



# Installation



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# INSTALLATION SETUP INSTRUCTION

## Before Installation

### NOTE:

- The ceiling must have sufficient strength to support the projector weight (56 kg/123.4 lbs.)
- To assure safety, when a ceiling bracket is installed, be sure to use the supplied ceiling mounting kit.

The installation procedure is different according to the projection system and screen size. Installation and preliminary adjustments are required as shown on table below.

Projection type	Adjustment Screen size items	Various ad- justments	Polarity change	Decorative lens panel, Spacer and CRT angle change
Ceiling mounting type/Front projec- tion	100 inch	None	None	None (Replace only spacer when changing projection angle)
	other than 100 inch	Yes	None	Yes
Desk top type /Front projection type	100 inch	Yes	Yes	None (Replace only spacer when changing projection angle)
	other than 100 inch	Yes	Yes	Yes
Ceiling mounting /Rear projection	100 inch	Yes	Yes	None (Replace only spacer when changing projection angle)
	other than 100 inch	Yes	Yes	Yes
Desk top type /Rear projection	100 inch	Yes	Yes	None (Replace only spacer when changing projection angle)
	other than 100 inch	Yes	Yes	Yes

**NOTE:** The "100 inch" covers the range of screen size between 75 and 130 inches.

### Note on Installation

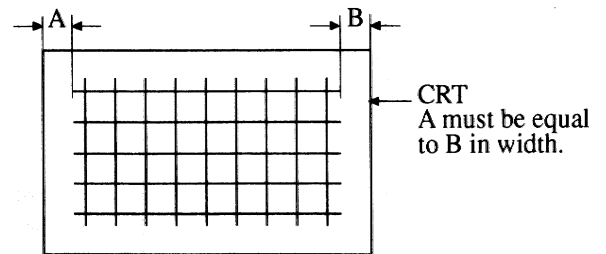
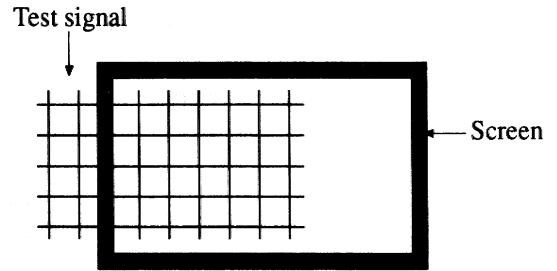
#### ■ Adjusting the centering magnet

If the screen and the raster(the test signal) is not aligned, make sure that they are positioned correctly.

If the test signal is aligned with the screen, and the video signal is not, adjust picture SHIFT.

The projector is factory preset for ceiling mount, 100 inch diagonal screen size. When the projector is used in any other configuration, the screen and raster may not be aligned.

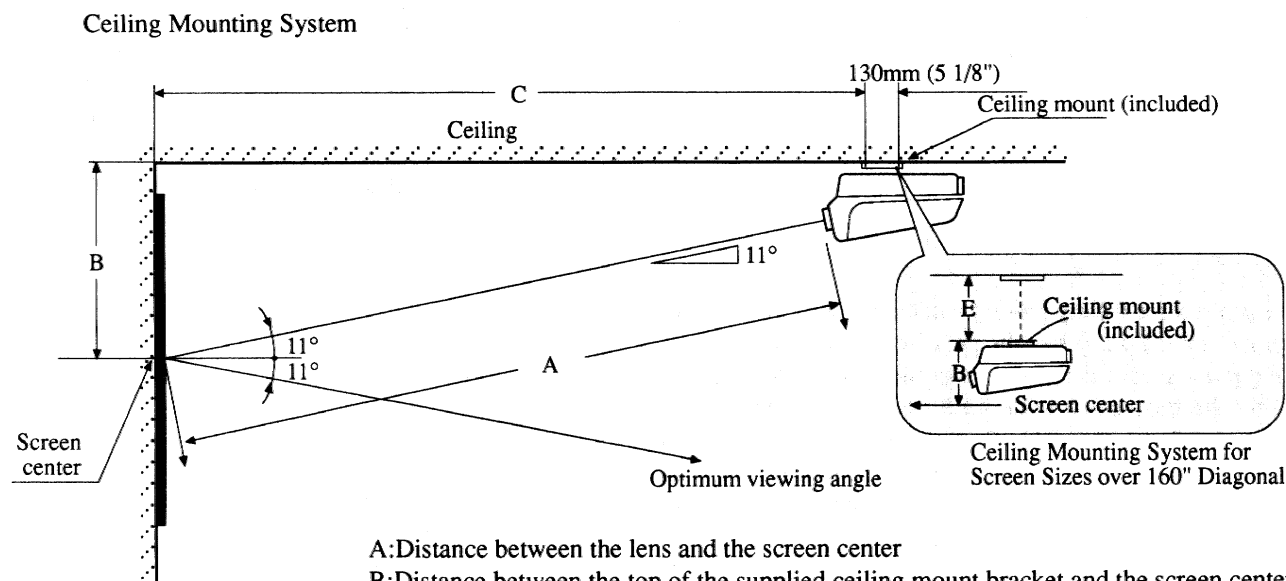
If this happens, look into the CRT and check the test signal. Make sure that A is equal to B. A and B are no test pattern. If A and B are not equal, adjust the centering magnet of the G-CRT so that the green pattern is aligned with the screen. This must be done for the red and blue pattern.



# INSTALLATION SETUP INSTRUCTION

## Projection Distance and Screen Size for Ceiling Mount

- The following shows the relative position relationship of the projector with the screen. See table below.
- See page 2-7 for ceiling mounting instructions.



- A: Distance between the lens and the screen center  
 B: Distance between the top of the supplied ceiling mount bracket and the screen center  
 C: Distance between the wall and the bolt  
 E: Distance between the ceiling and the top of the supplied ceiling mount bracket

	60"screen	100"screen	200"screen	300"screen
A	79 1/8" 2010mm	123 3/8" 3135mm	234 1/8" 5947mm	344 7/8" 8760mm
B	26 3/8" 669mm	34 3/4" 884mm	55 7/8" 1421mm	77" 1958mm
C	85 1/2" 2172mm	129" 3276mm	237 9/16" 6035mm	346 3/16" 8794mm
E	—	—	At least 4 1/8" 103mm	At least 13" 328mm

### NOTE:

- For screen sizes over 160 inch diagonal, the projector will need to be mounted with an adjustable suspension adaptor at a minimum distance from the ceiling equal to E.
- Sizes not found between 60 and 300 inches are determined by the following formula.

Units=inches      S=screen size(diagonal)

$$A=(S/4.8 + 1) \times 5.315 + 7.345$$

$$B=0.191 \times A + 11.22$$

$$C=0.981 \times A + 7.913$$

$$E=1/2 \times \text{screen height} - B$$

Units=mm      S=screen size(diagonal)

$$A=(S/4.8 + 1) \times 135 + 187$$

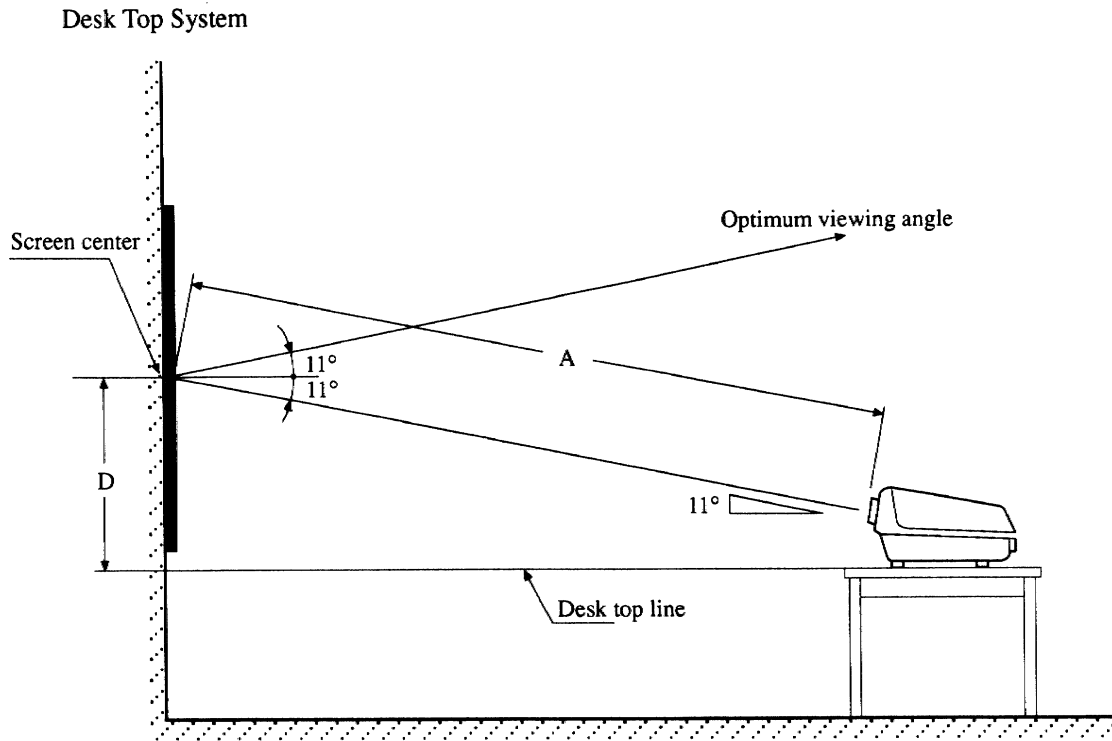
$$B=0.191 \times A + 285$$

$$C=0.981 \times A + 201$$

$$E=1/2 \times \text{screen height} - B$$

## Projection Distance and Screen Size for Desk Top

- The following shows the relative position relationship of the projector with the screen. See table below.



A: Distance between the lens and the screen center  
D: Distance between the desk top and the screen center

	60"screen	100"screen	200"screen	300"screen
A	79 1/8" 2010mm	123 3/8" 3135mm	234 1/8" 5947mm	344 7/8" 8760mm
D	23 15/16" 609mm	32 3/8" 824mm	53 9/16" 1361mm	74 11/16" 1898mm

### NOTE:

- Sizes not found between 60 and 300 inches are determined by the following formula.

Units=inches S=screen size(diagonal)

$$A = (S/4.8 + 1) \times 5.315 + 7.345$$

$$D = 0.191 \times A + 8.858$$

Units=mm S=screen size(diagonal)

$$A = (S/4.8 + 1) \times 135 + 187$$

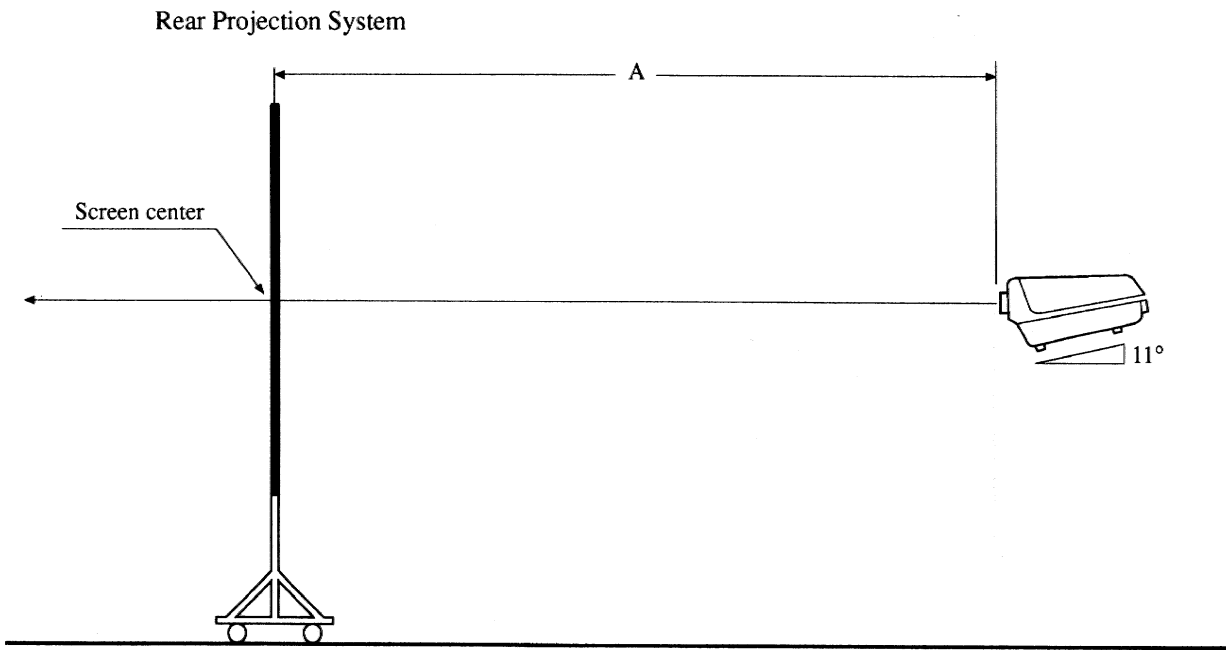
$$D = 0.191 \times A + 225$$

- When changing from ceiling mounting to desk top use, turn over the plate with the NEC trademark in the rear of the top cover. Push the catch from the inside and remove the plate. Install it in the opposite manner.

INSTALLATION SETUP INSTRUCTION

Projection Distance and Screen Size for Rear Projection

The following shows the relative position relationship of the projector with the screen.  
See table below.



A:Distance between the lens and the screen center

	60"screen	100"screen	200"screen	300"screen
A	79 1/8" 2010mm	123 3/8" 3135mm	234 1/8" 5947mm	344 7/8" 8760mm

**NOTE:**  
Sizes not found between 60 and 300 inches are determined by the following formula.

Units=inches    S=screen size(diagonal)  
 $A=(S/4.8 + 1) \times 5.315 + 7.345$

Units=mm    S=screen size(diagonal)  
 $A=(S/4.8 + 1) \times 135 + 187$

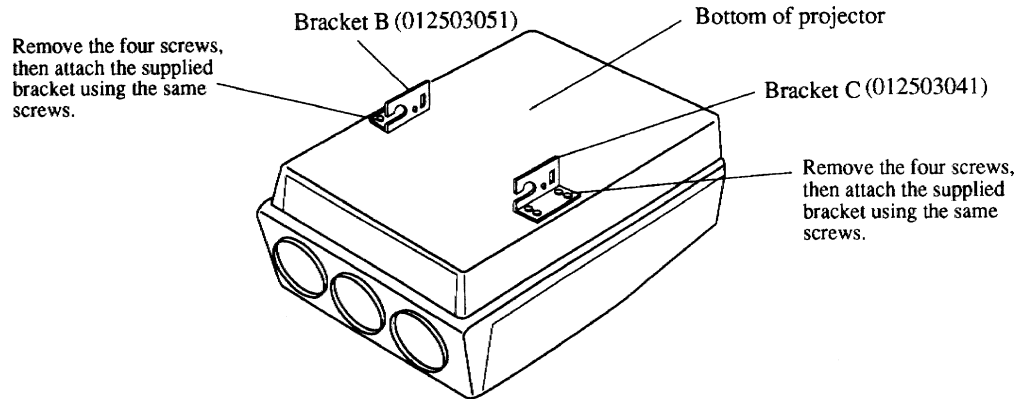
## Ceiling Installation

### NOTE:

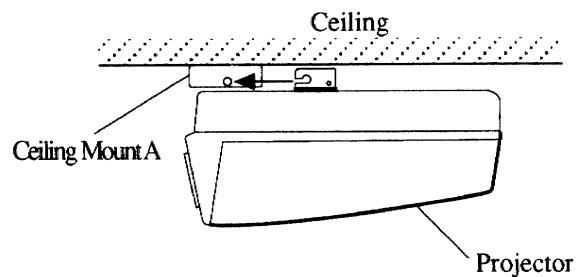
- The ceiling must have sufficient strength to support the projector weight (56 kg/123.4 lbs)
- To assure safety, when a ceiling bracket is installed, be sure to use the supplied ceiling mounting kit. Bolts and nuts must be tightened securely.

To install the projector on the ceiling, proceed as follows:

- ① Determine the relative relationship between the projector and the screen according to the screen size. (See page 2-4)
- ② Attach brackets B and C to the bottom of the projector.



- ③ Line up the projector brackets with the protruding section of ceiling mount A and slide the projector into place.

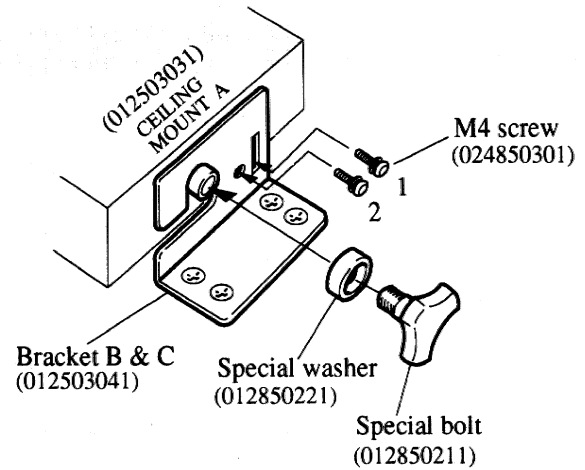


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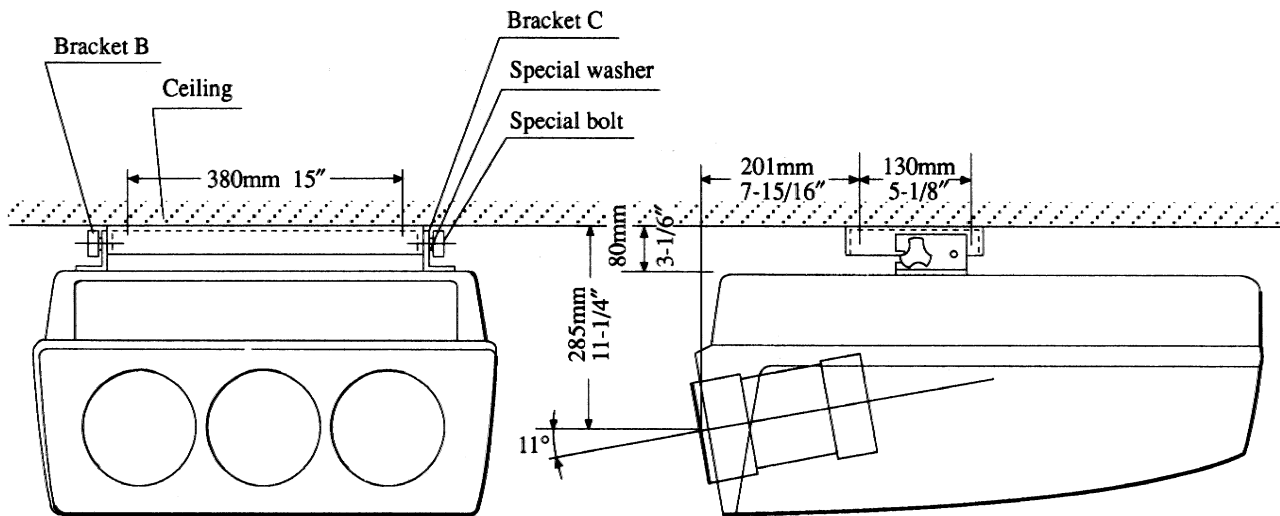
## INSTALLATION SETUP INSTRUCTION

- ④ Install the special bolt and the M4 screws as shown in the drawing on the right.

- M4 screws are used to adjust the projection angle. If mounting for 11 projection angle, the bottom face of the projector is set parallel to the ceiling, attach two M4 screws(1 and 2) to each B and C bracket as shown in the diagram below. If setting for other than a 11 projection angle, attach only one M4 screw(1) to the outer slot of each B and C bracket.



Drawing for projector attached to ceiling installation position



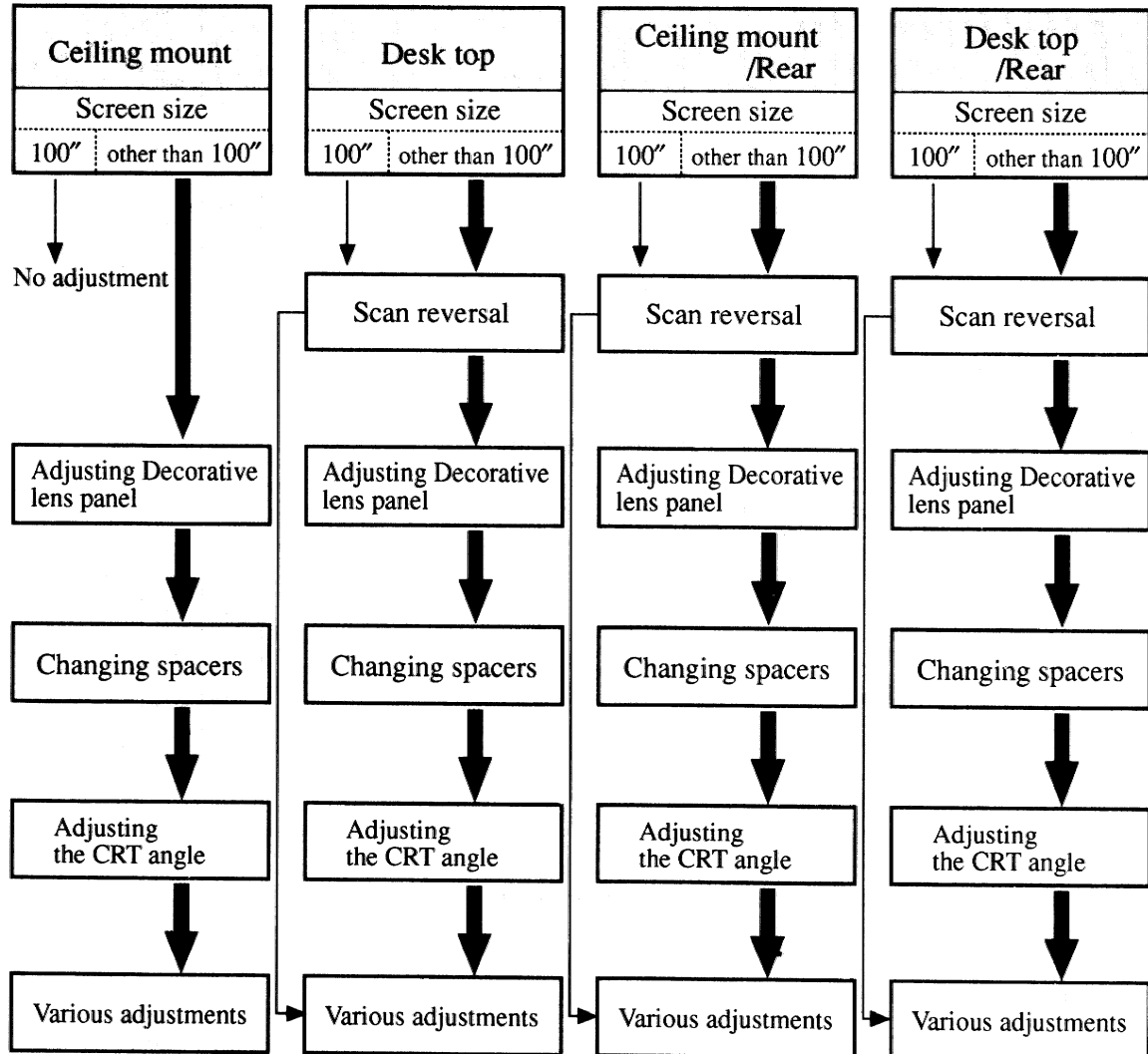


# PROJECTION CONFIGURATION CHANGE \_\_\_\_\_

## Before Installation Change

The projector is electrically and mechanically set for 100 inch diagonal screen, front throw ceiling mount and a projection angle of 11 degrees. If your application is different from the factory setting (for example, ceiling to floor and screen size between 60 and 300 inch), you will have to reconfigure the projector for your application. Perform the change procedures according to the flow chart below.

### ■ Flow chart for change procedures



\* You should notice that spacers for 100" will have to be replaced when the projection angle is changed.

**NOTE:** The "100 inch" covers the range of screen size between 75 and 130 inches.

## PROJECTION CONFIGURATION CHANGE

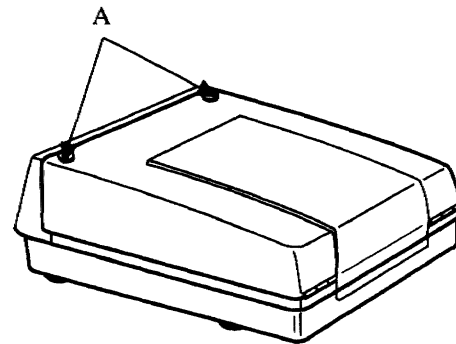
### Opening Top Cover

**NOTE:**

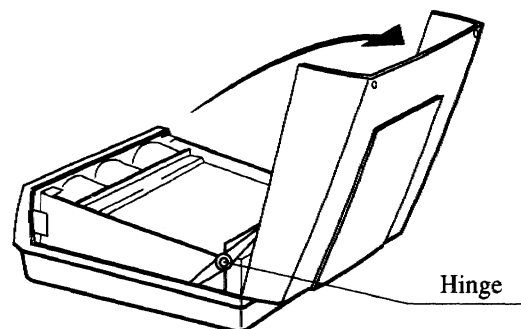
- Be sure to turn off the projector and unplug the power cord before opening the top cover.

To open the top cover, proceed as follows:

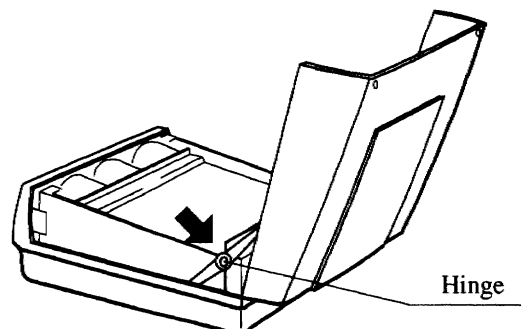
- ① Loosen two screws A.
  - Screws A are a retaining screw.



- ② Raise the top front of the projector in the direction of the arrow.
  - Be sure to open the top cover until the hinges lock.



- ③ To close it, push the hinges in the direction of the arrow, then, close the top cover.
- ④ Tighten the two A screws.



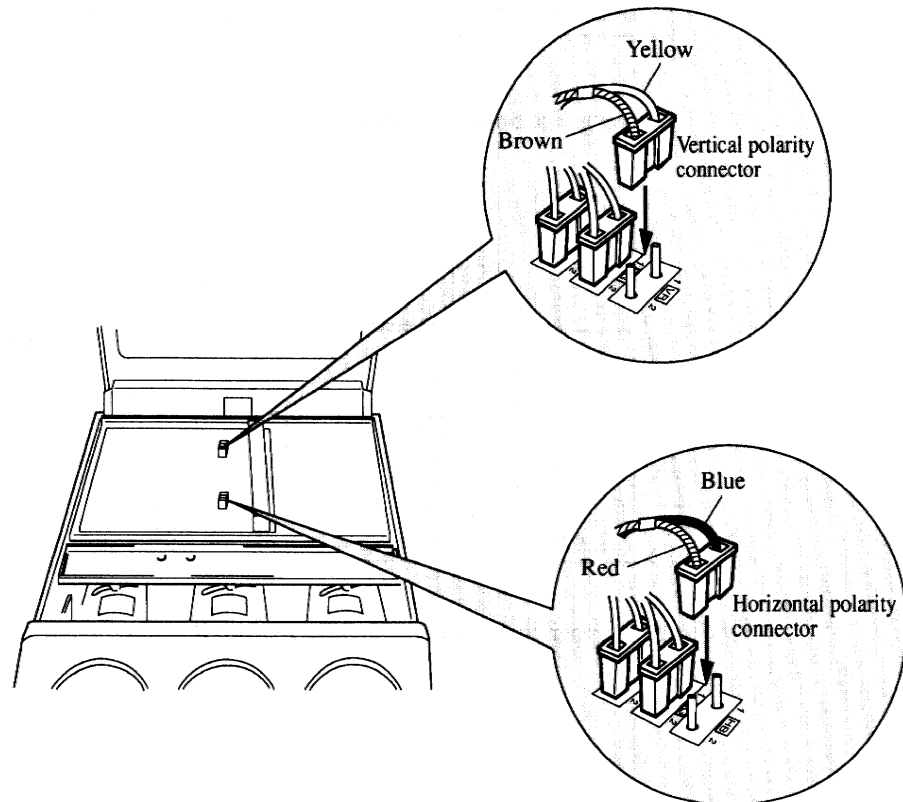
## Scan Reversal

You will have to reverse the horizontal, vertical and convergence polarity when changing the installation. To reverse the scan, proceed as follows:

- ① Open the top cover.
  - See Opening Top Cover section.
- ② Reverse the vertical and horizontal scan.
  - To reverse the scan there are two sets of plugs on the sweep board. VR, VG and VB are the vertical connectors (V=vertical and RGB=color) and HR, HG and HB are the horizontal connectors (H=horizontal and RGB=color). Remove the plug and turn it 180 degrees, then reinstall. Do this for all three of either horizontal or vertical connectors depending upon your application (See Table below)

Connector pin Setting	HR,HG,HB		VR,VG,VB	
	① Lead	② Lead	① Lead	② Lead
Ceiling front	Blue	Red	Yellow	Brown
Desk top front	Red	Blue	Brown	Yellow
Ceiling rear	Red	Blue	Yellow	Brown
Desk top rear	Blue	Red	Brown	Yellow

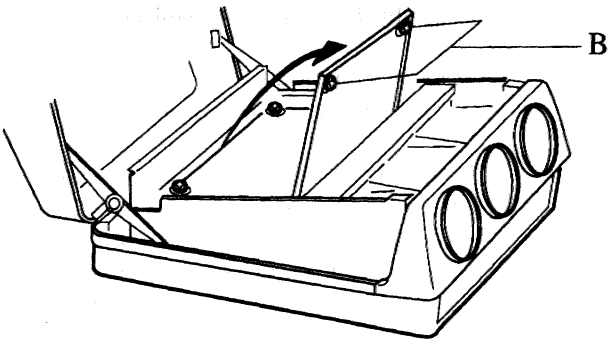
### Horizontal and Vertical polarity



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**PROJECTION CONFIGURATION CHANGE**

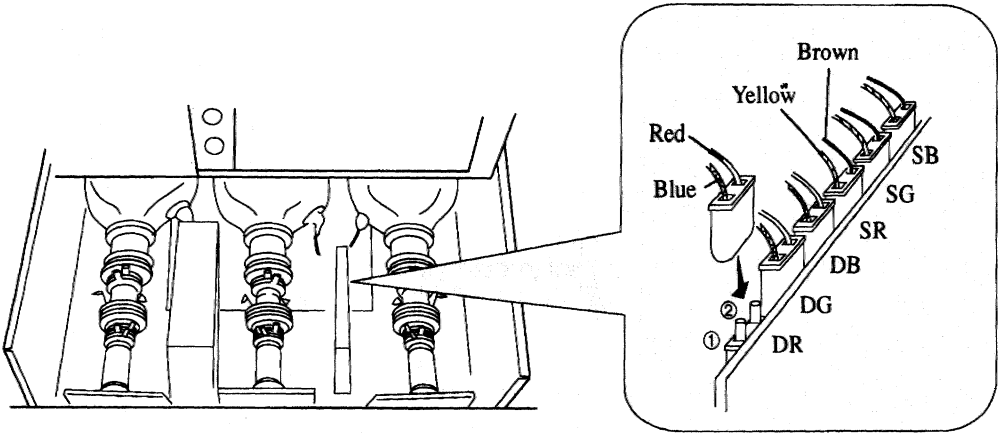
- ③ Loosen screw B, then lift the upper chassis(DFC).
- Screws B are a retaining screw.



- ④ Reverse the convergence connectors(DR, DG, DB, SR, SG and SB) on CONV-DRIVE.  
See Table below.

Connector pin Setting	DR,DG,DB		SR,SG,SB	
	① Lead	② Lead	① Lead	② Lead
Ceiling front	Blue	Red	Yellow	Brown
Desk top front	Red	Blue	Brown	Yellow
Ceiling rear	Red	Blue	Yellow	Brown
Desk top rear	Blue	Red	Brown	Yellow

**Convergence polarity change**



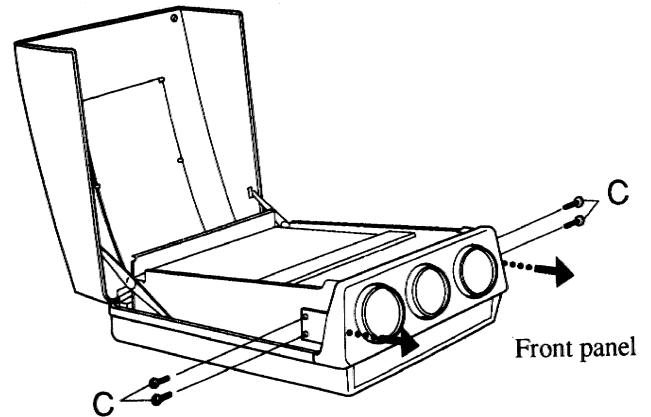
- ⑤ Close the upper chassis(DFC). Tighten the two B screws.

### Adjusting Decorative Lens Panels

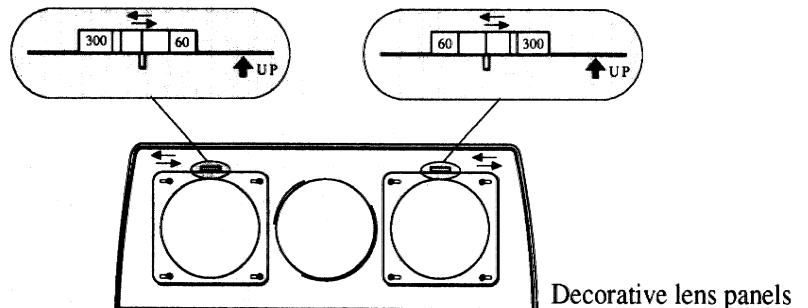
You will need to adjust the decorative lens panels when the screen size is changed from 100" to 60", 200" or 300".

To adjust, proceed as follows:

- ① Open the top cover
  - See Opening Top Cover section.
- ② Remove the front panel.
  - Remove the four screws C which hold the front panel.



- ③ Loosen the screws at the four points on the two left and right decorative lens panels, then slide the panels to match the screen size.
  - Tighten the four screws after completing the above procedures.



- ④ Reinstall the front panel, then replace and tighten the four C screws.

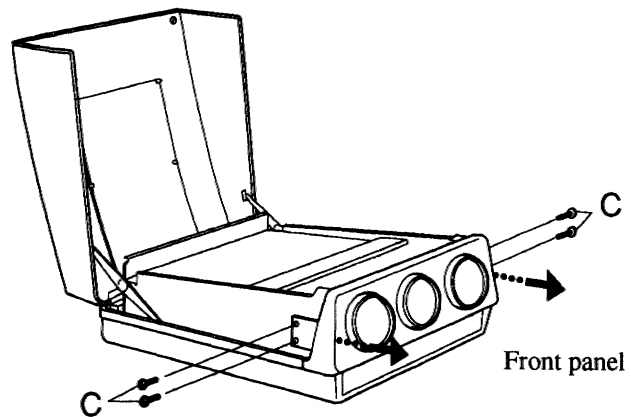
## PROJECTION CONFIGURATION CHANGE

### Changing Spacers

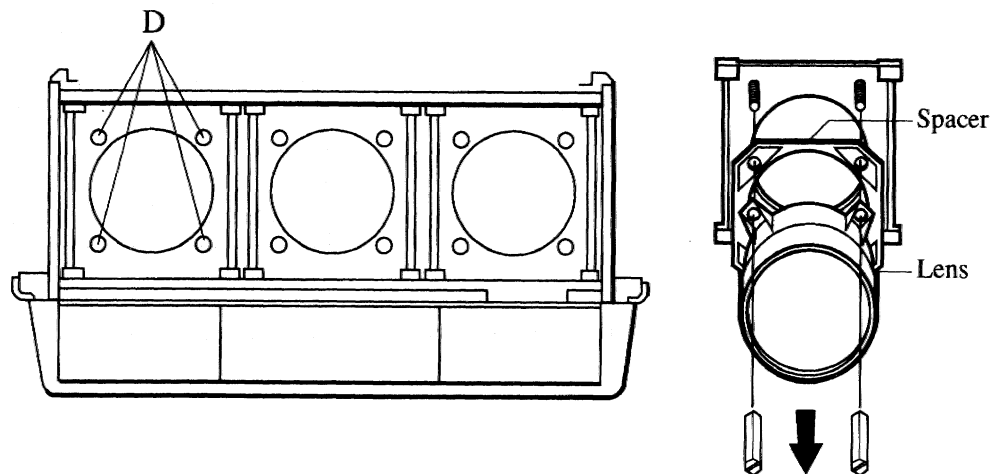
From the factory the projector is set for ceiling mount, 100 inch diagonal screen size and a projection angle of 11 degrees. You will need to change the spacers when the screen size or the projection angle is changed from the factory setting.

To replace the spacers, proceed as follows:

- ① Open the top cover.
  - See Opening Top Cover section.
- ② Remove the front panel.
  - Remove the four screws C which hold the front panel.



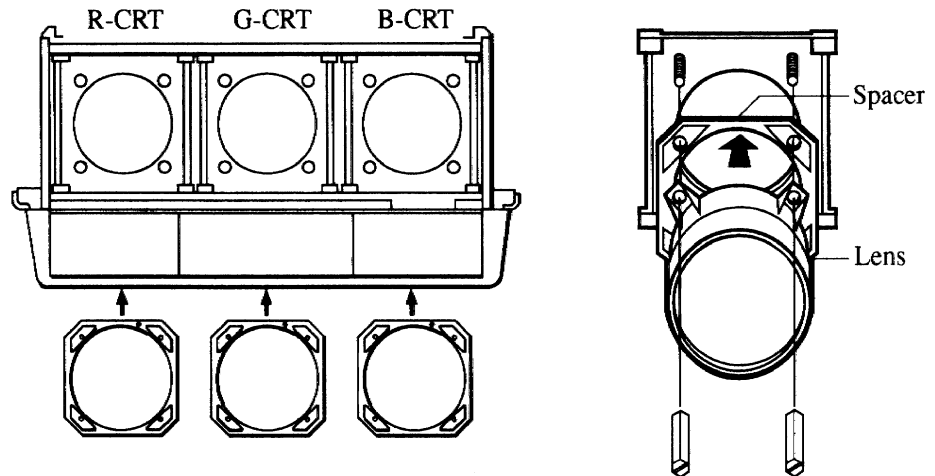
- ③ Remove the lens.
  - Remove the four nuts D in the lens. Do this for all three lenses (red, green and blue).
  - Use caution to prevent damage to the lens during removal of the lens and spacers.



## PROJECTION CONFIGURATION CHANGE

- ④ Replace the original spacers with the spacers you need for your application, then replace the lenses.
- See the table below.

Screen size and Projection angle	CRT	R	G	B	
60" 11°		A (012401971)	D (012402001)	A (012402971)	Accessory
100" 11°		B (012401981)	E (012402011)	B (012401981)	Normal position
200" or over 11°		C (012401991)	F (012402021)	C (012401991)	Accessory
60" 0°		G (012402211)	I (012402231)	G (012402211)	Accessory
100" 0°		H (012402221)	I (012402231)	H (012402221)	Accessory
200" or over 0°		I (012402231)	I (012402231)	I (012402231)	Accessory

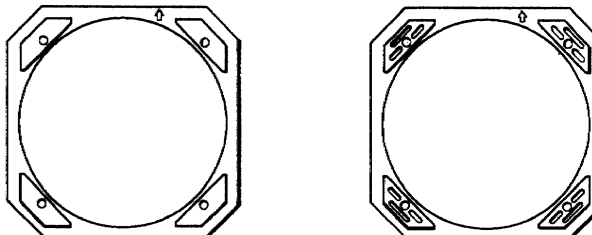


### ■ Installing the spacers

- ① Check that the arrow marker on the spacer is pointing up.
- ② Install.

**NOTE:** The supplied spacers are used for maintaining optimum edge focus for the various screen sizes and projection angles. Each of these spacers are labeled and the table lists above which spacers should be used for any given screen size and angle. For best operation and performance, take the time to install the proper lens spacer for the application.

Spacers

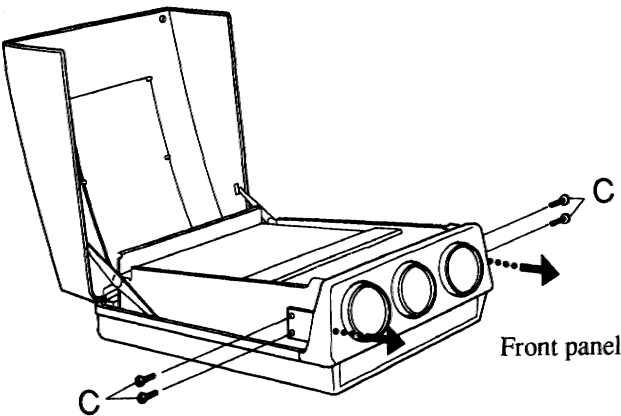


PROJECTION CONFIGURATION CHANGE

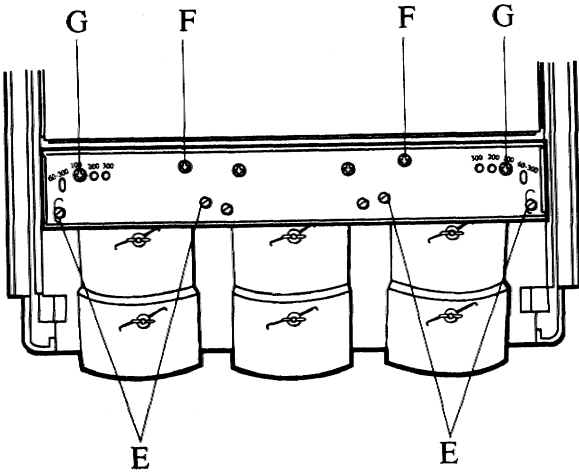
Changing the Angle of the CRTs

From the factory the projector is set for ceiling mount,100 inch diagonal screen size. You will need to change the tube angle when the screen size is changed from the factory setting. To change the angle of the CRT, proceed as follows:

- ① Open the top cover.
  - See Opening Top Cover section.
- ② Remove the front panel.
  - Remove the four screws C which hold the front panel.



- ③ Remove screws G and loosen screws E and F.



- ④ Move the tube to one of the three other positions. Then replace and tighten screws G. Use the table below to select the proper setting for your screen size.
  - This process needs to be done for the red and blue tubes. The green tube is not adjusted.
  - The threaded hole for 60 inch is drilled lengthwise so you can move the tube to adjust to any screen size. Adjust the red and blue lens so that the red or blue beam is aligned with the green beam. Then tighten the screws G.

Metal impression stamp screen size	60-300	100	200	300
Range of screen size	60"- 300"	75"- 130"	130"- 240"	240"- 300"

Units = inches

- ⑤ Tighten screws E and F on the CRT mounting for the red and blue CRTs.