



OWNER'S MANUAL

DTV-1200

DTV Capable CRT Projector



THE WORLD'S FINEST HOME THEATER PRODUCTS™

TABLE OF CONTENTS

Safety Instructions	4
Limited Warranty	8
Connections	10
Power Connection to Projector	10
Source Connections	11
RGB Source to Input 3	12
RGB Source with Composite Sync to Input 4/5	12
RGB Source with Tri-level Sync to Input 4/5	13
Component Source to Input 4/5	13
RS-232 Connection	13
Getting Started	14
Remote Control & Local Keypad	14
Stationary Image Warning	16
Remote Commands to the Projector	17
Projector Address	18
Start Up Of The Adjustment Mode	21
Adjustment Mode	21
Main Menu	22
Main Menu	22
Image Control	23
Color Adjust	23
Format Select	24
EYE-Q Control	26
EYE-Q Touch Up	26
EYE-Q Auto Converge	27
Function Keys	28
Service Menus	28
Entering The Service Menus	29
Service Menus	29
Random Access Adjustment Mode	31
Random Access Adjustment Mode	31
Selecting Setup Pattern	32
Internal Cross Hatch Pattern	33
Random Access Adjustment Mode Selection Menu	34
Picture Tuning	34
Color Balance	35
Sync Fast/Slow Adjustments	36
Peaking	37
Clamp Tuning	37
Geometry Adjustments	38
Horizontal Phase Adjustments	38
Raster Shift Adjustments	39
Left-Right (East-West) Adjustments	40
Left-Side Correction	42
Top-Bottom (North-South) Adjustments	43
Horizontal Size Adjustments	45
Vertical Linearity Adjustments	46
Vertical Size Adjustments	47

Blanking Adjustments	47
Convergence Adjustments	49
Focusing	50
Color Select	52
Service Mode	53
Service Mode	53
Projector Set-up	54
Identification	54
Run Time	55
Change Password	56
Change Projector Address	57
Change Baud Rate	57
Projector Warm Up	58
Warm Up On/Off	58
Warm Up Frequency	59
Projector Warm Up Time	59
Power Up Mode	60
Common Address	60
Memory Management	61
Copy a Block	61
Deletion of Blocks	62
Deleting Block by Block	62
Deletion of All Blocks	62
Set to Midposition	63
R & B Convergence Mid	63
Undo R & B Convergence Mid	64
Green Convergence Mid	64
Undo Green Convergence Mid	65
Focus to Midposition	65
Undo Focus to Midposition	65
East-West to Midposition	66
Undo East-West to Midposition	66
North-South Settings to Midposition	66
Undo North-South Settings to Midposition	67
Digital Vertical Linearity to Midposition	67
Undo Digital Vertical Linearity to Midposition	67
Digital Horizontal Linearity to Midposition	68
Undo Digital Horizontal Linearity to Midposition	68
Astigmatism Midposition	68
Undo Astigmatism Setting to Midposition	69
All Settings to Midposition	69
Undo All Settings to Midposition	69
Common Settings	70
Dynamic Astigmatism	70
Gamma Corrections	72
CRT Run In Cycle	72
CRT Drive Mode	73
Memory Banks	74
Flyback Turnover Point	75
Menu Position	75
12C Diagnostics	76
Voltage Diagnostics	76
Projector Diagnostics	77

Programmable Function Keys	78
Programmable Function Keys	78
Adjustment Blocks and Source Numbers 90-99	81
Adjustment Blocks (Memory Blocks)	81
Source Numbers 90-99	81
RS-232 Codes	83
Ceiling/Floor Configuration	85
Dimensions	86
Specifications	87

SAFETY INSTRUCTIONS

Safety Instructions

Notice On Safety

This equipment is built in accordance with the requirements of the international safety standards EN60950, UL 1950 and CSA C22.2 No.950, which are the safety standards of information technology equipment including electrical business equipment.

These safety standards impose important requirements on the use of safety critical components, materials and isolation, in order to protect the user or operator against risk of electric shock and energy hazard, and having access to live parts.

Safety standards also impose limits to the internal and external temperature rises, radiation levels, mechanical stability and strength, enclosure construction and protection against the risk of fire.

Simulated single fault condition testing ensures the safety of the equipment to the user even when the equipment's normal operation fails.

Installation Instructions

Before operating this equipment please read this manual thoroughly, and retain it for future reference. Installation and preliminary adjustments should be performed by qualified Runco personnel or by authorized Runco service dealers.

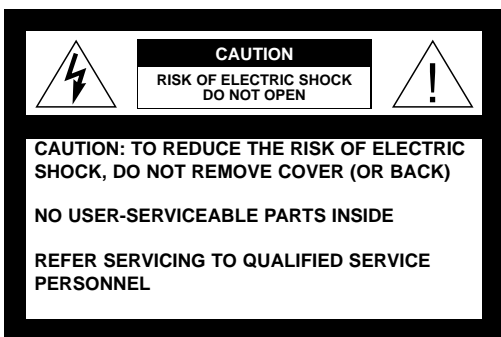
Owner's Record

The part number and serial number are located at the back side of the projector. Record these numbers in the spaces provided below. Refer to them whenever you call upon your Runco dealer regarding this product.

SERIAL NUMBER : _____

DEALER : _____

Safety Indication On The Product



The lightning flash with an arrowhead within a triangle is intended to tell the user that parts inside this product may cause a risk of electrical shock to persons.



The exclamation point within a triangle is intended to tell the user that important operating and/or servicing instructions are included in the technical documentation for this equipment.

Safety Warning

TO PREVENT FIRE OR ELECTRICAL SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE

Federal Communication Commission (FCC Statement)

This equipment has been tested and found to comply with the limits of 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.

Note :

The use of shielded cables is required to comply within the limits of Part 15 of FCC rules and EN55022.

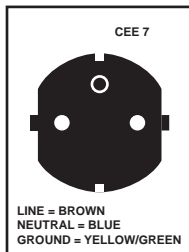
- All the safety and operating instructions should be read before using this unit.
- The safety and operating instructions manual should be retained for future reference.
- All warnings on the equipment and in the documentation manuals should be adhered to.
- All instructions for operating and use of this equipment must be followed precisely.

On Safety

1. This product should be operated from an AC power source.
Power input is autoranging from 100 V(-10%) to 240V(+6%).

2. All equipment in the system is equipped with a 3-wire grounding plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.

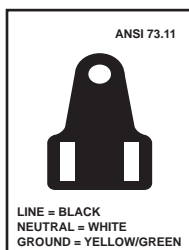
WARNING FOR THE CUSTOMERS: THIS APPARATUS MUST BE GROUNDED (EARTHED) via the supplied 3 conductor AC power cable. (If the supplied power cable is not the correct one, consult your dealer.)



A. Mains lead (Power cord) with CEE 7 plug:

The wires of the mains lead are colored in accordance with the following code.

Green and Yellow:	earth (safety earth)
Blue:	neutral
Brown:	line (live)



B. Power cord with ANSI 73.11 plug:

The wires of the power cord are colored in accordance with the following code.

Green/Yellow:	ground
White:	neutral
Black:	line (live)

3. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

4. If an extension cord is used with this product, make sure that the total of the ampere ratings on the products plugged into the extension cord does not exceed the extension cord ampere rating.

5. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage-points or short out parts that could result in a risk of fire or electrical shock.

Never spill liquid of any kind on the product. Should any liquid or solid object fall into the cabinet, unplug the set and have it checked by qualified service personnel before resuming operations.

6. Lightning - For added protection for this video product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the projector due to lightning and AC power-line surges.

Caution on Fire Hazard

Do not place flammable or combustible materials near projector !

Runco large screen projection products are designed and manufactured to meet the most stringent safety regulations. This projector radiates heat on its external surfaces and from ventilation ducts during normal operation, which is both normal and safe.

Exploding, flammable or combustible materials into close proximity of this projector could result in the spontaneous ignition of that material, resulting in a fire. For this reason, it is absolutely necessary to leave an "exclusion zone" around all external surfaces of the projector whereby no flammable or combustible materials are present. Do not cover the projector with any material while the projector is in operation.

Keep flammable and combustible materials away from the projector at all times. Mount the projector in a well ventilated area away from sources of ignition and out of direct sun light. Never expose the projector to rain or excessive moisture. In the event of fire, use sand, CO₂, or dry powder fire extinguishers; never use water on an electrical fire.

Always have service performed on this projector by authorized Runco service personnel. Always insist on genuine Runco replacement parts. Never use non-Runco replacement parts as they may degrade the safety of this projector.

On Installation

1. Do not place this equipment on an unstable cart, stand, or table. The product may fall, causing serious damage to it.

2. Do not use this equipment near water.

3. Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register.

The projector should not be placed in a built-in installation or enclosure unless proper ventilation is provided.

4. Do not block the projector cooling fans or free air movement under and around the projector. Loose papers or other objects may not be nearer to the projector than 4" on any side.

On Servicing

Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage potentials and risk of electric shock!

Refer all servicing to qualified service personnel.

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- a. When the power cord or plug is damaged or frayed.
- b. If liquid has been spilled into the equipment.
- c. If the product has been exposed to rain or water.
- d. If the product does not operate normally when the operating instructions are followed.

Note: Adjust only those controls that are covered by the operating instructions since improper adjustment of the other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.

- e. If the product has been dropped or the cabinet has been damaged.
- f. If the product exhibits a distinct change in performance, indicating a need for service.

Replacement parts - When replacement parts are required, be sure the service technician has used original Runco replacement parts or authorized replacement parts which have the same characteristics as the Runco original part. Unauthorized substitutions may result in degraded performance and reliability, fire, electric shock or other hazards. Unauthorized substitutions may void warranty.

Safety check - Upon completion of any service or repairs to this projector, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

On Cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

- To keep the cabinet looking brand-new, periodically clean it with a soft cloth. Stubborn stains may be removed with a cloth lightly dampened with mild detergent solution. Never use strong solvents, such as thinner or benzene, or abrasive cleaners, since these will damage the cabinet.

- To ensure the highest optical performance and resolution, the projection lenses are specially treated with an anti-reflective coating, therefore, avoid touching the lens. To remove dust on the lens, use a soft dry cloth.

On Repacking

Save the original shipping carton and packing material; they will come in handy if you ever have to ship your equipment. For maximum protection, repack your set as it was originally packed at the factory.

On Illumination

In order to obtain the best quality for the projected image, it is essential that the ambient light which is allowed to fall on the screen be kept to an absolute minimum. When installing the projector and screen, care must be taken to avoid exposure to ambient light directly on the screen. Avoid adverse illumination on the screen from direct sunlight or fluorescent lighting fixtures. The use of controlled ambient lighting, such as incandescent spot light or a dimmer, is recommended for proper room illumination. Where possible, care should also be taken to ensure that the floors and walls of the room in which the projector is to be installed are non-reflecting, dark surfaces. Brighter surfaces will tend to reflect and diffuse the ambient light and hence reduce the contrast of the projected image on the screen.

Limited Warranty

LIMITED WARRANTY

Congratulations on your purchase of a Runco video product and welcome to the Runco family! We believe Runco produces "The World's Finest Home Theater Products". With proper installation, setup and care, you should enjoy many years of unparalleled video performance. Please read this consumer protection plan carefully and retain it with your other important documents.

This is a LIMITED WARRANTY as defined by the U.S. Consumer Product Warranty and Federal Trade Commission Improvement Act.

WHAT IS COVERED UNDER THE TERMS OF THIS WARRANTY:

SERVICE LABOR: Runco will pay for service labor by an approved Runco service center when needed as a result of manufacturing defect for a period of two (2) years from the effective date of delivery to the end user.

PARTS (Not including projector lamp): Runco will provide new or rebuilt replacement parts for the parts that fail due to defects in materials or workmanship for a period of two (2) years from the effective date of the warranty. Such replacement parts are then subsequently warranted for the remaining portion (if any) of the original warranty period.

LAMP: Six months or 1000 hours (which ever comes first).

WHAT IS NOT COVERED UNDER THE TERMS OF THIS WARRANTY:

This warranty only covers failure due to defects in materials and workmanship that occur during normal use and does not cover normal maintenance. This warranty does not cover cabinets or any appearance item; any damage to laser discs; failure resulting from accident, misuse, abuse, neglect, mishandling, misapplication, faulty or improper installation or setup adjustments; improper maintenance, alteration, improper use of any input signal; damage due to lightning or power line surges, spikes and brownouts; damage that occurs during shipping or transit; or damage that is attributed to acts of God. In the case of remote control units, damage resulting from leaking, old, damaged or improper batteries is also excluded from coverage under this warranty.

CAUTION: DAMAGE RESULTING DIRECTLY OR INDIRECTLY FROM IMPROPER INSTALLATION OR SETUP IS SPECIFICALLY EXCLUDED FROM COVERAGE UNDER THIS WARRANTY. IT IS IMPERATIVE THAT INSTALLATION AND SETUP WORK BE PERFORMED ONLY BY AN AUTHORIZED RUNCO DEALER TO PROTECT YOUR RIGHTS UNDER THIS WARRANTY. THIS WILL ALSO ENSURE THAT YOU ENJOY THE FINE PERFORMANCE YOUR RUNCO PRODUCT IS CAPABLE OF PROVIDING WHEN INSTALLED AND CALIBRATED BY RUNCO AUTHORIZED PERSONNEL.

RIGHTS, LIMITS AND EXCLUSIONS:

Runco limits its obligations under any implied warranties under state laws to a period not to exceed the warranty period. There are no express warranties. Runco also excludes any obligation on its part for incidental or consequential damages related to the failure of this product to function properly. Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages. So the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

EFFECTIVE WARRANTY DATE:

This warranty begins on the effective date of delivery to the end user. For your convenience, keep the original bill of sale as evidence of the purchase date.

IMPORTANT: WARRANTY REGISTRATION:

Please fill out and mail your warranty registration card. It is imperative that Runco knows how to reach you promptly if we should discover a safety problem or product update for which you must be notified.

TO OBTAIN SERVICE, CONTACT YOUR RUNCO DEALER:

Repairs made under the terms of the Limited Warranty covering your Runco International video product will be performed at the location of the product, during usual working hours, providing location of product is within normal operating distance from a Runco Authorized Service Center. If, solely in Runco's judgement, location of product to be repaired is beyond normal operating distance of the closest Runco Authorized Service Center, it is the owner's responsibility to arrange for shipment of the product for repair. These arrangements must be made through the selling Runco dealer. If this is not possible, contact Runco directly for a return authorization number and shipping instructions. Runco will return product transportation prepaid in the United States, unless no product defect is discovered. In that instance, shipping costs will be the responsibility of the owner.

ADDITIONAL INFORMATION:

To locate the name and address of the nearest Runco Authorized Service location, or for additional information about this warranty, please call, write or visit our website:

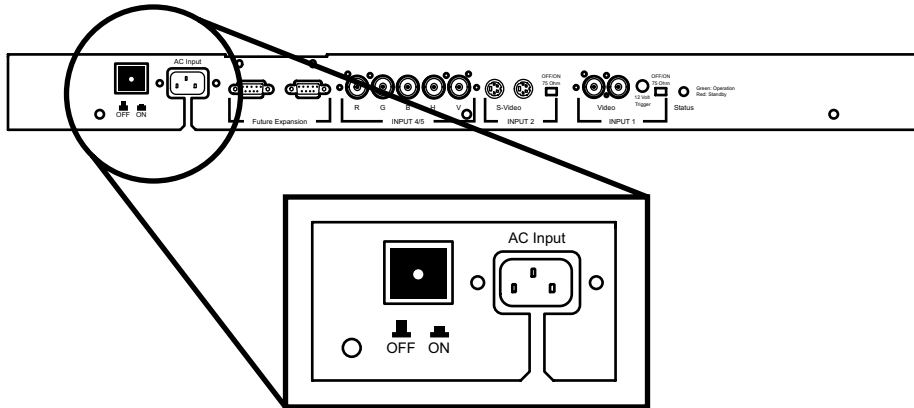
CUSTOMER SERVICE DEPARTMENT
RUNCO INTERNATIONAL
2900 Faber Street
Union City, CA 94587
Ph: (510) 324-7777 / Fax: (510) 324-9300
www.runco.com

CONNECTIONS

Power Connection to Projector

AC 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 rear side of the Projector.



Power Check

The power voltage is autoranging between 100V(-10%) and 240V (+6%).

Switching On/Off

The Projector is switched ON and OFF using the power (mains) switch ON/OFF.

Pushed In: ON

Out: OFF

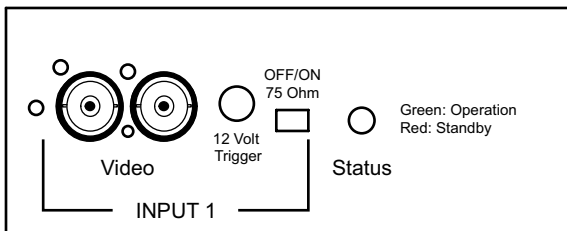
The Projector can start in the operational mode (ON) or in the stand by mode, depending on the power up setting in the service mode.

Stand by indication lamp :

OFF: Projector switched OFF

Green: Projector is ON

Red: Projector is in Standby Mode.



When turning ON the Projector, it can start up in two ways if the "CRT run in" cycle option is switched OFF.

- full white image (projector warm up) or
- immediate image display.

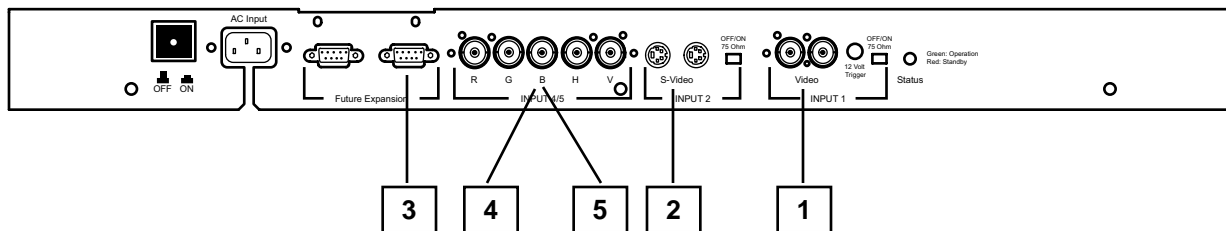
This option can be enabled in the service mode (see page 72).

Source Connections

Input Facilities

The following source types can be connected to the inputs :

- RGB Tri-level Sync
- RGB Composite, Separate or Sync on green
- Component Video
- Component Video with Tri-level Sync



Which source to which input

Source No.	Projector Input	Remote Button No.
1	Comp. Video*	1 (not used)
2	S-Video/Comp. Video*	2 (not used)
3	RGB	3
4/5	RGB	4 or 5
4/5	Component Video	6
4/5	RGB with Tri-level Sync	7
4/5	Component Video with Tri-level Sync	8

* Not used in the DTV-1200

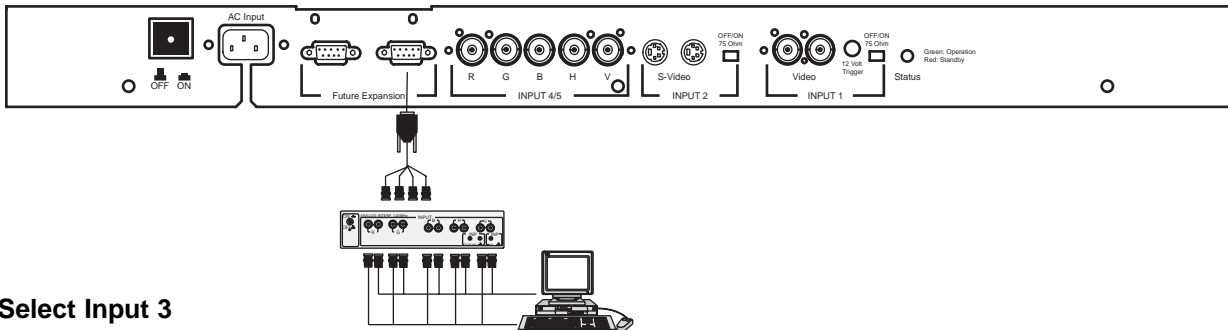
RGB Source to Input 3

Which signal to Input 3

Connect your RGB source with sync on green, composite or separate sync via an interface to Input 3. Always use an interface when a computer and local monitor have to be connected to the projector as the signal cable coming from the computer is limited to 60 cm due to interferences.

Pin configuration D9 connector of the Analog input.

1	Not connected
2	Ground RGBS
3	RED
4	GREEN
5	BLUE
6	Ground RGBS
7	Ground RGBS
8	Hor/comp. sync
9	Vert. sync



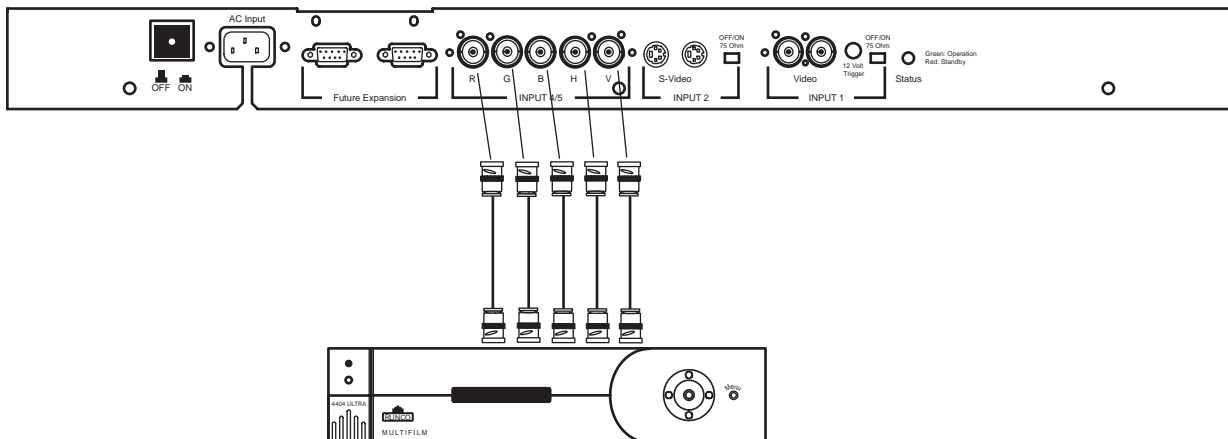
Input Select Input 3

With the Remote, press button 3

RGB Source with Composite Sync to Input 4/5

Which signal to Input 4/5

RGB input terminals with separate H and V Sync inputs, Composite Sync Input or with Sync on green (BNC terminals). The Projector detects automatically where the sync signal is located. This is the Input where Video Processors (such as the Runco VHD-4404 Ultra) or high definition sources should be connected.



RGB Sync on green or separate Sync Input selection

With the remote, press:

- Button 4 for Sync on green
- Button 5 for Separate Sync

RGB Source with Tri-level Sync to Input 4/5

Which signal to Input 4/5

RGB input terminals with Tri level sync input or with Tri-level sync on green (BNC terminals). The projector detects automatically where the sync signal is located.

RGB3S or RG3sB input selection

With the remote, press digit button 7

Component Source to Input 4/5

Which signal to Input 4/5

(R-Y)Y(B-Y) input terminals with sync input or with sync on the luminance (Y) input (BNC terminals). The projector detects automatically where the sync signal is located.

Component Video input selection

With the remote, press digit button 6

RS-232 Connection

RS-232 input and RS-232 output of the Projector.

The projector is equipped with a RS-232 port that allows communication with an automation system such as AMX, Crestron, etc.

Applications

a) remote control:

- 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.

See 'Changing the Baud Rate' in chapter 'Service Mode'.

GETTING STARTED

Remote Control & Local Keypad

Battery Installation in the Remote

Two batteries are packed together with the Remote. Before using your Remote, install first these batteries.

- 1 Remove the battery cover on the backside by pushing the handle a little towards the bottom of the Remote.
- 2 Lift up the top side of the cover at the same time.
- 3 Insert the batteries as indicated in the Remote.
- 4 Put the battery cover on its place.

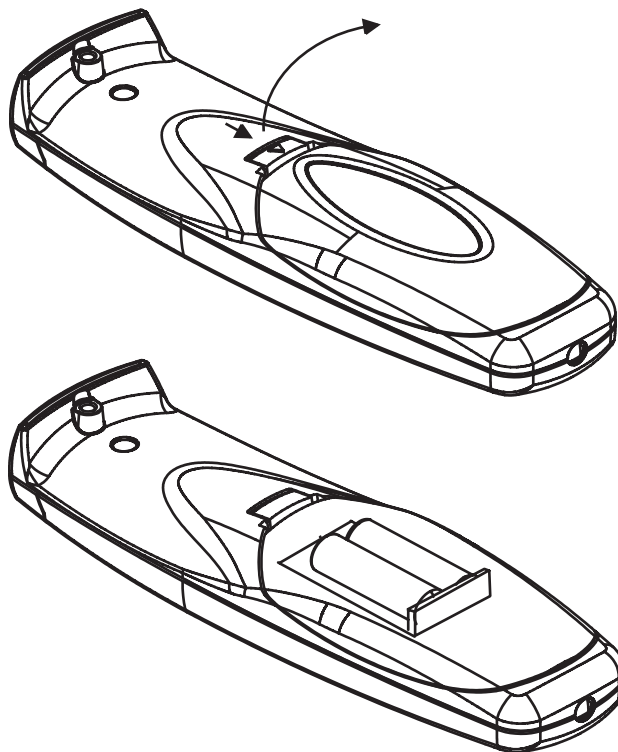
How to replace the batteries in the Remote?

To replace the batteries :

- 1 Remove the battery cover on the backside by pushing the handle a little towards the bottom of the Remote.
- 2 Lift up the top side of the cover at the same time.
- 3 Push on the + side of the battery towards the - side
- 4 Lift up the battery at the same time.
- 5 Repeat for the second battery.
- 6 Insert the batteries as indicated in the Remote (battery type AA or LR6 or equivalent).
- 7 Put the battery cover on its place.

Note: only important if more than one projector is installed in the room :

1. The default address is zero (0) or (1). The standard Remote is setup for common address zero.
To change the common address of the Remote, contact a Runco service center. If it is necessary to program the projector address into the Remote, see 'Projector Address'.
2. Projector address has to be reprogrammed everytime the battery is changed, the Remote will always switch to the default address.



Overview of Functions

This remote control includes a battery powered infrared (IR) transmitter that allows the user to control the projector remotely.

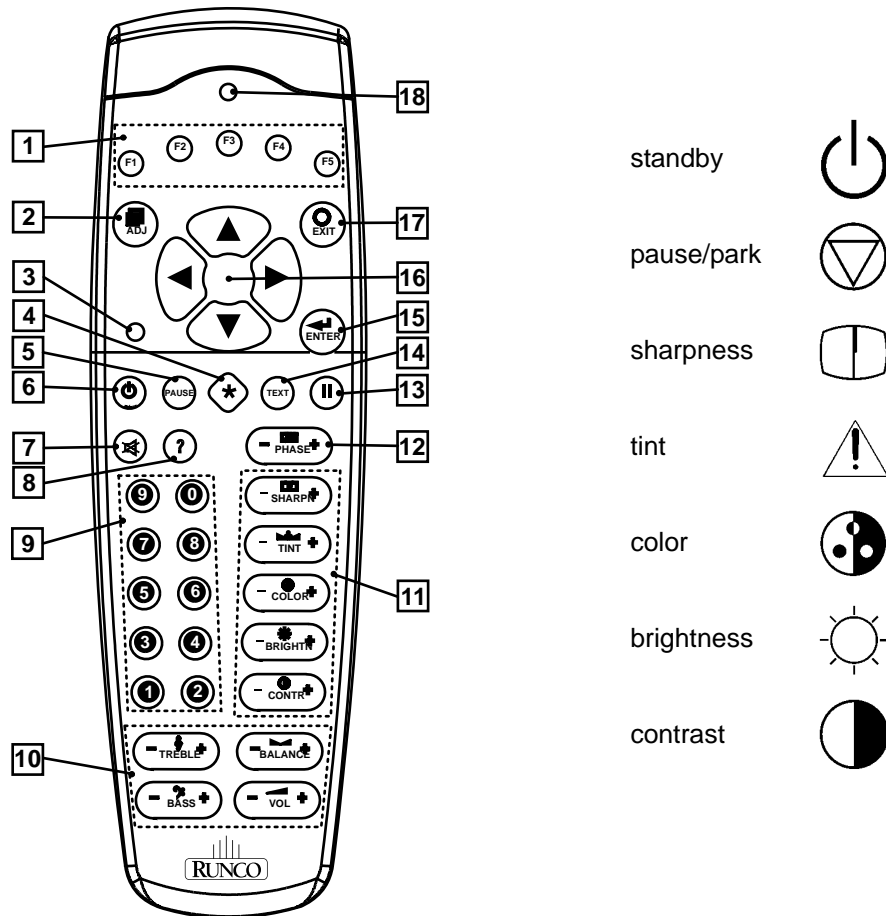
This remote control is used for source selection, control, adaptation and set-up.

It includes automatic storing of:

- picture controls (Brightness, Sharpness,....)
- settings

Other functions on the control units are:

- switching between standby and operational modes
- switching to "pause" (picture mute)
- direct access to all connected sources



- 1 **Function keys:** user programmable keys with functions for direct access.
- 2 **ADJ:** ADJUST key, to enter or exit the adjustment mode.
- 3 **Address key (recessed key):** to enter the address of the projector (between 0 and 9).
Press the recessed address key with a pencil, followed by pressing one digit button between 0 and 9.
- 4 not used
- 5 **PAUSE:** mutes the projected image.
- 6 **STBY:** stand-by button, toggles power On/Off (Stby).
- 7 not used
- 8 not used
- 9 **Digit buttons:** direct input selection.
- 10 **Audio controls:** not used
- 11 **Picture controls:** use these buttons to obtain the desired picture.
- 12 **PHASE:** not used.

13 FREEZ: press to freeze the projected image.

14 TEXT: when adjusting one of the image controls, e.g. contrast, 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.

15 ENTER: to start up the adjustment mode or to confirm an adjustment or selection in the adjustment mode.

16 Cursor Keys: to make menu selections when in the adjustment mode.or to increase or decrease the analog level of the image controls when they are first selected.

17 EXIT: to leave the adjustment mode or to scroll upwards when in the adjustment mode.

18 IR Output LED: lights up when a button on the remote control is pressed. (This is a visual indicator to check the operation of the remote control)

Start Up

Press the Power button on the remote; ensure the main Power button on the rear of the Projector is pressed in.

When this warm up cycle message appears on the screen, the menu offers the possibility to start with a warm up period (press ENTER) or to skip this cycle (press EXIT). The number of minutes and the horizontal frequency can be programmed in the 'Service mode' under the item 'Projector Set Up'.

Note: This warm up period is built in so that the Projector can quickly reach its operating temperature.

When starting this warm up period, a full white image is shifted on the CRT faceplate to avoid a burn in. Every 30 seconds a text box will be displayed on another place on the screen with the remaining time to go. The image dimensions can be adjusted with the cursor keys to avoid scanning on the edges of the CRT's.

PROJECTOR WARM UP
A FULL WHITE PATTERN WILL BE
GENERATED FOR x MIN.
FOR IMMEDIATE USE OF THE
PROJECTOR, PRESS <EXIT>
WARNING : SKIPPING THIS
PROCEDURE CAN REDUCE THE
INITIAL PICTURE QUALITY OF THE
PROJECTED IMAGE;
YOU CAN ADJUST THE IMAGE
DIMENSTIONS WITH THE ARROW
KEYS TO AVOID SCANNING ON THE
EDGES OF THE CRT'S;
THIS OPTION CAN BE DISABLED IN
THE SERVICE MENU

with <ENTER>
<EXIT> to return

To interrupt the warm up period:

- 1 Press EXIT, the warm up menu will be redisplayed with the remaining time indication.
- 2 Press EXIT again to quit the warm up cycle and to display the source.

Start Up in a Specific Source

When the Projector is in Standby, it can be turned ON with a specific source. To do this, simply press the source number button (see page 19).

Stationary Image Warning

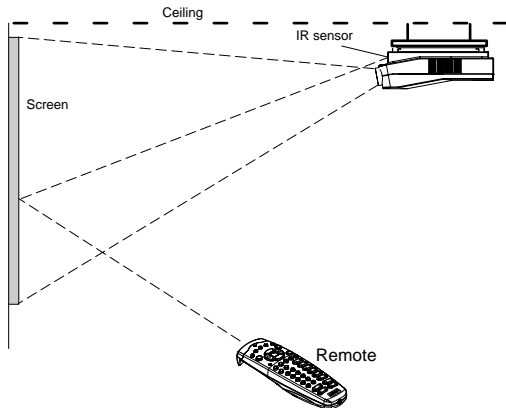


Do not display a stationary image with full brightness and contrast for longer than 10 minutes, otherwise you risk damage to the CRT's.

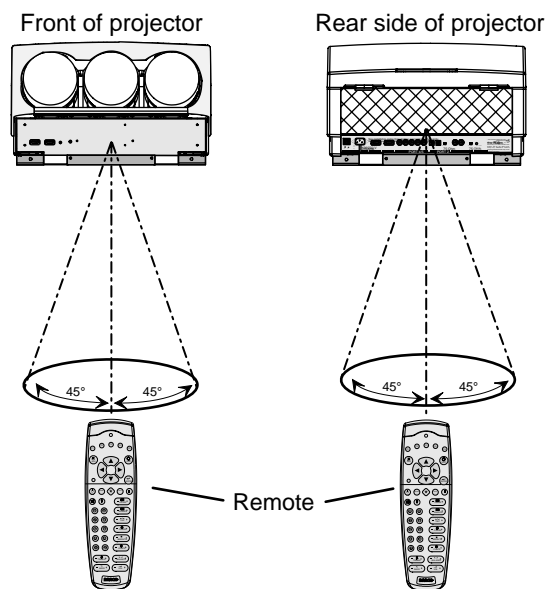
Remote Commands to the Projector

Pointing the Remote to the reflective screen

Point the front of the Remote to the screen surface.

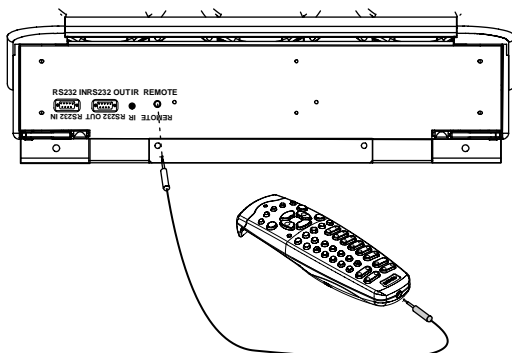


Point the front of the Remote towards one of the IR sensors in the projector.



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's IR sensor.

Remote used in a hardwired configuration.



Plug one end of the remote cable in the connector on the bottom of the Remote and the second side in the connector in the rear panel of the projector labelled 'REMOTE'.

Projector Address

Why a projector address?

Since more than one projector can be installed in a room, the separate projectors can be separately addressable with a Remote or a computer.

Set up an Individual Projector Address

The set up of a projector address can be done via the software.
See 'Change Projector Address' in Chapter 'Service Mode'

How to control the projector or projectors?

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

- the Remote for addresses between 0 and 9.
- a Control System for addresses between 0 and 255.

Note: A projector will respond to a Remote set to the common address ('0' or '1') regardless of what address is set in the projector itself.

Common Address

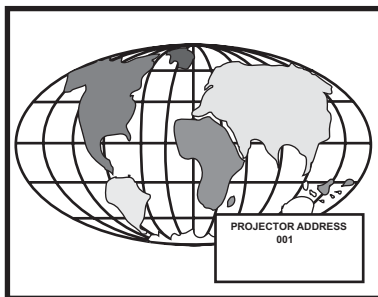
Every projector has a common address '0' or '1'. The choice between '0' and '1' can be selected in the Service mode.

Before using the Remote

The Remote is default programmed with address 0 or 1, 'common address'. With that 'common address' programmed into the Remote, every projector, with the same common address set up, will listen to the commands given by this Remote. If it is necessary to control a specific projector, than enter the projector address into the Remote (only when that address is between 0 and 9). The projector with the corresponding address will listen to that specific Remote.

Display the Projector Address on the Screen.

Press the ADDRESS key (recessed key on the Remote) with a pencil. The projector's address will be displayed in a 'Text box' (menu 1). This text box disappears after a few seconds.



To continue using the Remote with that specific address, it is necessary to enter the same address with the digit buttons (address between 0 and 9) within 5 seconds after pushing the address key. For example: if the Address key displays projector address 003, then press "3" digit button on the Remote to set the Remote'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.

If the address is not entered within 5 seconds, the Remote returns to its default address (zero address) and control all projectors in the room.

How to program an address into the Remote?

Press the ADDRESS key (recessed key on the Remote) with a pencil and enter the address with the digit buttons within 5 seconds after pushing the address key. That address can be any digit between 0 and 9.

Input selection modes

Source No.	Projector Input	Remote Button No.
3	RGB	3
4/5	RGB (HV, S.O.G)	4 or 5
4/5	Component Video	6
4/5	RGB with Tri level sync	7
4/5	Component Video with Tri-level sync	8

Input Selection via the Remote.

With the digit buttons, it is possible to select one of the above input modes.

When the source is selected

When a valid and available source is selected, there will be information displayed on the screen about that source. This information includes:

- Source number
- Horizontal frequency
- Vertical frequency

Source 02 Fh= 63 kHz Fv= 60 Hz

When the entry is a non valid source number, a warning appears on the screen: 'input not available'.

WARNING Input not available

When a valid source number is selected, the projector will display this source or it will wait on the selected source number until the source becomes available. A message 'source not available' will be displayed for a short time.

WARNING Source not available

When a Video or S-Video source is selected and no decoder is installed, the projector displays the following message: 'Option not installed'.

WARNING Option not installed!

Picture Controls

The control keys are located on the right side of the key panel of the Remote and indicated with the name of the control and an icon.

When an image control is pressed, a text box with bar scale and the function name of the control, e.g. 'brightness...' appears on the screen (only if text is ON). The length of the bar scale indicates the current memorized setting for this source. The bar scale changes as the + or - side of the button of the control are pressed.

Brightness Control:

A correct 'brightness' setting is important for good image reproduction. Adjust the brightness with the + button and - button until the darkest parts of the picture appear black.

A bar scale gives a visual indication on the screen of the current brightness setting while pressing on the above indicated buttons. If the bar scale is not visible on the screen, press 'TEXT' once and retry the above indicated buttons.

The bar scale increases when pressing on the + button (higher brightness) and decreases when pressing on the - button (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.

A bar scale gives a visual indication on the screen of the current contrast setting while pressing the + or - buttons. If the bar scale is not visible on the screen, press 'TEXT' key once and retry the above indicated buttons. The bar scale increases when pressing on the + button (higher contrast) and decreases when pressing on the - button (lower contrast).

Color Saturation Control: Not used on the DTV-1200

Tint Control: Not used on the DTV-1200

Sharpness Control: Not used on the DTV-1200

Sound Controls: Not used on the DTV-1200

The Pause Key

The 'Pause' button mutes the projected image. When Pause is pressed, the image will disappear until it is pressed again.

The Freeze Key

When the Freeze key is pressed, the image is frozen until this key is pressed again.

START UP OF THE ADJUSTMENT MODE

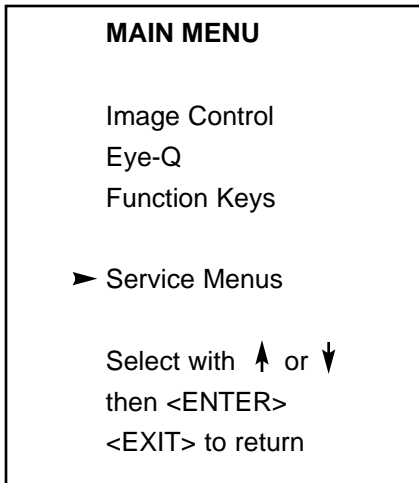
Adjustment Mode

Start Up

All picture adjustments are made while in the 'Adjustment mode'.

Press the **ADJUST** key.

The projector displays the 'Main menu' (menu 1).



menu 1

You are now in the 'Adjustment mode'. The cursor keys are used to make menu selections and also vertical and horizontal 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 a path selection menu (head menu) is displayed.

Possible Paths

Depending on the projector configuration the following paths are possible with the 'Main menu'.

Image Control - Allows you to change the color temperature of the image and to select another format (adjustment) for the image.

Eye-Q Control - This control allows to align the projector automatically using the autoconvergence unit EYE-Q built into the projector.

Function Keys - Gives an overview of the programmed function for each key.

Service Menus - Installation and adjustment menus to set up the projector. Before entering a warning will be displayed.

MAIN MENU

Main Menu

Overview Flowchart

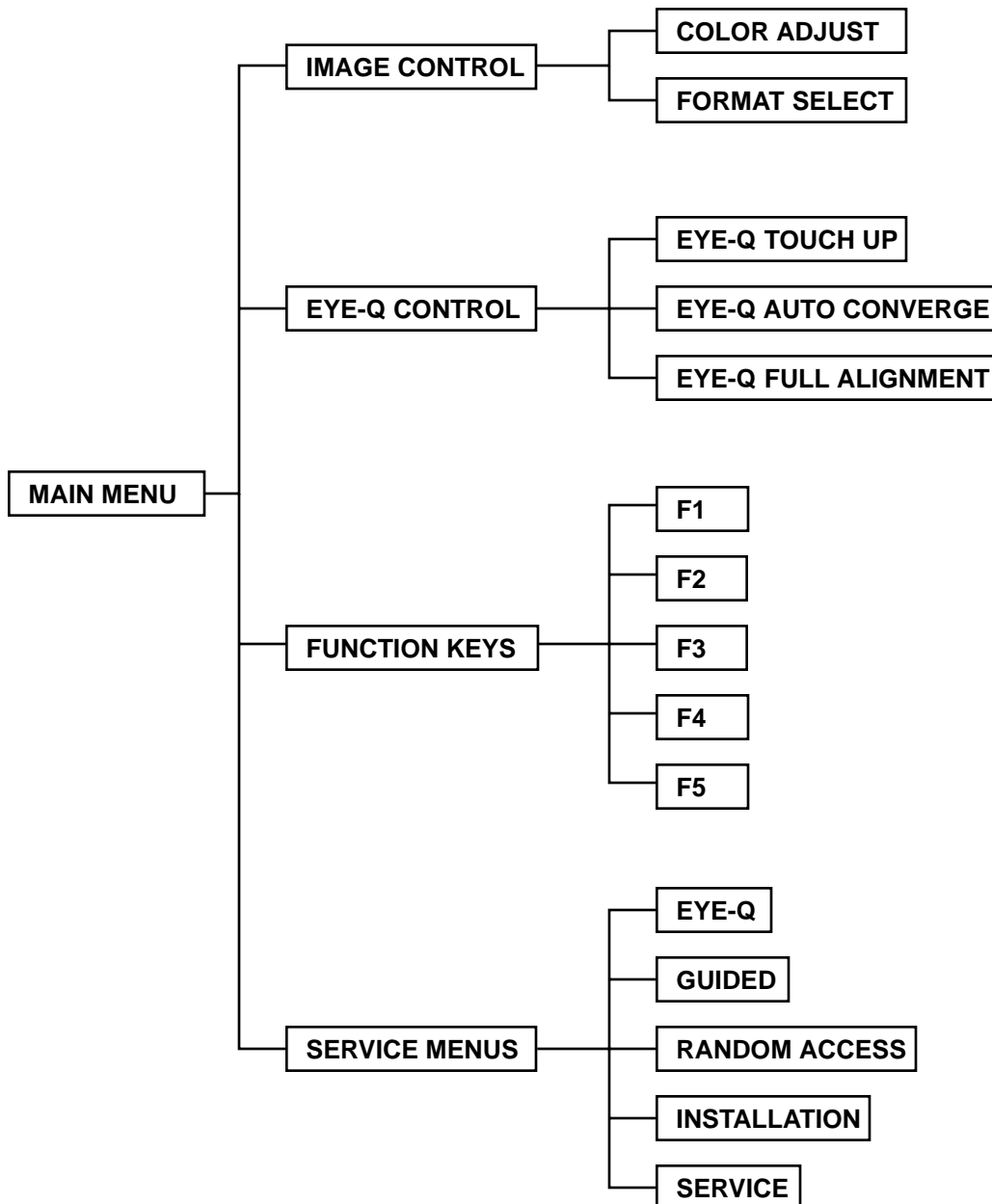
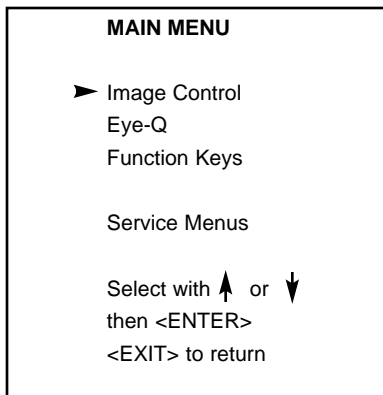


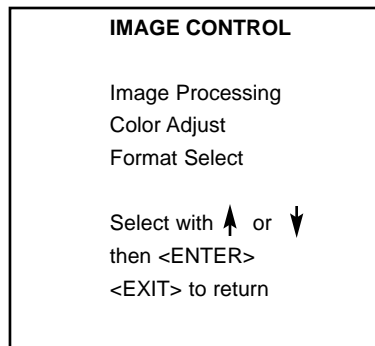
Image Control

Starting Up

- 1 Push the cursor keys \uparrow or \downarrow to select 'Image Control' (menu 1).
The selected item will change in color and a marker will be displayed in front of it.
- 2 Press ENTER to select.
The 'Image Control' menu will be displayed (menu 2a).



menu 1



menu 2a

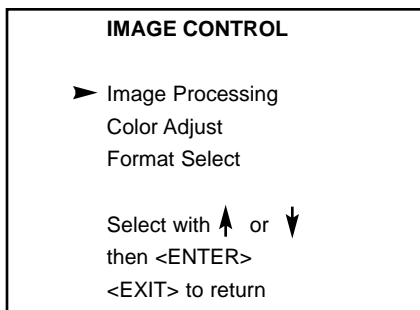
Color Adjust

What can be done?

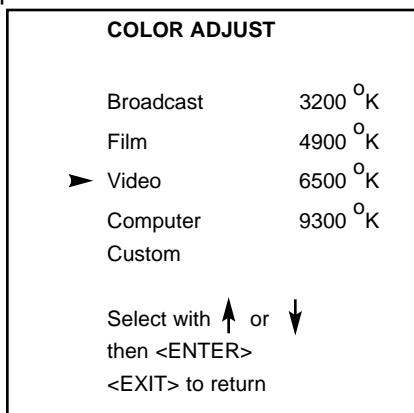
The color temperature of the image can be installed. The customer has the choice between 4 factory preset color temperatures and one custom. This custom color temperature has to be adjusted in the 'Random Access Adjustment Mode'.

How to select 'Color Adjust' and to select a new color temperature?

- 1 Push the cursor keys \uparrow or \downarrow to select 'Color Adjust' (menu 1).
- 2 Press ENTER to display the Color Adjust menu (menu 2).
- 3 Push the cursor keys \uparrow or \downarrow to select the desired color temperature.
- 4 Press ENTER to activate that color temperature.



menu 1



menu 2

Format Select

What can be done?

For one source, up to 8 different sets of settings can be stored. A set of settings is called 'Format'.

A 'Format' can be 'available' or 'free'.

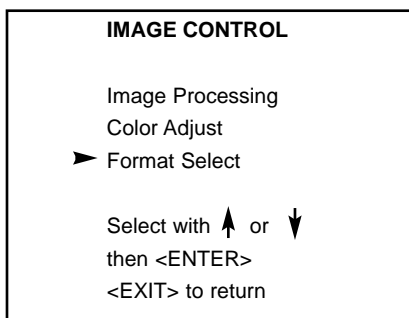
'Available' when settings are stored in this location.

'Free' when no settings are stored in this location. This location can be used for storing new adjustment settings for this source.

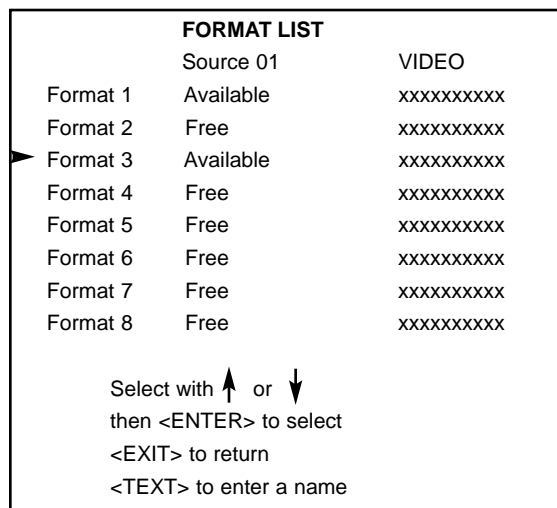
When 'available', a name of 8 characters can be programmed by the user.

How to select a 'Format' ?

- 1 Push the cursor keys \uparrow or \downarrow to select 'Format Select' (menu 1).
- 2 Press **ENTER** to display the Format List (menu 2).
- 3 Push the cursor keys \uparrow or \downarrow to select the desired 'Format'.
- 4 Press **ENTER** to select.



menu 1



menu 2

How to add a name to a 'Format'?

- 1 Push the cursor keys \uparrow or \downarrow to select the Format to which a name has to be added (menu 1).
- 2 Press **TEXT** to display the compose menu (menu 2).
- 3 The position of the character which will be edited, will be indicated with a digit. Push the cursor keys \uparrow , \downarrow , \leftarrow or \rightarrow to select the first character.
- 4 Press **ENTER** to select the choosen character. This character will be inserted on the indicated position. The 'edit character' indication will be incremented with one.
- 5 Continue in the same way for the other characters.
- 6 When the name is completed, press **EXIT** to return to the 'Format List' menu (menu 3).

FORMAT LIST		
	Source 01	VIDEO
Format 1	Available	xxxxxxxxxx
Format 2	Free	xxxxxxxxxx
\blacktriangleright Format 3	Available	xxxxxxxxxx
Format 4	Free	xxxxxxxxxx
Format 5	Free	xxxxxxxxxx
Format 6	Free	xxxxxxxxxx
Format 7	Free	xxxxxxxxxx
Format 8	Free	xxxxxxxxxx

Select with \uparrow or \downarrow
then <ENTER> to select
<EXIT> to return
<TEXT> to enter a name

menu 1

COMPOSE									
A	B	C	D	E	F	G	H	I	
J	K	L	M	N	O	P	Q	R	
S	T	U	V	W	X	Y	Z		
/	:	-							
0	1	2	3	4	5	6	7	8	9
XXXXXXXXXX									
Edit character 1									

Select with \uparrow or \downarrow
then <ENTER>
<EXIT> to return

menu 2

FORMAT LIST		
	Source 01	VIDEO
Format 1	Available	xxxxxxxxxx
Format 2	Free	xxxxxxxxxx
\blacktriangleright Format 3	Available	xxxxxxxxxx
Format 4	Free	xxxxxxxxxx
Format 5	Free	xxxxxxxxxx
Format 6	Free	xxxxxxxxxx
Format 7	Free	xxxxxxxxxx
Format 8	Free	xxxxxxxxxx

Select with \uparrow or \downarrow
then <ENTER> to select
<EXIT> to return
<TEXT> to enter a name

menu 3

How to store the settings to a new 'Format'?

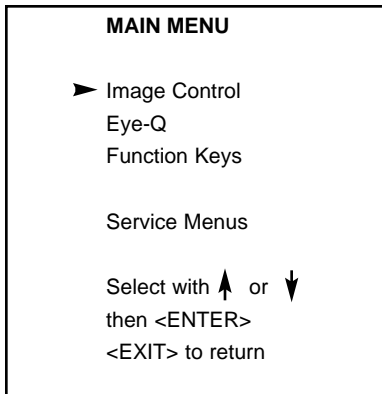
- 1 Push the cursor keys ↑ or ↓ to select a free format.
- 2 Press ENTER to activate.
- 3 Make any adjustment to the image.
- 4 Quit the adjustment mode by pressing ADJUST.
The selected format will change from free to available.

Eye-Q Control

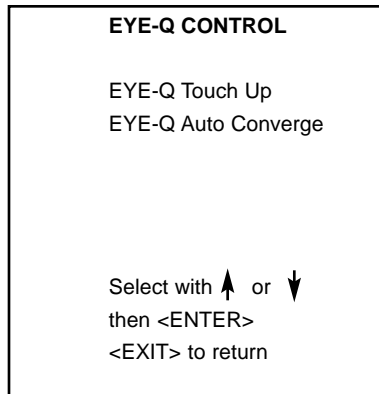
With the Eye-Q functions it is possible to automatically adjust the convergence of the image.

Start Up

- 1 Push the cursor keys ↑ or ↓ to select 'EYE-Q control' (menu 1).
The selected item will change in color and a marker will be displayed in front of it.
- 2 Press ENTER to select.
The 'EYE-Q control' menu will be displayed (menu 2).



menu 1



menu 2

Note: Before starting one of the EYE-Q functions, be sure the projector has warmed up for at least 20 min.

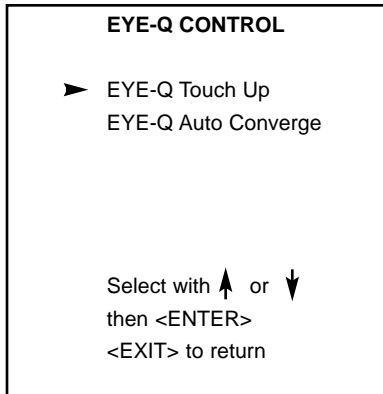
Eye-Q Touch Up

What can be done?

If you discover in the middle of the image a convergence misalignment between red, green and blue, the static convergence of this currently selected source can be adjusted with the touch up function.

How to start up the EYE-Q Touch Up?

- 1 Push the cursor keys \uparrow or \downarrow to select 'EYE-Q Touch Up' (menu 1).
- 2 Press **ENTER** to activate the touch up function.
The process starts and when successfully completed, the projector will return to image display of the current source.



menu 1

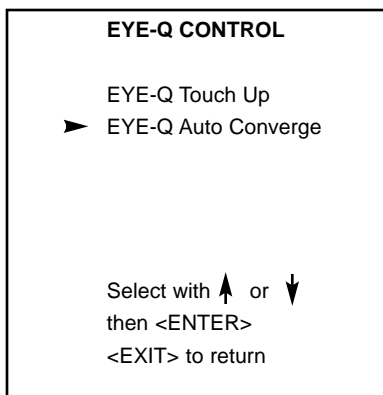
Eye-Q Auto Converge

What can be done?

The autoconvergence on the current source will be carried out automatically, starting from the existing settings. By projecting alternately red and blue lines, 25 convergence areas are aligned onto the green pattern.

How to start up the EYE-Q Auto Converge?

- 1 Push the cursor keys \uparrow or \downarrow to select 'EYE-Q Auto Converge' (menu 1).
- 2 Press **ENTER** to activate the autoconvergence function.
The process starts and when successfully completed, the projector will return to image display of the current source.



menu 1

Function Keys

What can be done?

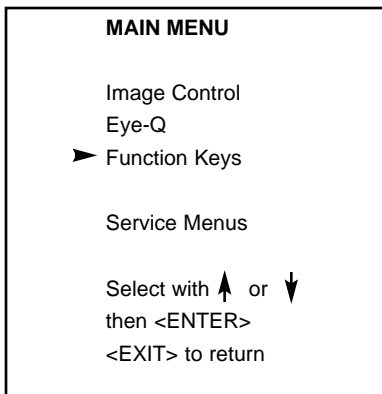
Quick access keys to customer pre-programmed adjustments. Almost any adjustment can be added to a function key. To program a function key, it is necessary to enter into the 'Service Menu'. To activate a function key, just press the corresponding key.

The following functions are factory pre-programmed :

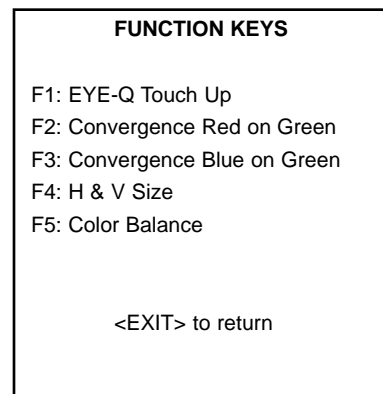
- F1 = EYE-Q Touch up
- F2 = Convergence Red on Green
- F3 = Convergence Blue on Green
- F4 = H & V Size
- F5 = Color Balance

How to get an overview of the programmed keys?

- 1 Push the cursor keys \uparrow or \downarrow to select 'Function Keys' (menu 1).
- 2 Press ENTER to display an overview of the function keys (menu 2).
- 3 Press EXIT to return.



menu 1



menu 2

Service Menus

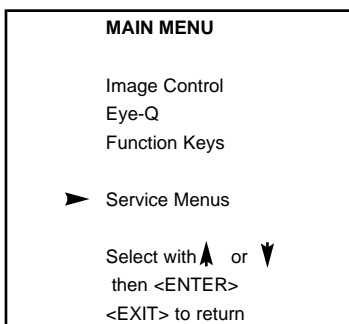
What can be done?

With the complete set of Service menus such as EYE-Q, Guide, Random Access, Installation and Service it is possible to adjust the projector completely.

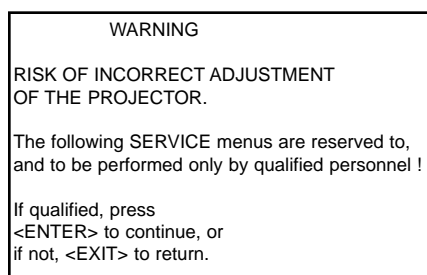
When entering the Service Menus, a warning will be displayed mentioning that only qualified Runco service personnel may enter the Service menus.

How to enter the Service Menu?

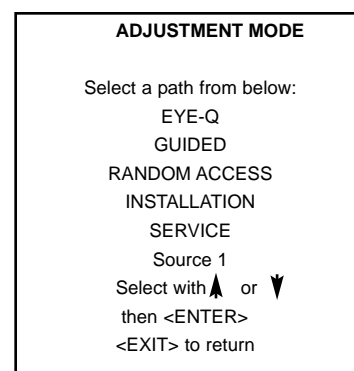
- 1 Push the cursor keys \uparrow or \downarrow to select 'Service Menus' (menu 1).
- 2 Press ENTER to select. A warning will be displayed (menu 2). "Risk of incorrect adjustment of the projector. The following SERVICE menus are reserved to and to be performed only by qualified personnel! If qualified, press <ENTER> to continue, or if not, <EXIT> to return.



menu 1



menu 2



menu 3

ENTERING THE SERVICE MENUS

Service Menus

What is available in the Service menus?

A complete set of adjustments divided in different modes are available to adjust the projector

The different mode are:

EYE-Q: to autoconverge the projector.

Guided : Guided should be selected if the user intends to perform a complete alignment of the projected image and is not extensively familiar with the projector. All the necessary geometry and convergence adjustments are executed in a predetermined sequence.

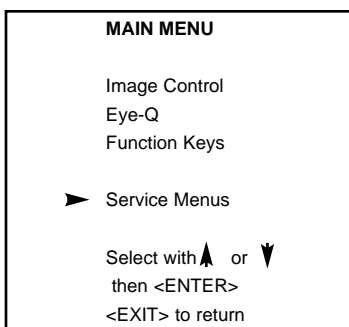
Random Access: Random Access should be selected if the user intends to make only a few adjustments or if the user is highly qualified and knows the sequence of adjustments.

Installation: Installation should be selected if the projector has been relocated and/or a different screen size is desired.

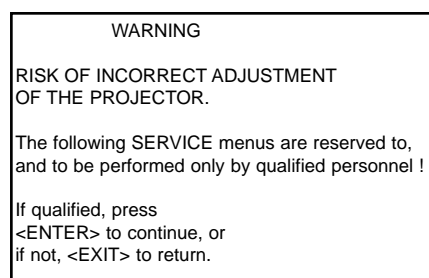
Service: Service should be selected if the user intends to change predefined settings.

How to enter the Service Menus?

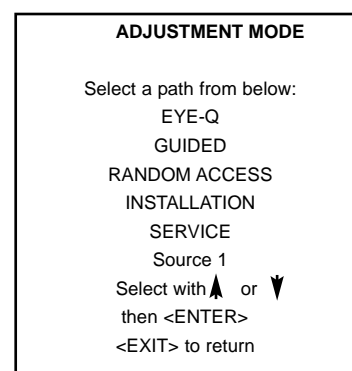
- 1 Press the ADJUST key.
The projector displays the 'Main menu' (menu 1).
- 2 Push the cursor keys \uparrow or \downarrow to select 'Service Menus'
- 3 Press ENTER to select.
A warning will be displayed (menu 2).
- 4 If qualified, press ENTER to continue
The Service menus main menu will be displayed (menu 3).



menu 1



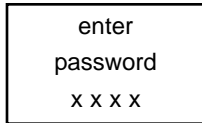
menu 2



menu 3

Password Protection

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. Contact an authorized Runco technician when no password is requested during the adjustment procedure and password protection is desired.)



Entering the Password

Your password contains 4 digits.

Enter the digits with the numeric keys on the Remote.

Example : 1 1 1 1

For each digit entered, a 'X' appears on the screen under the displayed text 'enter password'.

When the password is correct, you gain access to the selected item.

When the entered password is wrong, the error message 'wrong password !!!' will be displayed.

Note:

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

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

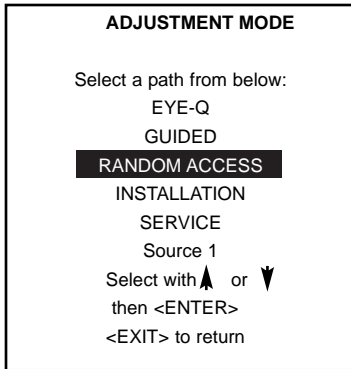
RANDOM ACCESS ADJUSTMENT MODE

Random Access Adjustment Mode

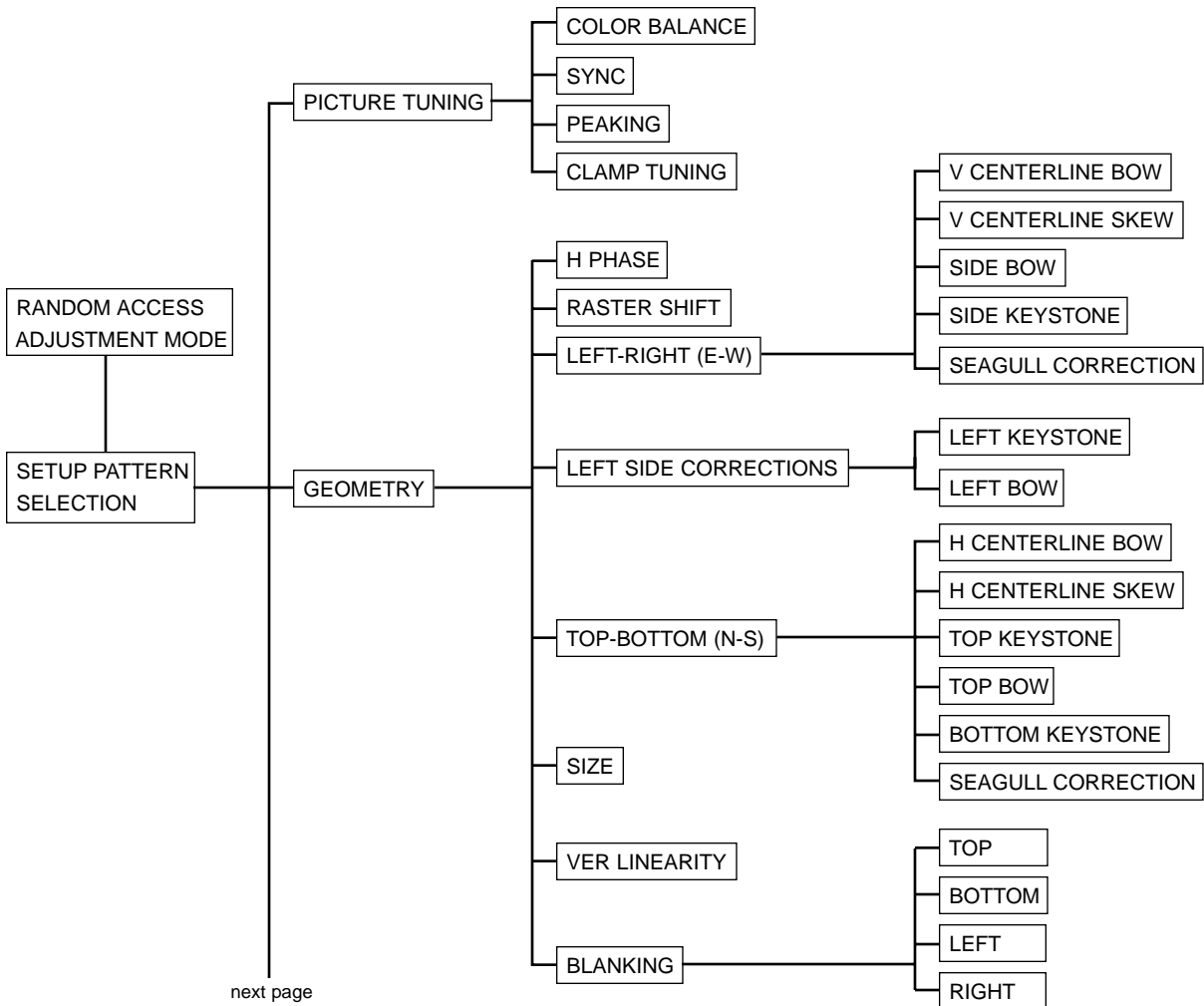
Starting Up

Push the cursor keys up or down to highlight "RANDOM ACCESS" and then press ENTER.

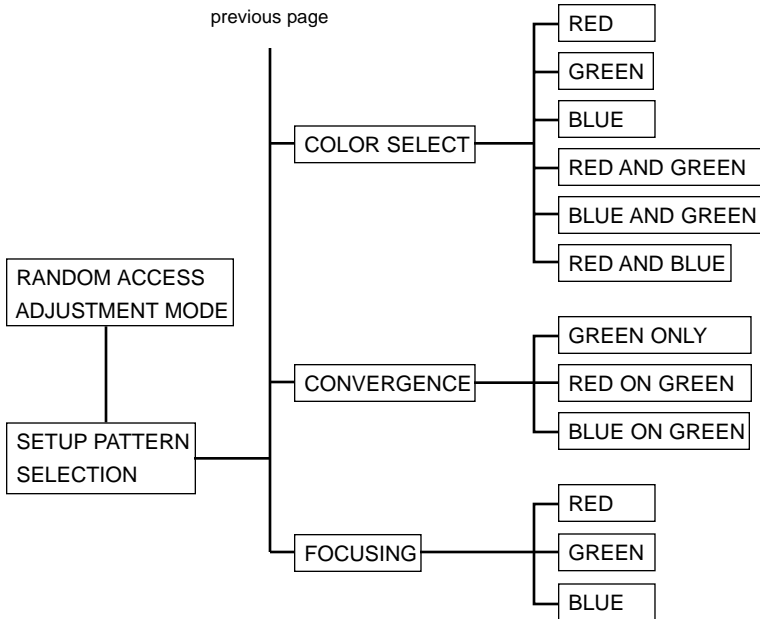
Some items in the Random access mode are password protected (when the password function is enabled). Enter your password to continue. All other password protected items are now also available if you stay in the adjustment mode.



Overview Flowchart



next page



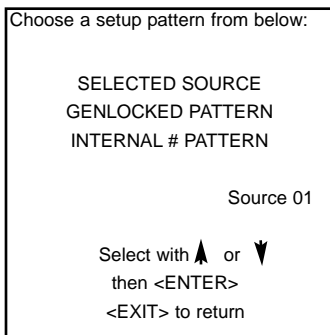
Selecting Setup Pattern

Set up of the Selected Setup Pattern

If an external source is connected to the projector, menu 1 will be displayed.

To select the desired setup pattern, perform the following:

- 1 Push the cursor keys \uparrow or \downarrow to highlight the desired setup pattern
- 2 Press ENTER to select.



menu 1

Genlocked pattern: internally generated cross hatch pattern, locked on the scan rate of external source.

Internal # pattern: internally generated cross hatch pattern and locked on internal generated sync signals. (No external source necessary)

If no external source is connected to the projector, the internal cross hatch pattern menu will be displayed.

Note: The menus in this manual are created for an external source, connected to one of the inputs, and the 'Genlocked Pattern' is selected.

Internal Cross Hatch Pattern

When Using The Internal Cross Hatch Pattern

The Internal # pattern menu will be displayed if the internal cross hatch pattern has been selected or if no source is connected to the projector.

Factory Preset Frequencies

The table below lists the 14 fixed factory preset frequencies available. Another 8 blocks are custom programmable.

To select a desired cross hatch frequency, perform the following:

- 1 Push the cursor keys \uparrow or \downarrow to highlight the desired cross hatch frequency (menu 1).
- 2 Push the cursor keys \leftarrow or \rightarrow to scroll to another page.
- 3 Press **ENTER** if the desired block is selected.

kHz/Hz	
31.2/50	EDTV
31.5/60	IDTV (Line Doubled)
31.2/50	HDTV EUREKA
31.5/60	HDTV ATV
33.7/60	HDTV H1VISION (1080i/540p)
15.8/60	EGA 1
21.8/60	EGA 2
61.0/76	VGA 1,2
35.5/87	VGA 4
44.2/70	Super VGA 2
48.5/60	Super VGA 1
61.0/76	Super VGA 3
72.1/67	Super VGA 4
89.3/67	SUN 3/260

INTERNAL # PATTERN	
kHz/Hz	
15.6/50	PAL/SECAM
15.7/60	NTSC
31.2/50	EDTV
31.5/60	IDTV
31.2/50	HDTV EUREKA
31.5/60	HDTV ATV
Select with \uparrow or \downarrow	
then <ENTER>	
<EXIT> to return	

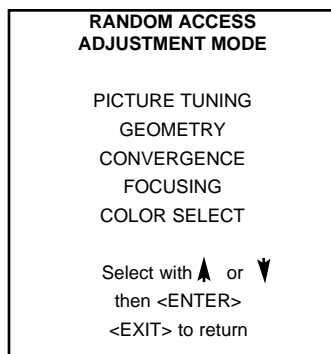
menu 1

Random Access Adjustment Mode Selection Menu

What is possible?

This is the main menu for the Random Access adjustment mode.
Through this menu, the following adjustments and features are accessible:

- Picture Tuning
 - Sync slow/fast(only for RGB inputs)
 - Color Balance
 - Peaking
 - Clamp Tuning
- Geometry
- Convergence
- Focusing
- Color select



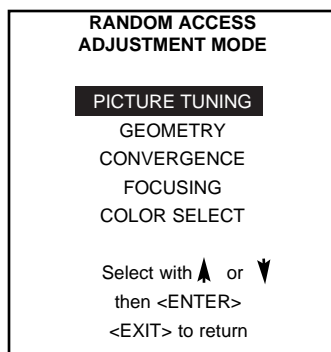
menu 1

Picture Tuning

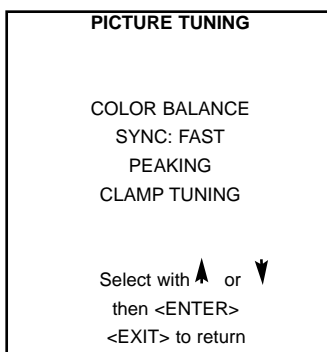
Start up the Picture Tuning

- 1 Push the cursor keys ▲ or ▼ to highlight Picture tuning (menu 1).
- 2 Press ENTER.
The Picture tuning menu will be displayed.
Depending on the input source, the 'Picture tuning' menu will display different items (menu 2).

- Color Balance
- Sync slow/fast
- Peaking
- Clamp Tuning



menu 1



menu 2

Color Balance

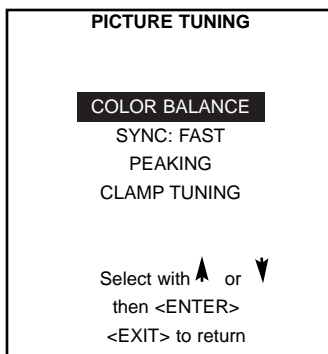
What can be done?

The Color Balance function is used to select or adjust the color temperature of white used by the projector. The Color Balance can be adjusted on two different ways :

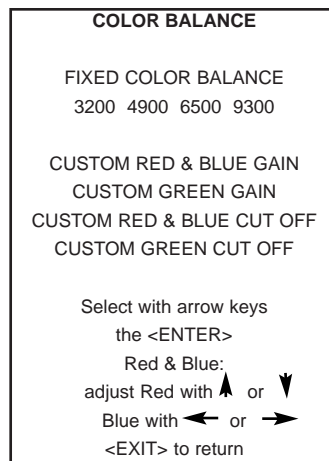
- fixed color balance. You have the choice between 3200 K (reddish), 4900 K, 6500 K (white) or 9300 K (bluish).
- Custom white and black balance.

How to select the Color Balance?

- 1 Push the cursor keys ↑ or ↓ to highlight 'Color Balance' (menu 1).
- 2 Press ENTER to select.
The color balance menu will be displayed (menu 2).



menu 1



menu 2

Fixed Color Balance

To select a fixed color balance, perform the following:

1. Highlight one of the 4 preprogrammed color temperatures with the cursor keys and
2. press **ENTER** to display the image with the desired color balance.

Custom Color Balance

The custom color balance adjustment can be divided in two parts, the 'gain' adjustment and the 'cut off' adjustment.

Gain adjustment (affects the brightest areas of the image)

1. Push the cursor key ↑ or ↓ to select 'Custom Red & Blue gain' (menu 1).
2. Press **ENTER** to activate the adjustment.
3. Push the cursor key ↑ or ↓ to adjust the red gain
4. Push the cursor key ← or → to adjust the blue gain. A bar scale indicates the amount of adjustment.
5. Press ENTER to return to the Color Balance menu.
6. Push the cursor key ↑ or ↓ to select 'Custom Green Gain' (menu 2).
7. Press ENTER to activate the adjustment.
8. Push the cursor key ↑ or ↓ to adjust the green gain.
9. Press ENTER to return to the Color Balance menu.

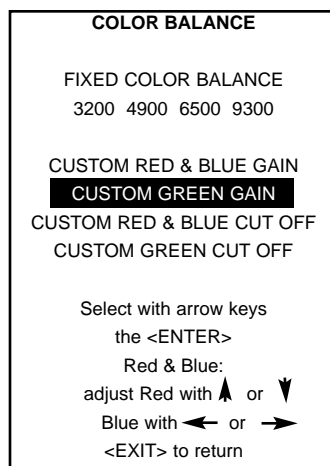
Cut Off Adjustment

1. Push the cursor key \uparrow or \downarrow to select 'Custom Red & Blue Cut off' (menu 3).
2. Press ENTER to activate the adjustment.
3. Push the cursor key \uparrow or \downarrow to adjust the red cut-off
4. Push the cursor key \leftarrow or \rightarrow to adjust the blue cut-off.
5. Press ENTER to return to the Color Balance menu.
6. Push the cursor key \uparrow or \downarrow to select 'Custom Green cut off' (menu 4).
7. Press ENTER to activate the adjustment.
8. Push the cursor key \uparrow or \downarrow to adjust the green cut-off.
9. Press ENTER to return to the Color Balance menu.

When the color balance is adjusted, press **EXIT** to return.



menu 1



menu 2



menu 3



menu 4

Sync Fast/Slow Adjustments

What can be done?

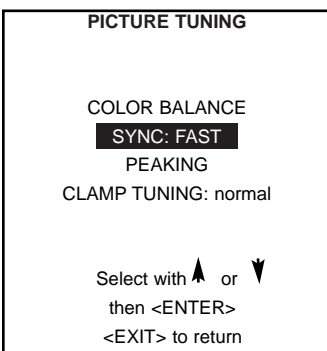
The sync function is used to minimize horizontal jittering or tearing at the top to the displayed image. The sync slow/fast function is only available for RGB sources.

How to setup the sync function?

To change the Sync setting, perform the following:

1. Push the cursor keys \uparrow or \downarrow to select Sync (menu 1)
2. Press ENTER to toggle between FAST and SLOW.

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 such as VCRs.



menu 1

Peaking

What can be done?

Peaking improves the contours in an projected image.

How to set up?

To change the peaking setting, perform the following:

1. Push the cursor key \uparrow or \downarrow to select Peaking (menu 1).
2. Press **ENTER** to display the peaking menu (menu 2).

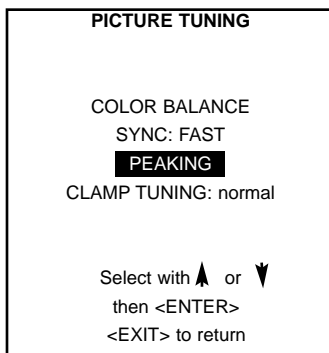
During the creation of new settings for a RGB source the corresponding peaking is switched on as default.

The following frequency areas are available:

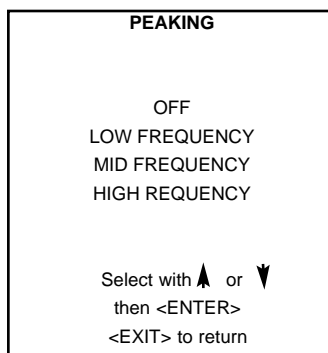
- 15 kHz - 45 kHz : Low frequency peaking.
- 45 kHz - 85 kHz : Mid frequency peaking.
- 85 kHz - 110 kHz : High frequency peaking.

If another peaking is desired or switch off, perform the following:

1. Push the cursor key \uparrow or \downarrow to select to select the desired frequency area or off (menu 2).
2. Press **ENTER** to activate.



menu 1



menu 2

Clamp Tuning

What can be done?

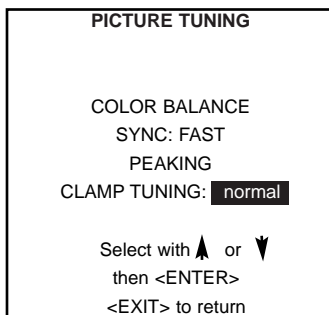
The clamp tuning can be switch between 'Normal' and 'Restoration'.

Normal: for all standard sources and all sources with a backporch $> 0.8 \mu\text{s}$ or for sources with noise and spikes in the signal.

Restoration: for standard sources with a backporch between $0.4 \mu\text{s}$ and $0.8 \mu\text{s}$ or for sources with sync separate or sync on green.

How to set up?

1. Push the cursor key \uparrow or \downarrow to select Clamp Tuning (menu 1).
2. Press **ENTER** to toggle between 'Normal' and 'Restoration'.
3. Press **EXIT** to return to the picture tuning menu.



menu 1

Geometry Adjustments

What can be done?

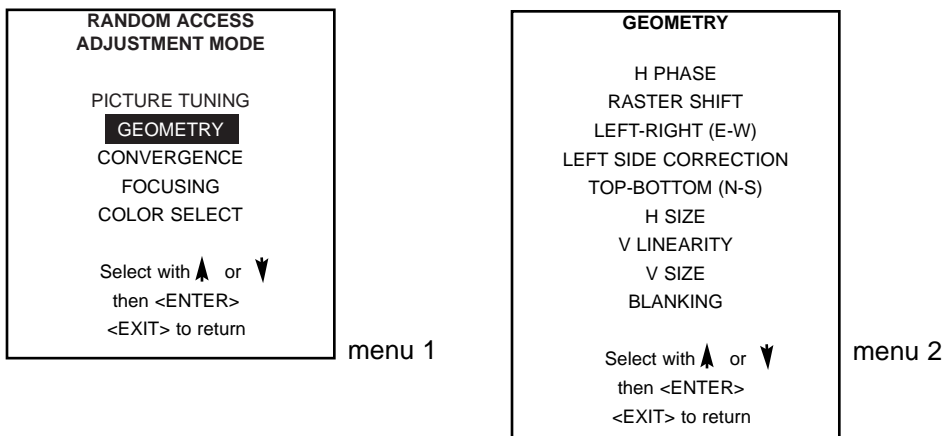
The geometry adjustments have to be done only on the green image. These adjustments are automatically implemented for the other color images. The following adjustments can be adjusted Left-right (EW) and Top-Bottom Corrections, Blanking, Horizontal Amplitude, Vertical Amplitude, Vertical Linearity and Horizontal Phase.

Start Up

To start up the geometry corrections, perform the following:

1. Push the cursor key ↑ or ↓ to highlight 'Geometry' (menu 1).
2. Press ENTER to select.

The Geometry menu will be displayed on the screen (menu 2).



Important

The convergence corrections are disabled during geometry corrections. The blanking corrections are only enabled during the blanking adjustments.

Horizontal Phase Adjustments

Start Up

1. Push the cursor key ↑ or ↓ to highlight 'H Phase' (menu 1).
2. Press ENTER to activate.

The external image with a text box in the middle will be projected.

Note: No horizontal phase adjustment is available on the internal # pattern.

How to adjust?

If the raster shift is correctly adjusted, the H Phase text box is projected in the middle of the raster. The "><" icon indicates the middle of the raster.

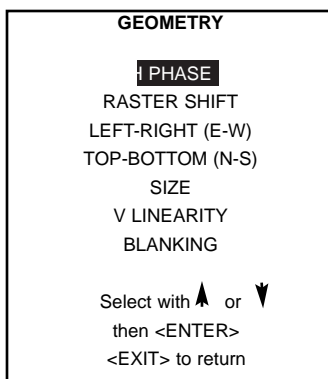
Adjust the H Phase control until the middle of the projected image is equal with the middle of >< icon. It is recommended that an external cross-hatch be used for this adjustment.

Image 1 : Push the cursor key to the right to correct.

Image 2 : Push the cursor key to the left to correct.

Note: If the genlocked pattern was selected during the start up of the random access mode, the external source will be displayed.

A bar scale and a number indicator (between 0 and 100) on the screen give a visual indication of the horizontal phase adjustment.



menu 1

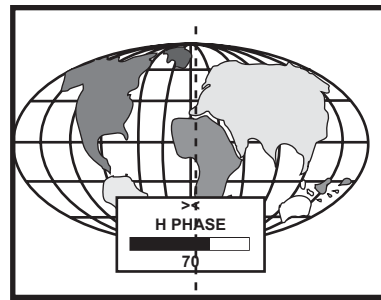


image 1

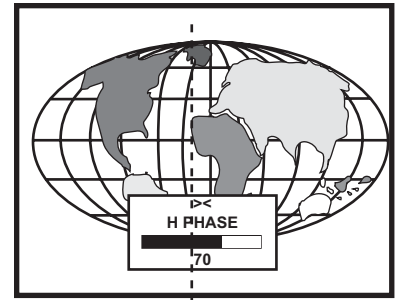


image 2

Raster Shift Adjustments

What has to be done?

The green raster must be centered both horizontally and vertically on the center of the CRT surface. To center the green raster, look into the green lens and use the cursor keys to move the raster.

CAUTION: It is necessary to look into the lenses to perform these adjustments. To avoid eye discomfort while looking into the lenses, reduce the contrast and gradually increase the brightness level until the raster becomes visible on the face of the CRT.

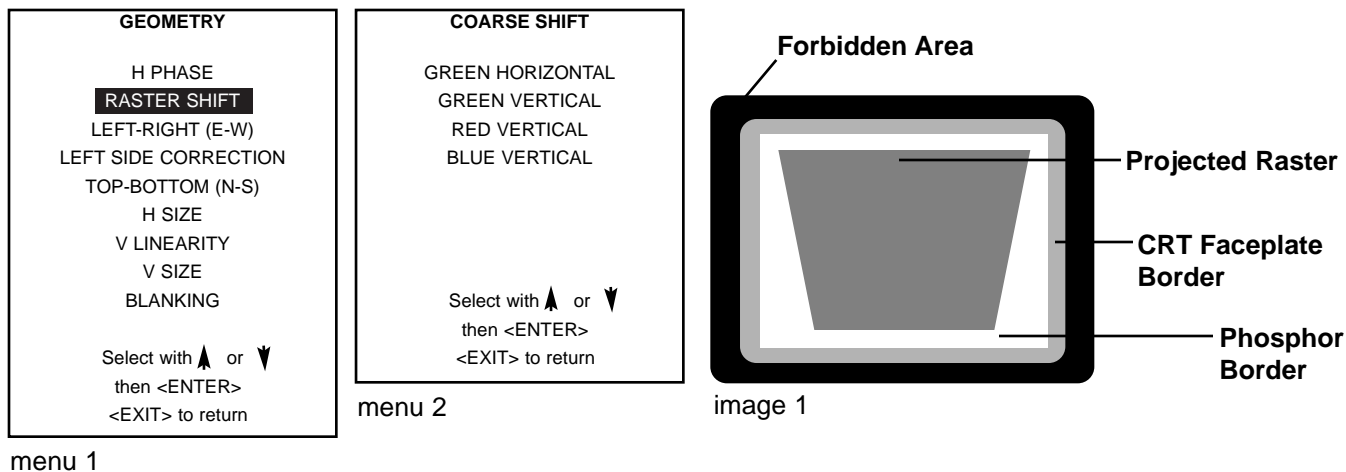
Start up

To start the adjustment (image 1):

1. Push the cursor key ▲ or ▼ to highlight Raster Shift (menu 1).
2. Press **ENTER** to display the coarse shift menu (menu 2)
3. Select first green horizontal and adjust.
4. Continue with green vertical.
5. Shift red and blue on green.

Note: Horizontal and Vertical shifts for Red and Blue should end up with a setting close to 50%. If these settings are significantly greater or lesser than 50%, contact a Runco authorized service technician.

Warning: In order to ensure maximum CRT longevity and to avoid CRT damage, do not shift the raster outside the phosphor area of the CRT.



Left-Right (East-West) Adjustments

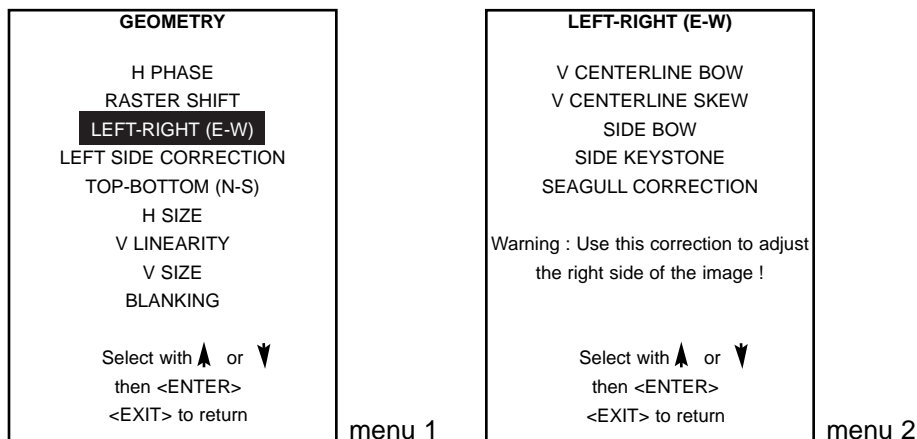
What can be adjusted?

Left-right and center adjustments affect only the vertical lines of the projected image. The skew, the bow, the keystone and the seagull distortion can be adjusted.

Start up

To start up the left-right and center adjustments, follow the next procedure :

1. Push the cursor key ▲ or ▼ to highlight LEFT-RIGHT (E/W) (image 1).
2. Press **ENTER** to select. The 'Left-Right' menu will be displayed (menu 2).



Note: Only the green image is displayed while making left-right adjustments. The red and blue images will automatically be corrected in the same manner. Convergence corrections are automatically disabled for the duration of these adjustments.

Which adjustment can be executed?

The following adjustments can be executed

- vertical centerline bow
- vertical centerline skew
- side keystone (left - right)
- side bow (left - right)

All adjustment are indicated on the screen with the function name, a bar scale and a number between 0 and 100. Adjust the next alignments until the vertical lines are straight.

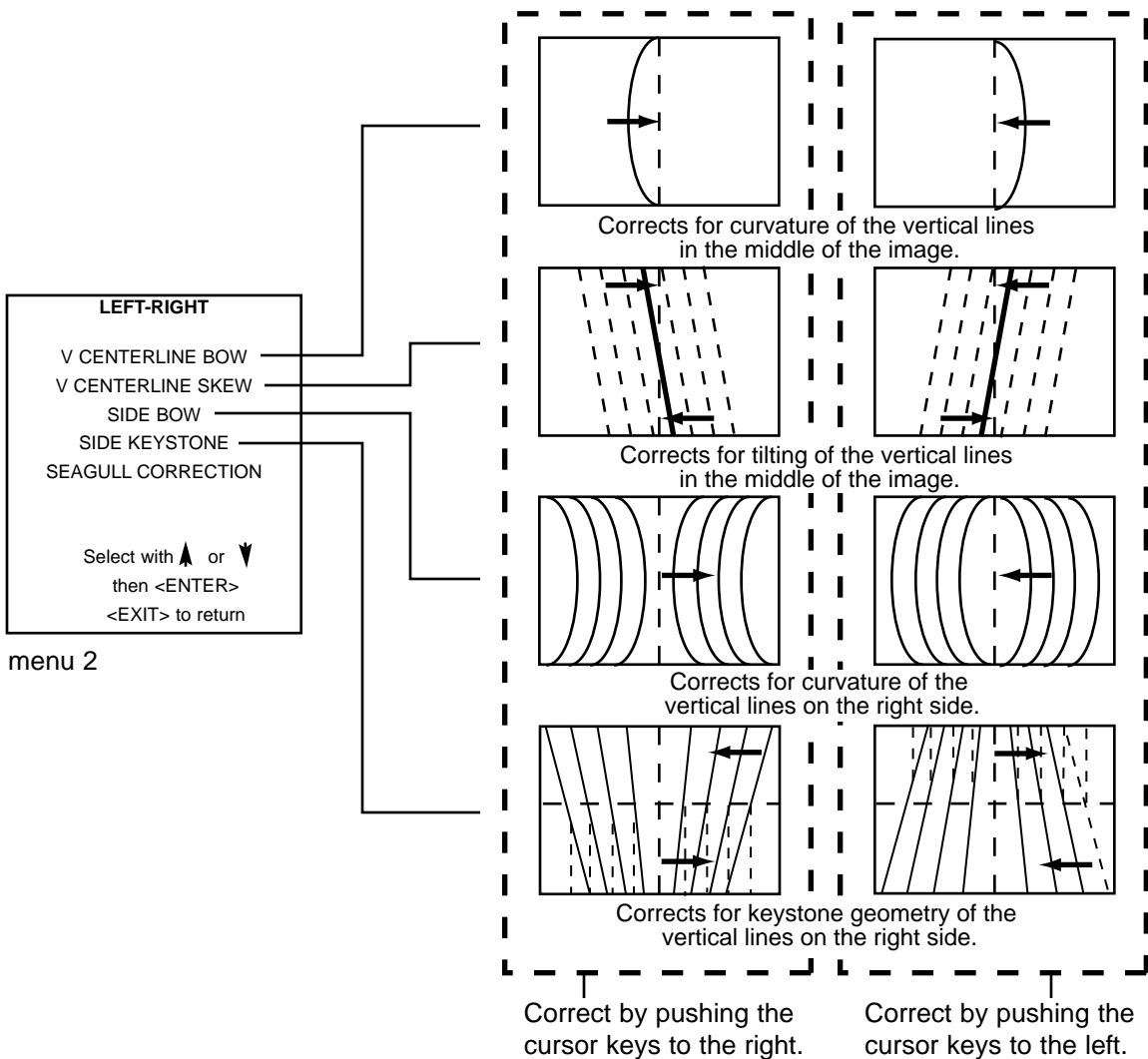
How to enter an alignment?

To enter an alignment:

1. Push the cursor key \uparrow or \downarrow to highlight a function
2. Press ENTER to activate this function.
3. Press EXIT to return.

Warning

Use this correction to adjust the right side of the image.



Seagull Correction

What can be done?

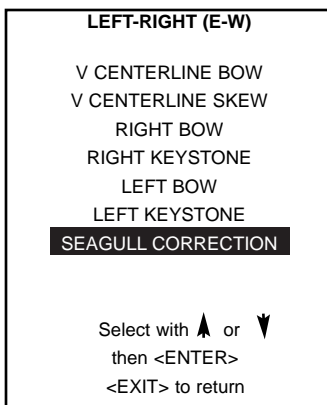
Use this correction only if, after adjusting the vertical lines with the side bow or side keystone, an 'S' curve is visible on the left and the right side of the image. The default value on the bar scale for this correction is 50.

Start up

To correct the Seagull Correction :

1. Push the cursor key \uparrow or \downarrow to highlight SEAGULL CORRECTION (menu 1)
2. Press **ENTER** to activate.

Eliminate the deformation by pushing the cursor key \leftarrow or \rightarrow until a straight line is obtained (image 1).



menu 2

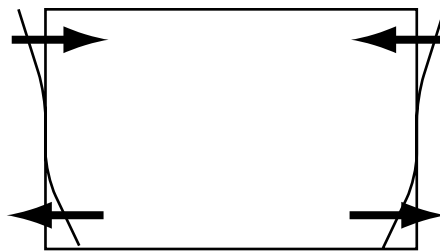


image 1

Left Side Correction

What can be done?

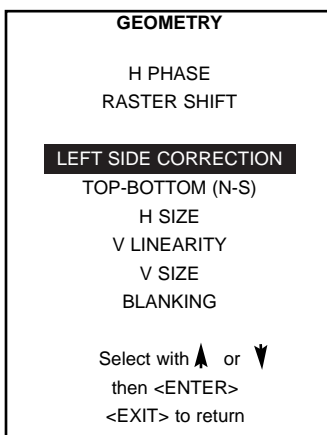
Fine tuning on the left side of the image for bow and keystone correction. Only the green image is displayed while making the left side adjustments. The red and blue images will automatically be corrected in the same manner. The convergence corrections are automatically disabled for the duration of these adjustments.

Warning

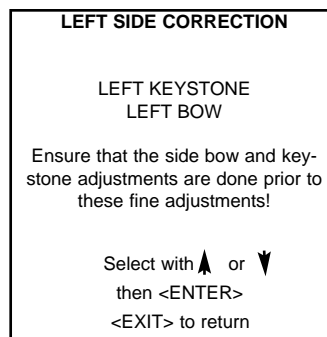
Before starting the left side correction, insure that the side bow and keystone adjustments are done prior to these fine adjustments!

Start Up

1. Push the cursor key \uparrow or \downarrow to highlight 'Left Side Correction' (menu 1).
2. Press ENTER to display the Left Side Correction menu (menu 2).



menu 1



Left Side Adjustments

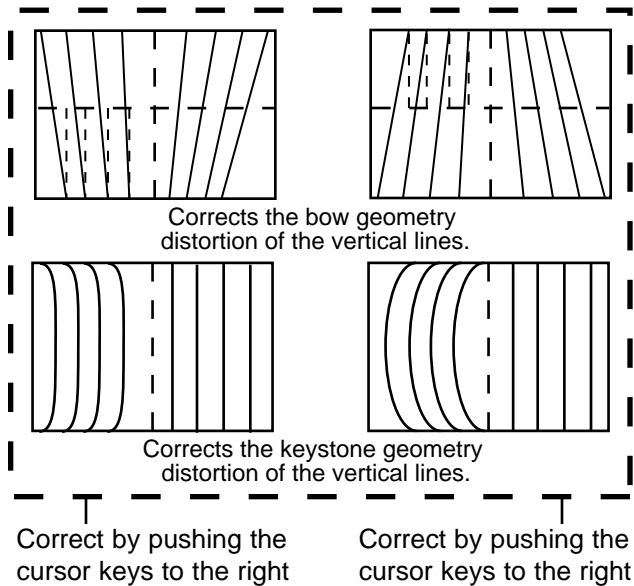
1. Push the cursor key \uparrow or \downarrow to highlight the desired correction (menu 1).
2. Press **ENTER** to start the adjustment.
3. Press **EXIT** to return when the adjustment is finished.

LEFT SIDE CORRECTION

LEFT KEYSTONE
LEFT BOW

Ensure that the side bow and keystone adjustments are done prior to these fine adjustments!

Select with \uparrow or \downarrow
then <ENTER>
<EXIT> to return



Top-Bottom (North-South) Adjustments

What can be adjusted?

Top-Bottom and center adjustments affect only the horizontal lines of the projected image. The skew, the bow, the keystone and the seagull correction can be adjusted.

Start Up

To start up the Top-Bottom and center corrections, follow the next procedure :

1. Push the cursor key \uparrow or \downarrow to highlight TOP-BOTTOM (N/S) (menu 1).
2. Press **ENTER** to select. The Top-Bottom menu will be selected (menu 2).

GEOMETRY

H PHASE
RASTER SHIFT
LEFT-RIGHT (E-W)
LEFT SIDE CORRECTION
TOP-BOTTOM (N-S)

H SIZE
V LINEARITY
V SIZE
BLANKING

Select with \uparrow or \downarrow
then <ENTER>
<EXIT> to return

menu 1

TOP-BOTTOM (N-S)

H CENTERLINE BOW
H CENTERLINE SKEW
TOP KEYSTONE
TOP BOW
BOTTOM KEYSTONE
BOTTOM BOW
SEAGULL CORRECTION

Select with \uparrow or \downarrow
then <ENTER>
<EXIT> to return

menu 2

Note:

Only the green image is displayed while making top-bottom adjustments. The red and blue images will automatically be corrected in the same manner. Convergence corrections are automatically disabled for the duration of these adjustments.

Which adjustment can be executed?

The following adjustments can be executed

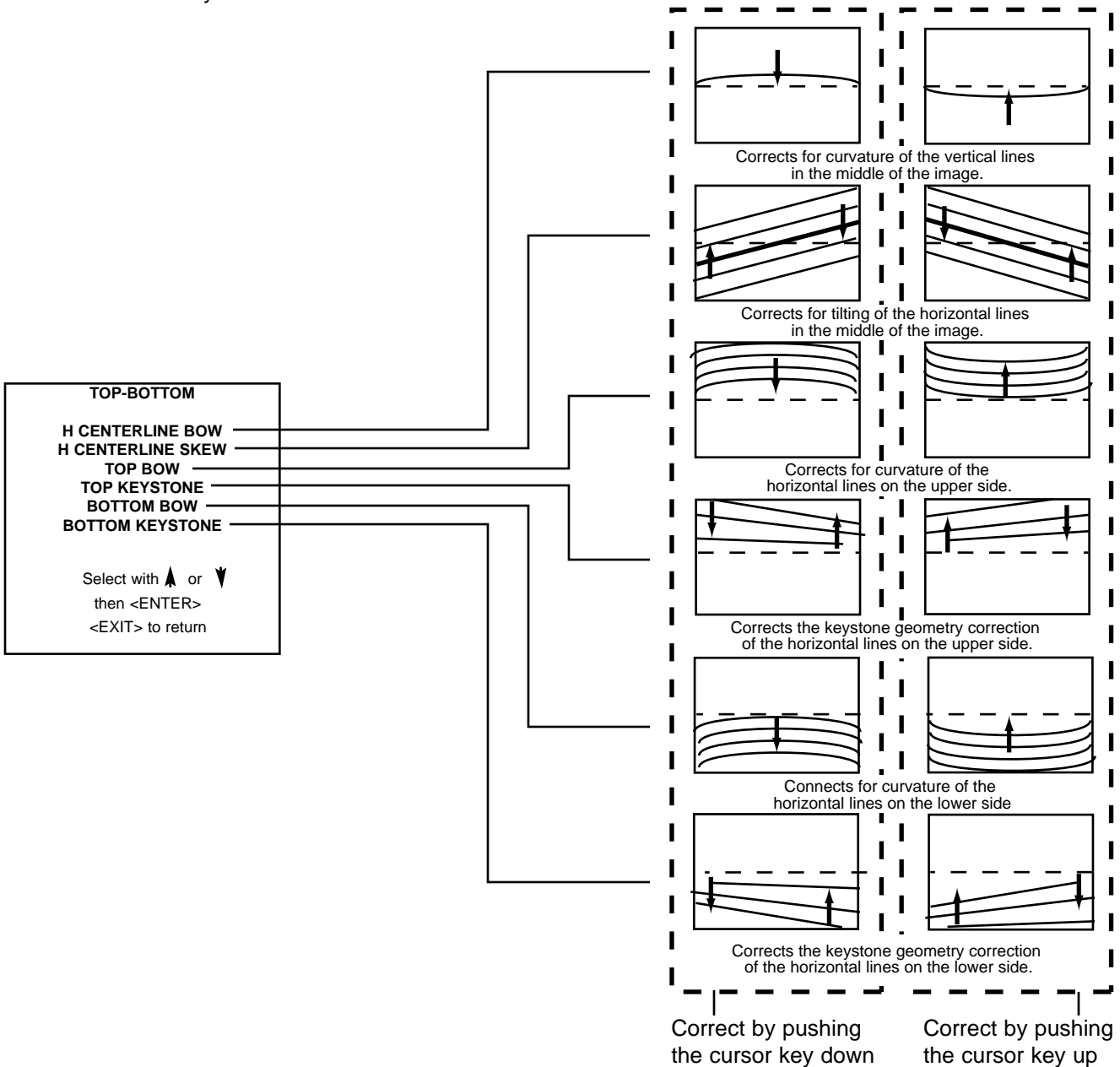
- Horizontal centerline bow
- Horizontal centerline skew
- Top bow
- Top keystone
- Bottom bow
- Bottom keystone

All adjustments are indicated on the screen with the function name, a bar scale and a number between 0 and 100. Adjust the next alignments until the horizontal lines are straight.

How to enter an alignment?

To enter an alignment:

1. Push the cursor key \uparrow or \downarrow to highlight a function
2. Press **ENTER** to activate this function.
3. Press **EXIT** to return.



Seagull correction

What can be done?

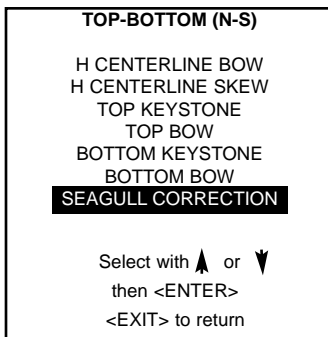
Use this correction after the image has been adjusted with top and bottom bow and keystone. If an "S" curve on top and bottom of the image is visible, proceed to the seagull correction. Due to interaction, it is possible that the top and bottom bow have to be readjusted after adjusting the seagull correction to obtain an improved image. The default value on the bar scale of this correction is 50.

Start up

To correct the Seagull Correction :

1. Push the cursor key \uparrow or \downarrow to highlight SEAGULL CORRECTION (menu 1)
2. Press ENTER to activate.

Eliminate the deformation by pushing the cursor key \uparrow or \downarrow until a straight line is obtained (image 1).



menu 2

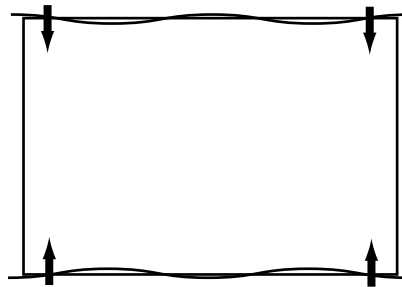


image 1

Horizontal Size Adjustments

What can be done?

To adjust the horizontal picture size.

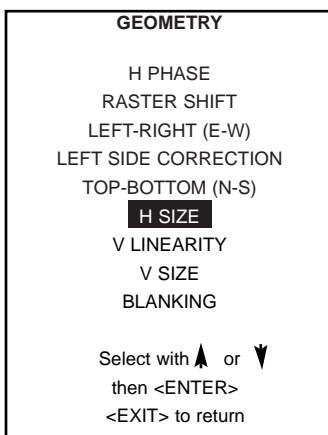
Start up

1. Push the cursor key \uparrow or \downarrow to highlight 'H Size' (menu 1).
2. Press **ENTER** to activate (menu 2).
3. Push the cursor key \leftarrow or \rightarrow until the exact image width is obtained (horizontal size) (image 1).

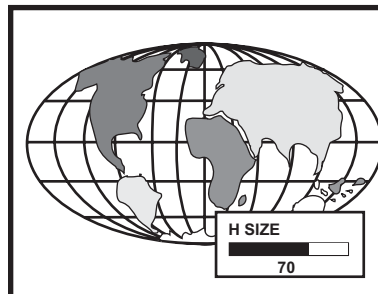
Note:

- If the internal # pattern was selected, this pattern remains on the screen.
- If the genlocked pattern was selected, the external source will be displayed.

A bar scale and a numeric indicator help to gauge the size adjustment.



menu 1



menu 2

Vertical Linearity Adjustments

What can be done?

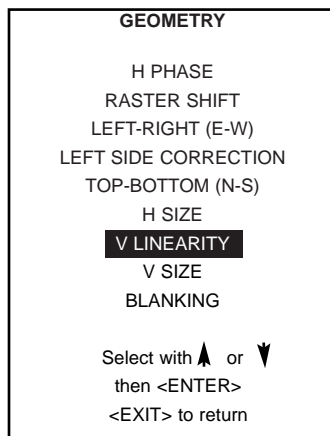
The vertical linearity adjustment function corrects for vertical non-linearities which extend from the center of the image to the top and bottom of the image.

Start Up

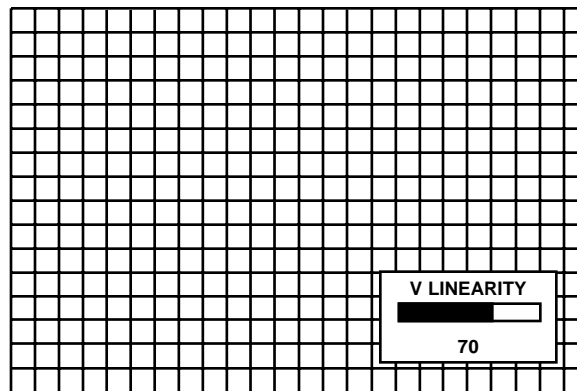
To start up the vertical linearity adjustment:

1. Push the cursor key \uparrow or \downarrow to highlight V Linearity (menu 1).
2. Press **ENTER** to activate (menu 2).

Adjust the vertical linearity with the cursor keys until the distances between the horizontal lines of the set up pattern are equal from top to bottom (image 1).



menu 1



menu 2

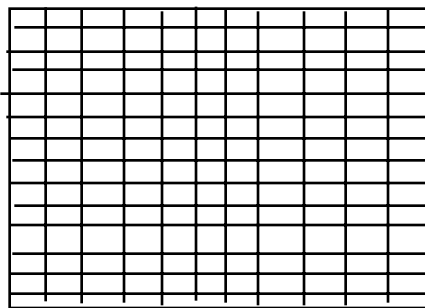


image 1

Vertical Size Adjustments

What can be done?

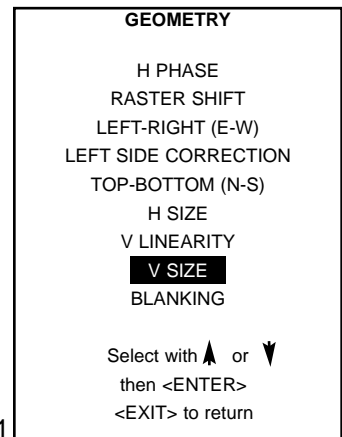
To adjust the vertical picture size.

Start up

1. Push the cursor key ↑ or ↓ to highlight 'V Size' (menu 1).
2. Press **ENTER** to activate (menu 2).
3. Push the cursor key ↑ or ↓ until the correct image height is obtained. (image 1).

Note:

- If the internal # pattern was selected, this pattern remains on the screen.
 - If the genlocked pattern was selected, the external source will be displayed.
- A bar scale and a numeric indicator help to gauge the size adjustment.



menu 1

Blanking Adjustments

What can be done?

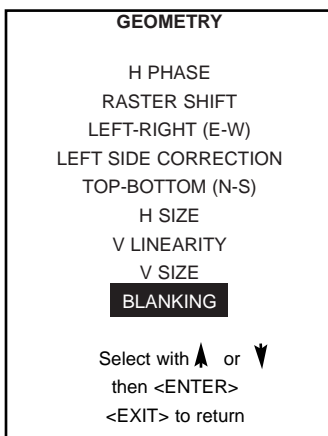
Blanking adjustments affect only the edges of the projected image and are used to frame the projected image on to the screen and to hide or black out unwanted information (or noise). A 0% on the bar scale indicates no blanking. The following blanking adjustment are available: Top, Bottom, left and right blanking.

Start Up

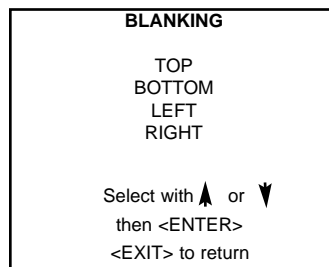
To start up the Blanking adjustments, follow the next procedure :

1. Push the cursor key ↑ or ↓ to highlight Blanking (menu 1).
2. Press **ENTER** to display the blanking menu (menu 2).

- If the internal # pattern was selected, this pattern remains on the screen.
- If the genlocked pattern was selected, the external source will be displayed.



menu 1



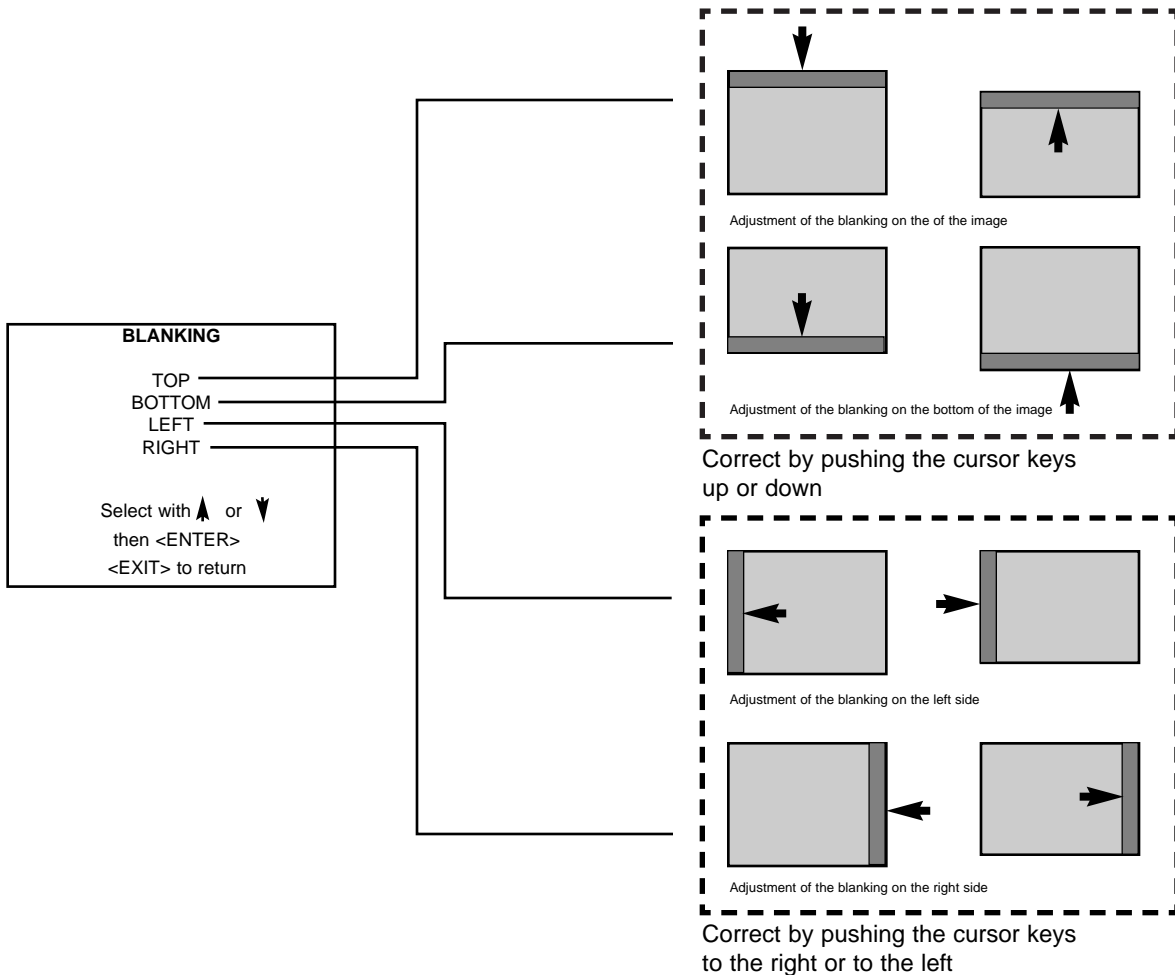
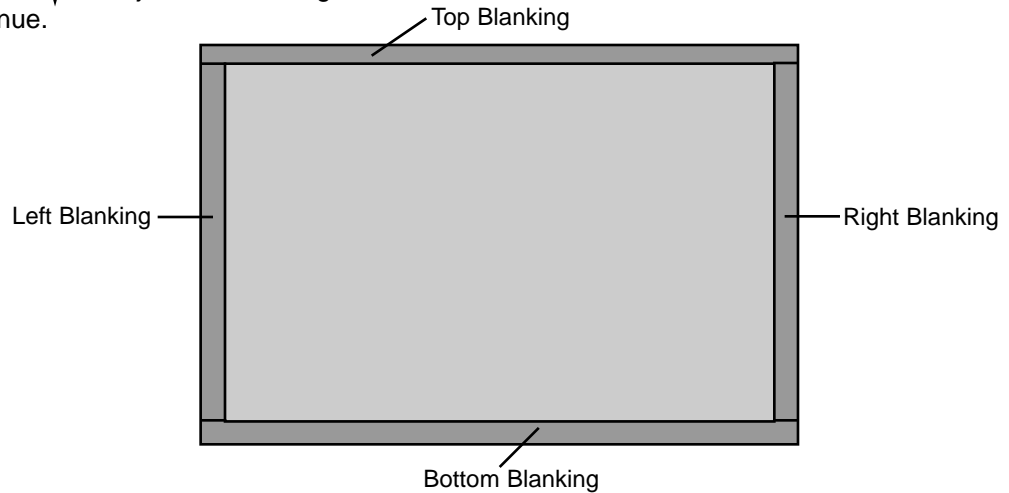
menu 2

How to adjust the Blanking?

Adjust the next blanking alignments until the image is correctly framed or the unwanted information is blanked out (image 1).

To enter a blanking alignment :

1. Push the cursor key \uparrow or \downarrow to highlight the desired blanking position.
2. Press ENTER to select.
3. Press the cursor key \uparrow or \downarrow to adjust the blanking.
4. Press ENTER to continue.



Convergence Adjustments

What has to be done?

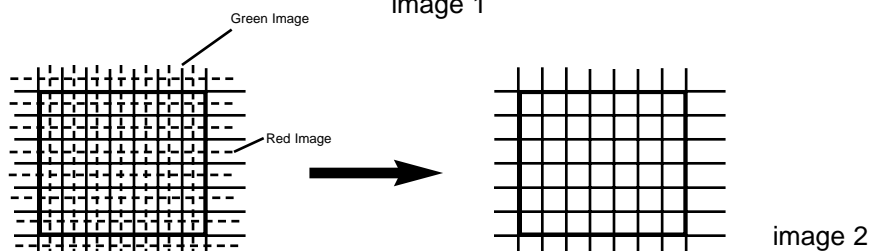
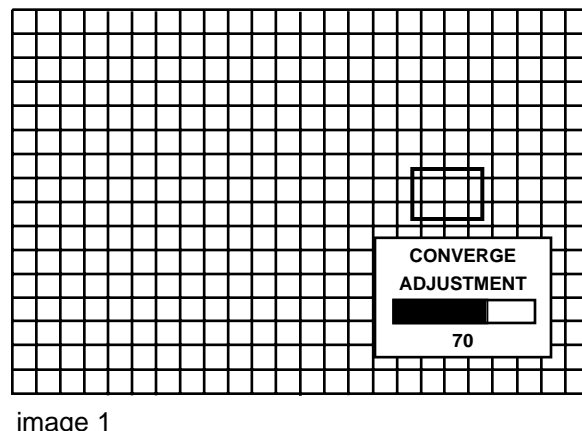
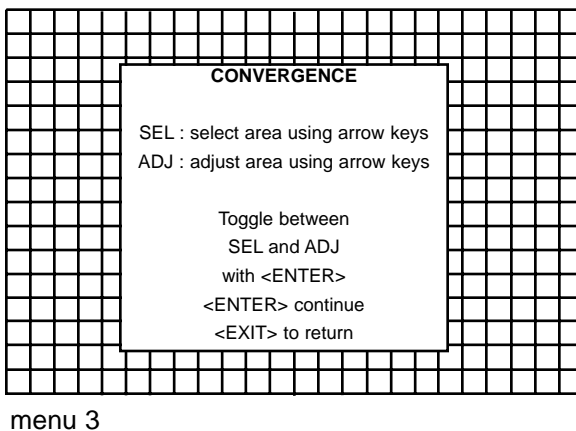
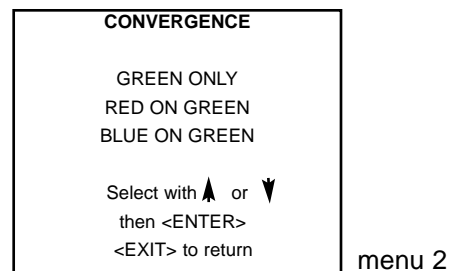
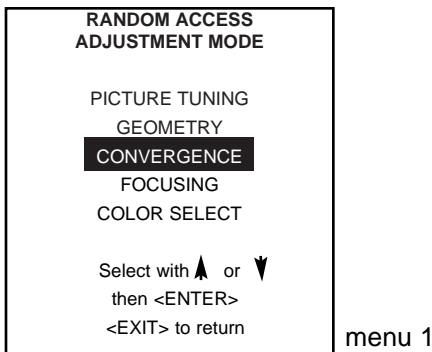
Convergence adjustments affect both the horizontal and vertical lines of the setup pattern. These adjustments are performed on the red image while superimposed on the green image and then on the blue image while superimposed on the green image. The screen is divided into 81 areas

Start up

1. Push the cursor key \uparrow or \downarrow to select desired adjustment.
2. Press **ENTER** to activate.

How to adjust?

1. Use the cursor keys to move the box to the desired zone.
2. Press **ENTER** to begin the convergence adjustment. Start the convergence adjustment in the center, then move outward.
3. Use the cursor keys to make horizontal or vertical convergence adjustments in the selected zone (image 1).
4. Press **ENTER** to move to another zone.
5. Press **EXIT** to return to the convergence menu.



Focusing

What can be done?

After the lenses are mechanically correct focused, the CRT's can be electronically focused until the image is on each point.

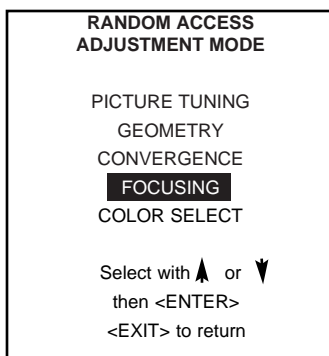
Start Up

1. Push the cursor key \uparrow or \downarrow to highlight 'Focusing' (menu 1).
2. Press **ENTER** to display the focusing menu (menu 2).

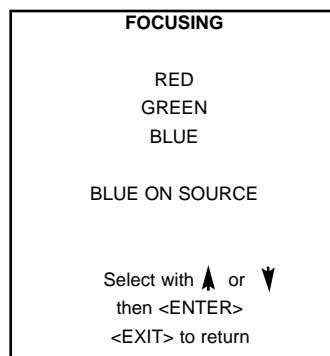
The focusing has to be done for the three colors separately.
Start with Green and continue with Red and Blue.

The following items can be adjusted per color (menu 3):

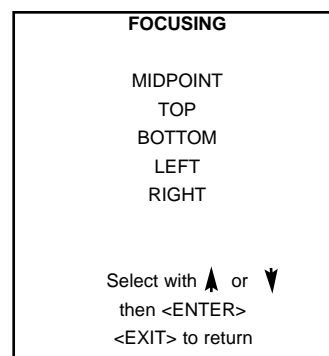
- Midpoint focusing
- Top image focusing
- Bottom image focusing
- Left image focusing
- Right image focusing



menu 1



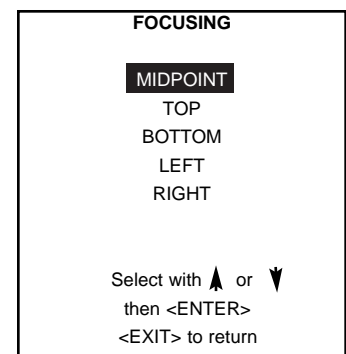
menu 2



menu 3

Midpoint Focusing

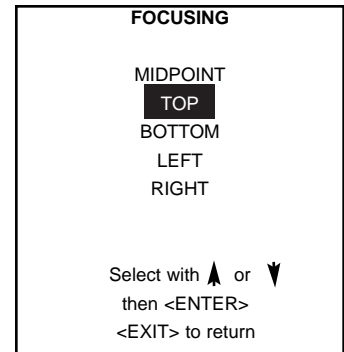
1. Push the cursor key \uparrow or \downarrow to highlight 'Midpoint' (menu 1).
2. Press **ENTER** to start up the midpoint focusing.
3. Push the cursor key \leftarrow or \rightarrow until the center of the image is sharp.
4. Press **ENTER** to return to the focusing menu.



menu 1

Top Image Focusing

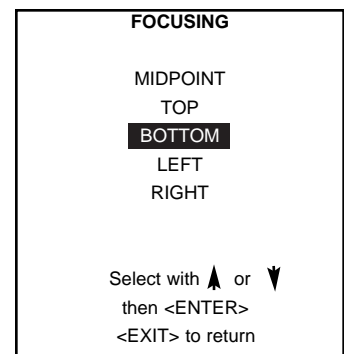
1. Push the cursor key ↑ or ↓ to highlight 'Top' (menu 1).
2. Press **ENTER** to start up the top image focusing.
3. Push the cursor key ← or → until the upper part of the image is sharp.
4. Press **ENTER** to return to the focusing menu.



menu 1

Bottom Image Focusing

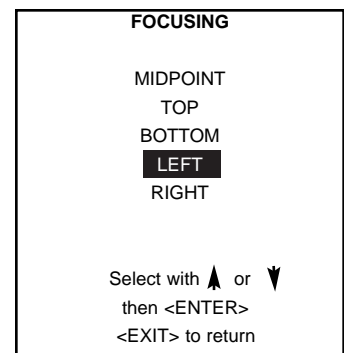
1. Push the cursor key ↑ or ↓ to highlight 'Bottom' (menu 1).
2. Press **ENTER** to start up the bottom image focusing.
3. Push the cursor key ← or → until the lower part of the image is sharp.
4. Press **ENTER** to return to the focusing menu.



menu 1

Left Image Focusing

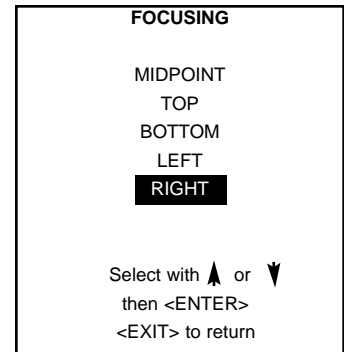
1. Push the cursor key ↑ or ↓ to highlight 'Left' (menu 1).
2. Press **ENTER** to start up the top image focusing.
3. Push the cursor key ← or → until the left part of the image is sharp.
4. Press **ENTER** to return to the focusing menu.



menu 1

Right Image Focusing

1. Push the cursor key ↑ or ↓ to highlight 'Right' (menu 1).
2. Press **ENTER** to start up the right image focusing.
3. Push the cursor key ← or → until the right part of the image is sharp.
4. Press **ENTER** to return to the focusing menu.



menu 1

Blue on Source

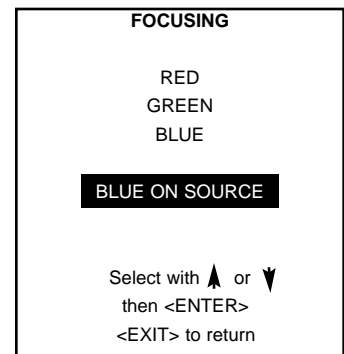
What can be done?

After focusing the three colors, and a yellow discoloring on a normal image is still visible, select blue on source and repeat the steps Midpoint, Top, Bottom, Left and Right. This helps eliminate blue saturation by slightly de-focusing the blue image.

Start Up

1. Push the cursor key ↑ or ↓ to highlight 'Blue on Source' (menu 1).
2. Press **ENTER** to start up.
Repeat the midpoint, top, bottom, left and right focusing.

Note: It is recommended that a white field pattern be used for this adjustment.



menu 1

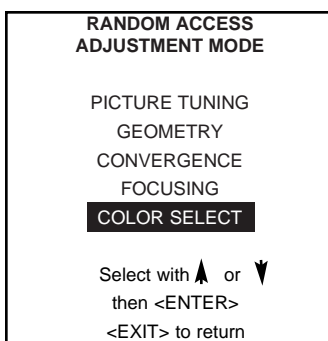
Color Select

What can be done?

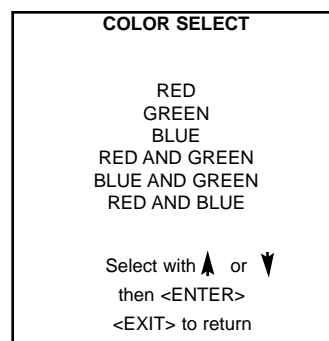
Only one color (CRT) or a combination of colors can be turned ON or OFF.

Start Up

1. Push the cursor key ↑ or ↓ to highlight 'Color Select' (menu 1).
2. Press **ENTER** to display the color select menu (menu 2).
3. Select the desired color or color combination by pushing the cursor key ↑ or ↓.
4. Press **ENTER** to select.
5. Exit returns to the color select menu.



menu 1



menu 2

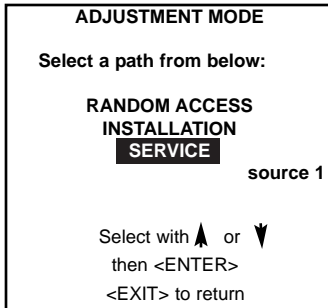
SERVICE MODE

Service Mode

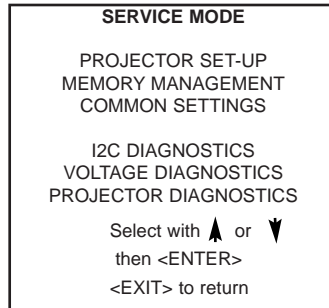
Start Up

1. Push the cursor key \uparrow or \downarrow to select to SERVICE (menu 1).
2. Press ENTER to select.

The service menu will be displayed (menu 2). 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 also available if you stay in the adjustment mode.

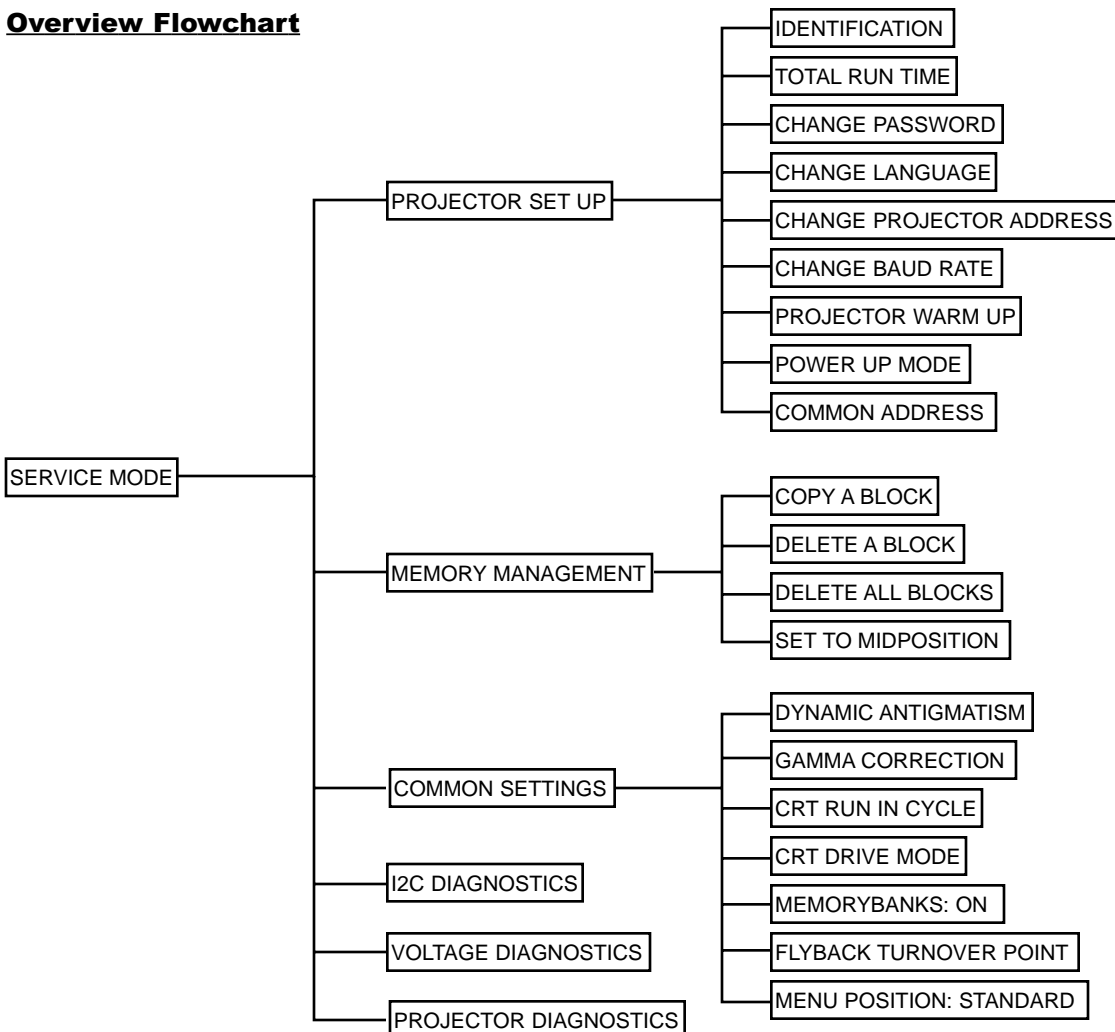


menu 1



menu 2

Overview Flowchart



Projector Setup

What can be done?

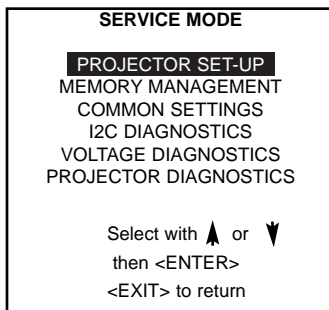
Within the projector set-up menu, the following items can be consulted or set to the desired setting:

- Identification
- Total run time
- Change password
- Change projector address
- Change baud rate
- Projector warm up
- Power up mode
- Common address

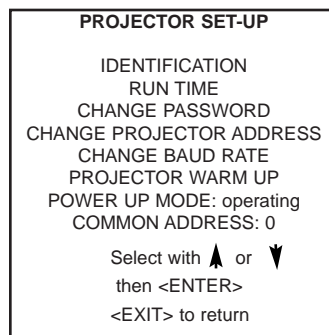
Start up the Projector Set-Up

To select Projector Set-Up:

1. Push the cursor key \uparrow or \downarrow to highlight Projector Set Up (menu 1).
2. Press **ENTER** to display the Projector set up menu (menu 2).



menu 1



menu 2

Identification

What can be seen?

The 'Identification' screen gives information concerning:

- **Projector address.** To change the address of your projector, contact a qualified service technician.
- **Software version.**
- **Configuration.**
 - Possible installations:
 - * Front-ceiling
 - * Front-table
 - * Rear-ceiling
 - * Rear-table
- **Baud Rate:** transfer speed for communication with an external control system. The baud rate of the projector must be the same as the baud rate of the connected control system.
- **Text ON/OFF**

Indicates in operational mode if the bar scale and number indicator will be displayed and if warnings and failures will be displayed.

 - ON : displayed
 - OFF : not displayed

The status can be changed by pressing the 'TEXT' key once on the Remote.
- **Serial no.:** indicates the fabrication number of the projector. This number can be useful when calling for technical assistance.
- **Projector Level:** from 0 to 6. The higher the level the more software options installed. Contact your vendor for more information.

How to start up?

To select Identification:

1. Push the cursor key \uparrow or \downarrow to highlight Identification (menu 1).
2. Press **ENTER** to select. The identification screen will be displayed (menu 2).

```
PROJECTOR SET-UP
  IDENTIFICATION
  RUN TIME
  CHANGE PASSWORD
  CHANGE PROJECTOR ADDRESS
  CHANGE BAUD RATE
  PROJECTOR WARM UP
  POWER UP MODE: operating
  COMMON ADDRESS: 0

  Select with  $\uparrow$  or  $\downarrow$ 
  then <ENTER>
  <EXIT> to return
```

menu 1

```
RUNCO
DTV-1200
Proj. address: 001
Soft. Version: 6.00
Config.: Ceiling/Front
Baud Rate PC: 9600
Text: ON
Serial No.: 103589552
Projector level: 1
```

menu 2

Run Time

What can be displayed?

The total system run time since the first start up can be displayed plus the run time of the separate CRT's since the last reset.

Run Time Note:

All projectors leave the factory after a burn-in period of approximately 100 hours.

How to start up?

To select the different Run Times:

1. Push the cursor key \uparrow or \downarrow to highlight 'Run Time (menu 1).
2. Press **ENTER** to display the run time menu (menu 2).

The amount of time the projector has run since its first start up at the factory will be displayed as the system run time. The CRT run times will be displayed next to the respective colors.

```
PROJECTOR SET-UP
  IDENTIFICATION
  RUN TIME
  CHANGE PASSWORD
  CHANGE PROJECTOR ADDRESS
  CHANGE BAUD RATE
  PROJECTOR WARM UP
  POWER UP MODE: operating
  COMMON ADDRESS: 0

  Select with  $\uparrow$  or  $\downarrow$ 
  then <ENTER>
  <EXIT> to return
```

menu 1

```
RUN TIME
SYSTEM RUNTIME : 120 h

CRT RUNTIME :
  RED : 20 h
  GREEN : 20 h
  BLUE : 50 h

  Select with  $\uparrow$  or  $\downarrow$ 
  then <ENTER>
  <EXIT> to return
```

menu 2

How to reset the CRT run times?

1. Push the cursor key \uparrow or \downarrow to highlight the color of the CRT for which the Run Time has to be reseted (menu 1).
2. Press **ENTER** to reset the run time.
3. Press **EXIT** to return to the Projector Set up menu.

menu 2

```
RUN TIME
SYSTEM RUNTIME : 120 h

CRT RUNTIME :
  RED : 20 h
  GREEN : 20 h
  BLUE : 50 h

  Select with  $\uparrow$  or  $\downarrow$ 
  then <ENTER>
  <EXIT> to return
```

Change Password

What can be done?

The password code (4 digits) can be changed to a new one.
This item is password protected. First the actual password should be entered before continuing.

Note:

Password function is only active if the jumper on the controller is in the 'ON' position.

How to select?

To select Change Password :

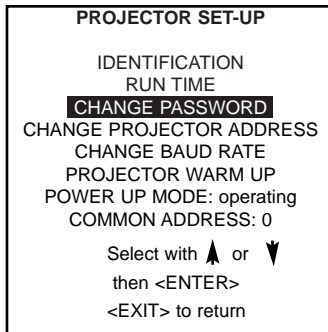
1. Push the cursor key \uparrow or \downarrow to highlight 'Change Password' (menu 1).
2. Press **ENTER** to display the password menu (menu 2).

If it is the first time you enter a password protected item, enter your password and press ENTER.
The current password is displayed. The new password must consist of 4 digits between 0 and 9.

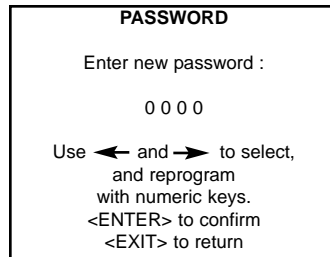
How to enter a new password?

Perform the following:

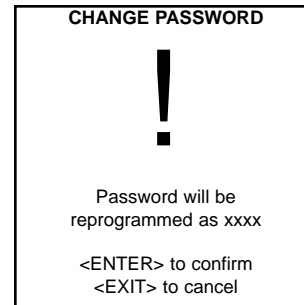
1. Push the cursor key \leftarrow or \rightarrow to select the digits to be changed (menu 2).
2. Press a numeric keys to enter the new digit.
3. Repeat for the other digits.
4. Press **ENTER** to save the new password.
Before saving the new password, a confirmation screen will be displayed (menu 3).
5. When the displayed password is correct, press **ENTER** to save.
6. If not correct, press **EXIT** to cancel the saving.



menu 1



menu 2



menu 3

Change Projector Address

What can be done?

Every projector requires an individual address between 0 and 255.

How to change the address?

To change the address, perform the following:

PROJECTOR SET-UP
IDENTIFICATION
RUN TIME
CHANGE PASSWORD
CHANGE PROJECTOR ADDRESS
CHANGE BAUD RATE
PROJECTOR WARM UP
POWER UP MODE: operating
COMMON ADDRESS: 0
Select with ▲ or ▼
then <ENTER>
<EXIT> to return

menu 1

PROJECTOR ADDRESS
Enter new projector address:
0 0 0
Use ← and → to select,
and reprogram
with numeric keys.
Highest address is 255
<ENTER> to confirm
<EXIT> to return

menu 2

1. Push the cursor key ▲ or ▼ to highlight 'Change Projector Address' (menu 1).
2. Press **ENTER** to select.
The Change Projector Address menu (menu 2) will be displayed and the actual address will be filled in.
The first digit is highlighted.
3. Push the cursor key ← or → to select the digit to be changed.
4. Reprogram with the digit keys on the Remote.
5. Press **ENTER** to confirm.

Change Baud Rate

What can be set up?

The communication speed between projector and computer has 8 possible speeds.

The baud rate speed can be software set up.

The following baud rates are available: 38400, 19200, 9600, 4800, 2400, 1200.

How to set up?

To set up the baud rate:

1. Push the cursor key ▲ or ▼ to highlight 'Change Baud Rate' (menu 1).
2. Press **ENTER** to select. The actual baud rate will be highlighted (menu 2)
3. Push the cursor key ▲ or ▼ to select the desired baud rate.
4. Press **ENTER** to accept.

PROJECTOR SET-UP
IDENTIFICATION
RUN TIME
CHANGE PASSWORD
CHANGE PROJECTOR ADDRESS
CHANGE BAUD RATE
PROJECTOR WARM UP
POWER UP MODE: operating
COMMON ADDRESS: 0
Select with ▲ or ▼
then <ENTER>
<EXIT> to return

menu 1

BAUD RATE
Select new baud rate :
38400 19200
9600 4800
2400 1200
Select with arrow keys:
<ENTER> to accept
<EXIT> to return.

menu 2

Projector Warm Up

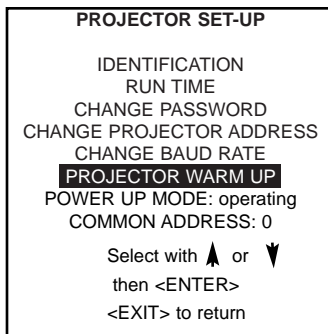
What can be done?

When in the ON position (and the CRT run in cycle is OFF), the projector can start up with a warm up period. The warm up time can be set up by the customer as well as the frequency of the warm up source. During the start up a warm up menu will be displayed. This menu offers the option to skip the warm up period by pressing the **EXIT** key and offers the possibility to adjust the horizontal and vertical amplitude of this white image with the cursor keys. During this warm up period, a full white image is shifted on the CRT faceplate to avoid a burn in.

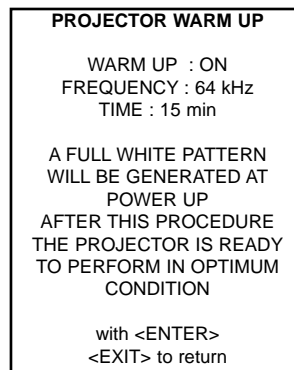
Every 30 seconds a text box will be displayed on another place on the screen with the remaining time to go. When **EXIT** is pressed during this warm up period, the warm up menu will be redisplayed with the remaining time indication. Press another time **EXIT** to interrupt the warm up cycle. When the warm up option is OFF, when switching on the projector, it starts immediately with the projection of the selected source.

How to select?

1. Push the cursor key \uparrow or \downarrow to highlight 'Projector Warm up' (menu 1).
2. Press **ENTER** to select. The projector warm up menu will be displayed (menu 2).



menu 1



menu 2

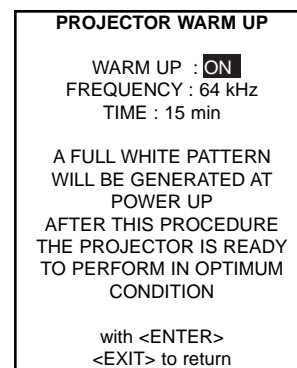
Warm Up On/Off

What can be done?

The warm up option can be toggled between ON and OFF. When in the ON position, while starting up the projector, the warm up cycle will be executed. When in the OFF position, the projector starts up with immediate image projection.

How to turn on the Warm up mode?

1. Push the cursor key \uparrow or \downarrow to highlight 'Warm up' (menu 1).
2. Press **ENTER** to toggle between ON and OFF.



menu 1

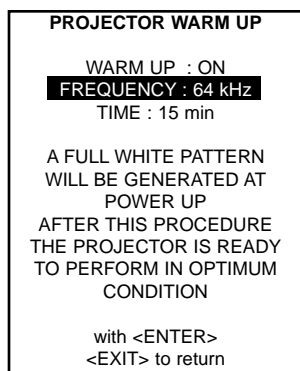
Warm Up Frequency

What can be done?

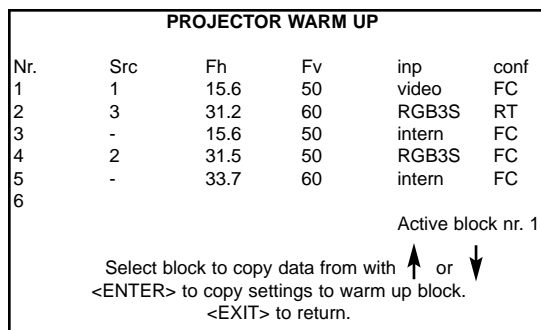
The line frequency of the white pattern on which the warm up will be executed, can be entered by selecting out of the displayed list an available block. It is recommended that the Warm up frequency be the same as the input signal, if possible.

How to install a warm up frequency ?

1. Push the cursor key \uparrow or \downarrow to highlight 'Frequency' (menu 1).
2. Press **ENTER** to display the projector warm up frequency selection menu (menu 2).
3. Select a block with the cursor keys.
4. Press **ENTER** to copy the settings of the selected block to the warm up block.
5. Press **EXIT** to return.



menu 1



menu 2

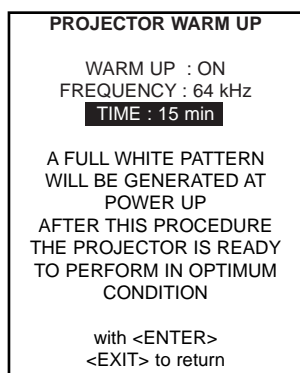
Projector Warm Up Time

What can be done?

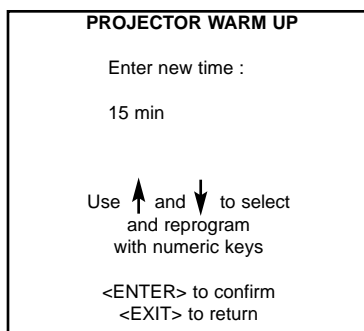
The warm up time can be programmed with the cursor keys.

How to program the warm up time?

1. Push the cursor key \uparrow or \downarrow to highlight 'Time' (menu 1).
2. Press **ENTER** to display the projector warm up time menu (menu 2).
3. Use the cursor keys to select the first digit and reprogram with the numeric keys.
Repeat for the other digits.
The projector warm up time is given in minutes.



menu 1



menu 2

Power Up Mode

What can be done?

When pressing the power switch, the projector can start up in 'operating mode' or in 'stand-by mode'.

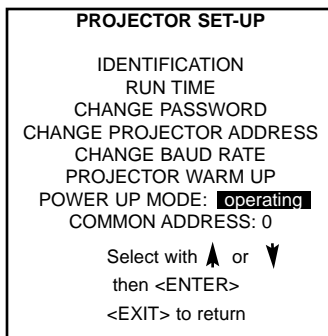
Operating mode: the projector start up and displays image.

Stand-by mode: the projector start up in stand-by and waits until the stand-by button or a digit key is pressed.

How to change the mode?

To change the Power up mode:

1. Push the cursor key \uparrow or \downarrow to highlight Power Up (menu 1).
2. Press **ENTER** to toggle between 'Operating' and 'Standby'.



menu 1

Note: Runco recommends that this be left in 'Standby' for long-term reliability.

Common Address

What can be done?

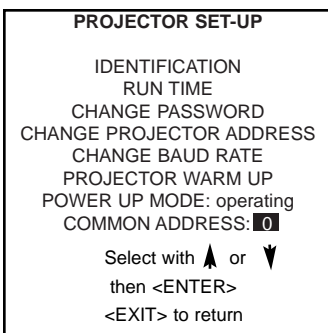
Every projector listens to a common address. This common address can be set to '0' or '1'. When a Remote is programmed with a common address, every projector with that same common address will follow up the commands given by that Remote.

Why 2 different common address?

The reason to have the choice to select between common addresses is, to avoid controlling of other IR controlled units, e.g. a TV set with standard common address 0.

How to change the common address?

1. Push the cursor key \uparrow or \downarrow to highlight Common Address (menu 1).
2. Press **ENTER** to toggle between '0' and '1'.



menu 1

Memory Management

What can be done?

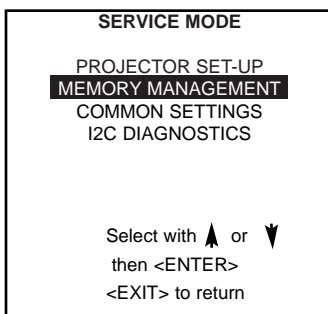
Within the memory management menu, the following items can be consulted or executed :

- copy a block
- delete a block
- delete all blocks
- set to midposition

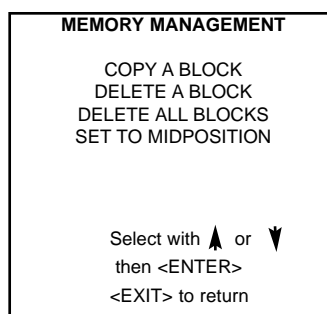
How to select?

To select Memory Management:

1. Push the cursor key \uparrow or \downarrow to highlight Memory Management (menu 1).
2. Press ENTER to select. The memory management menu will be displayed (menu 2).



menu 1



menu 2

Copy a Block

What can be done?

The copy a block function copies the settings of a selected block into the active block.

How to copy?

To copy a block :

1. Push the cursor key \uparrow or \downarrow to highlight 'Copy a Block' (menu 1).
2. Press **ENTER** to select.

The copy menu will be displayed (menu 2).

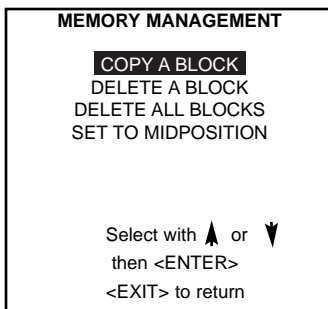
To copy the settings of a closed block to the block you are working on (active block),

3. Push the cursor key \uparrow or \downarrow to select a block.
4. Press **ENTER** to copy the selected block.

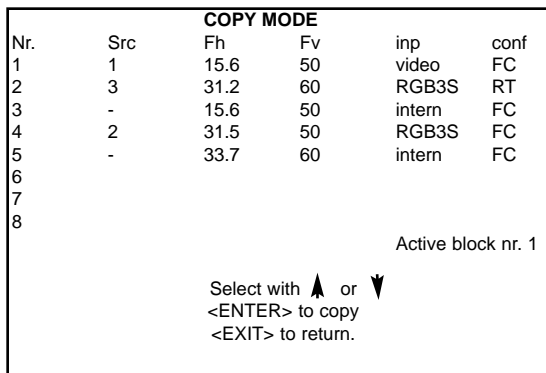
All current settings will be overwritten with the settings of the block which is copied.

A confirmation screen will be displayed (menu 3).

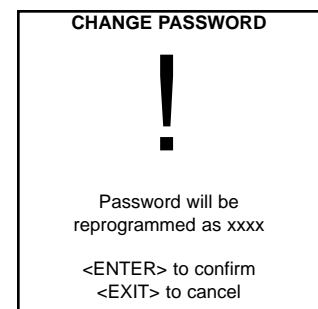
5. **ENTER** to confirm. **EXIT** cancels the copy procedure and returns without copying the block.



menu 1



menu 2



menu 3

Deletion of Blocks

What can be done?

The delete function is used to clear all data (settings) from an adjustment block.

A delete can be given:

- block by block or
- for all blocks.

This item is password protected.

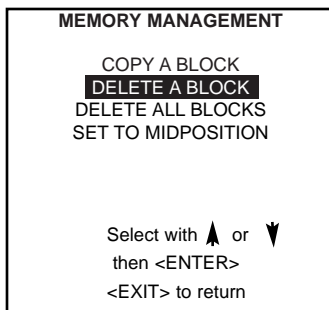
Deleting Block by Block

What can be done?

The 'delete a block' function deletes the settings of a selected block.

How to delete a Block?

1. Push the cursor key \uparrow or \downarrow to highlight Delete a Block (menu 1).
2. Press **ENTER** to display the delete mode (menu 2).
3. Push the cursor key \uparrow or \downarrow to select the desired adjustment block.
4. Press **ENTER** to delete the selected adjustment block.
A confirmation menu will be displayed (menu 3).
5. Press **ENTER** to confirm.
Press **EXIT** to cancel the deletion procedure



menu 1

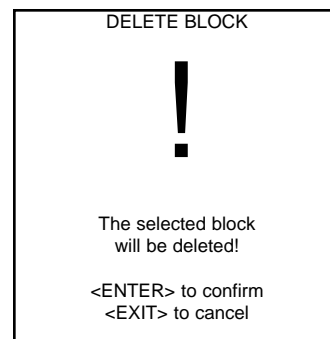
DELETE MODE

Nr.	Src	Fh	Fv	inp	conf
1	1	15.6	50	video	FC
2	3	31.2	60	RGB3S	RT
3	-	15.6	50	intern	FC
4	2	31.5	50	RGB3S	FC
5	-	33.7	60	intern	FC
6					
7					
8					

Active block nr. 1

Select with \uparrow or \downarrow
<ENTER> to copy
<EXIT> to return.

menu 2



menu 3

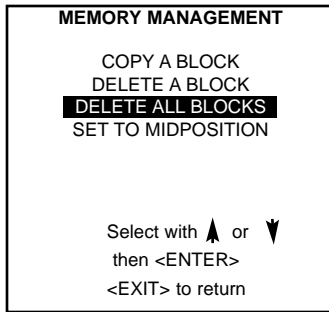
Deletion of All Blocks

What can be done?

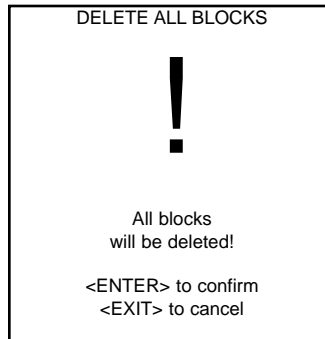
All blocks (all settings) can be deleted at the same time.

How to delete all blocks?

1. Push the cursor key \uparrow or \downarrow to highlight Delete all Blocks (menu 1).
2. Press **ENTER** to select.
A confirmation screen will be displayed (menu 2).
3. Press **ENTER** to confirm
Press **EXIT** to return without deleting any block.
Once ENTER is pressed, all block headers and adjustment settings are permanently removed and cannot be restored.



menu 1



menu 2

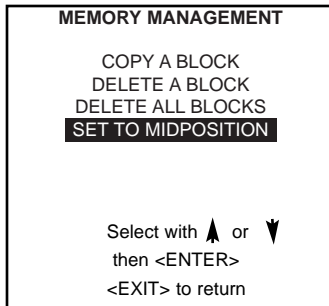
Set to Midposition

What can be done?

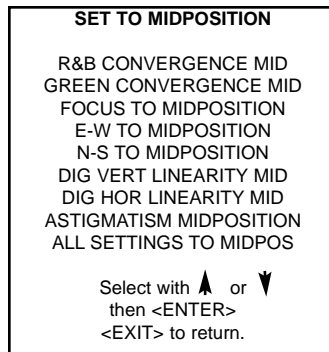
All adjustment settings (geometry and convergence) can be set to mid position. Item is password protected.

How to Start Up?

1. Push the cursor key \uparrow or \downarrow to highlight 'Set to Midposition' (menu 1).
2. Press **ENTER** to display the set to midposition menu (menu 2).



menu 1



menu 2

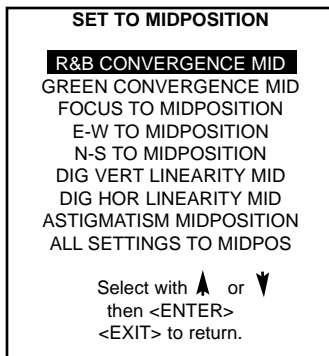
R & B Coverage Mid

What can be done?

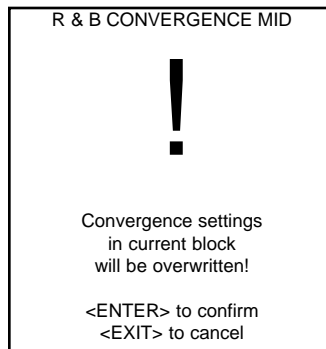
All convergence settings for red and blue are set to midposition. Item is password protected

How to set convergence to midposition:

1. Push the cursor key \uparrow or \downarrow to highlight 'R & B Convergence Mid' (menu 1).
2. Press **ENTER** to select. A confirmation screen will be displayed first (menu 2).
3. Press **ENTER** to confirm.



menu 1



menu 2

Undo R & B Convergence Mid

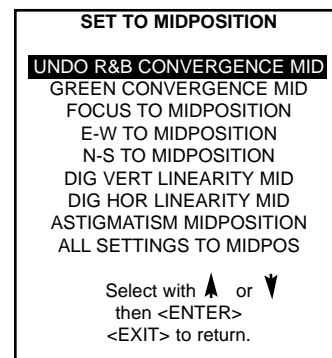
What can be done?

When "R & B convergence mid" is selected, all convergence settings are set to their midposition. With the undo, it is possible to return to the previous settings as long as the projector is playing on the same source (= same adjustment block).

'Undo R & B convergence mid' is displayed in the Set Midposition menu instead of 'R & B convergence mid' when this latter is pressed.

How to Undo?

1. Push the cursor key ▲ or ▼ to highlight 'Undo R & B Convergence Mid' (menu 1).
2. Press **ENTER** execute the undo function.



menu 1

Green Convergence Mid

What can be done?

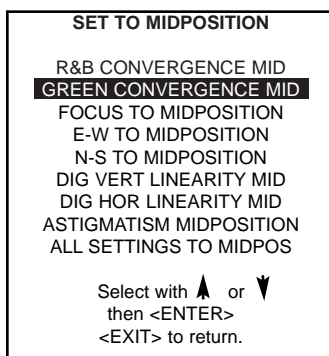
The green convergence settings can be set to midposition.

Only available when the projector is equipped with green convergence adjustments.

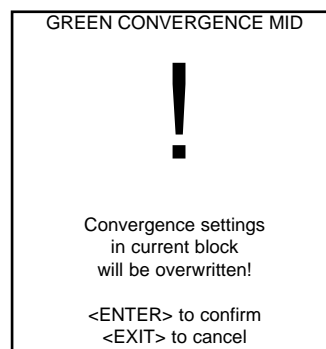
How to set Green settings to midposition?

1. Push the cursor key ▲ or ▼ to highlight 'Green Convergence Mid' (menu 1).
2. Press **ENTER** to select. A confirmation screen will be displayed first (menu 2).
3. Press **ENTER** to confirm.

Press **EXIT** to cancel the procedure to set the green convergence settings to their midposition.



menu 1



menu 2

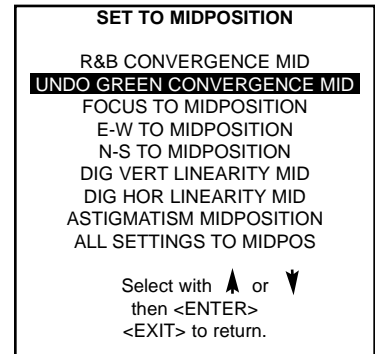
Undo Green Convergence Mid

What can be done?

'Undo Green convergence mid' is displayed in the Set Midposition menu instead of 'Green convergence mid' when the latter is pressed. Only available when the projector is equipped with green convergence adjustments.

How to undo?

1. Push the cursor key \uparrow or \downarrow to highlight 'Undo Green Convergence Mid' (menu 1).
2. Press **ENTER** undo.



menu 1

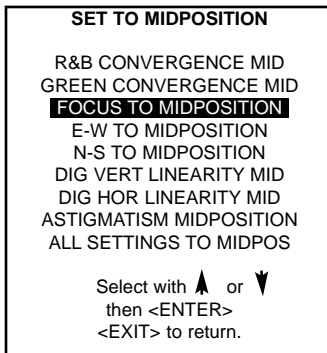
Focus to Midposition

What can be done?

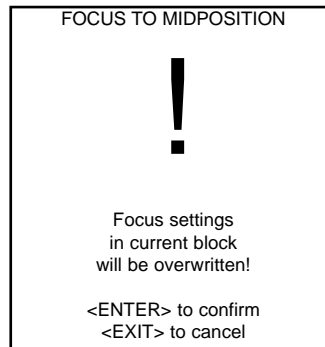
The focus settings can be set to midposition.

How to set the Focus settings to midposition?

1. Push the cursor key \uparrow or \downarrow to highlight 'Focus to Midposition' (menu 1).
2. Press **ENTER** to select. A confirmation screen will be displayed first (menu 2).
3. Press **ENTER** to confirm. Press **EXIT** to cancel the procedure to set the focus settings to their midposition.



menu 1



menu 2

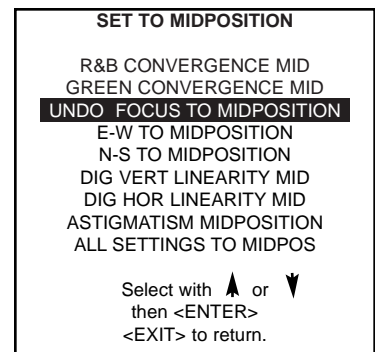
Undo Focus to Midposition

What can be done?

'Undo Focus to Midposition' is displayed in the Set Midposition menu instead of 'Focus to midposition' when the latter is pressed. As long the projector is running on the same source (= same adjustment block), undo the focus to midposition is possible.

How to undo the Focus to midposition?

1. Push the cursor key \uparrow or \downarrow to highlight 'Undo Focus to Midposition' (menu 1).
2. Press **ENTER** undo.



menu 1

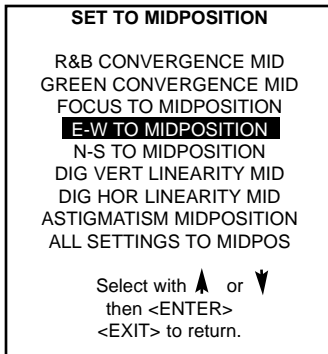
East-West to Midposition

What can be done?

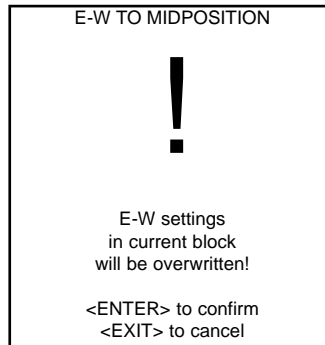
The east-west settings can be set to midposition.

How to set the E-W settings to midposition?

1. Push the cursor key \uparrow or \downarrow to highlight 'E-W to midposition' (menu 1).
2. Press **ENTER** to select. A confirmation screen will be displayed first (menu 2).
3. Press **ENTER** to confirm. Press **EXIT** to cancel the procedure to set the E-W settings to their midposition.



menu 1



menu 2

Undo East-West to Midposition

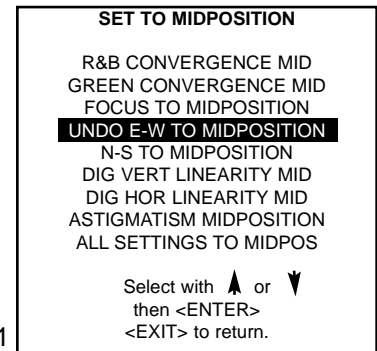
What can be done?

'Undo East-West to midposition' is displayed in the Set Midposition menu instead of 'E-W to midposition' when this latter is pressed. The settings for the E-W can be returned to previous installed settings as long the projector is playing on the same source (= same adjustment block).

How to Undo the E-W to midposition?

1. Push the cursor key \uparrow or \downarrow to highlight 'Undo E-W to midposition' (menu 1).
2. Press **ENTER** undo.

menu 1



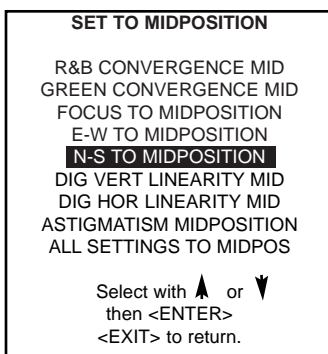
North-South Settings to Midposition

What can be done?

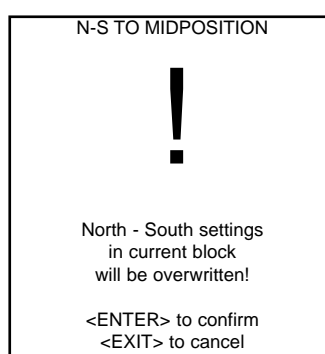
The north-south settings can be set to midposition.

How to set the N-S settings to midposition?

1. Push the cursor key \uparrow or \downarrow to highlight 'N-S to midposition' (menu 1).
2. Press **ENTER** to select. A confirmation screen will be displayed first (menu 2).
3. Press **ENTER** to confirm. Press **EXIT** to cancel the procedure to set the N-S settings to their midposition.



menu 1



menu 2

Undo North-South Settings to Midposition

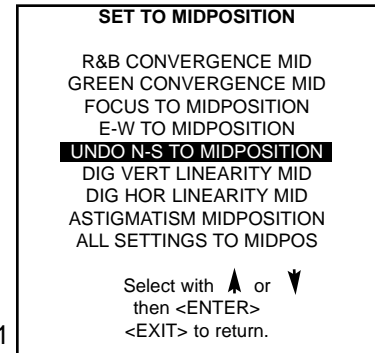
What can be done?

'Undo N-S to midposition' is displayed in the Set Midposition menu instead of 'N-S to midposition' when the latter is pressed. The settings for the N-S can be returned to previous installed settings as long the projector is playing on the same source (= same adjustment block).

How to Undo the N-S to midposition?

1. Push the cursor key \uparrow or \downarrow to highlight 'Undo N-S to midposition' (menu 1).
2. Press **ENTER** undo.

menu 1



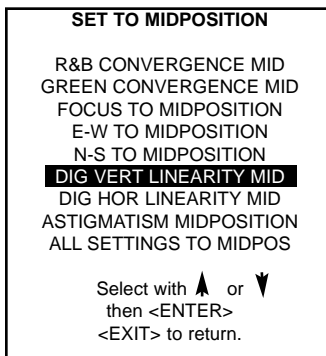
Digital Vertical Linearity to Midposition

What can be done?

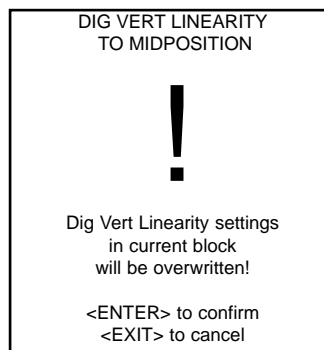
The digital vertical linearity settings for the different areas can be set to their midposition.

How to set the Digital Vertical Linearity to Midposition?

1. Push the cursor key \uparrow or \downarrow to highlight 'Dig Vert Linearity mid' (menu 1).
2. Press **ENTER** to select. A confirmation screen will be displayed first (menu 2).
3. Press **ENTER** to confirm. Press **EXIT** to cancel the procedure to set the Digital Vertical Linearity to their mid position.



menu 1



menu 2

Undo Digital Vertical Linearity to Midposition

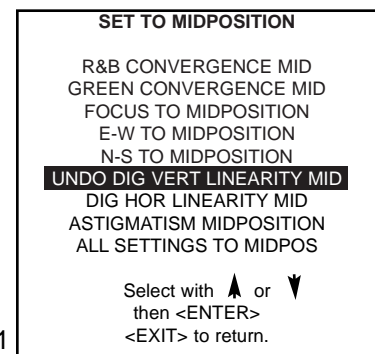
What can be done?

'Undo digital vertical linearity to midposition' is displayed in the Set Midposition menu instead of 'Dig Vert Linearity to midposition' when this latter is pressed. The settings for the dig vert linearity can be returned to previous installed settings as long the projector is playing on the same source (= same adjustment block).

How to undo the digital vertical linearity to midposition?

1. Push the cursor key \uparrow or \downarrow to highlight 'Undo Dig Vert Linearity to midposition' (menu 1).
2. Press **ENTER** undo.

menu 1



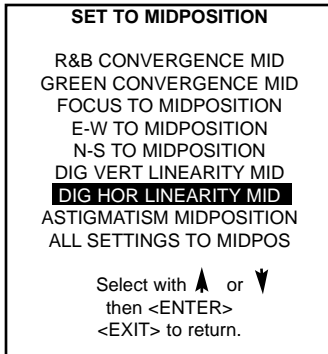
Digital Horizontal Linearity to Midposition

What can be done?

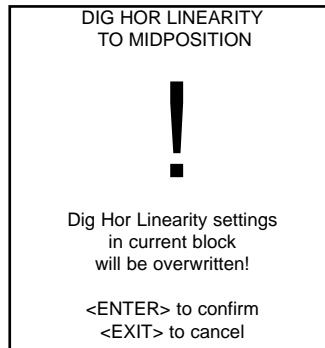
The digital horizontal linearity settings for the different areas can be set to their midposition.

How to set the Digital Horizontal Linearity to Midposition?

1. Push the cursor key \uparrow or \downarrow to highlight 'Dig Hor Linearity mid' (menu 1).
2. Press **ENTER** to select. A confirmation screen will be displayed first (menu 2).
3. Press **ENTER** to confirm. Press **EXIT** to cancel the procedure to set the Digital horizontal linearity to their midposition.



menu 1



menu 2

Undo Digital Horizontal Linearity to Midposition

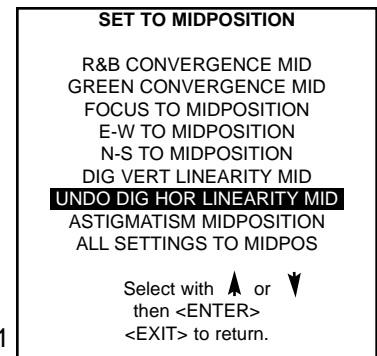
What can be done?

'Undo digital horizontal linearity to midposition' is displayed in the Set Midposition menu instead of 'Dig Hor Linearity to midposition' when the latter is pressed. The settings for the dig hor linearity can be returned to previous installed settings as long the projector is playing on the same source (= same adjustment block).

How to undo the digital horizontal linearity to midposition?

1. Push the cursor key \uparrow or \downarrow to highlight 'Undo Dig Vert Linearity to midposition' (menu 1).
2. Press **ENTER** undo.

menu 1



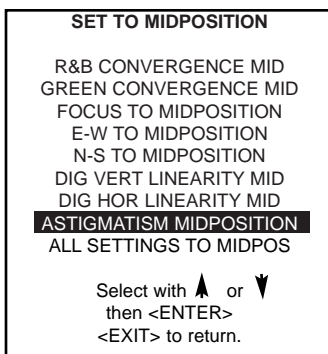
Astigmatism to Midposition

What can be done?

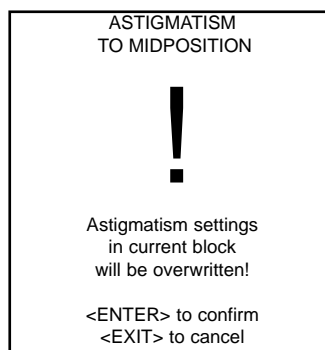
The astigmatism settings for the different areas can be set to their midposition.

How to set the Astigmatism to Midposition?

1. Push the cursor key \uparrow or \downarrow to highlight 'Astigmatism' (menu 1).
2. Press **ENTER** to select. A confirmation screen will be displayed first (menu 2).
3. Press **ENTER** to confirm. Press **EXIT** to cancel the procedure to set the Astigmatism to their midposition.



menu 1



menu 2

Undo Astigmatism to Midposition

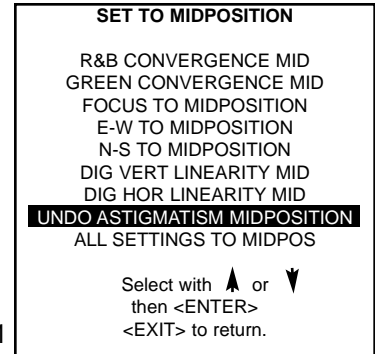
What can be done?

'Undo Astigmatism midposition' is displayed in the Set Midposition menu instead of 'Astigmatism midposition' when the latter is pressed. The settings for the astigmatism can be returned to previous installed settings as long the projector is playing on the same source (= same adjustment block).

How to undo the Astigmatism settings to midposition?

1. Push the cursor key \uparrow or \downarrow to highlight 'Undo Astigmatism Midposition' (menu 1).
2. Press **ENTER** undo.

menu 1



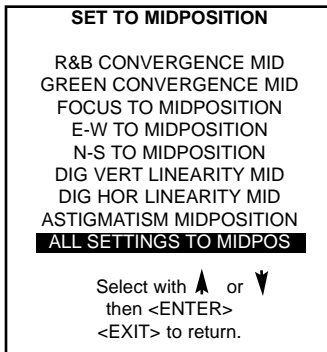
All Settings to Midposition

What can be done?

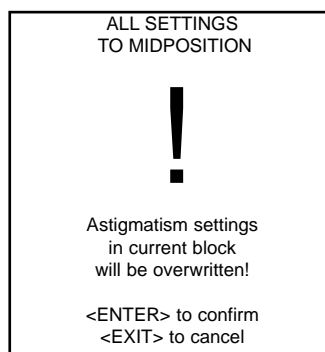
All adjustment settings can be set to midposition.

How to set to midposition?

1. Push the cursor key \uparrow or \downarrow to highlight 'All Settings to Midposition' (menu 1).
2. Press **ENTER** to select. A confirmation menu will be displayed first (menu 2).
3. Press **ENTER** to confirm. Press **EXIT** to cancel the operation 'set all settings to their midposition'.



menu 1



menu 2

Undo All Settings to Midposition

What can be done?

'Undo all settings to Midposition' is displayed in the Memory management menu instead of 'All settings to midposition' when the latter is pressed.

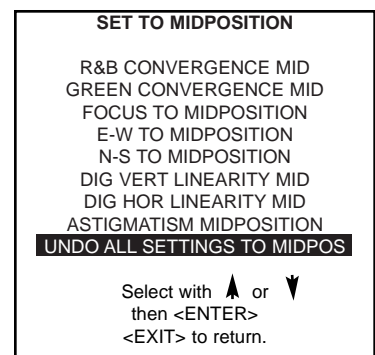
An undo is possible as long as the projector is running on the same source (= same adjustment block) even when some adjustments as geometry or convergence are already readjusted. When undo is pressed all settings are reset to the previous settings.

How to cancel 'Set to midposition'?

When "All settings to midpos" is selected, all settings are set to their midposition. To cancel this action:

1. Push the cursor key \uparrow or \downarrow to highlight 'Undo All Settings to midpos' (menu 1).
2. Press **ENTER** to cancel the set to midposition action.
Press **EXIT** to cancel the procedure 'undo set to midposition'.

menu 1



Common Settings

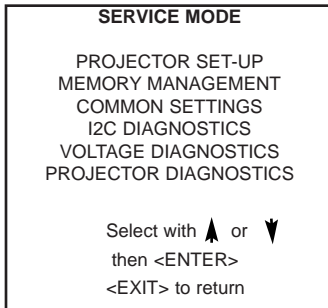
What can be done?

Within the common settings menu, the following items can be set up or executed:

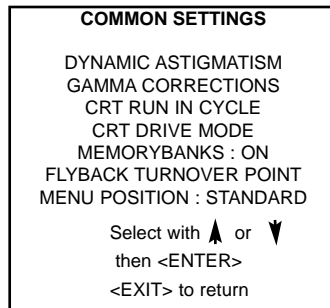
- Dynamic Astigmatism
- Gamma Correction
- CRT run in cycle
- CRT Drive mode
- Memory banks : on/off
- Flyback turnover point
- Menu Position : standard/middle

How to select?

1. Push the cursor key \uparrow or \downarrow to highlight 'Common Settings' (menu 1).
2. Press ENTER to select. The common settings menu will be displayed (menu 2)



menu 1

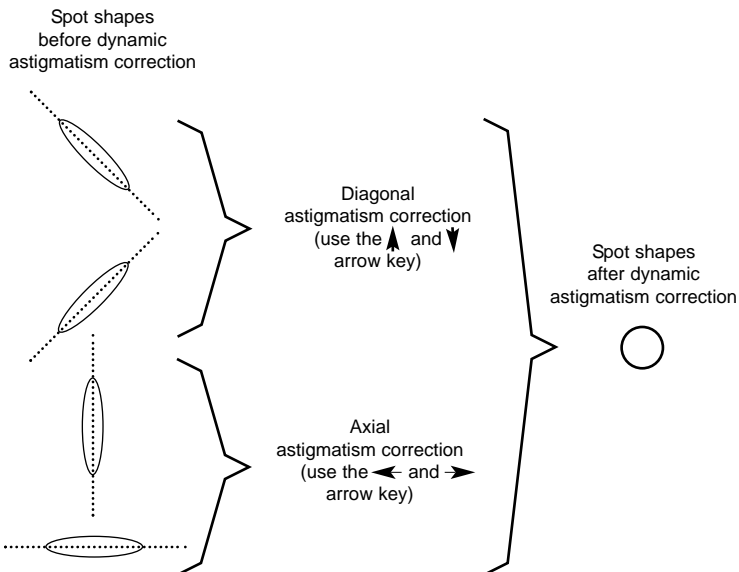


menu 2

Dynamic Astigmatism

What can be done?

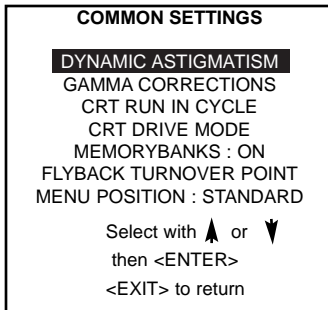
The spot shape adjustments correct the spot shape in 25 different areas on the screen for the three colors separately. The spot shape is adjusted according to the axial axes and the diagonal axes when using the cursor keys on the Remote. These adjustments have to be done on a dot pattern (external source or genlocked pattern).



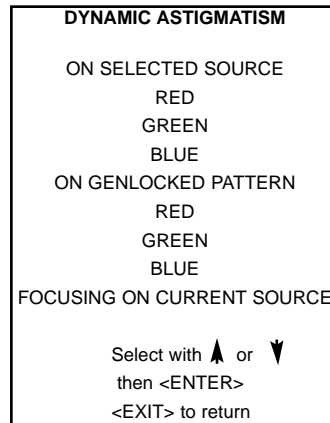
Start Up

To start up the dynamic astigmatism:

1. Push the cursor key \uparrow or \downarrow to highlight 'Dynamic Astigmatism' (menu 1).
2. Press **ENTER** to display the dynamic astigmatism menu (menu 2). The dynamic astigmatism can be adjusted on the selected source or on pattern lock on the selected source (genlocked pattern). The way of adjusting is the same for both ways and for each color. The explanation will only be given for one color.



menu 1



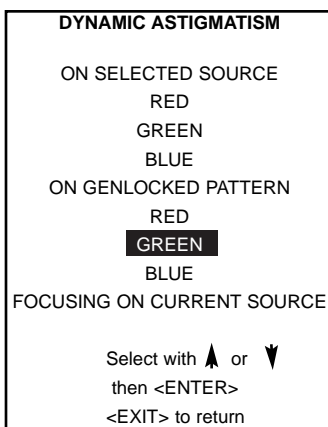
menu 1

How to adjust?

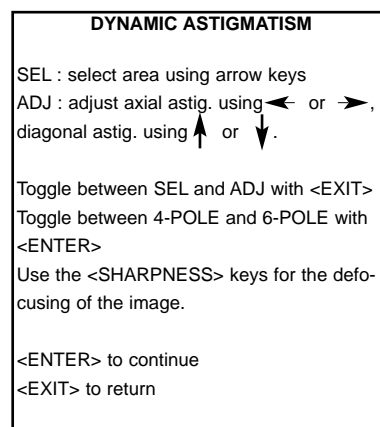
The adjustment of the dynamic astigmatism is done on the selected source or genlocked pattern and for each color separately. The menu will be displayed hereafter for a genlocked pattern on the green image.

To adjust, follow the next procedure:

1. Push the cursor key \uparrow or \downarrow to highlight 'green' under Genlocked Pattern (menu 1).
2. Press **ENTER** to display the dynamic astigmatism adjustment menu (menu 2).
The screen is divided into 25 areas (5 x 5) (menu 3). In each area, the spot shape can be adjusted.
3. Use the cursor keys to select the desired area.
4. Increase the contrast level using the Contrast Control to near maximum. Using the "+" Sharpness Key, defocus the image until the dots are large and easily visible.



menu 1



menu 2

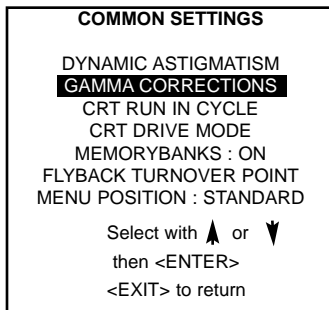
5. Press EXIT to toggle the cursor keys from selection keys to adjustment keys.
6. Adjust first the 4 pole correction. Adjust the spot shape in the axial or diagonal direction, using the cursor keys. Adjust until the spot shape is circular. Use the cursor key \uparrow or \downarrow for the diagonal astigmatism adjustment and the cursor key \leftarrow or \rightarrow for the axial astigmatism adjustment.
7. Press ENTER to toggle from the 4 pole correction to the 6 pole correction or vice versa.
8. Adjust the spot shape again using the cursor keys.
9. Press EXIT to return to the area selection screen.
10. Repeat from step 3 as many times as necessary.

Gamma Corrections

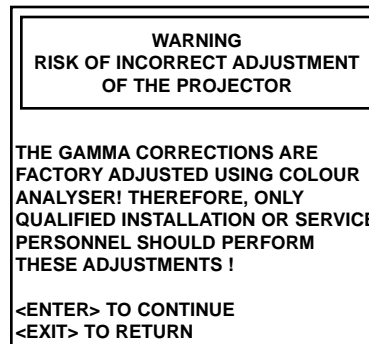
Start Up

To start up the gamma corrections :

1. Push the cursor key ↑ or ↓ to highlight 'Gamma Corrections' (menu 1).
2. Press ENTER to start up. A warning screen will be displayed (menu 2).



menu 1



menu 2

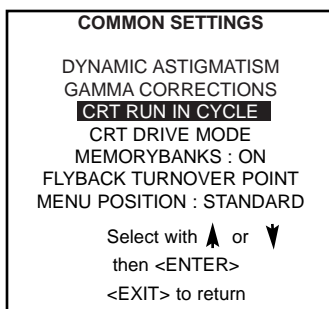
CRT Run In Cycle

What can be done?

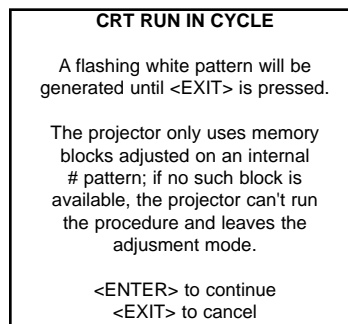
Only necessary when a new picture tube is installed or when CRT arcing continues. The CRT run in cycle option can only be activated when memory blocks on an internal # pattern are available. When one or more such blocks are available, a flashing white image (5 sec on, 5 sec off) is generated and then for 5 min on the first internal block. In the next 5 min, a second internal block will be used to generate the flashing white image. The image will also be shifted in a vertical way to prevent a CRT burn in. To quit the CRT run in cycle option, press EXIT.

How to select CRT run in cycle?

1. Push the cursor key ↑ or ↓ to highlight 'CRT run in Cycle' (menu 1).
2. Press **ENTER** to start up. If a memory block adjusted on an internal # pattern is available, the CRT run in cycle will start. If no such a block is available, the projector cannot run the CRT run in option and leaves the adjustment mode. If you still want to run CRT run in cycle, create first a memory block on an internal # pattern and restart the CRT run in option.



menu 1



menu 2

CRT Drive Mode

What can be done?

The projector CRT's can be driven with the normal current (normal mode), a lower current (economic mode) or with a higher current (boost mode). The higher the current, the higher the light output but the lifetime will shorten.

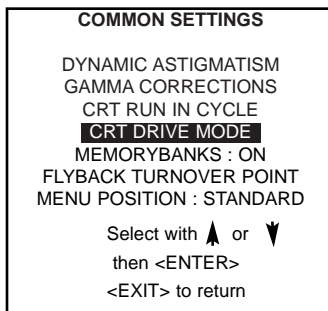
Available drive modes

- Normal
- Economic: Lower drive current to the CRT's, the lifetime of the CRT's will enlarge but the light output will reduce.
- Tempory boost: Higher drive current to the CRT's, the lifetime of the CRT's will shorten but the light output will be higher. This situation is temporary, when restarting the projector, the drive mode is automatically set to normal.
- Permanent boost: Higher drive current to the CRT's, the lifetime of the CRT's will shorten but the light output will be higher. This setting will be saved in the EEPROM. When restarting the projector, it will start up in boost mode.

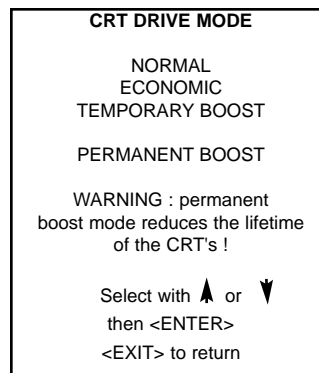
How to change the drive mode?

To change the drive mode:

1. Push the cursor key \uparrow or \downarrow to highlight 'CRT Drive Mode' (menu 1).
2. Press **ENTER** to display the CRT Drive mode menu (menu 2).
3. Push the cursor key \uparrow or \downarrow to highlight the desired drive mode (menu 3).
2. Press **ENTER** to activate the selected drive mode.



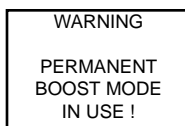
menu 1



menu 2

CRT Drive Mode Warning

A warning, permanent BOOST mode in use, will be displayed to inform the user. When text is on, this warning will be repeated every time a new source is selected.



Memory Banks

What can be done?

The user has the possibility to create 8 different memory banks (formats) for each source. But, the maximum allowed quantity of memory banks for all sources together is 32.

The option to create different memory banks for the same source can be switched ON or OFF.

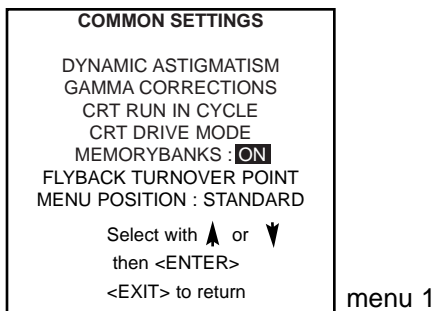
How to select Memory Banks?

1. Push the cursor key ↑ or ↓ to highlight 'Memory Banks' (menu 1).
2. Press **ENTER** to toggle between ON and OFF.

ON : different memory banks available.

OFF : only one memory bank available.

If different memory banks are available for a source and the memory bank option is toggled to OFF, only the first memory bank will be used to display the source.



How to create a new memory bank?

1. Select your source. The projector selects the last used memory bank.
2. Press **ENTER**
3. Push the corresponding digit (between 1 and 8) of a non existing memory bank. (The memory banks can be created in random order, e.g. first creating bank 5 and later bank 2.)
4. Make the necessary adjustments. When leaving the source, the new created memory bank will be saved for later use.

Example: When source 1, video 15.6 kHz /60Hz is create on bank 4 and the vertical frequency changes to 50Hz, the projector will create a new block (due to the vertical frequency change) with the same bank number 4.

How to recall a specific memorybank for the actual source?

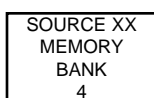
When the memory bank option is ON and a source is selected, this source will be displayed with the last used memory bank settings.

An on-screen menu will give a indication of the memory bank nummer used (menu 1).

To switch to another memory bank :

1. Press **ENTER** to select the next memory bank in increasing order.
or
2. Enter the number of the desired memory bank with the digit keys.

In both cases, the on-screen indication will be update.



Flyback Turnover Point

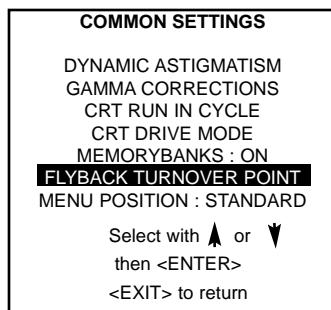
What can be done?

The horizontal flyback time for horizontal frequencies can be long or short. The turnover point from long to short can be installed by the user himself.

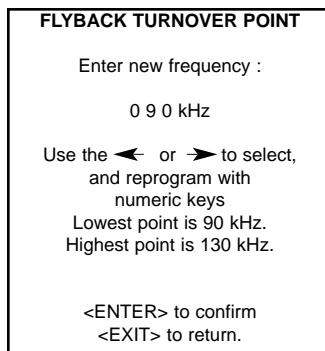
Set Up of the Flyback Turnover Point

To set up the flyback turnover point:

1. Push the cursor key \uparrow or \downarrow to highlight 'Flyback turnover point' (menu 1).
2. Press **ENTER** to display the flyback turnover point (menu 2).
The actual turnover point frequency will be filled in.
3. Select the digits with the left or right cursor keys and enter the new value with the digit keys on the Remote.
The flyback turnover point frequency should be somewhere between 90 kHz and 130 kHz.
4. Press **ENTER** to select.



menu 1



menu 2

Menu Position

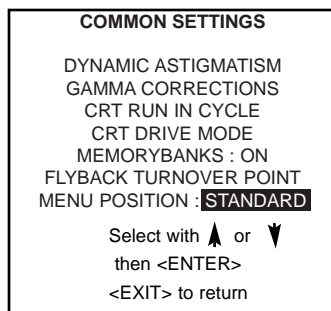
What can be done?

The bar scale menu, warning and message boxes can be displayed in the right lower corner or in the middle of the screen.

How to change the position?

To change the position:

1. Push the cursor key \uparrow or \downarrow to highlight 'Menu position' (menu 1).
2. Press **ENTER** to toggle between STANDARD or MIDDLE.



menu 1

12C Diagnostics

What can be seen?

The I2C diagnostics menu gives an overview of the I2C failures inside the projector.

To scroll through the failure list, push the cursor key \uparrow or \downarrow .

The I2C address, IC number and module name will be given in I2C diagnostic menu.

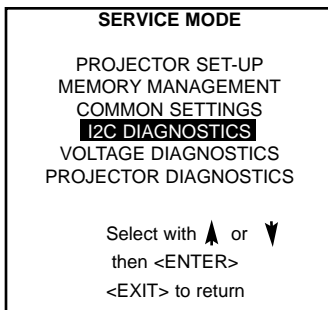
When no errors are detected, the following message will appear on the screen:

"No errors on i2c-bus detected".

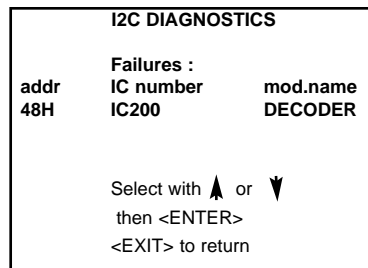
How to select?

1. Push the cursor key \uparrow or \downarrow to highlight 'I2C Diagnostics' (menu 1).

2. Press **ENTER** to display the diagnostic menu (menu 2).



menu 1



menu 2

Voltage Diagnostics

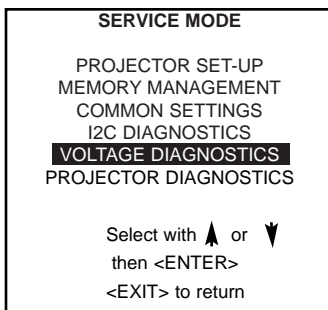
What can be seen?

The real value of the different voltages will be displayed on the voltage diagnostics menu.

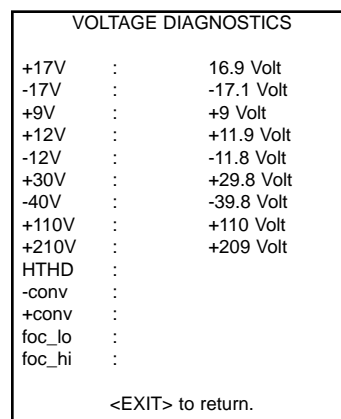
How to start up?

1. Push the cursor key \uparrow or \downarrow to highlight 'Voltage diagnostics' (menu 1).

2. Press **ENTER** to display the voltage diagnostic menu (menu 2).



menu 1



menu 2

Projector Diagnostics

What can be seen?

A log of the last 5 failures with the run time when the failure happened is documented in the Projector Diagnostics.

How to display the Projector Diagnostics?

1. Push the cursor key \uparrow or \downarrow to highlight 'Projector diagnostics' (menu 1).
2. Press **ENTER** to display the projector diagnostic menu (menu 2). The last failure will be displayed.
3. Use the cursor keys to scroll through the failure log.
4. Press **ENTER** to switch to the voltage diagnostics (menu 3).
5. Press **EXIT** to return to the projector diagnostics menu.

```
SERVICE MODE
PROJECTOR SET-UP
MEMORY MANAGEMENT
COMMON SETTINGS
I2C DIAGNOSTICS
VOLTAGE DIAGNOSTICS
PROJECTOR DIAGNOSTICS

Select with  $\uparrow$  or  $\downarrow$ 
then <ENTER>
<EXIT> to return
```

menu 1

```
PROJECTOR DIAGNOSTICS
Failure nr : 2
Runtime : 180h 30 min
Projector block nr : 4

Coincidence : ON
Deflection : OFF

SF      : yes      EHT fail : no
SF vert : no      HD EHT  : no
SF hor  : no      Fan Fail : yes
IBCL fail : no

Arrow keys to scroll,
<ENTER> to see the voltages,
<EXIT> to return.
```

menu 2

```
VOLTAGE DIAGNOSTICS
+17V : 16.9 Volt
-17V : -17.1 Volt
+9V  : +9 Volt
+12V : +11.9 Volt
-12V : -11.8 Volt
+30V : +29.8 Volt
-40V : -39.8 Volt
+110V : +110 Volt
+210V : +209 Volt
HTHD  :
-conv :
+conv :
foc_lo :
foc_hi :

<EXIT> to return.
```

menu 3

PROGRAMMABLE FUNCTION KEYS

Programmable Function Keys

What can be done with these keys?

The five function keys on top of the remote control can be programmed as short cut keys (quick access) to almost any adjustment function. See list further in this chapter.

How can a Function Key be programmed?

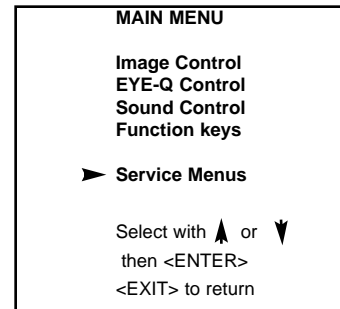
A function key can only be programmed when in the service menus.

Perform the following:

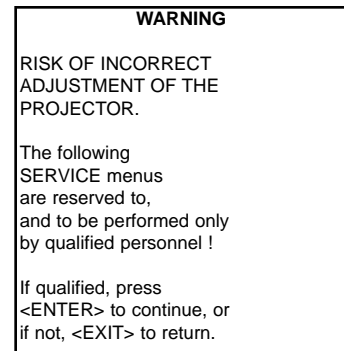
1. Scroll through the menus until the desired function is on the menu.
2. Select this function by pushing the cursor keys up or down.
3. Press the desired function key for this function.
The following message: "Programming Function Key Fx" will be displayed.
The message will disappear automatically and the function key is programmed.
4. Leave the adjustment mode by pressing ADJUST.
5. The function key is available in the operational mode.

e.g. programming horizontal phase on key F4.

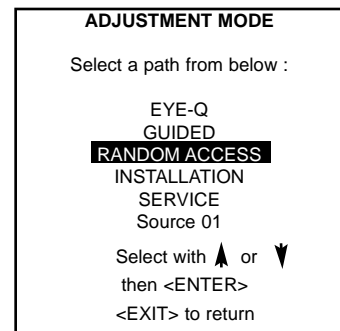
1. Press **ADJUST** to enter the main menu (menu 1).
2. Push the cursor keys **↑** or **↓** to select 'Service menu'.
3. Press **ENTER** to go into the adjustment menus.
A warning will be displayed (menu 2).
4. If qualified, press **ENTER** otherwise press **EXIT** and call for technical assistance.
5. Select Random by pushing the cursor keys **↑** or **↓**.
6. Press **ENTER** to display the Random Access mode menu (menu 3).
7. Push the cursor keys **↑** or **↓** to select 'Geometry'.
8. Press **ENTER** to display the Geometry menu (menu 4).
9. Push the cursor keys **↑** or **↓** to select H PHASE (menu 4).
10. Press 'F4' to program this key.
11. Press **ADJUST** to return to operational mode.



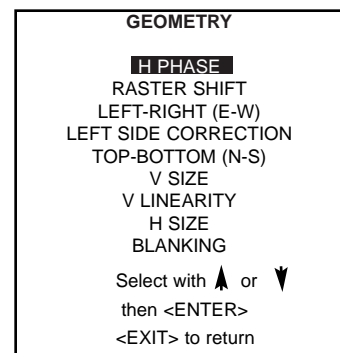
menu 1



menu 2



menu 3



menu 4

MESSAGES, WARNINGS AND FAILURES

<p>INPUT 01 RGB2 Fh= 15.6 kHz Fv= 050 Hz</p>	<p>When selecting a new source, information about this source will be displayed on the screen. Source number, horizontal and vertical frequencies of the displayed source.</p>	<p>WARNING : source not available</p>	<p>The input is a valid input but the source is not connected to the input terminals or the input source is switched off.</p>
<p>SOURCE 01 RGB2</p>	<p>Announcement of the selected source.</p>	<p>WARNING : invalid key entry</p>	<p>When a wrong key is pressed on the Remote.</p>
<p>enter password x x x x</p>	<p>Message to enter your password. Password contains 4 digits.</p>	<p>WARNING : end of adjust range</p>	<p>End of adjustment range.</p>
<p>TEXT on SOURCE 01 RGB2 xxxkHz xxHz</p>	<p>These messages will be displayed on the screen when pushing the TEXT key. Text ON : the 'bar scale indication' will be enabled during the change of an analog control in the 'operational mode' + all warnings and failures will be displayed.</p>	<p>WARNING : input no longer available</p>	<p>The input source is no longer available.</p>
<p>TEXT off</p>	<p>Text OFF : the 'bar scale indication' will be disabled during the change of an analog control in the 'operational mode' + all warnings and failures will not be displayed.</p>	<p>WARNING : invalid frequency input</p>	<p>The entered frequency or applied frequency of the source is out of the projector's range.</p>
<p>PROJECTOR ADDRESS : 003</p>	<p>Indication of the projector address when activating the 'ADDRESS' button on the Remote with a pencil or other small object.</p>	<p>WARNING : permanent BOOST mode in use !!!</p>	<p>The CRT drive mode is switched to permanent boost.</p>
<p>WRONG PASSWORD !!!</p>	<p>Message when the entered password is wrong.</p>	<p>WARNING : Option not installed !</p>	<p>Option not installed. e.g. Video selected but no decoder installed.</p>
		<p>WARNING : Invalid Code Entry</p>	<p>The entered password is incorrect</p>

FAILURE
I2C error
addr. : 7FH3

Hardware failure. Call a qualified service technician for repair.

FAILURE
short
circuit on
I2C bus

Hardware failure. Call a qualified service technician for repair.

FAILURE
invalid input

Input not valid

FAN FAILED
Projector will
switch off

Projector switched off due to a fan fail.

FAILURE
EYE-Q
configuration failed

Error occurred while configuring the EYE-Q module.

ADJUSTMENT BLOCKS AND SOURCE NUMBERS 90-99

Adjustment Blocks (Memory Blocks)

What are adjustment block?

As the projector is digitally controlled, all geometry and convergence adjustments are stored in the projector's memory as numeric values. These numeric values are used to control digital potentiometers which in turn, control the projector. Each source connected to the projector has a unique set of adjustment data which is automatically downloaded into the projector's digital potentiometers once the source has been selected. This set of adjustment data is referred to as an "adjustment block".

An adjustment table is automatically created for a source when the source is first connected to the projector and the Adjustment mode is entered. If other sources have already been connected to the projector and geometry and convergence adjustments have been performed on these sources, the projector will use Linear Digital Interpolation to create a new block for the new source. This block will provide an initial set of adjustments for the new source that have been calculated by the projector from "previous experience".

The projector's memory has the capacity to store 32 adjustment blocks. The adjustment block consists of two parts, the block header and the data representing the values for all adjustments (eg. Convergence and Geometry) in the projector for the source the block corresponds to. The block header contains the basic characteristics of the source and the projector configuration used to display the source.

Built up of block

<u>Block Header</u>	<u>Example of Block Header</u>
Block Number	01
Source Number	01
Horizontal Frequency	15.6 kHz
Vertical Frequency	50 Hz
Input Type	Video
Scan Switch Configuration	Front/Ceiling

The data representing the various adjustments for the source follows the block header.

Source Numbers 90-99

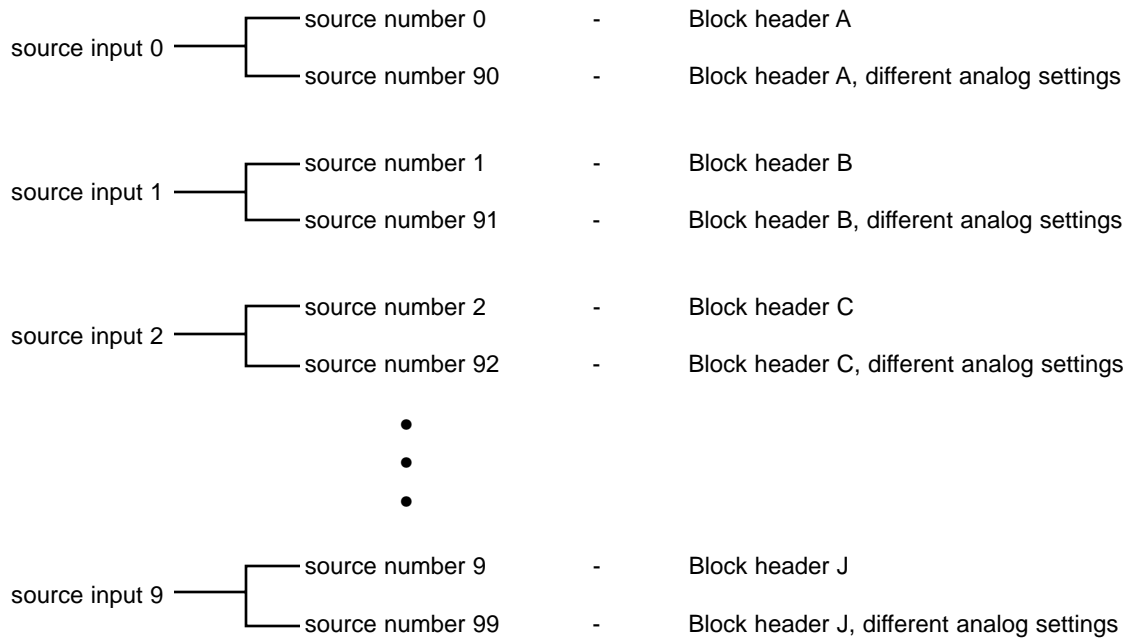
Why used?

Source numbers 90 - 99 are used to assign an additional adjustment block to a source. This additional adjustment block may contain different geometry and convergence settings, sync fast/slow positions and enhanced blue on/off settings. The relationship between source numbers 1 - 5 and 91 - 95 is shown in the diagram on the next page. The alternate adjustment block for sources 1 - 5 is activated by selecting the corresponding source number 1 - 5. Once this source number is selected, the alternate block of adjustment data is in use and may be modified via the adjust mode of the projector. The alternate adjustment block is automatically stored.

How to create a second block?

Follow the steps below to create a second adjustment block for a source between 0 and 9.

1. Select the source between 0 and 9 that the second adjustment block is to be created for.
2. Select the corresponding source number between 90 and 99. The adjustment block for the source number between 0 and 9 is copied to the corresponding source number between 90 and 99.
3. Enter the adjust mode and make any desired changes (geometry, convergence, sync fast/slow, enhanced blue on/off) to the second adjustment block.
4. Exit the adjust mode.



RS-232 CODES

Baud Rate: 9600
Data Length: 8 Bits
Parity: None
Stop Bit: 1

Structure: Hex (nine bytes)

Byte 1 - wake-up command. Always "02"

Byte 2 - command offset. Normally "00", changed if there is another "02" in the command.

Byte 3 - Projector address. Normally "00" will address all projectors.

Byte 4 - Main Command

Byte 5 - additional data

Byte 6 - additional data

Byte 7 - additional data

Byte 8 - additional data

Byte 9 - checksum. Add byte 3 - 8 without offset, then add offset and take last two Bytes.

Power Toggle: 02.00.00.0E.00.00.00.00.0E

Power On: 02.00.00.51.0A.00.00.01.5C

Power Off: 02.00.00.51.0A.00.00.00.5B

Enter: 02.00.00.07.00.00.00.00.07

Exit: 02.00.00.08.00.00.00.00.08

Adjust: 02.00.00.09.00.00.00.00.09

Text Toggle: 02.00.00.0D.00.00.00.00.0D

Cursor Up: 02.00.00.21.00.00.00.00.21

Cursor Down: 02.00.00.22.00.00.00.00.22

Cursor Right: 02.00.00.23.00.00.00.00.23

Cursor left: 02.00.00.24.00.00.00.00.24

Button 0: 02.00.00.10.00.00.00.00.10

Button 1: 02.00.00.11.00.00.00.00.11

Button 2: 02.00.00.12.00.00.00.00.12

Button 3: 02.00.00.13.00.00.00.00.13

Button 4: 02.00.00.14.00.00.00.00.14

Button 5: 02.00.00.15.00.00.00.00.15

Button 6: 02.00.00.16.00.00.00.00.16

Button 7: 02.00.00.17.00.00.00.00.17

Button 8: 02.00.00.18.00.00.00.00.18

Button 9: 02.00.00.19.00.00.00.00.19

Contrast +: 02.00.00.28.00.00.00.00.28
Contrast -: 02.00.00.29.00.00.00.00.29
Brightness +: 02.00.00.2A.00.00.00.00.2A
Brightness -: 02.00.00.2B.00.00.00.00.2B
Color +: 02.00.00.2C.00.00.00.00.2C
Color -: 02.00.00.2D.00.00.00.00.2D
Tint +: 02.00.00.2E.00.00.00.00.2E
Tint -: 02.00.00.2F.00.00.00.00.2F
Sharpness +: 02.00.00.36.00.00.00.00.36
Sharpness -: 02.00.00.37.00.00.00.00.37

All commands are in hex and will be entered differently with each control system.

For example:

Phast = Power On: \$02,\$00,\$00,\$51,\$00,\$00,\$00,\$01,\$5C

AMX= Power On: h02,h00,h00,h51,h00,h00,h00,h01,h5C

Crestron = Power On: \x02\x00\x00\x51\x00\x00\x00\x01\x5C

Pin Configuration: 9-pin din female.

Pin 2 - RXD

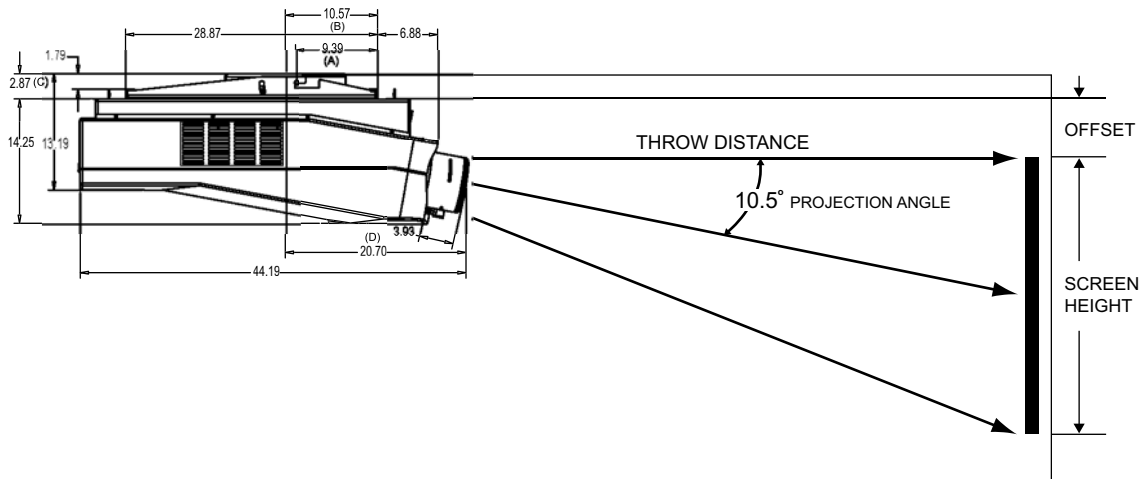
Pin 3 - TXD

Pin 5 - Ground

Straight thru wire configuration

CEILING/FLOOR CONFIGURATION

Ceiling Mount



Overall Dimensions: Length: 44.20 in x Width: 26.77 x Height: 14.25 in.

A = Center of Gravity = 9.39 in.

B = Center = 10.57 in.

C = Bracket Height = 2.87 in.

D = Lens to Center of Bracket = 20.70 in.

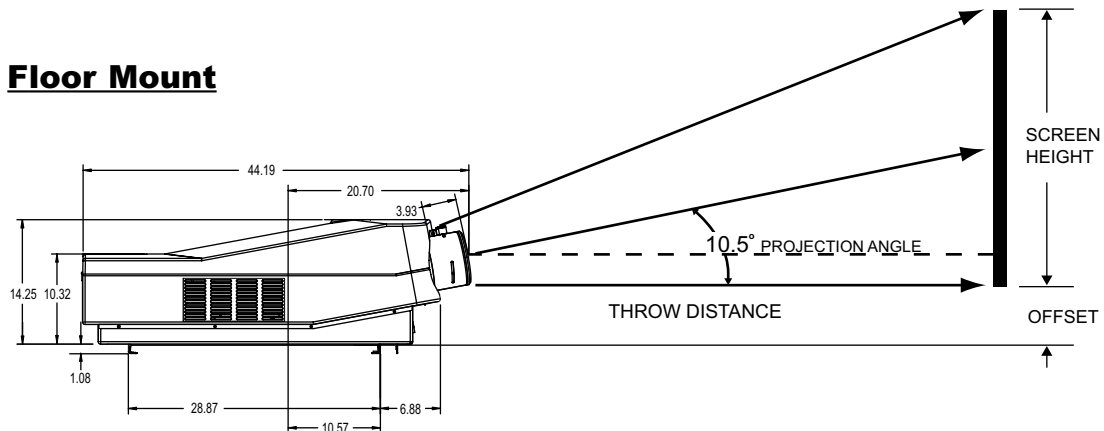
Screen Dimensions _____ H x _____ W

TD = Throw Distance Factors

TD for **16 x 9 screens:** (screen width x 1.43) = _____ inches

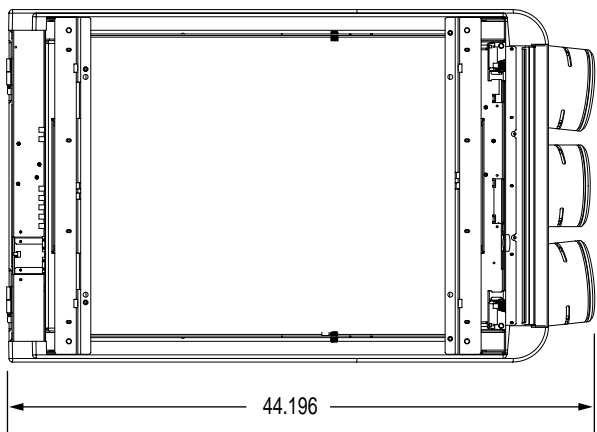
TD for **4 x 3 screens:** (screen width x 1.48) = _____ inches

Floor Mount

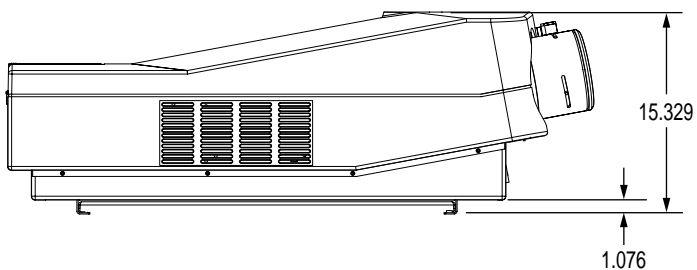


DIMENSIONS

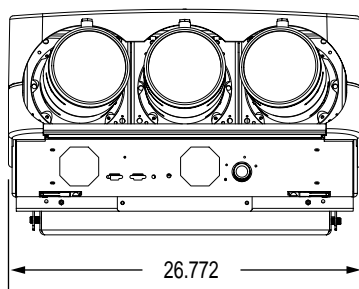
Bottom View



Side View



Front View



SPECIFICATIONS

Scan Frequency:	Horizontal: 32-132 kHz, Vertical: 37-210 Hz
Optical Resolution:	HD-120 lenses, 12 line pairs per, mm, 1250 TV lines
Video Standards:	NTSC/PAL/SECAM
Video Resolution:	1250 TV lines
Retrace Time:	Horizontal: 1.8 uS, Vertical: 300 uS
Bandwidth:	180 MHz
CRTs:	9-inch, high definition, liquid coupled tubes with electromagnetic focus and color filters
Lenses:	Super high definition, fully color corrected F1.15 lenses
Inputs:	RGB/Component
Color Balance:	Four user selectable settings: 3200K, 5400K, 6500K, 9300K, and Custom
Input Memories:	32 separate memories with 8 memories per scan frequency
Internal Setup Pattern:	Crosshatch, Focus
Light Output:	1300 lumens/250 ANSI lumens
Picture Size:	90-300 in. (4:3) diagonal
Throw Distance:	1.43 x width (widescreen), 1.48 x width (standard 4:3)
Vertical Offset:	Maximum vertical offset = 5°
Configurations:	Front or rear, floor or ceiling mount
Aspect Ratios:	Anamorphic, widescreen, 4:3
Contrast Ratios:	100:1 (JIS Method). 20:1 (HDTV Method)
Convergence:	Digital zone convergence with 81 individual zones
Focus:	Digital focus with multiple zones
Power Requirements:	110 VAC, 50/60 Hz (220V International version)
Power Consumption:	800 W
Cabinet Dimensions:	Width: 26.77 in./680 mm Depth: 44.20 in./1123 mm Height: 14.25 in./362 mm (without feet), 15.33 in./389 mm (with feet)
Weight:	187 lbs./85 Kg.
Regulatory Approvals:	Complies with FCC Class "B", CE, C-Tick
Storage:	10-122° F (-12-50° C)
Operating Environment:	32-104° F (0-40° C)
Humidity:	0-90% non-condensing
Included Accessories:	Remote control, AC power cord and Owner's Operating Manual
Warranty:	Service Labor and Parts (except lamp): Runco warrants the product for one (1) year from the date of delivery to the end user. Lamp: 6 months or 1000 hours (which ever comes first).

RUMA-009450 rev 1-02



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