BARCO

BARCO PROJECTION SYSTEMS

BARCO DATA
3200

R9001190

OWNER'S MANUAL

Federal communication commission (FCC statement)

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Instructions to the user :

if this equipment does cause interference to radio or television reception, the user may try to correct the interference by one or more of the following measures :

- Re-orientation of the receiving antenna for the radio or television.
- Relocate the equipment with respect to the receiver.
- Plug the equipment into a different outlet so that the equipment and receiver are on different branch circuits.
- Fasten cables connectors to the equipment by mounting screws.

Note :
The use of shielded cables is required to comply within the limits of Part15 of FCC rules and EN55022.

TABLE OF CONTENTS

Table of Contents

1 UNPACKING & DIMENSIONS

Unpacking

To open the banding, pull on the clip as shown in the first drawing.

Take the projector out of its shipping carton and remove the foam rubber corners and place the projector on a table.

Save the original shipping carton and packing material, they will come in handy if you ever have to ship your projector. For maximum protection, repack your projector as it was originally packed at the factory.
Contents of the shipped box :

- 1 BARCODATA 3200
- 1 remote control unit RCU + 9V battery
- 1 power cable with outlet plug type CEE7.
- 1 owner's manual.
- 1 installation manual.
- 1 safety manual
- 3 plastic supporting feet.
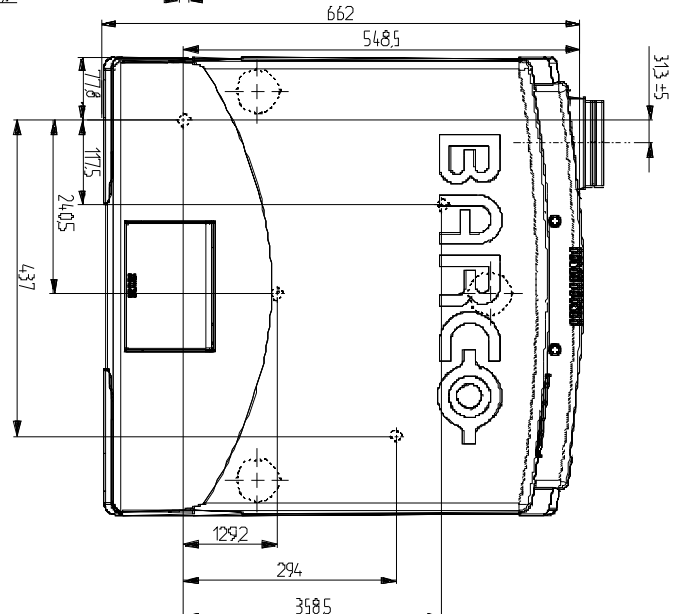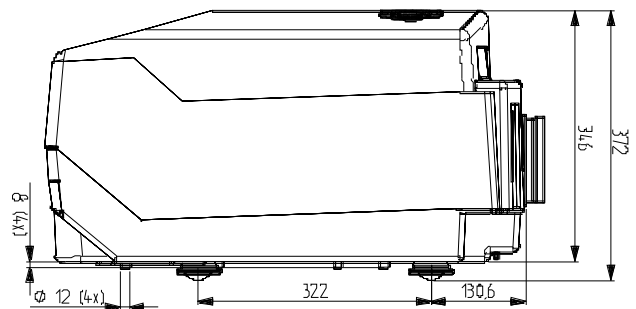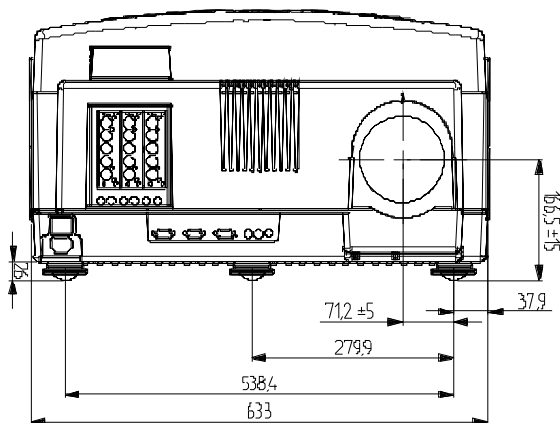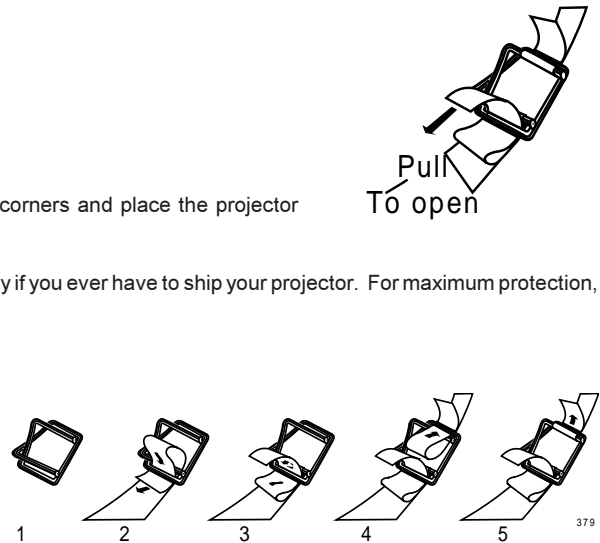
Battery installation in the RCU.

A battery is delivered inside the plastic bag with the power cord. Before using the RCU, first install the battery.

Remove the battery cover on the backside of the remote control by pushing the indicated handle a little to the bottom of the RCU. Lift up the top side of the cover at the same time (fig. 1).

Insert the new 9 V battery in the lower compartment and connect the battery to the contact plate. Insert the battery into the lower compartment and put the cover back.
Note : projector address has to be programmed on the RCU before using the RCU (see chapter 'Controlling').

fig.1

Contact plate

Battery

Insert here the 'Insert card RCU' which you can cut out on the last page of this manual.

fig.2
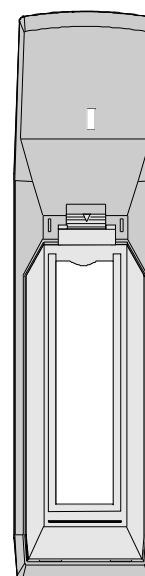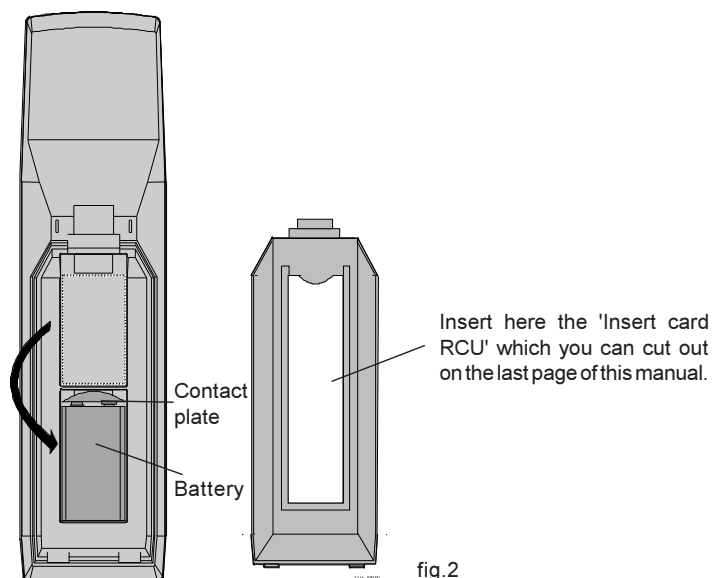
2 INSTALLATION GUIDELINES

Installation guidelines

Careful consideration of things as image size, ambient light level, projector placement and type of screen to use are critical to the optimum use of the projection system.

Max. ambient temperature : 40 °C.
Min. ambient temperature : 0 °C
The projector will not operate if ambient air temperature falls outside this range (0 °C - 40 °C)

* Environment

Do not install the projection system in a site near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust or humidity. Be aware that room heat rises to the ceiling; check that temperature near the installation site is not excessive.

* What about ambient light ?

The ambient light level of any room is made up of direct or indirect sunlight and the light fixtures in the room. The amount of ambient light will determine how bright the image will appear. So, avoid direct light on the screen.

Windows that face the screen should be covered by opaque drapery while the set is being viewed. It is desirable to install the projecting system in a room whose walls and floor are of non-reflecting material. The use of recessed ceiling lights and a method of dimming those lights to an acceptable level is also important. Too much ambient light results in a 'wash out' of the projected image. That appears as less contrast between the darkest and lightest parts of the image. With bigger screens, the 'wash out' becomes more important. As a general rule, darken the room to the point where there is just sufficient light to read or write comfortably. Spot lighting is desirable for illuminating small areas so that interference with the screen is minimal.

* Which screen type?

There are two major categories of screens used for projection equipment. Those used for front projected images and those for rear projection applications.

Screens are rated by how much light they reflect (or transmit in the case of rear projection systems) given a determined amount of light projected toward them. The 'GAIN' of a screen is the term used. Front and rear screens are both rated in terms of gain. The gain of screens range from a white matte screen with a gain of 1 (x1) to a brushed aluminized screen with a gain of 10 (x10) or more. The choice between higher and lower gain screens is largely a matter of personal preference and another consideration called the Viewing angle.

In considering the type of screen to choose, determine where the viewers will be located and go for the highest gain screen possible. A high gain screen will provide a brighter picture but reduce the viewing angle.

For more information about screens, contact your local screen supplier.

* What image size? How big should the image be?

The BARCODATA 3200 is designed for projecting an image size from 1.00m (3.3ft) to 10.00m (32,81ft) with a aspect ratio of 4 to 3.
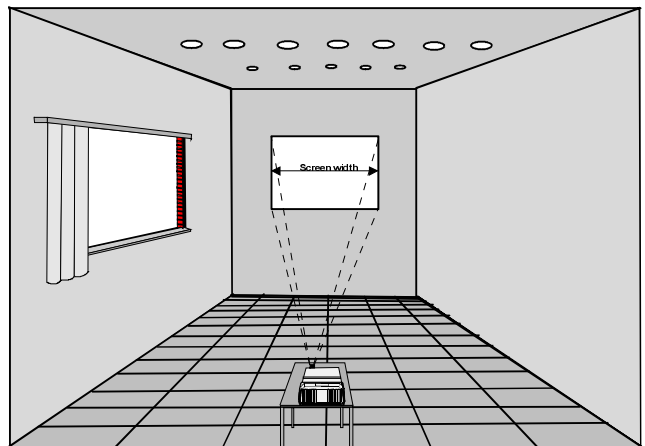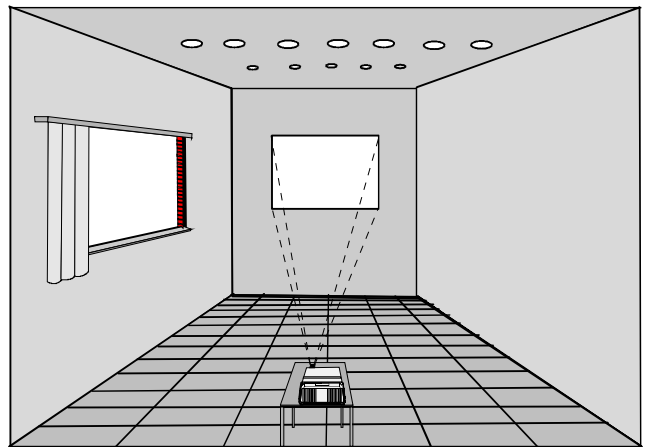
* Where to install the projector?

Definitions of the Abbreviation on drawings

B = Distance between ceiling and top of the screen or between floor and bottom of the screen.

A = Correction value, distance between bottom side of projector (without feed) and middle of the lens. Value to be subtracted from B to obtain the correct installation position. (A value is a constant value for all screen widths and type of lenses, A = 140.5 mm.)

CD = Total distance between projector and ceiling or projector and floor.

SW = Screen width.

SH = Screen height (image height).

PD = Projector Distance, distance between screen and projector.

Inputs and computer video format input compatibility :

Some examples :

VIDEO and S-VIDEO
COMPONENT VIDEO
RGB ANALOG with STANDARD SYNC (SYNC ON GREEN or SEPARATE SYNC)
RGB ANALOG with TRI-LEVEL SYNC (SYNC ON GREEN or SEPARATE SYNC)
VGA : 640 x 480 pixels
MAC : 640 x 480 pixels
Super VGA : 800 x 600 pixels
XGA : 1024 x 768 pixels
Sources with pixel clock < 80 MHz

Lens type selection.

a) determine the required screen width.

b) determine the approximate position of the projector in the projection room with regard to the screen and measure the projector-screen distance (PD).

c) use the lens formulas in appendix B to find the best corresponding PD with regard to the measured projector-screen distance for the required screen width.
The desired lens is determined (the order number is given in the tabel in the same appendix B).
Start the installation procedure for the projector as described in the manual.

* How to install a projection lens?

The projector is supplied without any lens. The following lenses are available as an option (order numbers are given in appendix B) :

MD(1.2:1)	MD(1.7-3:1)
MD(2.3:1)	MD(3.0-6.0:1)
MD(3.4:1)	
MD(5.0:1)	
MD(6.0:1)	
MD(7.0:1)	
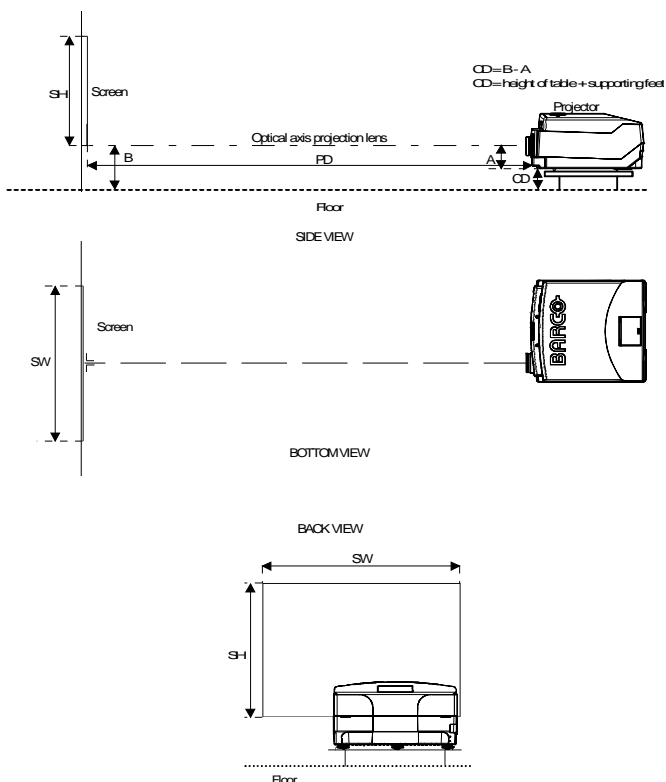
How to install the lens?

Remove the foam rubber in the opening of the lens holder.

- Take the new lens out of its shipping carton and remove the lens covers.
- Turn the lens into the lens holder by turning clockwise.
- Focus the lens (see appendix B, 'Lenses') and secure the correct position with the fastener ring by turning this ring clockwise.

3 LOCATION AND FUNCTION OF CONTROLS

3-1

Front panel terminology

1	**Power switch :** '1' = on, '0' = off	**9**	**Remote** : Remote input for wired remote control.
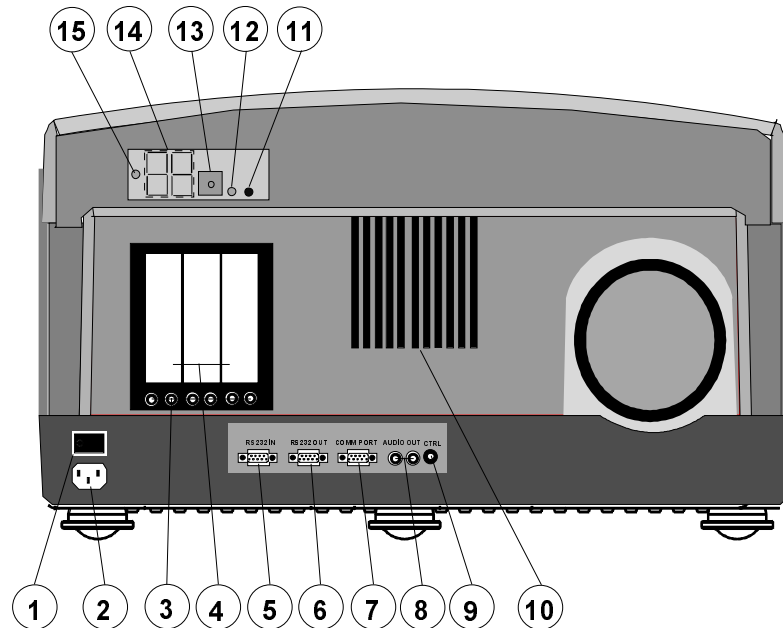
1   **Power switch :**   '1' = on, '0' = off

2   **Power input** : Autoranging from 90 to 250 Vac.

3   **Audio input** for Video signals only.

4   **Input slots :** The projector has modular input facilities. 3 input modules can be inserted. The sequence of insertion has no importance.
The following modules can be inserted :
- Video, S-Video (PAL, SECAM, NTSC) input
- RGBS/RGsB analog input
- RGB3S/RG3sB input
- Component Video input

5   **RS232 IN** : To allow communication with external computer, e.g. IBM PC or compatible, Macintosh ...

6   **RS232 OUT** : Used to connect to next projector, RS232IN plug (communication link for PC or MAC to the next projector).

7   **Communication port** : Allows communication with the 800 peripherals.

8   **Audio output**.

9   **Remote** : Remote input for wired remote control.

10   **Loudspeaker** : for use in small areas only.

11   **IR-Acknowledged :** IR signals are recognized (green led).

12   **IR-Received :** IR signals are received but not recognized by the projector (red led).

13   **IR receiver** : Receiver for control signals transmitted from the RCU.

14   **Diagnostics code :** a) Source number
b) Error code : A two digits error code is displayed when something goes wrong inside the projector.

15   **Projector mode indication** : Indicates the status of the projector.

No lighting up : Power switch is not pressed.
Red lighting up : Power switch is pressed, projector in stand by mode.
Green lighting up : Projector in operational mode.

Control Panel Terminology
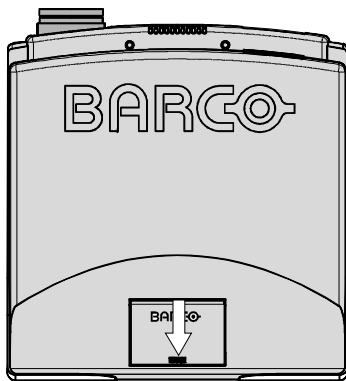
a. Local keypad

Gaining access

The keypad is located behind a door, screened with the name of the projector.

To open the door, push once on the indicated side of the door and turn it to the front side of the projector.
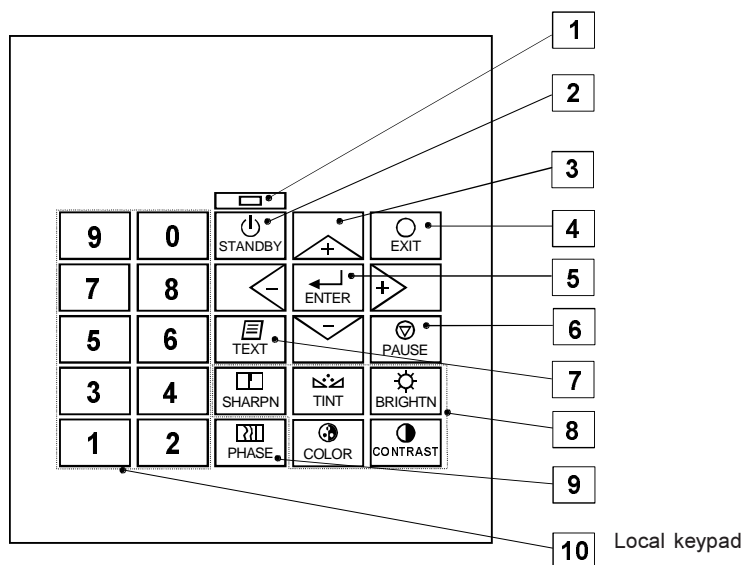
Local keypad

b. Remote control

This remote control includes a battery powered infrared (IR) transmitter that allows the user to control the projector remotely.
This remote control is used for source selection, control, adaptation and set up. It includes automatic storing of :
  - Picture controls (Brightness, Sharpness...)
  - Settings

Other functions of the remote control are :
- Switching between standby and operational mode.
- Switching to "pause" (blanked picture, full power for immediate restarting)
- Direct access to all connected sources.
- Variable adjustment speed : when pushing continuously on the control stick or the picture keys, the adjustment will be executed in an accelerated fashion.
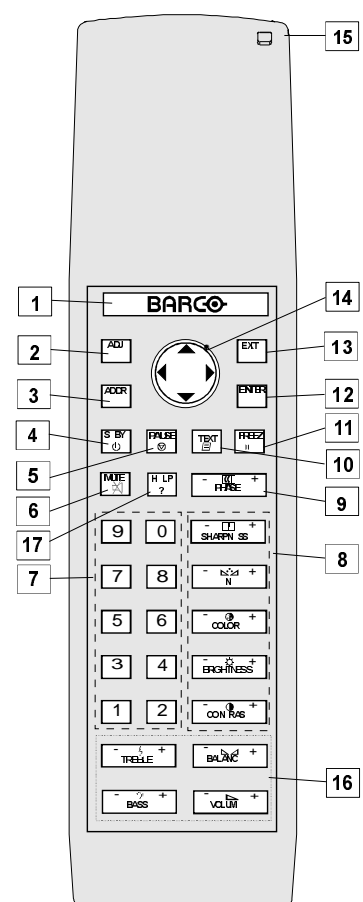
Remote Control (RCU)

Terminology

(1) **Back light key** : When activated, all keys will be lighted up and visible in the dark.

(2) **ADJ.** : ADJUST key, to enter the adjustment mode or for quick exit in the adjustment mode.

(3) **A**ddress key (recessed key), to enter the address of the projector (between 0 and 9). Press the sunk address key with a pencil, followed by pressing one digit button between 0 and 9.

(4) **STBY** : Stand by button   - to start projection when the power switch is switched on.
                                    - to switch off the projector without switching off the power switch.

(5) **PAUSE** : To stop projection for a short time, press 'PAUSE'. The image disappears but full power is retained for imme-diate restarting.

(6) **Mute :** To stop audio reproduction. Press 'Mute' again to restart audio reproduction.

(7) **Digit buttons** : Direct input selection.

(8) **Picture controls** : Use these buttons to obtain the desired picture analog level (see also 'Controlling').

(9) **PHASE** : Used to remove the instability of the image.

(10) **TEXT** : When adjusting one of the image, e.g. controls during a meeting, the displayed bar scale can be removed by pressing 'TEXT' key first. To re-display the bar scale on the screen, press 'TEXT' key again. 'TEXT' key only active in operational mode.

(11) **FREEZ** : Press to freeze the projected image.

(12) **ENTER** : To start up the adjustment mode or to confirm an adjustment or selection in the adjustment mode.

(13) **EXIT** : To leave the adjustment mode or to scroll upwards when in the adjustment mode.

(14) **Control disk** (on RCU) or **'+' and '-' keys** (cursor keys): To make menu selections when in the adjustment mode. The control disk can move up, down, to the right or to the left. Comparision between control disk movement and the use of the cursor keys on the local keypad :

RCU		local keypad
control disk up	=	'+' key up
control disk down	=	'-' key down
control disk to the right	=	'+' key right
control disk to the left	=	'-' key left

Use the **'+' and '-' keys** (cursor keys) : to increase or decrease the analog level of the image controls when they are first selected.

(15) **RC operating indication** : Lights up when a button on the remote control is pressed. (This is a visual indicator to check the operation of the remote control)

(16) **Audio controls** : Use these buttons to obtain the desired audio level (see also 'Controlling').

(17) **Help :** On line help information

4 CONNECTIONS

Power (mains) cord connection

Use the supplied power cord to connect your projector to the wall outlet. Plug the female power connector into the male connector at the front of the projector.

This projector may be connected to an IT-power system.

Fuses
Warning
For continued protection against fire hazard :
  - refer replacement to qualified service personnel
  - ask to replace with the same type of fuse.
    Fuse type : T16 AH/250V

100V - 240V
10 - 4 A
60 - 50 Hz

Projector mode indication
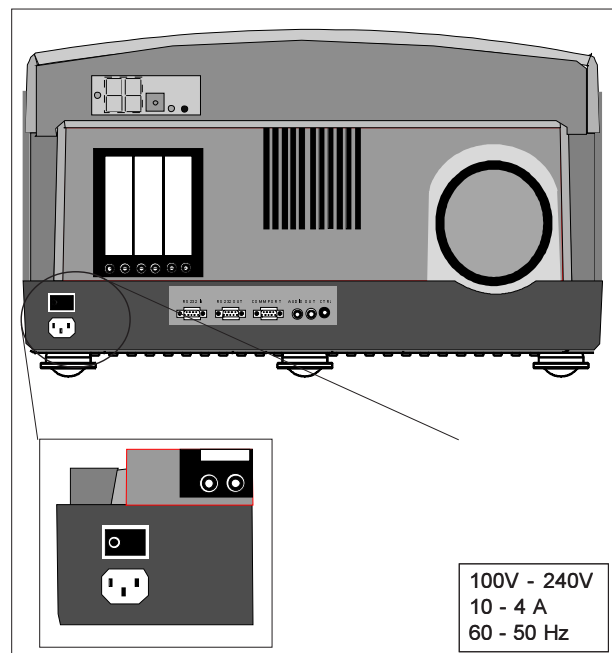
Switching on

Use the power switch to switch on.

  When '0' is visible, the projector is switched off.
  When '1' is visible, the projector is switched on.
When switching on with the power switch, the projector starts in the stand by mode. The projector mode indication lamp is red.

To start image projection :

a. press the 'Stand by' button on the local keypad or on the remote control. The projector mode indication lamp will be green.

b. press a digit button to select an input source. The projector mode indication lamp will be green.

Stand by button
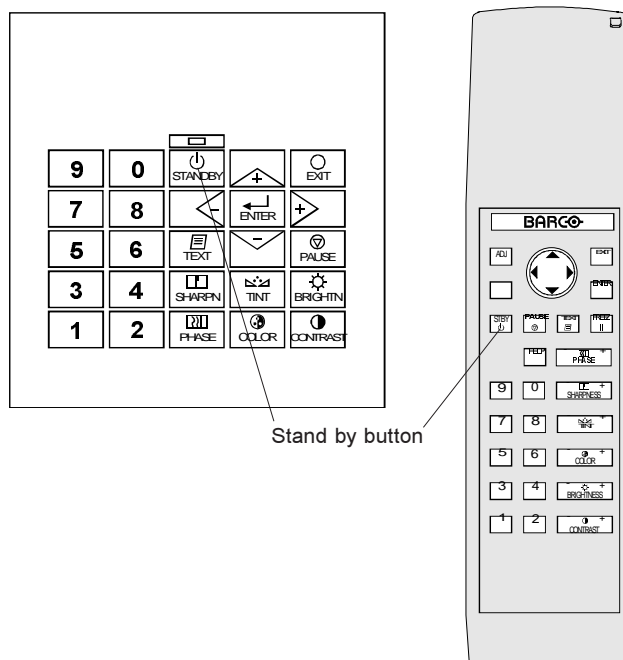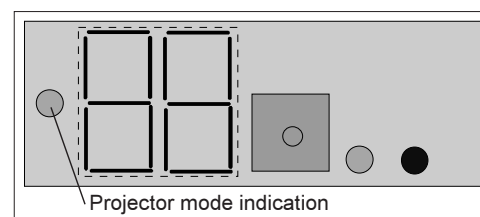
When the total run time of the lamp is 720 hours or more, the following message will be displayed for 1 minute. This message will be repeated every 30 minutes. Press EXIT to remove the message before the minute is over.

When the total run time of the lamp is 750 hours or more, the following message, with the exact run time is displayed on the screen.

Lamp run time is 750 hours. Operating the lamp longer than 750 hours may damage the projector. Please replace the lamp.

When OK (ENTER) is pressed to go on, the warning will be repeated every 30 min.

The total lifetime of the lamp for a safe operation is 750 hours max. (normal power mode). Do not use it longer. Replace always with a same type of lamp. Call a BARCO authorized service technician for lamp replacement.

Warning : Using a lamp for more than 750 hours is dangerous, the lamp could explode.

Lamp run time 720 h

WARNING

Lamp run time is 750 hours
Operating the lamp longer
than 750 hours may damage
the projector.
Please replace the lamp

<ENTER> to continue
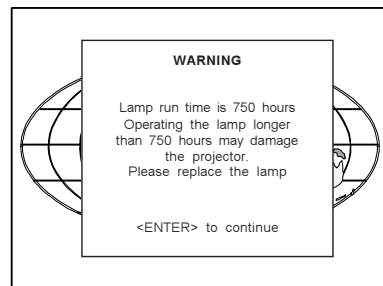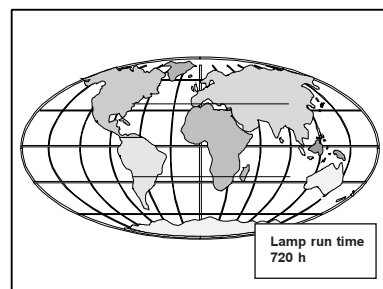
Switching to stand-by.

When the projector is running and you want to go to stand-by, press the stand-by key.

Switching off

To switch off:
- press first **STANDBY** key and let cool down until the fans stop blowing (or at least 15 min).
- switch off the projector with the power switch.

Input connections.

The projector has modular input facilities. The input slots can be filled up with the following modules :

Video, S-video (PAL, SECAM, NTSC) input
   order no. R9827900
RGBS/RGsB analog input
   order no. : R9827910
RGB3S/RG3sB input
   order no. : R9827920
Component Video input
   order no. : R9827930

The sequence of insertion has no importance. It is even perfectly possible to insert several input modules of one type.

Note : When using a RCVDS05 or VS05, the input configuration of the projector must be as follows:
   Slot 1 : video input module
   Slot 2 : RGB analog input module
   Slot 3 : Component input module

Input module insertion into the projector :

- Power down the projector and disconnect the power cord from the wall outlet.
- Remove the dummy plate covering the chosen input slot by turning out both screws.
- Slide the input module in the free slot. Insure the module is seated correctly in the guide grooves.
- Press on both handles of the input module until the module plug seats in the connector of the projector.
- Secure the input module by tightening both retaining screws.
- Reconnect the power cord to the wall outlet and switch on the projector.

The new installed module can be selected with the digit buttons on the RCU or the local keypad.
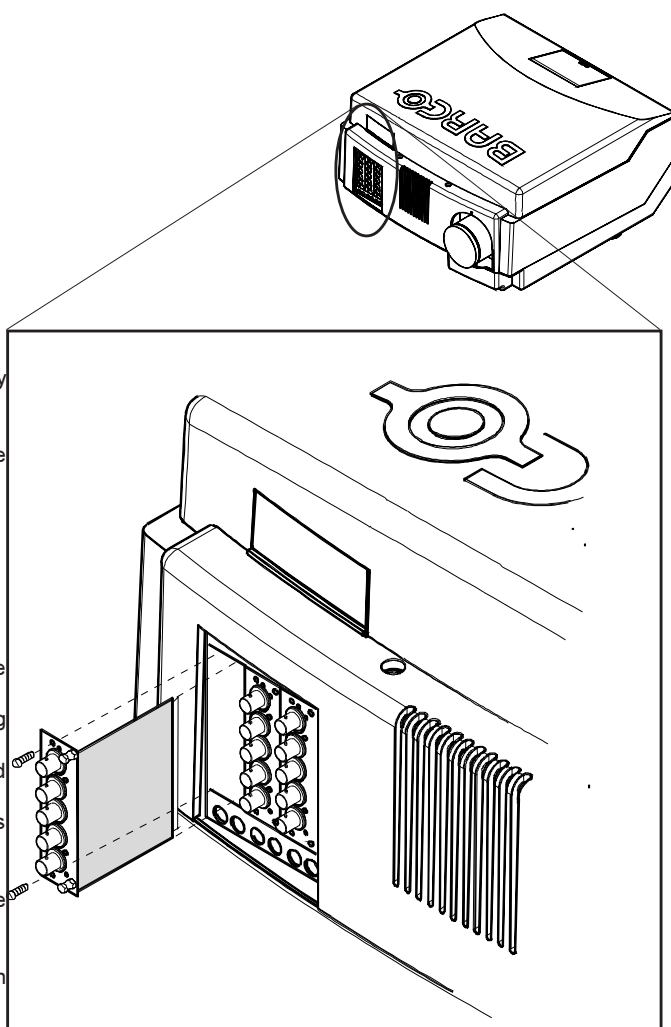
Video/S-video input module

To the Video input :

Composite video signals from a VCR, OFF air signal decoder, etc...
1 x BNC 1.0Vpp ± 3 dB

To the S-Video input :

Separate Y-luma/C-chroma signals for higher quality playback of Super VHS-signals.

1 x 4 pins plug (mini DIN)
pin configuration :
  1 ground luminance
  2 ground chrominance
  3 luminance 1.0 Vpp ± 3 dB
  4 chrominance 282 mVpp ± 3 dB

Input selection :

Key in the corresponding slot number on the RCU or the local keypad. Depending on the priority setting in the Input slots menu, Video or S-Video will be displayed. If the wrong source type is displayed, start up the adjustment mode by pressing **ADJUST** or **ENTER**.

Push the control disk up or down to highlight Installation and press **ENTER** to display the 'Installation menu'.
EXIT returns to operational mode.

Use the control disk to select 'Input Slots' by pushing it up or down and press **ENTER**. The internal system will scan the inputs and displays the result in the 'Input Slots menu'.

Push the control disk up or down to select the corresponding (video or S-video) input slot number.
To change the priority between Video and S-Video, press **ENTER** key to toggle.

S-VIDEO   AUDIO   VIDEO
          L   R

☼ On   ☼ On
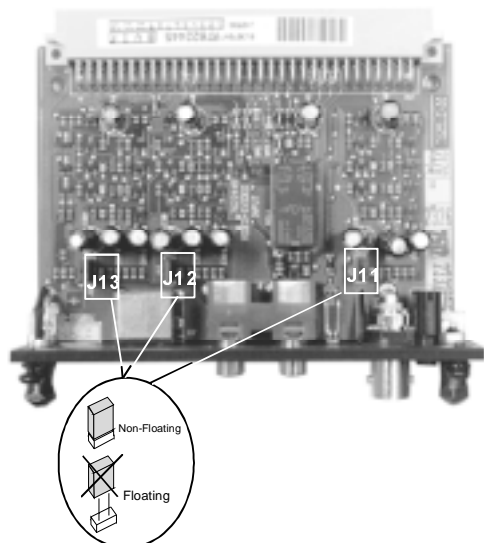
BARCO   VIDEO/S-VIDEO INPUT
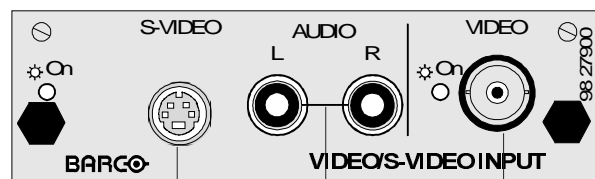
S-Video input   Audio input for   Video input
                     S-Video

Luma/Chroma

Audio   Audio   Composite
                          Video

Audio to amplifier

VCR S-VHS   TV tuner, e.g.   Audio amplifier
               TVDM 40 stereo

VCR

ADJUSTMENT MODE

Select a path from below :

RANDOM ACCESS
INSTALLATION
SERVICE

INSTALLATION

INPUT SLOTS
CONVERGENCE
CONFIGURATION
INTERNAL PATTERNS

INPUT SLOTS

1. RGB-SS[CV]
2. RGB-SOG
3. Video/S-Video [Video]

J13   J12   J11

Non-Floating

Floating

Floating or non floating input
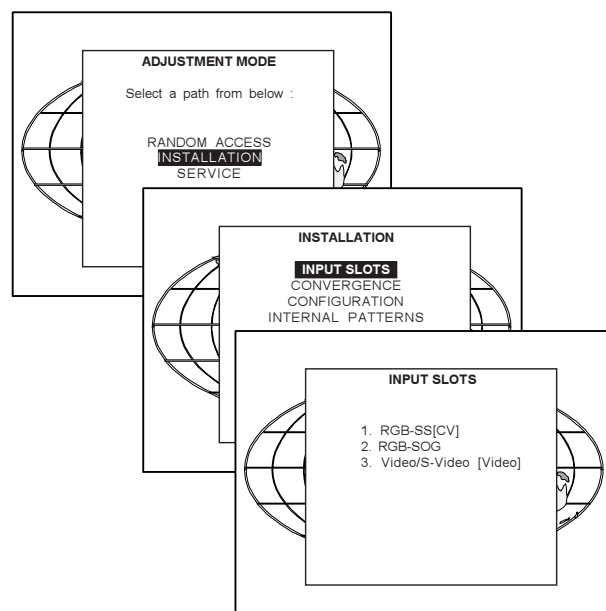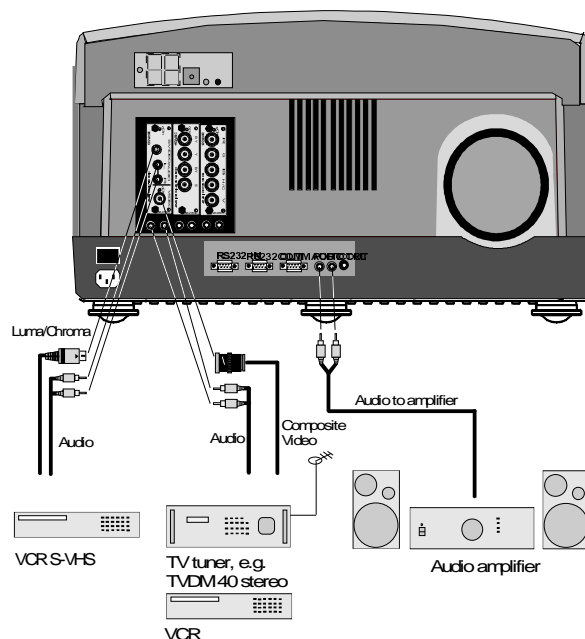
Straps on module level.

Floating or non-floating input.

Video input :
J11 : strap "yes" : non floating   strap "no" : floating

S-Video input :
J12 : strap "yes" : non floating   strap "no" : floating
J13 : strap "yes" : non floating   strap "no" : floating

Factory preset : strap on, input non floating.

RGB analog input module.

RGB analog input terminals with separate Horizontal and Vertical sync inputs(RGB-HV), with Composite sync input(RGB-S) or with Sync signals on green(RGsB).

Always use an interface when a computer and local monitor have to be connected to the projector. Interfaces to be applied :

Universal analog interface.
   Order number : R9826100.
RGB 120 MHz analog interface.
   Order number : R9826570.
VGA interface
   Order number 120V : R9828079.
            Order number 230V : R9828070
MAC interface
   Order number 120V : R9828059
   Order number 230V : R9828050
MAGIK interface
   Order number 120V : R9828129
            Order number 230V : R9828120

RGBS/RGsB analog : 5 x BNC
  Red : 0.7 Vpp ± 3 dB
  Blue : 0.7 Vpp ± 3 dB
  Green : 0.7 Vpp ± 3 dB
         1 Vpp ± 3 dB if sync on green
  Vert. sync : 1 Vpp to 4 Vpp ± 3 dB
  Hor. sync / Composite sync :
         1 Vpp to 4 Vpp ± 3 dB

All input signals are always 75 ohm terminated, even in the "not selected" mode.

RGB input selection :

Key in the corresponding slot number on the RCU or the local keypad.

Straps on module level :

Floating or non-floating input.

Red :   J3 : strap "yes" : non floating   strap "no" : floating
Green : J4 : strap "yes" : non floating   strap "no" : floating
Blue :   J5 : strap "yes" : non floating   strap "no" : floating
H/C :   J6 : strap "yes" : non floating   strap "no" : floating
V : J7 : strap "yes" : non floating   strap "no" : floating

Factory preset : strap "yes", non floating input

Sync selection : strap on module level.

J8 : see drawing

Factory preset : separate sync.

Sync selection on the Input Slots menu.

The horizontal sync input can be set as separate sync input or as separate sync + video input. To change this setting, press **ADJUST** or **ENTER** key to start up the Adjustment mode..
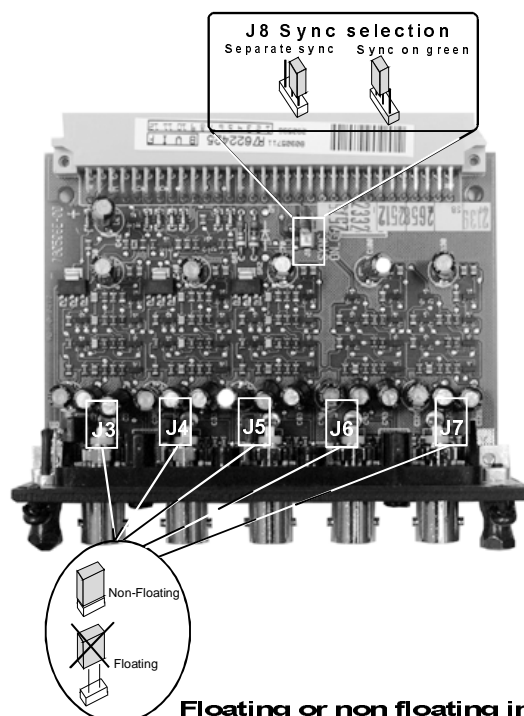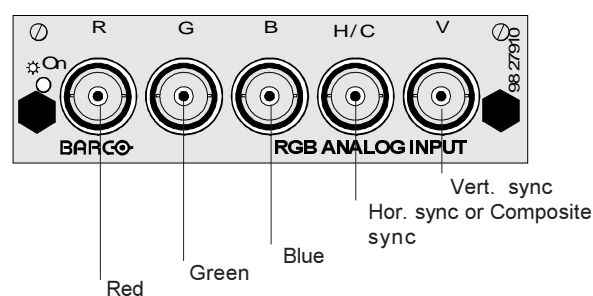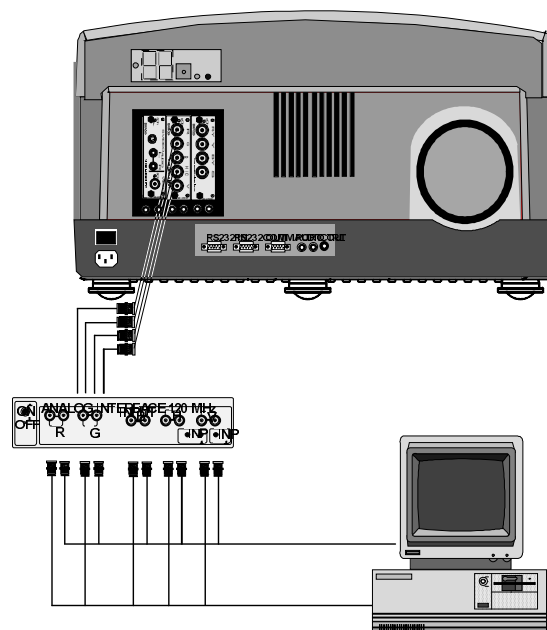
Push the control disk up or down to select *Installation* and press **ENTER**.

Use the control disk to select Input Slots by pushing up or down and press **ENTER**. The internal system will scan the inputs and displays the result in the Input Slots menu.

Push the control disk up or down to select the corresponding RGB input slot. To change the sync priority for Sync separate, press **ENTER** key to toggle between CV and CS or HS&VS.

Possible indication :

RGB-SS [CV] = separate sync is composite video signal on H/C input.
RGB-SS [CS or HS&VS] = separate sync is composite sync or horizontal and vertical sync.
RGB-SOG = sync on green.

ADJUSTMENT MODE

Select a path from below :

RANDOM ACCESS
INSTALLATION
SERVICE

Source 01

INSTALLATION

INPUT SLOTS
CONVERGENCE
CONFIGURATION
INTERNAL PATTERNS

INPUT SLOTS

1. RGB-SS [CV]
2. RGB-SOG
3. Video/S-Video [Video]
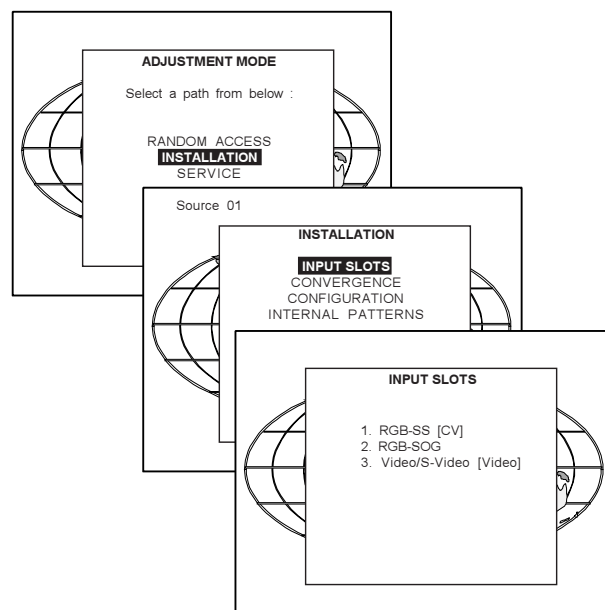
Component input module.

Connect your component signals (Y-luma, R-Y and B-Y), e.g. a professional VCR to the Component input module.
Component video : 4 x BNC
  R-Y : 0.7 Vpp ± 3 dB
  B-Y : 0.7 Vpp ± 3 dB
  Y :   0.7 Vpp ± 3 dB
   1 Vpp ± 3 dB if Tri-level sync on green
  Composite sync : 1 Vpp to 4 Vpp ± 3 dB

All input signals are always 75 ohm terminated, even if the module is "not selected".

R-Y Y B-Y S

☼ On

BARCO COMPONENT VIDEO INPUT

98.27930

Sync
Blue - luma
Luma
Red - luma
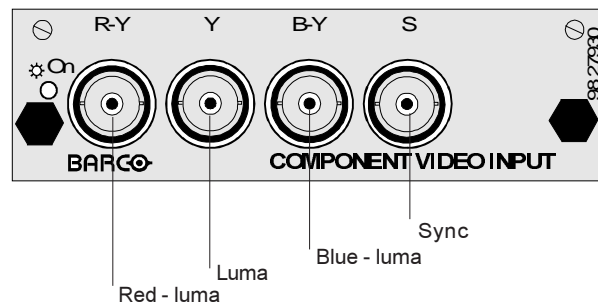
Component input selection :

Key in the corresponding slot number on the RCU or the local keypad.

Indication on the input slot menu :

Component Video-SS = Component video with separate sync
Component Video-SOY = Component video with sync on Y
Component Video-3LSS = Component video with 3 level separate sync
Component Video-3LSOY = Component video with 3 level sync on Y

RS232 RS232 COMM RGBCONT

Audio to amplifier

Audio

VCR S-VHS

Audio amplifier
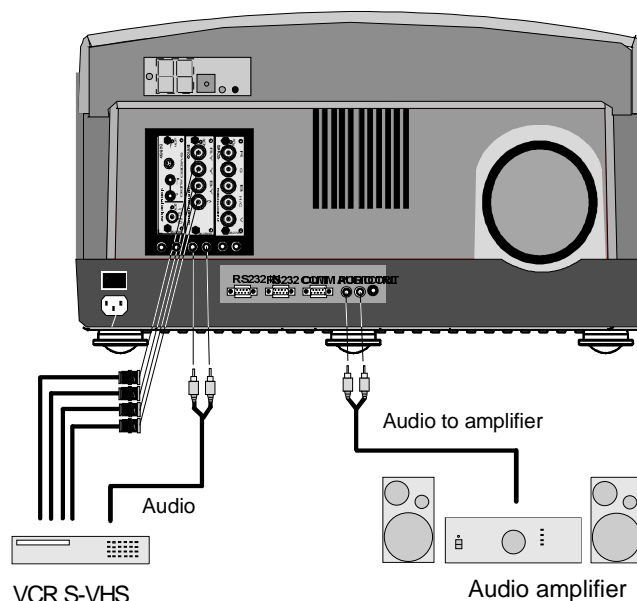
Straps on module level :

Floating or non-floating input.
R-Y :   J3 : strap "yes" : non floating   strap "no" : floating
Y : J4 : strap "yes" : non floating   strap "no" : floating
B-Y :   J5 : strap "yes" : non floating   strap "no" : floating
S : J6 : strap "yes" : non floating   strap "no" : floating

Factory preset : strap "yes", non floating input

Sync selection.
J8 :
strap "no" : separate sync
strap "yes" : sync on Y.

J9 :
strap "yes" : Tri-level sync
strap "no" : normal sync.

Factory preset :
separate sync and
normal sync.

Floating or non floating input

Sync selection

J8 Separate sync   Sync on Y

J9 Normal Sync   Tri-level Sync
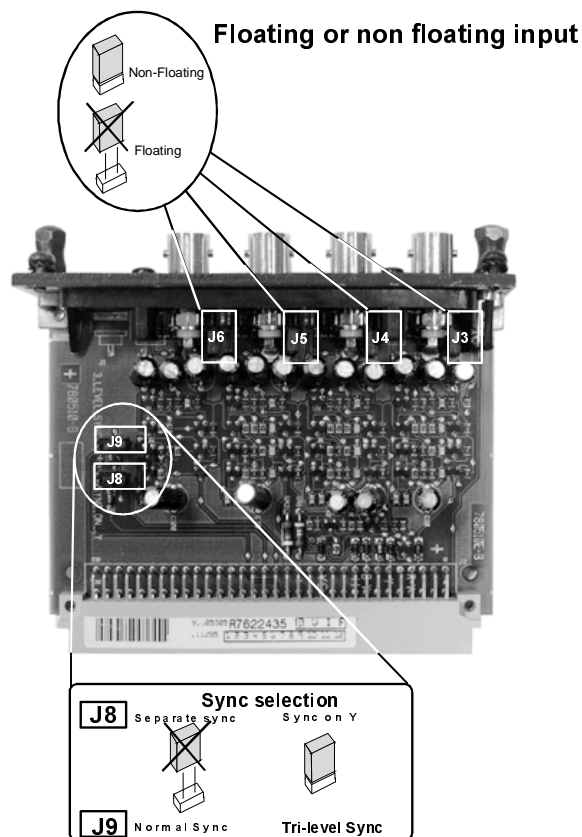
RGB3S/RG3sB input module.

Connect your RGB signals with Tri-level sync, e.g. a professional
VCR to the RGB 3 level sync input module.
RGB3S/RG3sB analog : 5 x BNC
  Red : 0.7 Vpp ± 3 dB
  Blue : 0.7 Vpp ± 3 dB
  Green : 0.7 Vpp ± 3 dB
    1 Vpp ± 3 dB if Tri-level sync on green
  Vert. Tri-level sync : 1 Vpp to 4 Vpp ± 3 dB
  Hor. Tri-level sync / Composite Tri-level sync:
    1 Vpp to 4 Vpp ± 3 dB

All input signals are always 75 ohm terminated, even in the "not
selected" mode.

Input selection :

Key in the corresponding slot number on the RCU or the local
keypad.

Indication on the input slot menu :

  RGB3L-SS = RGB with separate Tri level sync.
  RGB3L-SOG = RGB with Tri level sync on green.
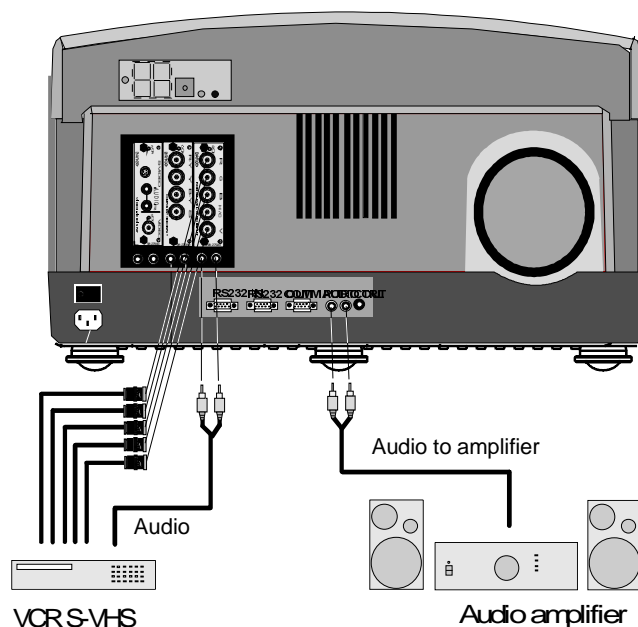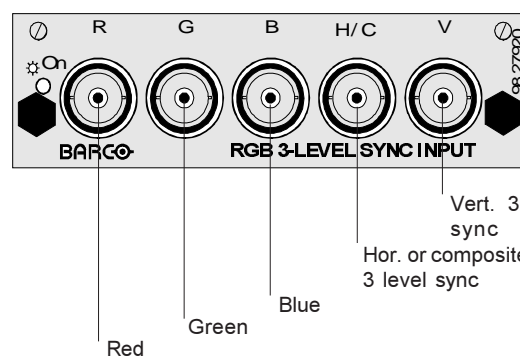
R   G   B   H/C   V

BARCO   RGB 3-LEVEL SYNC INPUT

Vert. 3 level
sync

Hor. or composite
3 level sync

Blue

Green

Red

Audio to amplifier

Audio

VCR S-VHS

Audio amplifier

Straps on module level :

Floating or non-floating input.
Red : J3 : strap "yes" : non floating   strap "no" : floating
Green : J4 : strap "yes" : non floating   strap "no" : floating
Blue : J5 : strap "yes" : non floating   strap "no" : floating
H/C : J6 : strap "yes" : non floating   strap "no" : floating
V : J7 : strap "yes" : non floating   strap "no" : floating

Factory preset : strap "yes", non floating input

Sync selection.

J8 : separate sync or sync on green.

Factory preset : separate sync.

Floating or non floating input
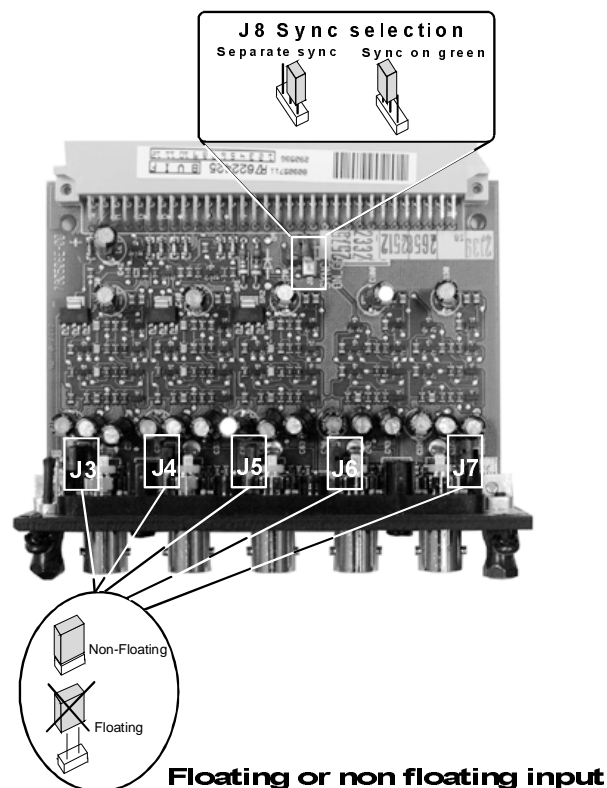
Connecting a computer, e.g. IBM PC (or compatible), Apple Macintosh to the RS 232 input of the projector.

The projector has a RS232 port that allows it to communicate with a computer.

Applications : remote control and data communications.
  a) remote control :
    - easy adjustment of projector via IBM PC (or compatible) or MAC connection.
    - allow storage of multiple projector configurations and set ups.
    - wide range of control possibilities.
    - address range from 0 to 255.

  b) data communications :
    - sending data to the projector or copying the data from the projector to a hard memory device.

Set up of the baud rate for communication with a computer.

The communication speed between projector and computer, e.g. PC or MAC, has 8 possible speeds. With DIP switches S2(1,2,3) on the controller unit, it is possible to select the baud rate (communication speed).
If the baud rate setting is different from the used communication speed, call an authorised service technician to change the baud rate setting.

RS232 connection
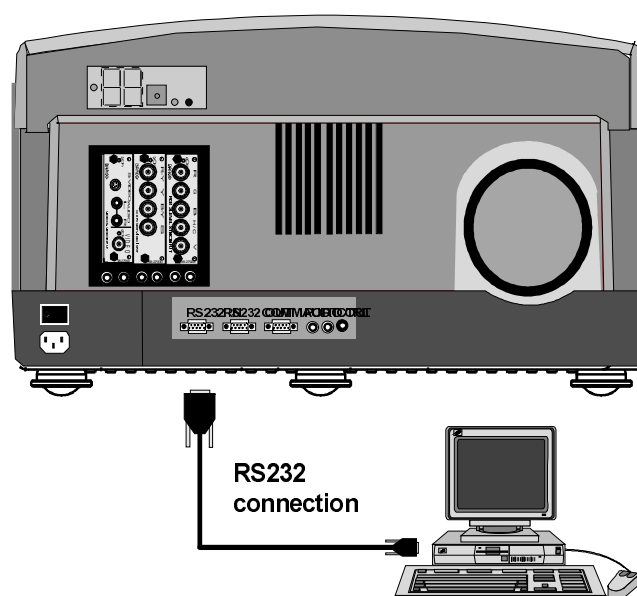
Connecting a RCVDS 05 to the projector.

- Up to 20 inputs with the RCVDS 05 and 90 inputs when RCVDS's are linked via the expansion module.
- Serial communication with the projector.
- Remote control buttons on the RCVDS to control the projector (source selection and analog settings).
- The selected source number will be displayed on a 2 digit display and the selected input module will be indicated with a LED on the rear.

For more information about the use of the RCVDS 05, consult the owner's manual, order number : R5975765.

Connecting a VS05 to the projector

The VS05 can switch up to 5 Composite Video sources, 3 Super Video sources and 1 RGB analog or component video source to the projector. In addition, the audio signal proper to the source, can be switched to an audio amplifier.
Order number : R9827890

For more information about the use of the VS05, consult the VS05 owner's manual, BARCO order number : R5975245.

Connecting an IR Remote Receiver 800 to the projector.

This infrared red receiver unit makes it possible to control the projector from another room.
There is a communication line cable between the IR receiver and the projector or the RCVDS. The control information from the RCU can now be sent to the IR Remote Receiver 800.
The IR Remote Receiver 800 displays the selected source on a 7-segment display.
Order number : R9827515.

5 CONTROLLING

The projector can be controlled with
   a. The RCU
   b. The hardwired RCU (cable is not included)
   c. The local keypad.

Controlling the projector with the RCU and the hardwired RCU is equal.

How to use the RCU?

a) Point the front of the RCU to the reflective screen surface.
b) RCU used in a hardwired configuration.
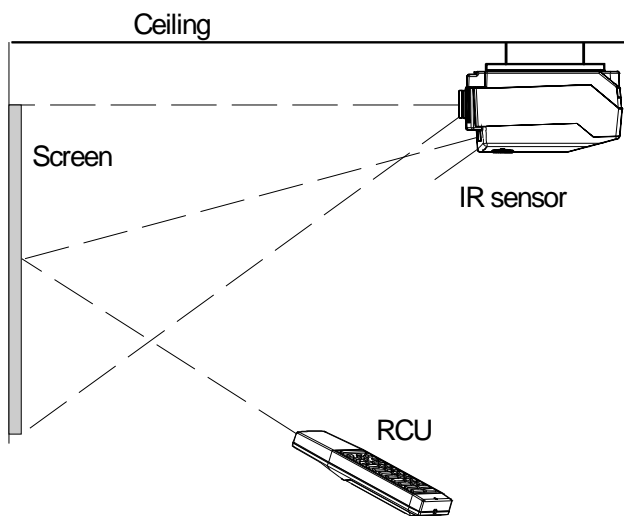
Plug one end of the remote cable in the connector on the bottom of
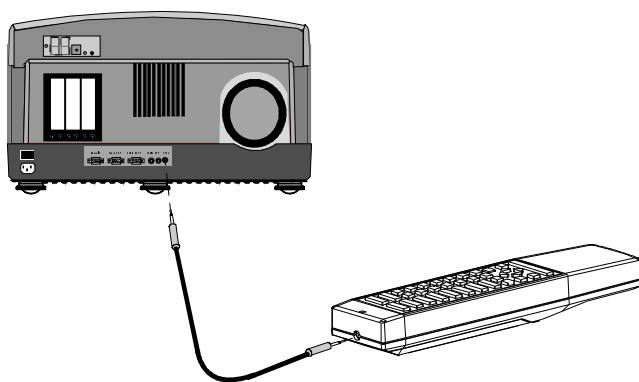
the RCU and the second side in the connector in the front panel of the projector labelled 'REMOTE'.

c) Point the front of the RCU directly at one of the IR sensors of the

projector.
When using the wireless remote control, make sure you are within
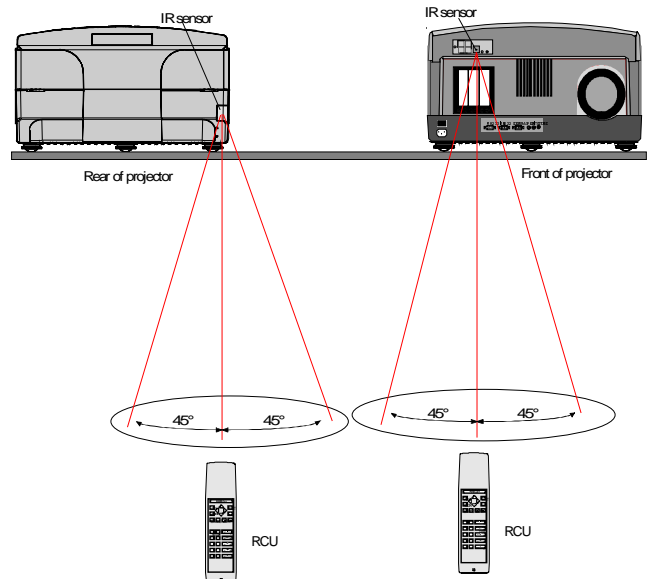
the effective operating distance (30m, 100ft in a straight line). The remote control unit will not function properly if strong light strikes the sensor window or if there are obstacles between the remote control unit and the projector IR sensor.

Projector address

a. Hardware set up of the projector address.

Every projector requires an individual address between 0 and 255 which is set with hardware DIP switches. To change that address, call an authorised service technician.

b. How to control the projector or projectors.

The projector's address may be set to any value between 0 and 255. When the address is set, the projector can be controlled now :

- RCU for addresses between 0 and 9.
- computer, e.g. IBM PC (or compatible), Apple MAC, etc. for addresses between 0 and 255.

Note : a projector will respond to a RCU set to an address of '0' regardless of what address is set in the projector itself.

c. Using the RCU.

Before using the RCU, its is necessary to enter the projector address into the RCU (only when that address is between 0 and 9). The projector with the corresponding address will listen to that specific RCU.
When address 0, 'zero address' is programmed into the RCU, every projector, without exception will listen to the commands given by this RCU.

How to display a projector address?

Press the **ADDRESS** key (recessed key on the RCU) with a pencil. The projector's address will be displayed in a 'Text box'. This text box disappears after a few seconds. To continue using the RCU, it is necessary to enter the same address with the digit buttons (address between 0 and 9). For example : if the Address key displays projector address 003, then press "3" digit button on the RCU to set the RCU's address to match the projector's address. Do not press 003 digits. This will address the remote control to '0' and control all projectors in the room.

How to program an address into the RCU?

Press the **ADDRESS** key (recessed key on the RCU) with a pencil and enter the address with the digit buttons. That address can be any digit between 0 and 9.
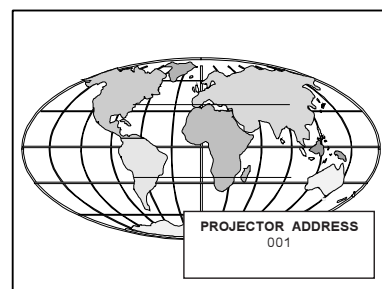
Picture controls with direct access.

When an image control is pressed, a text box with a bar scale, icon and function name of the control, e.g. 'brightness...' appears on the screen (only if text is ON). See example screen. The length of the bar scale and the value of the numeric indication indicate the current memorized setting for this source. The bar scale changes as the control stick on the RCU is pressed or the + or - buttons on the local keypad.

Brightness Control

A correct *'brightness'* setting is important for good image reproduction.
Use the + button for a higher brightness.
Use the - button for a lower brightness.
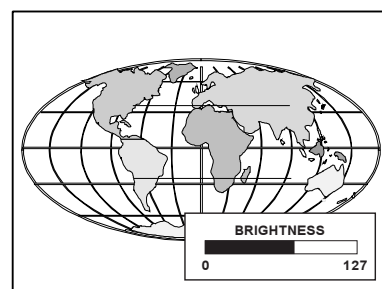
Contrast Control

A correct 'contrast' setting is important for good image reproduction.
Adjust the contrast to the level you prefer, according to room lighting conditions.
Use the + button for a higher contrast.
Use the - button for lower contrast.

Color Saturation

Color saturation is only active for Video and S-Video. Adjust the color intensity of the picture.
Use the + button for richer colors.
Use the - button for lighter colors.

Tint Control

Tint is only active for Video and S-Video when using the NTSC 4.43 or NTSC 3.58 system.
Use the + button
Use the - button.

Sharpness Control.

Use the + button for a sharper picture.
Use the - button for a softer picture.

Phase Control

Use the control stick to adjust the phase.

Sound controls with direct access.

When a sound control is pressed, a text box with a bar scale, icon and function name of the control, e.g. 'volume...' appears on the screen (only if text is ON). See example screen. The length of the bar scale indicates the current memorized setting for this source. The bar scale changes as the + or - buttons of the control are pressed. The picture controls can only be adjusted with the RCU.
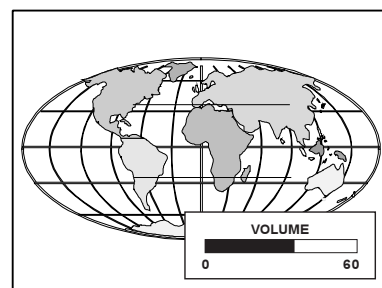
Volume Control

Volume control adjusts the volume.
Use the + button for a higher volume.
Use the - button for a lower volume.

Bass Control

Bass control adjusts the bass level (low tones).
Use the + button for more low tones.
Use the - button for less low tones.

Treble Control

Treble control adjusts the treble level (high tones).
Use the + button for more high tones.
Use the - button for less hight tones.

Balance Control

Is only effective if a external amplifier with loudspeakers is connected to the audio output.
The balance control adjust the sound level between the left and the right box.
Use the + button for a higher sound level on the right box than on the left one.
Use the - button for a higher sound level on the left box than on the right one.

The Pause key.

When the Pause key is pressed, the image projection is stopped but the projector remains with full power for immediate restart. The sound is not interrupted.
The display on front of the projector will show a "P".
To restart the image :
  - press pause key,
  - press exit key or
  - select a source number.

6 START UP OF THE ADJUSTMENT MODE

Adjustment Mode

All source set ups, picture tunings and geometry are made while in the 'Adjustment mode'. Press the **ADJUST** or **ENTER** key to enter the 'Adjustment mode'.

You are now in the 'Adjustment mode'. The control stick (RCU) or '+ or -' keys (local keypad) are used to make menu selections and also for adjustments. The **ENTER** and **EXIT** keys are used to move forward and backward through the menu structure. The **ADJUST** key can be used to terminate the adjustment mode while any path selection menu is displayed.

There are 3 possible paths to follow once in the Adjustment mode. They are :

Installation - Installation should be selected if a new input module is installed or a new source is connected to an existing input module. Also when the projector is relocated in a new configuration.

Random Access - Random Access should be selected if the user is used to set up a source.

Service - Service should be selected if the user intends to change general settings such as password, language, address, etc.or some service actions as reset lamp run time, panel adjustments, etc. or get set-up information.

```
          ADJUSTMENT MODE

      Select a path from below :

        RANDOM  ACCESS
        INSTALLATION
          SERVICE

          Source 01

      Select with   ↓  or ↑
        then  <ENTER>
       <EXIT>  to return.
```
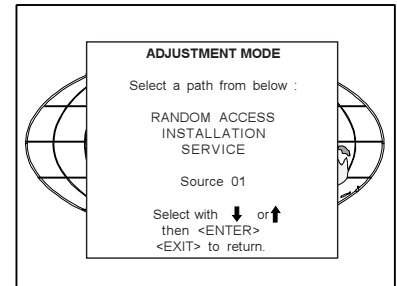
Some items in the Adjustment mode are password protected. While selecting such an item, the projector asks to enter your password (Password protection is only available when the password strap on the controller module is ON, see 'Change password' in chapter 'Service mode'.

Your password contains 4 digits.

Enter the digits with the numeric keys.
Example : 2 3 1 9
The first digit position is highlighted. Enter with the numeric keys. The highlighted square jumps to the next position. Continue until all 4 digits are filled in.

```
          PASSWORD

        ENTER  PASSWORD
           ----
        Use  numeric keys

        <EXIT>  to return
```
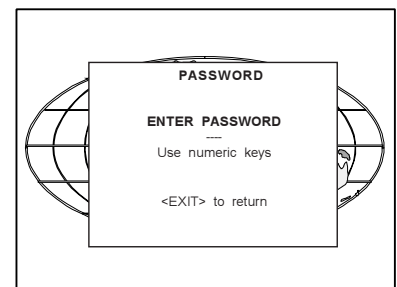
When your password is correct, you get access to the selected item.
When your password is wrong. The error message "Invalid password" is displayed on the screen. Press **EXIT** to continue and to return to the Service menu.

Factory programmed password : **0 0 0 0**

Once the password is correctly entered, all other password protected items are accessible without re-entering your password.

When re-entering the Adjustment mode, it will be nessary to enter your password again when selecting a password protected item.

```
      Error

        Invalid  password

        <EXIT>  to  return
```
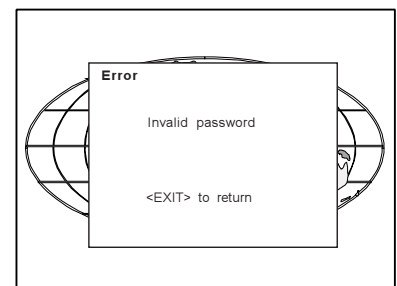
7 RANDOM ACCESS ADJUSTMENT MODE

Starting up the Random Access Adjustment Mode

Push the control disk up or down to highlight 'Random Access' and then press **ENTER**.

File service

```
                                                    ┌──────────────┐
                                                    │     LOAD     │
                                                    ├──────────────┤
                                                    │     EDIT     │
                                                    ├──────────────┤
                                   ┌──────────────┐ │    RENAME    │
                                   │ FILE SERVICE ├─┤──────────────┤
                                   └──────────────┘ │     COPY     │
                                                    ├──────────────┤
                                                    │    DELETE    │
                                                    ├──────────────┤
                                                    │   OPTIONS    │
                                                    └──────────────┘

                                                    ┌──────────────┐
                                                    │     SYNC     │
                                                    ├──────────────┤
                                   ┌──────────────┐ │  STILL VIDEO │
                                   │PICTURE TUNING├─┤──────────────┤
                                   └──────────────┘ │COLOR BALANCE │
                                                    ├──────────────┤
                                                    │    GAMMA     │
                                                    └──────────────┘

                                                    ┌──────────────┐
┌──────────────┐                                    │    VOLUME    │
│RANDOM ACCESS │                                    ├──────────────┤
│ADJUSTMENT    │                                    │   BALANCE    │
│MODE          │                                    ├──────────────┤
└──────────────┘                                    │     BASS     │
                                   ┌──────────────┐ ├──────────────┤
                                   │ AUDIO TUNING ├─┤    TREBLE    │
                                   └──────────────┘ ├──────────────┤
                                                    │     MUTE     │
                                                    ├──────────────┤
                                                    │     LOCK     │
                                                    ├──────────────┤
                                                    │     FADE     │
                                                    └──────────────┘

                                                    ┌──────────────┐
                                                    │    SHIFT     │
                                                    ├──────────────┤
                                                    │     SIZE     │
                                   ┌──────────────┐ ├──────────────┤
                                   │   GEOMETRY   ├─┤ SIDE KEYSTONE│
                                   └──────────────┘ ├──────────────┤
                                                    │   BLANKING   │
                                                    ├──────────────┤
                                                    │   OPTIONS    │
                                                    └──────────────┘
```

ADJUSTMENT MODE

Select a path from below :

RANDOM ACCESS
INSTALLATION
SERVICE

Source 01
Select with ↓ or ↑
then <ENTER>
<EXIT> to return.
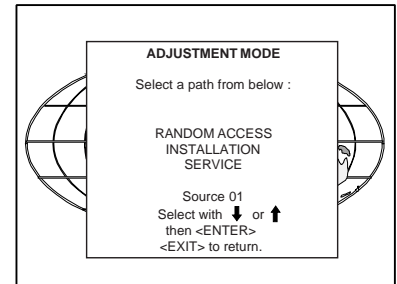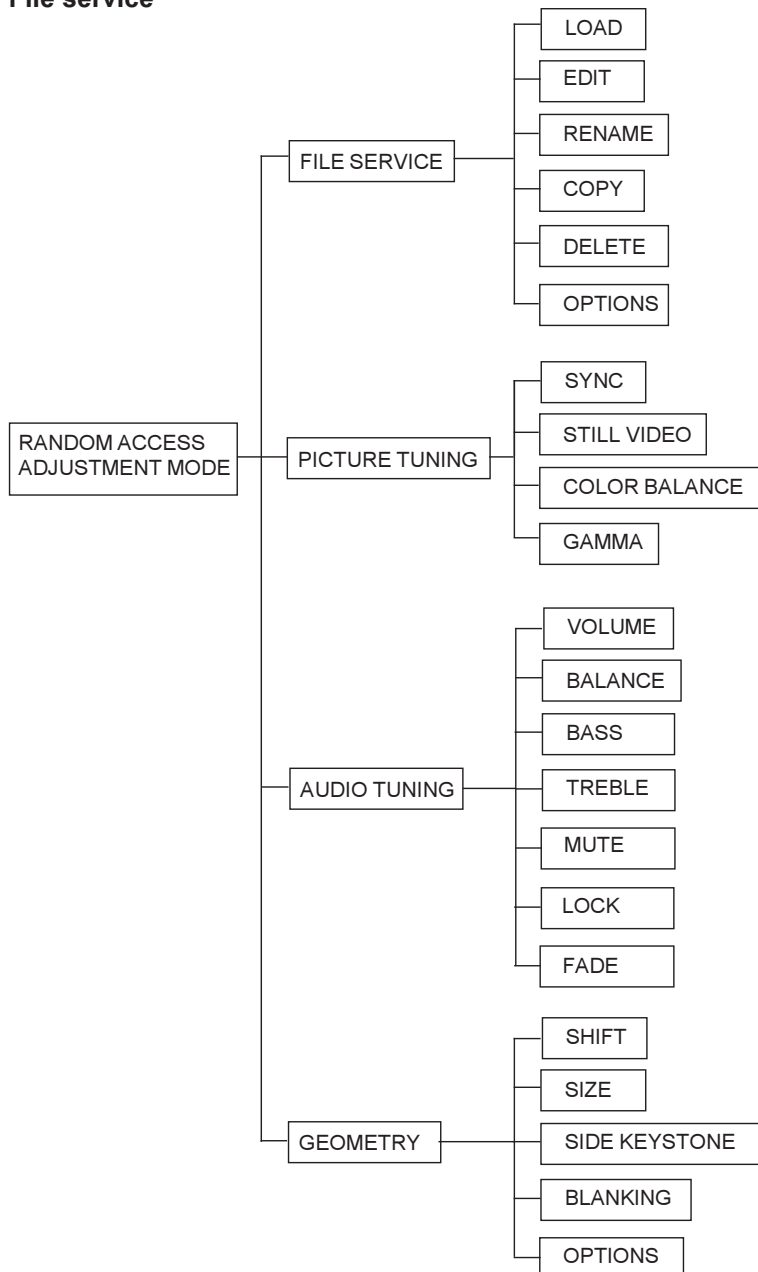
Before using a new source, a correct file has to be installed. The projector's memory contains a list of files corresponding to the most used sources. When the new source corresponds with one of these files, the file can be loaded and saved for future use. When there is a little difference, the file can also be loaded and than edited until the source specs are reached.

Highlight *File Service* by pushing the control disk up or down and

File annotation :

xxxxxxxx.xxx x xxxxXxxxxi

```
                                    i or blanc : i = interlaced, blanc = not
                                      interlaced

                         xxxxXxxxx : active pixel rating

                x : source number

         xxx : file extension, first character is C (for custom made
         files) or S (for standard files).
         The second and third character is used for a following
         number (=file index)
         file index for custom files : 00 to 63.

xxxxxxxx : base name,  8 characters.
```

press **ENTER** to select. The File service menu will be displayed. **ENTER** displays the File Service menu;

EXIT returns to the Path selection menu.
ADJUST returns to operational mode.
The following file manupulations are possible :

- Load : installation of a file for a new source.
- Edit : editing a loaded file to the source specs.
- Rename : renaming a file.
- Copy : copying a file to a new file.
- Delete : deleting an existing file.
- Options : way of sorting the files.

```
        RANDOM ACCESS
        ADJUSTMENT MODE

         FILE SERVICE
        PICTURE TUNING
        AUDIO TUNING
         GEOMETRY


              FILE SERVICE

                LOAD
                EDIT
               RENAME
                COPY
               DELETE
               OPTIONS

           Select with  ↓  or ↑
            then <ENTER>
           <EXIT> to return.
```
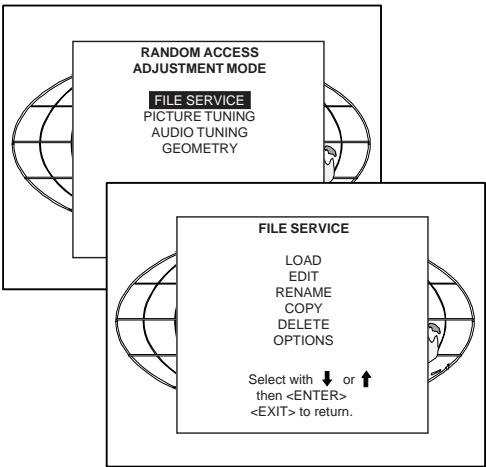
Load file

Push the control disk up or down to select LOAD and press **ENTER** to display the Load menu.
The Load menu displays the corresponding files depending on the installed filter.

This filter can be "Fit" or "All". To change the filter, push the control disk to the right to select "filter list" (filter list will be hightlighted) and press **ENTER** to toggle the annotation between brackets.

"All" : all files that can be loaded will be displayed.
"Fit" : only the best fitting files will be displayed (with a distinction of ± 2 lines and line duration distinction of ± 300 ns)

Push the control disk up or down to select the most fitting file and press **ENTER** to select.
When scrolling through the files, the image will be adapted according the settings of the selected file (on line adaptation). When the best fitting image is displayed, press **ENTER** to select this file. A confirm Load file menu will be displayed with the new created file and the on which the new file is based on.
Press **ENTER** to confirm your new creations or **EXIT** to return to the load file menu.

If the displayed image is not yet as it has to be, select the most corresponding file and go to the Edit menu to change the file settings.

During a load file, the actual active file is displayed next to the indication 'Active file'.

```
            FILE SERVICE

              LOAD
              EDIT
             RENAME
              COPY


              LOAD FILE
            FILTER LIST [All]
      Filename      Src     Resolution
      ------------------------------------------
      pal       .s01      1        675x278i
      pal       .c01      1        675x278i
      secam    .s03      3        675x278i

      ------------------------------------------
      Active file : pal.c50
          Select with  ↓  or ↑ , ➡
           <ENTER> to accept
           <EXIT> to return.
```

```




           <ENTER> to confirm
           <EXIT> to return
```
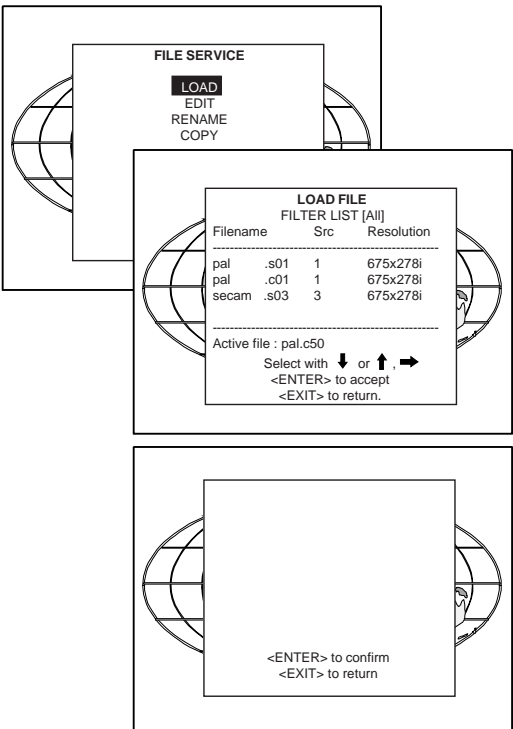
Edit file

The Edit file menu makes it possible to change the settings of the file according to the real settings of the connected source. Consult the source specification before entering the data.
To start up the EDIT menu, push the control disk up or down to select EDIT in the FILE menu and press **ENTER**.
Select the file which must be edited (mostly the active file) and press **ENTER**.

The Edit file adaptation menu will be displayed.
The file name will be displayed in the upper right corner.
The following items can be adjusted :
  Total quantity horizontal pixels
  Active quantity horizontal pixels
  Horizontal start in pixels
  Horizontal period in µs (is automatically adapted during the installa-
  tion of a file with LOAD)
  Total vertical lines (is automatically adapted during the installation
  of a file with LOAD)
  Active vertical lines
  Vertical start in lines
  Interlaced : toggle on/off (is automatically set to its correct position
  during the installation of a file with LOAD)

All settings can individually be changed. Push the control disk up or down to select an item. The color of the selected item will change and follow one of the three methods to change the value.

a. press **ENTER** to activate the digits and enter directly with the numeric keys on the RCU or local keypad the new value or

b. press **ENTER** to activate the digits. Push the control disk to the right or to the left to select the changing digit. Push the control disk up or down to scroll to desired digit. When finished press **ENTER** to confirm.

c. counting up or down by pushing the control disk to the right or to the left.

How finding the correct values for the displayed item?
During the installation of a file with LOAD, the horizontal period, the total number of vertical lines and the interlaced mode are automati-cally measured and filled in in the menu table. These values will be available when starting up the EDIT procedure of an active file.

If the value for *"Horizontal total pixels"* is wrong, sampling mistakes (small vertical bars in the projected image) will be seen in the image. Select "Total" and adjust the pixel quantity. Adjust for zero bars (hint: if the number of bars increase, adjust in the other way).

The *"active pixels"* : determine the width of the window on the screen. This value is normally given in the source specifications. If not, adjust until full image is displayed (no missing pixels).

"Horizontal start" : number of pixels between the beginning of the input signal and the start of the video information in the signal.

"Horizontal period" : already filled in with the correct value when active file.

The *"Vertical Total lines"* are already filled when an active file is selected to be edited.

The *"Active lines"* : number of horizontal lines determining the height of the projected image. This value is normally given in the specifica-tion of the source. If not, adjust until full image height is displayed (no missing lines)

Vertical start : number of lines between the start of the input signal and start of the image on the screen.

Interlaced [On] or [Off] : this selection is automatically filled when active file has to be edited. If the image is wrong due to

FILE SERVICE

LOAD
EDIT
RENAME
COPY

EDIT FILE

Filename		Src	Resolution
pal	.s01	1	675x278i
pal	.c01	1	675x278i
secam	.s03	3	675x278i

Active file : pal.c50
Select with ↓ or ↑ , ←
<ENTER> to accept
<EXIT> to return.

EDIT FILE   xga.s30

HORIZONTAL
    TOTAL   1344 PIXELS
    ACTIVE   1024 PIXELS
    START   296 PIXELS
    PERIOD   20.678 µS
VERTICAL (FIELD)
    TOTAL   806 LINES
    ACTIVE   768 LINES
    START   36 LINES
    INTERLACED   [OFF]
READ AMDS
OPTIONS

↓ , ↑ , ← , → , <ENTER>,<EXIT>

mismeasurement, use the ENTER key to toggle between [On] and [Off]. (for interlaced images, 1 frame contains 2 fields).

Read AMDS

AMDS = automatic mode detection & synchronisation
During the installation of a file with LOAD, the system automatically measured the horizontal period, the total vertical lines and the interlaced mode.
When selecting Read AMDS, the system remeasures the above indicated items.

Options

Source number : The source number of a non-active source can be changed to any other source number. This makes it possible to create a file for future source numbers.

Clamp position : Clamping determines the black level of the signal. The clamp pulse can be related to the leading or the trailing edge of the sync pulse. Use the **ENTER** key to toggle between [leading] and [trailing].

Clamp width : The width of the clamp pulse [1 or 2]
[1] : narrow clamp pulse
[2] : wide clamp pulse

Field polarity inverted
The field polarity function is used for interlaced images. Both rasters of the image could be shifted in a wrong way (double lines are visilble in the image). This can be corrected by forcing the field polarity to [yes].
Use the **ENTER** key to toggle between [yes] and [no].

Vertical refresh [sync/async] : The way of updating the image information on the LCD panels.
* For sources with a vertical frequency up to 60 Hz : the vertical refresh rate is the same as the vertical frequency of the incoming source. This is a necessity to project moving images without 'motion artefacts'. For stationary images with a vertical frequency up to 60 Hz it is still possible to use asynchronous refresh. When loading Pal, Secam, NTSC-files syncronous mode is default, for all other sources below 60 Hz asyncronous mode is default.
* For sources with a vertical frequency higher that 60 Hz : the vertical refresh is different than the vertical frequency of the incoming source. Synchronous refresh cannot be used.

Vertical sync polarity : [leading] or [trailing]
The vertical refresh can be synchronised with the leading sync edge or trailing sync edge. Default on [leading].
Toggling to [trailing] is only necessary for special applications where the trailing edge of the sync signal has to be taken as a reference.
Use the **ENTER** key to toggle between [leading] or [trailing]

Press **EXIT** to leave the Edit File Option menu.
A 'Confirm Edit File' menu will be displayed.
Press **ENTER** to confirm and to save the new settings or **EXIT** to return without saving the new entered settings.


```
              EDIT FILE OPTIONS
Source number            1
Clamp position           [leading]
Clamp width              [1]
Field polarity inverted  [no]
Vertical refresh         [sync]
Vert. sync polarity      [leading]

          Select with  ↓ or ↑
          <ENTER> to toggle
    → or ← to change value
          <EXIT> to return
```
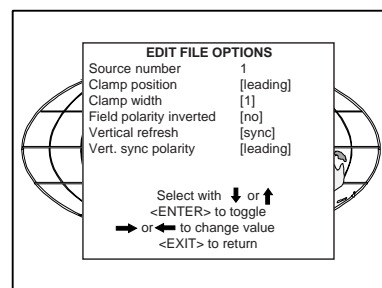
Example for clamp position [trailing]

Sync pulse

Clamp pulse

Clamp width

Clamp delay


```
              CONFIRM
            EDIT FILE

        Save changes to file
             xga.c30?




          <ENTER> to confirm
          <EXIT> to return
```
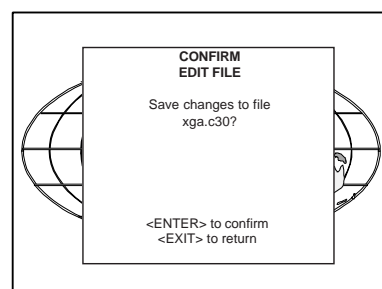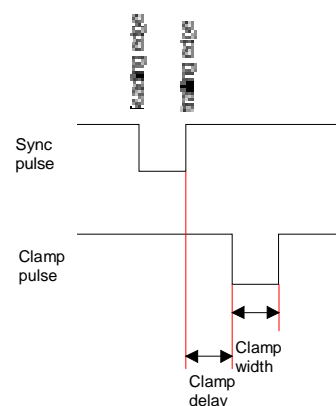
Rename File

To change the name of a selected file.
Use the control disk to select RENAME and press **ENTER**. The Rename selection menu will be displayed.
Use the control disk to select a file name and press **ENTER** to select.

The Rename menu will be displayed with the selected file name already filled in in the 'From file name :' area and in the 'To file name:' area.

```
                    ┌─────────────────────────┐
                    │      FILE SERVICE        │
                    │                          │
                    │        LOAD              │
                    │        EDIT              │
                    │       RENAME             │
                    │        COPY              │
                    │       DELETE             │
                    └─────────────────────────┘

              ┌──────────────────────────────────┐
              │          RENAME FILE             │
              │                                  │
              │ Filename      Src    Resolution  │
              │ ──────────────────────────────── │
              │ pal    .s01   1      675x278i     │
              │ pal    .c01   1      675x278i     │
              │ secam  .s03   3      675x278i     │
              │                                  │
              │ ──────────────────────────────── │
              │ Active file : pal.c50            │
              │        Select with  ↓ or ↑       │
              │        <ENTER> to accept         │
              │        <EXIT> to return.         │
              └──────────────────────────────────┘
```

The first character is highlighted. Push the control disk to the right or to the left to select the desired character. Change that character by pushing the control disk up or down. Numeric characters can be entered directly with numeric keys on the RCU.
Press **ENTER** to confirm. The renamed file is entered in the list of files.
Press **EXIT** to return to the Rename menu selection. No changes are made.

```
              ┌──────────────────────────────────┐
              │          RENAME FILE             │
              │                                  │
              │      Frome file name :           │
              │          pal.s01                 │
              │      To file name :              │
              │          demo.c10                │
              │                                  │
              │      Select with  → or ←         │
              │    Reprogram with ↓ or ↑         │
              │        or numeric keys           │
              │      <ENTER> to confirm          │
              │        <EXIT> to return          │
              └──────────────────────────────────┘
```
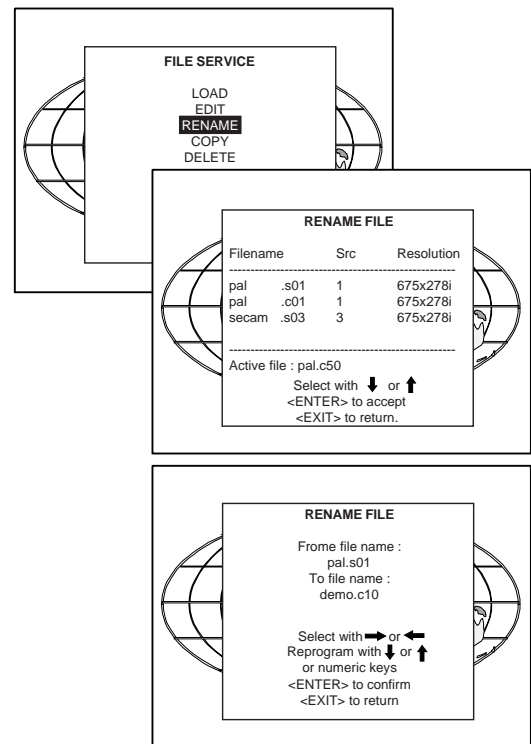
Copy File

To copy a selected file into a new file.
Use the control disk to select COPY and press **ENTER**. The Copy selection menu will be displayed.
Use the control disk to select a file name and press **ENTER** to select.

The Copy menu will be displayed with the selected file name already filled in in the 'From file name :' area and in the 'To file name :' area.

```
                    ┌─────────────────────────┐
                    │      FILE SERVICE        │
                    │                          │
                    │        LOAD              │
                    │        EDIT              │
                    │       RENAME             │
                    │        COPY              │
                    │       DELETE             │
                    └─────────────────────────┘

              ┌──────────────────────────────────┐
              │           COPY FILE              │
              │                                  │
              │ Filename      Src    Resolution  │
              │ ──────────────────────────────── │
              │ pal    .s01   1      675x278i     │
              │ pal    .c01   1      675x278i     │
              │ secam  .s03   3      675x278i     │
              │                                  │
              │ ──────────────────────────────── │
              │ Active file : pal.c50            │
              │        Select with  ↓ or ↑       │
              │        <ENTER> to accept         │
              │        <EXIT> to return.         │
              └──────────────────────────────────┘
```

The first character is highlighted. Push the control disk to the right or to the left to select the desired character. Change that character by pushing the control disk up or down. Numeric characters can be entered directly with numeric keys on the RCU.
Press **ENTER** to confirm. The copied file is entered in the list of files.
Press **EXIT** to return to the Copy selection menu. No copies are made.

```
              ┌──────────────────────────────────┐
              │           COPY FILE              │
              │                                  │
              │      Frome file name :           │
              │          xga_60.s03              │
              │      To file name :              │
              │          xga_60.c14              │
              │                                  │
              │      Select with  → or ←         │
              │    Reprogram with ↓ or ↑         │
              │        or numeric keys           │
              │      <ENTER> to confirm          │
              │        <EXIT> to return          │
              └──────────────────────────────────┘
```
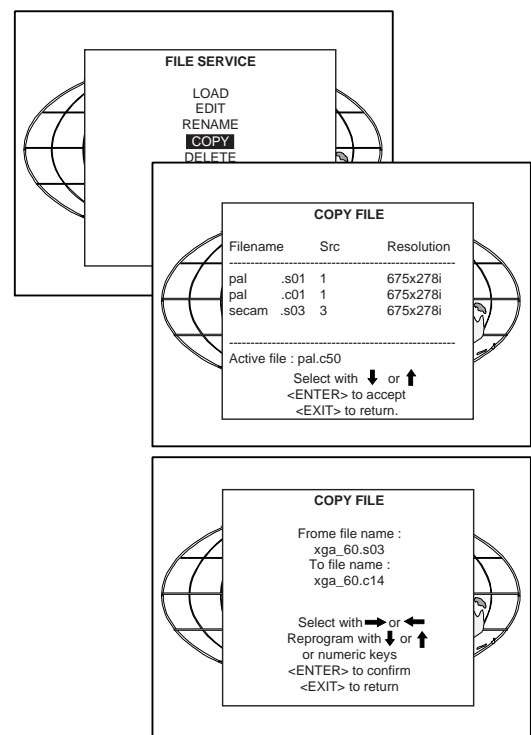
Delete File

To delete a selected file out of the list of files.
Use the control disk to select DELETE and press **ENTER**. The delete selection menu will be displayed.

Push the control disk up or down to select a file and press **ENTER**.
If [All] is selected, your password has to be entered before all files will be deleted.

```
                    FILE SERVICE

                    LOAD
                    EDIT
                    RENAME
                    COPY
                    DELETE
                    OPTIONS
```

```
                   DELETE FILE

         Filename      Src      Resolution
         ----------------------------------------
         pal    .s01    1        675x278i
         pal    .c01    1        675x278i
         secam  .s03    3        675x278i
         [All]
         ----------------------------------------
         Active file : pal.c50

              Select with  ↓  or  ↑
              <ENTER> to accept
              <EXIT> to return.
```

A confirmation menu "Delete file 'file name'?" is displayed. When you want to delete the file, press **ENTER**. If you do not want to delete the file, press **EXIT**.
Note : the active file cannot be deleted.

```
                    CONFIRM
                  DELETE FILE

                  Delete file:
                    pal.c01?




              <ENTER> to confirm
              <EXIT> to return
```
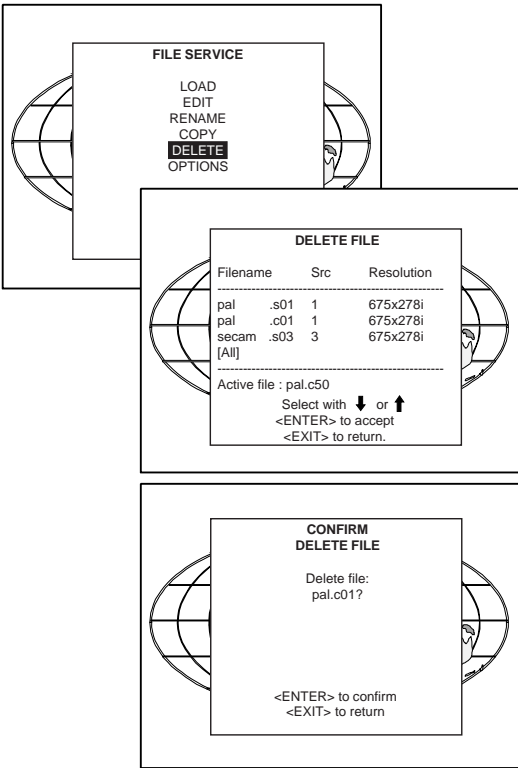
File Options

Use the control disk to select OPTIONS and press **ENTER**. The option selection menu will be displayed.

```
                    FILE SERVICE

                    LOAD
                    EDIT
                    RENAME
                    COPY
                    DELETE
                    OPTIONS
```

Press ENTER to toggle between [name] and [index]
[name] : The files in the file list will be sorted on the file name.
[index] : The files in the file list will be sorted on the file extension.

```
                   FILE OPTIONS

                 FILE SORT [NAME]




              Select with  ↓  or  ↑
                 then <ENTER>
              <EXIT> to return.
```
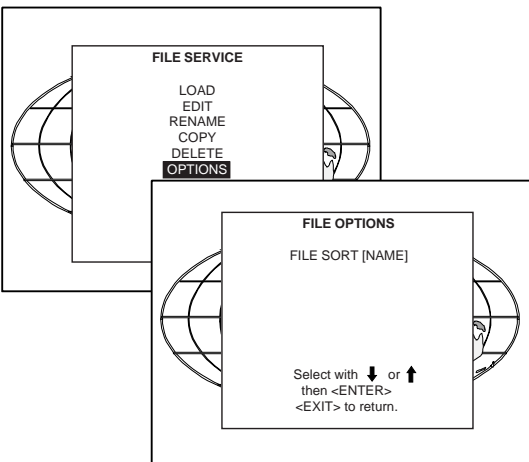
Picture Tuning

Highlight Picture Tuning by pushing the control disk up or down and press **ENTER** to select.
The Picture Tuning menu will be displayed.
The next items are available :
  - sync slow/fast
  - still video
  - color balance
  - gamma

```
                RANDOM ACCESS
               ADJUSTMENT MODE

               FILE SERVICE
               PICTURE TUNING
               GEOMETRY
```

```
                  PICTURE TUNING

                 SYNC [SLOW]
                 STILL VIDEO [ON]
                 COLOR BALANCE
                 GAMMA




              Select with  ↓  or  ↑
                 then <ENTER>
              <EXIT> to return.
```
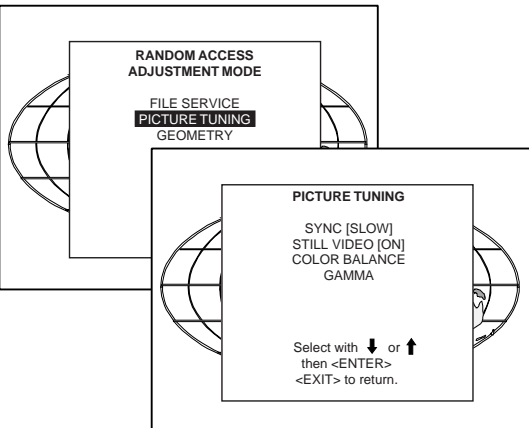
Sync slow/fast

Highlight sync by pushing the control disk up or down and press **ENTER** to toggle between SLOW and FAST.

Note : Sync is normally used in the SLOW position. The FAST position is used to compensate for unsteady sync pulses from older video playback equipment.

PICTURE TUNING

SYNC [SLOW]
STILL VIDEO [ON]
COLOR BALANCE
GAMMA

Select with ↓ or ↑
then <ENTER>
<EXIT> to return.
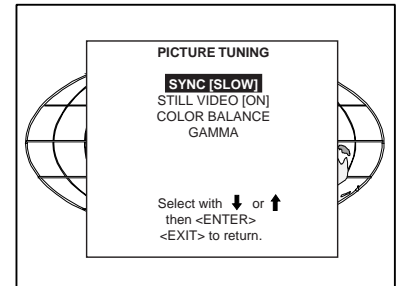
Still Video

This function is only used for stationary interlaced images.
Highlight Still Video by pushing the control disk up or down and press ENTER to toggle between ON and OFF.

Still Video : ON : the displayed image contains less jitter and gives a sharper image.
Still Video : OFF : for moving picture.

PICTURE TUNING

SYNC [SLOW]
STILL VIDEO [ON]
COLOR BALANCE
GAMMA

Select with ↓ or ↑
then <ENTER>
<EXIT> to return.
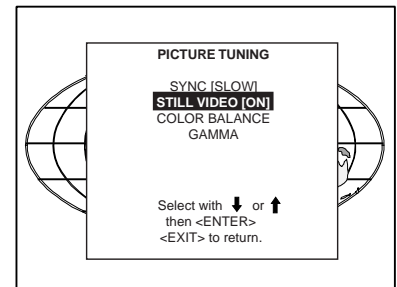
Color Balance

Highlight Color Balance by pushing the control disk up or down and press **ENTER** to select the color balance selection menu.

The next choices are possible :

Fixed color balance :
  - 3200 K (reddish)
  - 6500 K (white)
  - 9300 K (bluish)

Custom white balance.

Push the control disk up or down to select Fixed Color Balance or Custom Color Balance.
If Fixed Color Balance is selected, use the control by pushing it to the right or to the left to select one of the 3 prepogrammed color temperatures.

When Custom Color Balance is selected, push the control disk up or down to adjust red and push the control disk to the right or to the left to adjust blue (range 0 to 2.5) in comparison with the green color (value 1).

PICTURE TUNING

SYNC : SLOW
STILL VIDEO : ON
COLOR BALANCE
GAMMA

COLOR BALANCE

Fixed color balance
3200   6500   9300

Custom white balance
Select with ↓, ↑, →, ←
then <ENTER>
<EXIT> to return.
For custom adjust
red with ↓ or ↑
blue with → or ←

GAIN RED

0   2.5
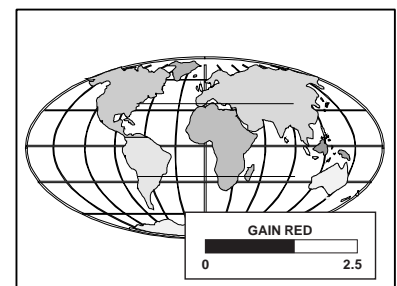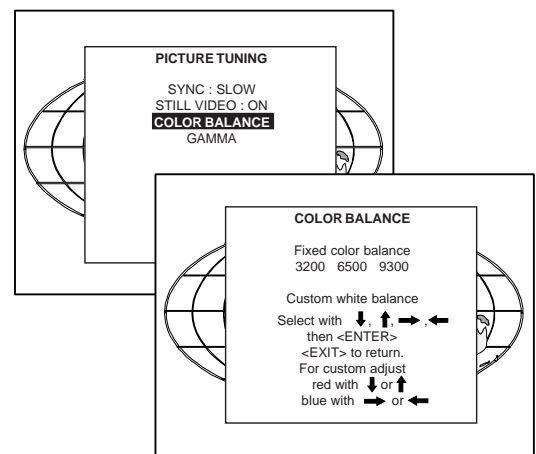
Gamma

With the gamma correction adjustment, it is possible to bring the details in dark image parts more to the front (lower image values) or to reduce the importance of these details (higher gamma values).

To change the gamma value, highlight Gamma by pushing the control disk up or down and press ENTER.

PICTURE TUNING

SYNC [SLOW]
STILL VIDEO [ON]
COLOR BALANCE
GAMMA

GAMMA

1   2.4
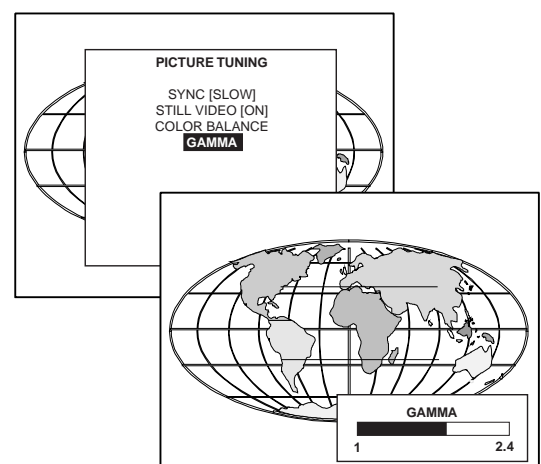
Audio Tuning

Highlight Audio Tuning by pushing the control disk up or down and press ENTER to select.
The Audio Tuning menu will be displayed. The following items are available :
- Volume
- Balance
- Bass
- Treble
- Mute
- Lock
- Fade

Volume, Balance, Bass and Treble

When a sound control is selected by highlighting the item with the control disk, a text box with a bar scale, icon and function name fo the control, e.g. 'Volume' appears on the screen (only when text is ON). The length of the bar scale indicates the current memory setting for this source. For more information about the sound controls, see 'Sound controls with direct access' in the Chapter 'Controlling'.

Mute

Select 'Mute' to stop the sound reproduction.
Highlight 'Mute' with the control disk and press ENTER to toggle between Mute [on] or Mute [off].

Lock [OFF/INPUT 1/INPUT 2/INPUT 3]

Select 'Lock' by pushing the control disk up or down and press ENTER to toggle between OFF, INPUT 1, INPUT 2, INPUT 3.
Lock [OFF] : the sound corresponding to the selected input source will be reproduced (see table in chapter 'Connections')

Lock [INPUT 1] : the sound corresponding to audio 1 input will be reproduced independent the selected input source.

Lock [INPUT 2] : the sound corresponding to audio 2 input will be reproduced independent the selected input source.

Lock [INPUT 3] : the sound corresponding to audio 3 input will be reproduced independent the selected input source.

Fade

Select Fade by pushing the control disk up or down.
The fade can be adjusted between -15 and 15.

Fade on -15 : no sound reproduction on the external loudspeakers, max on the internal loudspeaker with the same volume level as adjusted with the volume control.

Fade on 15 : no sound reproduction on the internal loudspeakers but max on the external loudspeakers with the same volume level as adjusted with the volume control.
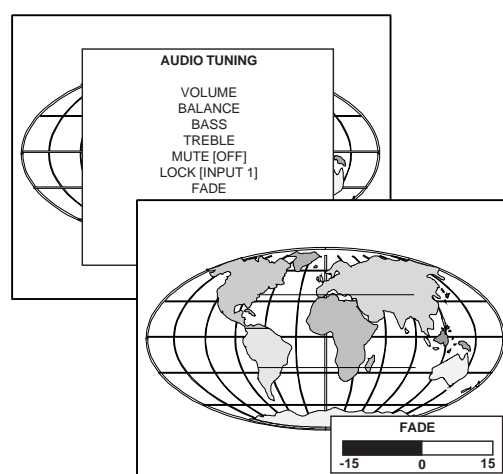
Geometry

Highlight Geometry by pushing the control disk up or down and press **ENTER** to select the geometry selection menu.
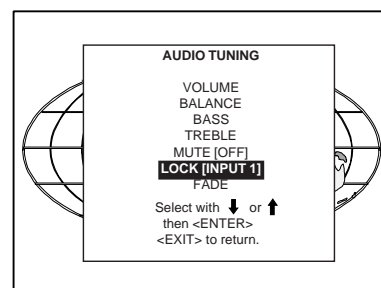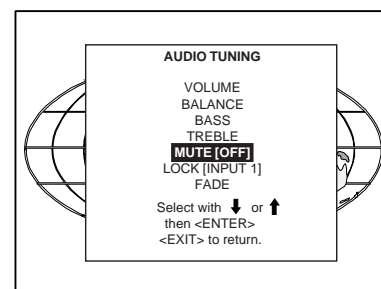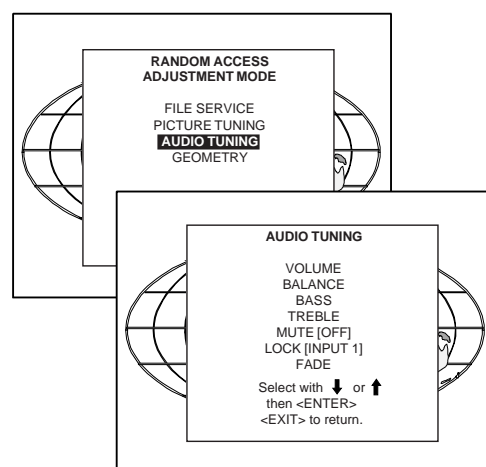The following adjustment are possible :
  - horizontal and vertical image shift.
  - horizontal and vertical image size
  - side keystone (only necessary if the projector is mounted under a non standard projection angle).
  - blanking
  - options

The following ways are possible to adjust a geometry function :
- using the control disk to adjust or
- entering the value with the digit keys. Therefore, press **ENTER** to select the indicated value and enter the desired value with the digit keys.   Press **ENTER** to confirm the entered value.

```
          RANDOM ACCESS
          ADJUSTMENT MODE

            FILE SERVICE
           PICTURE TUNING
           AUDIO TUNING
            GEOMETRY


                    GEOMETRY

                  SHIFT
                  SIZE
                  SIDE KEYSTONE
                  BLANKING
                  SCALE[1:x]
                  OPTIONS

               Select with  ↓  or ↑
               then <ENTER>
               <EXIT> to return.
```
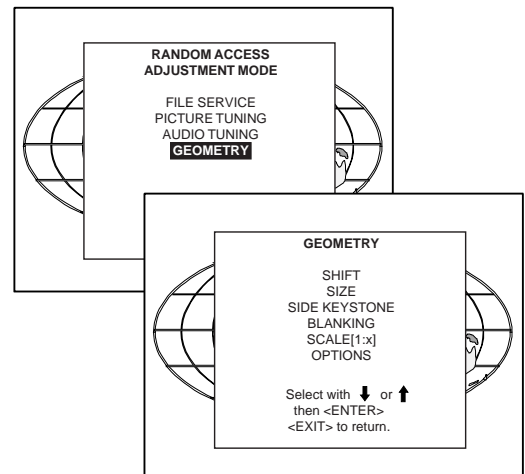
Shift

Highlight Shift by pushing the control disk up or down and press **ENTER**.
The image can be shifted in a horizontal or vertical direction. Push the control disk up or down to shift the image in a vertical direction. Push the control disk to the right or to the left to shift the image in a horizontal direction. The default value for the shift is 0.
Shifting in a vertical direction : when the shift value is positive, the image is shifted upwards, when the value is negative, the image is shifted downwards.
Shifting in a horizontal direction : when the shift value is positive, the image is shifted to the right, when the value is negative, the image is shifted to the left.

```
                    GEOMETRY

                  SHIFT
                  SIZE
                  SIDE KEYSTONE
                  BLANKING
                  SCALE[1:x]
                  OPTIONS

               Select with  ↓  or ↑
               then <ENTER>
               <EXIT> to return.
```
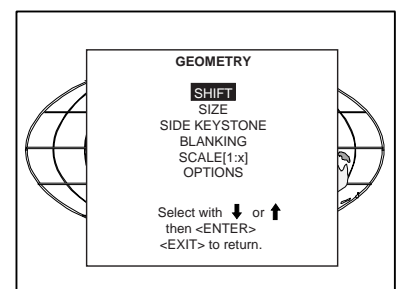
Size

Highlight Size by pushing the control disk up or down and press **ENTER** to select.
The size can be adjusted in a vertical or horizontal way.
When adjusting the vertical size,
for table mount configuration : the upper side of the image is fixed and only the lower side can be moved to its exact position.
for ceiling mount configuration : the lower side of the image is fixed and only the upper side can be moved to its exact position.
When adjusting the horizontal size, the left side of the image is fixed and only the right side can be moved to its exact position.

Hint : Before sizing the image, be sure that
- for table mount configuration the upper left corner is correctly positionned on the screen. Use the Shift function to position this corner.
- for ceiling mount configuration the lower left corner is correctly positionned on the screen. Use the Shift function to position this corner.

```
                    GEOMETRY

                  SHIFT
                  SIZE
                  SIDE KEYSTONE
                  BLANKING
                  SCALE[1:x]
                  OPTIONS

               Select with  ↓  or ↑
               then <ENTER>
               <EXIT> to return.
```


Fixed sides

Horizontal size adjustment

Vertical size adjustment

Example for table mount configuration
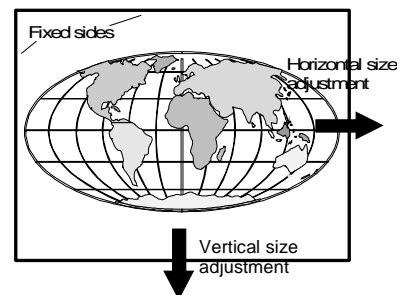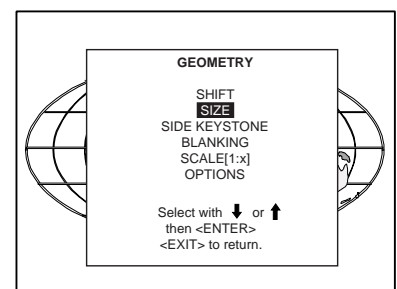
Side keystone

Highlight Side Keystone by pushing the control disk up or down and press ENTER to select.

The side keystone adjustment is used to align the image if the projector is mounted as a non standard projection angle.

Push the control disk to the right or to the left to adjust the keystone of the image.

When the upper part of the image is wider than the lower part of the image, push the control disk to the left. The number indication below the bar scale will be negative.

When the upper part of the image is smaller than the lower part of the image, push the control disk to the right. The number indication below the bar scale will be positive.

GEOMETRY

SHIFT
SIZE
SIDE KEYSTONE
BLANKING
SCALE[1:x]
OPTIONS

Select with ↓ or ↑
then <ENTER>
<EXIT> to return.
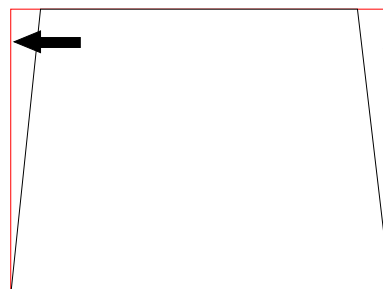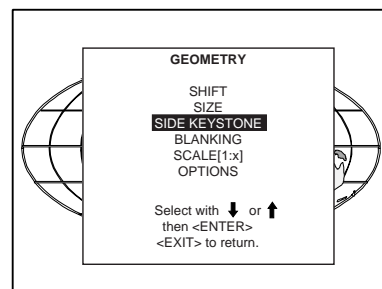
Blanking

Highlight Blanking by pushing the control disk up or down and press ENTER to select.

Blanking adjustments affect only the edges of the projected image and are used to frame the projected image on to the screen and to hide or black out unwanted information (or noise). A '0' on the bar scale indicates no blanking.

The following blanking corrections are possible :
  - top blanking
  - bottom blanking
  - left blanking
  - right blanking

GEOMETRY

SHIFT
SIZE
SIDE KEYSTONE
BLANKING
SCALE[1:x]
OPTIONS

BLANKING

TOP
BOTTOM
LEFT
RIGHT
RESET

Select with ↓ or ↑
then <ENTER>
<EXIT> to return.

Top blanking

Left blanking

Right blanking

Bottom blanking

Adjustment of the blanking on the top of the image

Adjustment of the blanking on the bottom of the image

Correct by pushing the control disk up or down

BLANKING

TOP
BOTTOM
LEFT
RIGHT

Select with ↓ or ↑
then <ENTER>
<EXIT> to return.

Adjustment of the blanking on the left side

Adjustment of the blanking on the right side

Correct by pushing the control disk to the right or to the left

Scale [1:x]

When 'Scale [1:1]' is selected, the real input signal without image conversion is displayed on the screen with a resolution fo 720x480 pixels. Parts of the image cannot be displayed and will be lost. Press ENTER to toggle scale between [1:1] and [1:x]. When toggled to [1:x] the full image will be displayed.

Note : When Scale [1:1], the blanking is OFF.

GEOMETRY

SHIFT
SIZE
SIDE KEYSTONE
BLANKING

OPTIONS

Select with ↓ or ↑
then <ENTER>
<EXIT> to return.

Scale [1:x]

Scale [1:1]

480 pixels

720 pixels
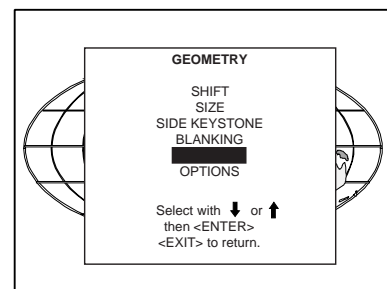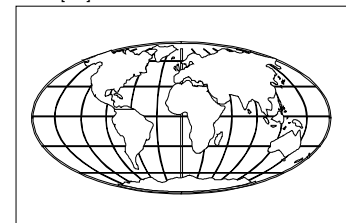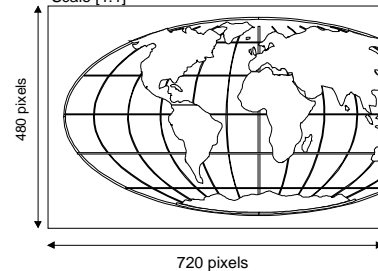
Options

Highlight Options by pushing the control disk up or down and press
ENTER. The Geometry Options menu will be displayed.
The next question will be asked by the projector :
'Use the same side keystone correction for all files ? [YES] or [NO].
[YES] : the same keystone correction will be used for all installed files.
[NO] : the keystone has to be adjusted file per file.

Push the ENTER key to toggle between [YES] or [NO].
Press EXIT to return to the Geometry menu.

GEOMETRY

SHIFT
SIZE
SIDE KEYSTONE
BLANKING
SCALE[1:x]
OPTIONS

GEOMETRY OPTIONS

Use the same side
keystone correction
for all files ?
[YES]

<ENTER> to toggle
<EXIT> to return
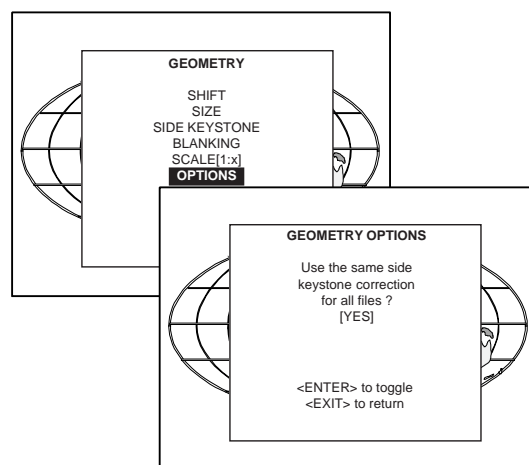
8 INSTALLATION MODE

Starting up the Installation Mode

Push the control disk up or down to highlight Installation and then press **ENTER**.

> **ENTER** continues to the Installation mode selection menu.
> **EXIT** returns to operational mode.

The following item can be selected in the Installation mode :

Input slots : to set up the input for a specific source. See 'Connections' for the different source types.
Convergence : to adjust the convergence of the LCD panels. For more information contact an authorised BARCO service technician.
Configuration : to set up the projector position.
Internal Patterns :
- color bars
- multiburst
- checker board
- purity
- Page Char
- Alpha-numeric Char

Configuration

Highlight "Configuration" by pushing the control disk up or down and press **ENTER** to select.

For more information, see Projector configuration in chapter Installation Set Up.

Internal Patterns

The projector is equipped with different internal patterns which can be used for measurment purposes.
Highlight "Internal Patterns" by pushing the control disk up or down and press **ENTER** to display the Internal Pattern selection menu.
The following test pattern are available :
- Color Bars
- Multiburst
- Checker Board
- Purity
- Page Char
- Alpha-numeric Char

Each pattern (except Purity) can be inverted by pressing **ENTER**.
To return to the normal pattern, press **EXIT**.

How to use the built-in adjustable lensholder.

With the lensholder, it is possible to shift the displayed image up or down on the screen without moving the projector from its normal position and without any geometric picture distortion. This built-in feature is particularly useful for use in dual projector configurations or for applications when the projector cannot be installed in its standard position.

ADJUSTMENT MODE

Select a path from below :

RANDOM ACCESS
INSTALLATION
SERVICE

Source 01

INSTALLATION

INPUT SLOTS
CONVERGENCE
CONFIGURATION
INTERNAL PATTERNS

Select with ↓ or ↑
then <ENTER>
<EXIT> to return.

INSTALLATION

INPUT SLOTS
CONVERGENCE
CONFIGURATION
INTERNAL PATTERNS

Select with ↓ or ↑
then <ENTER>
<EXIT> to return.

INSTALLATION

INPUT SLOTS
CONVERGENCE
CONFIGURATION
INTERNAL PATTERNS

INTERNAL PATTERNS

COLOR BARS
MULTIBURST
CHECKER BOARD
PURITY
PAGE CHAR
ALPHA-NUMERIC CHAR

Select with ↓ or ↑
then <ENTER>
<EXIT> to return.

Features :
- Vertical and horizontal shift of the lens without removing the top cover,
  5 mm left and 5 mm right
  15 mm up and 15 mm down.
- Makes it possible to project a geometric non-distorted image from a non-standard position.
- The shift of the lensholder is not determined by the lens but depends on the screen width.
- Can be used with all available lenses.

How to shift the image :
- First shift the image left or right until the correct horizontal position is obtained. Turn clockwise to shift the image to the right, turn counter clockwise to shift to the left. Use the hand screw.
- Shift the image up or down until the correct vertical position of the image is obtained. Turn clockwise to shift the image up, turn counter clockwise to shift down. Use the hand screw.

Midposition of the adjustable lensholder.
- If the top cover is opened, the lensholder indication line has to match with the center of the hole in the plate behind the lensholder.

Lens shift up/down
Lens shift left/right

hole
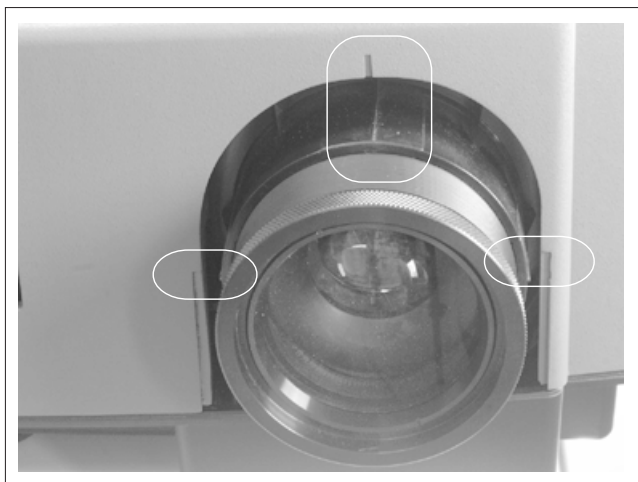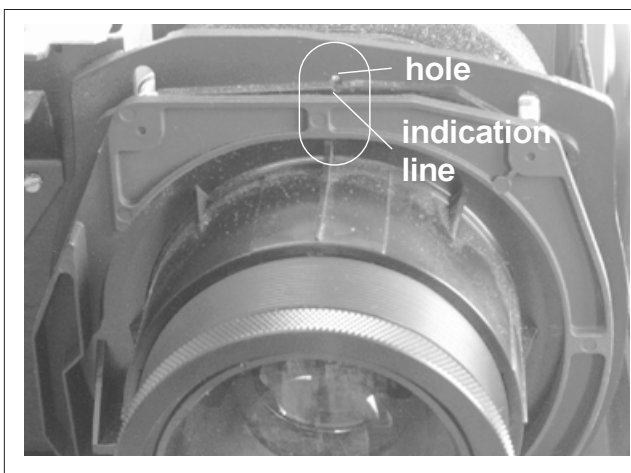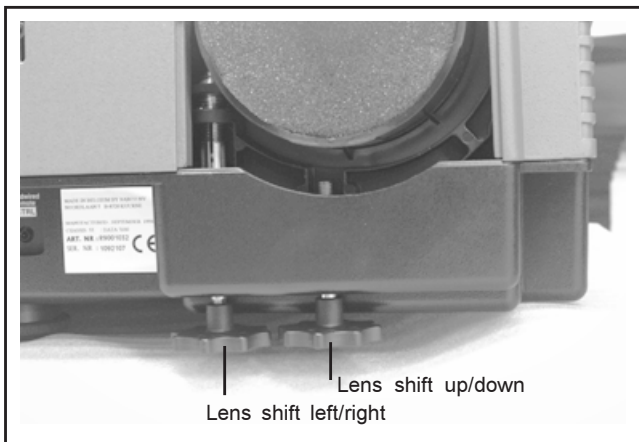
indication line

- If the top cover is closed, the 3 indication lines on the lensholder has to match with indication on the top cover.
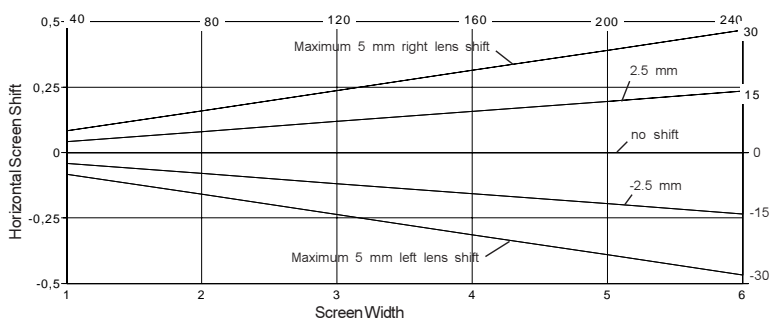
Horizontal shift is function of the Screen Width for various lens shifts.

Vertical shift is function of the Screen Width for various lens shifts.

Both the vertical and horizontal shift of the displayed picture can be calculated as follows :

Screen shift = lens shift x 1 + (Screen width / LCD panel width)

LCD panel width for 3200 series : 0,06480 m (2.551 inch)
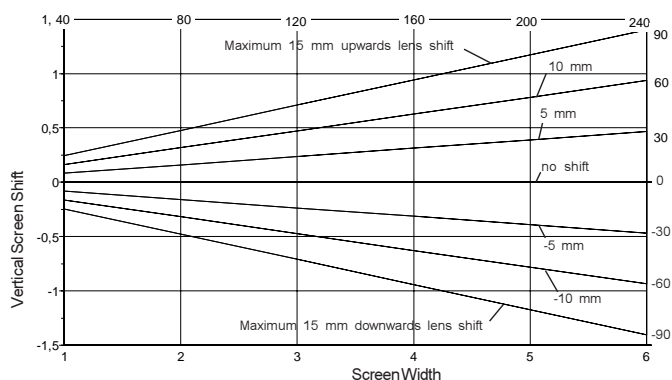
9 SERVICE MODE

Starting up the Service Mode

Push the control disk up or up to highlight Service and then press **ENTER**.

Some items in the Service mode are password protected (when the password function is active). Enter your password to continue. All other password protected items are now available if you stay in the adjustment mode.

The service menu is built-up in two parts which are connected together with the 'more' item.
If the disered item is not in the list of the displayed menu, select more with the control disk and push **ENTER** to display the other items in the service menu.

> **ENTER** continues to the Service mode selection menu.
> **EXIT** returns to operational mode.

```
ADJUSTMENT MODE

Select a path from below :


RANDOM ACCESS
INSTALLATION
SERVICE
```

```
SERVICE

IDENTIFICATION
CHANGE PASSWORD
CHANGE LANGUAGE
RESET LAMP RUNTIME
LAMP RUNTINE HISTORY
LAMP DRIVE MODE
MORE...


Select with ↓ or↑
then <ENTER>
<EXIT> to return.
```

```
SERVICE

PANEL ADJUSTMENTS
PRESET INPUT BALANCE
I2C DIAGNOSIS

MORE...



Select with ↓ or↑
then <ENTER>
<EXIT> to return.
```

```
SERVICE

IDENTIFICATION
CHANGE PASSWORD
CHANGE LANGUAGE
RESET LAMP RUNTIME
LAMP RUNTINE HISTORY
LAMP DRIVE MODE
MORE...


Select with ↓ or↑
then <ENTER>
<EXIT> to return.
```

```
BARCO
DATA 3200

Proj. address : 001
Soft. version : 3.0
Config : front/
          ceiling
Baudrate PC : 9600
text : ON
Serial no.: 1010200
Run time : 100 h
Select with ↓ or↑
then <ENTER>
<EXIT> to return.
```

```
CHANGE PASSWORD

Enter new password
0000




Select with ↓ or↑
then <ENTER>
<EXIT> to return.
```

```
CHANGE LANGUAGE

ENGLISH




Select with ↓ or↑
then <ENTER>
<EXIT> to return.
```

```
SERVICE

PANEL ADJUSTMENTS
PRESET INPUT BALANCE
I2C DIAGNOSIS

MORE...



Select with ↓ or↑
then <ENTER>
<EXIT> to return.
```

```
RESET LAMP RUN TIME

Enter the
serial number
of the new lamp
0000000

Select with → or←
Reprogram with ↓ or↑
or numeric keys
<ENTER> to confirm
<EXIT> to return
```

```
LAMP RUNTIME HISTORY

Serial No      Runtime
---------------------------
>  0111121      600 h
   0110031      750 h
   0110010      745 h


---------------------------

<EXIT> to return
```

```
LAMP DRIVE MODE

NORMAL
TEMPORARY BOOST




Select with ↓ or↑
then <ENTER>
<EXIT> to return.
```

```
       SERVICE                      PANEL ADJUSTMENT              PRESET INPUT BALANCE
                                       RED COARSE
    IDENTIFICATION                                                    WHITE BALANCE
   CHANGE PASSWORD                    FIELD FLICKER
   CHANGE LANGUAGE                  BLACK LEVEL TOP
  RESET LAMP RUNTIME               BLACK LEVEL BOTTOM
  LAMP RUNTINE HISTORY                 GAIN TOP
   LAMP DRIVE MODE                   GAIN BOTTOM
        MORE...                  Change color+pattern             Select with <ENTER>
                                    with  ➡ or ⬅                  <EXIT> to return.
                                   Select with  ⬇ or⬆
    Select with  ⬇  or⬆              then <ENTER>                       Adjust
      then <ENTER>                  <EXIT> to return.              red with ⬇ or⬆
    <EXIT> to return.                                             blue with ➡ or⬅
```

```
       SERVICE                           I2C DIAGNOSIS
                                                              DCA
  PANEL ADJUSTMENTS            LCD DRIVER      SC76013  E6H # # #
  PRESET INPUT BALANCE         LCD DRIVER      SC76013  E8H # # #
    I2C DIAGNOSIS              LCD DRIVER      SC76013  EAH # # #
                              LCD DRIVER      TDA8444  48H # # #
        MORE...                INPUT SELECTORPCF8574A 46H # # #
                              INPUT SELECTOR PCF8574A7EH # # #
                              DECODER         PCF8574   4EH # # #
                              DECODER         SAA7151B 8AH # # #
                              DECODER         SAA7152  B2H # # #
    Select with  ⬇  or⬆       DECODER         SAA7192A E0H # # #
      then <ENTER>             LAMP DRIVER     PCF8574A 72H # # #
    <EXIT> to return.          AUDIO           TEA6310V 80H # # #
```

Identification

To display the Identification screen, push the control disk up or up to highlight *Identification* and press **ENTER** to display the *Identification* screen.

The Identification screen gives an overview of :
  - type of projector
   - projector address
  - software version
  - installation configuration
  - baud rate
  - text ON
  - projector serial number
  - projector run time

- *type* of projector : BARCODATA 3200

- *software version*

- *Proj. Address* : to change the address of the projector, see Change Projector Address in this chapter.

- *Installation* : possible installations :

   * Front/Ceiling
   * Front/Table
   * Rear/Ceiling
   * Rear/Table
To change the installation configuration follow the instructions in chapter Installation Set Up.

- *Baud rate* : transfer speed for communication with a IBM PC (or compatible) or MAC. The baud rate of the projector must be the same as the baud rate of the connected computer. When there is a difference, consult 'Change Baudrate PC' in this chapter.

- *Projector Run Time* : gives the total run time since the first start up. All projectors leave the factory with a run time of approximately 24 hours.

- *Projector Serial number* : indicates the fabrication number of the projector. This number can be useful when calling for technical assistance.

```
              SERVICE

          IDENTIFICATION
         CHANGE PASSWORD
         CHANGE LANGUAGE
        RESET LAMP RUNTIME
       LAMP RUNTINE HISTORY
         LAMP DRIVE MODE

             MORE...

        Select with  ⬇ or⬆
          then <ENTER>
        <EXIT> to return.
```
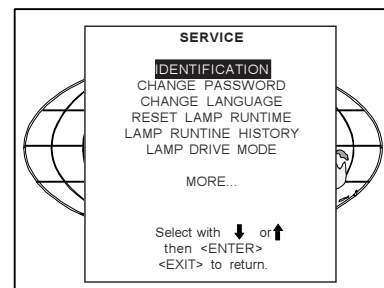
Change Password

This item is password protected when the password strap is installed.

How to enable or disable the password function ?

The password function is enabled when the password strap on the controller module is installed.

To change the setting of the password strap, consult a qualified service technician or an authorised BARCO service center.

How to change the password ?

Highlight Change password by pushing the control disk up or up and press **ENTER** to display the Change Password menu.

> **ENTER** displays the Change Password menu
> **EXIT** returns to the adjustment selection menu.
> **ADJUST** returns to operational mode.

The old password is displayed and can be changed by entering the digit with the numeric keys of the RCU or local keypath.

Press ENTER to save the new entered password.
Press EXIT if no changes have to be made.

SERVICE

IDENTIFICATION
CHANGE PASSWORD
CHANGE LANGUAGE
RESET LAMP RUNTIME
LAMP RUNTINE HISTORY
LAMP DRIVE MODE
MORE...

CHANGE PASSWORD

Enter new password
0000

Select with ↓ or↑
then <ENTER>
<EXIT> to return.
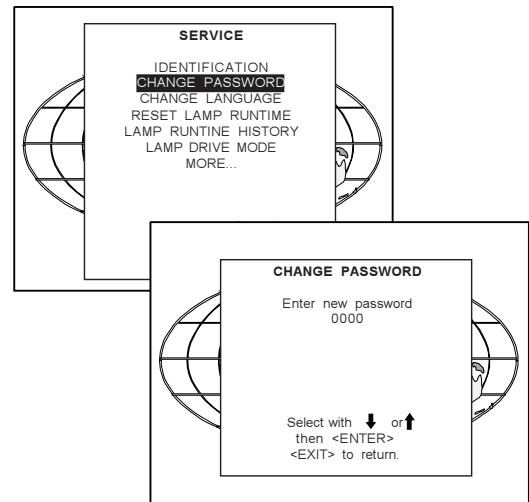
Change Language

Highlight Language by pushing the control disk up or up and press ENTER to select the Language Selection menu.
Available languages : English.

SERVICE

IDENTIFICATION
CHANGE PASSWORD
CHANGE LANGUAGE
RESET LAMP RUNTIME
LAMP RUNTINE HISTORY
LAMP DRIVE MODE
MORE

CHANGE LANGUAGE

English

Select with ↓ or↑
then <ENTER>
<EXIT> to return.
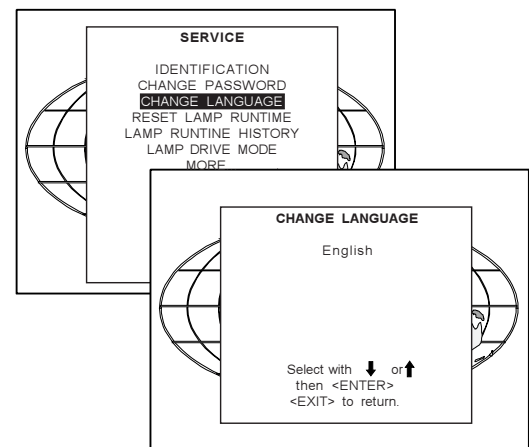
Reset Lamp Runtime

Reset lamp run time is only allowed when a new lamp is installed. Highlight Reset Lamp Run Time by pushing the control disk up or up and press **ENTER** to select.

When Reset Lamp Run Time is selected in the Service Mode selection menu, the following warning will be displayed :

Risk of electrical shock. Reset lamp run time is reserved to qualified service personnel.
If you are not qualified, press **EXIT** to cancel the reset operation.

```
                 SERVICE

          IDENTIFICATION
          CHANGE PASSWORD
          CHANGE LANGUAGE
          RESET LAMP RUNTIME
          LAMP RUNTINE HISTORY
          LAMP DRIVE MODE
                MORE
```

```
                 WARNING
          ----------------------
               RISK OF
          ELECTRICAL  SHOCK
          ----------------------
          RESET LAMP RUN TIME
              is reserved to
                 qualified
            service  personnel

           <ENTER> to accept
           <EXIT> to return.
```
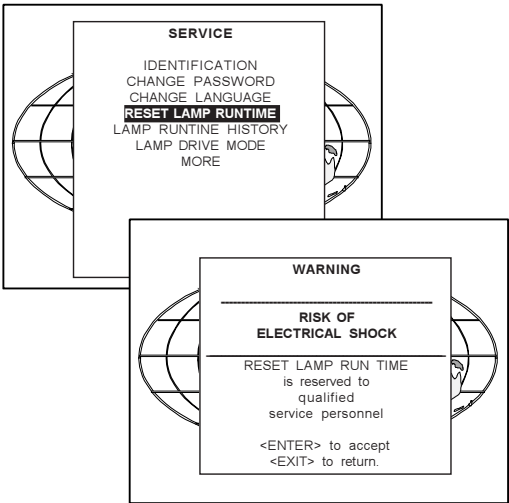
Lamp Run Time History

To get an overview of the different lamp run times, highlight Lamp Run Time History by pushing the control disk up or up and press **ENTER**. A listing with the lamp serial number and the corresponding run time will be displayed.
The actual installed lamp will be marked.
Press **EXIT** to return to the service mode selection menu.

```
                 SERVICE

          IDENTIFICATION
          CHANGE PASSWORD
          CHANGE LANGUAGE
          RESET LAMP RUNTIME
          LAMP RUNTINE HISTORY
          LAMP DRIVE MODE
                MORE...
```
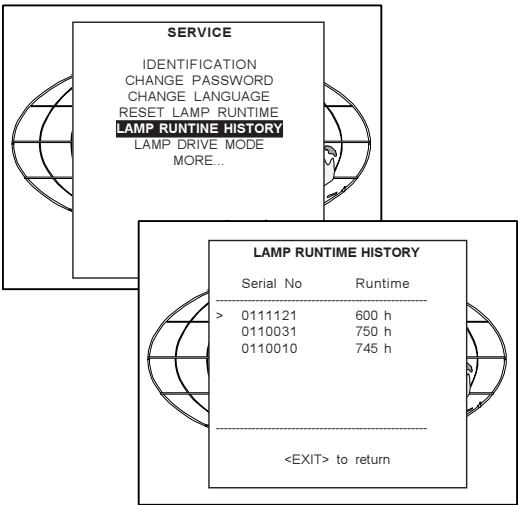
```
          LAMP RUNTIME HISTORY

          Serial No      Runtime
          ----------------------------
    >     0111121        600 h
          0110031        750 h
          0110010        745 h



          ----------------------------
             <EXIT>  to return
```

Lamp Drive Mode

Highlight Lamp Drive Mode by pushing the control disk up or up and press **ENTER** to toggle between [NORMAL] and [TEMPORARY BOOST].

[NORMAL] : lamp is driven with a power of 575W.
[TEMPORARY BOOST] : lamp is driven with a power of 700W
When switching off, the lamp drive mode will be set to 'NORMAL'.

The projector always starts in the normal drive mode.

```
                 SERVICE

          IDENTIFICATION
          CHANGE PASSWORD
          CHANGE LANGUAGE
          CHANGE PROJ. ADDRESS
          CHANGE BAUDRATE PC
          RESET LAMP RUNTIME
          LAMP RUNTINE HISTORY
          LAMP DRIVE MODE
                MORE...

          Select with   ↓  or  ↑
              then <ENTER>
            <EXIT>  to return.
```
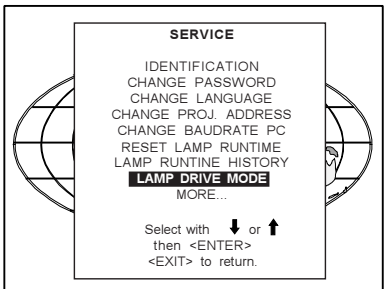
Panel Adjustments

***Changing these settings may seriously affect the perform-
ance of the projector.***
All panel adjustments are factory adjusted. If not really necessary,
do not touch one of these adjustments. They are useful when a new
panel is installed.

Highlight Panel Adjustments by pushing the control disk up or up and
press **ENTER**

When Panel Adjustments is selected in the Service Mode selection
menu, the following warning will be displayed :

Risk of electrical shock. Panel Adjustments is reserved to qualified
service personnel.
If you are not qualified, press EXIT to cancel the panel adjustments.

```
             SERVICE
      PANEL ADJUSTMENTS
      PRESET INPUT BALANCE
      I2C DIAGNOSIS

             MORE...
```
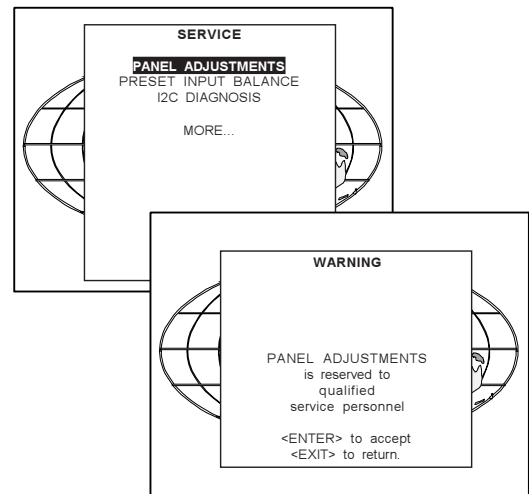
```
             WARNING


      PANEL  ADJUSTMENTS
        is reserved to
           qualified
        service personnel

      <ENTER> to accept
      <EXIT> to return.
```
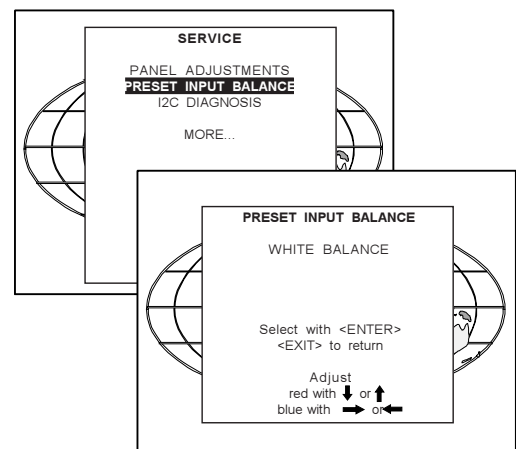
Preset Input Balance

Only active with a RGB input.
Highlight White Balance by pushing the control disk up or up and press
ENTER to select.
With the white balance adjustment, the gain of the red and blue
channels can be adjusted in comparison with the green channel. (To
adjust the gain of the complete video signal, use the contrast
adjustment)
Use the control disk by pushing up or up to change Red or by pushing
to the right or to the left to change Blue.
Press **EXIT** to return to the Preset Input Balance menu.

```
             SERVICE
      PANEL ADJUSTMENTS
      PRESET INPUT BALANCE
      I2C DIAGNOSIS

             MORE...
```

```
      PRESET  INPUT  BALANCE

         WHITE  BALANCE


       Select  with  <ENTER>
          <EXIT>  to return

              Adjust
      red with  ↓ or ↑
      blue with  ➡ or ⬅
```

I2C diagnosis.

Gives an overview of the correct working of the I²C controlled IC's.
Highlight I2C diagnosis by pushing the control disk up or up and press
ENTER to display the overview.

```
             SERVICE
      PANEL  ADJUSTMENTS
      PRESET INPUT BALANCE
      I2C  DIAGNOSIS

             MORE...
```

```
         I2C  DIAGNOSIS
                              DCA
   LCD DRIVER      SC76013  E6H # # #
   LCD DRIVER      SC76013  E8H # # #
   LCD DRIVER      SC76013  EAH # # #
   LCD DRIVER      TDA8444  48H # # #
   INPUT SELECTORPCF8574A 46H # # #
   INPUT  SELECTOR PCF8574A7EH # # #
   DECODER         PCF8574  4EH # # #
   DECODER         SAA7151B 8AH # # #
   DECODER         SAA7152  B2H # # #
   DECODER         SAA7192A E0H # # #
   LAMP DRIVER     PCF8574A 72H # # #
   AUDIO           TEA6310V 80H # # #
   <EXIT>  TO RETURN
```

A STANDARD SOURCE SET UP FILES

NAME	RESOLUTION	FVERT Hz	FHOR kHz	FPIX MHz	PTOT	PACT	LTOT	LACT
CGA	640 X 200	59,924	15,700	14,318	912	640	262	200
NTSC	675 X 240I	29,970	15,734	13,500	858	720	263	240
NTSC_2	675 X 240I	29,970	15,734	13,500	858	720	263	240
PAL	675 X 278I	25,000	15,625	13,500	864	720	313	278
PAL_2	675 X 278I	25,000	15,625	13,500	864	720	313	278
SECAM	675 X 278I	25,000	15,625	13,500	864	720	313	278
SECAM_2	675 X 278I	25,000	15,625	13,500	864	720	313	278
SECAM_3	675 X 278I	25,000	15,625	13,500	864	720	313	278
EGA	640 X 350	59,702	21,851	16,257	744	640	366	350
MAC_5	512 X 342	60,158	22,259	15,670	704	512	370	342
MAC_3	512 X 384	60,147	24,480	15,667	640	512	407	384
MAC_4	560 X 384	60,147	24,480	17,234	704	560	407	384
8514-A	1024 X 384I	43,479	35,522	44,900	1264	1024	409	384
VGA_TXT	720 X 400	70,087	31,469	28,322	900	720	449	400
COMPUSC4	1024 X 480I	29,945	30,694	39,779	1296	1024	512	480
VGA_72V	640 X 480	72,800	37,856	31,496	832	640	520	480
VGA_GR	640 X 480	59,941	31,469	25,175	800	640	525	480
VGA75ISO	640 X 480	75,000	39,375	31,500	800	640	525	480
MAC_2	640 X 480	66,667	35,000	30,240	864	640	525	480
MAC_LC	640 X 480	66,619	34,975	31,338	896	640	525	480
MUSE	960 X 518I	30,000	33,750	37,125	1100	960	563	518
HDMAC	1008 X 570I	25,020	31,250	39,125	1252	1008	625	570
SVGA_56V	800 X 600	56,250	35,156	36,000	1024	800	625	600
SVGA_60V	800 X 600	60,317	37,879	40,000	1056	800	628	600
SVGA_72V	800 X 600	72,084	48,080	50,003	1040	800	667	600
XGA_70V	1024 X 768	69,705	56,182	74,610	1328	1024	806	768
XGA_60	1024 X 768	60,000	48,360	64,996	1344	1024	806	768
XGA_75	1024 X 768	75,781	61,080	86,000	1408	1024	806	768
XGA75_GS	1024 X 768	74,534	59,701	79,284	1328	1024	801	768
XGA_72	1024 X 768	71,955	58,140	80,000	1376	1024	808	768
SUP_MAC	1024 X 768	60,000	48,780	63,999	1312	1024	813	768

Name : name of file, contains the settings
Resolution : image resolution, when followed by ...I means interlaced.

FVERT Hz : vertical frequency of the source

FHOR kHz : horizontal frequency of the source.

FPIX MHz : pixel frequency

PTOT : total pixels on one horizontal line

PACT : active pixels on one horizontal line

LTOT : total lines in one frame

LACT : active lines in one frame

| NAME	RESOLUTION	FVERT Hz	FHOR kHz	FPIX MHz	PTOT	PACT	LTOT	LACT
XGA_70	1024 X 768	70,000	57,050	78,044	1368	1024	815	768
MAC_POR	640 X 870	74,996	68,846	57,280	832	640	918	870
INTER_GR	1184 X 886	67,170	61,796	92,941	1504	1184	920	886
SG_60_2	1024 X 768	60,000	48.780	64,390	1320	1024	812	768
SG_60_3	960 X 680	60,000	43,200	54,432	1260	960	720	680
ED	735 X 480	59,940	31,470	27,000	910	735	525	480
PC98_1	640 X 400	56,416	24,823	21,050	848	640	440	400
PC98_2	1120 X 375I	79,987	32,835	47,840	1457	1120	411	375
PC98_3	1120 X 750	60,000	50,000	78,569	1571	1120	833	750
MAC_6	832 X 624	74,550	49,722	57,280	1152	832	667	624
MAC_7	1024 X 768	74,910	60,150	80,000	1330	1024	803	768
PAM500	640 X 400	60,000	26,400	22,810	864	840	440	400
PAM800	1120 X 375I	89,872	36,443	50,000	1372	1120	406	375
FMTO_2	640 X 400	55,370	24,370	21,060	864	640	440	400
FMR	640 X 400I	84,700	36,440	28,570	784	640	431	400

B LENSES

Focusing the lens

Loosen the fastener ring of the lens by turning counter clockwise.

Focus the image by turning the lens barrel to the left or the right. Attention : Do not turn out the lens too far, otherwise it will fall out of the lens holder.

When the image is focused, secure the correct position of the lens with the fastener ring by turning this ring clockwise.

Lens holder
Fastener ring
Lens barrel
Lens
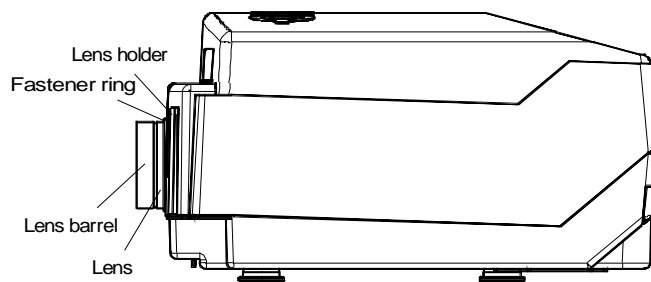
Lens Cleaning Procedure

Cleaning procedure for MD(1.2:1) lens and other MD lenses.

To minimize the possibility of damaging the optical coating or scratching exposed lens surface, we have developed recommendations for cleaning the lens. FIRST, we recommend you try to remove any material from the lens by blowing it off with clean, dry deionized air. DO NOT use any liquid to clean the lenses.

A Toraysee™ cloth is included with the lens kit.

Proceed as follows :

1. Always wipe lenses with a CLEAN Toraysee™ cloth.

2. Always wipe lenses in a single direction. Do not wipe back and forwards across the lens surface as this tends to grind dirt into the coating.

3. Do not leave cleaning cloth in either an open room or lab coat pocket, as doing so can contaminate the cloth.

4. If smears occur when cleaning lenses, replace the cloth. Smears are the first indication of a dirty cloth.

5. Do not use fabric softener when washing the cleaning cloth or softener sheets when drying the cloth.

6. Do not use liquid cleaners on the cloth as doing so will contaminate the cloth.

Order number for a new Toraysee™ cloth : R379058.
Other lenses can also be cleaned safely with this Toraysee™ cloth.

Alternative cleaning procedure for the MD lens, except MD(1.2:1) lens.

To minimize the possibility of damaging the optical coating or scratching exposed lens surfaces, we have developed recommendations for cleaning lenses. **FIRST**, we recommend you try to remove any material from the lens by blowing it off with deionized air or *lightly* brushing it with a soft, camel's hair brush.

Plastic lens with multilayer coatings & all glass lens elements.

1. **DO NOT** spray any type of fluid directly on the lens surface.

2. **DO NOT** use any dry material to clean the surface (dry rag, tissue, etc.)

3. Use a commercial liquid window cleaner. ***DO NOT use an aerosol.*** Other cleaning agents, such as laboratory-grade acetone or a 70-30 mixture of ethyl ether and ethyl alcohol may also be used. If you are not sure of the cleaning agent, experiment with a small area of the lens first.

4. Use a soft cotton cloth (cotton diapers laundered several times to remove sizing) or any soft facial tissue (Charmin, Softweve, etc.).

5. When using window cleaner, ***moisten the cloth or tissue*** and lightly wipe the surface. Then lightly dry with a new tissue.

6. When using acetone or ethyl ether mixture, proceed as follows : Fold the cloth or tissue several times to form a pad. Soak the folded end of the pad in the acetone. Starting at the diameter opposite you, immediately wipe the coated lens, with very little pressure, toward you in a straight line and off the lens. Do not stop with the tissue on the lens. Wipe at a speed that is equal to the evaporation rate. This is very important to prevent streaking and spotting. Start your wiping at one side of the lens and, with successive wipes, move to the other side. Turn the pad over for each wipe, then inside out. Do not make more than one wipe per clean area of pad. Be careful of the painted edge, since acetone will soften it.

Lenses

This APPENDIX gives an overview of the tables and formulas for the available lenses for the BARCOGRAPHICS 9200.
An overview of all tables, diagrams and formulas can also be found in the manual "Installation diagrams for BARCO projectors", order number : R5975924.

The next lenses are available :

Name	length lens mm (inch)	diam. lens mm (inch)	weight kg (lbs)	order number
MD(1.2:1)	247 (9.7)	124 (4.9)	2.8 (6.6)	R9829470
MD(2.3:1)	232 (9.13)	118 (4.6)	4.0 (8.82)	R9829340
MD(3.4:1)	188 (7.4)	118 (4.6)	2.8 (6.17)	R9829350
MD(5:1)	184 (7.25)	118 (4.6)	1.8 (3.97)	R9829360
MD(6:1)	177 (6.98)	118 (4.6)	2.0 (4.72)	R9829370
MD(7:1)	177 (6.98)	118 (4.6)	2.0 (4.72)	R9829380
MD(1.7-3:1)	428 (16.85)	164 (6.46)	6.5 (14.0)	R9829335
MD(3-6:1)	389 (15.3)	143 (5.6)	5.4 (12.0)	R9829590

Lens formulas to calculate the projector distance.

MD(1.2:1)	Metric	PD=1.21 x SW + 0.08
	Inch	PD= 1.21 x SW + 3.15

MD(2.3:1)	Metric	PD=2.265 x SW + 0.03
	Inch	PD=2.265 x SW + 1.18

MD(3.4:1)	Metric	PD=3.365 x SW + 0.08
	Inch	PD=3.365 x SW + 3.15

MD(5.0:1)	Metric	PD=4.92 x SW + 0.17 + (0.02/SW)
	Inch	PD=4.92 x SW + 6.693 + (31/SW)

MD(6:1)	Metric	PD=6.1 x SW + 0.31 + (0.03/SW)
	Inch	PD=6.1 x SW + 12.20 + (46.50/SW)

MD(7:1)	Metric	PD=6.889 x SW + 0.46 + (0.03/SW)
	Inch	PD=6.889 x SW + 18.11 + (46.5/SW)

MD(1.7-3:1)	Metric	PDmin=1.77 x SW - 0,034 +(0,225/SW)
		PDmax=3.052 x SW + 0,248 - (0,0055/SW)
	Inch	PDmin=1.77 x SW -1.34 + (348.75/SW)
		PDmax=3.052 x SW + 9,76 - (8,52/SW)

MD(3-6:1)	Metric	PDmin=2.877 x SW
		PDmax=5.906 x SW + 0.01
	Inch	PDmin=2.877 x SW
		PDmax=5.906 x SW + 0.3
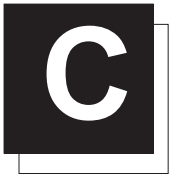
C SOURCE NUMBERS 90 - 99

Source numbers 90 - 99

These source numbers do not correspond to physical inputs. They can only be used when the projector is equipped with a RCVDS 05 or VS05. An additional adjustment file can be created for these source numbers. This file can contain different settings. The relationship between sources 0 - 9 and 90 - 99 is shown in the diagram below.

source input 1	source number 1 source number 91	file A file A'
source input 2	source number 2 source number 92	file B file B'
source input 3	source number 3 source number 93	file C file C'
	●	
	●	
source input 9	source number 9 source number 99	file I file I'

Follow the steps below to create a second file for sources 0 to 9 :

1. Select the source between 0 and 9.

2. Select the corresponding source number between 90 and 99 with the digit keys on the RCU.

3. Enter the adjustment mode and load a corresponding file. Edit this file if necessary.

4. Save the file and exit the adjustment mode.

INSERT CARD

RCU	
INPUT SOURCES	
PROJECTOR	
1	
2	
3	
4	
5	
6	
7	

INPUT SOURCES	
RCVDS	
1	
2	
3	
5	
6	
7	
8	
9	
10	

RCU	
INPUT SOURCES	
PROJECTOR	
1	
2	
3	
4	
5	
6	
7	

INPUT SOURCES	
RCVDS	
1	
2	
3	
5	
6	
7	
8	
9	
10	