coemar nat
mm 1200 ZOOM 15/30°

484mm
19"

1235 mm
48,62"

875 mm
34,45"

474 mm
18,66"

307 mm
12,09"

305 mm
12"

370 mm
14,56"

300 mm
11,81"

275 mm
10,82"

220 mm
8,66"

serial number

date of purchase

retailer

address

suburb

capital city

state

tel./fax/

Please note in the space provided above the relative service information of the model and the retailer from whom you purchased your **coemar nat mm 1200 ZOOM 15/30°***: This information will assist us in providing spare parts, repairs or in answering any technical enquiries with the utmost speed and accuracy.*

WARNING*: the security of the fixture is granted only if these instructions are strictly followed; therefore it is absolutely necessary to keep this manual.*

Index

Congratulations on having purchased a new **coemar** product; you have assured yourself of a fixture of the highest quality, both in the components used and in the technology. We renew our request to you to complete the service information on the preceding page, to expedite any request for information, or for service (in case of problems encountered either during, or subsequent to, installation). This information will assist in prompt and accurate advice from your authorised **coemar** service centre.

1. Technical characteristics coemar nat mm 1200 ZOOM 15/30° is a lighting fixture suitable for use in television studios, concerts, theatres, and discos. Its principal characteristics are:

projector body
- body in cast and extruded aluminium with parts in sheet steel
- colour black and grey, with scratch-resistant epoxy powder paint
- aluminium yoke, adjustable to +/- 45° on the axis of the projector, and repositionable longitudinally
- removable door located on top for full internal inspection and lamp replacement
- focus and zoom lenses mounted on bearing guides
- operates in any position
- high-efficiency forced ventilation
- separate ballast housing
- weight 51,5 Kg (**coemar nat mm 1200 ZOOM 15/30°**) 18,2 kg (**coemar nat mm 1200 ZOOM 15/30°** ballast 230v)
- SFc 15,5 lampholder
- IP20 protection

optics
- high definition zoom optics allowing the beam angle to be varied between 15° and 30°
- unique precision optical system maximises lamp output
- optical condensor guarantees maximum light quality and uniform distribution across the luminous spectrum
- working distance: 4~30 mt

movement
- deflection of the light beam: 170° in the x-axis and 60° in the y axis
- maximum mirror movement speed: 0,43 sec/170°
- minimum mirror movement speed: 107 sec/170°
- precise positioning and movement of the light beam via 6 bit insertion with respect to the standard 8 and 16 bit
- precision mechanics for the mirror movement: geared reduction of mirror mass by a factor of 8 consequently removing mirror vibration and increasing mirror speed.

gobos
- 10 interchangeable gobos rotatable at variable speed in both directions, indexable, and able to be superimposed (36 combinations) contra-rolling effect possible
- 2 gobos in multi-coloured dichroic glass
- 6 gobos in laser-etched glass
- a variety of standard gobos available on request
- gobos can be positioned in the centre of the optical system or proportionally insertable through 360°

dimmer
- totally smooth inbuilt mechanical dimmer for complete intensity control from 0 to 100% with no optical degradation

prisms
- 3 rotatable multiplying prisms; the prisms are rotatable at variable speed and are useable with all of the fixture's other effects; rotating the prisms at high speed, combined with a rotating gobo can create a 3-dimensional effect

frost and conversion filter
- an optional 6000°K to 3200°K conversion filter, installed upon request or easily installable at any time

strobe/chaser/black-out
- variable speed strobe effect
- black-out
- chase effect at variable speed

iris
- slick motorised iris diaphragm with in-built variable speed pulse facility

colour

- limitless colour mixing via full cyan, magenta, and yellow dichroic filters
- multicolour effect, rotatable at variable speed in both directions
- separate 9 colour wheel for creation of unique seamless bi, tri, and quad colour beams with ability for variable speed rotocolour effect
- all colour effects can be used simultaneously

frost

- frost filter

focus

- remote motorised focusing

electronic devices

- indicator for DMX signal reception and data characteristics
- addressing via multifunction LCD panel
- self-test incorporated
- lamp on/off selectable via DMX signal or can be disabled
- 17 microprocessor controlled stepper motors
- digital alignment of all stepper motors
- internal resetting
- electronic timers for both lamp life display and fixture usage
- 4 button LCD control panel at rear for function selection
- all electronics and power supply cards are modular and of plug-in design
- complies to all $C\boldsymbol{\mathcal{E}}$ standards
- separate ballast housing for easy and remote rigging
- two cannon 3 and 5 pin male and female sockets for control via standard DMX 512
- 18 channels for complete control of all functions
- automatic reset via optical sensors with electronic digital alignment

2. Packaging

Following the instructions contained in this manual will ensure the maximum efficiency of this product for years to come.
Open the packing and ensure that no part of the equipment has suffered damage in transit. In the case of damage to the equipment, contact the carrier immediately by telephone or fax, following this with formal notification in writing.

packing list
Ensure that the packaging contains the correct model ordered with all associated accessories.

1st parcel:
1 **coemar nat mm 1200 ZOOM 15/30°**
1 **vial of lubricating oil**
2nd parcel:
1 **ballast** for the **coemar nat 1200 W**
3rd parcel:
1 **mirror head** for **coemar nat mm 1200 ZOOM 15/30°**
4th parcel:
1 **mirror** for **coemar nat mm 1200 ZOOM 15/30°**.

3. Lamp: Installation and replacement

coemar nat mm 1200 ZOOM 15/30 utilises an Osram HMI 1200w/GS lamp with an SFc 15,5 lamp base.

This lamp is available through your authorised **coemar** sales agent:

coemar cod.	**105099**
power	1200 w
luminous flux	110.000 lm
colour temperature	6000° K
base	SFc 15,5
approximate life	750 hours

Attention
Disconnect mains prior to opening inspection lid

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The fixtures internal temperature can reach 150° C after 5 minutes, with a maximum peak of 350° C; ensure that the bulb is cold before attempting removal. The fixture should be allowed to stand and cool for 10 minutes prior to the removal of the inspection lid.
HMI lamps are part of the mercury vapour family of discharge lamps and must be handled with great care. The lamp operates at high pressure, and the slight risk of explosion of the lamp exists if operated over its recommended life of 750 hours.
We recommend, therefore, that the lamp be replaced within the manufacturer's specified lamp life.

Lamp installation
1) Loosen completely the screw (A) at the rear of the unit using a screwdriver.
2) Slide back the inspection lid (B) and remove it from its guides
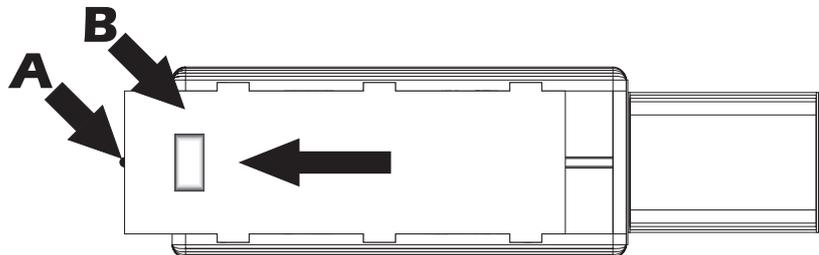
3) Locate the safety clip (E) which can be used to attach the lid to any appropriate component which can support its weight, for example the yoke of the projector (F).
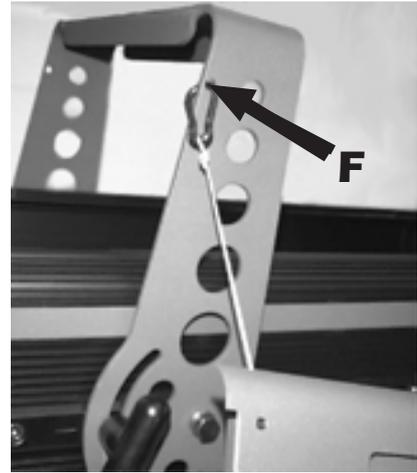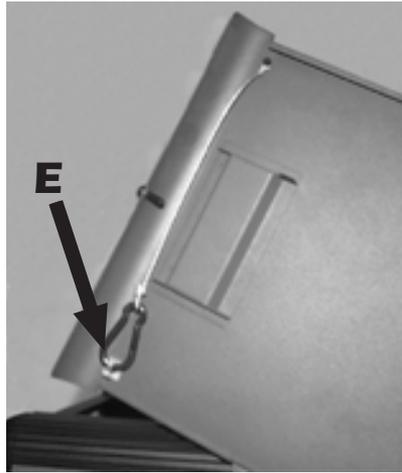
4) Locate the SFc 15,5 lampbase (C).
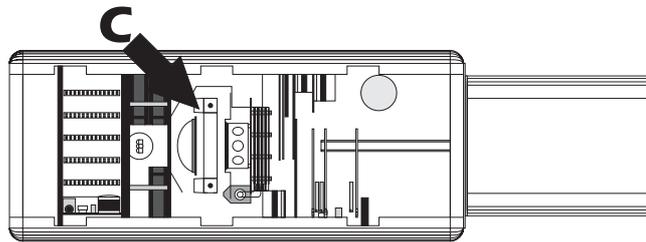
4) The SFc 15,5 lampbase is symmetrical; the lamp is quartz glass and must be handled with care; follow the instructions included in the lamp's packaging. Do not touch the glass directly, use the tissue provided in the box.
Loosen the two nuts located on the lamp (D).
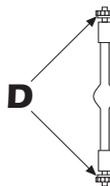
Insert the lamp into the lampholder (C). If you encounter difficulty during this operation, DO NO USE UNDUE FORCE. Re-read the instructions and repeat the procedure.
To ensure a uniform beam spread, rotate the lamp in its lampholder so that the protruding pinch of glass in the centre of the lamp is pointing downwards within the fixture.
Press the ends of the lamp down into the lampbase. If this procedure is not followed correctly, the beam spread may not be uniform.

5) Tighten the two nuts located on the lamp (D).
6) Replace the inspection lid (B) into its guides sliding it firmly forwards to ensure it is correctly seated.
Replace and tighten the screws (A).
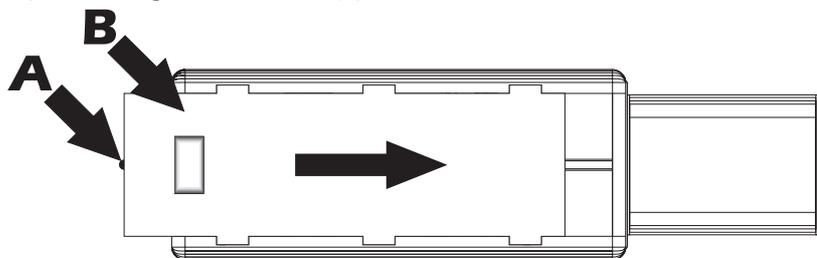
4. Voltage and frequency selection

coemar factory presets are 230v at 50 Hz (unless otherwise specified).
The voltage and frequency selections are noted on the external sticker of the ballast.

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factory set main at:
☐ 100V   ☐ 208V   ☒ 50Hz
☐ 110V   ☒ 230V   ☐ 60Hz
☐ 115V   ☐ 240V
```
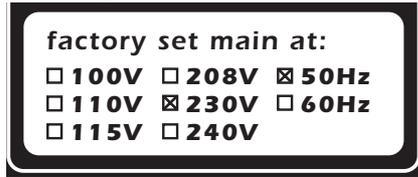
If the voltage and frequency are not suited to your country of operation, read and follow the instructions set down in sections 4.1 and 4.2.
An incorrect selection of either the operating voltage or the frequency will seriously compromise the correct operation of the unit.

4.1 Selecting the operating frequency on the ballast

coemar nat mm 1200 ZOOM 15/30° can operate at either 50 or 60 Hz which must be selected on the ballast
1) Locate the frequency selector cover plate on the ballast (A).
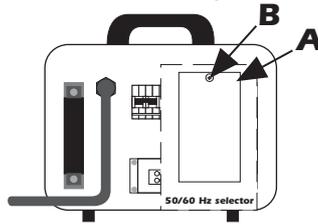
2) Remove the screws which fix the plate (B). and locate the 50/60 Hz frequency selector (C).
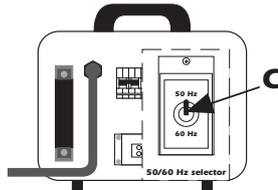

3) Set the selector (C) to either 50 or 60Hz as required.
4) Reposition the cover plate (A) and retighten the screws (B).

### 4.2 Selecting the operating voltage and frequency on the ballast to other than that specified when ordering

If the factory preset voltage set by **coemar** is other than that requied, you may alter the setting to between 208 and 240 V.
1) Remove the 4 screws (A) located at the rear right of the ballast (those closest to the frequency selector).
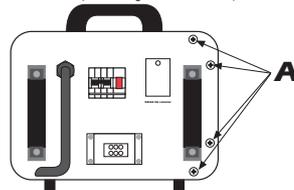
2) Remove the 4 corresponding screws (B) at the opposite end of the ballast
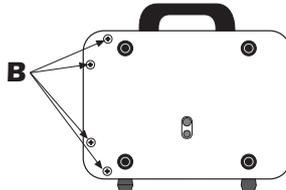
3) Remove the extruded housing (C).
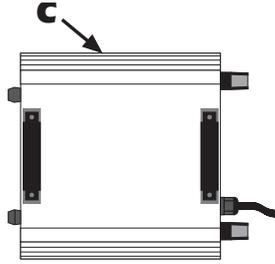
4) Locate the multipole terminal block labelled 208v/50Hz, 208v/60Hz, 230v/50Hz, 230v/60Hz, 240v/50Hz, 240v/60Hz.
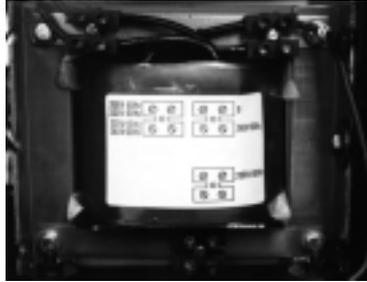
Under no circumstances should you remove or move the cable connected to earth, numbered 0.

5) Connect the cable numbered 16 to the required voltage 208, 230, 240 and the frequency 50Hz and the cable numbered 15 to the same voltage value as for cable 16, but with a frequency of 60 Hz. In this manner, you have selected a new operating voltage (for further information, refer to electrical schematic number 132/1).

6) After having selected the required operating voltage and frequency, replace the extrusion (C), replacing and tightening the 8 screws (A) and (B).

note:
The projector and ballast may be constructed to operate at any voltage other than those specified above. Simply specify your requirements upon ordering.

5. Mounting the unit

mounting position
coemar nat mm 1200 ZOOM 15/30° can operate in any mounting position.

protection against liquids
The projector contains electric and electronic components that must not come into contact with water, oil, or any other liquid.

positioning the lamp
Ensure that the **coemar nat mm 1200 ZOOM 15/30°** is always operated with the lampbase at the bottom of the unit. Failure to do so will result in excessive overheating of the lamp and the unit, and can result in a dramatic reduction of lamp life.

vertical movement
The yoke attached to the **coemar nat mm 1200 ZOOM 15/30°** is tightened into position via the T-handles provided. To adjust the position of the fixture, loosen the handles slightly and locate the fixture at the required angle. When this is achieved, retighten the handles firmly.
A stop mechanism allows vertical movement in the range of +/- 45°.
coemar nat mm 1200 ZOOM 15/30° should always be mounted in the horizontal plane.

adjusting the position of the mounting brackets on the projector body
coemar positions the mounting brackets on the projector to ensure correct balance. For particular applications, it is possible to reposition the mounting bracket laterally along the length of the projector
Loosen the M8 bolts (A) and the M10 screws (B), which fix the mounting plate (C), to the projector body, loosening, if necessary, the four M6 screws (D) which fix the carry handles.
Reposition the mounting plate (E), in the desired position, then replace and tighten the bolts and screws, (B), (A) and (D).securely.
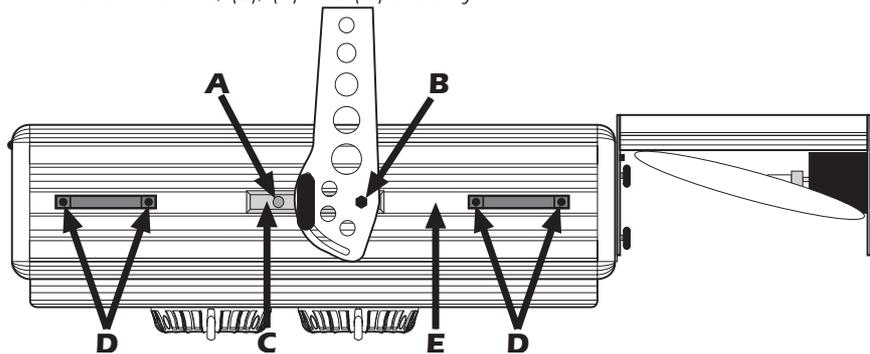
mounting
The yoke is provided with three unthreaded ø 13,5mm holes as the mounting points for hookclamps (cod.071) or suchlike.
Ensure that your hookclamps are sufficiently strong to support the weight of the **coemar nat mm 1200 ZOOM 15/30°**.

safety chain
The use of a safety chain (cod. 069) - fixed to the **coemar nat mm 1200 ZOOM 15/30°** and to the primary suspension point, is highly recommended to protect against accidental failure, however unlikely, of the primary suspension point.
If using an after-market safety chain, not manufactured by **coemar**, ensure that it is of sufficient strength to hold the weight of this fixture.

risk of fire
Each fixture produces heat and must be installed in a well-ventilated position. The minimum recommended distance from flammable material is: 0.5m. Minimum distance from the object being illuminated is: 1m.

mounting the ballast
The ballast is supplied with rubber feet (A) and with two threaded holes of ø10 and ø12 (B) for the fitting of a hookclamp (cod.068) or (cod.071) and suchlike.
Ensure that your hookclamps are sufficiently strong to take the weight of the **coemar nat mm 1200 ZOOM 15/30° ballast**.
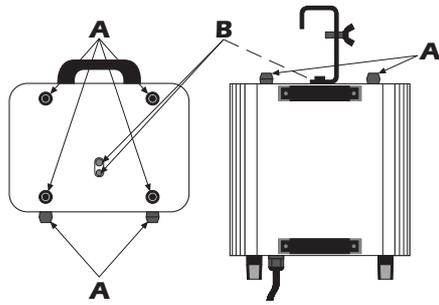
When hanging the ballast, the use of a safety chain (cod. 069) fixed to the **coemar nat mm 1200 ZOOM 15/30° ballast** and to the primary suspension point is recommended- to protect against the accidental failure (however unlikely) of the primary suspension point. If using an after-market safety chain, not manufactured by **coemar**, ensure that it is of sufficient strength to hold the weight of this fixture.

6. Installing the mirror head

For ease of transport, and easy installation, the **coemar nat mm 1200 ZOOM 15/30°** is provided with a removeable mirror and mirror head.

6.1 Mounting the mirror head
1) Locate the 3 threaded holes (A) and the 3 mounting T-bolts(B).
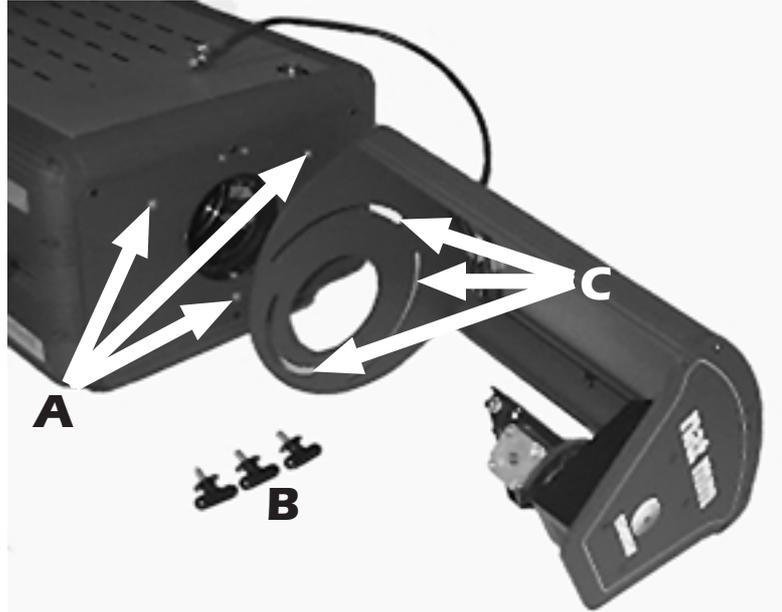
2) Position the head with the 3 slots (C) towards the body of the projector; note that the mirror head can be mounted in any angle through 360° with the mirror face either pointing upwards or downwards
The mounting position for the mirror head will be determined by the particular application in using the **coemar nat mm 1200 ZOOM 15/30°**.
3) Tighten the 3 T-bolts (B) into the threaded holes (A), so that the mirror head sits flat onto the projector body. Tighten the bolts firmly.

6.2 Electrical connection of the mirror head
1) Locate the 8 pin locking DIN plug (D) at the top of the projector body, and the DIN socket (E) on the mirror head.
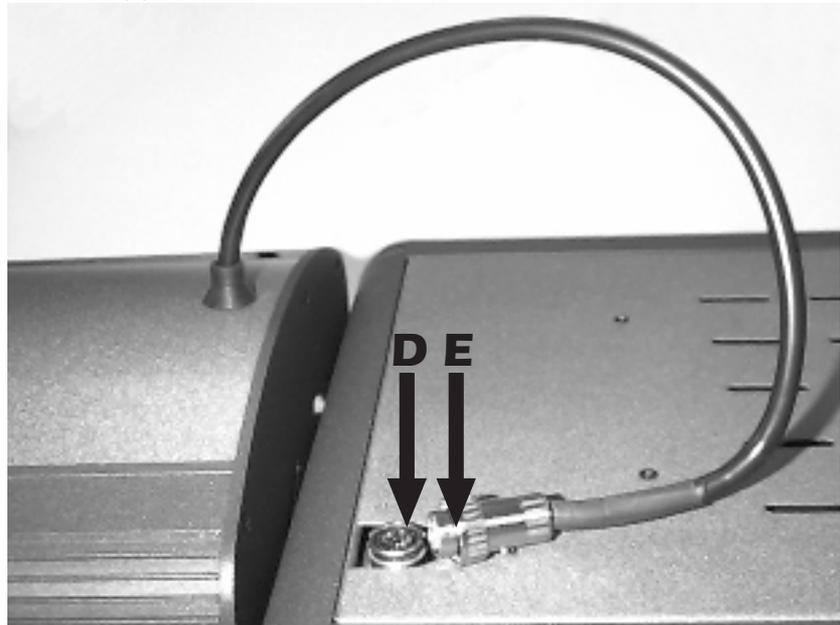
If you are mounting the mirror head with the mirror facing upwards, you will need to locate the cable which **coemar** has folded and secured internally (F); to utilise this cable, remove it from its mounting clips (G) and slide the required length through the rubber grommet so that the plug can reach the socket (D).
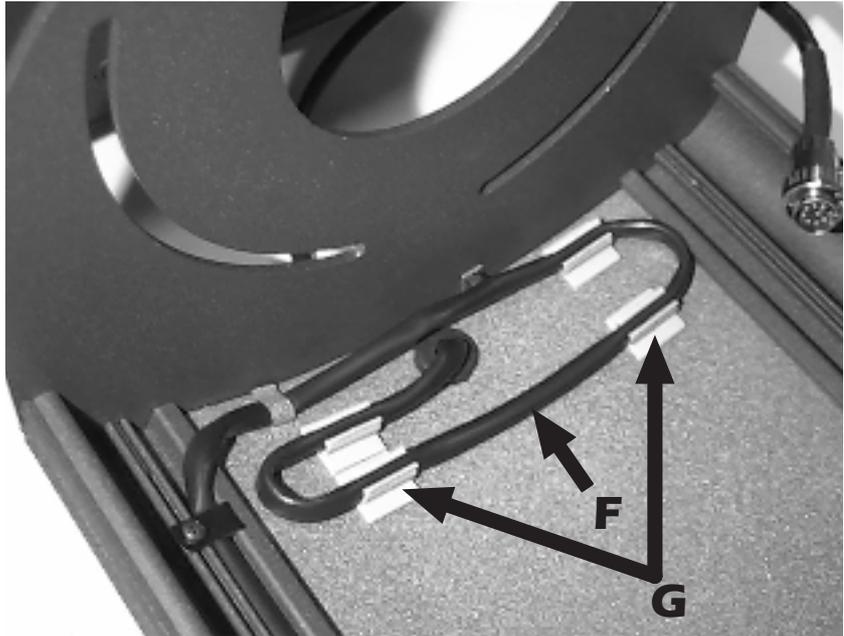
2) Slide the 8 pin locking DIN plug (E) into the DIN socket (D) taking care to ensure that the correct polarity is maintained. If your encounter undue difficulty in this procedure DO NOT USE UNDUE FORCE. Check the connections and try again.
3) Screw the plug's locking ring (H) to the socket to ensure correct connection.
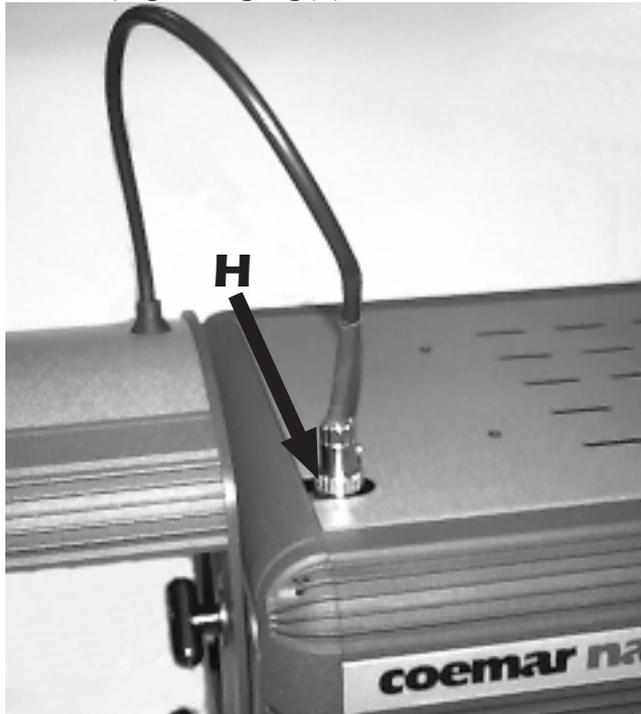
Attention
Turn off the power to the projector prior to connecting the DIN plug.
Failure to do so will cause definite damage to the electronic components which control mirror movement.

6.3 Mirror installation

1) *Whilst supporting the mirror with your hand on the mirror-face, slide the central hole (I) over the threaded rod (L) ensuring that the cogs (M) engage correctly.*
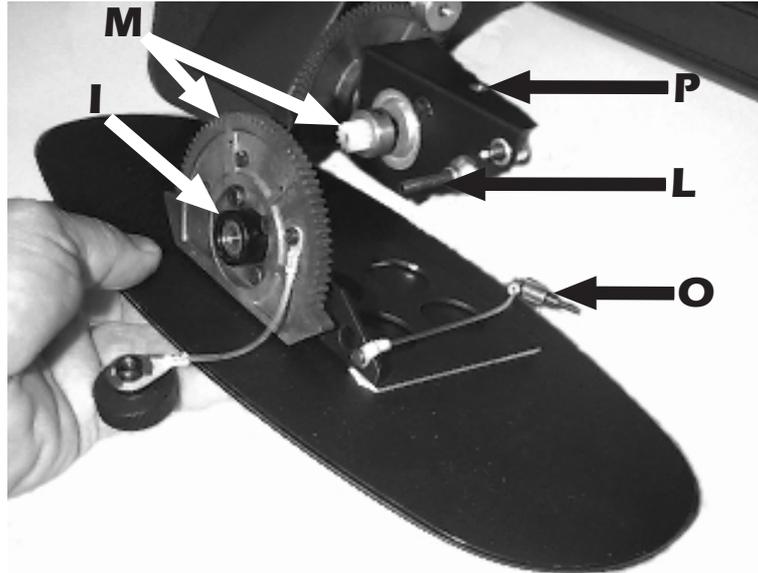
2) Tighten the thumbscrew (N) along the threaded rod (L) firmly.
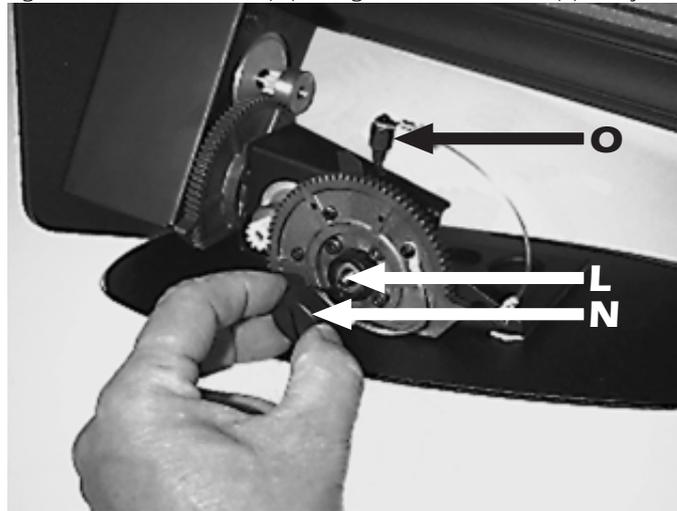
3) *Locate the safety cable and thumbscrew (O) supplied on mirror.*
   Screw the thumbscrew into the threaded hole (P). This provides a secondary safety attachment for the mirror
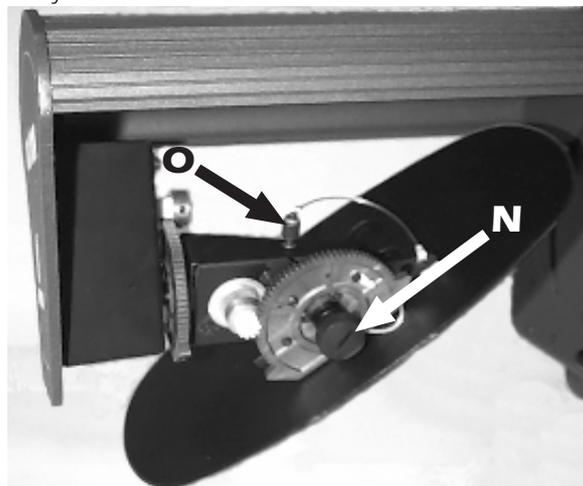
7. Electrical connection

connection between the ballast and the coemar nat mm 1200 ZOOM 15/30°

1) Locate the power cable at the rear of the **coemar nat mm 1200 ZOOM 15/30°**; this is provided with a 6 pin, 16A plug(A).
2) Insert the plug into the socket (B) located on the ballast, ensuring a secure fit. Close the mechanical stop.
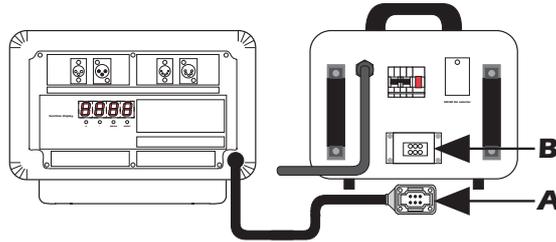

coemar nat mm 1200 ZOOM 15/30° is supplied with a 3.5m cable for connection between the projector and the ballast. Extension cables are available to cater for a greater distance between the two, as required.

10m extension cable **coemar** cod. 9204
20m extension cable **coemar** cod. 9204/1

cabling

The mains cable provided is thermally resistant, complying to the most recent international standards. It meets or exceeds the VDE and IEC norms, IEC 331, IEC 332 3C, CEI 20 35.

NB: In the case of cable replacement, similar cable, with comparable thermal resistant qualities must be used exclusivelly (cable 3x1,5 ø external 10 mm, rated 300/500V, tested to 2KV, operating temperature -40° +180°, **coemar** cod. CV5309).

mains connection

coemar nat mm 1200 ZOOM 15/30° can operate at either 208v, 230v, or 240v at 50 or 60Hz (selectable as described in section 4 of this manual).

Prior to connecting the fixture to mains power, ensure that you have the correct model to suit your mains power.

For connection purposes, ensure your plug is of a suitable rating: 9,5 amps for model 230 v.

Locate the mains cable on the ballast:
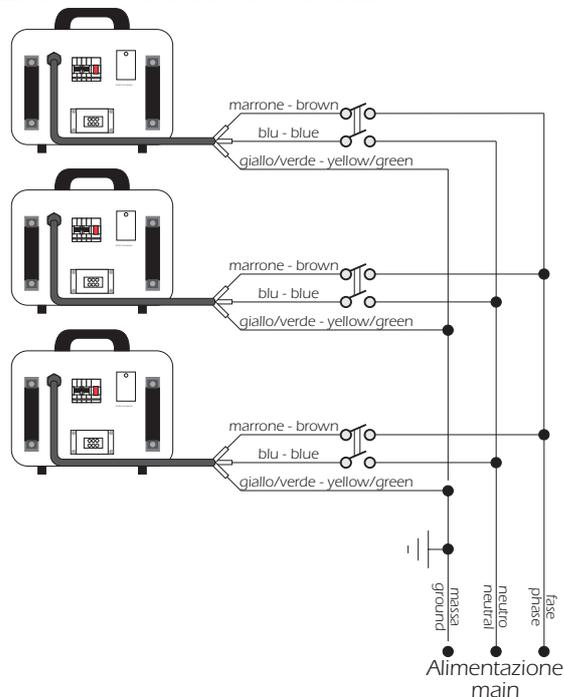
protection

The use of a thermal/magnetic circuit breaker is recommended for each **coemar nat mm 1200 ZOOM 15/30°**.

A good earth connection is essential for the correct operation of the fixture. Strict adherance to regulatory norms is strongly recommended.

8. Signal connection

Control signal is digital and is transmitted via two pair screened ø 0,5mm cable.
Connection is serial, using the XLR 3 or XLR5 male and female sockets set on the rear part of the **coemar nat mm 1200 ZOOM 15/30°**, labelled **DMX 512** and **DMX 512 standard** (see diagram).
Connection is to international standards:

pin 1= screening 0 volts	pin 4= not connected
pin 2= data -	pin 5= not connected
pin 3= data +	

connection via 5 Pin XLR 5

Controller Standard DMX 512 OUT

3
2
1

5 pin XLR 5/F

5 pin XLR 5/M

Ad altri **coemar nat mm 1200 ZOOM 15/30**
Connect to other **coemar nat mm 1200 ZOOM 15/30**

in   out
in   out
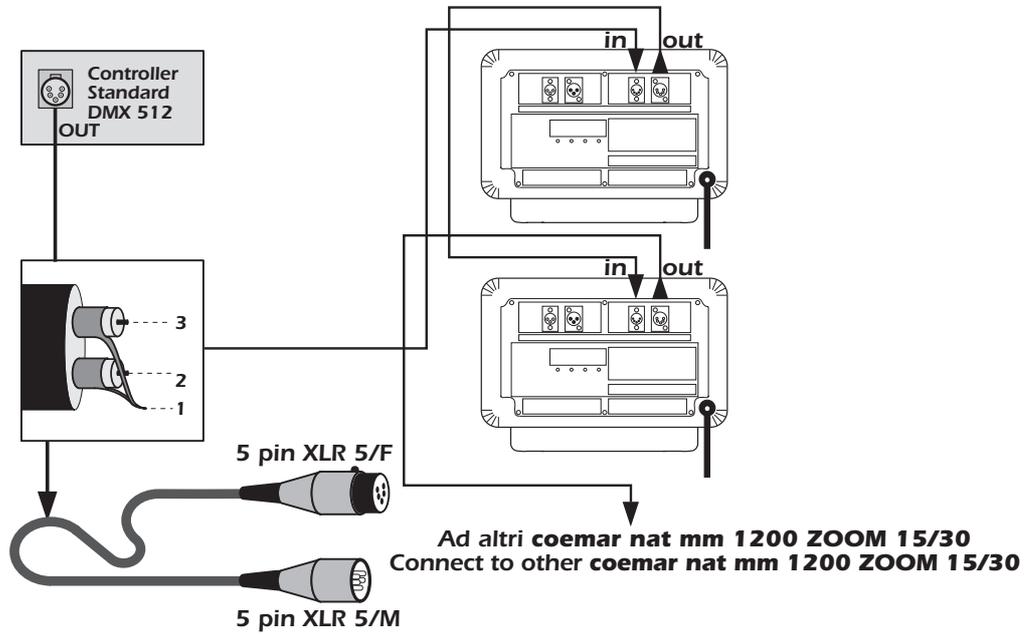
connection via 3 Pin XLR 3

Controller Standard DMX 512 OUT

3
2
1

3 pin XLR 3/F

3 pin XLR 3/M

Ad altri **coemar nat mm 1200 ZOOM 1!**
Connect to other **coemar nat mm 1200 ZOO**

in   out
in   out
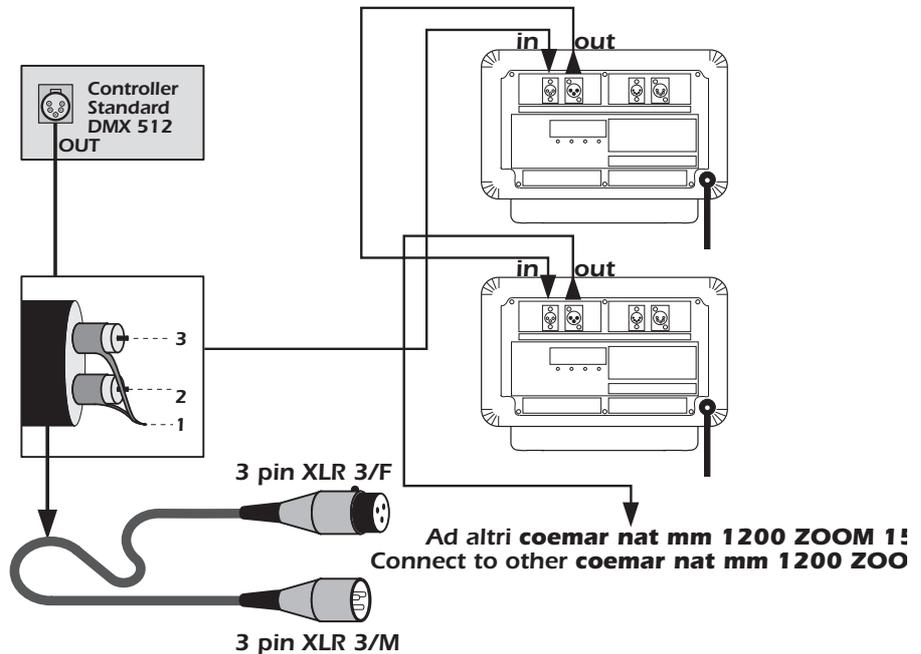
Ensure that all data conductors are isolated from one another and the metal housing of the connector
Make sure that the XLR 3 or 5 pins are isolated form the metal housing of the cannon connector.

9. Powering up

After having followed the preceding steps, turn on the **DMX 512** controller which will be used to control the **coemar nat mm 1200 ZOOM 15/30°**, then connect the ballast to its supply. Switch on the power supply and engage the circuit breaker on the **coemar nat mm 1200 ZOOM 15/30° ballast** (A) This will, in turn, supply power to the projector which will perform a reset function on all the internal and external motors. This will last some few seconds, after which it will be subject to the external signal from the controller.
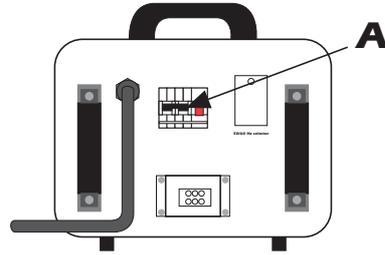

test

The test led will flash, or remain static on, (depending upon transmission rate) indicating that **DMX 512** signal is connected to the projector.
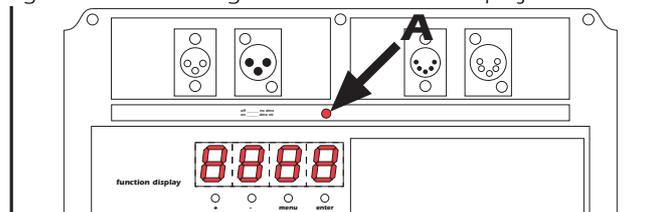
If the test led is off, the projector is not receiving correct signal. Check the connecting cable and the controller's output.

10. DMX addressing

Each **coemar nat mm 1200 ZOOM 15/30°** utilises **18 channels** of **DMX 512** signal for complete control.
To ensure that each projector accesses the correct signal, it is necessary to correctly address each fixture. Any number between 1 and 494 can be generated via the rear multi-function panel of the **coemar nat mm 1200 ZOOM 15/30°**.

When powered up initally, each projector will display **A001** which indicates DMX address 1; a projector thus addressed will respond to commands on channels 1 through 18 from the DMX 512 controller, a second projector should be addressed as 19, a third as 37 and so on.

altering DMX addresses

1) Press the **+** or **-** buttons until the desired **DMX** number appears in the LED display. The display will flash, indicating that the selection is not stored in memory.

function display

| A | 0 | 0 | 1 |

○   ○   ○   ○
+   -   menu   enter
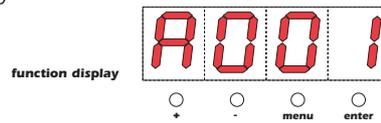
2) Press the **enter** button to confirm your selection; the display will stop flashing and the projector will now respond to the new **DMX** address.
3) To better understand the function of each channel, we refer you to section 12 "Control channel functions from a DMX 512 contoller".

Important Note: Keeping the **+** or **-** pressed down will cause the display to alter at increased speed, allowing a faster selection to be effected.

The display panel at the rear of the **coemar nat mm 1200 ZOOM 15/30°** is used to display and set function information and various parameters.

Altering the **coemar** factory settings may vary the functioning of the projector, causing it to not respond to external DMX 512 signal. Please read and familiarise yourself with the following information very carefully before altering any selections.

reset

This function carries out a reset in the case, however unlikely, that one or more motors lose their reference points.

1) Press the **menu** button
2) Press the **+** or **-** buttons till **rESE** (for reset) is displayed.

function display

○ ○ ○ ○
+ - menu enter
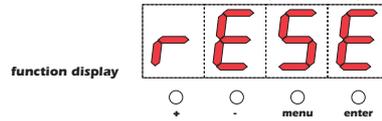
3) Press the **enter** button to confirm your selection. The projector will proceed to perform a reset.

rate

This function provides information on the speed or rate of **DMX 512** signal being received by the **coemar nat mm 1200 ZOOM 15/30°**.

1) Press the **menu** button
2) Press the **+** or **-** buttons till **rAtE** (for rate/speed) is displayed.

function display

○ ○ ○ ○
+ - menu enter
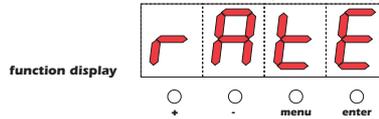
3) Press the **enter** button to confirm; the display will show a numerical value which is the rate/speed of the **DMX 512** signal being received.

hour

This function provides information on the number of hours of operation of the **coemar nat mm 1200 ZOOM 15/30°**.

1) Press the **menu** button
2) Press the **+** or **-** buttons till **HoUr** (for hour) is displayed.
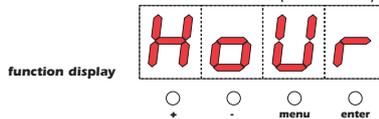
function display

○ ○ ○ ○
+ - menu enter

3) Press the **enter** button to confirm your selection. The display will show a numerical value which is the length of time which the fixture has been in operation.

life

This function provides information on the number of hours of operation of the lamp in the unit.

1) Press the **menu** button.
2) Press the **+** or **-** buttons until **LIFE** (for lamp life) is displayed.
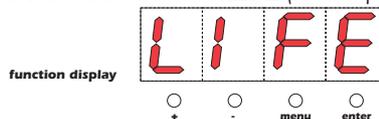
function display

○ ○ ○ ○
+ - menu enter

3) Press the **enter** button to confirm your selection. The display will show a numerical value which is the length of time in hours that the lamp has been operated since the counter was last reset.

resetting the lamp life counter

The lamp life counter needs to be reset to zero at every lamp change to provide accurate information on lamp life.
1) Turn off the projector.
2) Whilst holding down the **+** and **-** buttons, turn power back on to the projector.
3) Press the **menu** button.

4) Press the **+** or **-** buttons until **LIFE** (for lamp life) is displayed.

function display

⊙ **+**   ⊙ **-**   ⊙ **menu**   ⊙ **enter**
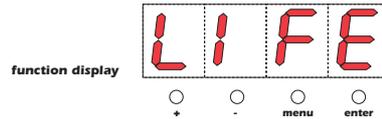
5) Press the **enter** button to confirm your selection. The display will show 0000, confirming that the lamp life counter is reset.

dirp
This function inverts the mirror movement for horizontal movements.
1) Press the **menu** button.
2) Press the **+** or **-** button until **dirP** (for pan direction) is displayed.
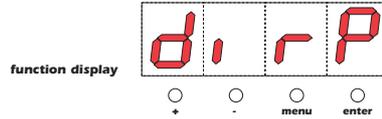
function display

⊙ **+**   ⊙ **-**   ⊙ **menu**   ⊙ **enter**

3) Press the **enter** enter button to confirm your selection. The display will show **cW** (for clockwise).

function display

⊙ **+**   ⊙ **-**   ⊙ **menu**   ⊙ **enter**

4) Press the **+** or **-** until **ccW** (for counterclockwise) is displayed.

function display

⊙ **+**   ⊙ **-**   ⊙ **menu**   ⊙ **enter**
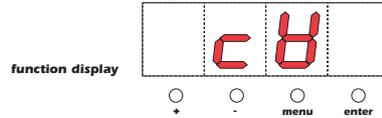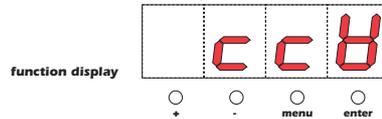
5) Press the **enter** button after either step 3 or step 4 to confirm your choice of direction.

dirt
This function inverts the mirror movements for vertical movements.

1) Press the **menu** button.
2) Press the **+** or **-** buttons until **dirt** (for tilt direction) is displayed.
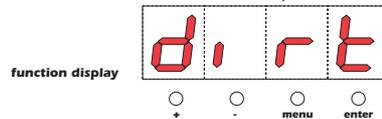
function display

⊙ **+**   ⊙ **-**   ⊙ **menu**   ⊙ **enter**

3) Press the **enter** button to confirm your selection. The display will show **cW** (for clockwise).

function display

⊙ **+**   ⊙ **-**   ⊙ **menu**   ⊙ **enter**

4) Press the **+** or **-** until **ccW** (for counterclockwise) is displayed.

function display

⊙ **+**   ⊙ **-**   ⊙ **menu**   ⊙ **enter**
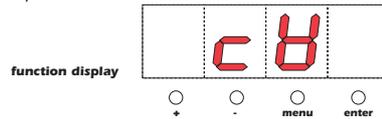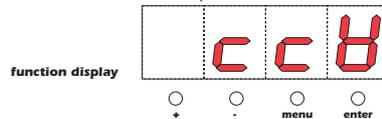
5) Press the **enter** button after either step 3 or step 4 to confirm your choice of direction.

reso
This function should not be altered under any circumstances

Attention
coemar has factory preset this function as **rESo** standard.
This function should, under no circumstances, be altered.

1) Press the **menu** button.
2) Press the **+** or **-** keys until **rESo** (for resolution) is displayed.
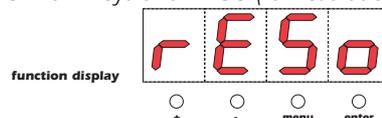
function display

⊙ **+**   ⊙ **-**   ⊙ **menu**   ⊙ **enter**

3) Press the **enter** button to confirm your selection. The display will show **Strd** (for standard) .
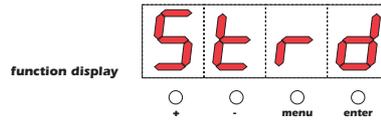
function display

In the unlikely case that the display should show **doUb**, proceed as follows:

4) The display shows **doUb** (per double).
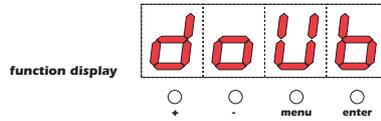
function display

Press the **+** or **-** buttons until **Strd** (for standard) is displayed .

function display
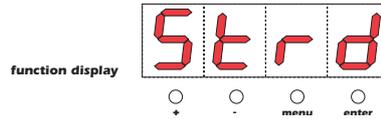
5) Press the **enter** button to confirm the correct setting.

Gobo

This function allows the user to either select the required gobos centred in the optics of the unit, or to use, proportionally, the gobo wheel via DMX512 signal.

1) Press the **menu** button.
2) Press the **+** or **-** buttons until **Gobo** (for gobo) is displayed.
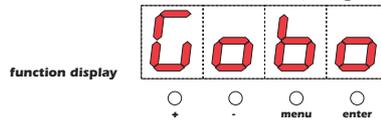
function display

3) Press the **enter** button to confirm your selection. The display will show **Strd** (for standard) which corresponds to centreing the 10 gobos in the optical path (a variation in the **DMX 512** signal corresponds to a change in the gobo projected by the **coemar nat mm 1200 ZOOM 15/30°**).

function display
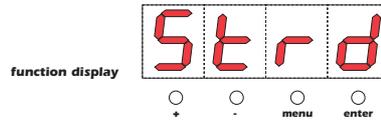
4) Press the **+** or **-** until **SPEc** (for special) is displayed. This corresponds to a proportional movement of the gobo wheel.

function display
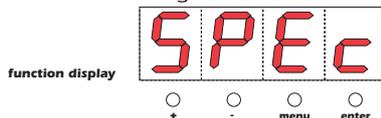
(a variation in the **DMX 512** signal corresponds to a proportional variation in the movement of the gobo wheel in order to create gobos out of the centre of the projectors optics - allowing for split gobos)

funzione	tipo di controllo	effetto	percentuale	decimale
goboselection standard (Strd)	step	no gobo	0/9%	0-24
	step	gobo 1	10/19%	25-49
	step	gobo 2	20/29%	50-73
	step	gobo 3	30/39%	74-99
	step	gobo 4	40-48%	100-123
	step	gobo 5	49-59%	124-151
	proportional	gobo wheel rotate continously, speed from min to max	60-100%	152-255
gobo selection special (SPEc)	proportional	proportional gobo wheel rotation 360° from no gobo to the last gobo	0/59%	0-151
	proportional	gobo wheel rotate continously, speed from min to max	60-100%	152-255

5) Press the **enter** button at either step 3 or step 4 to confirm your choice of gobo wheel movement.

colr

This function is unavailable.

lamp

This function allows for the on/off control of the lamp via **DMX 512** signal, or for the permanent on (disenabling DMX control of this function) of the lamp.

1) Press the **menu** button
2) Press the **+** or **-** buttons until **LAMP** (for lamp) is displayed.
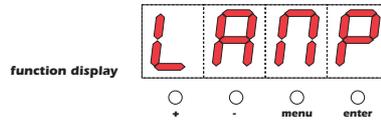
3) Press the **enter** button to confirm your selection. The display will show **Strd** (for standard) which corresponds to the standard configuration whereby the lamp can be turned on remotely by bringing channel 18 up to 100%, or off at 0%.
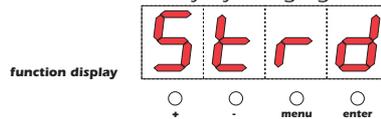
4) Press the **+** or **-** buttons until **on** (for on) is displayed. At this setting, the lamp will remain on regardless of the level set on channel 18.
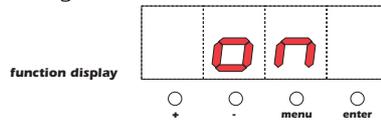
5) Press the **enter** button to confirm your selection.

test

This function allows for a test sequence to be carried out on the respective motors of the unit in the absence of any **DMX** signal.

1) Press the **menu** button.
2) Press the **+** or **-** until **tESt** (for test) is displayed.
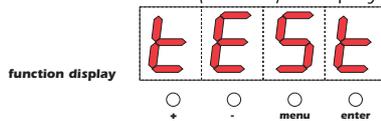
3) Press the **enter** button to confirm your selection. The display will show **t 01** (for test number 1). Press the **+** or **-** buttons for each test **t 01** to **t 17**
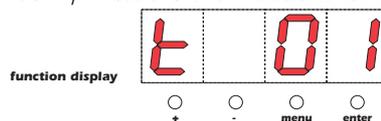
In these tests, the projector simulates the reception of a DMX 512 signal which is increasing from 1 to 255 on the selected channel.

t 01 = mirror movement in the X-axis
t 02 = mirror movement in the Y-axis
t 03 = opening/closing the dimmer
t 04 = opening/closing the black-out/strobe shutter
t 05 = opening/closing of the iris diaphragm
t 06 = movement of the zoom lenses
t 07 = movement of the focus lenses
t 08 = rotating gobo wheel 1
t 09 = rotating gobos on gobo wheel 1
t 10 = rotating gobo wheel 2
t 11 = rotating gobos on gobo wheel 2
t 12 = rotating the effects wheel
t 13 = rotating the effects on the effects wheel
t 14 = rotating the colour wheel
t 15 = inserting the cyan dichroics
t 16 = inserting the magenta dichroics
t 17 = inserting the yellow dichroics

5) Press the **enter** button to confirm your selection of test to be carried out.

12. Control channel functions from a DMX 512 controller (18 channels)

The 18 channels of your **DMX 512** controller should now have control of all the functions of your **coemar nat mm 1200 ZOOM 15/30°** as described.

channel	function	type of control	effect	percentage	decimal
1	**X mirror**	proportional	coarse control of the X movement	0/100%	0-255
2	**Y mirror**	proportional	coarse control of the Y movement	0/100%	0-255
3	**dimmer**	proportional	from close to open	0/100%	0-255
4	**shutter**	step	close	0/31%	0-79
		step	open	32/50%	80-127
		proportional	strobe increasing speed rotation	51/100%	128-255
5	**iris**	step	open	0-14%	0-35
		proportional	from large to small	15-46%	36-115
		step	iris small	47-75%	116-192
		proportional	iris pulse, with increasing pulse speed	76-98%	193-251
		step	iris large	99-100%	252-255
6	**Zoom**	proportional	proportional zoom control from small to large beam	0/100%	0-255
7	**Focus**	proportional	proportional focus control	0/100%	0-255
8	**gobo 1 selection standard (Strd)**	step	no gobo	0/9%	0-24
		step	gobo 1	10/19%	25-49
		step	gobo 2	20/29%	50-73
		step	gobo 3	30/39%	74-99
		step	gobo 4	40-48%	100-123
		step	gobo 5	49-59%	124-151
		proportional	gobo wheel rotate continously, speed from min to max	60-100%	152-255
NOTE: channel "gobo 1 selection" can be varied selecting gobo standard/special function on the back function displ				
8	**gobo 1 selection special (SPEc)**	proportional	proportional gobo wheel rotation 360° from no gobo to the last gobo	0/59%	0-151
		proportional	gobo wheel rotate continously, speed from min to max	60-100%	152-255
9	**gobo 1 rotation**	proportional	proportional indexable gobo rotation 360°	0-50%	0-128
		proportional	continuos gobo rotation clockwise with proportional speed from max to min.	51-74%	129-190
		step	gobo stop	75%	191
		proportional	continuos gobo rotation counter-clockwise with proportional speed from min. to max	76-100%	192-255
10	**gobo 2 selection standard (Strd)**	step + proportional	no gobo	0/9%	0-24
			gobo 1	10/19%	25-49
			gobo 2	20/29%	50-73
			gobo 3	30/39%	74-99
			gobo 4	40-48%	100-123
			gobo 5	49-59%	124-151
			gobo wheel rotate continously, speed from min to max	60-100%	152-255
NOTE: channel "gobo 2 selection" can be varied selecting gobo standard/special function on the back function displ				
10	**gobo 2 selection special (SPEc)**	proportional	proportional gobo wheel rotation 360° from no gobo to the last gobo	0/59%	0-151
		proportional	gobo wheel rotate continously, speed from min to max	60-100%	152-255
11	**gobo 2 rotation**	proportional	proportional gobo rotation 360°	0-50%	0-128
		proportional	continuos gobo rotation clockwise with proportional speed from max to min.	51-74%	129-190
		step	gobo stop	75%	191
		proportional	continuos gobo rotation counter-clockwise with proportional speed from min. to max	76-100%	192-255

channel	function	type of control	effect	percentage	decimal
12	**effects selection (prism, split color)**	step	no effects	0/16%	0-41
			effect 1	17/32%	42-85
			effect 2	33/48%	86-125
			effect 3	49/65%	126-169
			effect 4	66/80%	170-209
			effect 5	81/100%	210-255
13	**effects rotation**	proportional	proportional effect rotation 360°	0/50%	0-128
		proportional	continuos effect rotation clockwise with proportional speed from max to min.	51/74%	129-190
		step	effect stop	75%	191
		proportional	continuos effect rotation counter-clockwise with proportional speed from min. to max	76-100%	192-255
14	**color wheel**	proportional	proportional color wheel rotation 360° from white to the last color	0/75%	0-191
		proportional	continuos color wheel rotation clockwise with proportional speed from min. to max.	76/100%	192-255
15	**cyan**	proportional	proportional cyan control from white to cyan	0/100%	0-255
16	**magenta**	proportional	proportional magenta control from white to magenta	0/100%	0-255
17	**Yellow**	proportional	proportional yellow control from white to yellow	0/100%	0-255
18	**function**	step	lamp off	0/45%	0-114
			motor reset	46/55%	115-140
			lamp on	56/100%	141-255
N.B. function channel has a delay time of 6 second to prevent indesiderate accident.					
Note 1: 2 or 4 numbers close to the end limit levels cannot be used as unstable levels					

13. Control channel functions from a DMX 512 controller (20 channels)

The 20 channels of your **DMX 512** controller should now have control of all the functions of your **coemar nat mm 1200 ZOOM 15/30°** as described.

channel	function	type of control	effect	percentage	decimal
1	**X mirror**	proportional	coarse control of the X movement	0/100%	0-255
2	**X mirror fine (SpEc)**	proportional	fine control of the X movement	0/100%	0-255
3	**Y mirror**	proportional	coarse control of the Y movement	0/100%	0-255
4	**Y mirror fine (SpEc)**	proportional	fine control of the Y movement	0/100%	0-255
5	**dimmer**	proportional	from close to open	0/100%	0-255
6	**shutter**	step	close	0/31%	0-79
		step	open	32/50%	80-127
		proportional	strobe increasing speed rotation	51/100%	128-255
7	**iris**	step	open	0-14%	0-35
		proportional	from large to small	15-46%	36-115
		step	iris small	47-75%	116-192
		proportional	iris pulse, with increasing pulse speed	76-98%	193-251
		step	iris large	99-100%	252-255
8	**Zoom**	proportional	proportional zoom control from small to large beam	0/100%	0-255
9	**Focus**	proportional	proportional focus control	0/100%	0-255
10	**gobo 1 selection standard (Strd)**	step	no gobo	0/9%	0-24
		step	gobo 1	10/19%	25-49
		step	gobo 2	20/29%	50-73
		step	gobo 3	30/39%	74-99
		step	gobo 4	40-48%	100-123
		step	gobo 5	49-59%	124-151
		proportional	gobo wheel rotate continously, speed from min to max	60-100%	152-255
10	**gobo 1 selection special (SPEc)**	proportional	proportional gobo wheel rotation 360° from no gobo to the last gobo	0/59%	0-151
		proportional	gobo wheel rotate continously, speed from min to max	60-100%	152-255
11	**gobo 1 rotation**	proportional	proportional indexable gobo rotation 360°	0-50%	0-128
		proportional	continuos gobo rotation clockwise with proportional speed from max to min.	51-74%	129-190
		step	gobo stop	75%	191
		proportional	continuos gobo rotation counter-clockwise with proportional speed from min. to max	76-100%	192-255
12	**gobo 2 selection standard (Strd)**	step + proportional	no gobo	0/9%	0-24
			gobo 1	10/19%	25-49
			gobo 2	20/29%	50-73
			gobo 3	30/39%	74-99
			gobo 4	40-48%	100-123
			gobo 5	49-59%	124-151
			gobo wheel rotate continously, speed from min to max	60-100%	152-255
12	**gobo 2 selection special (SPEc)**	proportional	proportional gobo wheel rotation 360° from no gobo to the last gobo	0/59%	0-151
		proportional	gobo wheel rotate continously, speed from min to max	60-100%	152-255

| channel	function	type of control	effect	percentage	decimal
13	**gobo 2 rotation**	proportional	proportional gobo rotation 360°	0-50%	0-128
		proportional	continuos gobo rotation clockwise with proportional speed from max to min.	51-74%	129-190
		step	gobo stop	75%	191
		proportional	continuos gobo rotation counter-clockwise with proportional speed from min. to max	76-100%	192-255
14	**effects selection (prism, split color)**	step	no effects	0/16%	0-41
			effect 1	17/32%	42-85
			effect 2	33/48%	86-125
			effect 3	49/65%	126-169
			effect 4	66/80%	170-209
			effect 5	81/100%	210-255
15	**effects rotation**	proportional	proportional effect rotation 360°	0/50%	0-128
		proportional	continuos effect rotation clockwise with proportional speed from max to min.	51/74%	129-190
		step	effect stop	75%	191
		proportional	continuos effect rotation counter-clockwise with proportional speed from min. to max	76-100%	192-255
16	**color wheel**	proportional	proportional color wheel rotation 360° from white to the last color	0/75%	0-191
			continuos color wheel rotation clockwise with proportional speed from min. to max.	76/100%	192-255
17	**cyan**	proportional	proportional cyan control from white to cyan	0/100%	0-255
18	**magenta**	proportional	proportional magenta control from white to magenta	0/100%	0-255
19	**Yellow**	proportional	proportional yellow control from white to yellow	0/100%	0-255
20	**function**	step	lamp off	0/45%	0-114
			motor reset	46/55%	115-140
			lamp on	56/100%	141-255

14. Maintenance

Whilst every possible precaution has been taken to ensure the trouble free operation of your **coemar nat mm 1200 ZOOM 15/30°**, the following periodic maintenance is highly recommended. Before attempting any of the following, ensure that the mains supply to the unit is disconnected.

| Attention |
| :---: |
| Remove mains power before opening the inspection lid. |

Opening the projector:

Loosen the screws (A), then remove the inspection lid (B) completely.
Upon completion of the following, replace the inspection lid and tighten the screws (A) firmly.
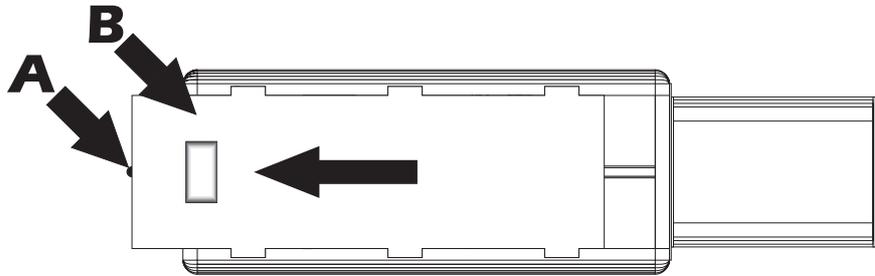
Fuse replacement

Locate the fuse on the circuit board at the rear of the **coemar nat mm 1200 ZOOM 15/30°** (see diagramme).
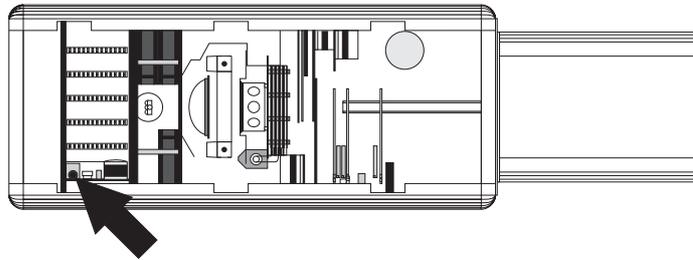
Using a multimeter, test the condition of the fuse, replacing it with one of equivalent type if necessary. (T 2A).

Periodic cleaning
Lenses and reflectors

Even a fine layer of dust can reduce the luminous output substantially. Regularly clean all lenses and the reflector using a soft cotton cloth, dampened with a specialised lens cleaning solution.

Fans and air passages

The fans and air passages must be cleaned approximatley every 6 weeks; the period for this periodic cleaning will depend, of course, upon the conditions in which the projector is operating. Suitable instruments for performing this type of maintenance are a brush and a common vacuum cleaner or an air compressor.

Periodic maintenance
Lamp

The lamp should be replaced if there is any observable damage or deformation due to heat. This will avoid the danger of the lamp exploding.

Mechanicals

Periodically check all mechanical devices for wear and tear; gears, guides, belts, etc., replacing them if necessary.

Periodically check the lubrication of all components, particularly the parts subject to high temperatures. If necessary, lubricate with suitable lubricant (**coemar** cod. **MV 6173/1**) as shown in the following figure.
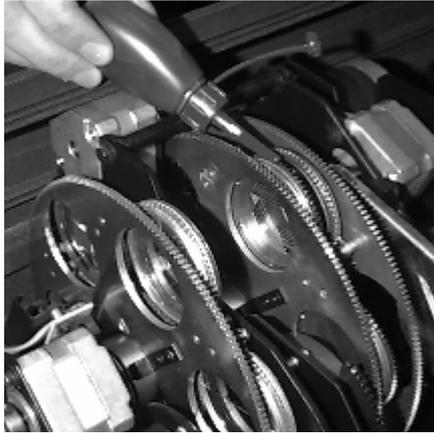

Electrical components

Check all electrical components for correct earthing and proper attachment of all connectors, refastening if necessary.

gobos

coemar nat mm 1200 ZOOM 15/30° utilises a ø53 mm gobo with a ø37.5mm image, known generally as a "D" type gobo. The gobo is mounted via 3 screws with a round mounting bracket.
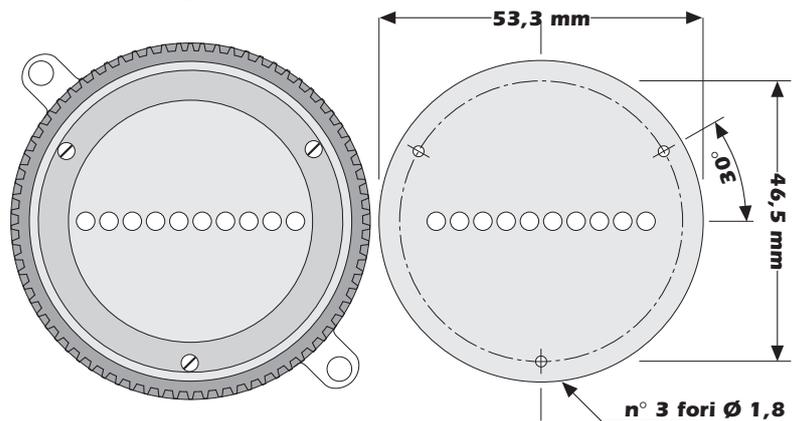
Replacing gobos on the first gobo wheel

Gobos may be changed as required, though the procedure should always be performed with the unit unpowered.

1) Position the second gobo wheel (A) and the effects wheel (B) in such a manner as to allow a screwdriver to be inserted readily as in the figure below.
2) Loosen the three screws (C), rotating the geared support (D) as required.
3) Remove the round mounting bracket (E) and replace the selected gobo.
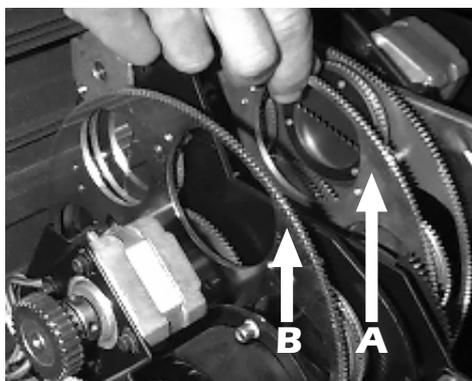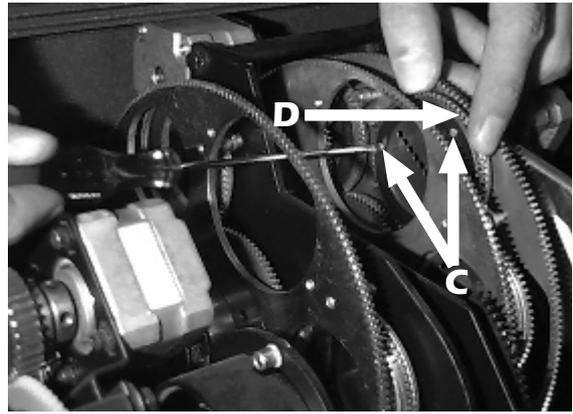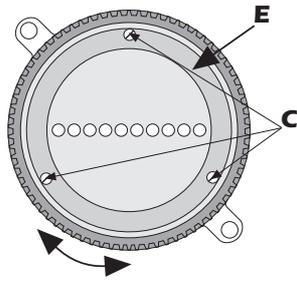
4) Replace all components, ensuring the screws are replaced correctly and fastened securely

Replacing gobos on the second gobo wheel

1) Position the first gobo wheel in such a manner as to allow a screwdriver to be inserted readily as in the figure below.
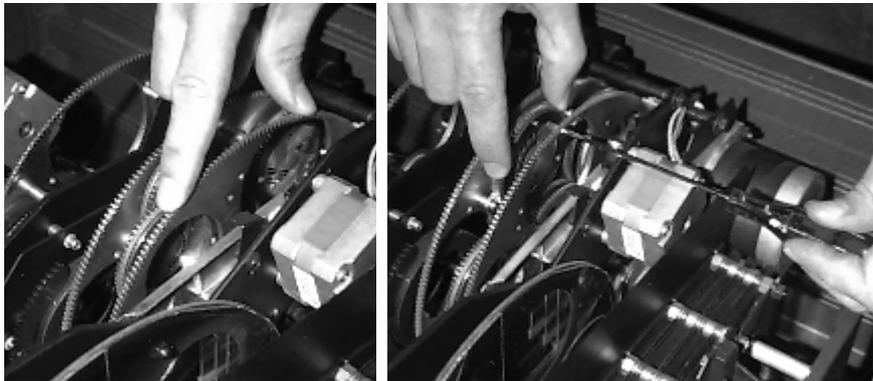

2) Follow instructions 2, 3, and 4, as described above (Replacing gobos on the first gobo wheel)

15. Electronic alignment of motors

The display panel at the rear of the **coemar nat mm 1200 ZOOM 15/30°** allows for the electronic alignment of the projector's motors. This procedure is performed by **coemar** at the factory. It may be useful to perform this procedure in the case of internal components being replaced.

Altering the **coemar** factory settings may radically alter the functinoing of the projector; carefully read all of the following prior to attempting any changes.

Electronic calibration
1) Press the **menu** button
2) Press the **+** or **-** buttons until **rESE** (for reset) is displayed.

function display
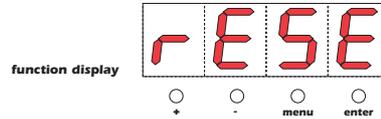
3) Press the **enter** button to confirm your selection. All the motors will perform a mechanical reset.

Simultaneously press the **menu** and **enter** buttons, whilst turning on the power to the **coemar nat mm 1200 ZOOM 15/30°**. The display will show:

function display
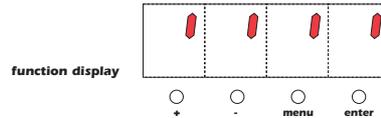
PnAl
1) Press the **+** or **-** buttons until **PnAL** (for pan alignment, X movement of the mirror) is displayed.
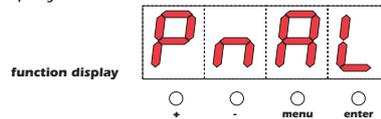
function display

2) Press the **enter** button to confirm your selection. The display will show a numerical value which corresponds with the factory setting.

function display
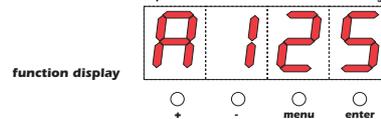
3) Press the **+** or **-** buttons until the displayed number corresponds with the correct alignment of the mirror (note that with each press of **+** or **-** the mirror will move).
4) Press the **enter** button to confirm your selection.

tLAL
1) Press the **+** or **-** buttons until **tLAL** (for tilt alignment, Y movement of the mirror) is displayed.
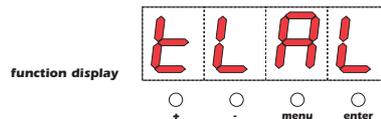
function display

2) Press the **enter** button to confirm your selection. The display will show a numerical value which corresponds with the factory setting.

function display
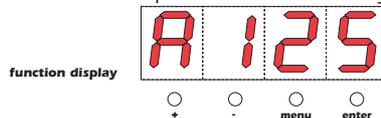
3) Press the **+** or **-** buttons until the displayed number corresponds with the correct alignment of the mirror (note that with each press of **+** or **-** the mirror will move).
4) Press the **enter** button to confirm your selection.

SHAL
1) Press the **+** or **-** buttons until **SHAL** (for shutter/black-out alignment) is displayed.
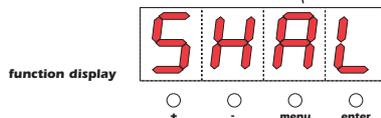
function display

2) Press the **enter** button to confirm your selection. The display will show a numerical value which corresponds with the factory setting.

3) Press the **+** or **-** buttons until the displayed number corresponds with the correct alignment of the black-out shutter in the optical path of the projector (note that with each press of **+** or **-** the black-out shutter will move).
4) Press the **enter** button to confirm your selection.

cLAL

1) Press the **+** or **-** buttons until **cLAL** (for colour wheel alignment) is displayed.
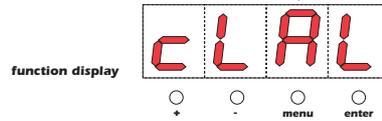
function display | c L A L
○ ○ ○ ○
+ - menu enter

2) Press the **enter** button to confirm your selection. The display will show a numerical value which corresponds with the factory setting.
3) Press the **+** or **-** buttons until the displayed number corresponds with the correct alignment of the colour wheel in the optical path of the projector (note that with each press of **+** or **-** the colour wheel will move).
4) Press the **enter** button to confirm your selection.

G1AL

1) Press the **+** or **-** buttons until **G1AL** (for gobo wheel 1 alignment) is displayed.
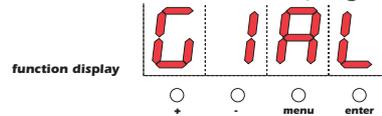
function display | G 1 A L
○ ○ ○ ○
+ - menu enter

2) Press the **enter** button to confirm your selection. The display will show a numerical value which corresponds with the factory setting.
3) Press the **+** or **-** buttons until the displayed number corresponds with the correct alignment of gobo wheel 1 in the optical path of the projector (note that with each press of **+** or **-** the gobo wheel will move)
4) Press the **enter** button to confirm your selection.

G2AL

1) Press the **+** or **-** buttons until **G2AL** (for gobo wheel 2 alignment) is displayed.
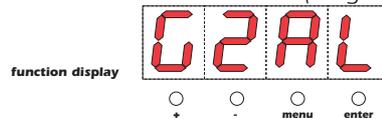
function display | G 2 A L
○ ○ ○ ○
+ - menu enter

2) Press the **enter** button to confirm your selection. The display will show a numerical value which corresponds with the factory setting.
3) Press the **+** or **-** buttons until the displayed number corresponds with the correct alignment of gobo wheel 2 in the optical path of the projector (note that with each press of **+** or **-** the gobo wheel will move)
4) Press the **enter** button to confirm your selection.

GrAL

1) Press the **+** or **-** buttons until **GrAL** (for rotating gobo alignment) is displayed.
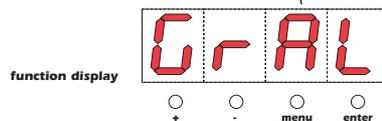
function display | G r A L
○ ○ ○ ○
+ - menu enter

2) Press the **enter** button to confirm your selection. The display will show a numerical value which corresponds with the factory setting.
3) Press the **+** or **-** until the displayed number corresponds with the correct alignment of the gobo (indexing) amongst the other **coemar nat mm 1200 ZOOM 15/30°** in the same installation (note that with each press of **+** or **-** the gobo will rotate).
4) Press the **enter** button to confirm your selection.

FoAL

1) Press the **+** or **-** buttons until **FoAL** (for focus objective lense alignment) is displayed.
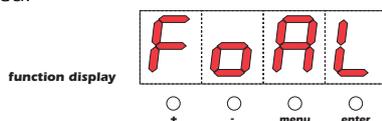
function display | F o A L
○ ○ ○ ○
+ - menu enter

2) Press the **enter** button to confirm your selection. The display will show a numerical value which corresponds with the factory setting.

3) Press the **+** or **-** until the displayed number corresponds with the correct focusing of the lens amongst the other **coemar nat mm 1200 ZOOM 15/30°** in the same installation (note that with each press of **+** or **-** the focus lens will rotate).
4) Press the **enter** button to confirm your selection.

PrAL

1) Press the **+** or **-** until **PrAL** is displayed (for rotating prisms/effects wheel alignment) is displayed.
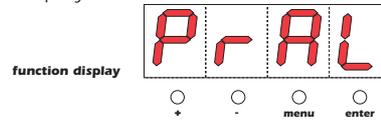
function display

2) Press the **enter** button to confirm your selection. The display will show a numerical value which corresponds with the factory setting.
3) Press the **+** or **-** buttons until the displayed number corresponds with the correct alignment of the prisms/effects wheel in the optical path of the projector (note that with each press of **+** or **-** the prisms/effects wheel will move)
4) Press the **enter** button to confirm your selection.

END

1) Press the **+** or **-** until **END** (for completion of the electronic alignment procedure) is displayed

function display
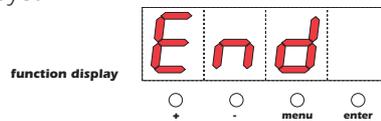
2) Press the **enter** button to confirm your selection. The display will revert to its normal operating mode and the internal memory will record all changes made.

N.B.: At the termination of the above electronic calibration procedure, if the **END** function is not performed, no memory changes will be effected. This allows the operator to abort any changes made, in case of operator error.

16. Spare parts

All the components of the **coemar nat mm 1200 ZOOM 15/30°** are available as replacement spares from your authorised **coemar** service centre.
Accurate description of the fixture, model number, and type will assist us in providing for your requirements, in an efficient and effective manner.