

coemar

CF 7 Hard Edge

**manuale
di istruzioni
instruction
manual**

1^a edizione, marzo 2001
1st edition, march 2001

CF 7 Hard Edge X

numero di serie/serial number

data di acquisto/date of purchase

fornitore/retailer

indirizzo/address

cap/città/suburb

provincia/capital city

stato/state

tel./fax/

*Prendete nota, nello spazio apposito, dei dati relativi al modello e al rivenditore del vostro **CF 7 Hard Edge X**: in caso di richiesta di informazioni, pezzi di ricambio, servizi di riparazione o altro ci permetteranno di assistervi con la massima rapidità e precisione.*

*Please note in the space provided above the relative service information of the model and the retailer from whom you purchased your **CF 7 Hard Edge X**: This information will assist us in providing spare parts, repairs or in answering any technical enquiries with the utmost speed and accuracy.*

ATTENZIONE: la sicurezza dell'apparecchio è garantita solo con l'uso appropriato delle presenti istruzioni, pertanto è necessario conservarle.

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

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English

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

1. Packaging

Following the instructions and procedures outlined in this manual will ensure the maximum efficiency of this product for years to come.

Open the packaging and ensure that no part of the equipment has suffered damage in transit. In case of damage to the equipment, contact your carrier immediately by telephone or fax, following this with formal notification in writing.

packing list

Ensure the packaging contains:

1 **CF 7 Hard Edge X**

1 instruction manual

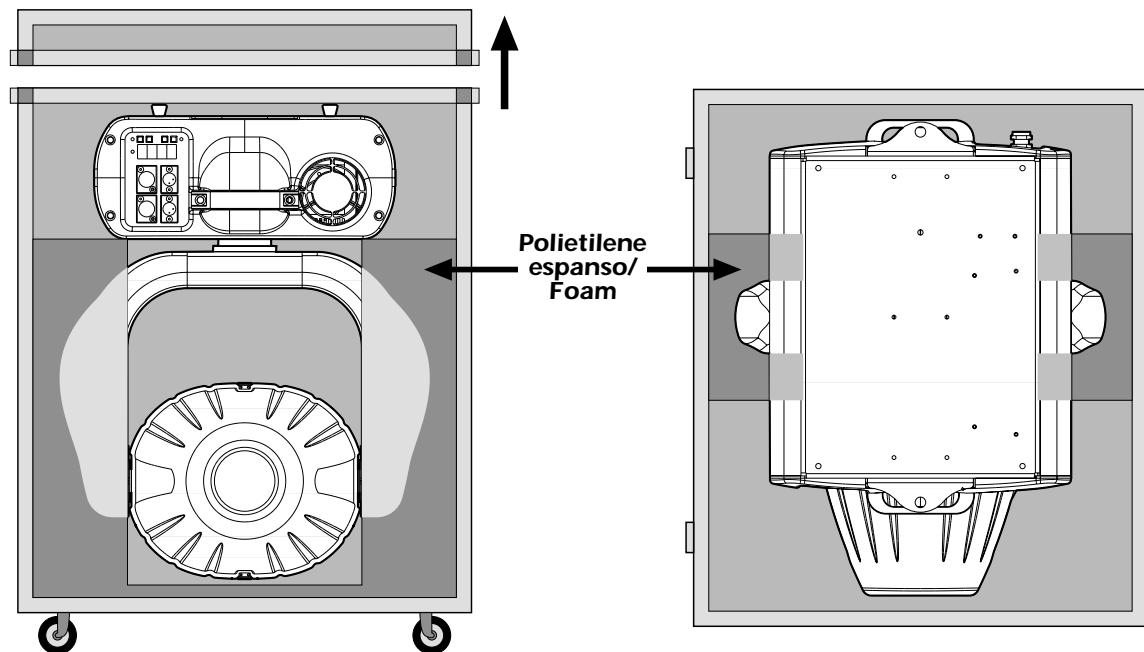
2. Transportation

The **CF 7 Hard Edge X** should be transported in its original packaging or in a **coemar** approved flight case.

In order to manufacture a suitable flight case, we recommend the following simple procedure to be followed, which will stop the articulated movement of the **CF 7 Hard Edge X** during transportation.

The following diagram illustrated **coemar's** recommended construction of the internal for a roadcase to suit this fixture.

A) Padding around the entire projector, including the base, with suitable padding materials.



3. Important safety information

Fire prevention:

1. **CF 7 Hard Edge X** utilises a Philips MSR 700/SA lamp; the use of any alternative lamp is not recommended and will null and void the fixture's warranty.
2. Never locate the fixture on any flammable surface.
3. Minimum distance from flammable materials: 0,5 m.
4. Minimum distance from the closest illuminable surface: 2 m.
5. Replace any blown or damaged fuses only with those of identical values. Refer to the schematic diagram if there is any doubt.
6. Connect the projector to mains power via a thermal magnetic circuit breaker.

prevention of electric shock:

1. High voltage is present in the internals of the unit. Isolate the projector from mains supply prior to performing any function which involves touching the internals of the unit, including lamp replacement.
2. For mains connection, adhere strictly to the guidelines outlined in section 7 of this manual.
3. The level of technology inherent in the **CF 7 Hard Edge X** requires the use of specialised personnel for all service applications; refer all work to your authorised **coemar** service centre.
4. A good earth connection is essential for proper functioning of the projector.
Never operate the unit without proper earth connection.
5. The fixture should never be located in an exposed position, or in areas of extreme humidity. A steady supply of circulating air is essential.

Protection against ultraviolet radiation:

1. Never turn on the lamp if any of the lenses, filters, or the carbon fibre housing is damaged; their respective functions will only operate efficiently if they are in perfect working order.
2. Never look directly into the lamp when it is operating.

Safety:

1. The projector should always be installed with bolts, clamps, and other fixings which are suitably rated to support the weight of the unit.
2. Always use a secondary safety chain of a suitable rating to sustain the weight of the unit in case of the failure of the primary fixing point.
3. The external surface of the unit, at various points, may exceed 150°C. Never handle the unit until at least 10 minutes have elapsed since the lamp was turned off.
4. Always replace the lamp if any physical damage is evident.
5. Never install the fixture in an enclosed area lacking sufficient air flow; the ambient temperature should not exceed 35°C.
6. A hot lamp may explode. always wait for at least 10 minutes to elapse after the unit has been turned off prior to attempting to replace the lamp.
Always wear suitable hand protection when handling the lamp.

4. Lamp: Installation and replacement

CF 7 Hard Edge X utilises a Philips MSR 700/SA lamp of 700W with a GY 9,5 lamp base. The lamp is available from your authorised **coemar** sales agent.

coemar cod.	105089/1
wattage	700 w
luminous flux	54.000 lm
colour temperature	5600° K
base	GY 9,5
approximate life	500 ore

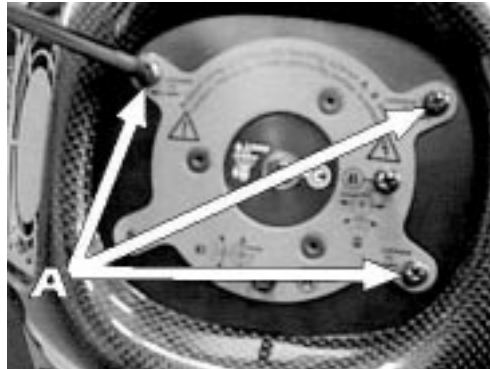
Attention

Turn off the power prior to opening up the unit..

The fixture's internal temperature can reach 250° C after 5 minutes, with a maximum peak of 350° C; ensure that the lamp is cold prior to attempting removal. The fixture should be allowed to stand and cool for 10 minutes prior to its removal. MSR/SA 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 500 hours. We recommend, therefore, that the lamp be replaced within the manufacturer's specified lamp life.

installing the lamp

- 1) Using a Phillips head screwdriver, remove the screws (**A**) which hold the lampholder in place, located at the rear of the projector head.



- 2) Remove the lampholder assembly (**B**).



- 3) Locate the lampholder (**C**).



- 4) Insert the lamp. The lamp used is manufactured from quartz glass and should be handled with care; always adhere to the instructions supplied in the lamp's packaging. Never touch the glass directly, use the tissue provided in the lamp's packaging. The GY 9,5 lampbase is asymmetrical in construction, with one lamp pin socket larger than the other; make sure therefore that the correct pin is lined up into its respective pin socket. DO NOT USE UNDUE FORCE. In case of difficulty, re-read the instructions and repeat the procedure.



5) Replace the lamp assembly (**B**) and replace and tighten the screws (**A**) which were previously removed.



Attention: we recommend that the lamp be realigned in the optical train of the unit to avoid overheating of the dichroic filters and other internal components of the unit. refer to section 13 for instructions about this procedure.

5. Operating voltage and frequency

The projector may operate at voltages including 208, 230 or 240 V. **coemar** presets (barring specific requests) a voltage of 240v. The preset voltage is indicated on a sticker located on the base of the projector near the position of the voltage selector switch.

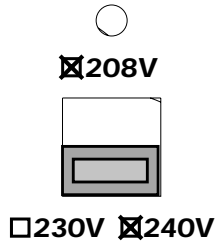
CF 7 Hard Edge X may operate at either 50 or 60 Hz without any changes required.

selecting an operating voltage different to the factory preset

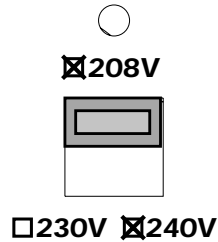
It is possible to alter the operating voltage of the projector at any time, by using the selector located on the base of the projector.

The selector allows you to choose from 2 preset voltages indicated on the sticker located adjacent to the switch.

Selettore in
posizione 240 V
main setting



Selettore in
posizione 208 V
main setting



Select the required voltage by simply sliding the switch to the correct position.

Should you wish to operate the projector at a voltage other than those indicated on the selector switch, contact your authorised **coemar** service centre. This procedure should only be carried out by qualified service personnel.

6. Installation

mounting

CF 7 Hard Edge X may be either floor or ceiling mounted.

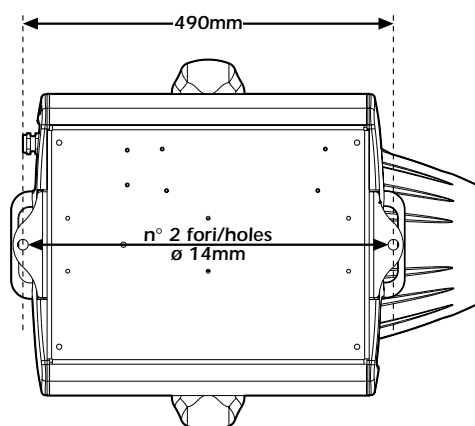


For floor mounting installations, the **CF 7 Hard Edge X** is provided with four rubber mounting feet.



For ceiling mounted installations we suggest to use appropriate clamps or fixings to attach the fixture to the mounting surface.

The structure from which the unit is hung should be of sufficient rating to hold the weight of the unit, as should any clamps used to hang the unit. The structure should also be sufficiently rigid so as not to move or shake whilst the **CF 7 Hard Edge X** moves during its operation.



protection against liquids

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

movement

The projector has a maximum movement of 630° in the base and 260° in the yoke; **DO NOT** place any obstructions in the path of the projector's movement.

safety chain

The use of a safety chain (cod. 069) - fixed to the **CF 7 Hard Edge X** 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 rating to hold the weight of the 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: 2 m.

7. Mains connection

cabling

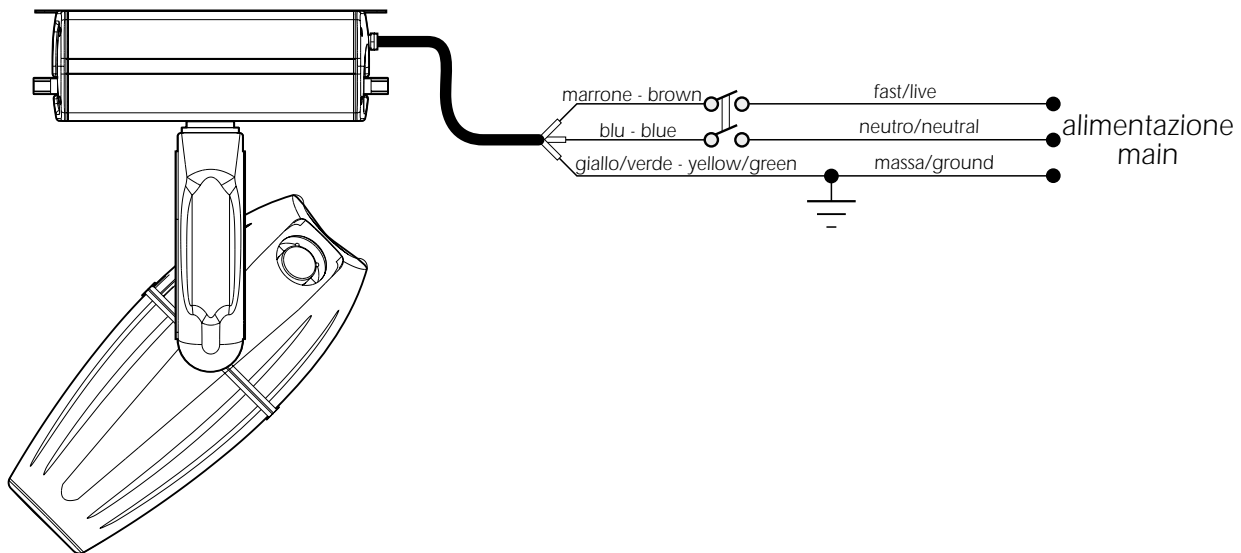
The mains cable provided is thermally resistant, complying to The most recent international standards. It meets or exceeds The VDE and IEC norms, IEC 331, IEC 332 3C, CEI 20 35.

NB: In case of cable replacement, similar cable with comparable thermal resistant qualities must be used exclusively (cable 3x1.5 \varnothing external 10 mm, rated 300/500V, tested to 2KV, operating temperature $-40^{\circ} + 180^{\circ}$, **coemar** cod. CV5309).

mains connection

The **CF 7 Hard Edge X** can operate at voltages from 208V-230V-240V at 50 or 60Hz (operating voltage and frequency can be selected as described in section 5 of this manual).

Prior to connecting the unit to your mains supply, ensure that the model in your possession correctly matches the mains supply available to you. For connection purposes, ensure your plug is of a suitable rating of 8 amps momentary absorption. Locate the mains cable which exits the base of the unit and connect as shown below:



protection

The use of a thermal magnetic circuit breaker is recommended for each **CF 7 Hard Edge X**.

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

Warning



WARNING!, DANGER!



The electronic ballast with which the **CF 7 Hard Edge X** is equipped, in common with other electronic devices such as amplifiers, monitors, and TVs, requires attention to the dimensions of the neutral cable, since the total current in the neutral cable is equal to the sum of all the current in all the active phases of the cable.

For example, if the current is measured at the distribution point as being 5Amps on phase R, 5Amps on phase S, and 5Amps on phase T, there will be a total of 15 Amps in the neutral.

We ask that you carefully consider your cable current loading and therefore ensure that your neutral cable is of a suitable rating.

The CF 7 Hard Edge requires a good earth connection; never install a fixture unless the yellow/green earth cable is properly connected.

ballast with PFC (power factor correction)

PFC is available as an accessory via the **coemar** distribution network as an accessory.

8. Signal connection

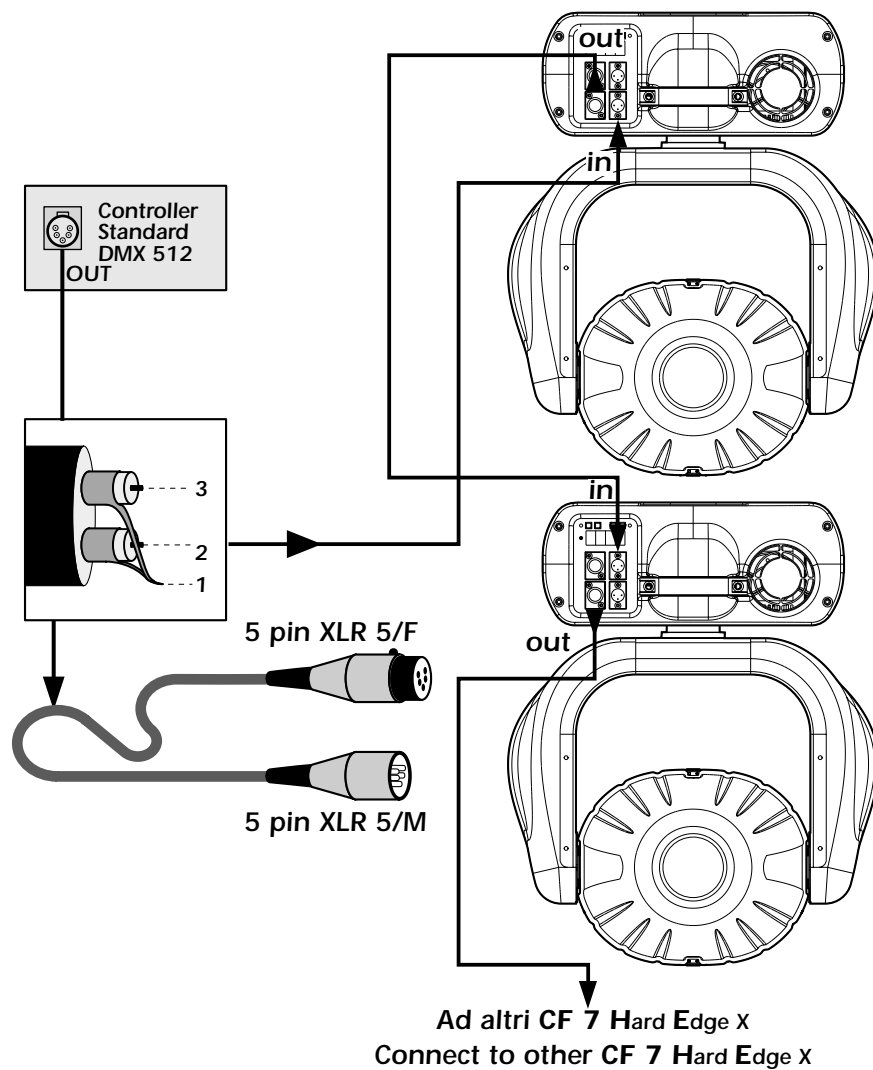
Control signal is digital, and is transmitted via two pair screened $\varnothing 0.5\text{mm}$ cable.

Connection is serial, utilising XLR 3 or XLR5 male and female sockets located on the base of the **CF 7 Hard Edge X**, labelled **DMX 512** and **DMX 512 standard** (see diagram).

Pin connections conform to the international standard:

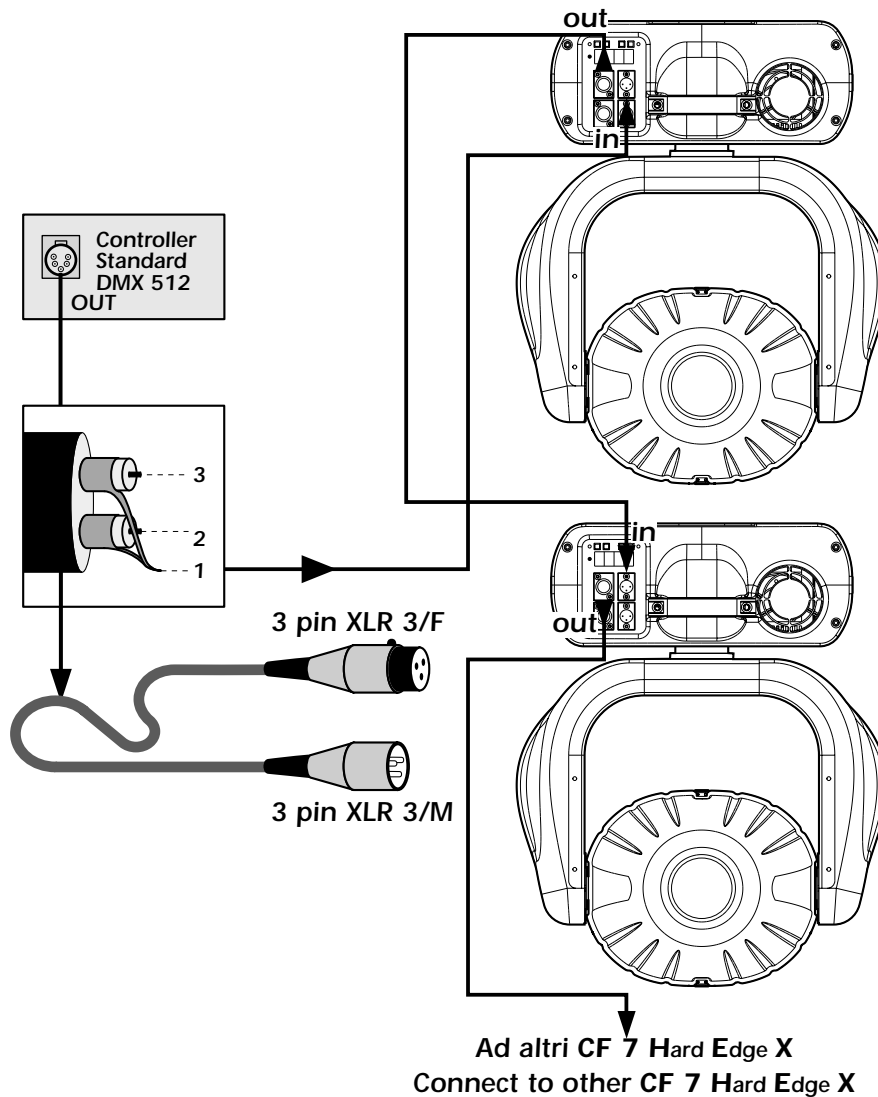
pin 1= screening 0 volt	pin 4= not connected
pin 2= data -	pin 5= not connected
pin 3= data +	

8.1 Connection using the male / female XLR 5



English

8.2 Connection using the male / female XLR 3

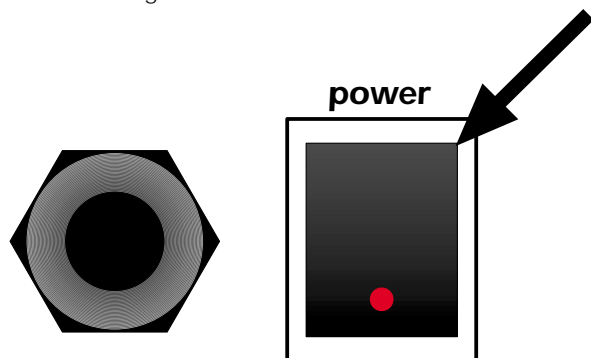


Ensure that all data conductors are isolated from one another and the metal housing of the connector.

Note: the housing of the cannon XLR 3 or 5 must be isolated.

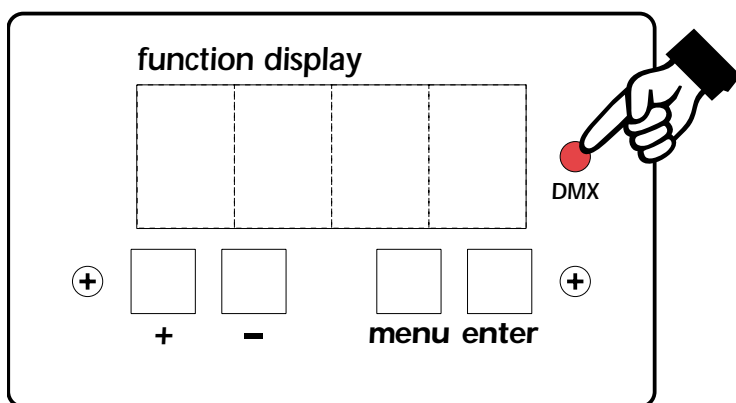
9. Powering up

After having followed the preceding steps, turn on the DMX 512 controller which will be used to control the **CF 7 Hard Edge X**. Following this, turn on the power to the projector, and turn on the projector's power switch. The projector 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.



DMX led

The DMX **led** will be static on to indicate that **DMX 512** signal is being correctly received by the projector.



If the led is off, the projector is not receiving signal. check the cabling and the functioning of the controller.

10. DMX addressing

Each **CF 7 Hard Edge X** utilises **20** or **21** channels of DMX 512 signal for complete control. The number of channels varies depending on the mode (**Mode**) selected; **Mod1** (20 channels), **Mod2** (21 channels). The additional channel offers further functions (for more details see paragraph **12. DMX 512 signal functions**)

DMX coding **MOD1** (mode 1 default)

To ensure that each projector accesses the correct signal, it is necessary to correctly address each fixture. Any number between 1 and 493 can be generated via the multifunction panel of the **CF 7 Hard Edge X**.

This procedure must be carried out on every **CF 7 Hard Edge X** being used.

When powered up initially, each projector will show **A001** which indicates **DMX address 1**; a projector thus addressed will respond to commands on channel **1** to **20** from **DMX 512 controller**. A second unit should be addresses as **21**, a third as **41** and so on until the final **CF 7 Hard Edge X** has been addressed.

DMX coding **MOD2** (mode 2)

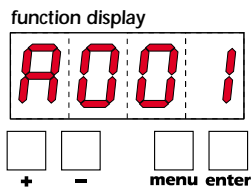
To ensure that each projector accesses the correct signal, it is necessary to correctly address each fixture. Any number between 1 and 492 can be generated via the multifunction panel of the **CF 7 Hard Edge X**.

This procedure must be carried out on every **CF 7 Hard Edge X** being used.

When powered up initially, each projector will show **A001** which indicates **DMX address 1**; a projector thus addressed will respond to commands on channels **1** to **21** from the **DMX 512 controller**. A second unit should be addresses as **22**, a third as **43** and so on until the final **CF 7 Hard Edge X**, has been addressed.

Altering DMX addresses

- 1) Press the **+** or **-** button until the display shows the **DMX** required, the characters in the display panel will flash to indicate that the selection is not stored in memory.



- 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** controller".


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






























































By pressing the **-** button, you may inadvertently select a DMX address which is not being communicated to the fixture by the controller, for example 500. If this is the case, the display will slow the data reception, (since it does not exist), and you will note that it is slow to respond to your commands (for example altering an address or requesting or confirming a reset). You may solve this problem by either sending data to this address, or by altering the incorrect DMX setting of the **CF 7 Hard Edge** in question.

11. Display panel functions






































On display panel of **CF 7 Hard Edge X** are shown all the functions available; it is possible to change some of those parameters and to add some functions.

Changing the setting made by coemar can vary the functions of the device that will not respond to the **DMX 512** mixer used to control it. Please carefully follow the instructions before applying any variations or selections.

NOTE: the symbol  shows which key has to be pushed to obtain the function desired.

A001  menu	 + 0 -	D I R P pan movement inversion To reverse horizontal movement direction of the beam from left to right and vice versa on DMX level variation.	 enter	 + 0 -	C W clockwise	 enter
				 + 0 -	C C W counter-clockwise	 enter
	 + 0 -	D I R T tilt movement inversion To reverse vertical movement direction of the beam from the bottom upwards and vice versa, on DMX level variation.	 enter	 + 0 -	C W clockwise	 enter
				 + 0 -	C C W counter-clockwise	 enter
	 + 0 -	O P T O optic sensors deactivation To deactivate optic sensors that sense the position of the yoke and the base of the unit and that allow the return in position of the unit if accidentally knocked out of place.	 enter	 + 0 -	O N sensors activation	 enter
				 + 0 -	O F F sensors deactivation	 enter
	 + 0 -	M O D E control mode selection To select the DMX 512 control mode at 20 and 21 channels	 enter	 + 0 -	M O D 1 mode at 20 channels (default)	 enter
				 + 0 -	M O D 2 mode at 21 channels	 enter
	 + 0 -	P A N selection of pan movement amplitude To select the pan movement amplitude, between 630° and 385°.	 enter	 + 0 -	6 3 0 630° pan movement (default)	 enter
				 + 0 -	3 8 5 385° pan movement	 enter
	 + 0 -	M O V E tipo di movimento PAN e TILT To choose between fast and soft Pan and Tilt movement	 enter	 + 0 -	S T R D standard movement	 enter
				 + 0 -	S O F T soft movement	 enter
	 + 0 -	L A M P lamp control Lamp on/off control inhibition by DMX signal.	 enter	 + 0 -	S T R D ignition by DMX 512	 enter
				 + 0 -	O N lamp always on	 enter
	 + 0 -	F A N S fans control Fans function controlled through PCB (Strd) Fans always on (on).	 enter	 + 0 -	S T R D automatic on/off	 enter
				 + 0 -	O N fans always on	 enter
	 + 0 -	G O B 1 gobo wheel 1 (rotating) To center the gobos of gobo wheel 1 on optical axis of the unit; to use proportionally the gobo wheel through DMX 512 creating shifted images.	 enter	 + 0 -	S T R D gobos automatic centering	 enter
				 + 0 -	S P E C proportional functioning	 enter
	 + 0 -	G O B 2 gobo wheel 2 (static) To center the gobos of gobo wheel 2 on optical axis of the unit; to use proportionally the gobo wheel through DMX 512 creating shifted images.	 enter	 + 0 -	S T R D gobos automatic centering	 enter
				 + 0 -	S P E C proportional functioning	 enter

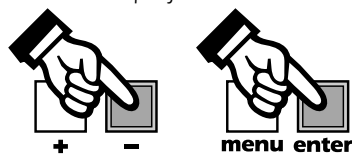
English

A001  menu	 + 0 -	DISP reverse display Reverse reading display depending on mounting position (ground mounted or suspended)	 enter	 + 0 -	AA suspended position	 enter
				 + 0 -	VV reverse	 enter
	 + 0 -	LED display control To disable display visualisation	 enter	 + 0 -	OFF switching off display (⇨ any key to re-activate it)	 enter
	 + 0 -	TEST display control Device operation test without using DMX signal	 enter	 + 0 -	PAN pan movement test	 enter
				 + 0 -	ALL motors test	 enter
	 + 0 -	RESE reset Reset function	 enter	 + 0 -	- - - - reset activation	 enter
	 + 0 -	RATE DMX speed DMX signal reception speed	 enter	 + 0 -	24.50 numeric value	 enter
	 + 0 -	LIFE lamp life Visualisation of lamp life (time covered by mains supply from last reset operation)	 enter	 + 0 -	0280 numeric value shown in hours	 enter
	 + 0 -	HOURL working time (lamp on) Visualisation of unit's working time (lamp on) (reset operation not possible)	 enter	 + 0 -	0550 numeric value shown in hours	 enter
	 + 0 -	HTOT total working time Total visualisation of unit's working time (time covered by mains supply) (reset operation not possible)	 enter	 + 0 -	0600 valore numerico espresso in ore	 enter

11.1. Powering up the CF 7 Hard Edge X without articulated movement

This function may be useful should you need to power up the **CF 7 Hard Edge X** to readdress it or alter any parameters and you wish to do this in the absence of any articulated movement.

- 1) Turn on the projector whilst holding down both the **enter** button and the **-** button.



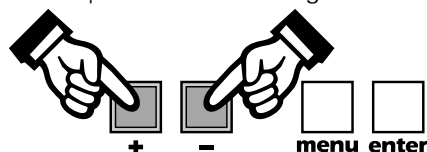
The projector will proceed with a reset of all the motors with the exception of those which control articulated movement, the pan and tilt motors, which remain static because not supplied.

- 2) You may alter the DMX address, or any other parameters available via the menu system without any articulated movement.
- 3) To return to normal functioning the projector needs simply be turned off and then turned on once again.

11.2. Counter reset

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) Power up the **CF 7 Hard Edge X** whilst simultaneously holding down the **+** and **-** buttons.



- 3) Press the **menu** button.
- 4) Press the **+** or **-** button until the display shows **LIFE** (for lamp life).
- 5) Press the **enter** button to confirm your selection; the display will show **0000** confirming that the counter has been reset.

11.3. 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 **-** button until the display shows **TEST** (for test).
- 3) Press the **enter** button to confirm your selection; the display will show **PAN** (for pan movement test). Press the **+** or **-** buttons for subsequent tests from **PAN** to **ALL**.

PAN= movement in the X-axis

FPA= fine movement in the X-axis

TIT= movement in the Y-axis

FTL= fine movement in the X-axis

ZOOM= movement of the zoom system

DIMM= opening/closing of the dimmer

SHUT= opening/closing of the strobe

IRIS= opening/closing of the iris diaphragm

FOCU= focus

GOB1= selecting gobo 1

GOPO= rotation gobo 1 360°

GR1= rotation gobo 1 & indexing of position

GOB2= selecting gobo 2

PRIS= selecting effect

RPR= rotation effects

LENS= inserting focus lenses

CYAN= cyan

MAGE= magenta

YELL= yellow

ALL= all motors tested

NOFU= no function

In these tests the projector simulates the reception of a DMX 512 signal which is increasing from 1 to 255 on the selected channel.

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

12. DMX 512 signal functions

As described on paragraph **10 DMX addressing**, the **CF 7 Hard Edge X** can be DMX controlled through your controller in two different modes: **MOD1** 20 channels and **MOD2** 21 channels.

To select the desired mode on the unit follow the following instructions:

- 1) Press the **menu** button.
- 2) Press the **+** or **-** until the display shows **MODE** (to select the function mode).
- 3) Press the **enter** button to confirm your selection; the display will show **MOD1** (for 20 channels mode). Press the **+** or **-** key until the display shows **MOD2** (for 21 channels mode).
- 4) Press the **enter** button to confirm your selection.

You will find herefollowing the 20 channels **MOD1** standard device and the function of the 21st channel achievable in mode **MOD2**

channel	function	type of control	effect	decimal
1	Base (pan) coarse	proportional	coarse control of the base movement	0-255
2	Base (pan) fine	proportional	fine control of the base movement	0-255
3	Yoke (tilt) coarse	proportional	coarse control of the Yoke movement	0-255
4	Yoke (tilt) fine	proportional	fine control of the Yoke movement	0-255
5	dimmer	step	closed	0-7
		proportional	from close to open	8-255
6	shutter	step	closed	0-9
		proportional	strobe effect increasing flash rate	10-127
		proportional	random strobe, increasing flash rate	128-247
		step	open	248-255
7	iris	step	open	0-15
		proportional	from large to small	16-115
		step	iris small	116-192
		proportional	iris pulse, with increasing pulse speed	193-251
		step	iris max, wide beam	252-255
8	Zoom	proportional	proportional zoom control from small to large beam	0-255
9	focus	proportional	proportional focus control	0-255
10	gobo 1 selection standard (Strd)	step	no gobo	0-20
		step	gobo 1	21-42
		step	gobo 2	43-64
		step	gobo 3	65-86
		step	gobo 4	87-108
		step	gobo 5	109-130
		step	gobo 6	131-151
		proportional	gobo wheel rotate continously, speed from min to max	152-255
NOTE: channel 10 function can be varied selecting gobo standard/special function on the back function display				
10	gobo 1 selection special (SPEc)	step	no gobo	0-10
		proportional	proportional gobo wheel rotation 360° from no gobo to the last gobo	11-151
		proportional	gobo wheel rotate continously, speed from min to max	152-255
11	gobo 1 360° positioning	step	no effect	0-10
		proportional	proportional indexable gobo positioning 360°	11-255
12	gobo 1 rotation & fine positioning	proportional	proportional indexable fine gobo positioning 360°	0-100
		proportional	continuos gobo rotation clockwise with proportional speed from max to min.	101-176
		step	gobo stop	177- 179
		proportional	continuos gobo rotation counter-clockwise with proportional speed from min. to max	180-255

channel	function	type of control	effect	decimal
13	gobo 2 selection standard (Strd)	step	no gobo	0-20
		step	gobo 1	21-42
		step	gobo 2	43-64
			gobo 3	65-86
		step	gobo 4	87-108
		step	gobo 5	109-130
		step	gobo 6	131-151
		proportional	gobo wheel rotate continuously, speed from min to max	152-255
NOTE: channel 13 function can be varied selecting gobo standard/special function on the back function display				
13	gobo 2 selection special (SPEc)	step	no gobo (clear)	0-10
		proportional	proportional gobo wheel rotation 360° from no gobo to the last gobo	11-151
		proportional	gobo wheel rotate continuously, speed from min to max	152-255
14	effects selection (prism, lens)	step	no effects (clear)	0-83
			effect 1	84- 171
			effect 2	172-255
15	prism rotation	proportional	proportional fine prism positioning 360°	0-128
		proportional	continuous prism rotation clockwise with proportional speed from max. to min.	129-189
		step	prism stop	190-192
		proportional	continuous prism rotation counterclockwise with proportional speed from min. to max.	193-255
16	No effect			
NOTE: channel 16 select gobo or iris focal lens when ch 20 is between 171 and 200				
16	Focal lens	step	Iris focal lens	0-85
		step	Gobo focal lens	86-170
		step	Narrow angle	171-255
17	cyan	proportional	proportional cyan control from white to cyan	0-255
18	magenta	proportional	proportional magenta control from white to magenta	0-255
19	Yellow	proportional	proportional yellow control from white to yellow	0-255
20	Lamp ON, motor Reset, zoom control mode	step	lamp off	0-10
		step	park, no function (idle)	11-29
		step	pan/tilt go to sensor	30-100
		step	all motor reset (only once)	101-170
		step	zoom control free	171-200
		step	zoom fast autofocus	201-240
		step	progressive zoom autofocus	241-249
		step	Lamp ON (progressive zoom autofocus)	250-255
Back panel can modify function channel (inhibit lamp off)				
You can use the unit in MODE 2, the CF 7 HEX add one more channel (21)				
21	pan/tilt movement selection	step	standard movement	0-127
		step	soft movement	128-255
note 1: 2 or 4 numbers close to the end limit levels cannot be used as unstable levels				
note 2: function channel (20) has a delay time of 6 second to prevent accidental activation.				
note 3 :on/off lamp mode is not affected unless an opposite value is received				

13. DMX control of the CF 7 Hard Edge X optical system

Using your DMX 512 controller you may control the optical system in 3 diverse methods. The method is selected by setting channel 20 to the required level.

A) Autofocus

The image focus is maintained automatically, image size is altered by using the **DMX Zoom**.

B) Fast Zoom Autofocus

The image size is altered using the **DMX Zoom**. As the image size changes, it loses focus momentarily whilst the zoom lenses achieves the position set by the DMX level selected. The process operates at approximately one third of the speed achieved in mode A described above.

C) Manual Zoom and Focus

Auto focus is deactivated; control over image size and focus is totally manual

In this mode, you may utilise the entire range of beam angles offered by the **CF 7 Hard Edge X**, as well as fading in and out between images and utilising wash and frost effects.

Following is a brief description of the procedure for selecting from the 3 modes described above:

NOTE: the @ symbol is used to signify setting the DMX level to a specific value.

A) Zoom Autofocus

- 1) turn on the lamp: channel 20 @ 255
 - 2) with the lamp on, set progressive autofocus: channel 20 @ 241 / 249
 - 3) select a "gobo" image: channel 10 @ 30
 - 4) open the black-out: channel 6 @ 255
 - 5) open the dimmer: channel 5 @ 255
 - 6) focus the projected image: channel 9 @ required level
 - 7) alter the image size (zoom): channel 8 @ required level
- The image maintains its focus, it zooms in and out according to the **DMX Zoom** level set.
Channel 16 is deactivated.

B) Fast Zoom Autofocus

- 1) turn on the lamp: channel 20 @ 255
 - 2) with the lamp on, set fast autofocus: channel 20 @ 201 / 240
 - 3) select a "gobo" image: channel 10 @ 30
 - 4) open the black-out: channel 6 @ 255
 - 5) open the dimmer: channel 5 @ 255
 - 6) focus the projected image: channel 9 @ required level
 - 7) alter the image size (zoom): channel 8 @ required level
- The image zooms in and out according to the dmz zoom level set, losing its focus as the zoom lenses moves and refocusing the image after the zoom position has been reached.
Channel 16 is deactivated.

C) Manual Zoom and Focus

- 1) turn on the lamp: channel 20 @ 255
- 2) with the lamp on, set "manual zoom": channel 20 @ 171/200
- 3) open the black-out: channel 6 @ 255
- 4) open the dimmer: channel 5 @ 255
- 5) use the "focus lens" channel: channel 16 @ required level

From 0 to 85 a lens is inserted which allows focusing on the iris diaphragm to occur.

From 86 to 170 a lens is inserted which allows focusing on the gobos to occur and allows the unit to produce its widest angle without a gobo inserted.

From 171 to 255, no additional lenses are used. This allows for maximum output from the projector and the minimum beam angle.

At this point, you may either select a gobo or utilise the unobstructed beam.

- 6) use the focus channel: channel 9 @ required level
- 7) use the zoom channel: channel 8 @ required level

You will now have complete control over the size of the projected image/beam which can be controlled by the **Zoom control via channel 8**, and the focusing of the beam by using channel 9.

The combination of channels 16 (focusing lenses), 9 (focus) and 8 (zoom), allows complete control over:

- the dimensions of the projected image
- focusing
- fading between superimposed gobos
- the wash and diffused/frost effects

14. Aligning the lamp in the optical system

Aligning the lamp in the optical system is achieved via the 3 adjusters at the rear of the projector. This procedure should be undertaken to properly align the lamp in the optical system and to avoid the possible overheating of the internal components due to the incorrect focusing of the beam onto components not intended to be exposed to this.

alignment procedure

Alignment is effected via the 3 adjusters **A**, **B** and **C** operating in conjunction with each other. The lamp should be on, black-out and dimmer fully open, and no colour filters inserted.

If the lamp is not correctly aligned, a hot-spot will be noticeable. This is a function of the lamp's positioning. Use the two adjusters (**A** and **B**) to bring the hot-spot to the centre of the beam. Use the third adjuster (**C**) to flatten the beam to maximum uniformity.

vertical adjustment

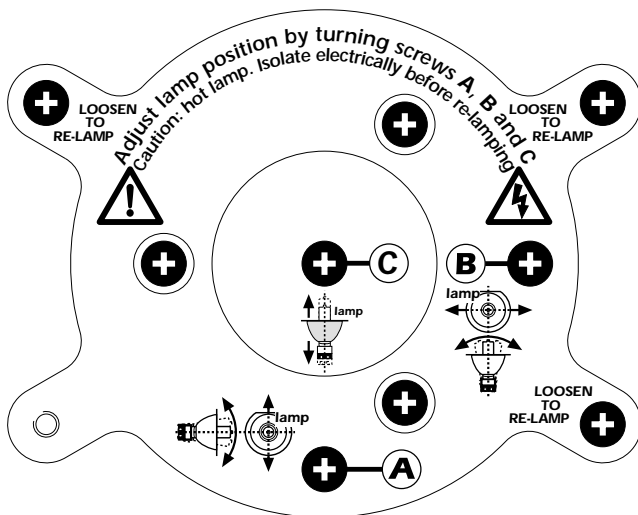
Screw (**B**) acts on a lever and spring assembly to position the lamp via a vertical movement within the reflector; rotate it until correct positioning is achieved.

horizontal adjustment

Screw (**A**) acts on a lever and spring assembly to position the lamp via a horizontal movement within the reflector; rotate it until correct positioning is achieved.

axial adjustment

Screw (**C**) moves the entire lamp assembly axially within the unit; rotate it until correct positioning is achieved, resulting in a flat, even beam.



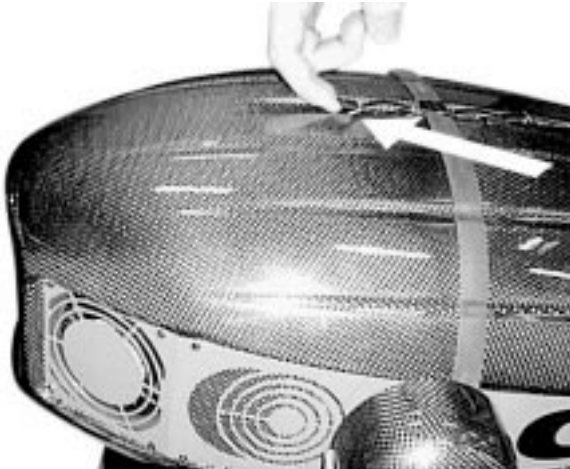
15. Opening up the projector housing

By removing the carbon fibre casing, complete access is available to the internals of the projector.

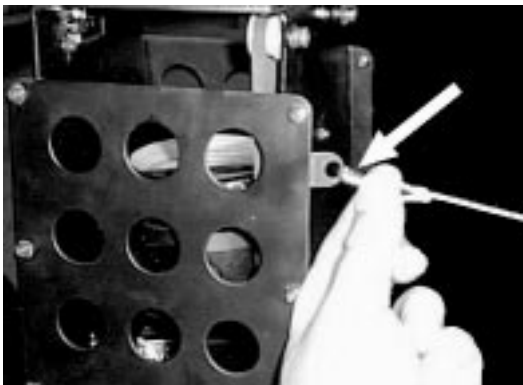
Attention

Remove mains power prior to accessing the internal components of the projector.

- 1) Lift the 2 latches located towards the rear of the unit and the two towards the front.



- 1) Detach the safety cables.



16. Interchanging gobos

The **CF 7 Hard Edge X** utilises a mechanical system which allows the fixture's gobos to be removed without the need for specialised equipment.

Replacement gobos should be made of either heat resistant glass or metal.

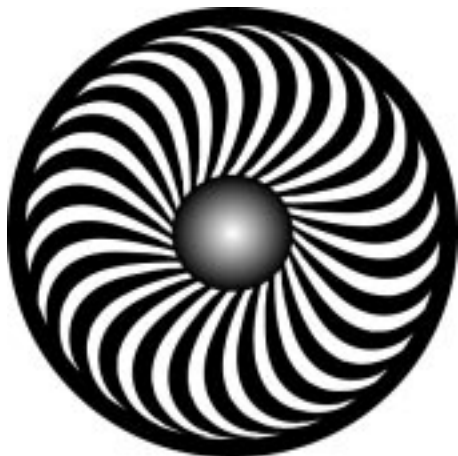
An ever-increasing range of gobos is available from your **coemar** sales network.

replacing gobos on the rotating gobo wheel

Gobos may be replaced as required to produce special effects as required.

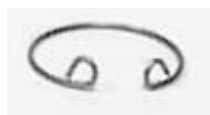
Gobos dimensions are as follows:

fixed gobos:	\varnothing external= 26 mm \varnothing image area= 20 mm thickness= 1 mm
rotating gobos:	\varnothing external= 26 mm \varnothing image area= 20 mm thickness= 1/3 mm



Gobos should be replaced only when the projector is unpowered and the housing removed as described in section 14.

1) Release the gobo retaining spring and thereby the gobo as shown in the following diagrams.



2) Reverse the procedure to install a replacement gobo.

17. Automatic internal functions

The **CF 7 Hard Edge X** has several automatic functions and features which at first glance may not be noticed. However, they serve to add functionality to the projector, and to assist in extending the serviceability of the unit.

on-board hot-strike timer

This on-board feature ensures that the operator cannot re-ignite the lamp until 6 minutes have passed since the lamp was switched off.

This is designed to avoid damage to the lamp ignition circuit which can occur if an operator continually attempts to strike a hot lamp. It further protects the lamp from possible damage due to voltage spikes which may occur at this time.

NOTE: The timer is reset only when the projector is switched off.

on-board lamp ignition timer

This feature ensures that an operator cannot repeatedly attempt to strike a lamp for more than 3 seconds if the lamp does not ignite. It will automatically attempt to restrike the lamp for 3 seconds in every subsequent minute.

This is designed to protect the ballast and lamp ignitor from prolonged usage in less than ideal conditions.

NOTE: it is important to replace a lamp that is at the end of its useful life and replace it. Old lamps are generally progressively more difficult to strike.

thermal protection

Two thermal sensors in the body and base of the **CF 7 Hard Edge X** protect the unit against overheating.

The thermal sensors operate by removing voltage to the lamp if the ambient temperature rises above a preset maximum due to either less than ideal air circulation around the fixture or in the event of cooling fan failure.

automatic realignment

An internal 4 point encoder system allows the **CF 7 Hard Edge X** to return to its correct position in case the unit is accidentally knocked out of alignment whilst operating. This is particularly useful if the projector is to be mounted on the floor in a position where the performer or artist may accidentally bump the unit.

NOTE: this facility may be deactivated if desired (see section 11 opto).

18. Maintenance

Whilst every possible precaution has been taken to ensure the trouble-free operation of your **CF 7 Hard Edge X**, the following periodic maintenance is highly recommended.

Attention

Disconnect mains power prior to removing the projector housing.

To gain access to the internals of the unit refer to section **14.** of this manual, *Opening the projector housing*.

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 specialist lens cleaning solution.

fans and air passages

The fans and air passages must be cleaned approximately 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, available from your **coemar** distributor.

electrical components

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

fuse replacement

Locate the fuse, which protects the lamp and electronics, in the base of the **CF 7 Hard Edge X**.

Using a multimeter, test the condition of the fuse, replacing it with one of equivalent type if necessary.

19. Electronic motor alignment

INSTALLER INSTRUCTIONS ONLY

The display panel at the rear of the **CF 7 Hard Edge X** allows for the electronic alignment of the projector's motors in the optical system. 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 factory settings may radically alter the functioning of the projector. Carefully read all of the following prior to attempting any changes.

electronic calibration

Important Note: electronic calibration is only possible if the projector is connected to a **DMX 512** source.

- 1) Press the menu button.
- 2) Press the + or - button until the display shows **RESE** (for reset).
- 3) Press the enter button to confirm your selection then immediately and simultaneously press and hold the **menu** button, holding both pressed for at least **30** seconds. The motors of the unit will perform a reset and the display will show **---** for some few seconds, indicating that you have entered the electronic calibration mode.

 + 0 -	PNAL pan alignment Pan movement alignment	 enter	0128	 + 0 -	es.	0120	 enter
 + 0 -	TLAL tilt alignment Tilt movement alignment	 enter	0128	 + 0 -	es.	0120	 enter
 + 0 -	SHAL shutter alignment Shutter alignment	 enter	0128	 + 0 -	es.	0120	 enter
 + 0 -	CYAL cyan alignment Cyan colour alignment	 enter	0128	 + 0 -	es.	0140	 enter
 + 0 -	MAAL magenta alignment Magenta colour alignment	 enter	0128	 + 0 -	es.	0130	 enter
 + 0 -	YEAL yellow alignment Yellow colour alignment	 enter	0128	 + 0 -	es.	0125	 enter
 + 0 -	FOCU focus alignment Focus alignment	 enter	0128	 + 0 -	es.	0135	 enter
 + 0 -	G1AL gobo wheel 1 alignment Alignment of first gobo wheel (rotating gobos)	 enter	0128	 + 0 -	es.	0132	 enter
 + 0 -	G2AL gobo wheel 2 alignment Alignment of second gobo wheel (static gobos)	 enter	0128	 + 0 -	es.	0127	 enter
 + 0 -	GRAL gobos alignment Gobos alignment	 enter	0128	 + 0 -	es.	0121	 enter
 + 0 -	PRAL prisms alignment Rotating prisms alignment	 enter	0128	 + 0 -	es.	0140	 enter
 + 0 -	LENT lenses alignment Focusing lenses alignment	 enter	0128	 + 0 -	es.	0127	 enter
 + 0 -	END end To end the motors' electronic alignment procedure and confirm it.	 enter	A001				

Note: Simultaneously pressing the **+** and **-** buttons will return the calibration value to the default value of 128.

20. Spare parts

All the components of the **CF 7 Hard Edge X** are available as replacement spares from your authorised **coemar** sales agent.

Accurate description of the fixture, model number, and type will assist us in providing for your requirements in an efficient and effective manner.

21. Patents

CF 7 Hard Edge X is covered under international patent that cannot be reproduced without the consent of coemar.

Patent Pending