the head covers - Fig. 11.
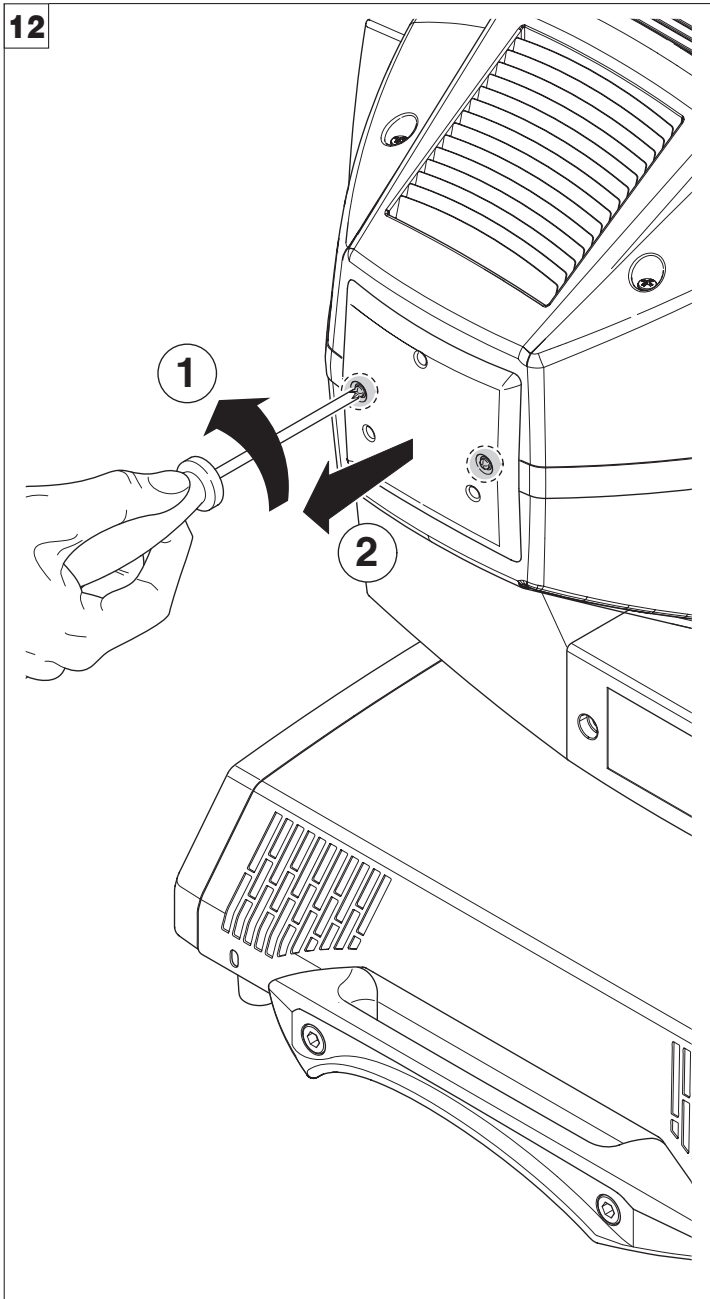
Opening and closing lamp compartment - Fig. 12
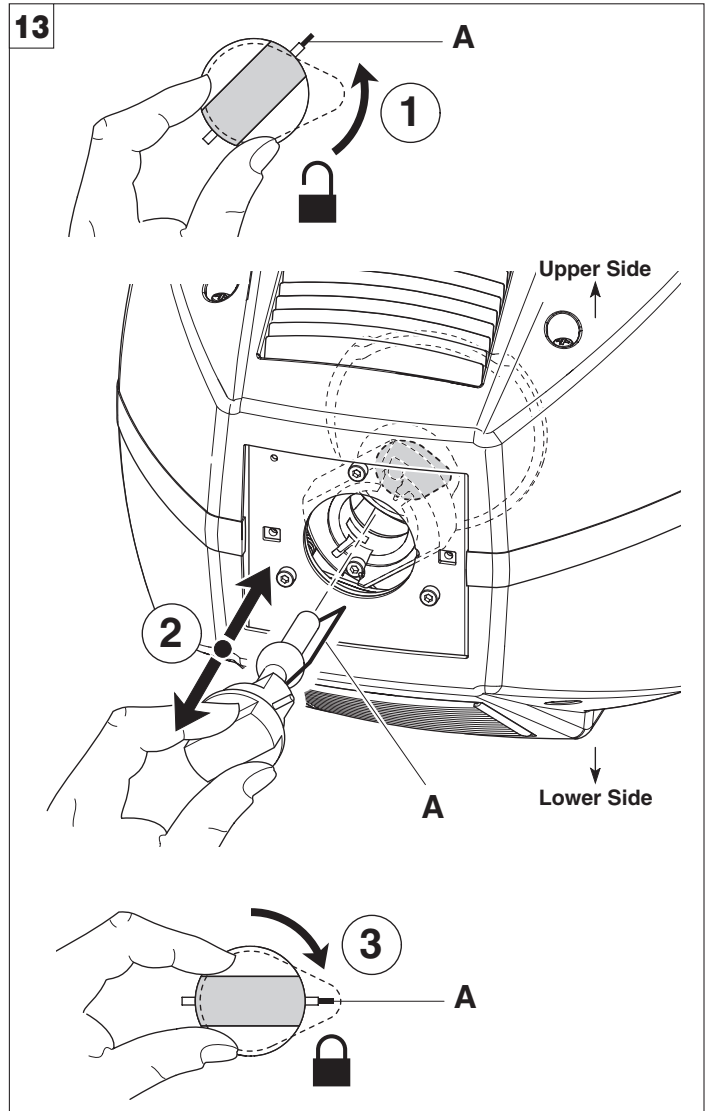
Lamp change - Fig 13

Take the new lamp out of its package and insert in the fitting.

WARNING: *do not touch the lamp's envelope with bare hands. Should this happen, clean the bulb with a cloth soaked in alcohol and dry it with a clean, dry cloth.*

IMPORTANT: *Make sure the lamp is inserted with the external contact (A) facing the elliptical reflector's slot.*

NORMAL

HOT SPOT
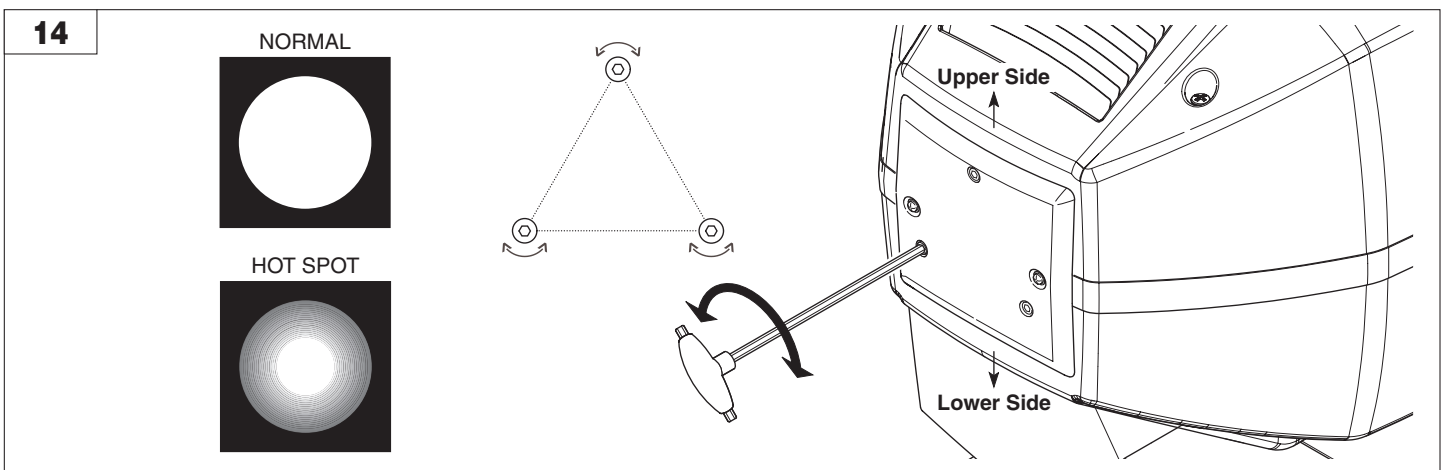
Lamp regulation - Fig. 14

To centre the lamp, turn the three adjusting screws as shown in the figure.

15

Upper Side

085907/001   085908/001

085903/001   085904/001

085911/001   085905/001

085901/001   085906/001
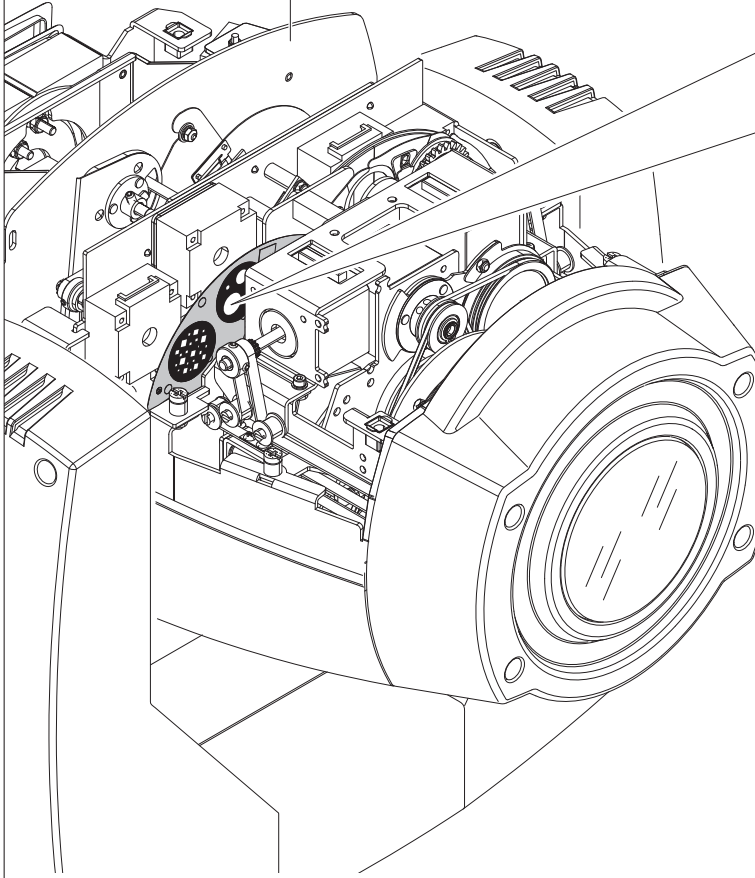
Replacing fixed gobos (ø 31.5 mm – max 23 mm image – thickness max 1.1 mm) - Fig. 15
WARNING: Before using personalised gobos contact Clay Paky.

16

Upper Side
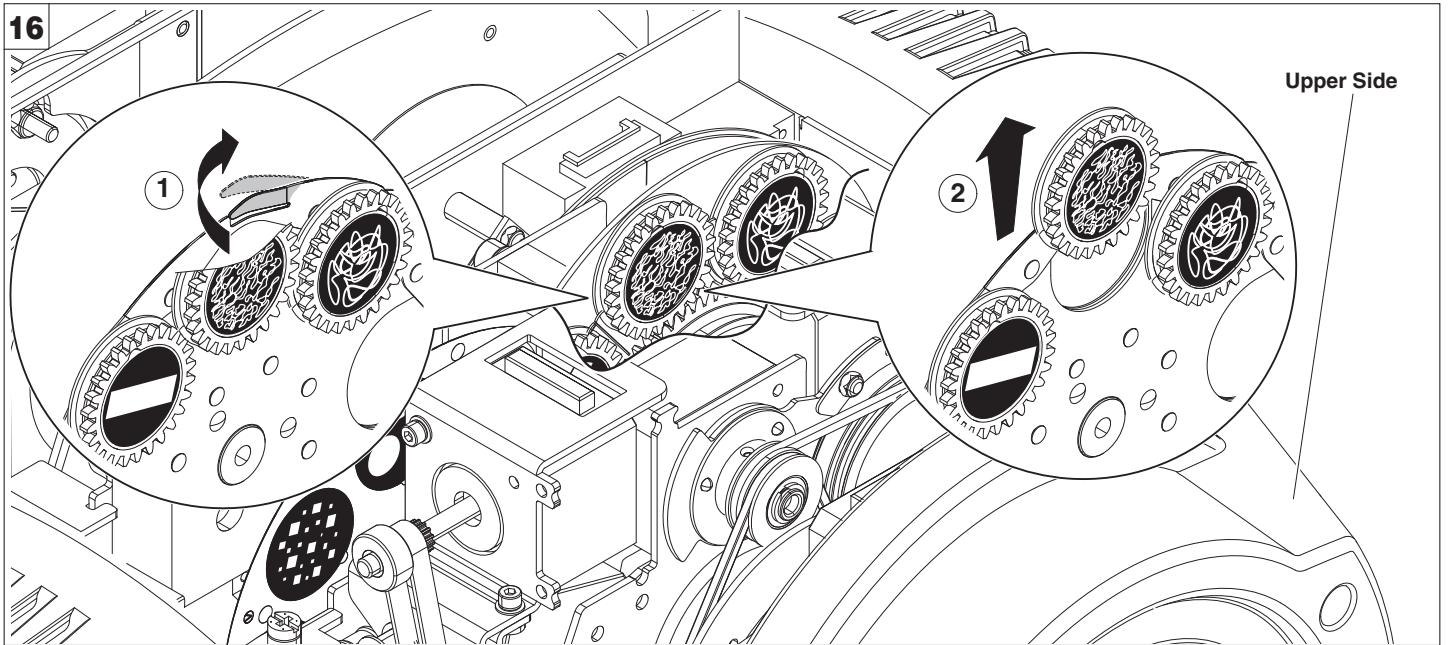
Bearing group replacement - Fig. 16

17

085516/001

085507/001   085531/001
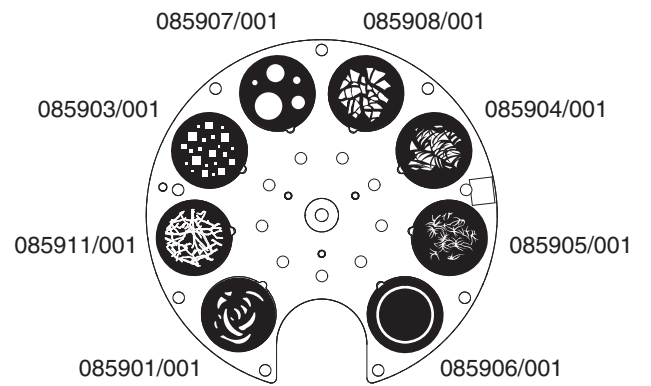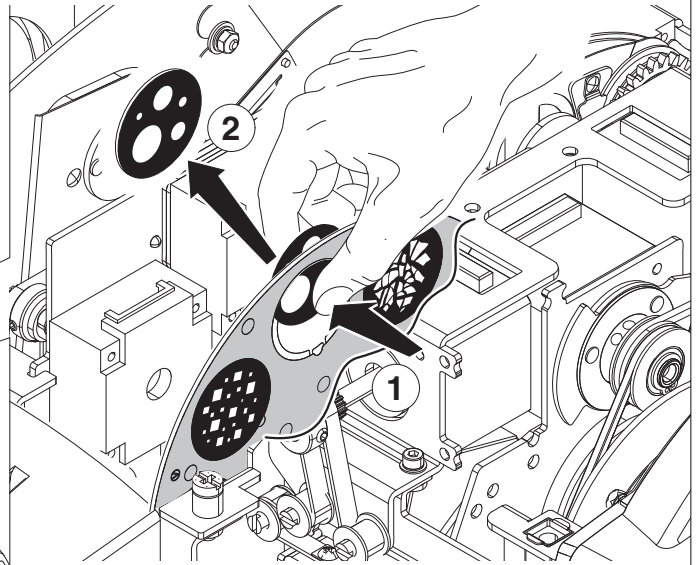
240106/801   085533/001

085529/001   085522/001
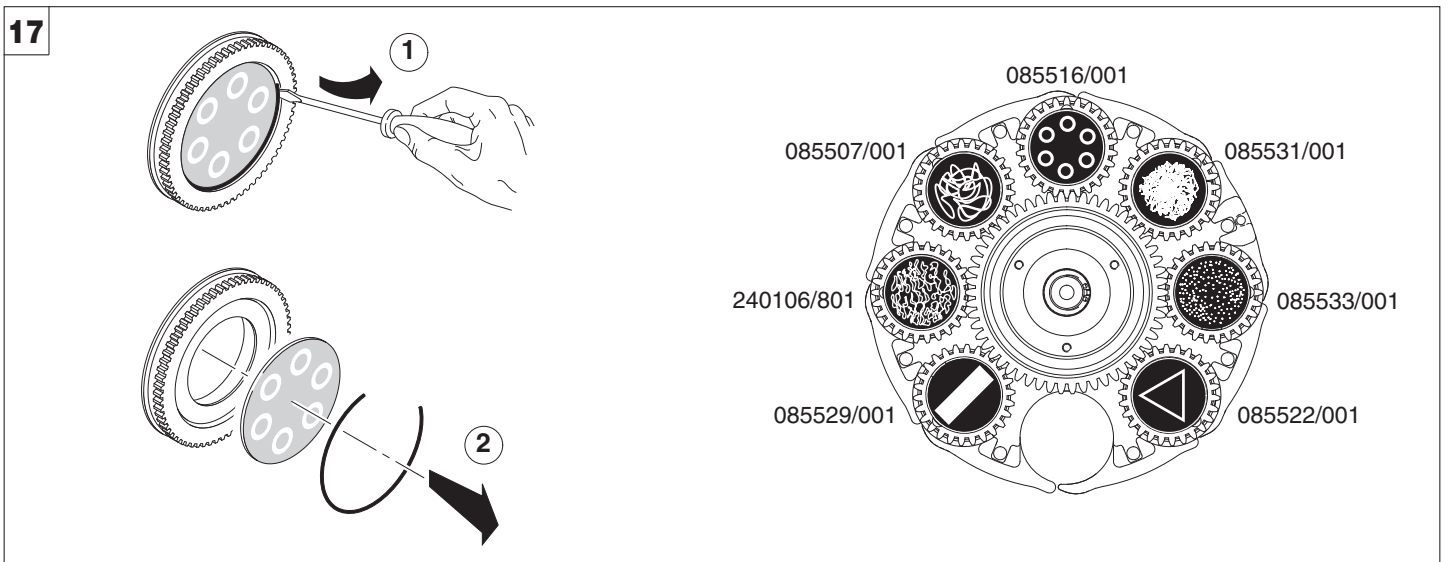
Replacing rotating gobos (ø 25.7 mm - max 23 mm image – thickness max 1.1 mm) - Fig. 17
IMPORTANT: Use only glass gobos on the rotating gobos wheel.
WARNING: Before using personalised gobos contact Clay Paky.

18

COATED GLASS GOBOS TYPE 1

Grey/Black side away from lamp

Reflective side towards lamp

COATED GLASS GOBOS TYPE 2

Coated side towards lamp

Coated side

Uncoated side

Uncoated side

To determine which side of a godo is coated, hold an odject up to it. On the uncoated side, there is a space between the object and its reflection.
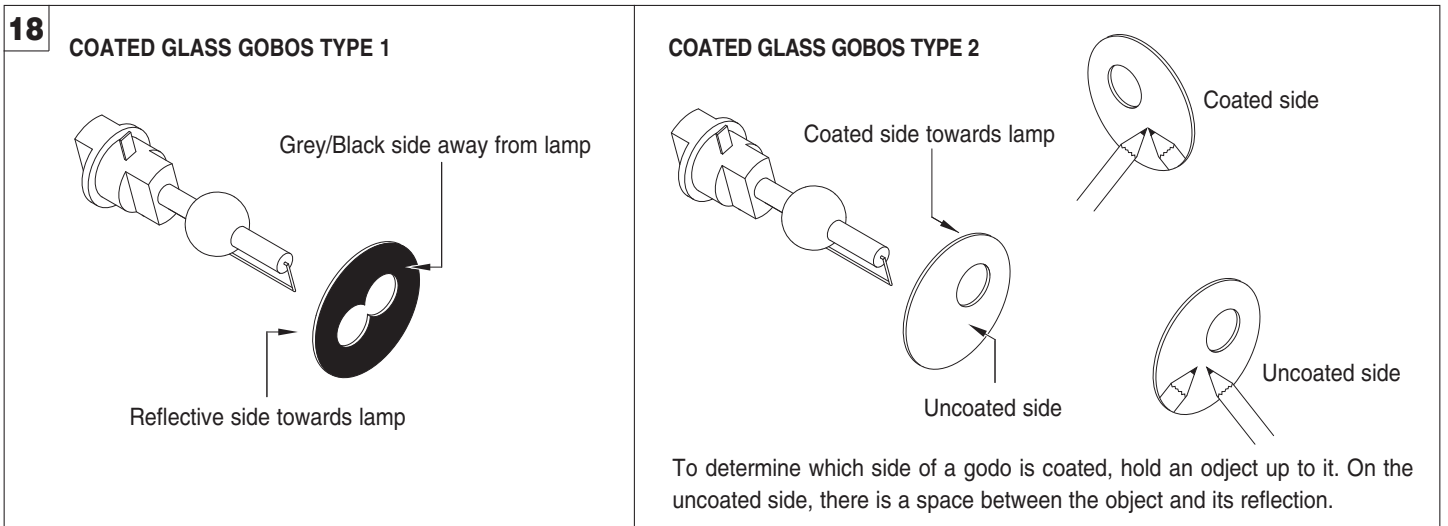
Gobo orientation - Fig. 18
The pictures shown the correct gobos orientation.

19

Upper Side
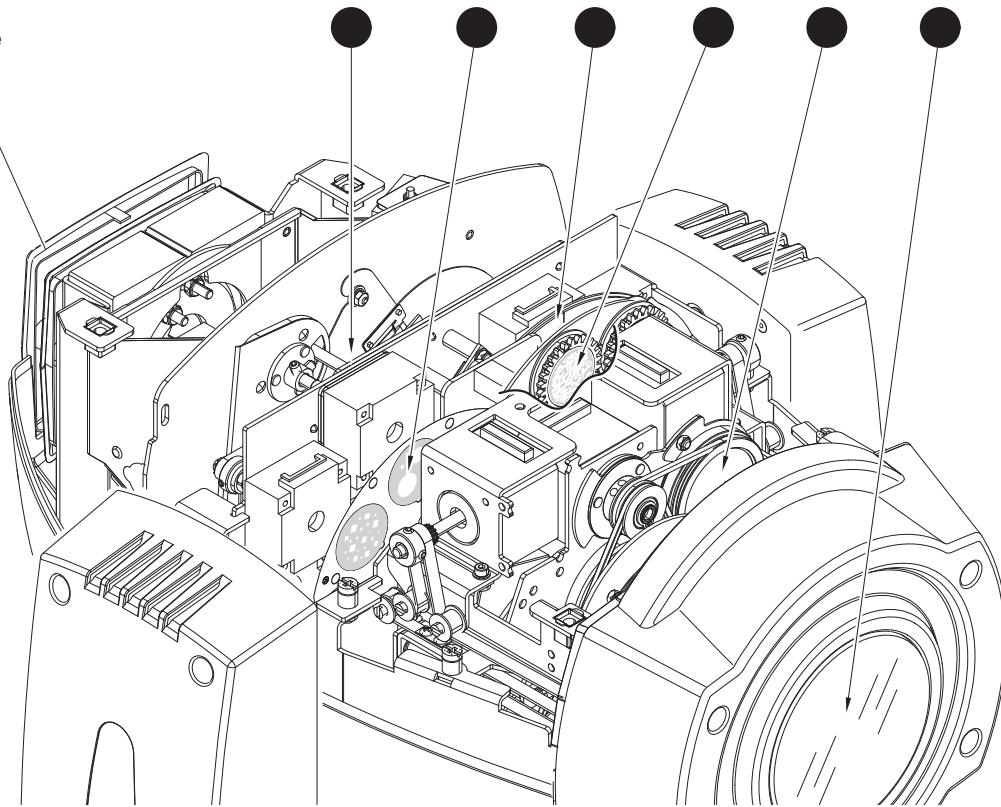
● Parts requiring frequent cleaning.

Periodical cleaning - Fig. 19

To ensure optimal operation and performance for a long time it is essential to periodically clean the parts subject to dust and grease deposits. The frequency with which the following operations are to be carried out depends on various factors, such as the amount of the effects and the quality of the working environment (air humidity, presence of dust, salinity, etc.).

Use a soft cloth dampened with any detergent liquid for cleaning glass to remove the dirt from the reflectors, from the lenses and filters. It is recommended that the projector undergoes an annual service by a qualified technician for special maintenance involving at least the following operations:

• General cleaning of internal parts.
• Restoring lubrication of all parts subject to friction, using lubricants specifically supplied by Clay Paky.
• General visual check of the internal components, cabling, mechanical parts, etc.
• Electrical, photometric and functional checks; eventual repairs.

20

Lower Side

1   fan

2   cut-out

3

4

Lower Side

5

Lower Side

6
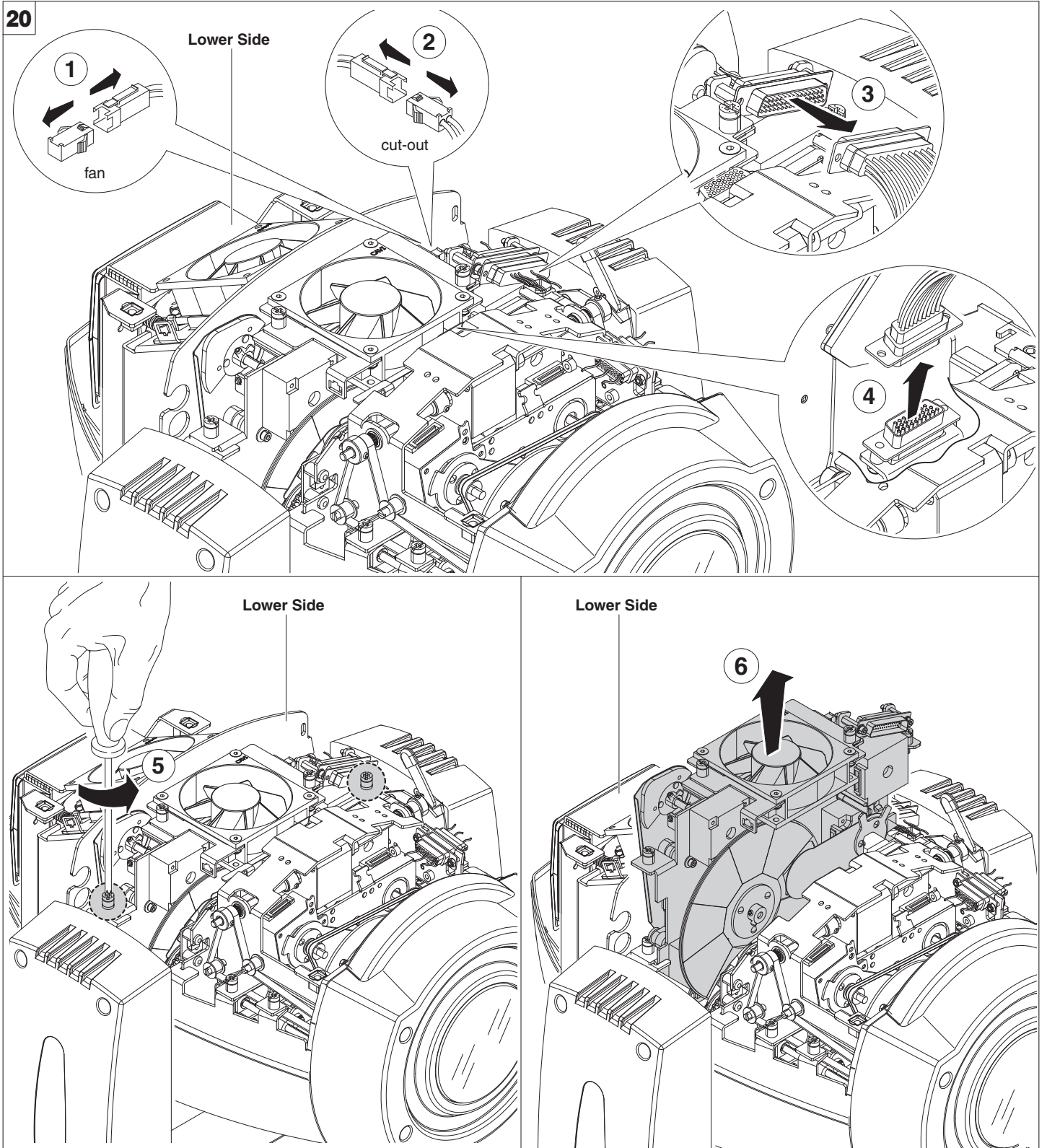
Extraction of the effect modules - Fig. 20

IMPORTANT: Grasp the modules using the support structure and not the details which could get damaged.

Insertion of the effect modules: Repeat the operations indicated in Fig. 20, 21 and 22 in reverse order.

21

Upper Side

7

Upper Side

8

Upper Side

9

Upper Side

10
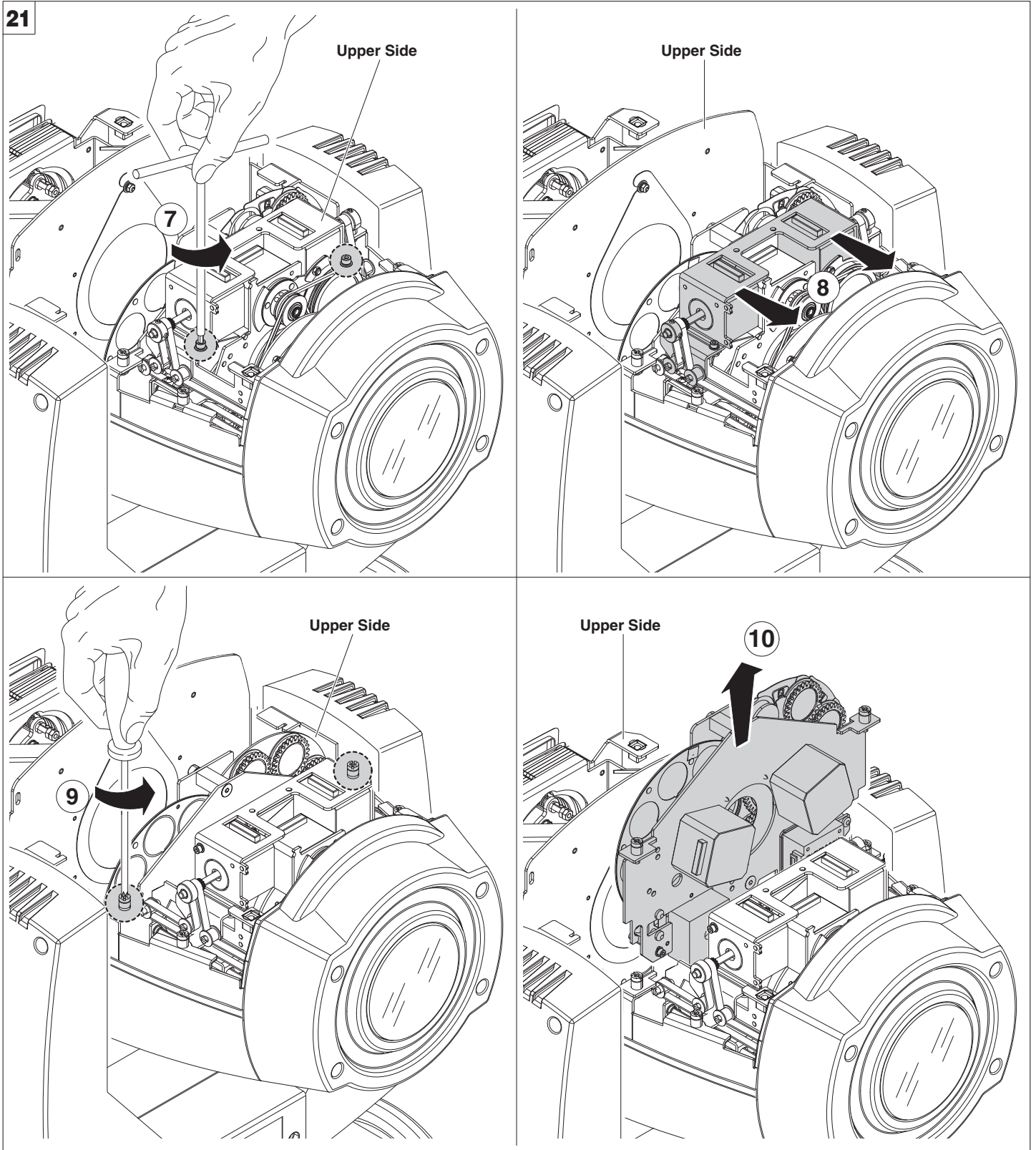
Extraction of the effect modules - Fig. 21
IMPORTANT: Grasp the modules using the support structure and not the details which could get damaged.
Insertion of the effect modules: Repeat the operations indicated in Fig. 20, 21 and 22 in reverse order.

22

Upper Side

Lower Side

Lower Side
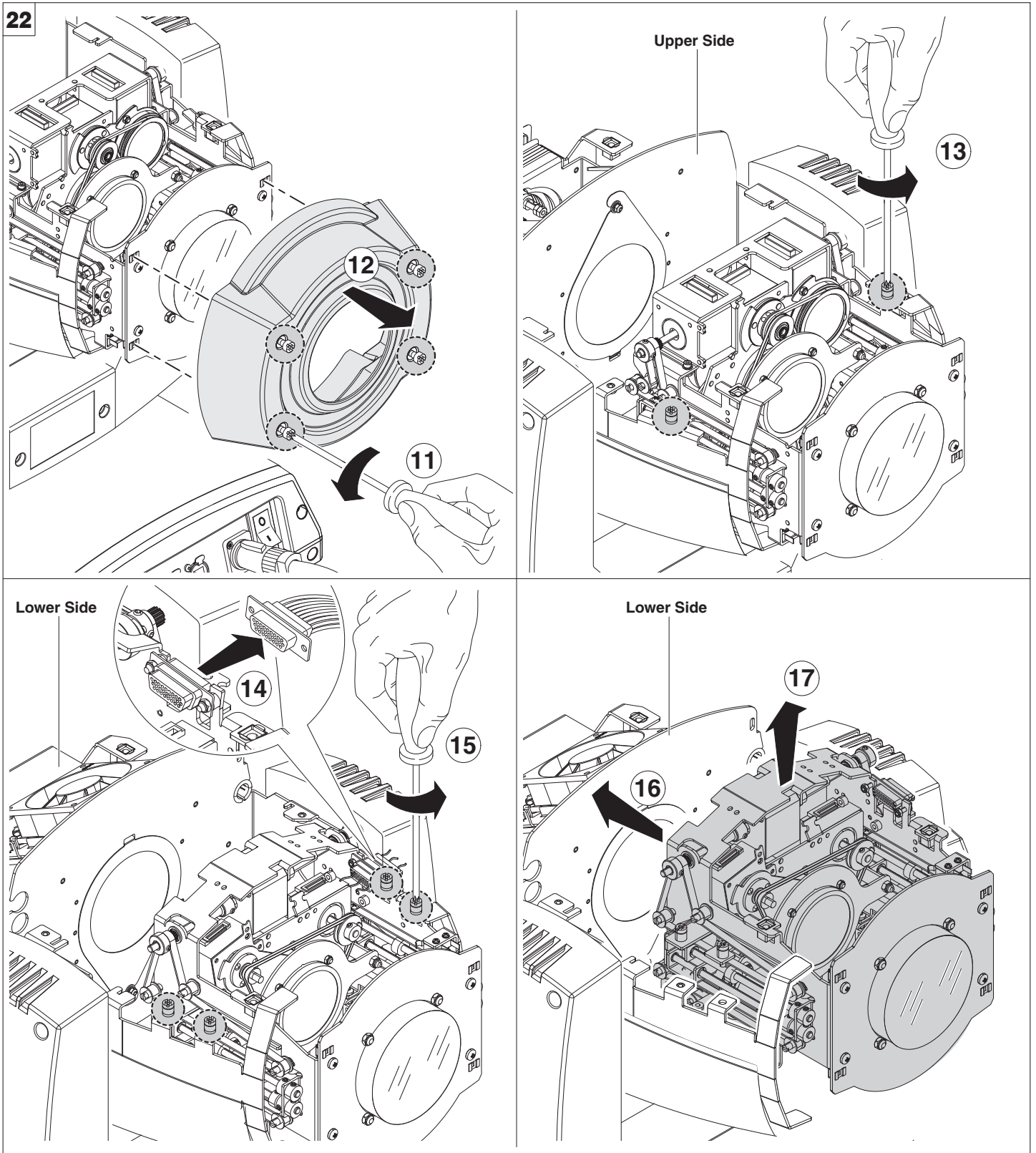
Extraction of the effect modules - Fig. 22

IMPORTANT: Grasp the modules using the support structure and not the details which could get damaged.

Insertion of the effect modules: Repeat the operations indicated in Fig. 20, 21 and 22 in reverse order.

TECHNICAL INFORMATION

Power supplies available
100-120V 50/60Hz
200-240V 50/60Hz

Input power
• 1050VA a 230V 50Hz.

Lamp
Discharge lamp.
• Type MSR Gold 700/2 Mini Fast Fit (L10098)
  - Cap PGJX28
  - Colour temperature 7200 K
  - Luminous flux 50000 lm
  - Average life 750 h
  - Any working position

Motors
20 stepper motors, operating with microsteps, totally microprocessor controlled.

Optical unit
• Elliptic reflector with high luminous efficiency

Channels
Max 29 control channels.

Inputs
• DMX 512

**Movable body**
• Movement by means of two stepper motors, controlled by microprocessor.
• Automatic repositioning of PAN and TILT after accidental movement not controlled by control unit.
• Travel:
  - PAN = 540°
  - TILT = 250°
• Maximum speeds:
  - PAN = 3.77 (normal) / 3.20 (fast)
  - TILT = 2.19 (normal) / 1.89 (fast)
• Resolution:
  - PAN = 2.11°
  - PAN FINE = 0.008°
  - TILT =   0.98°
  - TILT FINE = 0.004°

IP20 protection rating
• Protected against the entry of solid bodies larger than 12mm (0.47").
• No protection against the entry of liquids.

CE Marking
In conformity with the European Union Low Voltage Directive 2006/95/CE and Electromagnetic compatibility Directive 2004/108/CE.

Safety Devices
• Bipolar circuit breaker with thermal protection.
• Automatic break in power supply in case of overheating or failed operation of cooling system.

Cooling
Forced ventilation with axial fans.

Body
• Aluminium structure with die-cast plastic cover.
• Two side handles for transportation.
• Device locking PAN and TILT mechanisms for transportation and maintenance.

Working position
Functioning in any position.

Weight
• about 22.90 Kg (50lbs 6ozs).

470 (18,50")
415 (16,34")
505 (19,88")

220 (8,66")
615 (24,21")
390 (15,35")
385 (15,16")
405 (15,94")
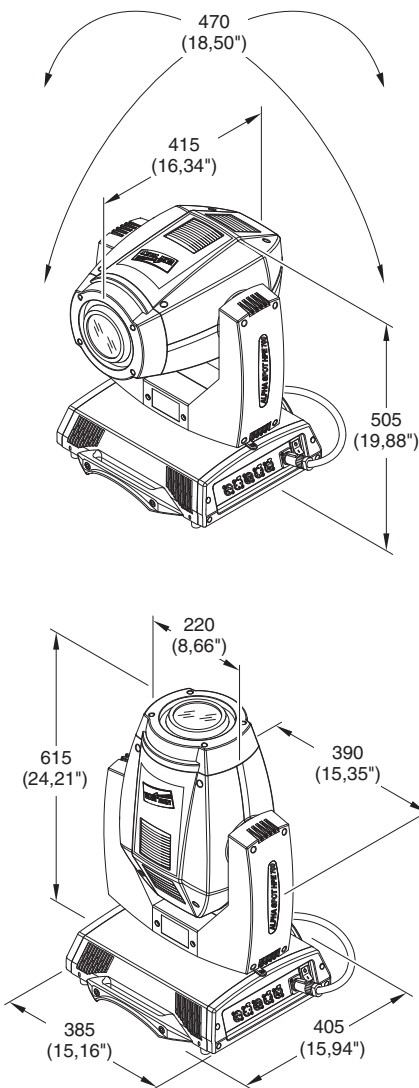
CAUSE AND SOLUTION OF PROBLEMS

				PROBLEMS
THE PROJECTOR WILL NOT SWITCH ON				
	ELECTRONICS NON-OPERATIONAL			
		DEFECTIVE PROJECTION		
			REDUCED LUMINOSITY	
			POSSIBLE CAUSES	**CHECKS AND REMEDIES**
●			No mains supply.	Check the power supply voltage.
●		●	Lamp exhausted or defective.	Replace the lamp. (See instructions).
	●		Signal transmission cable faulty or disconnected.	Replace the cables.
	●		Incorrect addressing.	Check addresses (see instructions).
	●		Fault in the electronic circuits.	Call an authorised technician.
		●	Lenses or reflector broken	Call an authorised technician.
		● ●	Dust or grease deposited.	Clean (see instructions).

ALPHA SPOT HPE 700

CHANNEL	CHANNEL MODE	
	STANDARD	VECTOR
1	CYAN	CYAN
2	MAGENTA	MAGENTA
3	YELLOW	YELLOW
4	UNIFORM FIELD LENS	UNIFORM FIELD LENS
5	COLOUR WHEEL	COLOUR WHEEL
6	STOP / STROBE	STOP / STROBE
7	DIMMER	DIMMER
8	DIMMER FINE	DIMMER FINE
9	IRIS	IRIS
10	STATIC GOBO CHANGE	STATIC GOBO CHANGE
11	ROTATING GOBO CHANGE	ROTATING GOBO CHANGE
12	GOBO ROTATION	GOBO ROTATION
13	GOBO FINE	GOBO FINE
14	PRISM INSERTION	PRISM INSERTION
15	PRISM ROTATION	PRISM ROTATION
16	FROST	FROST
17	FOCUS	FOCUS
18	ZOOM	ZOOM
19	PAN	PAN
20	PAN FINE	PAN FINE
21	TILT	TILT
22	TILT FINE	TILT FINE
23	FUNCTION	FUNCTION
24	RESET	RESET
25	LAMP CONTROL (with Option "Lamp Dmx" ON)	LAMP CONTROL (with Option "Lamp Dmx" ON)
26		PAN - TILT TIME
27		COLOUR TIME
28		BEAM TIME
29		GOBO TIME

NOTE: On conclusion of resetting in case of absence of DMX signal, Pan & Tilt move to the "Home" position (Pan 50% - Tilt 50%) all the others channels stay at 0%.

• COLOUR MIXING - channel 1 - 2 - 3

Operation with option color mixing: RGB
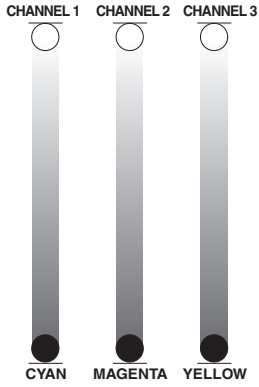
BIT	%	EFFECT
255	100	COLOUR EXCLUDED
0	0.0	COLOUR INSERTED

IMPORTANT: The lamp dim to half power 1 second after all the 3 channels stay at 0% level. The lamp goes back to full power when the channels level is put higher than 0%.

Operation with option color mixing: CMY

BIT	%	EFFECT
255	100	COLOUR INSERTED
0	0.0	COLOUR EXCLUDED

IMPORTANT: The lamp dim to half power 1 second after all the 3 channels stay at 100% level. The lamp goes back to full power when the channels level is put lower than 100%.
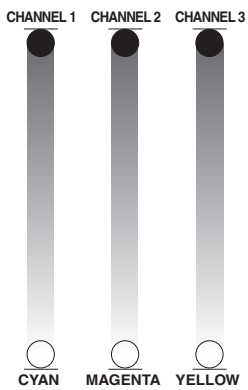
• UNIFORM FIELD LENS - channel 4

BIT	%	EFFECT
255	100	
		LENS INSERTED
128	50.0	
127	49.7	
		LENS EXCLUDED
0	0.0	

• COLOUR WHEEL - channel 5

BIT	%	EFFECT
255	100	FAST ROTATION (160 rpm)
128	50.0	SLOW ROTATION (0.2 rpm)
127	49.7	BLUE + WHITE
120	47.0	BLUE
112	44.0	ORANGE + BLUE
105	41.2	ORANGE
97	38.0	AQUAMARINE + ORANGE
90	35.0	AQUAMARINE
82	32.0	GREEN + AQUAMARINE
75	29.5	GREEN
67	26.2	CTO 3200 + GREEN
60	23.7	CTO 3200
52	20.5	CTO 2500 + CTO 3200
45	17.5	CTO 2500
37	14.2	HALF MINUS GREEN+ CTO 2500
30	11.7	HALF MINUS GREEN
22	8.7	RED + HALF MINUS GREEN
15	6.0	RED
8	3.2	WHITE + RED
0	0.0	WHITE

• STOPPER / STROBE - channel 6

BIT	%	EFFECT
252 - 255	98.7 - 100	OPEN
239 - 251	93.7 - 98.2	RANDOM FAST STROBE
226 - 238	88.7 - 93.2	RANDOM MEDIUM STROBE
213 - 225	83.7 - 88.2	RANDOM SLOW STROBE
208 - 212	81.7 - 83.2	OPEN
207	81.2	FAST PULSATION
108	42.5	SLOW PULSATION
104 - 107	41.0 - 42.0	OPEN
103	40.5	FAST STROBE (12 flash/sec)
4	1.7	SLOW STROBE (1 flash/sec)
0 - 3	0.0 - 1.2	CLOSED

• DIMMER - channel 7

BIT	%	EFFECT
255	100	
0	0.0	

The lamp is linearly dimmed from full power to half power electronicaly and mechanically from half power to off.

• DIMMER FINE - channel 8

BIT	%	EFFECT
255	100	
0	0.0	

• IRIS - channel 9

BIT	%	EFFECT
252 - 255	98.7 - 100	MAXIMUM APERTURE
251	98.2	FAST PULSATION, FAST CLOSING
212	83.2	SLOW PULSATION, FAST CLOSING
211	83	FAST PULSATION, FAST OPENING
172	67.5	SLOW PULSATION, FAST OPENING
171	67	FAST PULSATION
132	51.7	SLOW PULSATION
128 - 131	50.0 - 51.2	MAXIMUM APERTURE
0	0.0	MINIMUM APERTURE

• STATIC GOBO CHANGE - channel 10

BIT	%	EFFECT
255	100	GOBO 7 SHAKE, FAST SPEED
240	94.0	GOBO 7 SHAKE, SLOW SPEED
239	93.7	GOBO 6 SHAKE, FAST SPEED
224	88.0	GOBO 6 SHAKE, SLOW SPEED
223	87.5	GOBO 5 SHAKE, FAST SPEED
208	81.7	GOBO 5 SHAKE, SLOW SPEED
207	81.2	GOBO 4 SHAKE, FAST SPEED
192	75.0	GOBO 4 SHAKE, SLOW SPEED
191	74.7	GOBO 3 SHAKE, FAST SPEED
176	69.0	GOBO 3 SHAKE, SLOW SPEED
175	68.7	GOBO 2 SHAKE, FAST SPEED
160	63.0	GOBO 2 SHAKE, SLOW SPEED
159	62.5	FAST ROTATION (100 rpm)
118	46.2	SLOW ROTATION (5 rpm)
114 - 117	44.7 - 46.0	STOP
113	44.2	SLOW ROTATION (5 rpm)
72	28.2	FAST ROTATION (100 rpm)
64 - 71	25.0 - 28.0	GOBO 8
56 - 63	22.0 - 24.7	GOBO 7
48 - 55	18.7 - 21.7	GOBO 6
40 - 47	15.5 - 18.2	GOBO 5
32 - 39	12.5 - 15.0	GOBO 4
24 - 31	9.5 - 12.0	GOBO 3
16 - 23	6.2 - 9.0	GOBO 2
8 - 15	3.2 - 6.0	GOBO 1
0 - 7	0 - 3.0	WHITE

• ROTATING GOBO CHANGE - channel 11

BIT	%	EFFECT
255	100	GOBO 7 SHAKE, FAST SPEED
238	93.2	GOBO 7 SHAKE, SLOW SPEED
237	93.0	GOBO 6 SHAKE, FAST SPEED
220	86.2	GOBO 6 SHAKE, SLOW SPEED
219	86.0	GOBO 5 SHAKE, FAST SPEED
202	79.0	GOBO 5 SHAKE, SLOW SPEED
201	78.7	GOBO 4 SHAKE, FAST SPEED
184	72.0	GOBO 4 SHAKE, SLOW SPEED
183	71.7	GOBO 3 SHAKE, FAST SPEED
166	65.0	GOBO 3 SHAKE, SLOW SPEED
165	64.7	GOBO 2 SHAKE, FAST SPEED
148	58.0	GOBO 2 SHAKE, SLOW SPEED
147	57.5	GOBO 1 SHAKE, FAST SPEED
130	51.0	GOBO 1 SHAKE, SLOW SPEED
114-129	44.7-50.5	GOBO 7
98-113	38.2-44.2	GOBO 6
82-97	32.0-38.0	GOBO 5
65-81	25.5-31.7	GOBO 4
49-64	19.0-25.0	GOBO 3
33-48	13.0-18.7	GOBO 2
17-32	6-7-12.5	GOBO 1
0-16	0.0-6.2	WHITE

• GOBO ROTATION - channel 12

BIT	%	EFFECT
255	100	FAST ROTATION (180 rpm)
193	75.5	SLOW ROTATION (2,2 rph)
191 - 192	74.7 - 75.0	STOP
190	74.2	SLOW ROTATION (2,2 rph)
128	50.0	FAST ROTATION (180 rpm)
127	49.7	540° POSITION
105	41.7	450° POSITION
84	33.0	360° POSITION
63	24.7	270° POSITION
42	16.2	180° POSITION
21	8.2	90° POSITION
0	0.0	0° POSITION

• GOBO FINE - channel 13

BIT	%
255	100
127	50.0
0	0.0

• PRISM INSERTION - channel 14

BIT	%	EFFECT
255	100	
		PRISM INSERTED
128	50.0	
127	49.7	
		PRISM EXCLUDED
0	0.0	

• PRISM ROTATION - channel 15

BIT	%	EFFECT
255	100	FAST ROTATION (120 rpm)
193	75.5	SLOW ROTATION (3 rph)
191 - 192	74.7 - 75.0	STOP
190	74.2	SLOW ROTATION (3 rph)
128	50.0	FAST ROTATION (120 rpm)
127	49.7	POSITION 540°
105	41.7	POSITION 450°
84	33.0	POSITION 360°
63	24.7	POSITION 270°
42	16.2	POSITION 180°
21	8.2	POSITION 90°
0	0.0	POSITION 0°

• FROST - channel 16

BIT	%	EFFECT
255	100	
		FROST INSERTED
128	50.0	
127	49.7	
		FROST EXCLUDED
0	0.0	

• FOCUS - channel 17

BIT	%	EFFECT
255	100	NEAR
0	0.0	DISTANT

• ZOOM - channel 18

BIT	%	EFFECT
255	100	NARROW BEAM
0	0.0	WIDE BEAM

• PAN - channel 19

Operation with option InvertPan ↕ Off
(Tilt conventionally represented at 14% and option Invert Tilt ↕ Off)

BIT	%
255	100
0	0.0
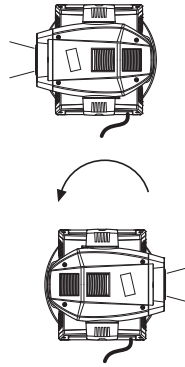
Operation with option InvertPan ↕ On
(Tilt conventionally represented at 14% and option Invert Tilt ↕ Off)
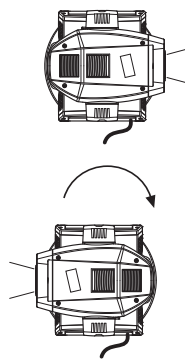
BIT	%
255	100
0	0.0

• PAN FINE - channel 20

Operation with option InvertPan ↕ Off
(Tilt conventionally represented at 14% and option Invert Tilt ↕ Off)

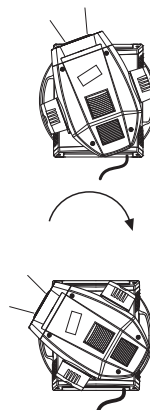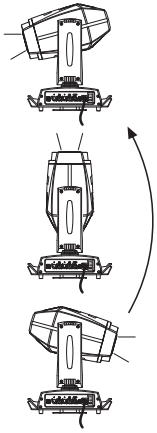| BIT	%
255	100
0	0.0
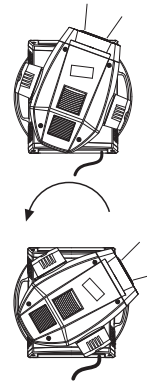
Operation with option InvertPan ↕ On
(Tilt conventionally represented at 14% and option Invert Tilt ↕ Off)

BIT	%
255	100
0	0.0

• TILT - channel 21

Operation with option Invert Tilt ↕ Off
(Pan conventionally represented at 0% and option Invert Pan ↕ Off)

BIT	%
255	100
128	50.0
0	0.0

Operation with option Invert Tilt ↕ On
(Pan conventionally represented at 0% and option Invert Pan ↕ Off)

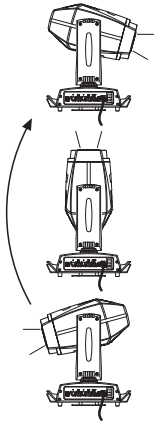| BIT	%
255	100
128	50.0
0	0.0

• TILT FINE - channel 22

Operation with option Invert Tilt ↕ Off
(Pan conventionally represented at 0% and option Invert Pan ↕ Off)

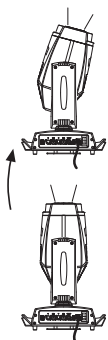| BIT	%
255	100
0	0.0
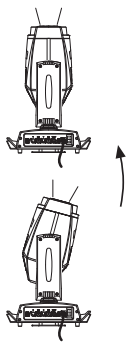
Operation with option Invert Tilt ↕ On
(Pan conventionally represented at 0% and option Invert Pan ↕ Off)

BIT	%
255	100
0	0.0

• FUNCTION - channel: 23

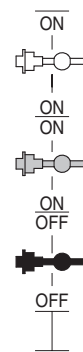| BIT	%	EFFECT	
255	100		
		UNUSED RANGE	
52	20.5		
51	20.0	LINEAR (DEFAULT)	DIMMER CURVE FUNCTION
39	15.0	CONVENTIONAL	
26	10.0	NORMAL SPEED	PAN-TILT FUNCTION
13	5.0	FAST SPEED (DEFAULT)	
0-12	0.0-4.7	UNUSED RANGE	

The functions are actived passing through the unused range and staying 5 seconds in necessary level

• RESET - channel: 24

BIT	%	EFFECT
243 – 255	95.0 – 100	COMPLETE RESET
		Complete reset is activated passing throug the unused range and staying 5 seconds in complete reset levels.
240 – 242	94.0 – 94.7	Rotating Gobo OFFSET 13
237 – 239	93.0 – 93.7	Rotating Gobo OFFSET 12
234 – 236	91.7 – 92.5	Rotating Gobo OFFSET 11
231 – 233	90.5 – 91.2	Rotating Gobo OFFSET 10
228 – 230	89.5 – 90.0	Rotating Gobo OFFSET 9
225 – 227	88.2 – 89.0	Rotating Gobo OFFSET 8
222 – 224	87.0 – 88.0	Rotating Gobo OFFSET 7
219 – 221	86.0 – 86.7	Rotating Gobo OFFSET 6
216 – 218	84.7 – 85.5	Rotating Gobo OFFSET 5
213 – 215	83.7 – 84.2	Rotating Gobo OFFSET 4
210 – 212	82.5 – 83.2	Rotating Gobo OFFSET 3
207 – 209	81.2 – 82.0	Rotating Gobo OFFSET 2
204 – 206	80.0 – 81.0	Rotating Gobo OFFSET 1
128 – 203	50 – 79.5	COMPLETE RESET
		Complete reset is activated passing throug the unused range and staying 5 seconds in complete reset levels.
77 – 127	30 – 49.7	PAN/TILT RESET
		Pan/Tilt reset is activated passing throug the unused range and staying 5 seconds in Pan/Tilt reset levels.
26 – 76	10 – 29.7	EFFECTS RESET
		Effects reset is activated passing throug the unused range and staying 5 seconds in Effects reset levels.
0 – 25	0.0 – 9.7	Unused range

• LAMP CONTROL (only with option LAMP DMX On) - channel: 25

IMPORTANT: Alpha Spot HPE 700 is not provided with hot restrike igniter

BIT	%	EFFECT
255	100	LAMP ON (FULL POWER)
		Lamp ignition after 5 s in full power levels.
		Immediate transition from half to full power.
180	70.5	LAMP ON (FULL POWER)
179	70.0	LAMP ON (HALF POWER)
		Immediate transition from full to half power.
		Lamp ignition not allowed in half power.
101	39.5	LAMP ON (HALF POWER)
100	39.0	LAMP OFF
		Lamp switch off passing throug the unused range and staying 5 s in Lamp OFF levels.
26	10.0	LAMP OFF
25	9.7	UNUSED RANGE
0	0.0	

TIMING CHANNELS

	Timing Channel	Channel function
26	Pan - Tilt time	Pan - Tilt - (Pan fine - Tilt fine)
27	Colour time	CMY - Colour wheel
28	Beam time	Dimmer - Frost - Iris - Focus - Zoom - Prism
29	Gobo time	Static Gobo - Rotating Gobo Change

TIME TABLE

BIT	Seconds	BIT	Seconds	BIT	Seconds	BIT	Seconds	BIT	Seconds	BIT	Seconds
0	Full	43	8.6	86	24	129	41	172	58	216	170
1	0.2	44	8.8	87	24	130	41	173	58	217	170
2	0.4	45	9	88	25	131	41	174	58	218	180
3	0.6	46	9.2	89	25	132	42	175	59	219	180
4	0.8	47	9.4	90	25	133	42	176	59	220	180
5	1	48	9.6	91	26	134	43	177	60	221	190
6	1.2	49	9.8	92	26	135	43	178	60	222	190
7	1.4	50	10	93	26	136	43	179	60	223	190
8	1.6	51	10.2	94	27	137	44	180	65	224	200
9	1.8	52	10.4	95	27	138	44	181	65	225	200
10	2	53	10.6	96	28	139	45	182	65	226	210
11	2.2	54	11	97	28	140	45	183	70	227	210
12	2.4	55	11	98	28	141	45	184	70	228	210
13	2.6	56	12	99	29	142	46	185	75	229	220
14	2.8	57	12	100	29	143	46	186	75	230	220
15	3	58	13	101	30	144	47	187	75	231	230
16	3.2	59	13	102	30	145	47	188	80	232	230
17	3.4	60	14	103	30	146	47	189	80	233	230
18	3.6	61	14	104	31	147	48	190	85	234	240
19	3.8	62	14	105	31	148	48	191	85	235	240
20	4	63	15	106	32	149	49	192	85	236	250
21	4.2	64	15	107	32	150	49	193	90	237	250
22	4.4	65	16	108	32	151	49	194	90	238	250
23	4.6	66	16	109	33	152	50	195	95	239	260
24	4.8	67	16	110	33	153	50	196	95	240	260
25	5	68	17	111	34	154	50	197	95	241	270
26	5.2	69	17	112	34	155	51	198	100	242	270
27	5.4	70	18	113	34	156	51	199	100	243	270
28	5.6	71	18	114	35	157	52	200	110	244	280
29	5.8	72	18	115	35	158	52	201	110	245	280
30	6	73	19	116	36	159	53	202	110	246	290
31	6.2	74	19	117	36	160	53	203	120	247	290
32	6.4	75	20	118	36	161	53	204	120	248	290
33	6.6	76	20	119	37	162	54	205	120	249	300
34	6.8	77	20	120	37	163	54	206	130	250	300
35	7	78	21	121	38	164	55	207	130	251	310
36	7.2	79	21	122	38	165	55	208	140	252	310
37	7.4	80	21	123	38	166	55	209	140	253	310
38	7.6	81	22	124	39	167	56	210	140	254	
39	7.8	82	22	125	39	168	56	211	150	255	Follow cue Data
40	8	83	23	126	39	169	56	212	150		
41	8.2	84	23	127	40	170	57	213	150		
42	8.4	85	23	128	40	171	57	214	160		
								215	160		