



Installation



Important

When installing the projector, follow the warnings and cautions in the manual.

Failure to observe this precaution could result in electric shock or injury.

If installing the projector on the ceiling, use only optional ceiling kits (two types) supplied by the manufacturer. Refer to the manual included with the optional ceiling kit for ceiling installation. When ordering the kit, specify the part name, PG CMKIT-F or PG CMKIT.

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Installation

The Installation Set-Up Instruction chapter covers how to install the projector and gives you the details about the relative position of the projector and the screen.

The Projection Configuration Change chapter gives you the procedures for adjustments such as image polarity change, proper adjustment of the focus rings and CRT angle adjustment. You must reconfigure the projector for your application when it differs from the factory setting.

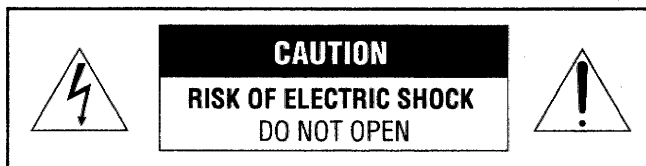
SAFETY PRECAUTION

WARNING

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE. ALSO DO NOT USE THIS UNIT'S POLARIZED PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLETS, UNLESS THE PRONGS CAN BE FULLY INSERTED. REFRAIN FROM OPENING THE CABINET AS THERE ARE HIGH-VOLTAGE COMPONENTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

AVERTISSEMENT

POUR EVITER UN FEU OU UN RISQUE D'ELECTROCUTION NE PAS EXPOSER CET ENSEMBLE A LA PLUIE OU A L'HUMIDITE; DE MEME, NE PAS BRANCHER LA PRISE POLAIRE AVEC UNE RALLONGE A MOINS QUE LES DENTS DE LA PREMIERE NE S'Y INSERENT PLEINEMENT. EVITER D'OUVRIER LE COFFRET CAR IL Y A, A L'INTERIEUR, DES COMPOSANTS SOUMIS A UNE HAUTE-TENSION; POUR LES REPARATIONS, S'ADRESSER A UN PERSONNEL QUALIFIE.



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT OPEN TOP COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any part inside of this unit.



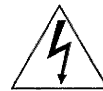
This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

DOC compliance Notice

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.



ATTENTION: POUR EVITER LES RISQUES D'ELECTROCUTION, NE PAS OUVRIR LE COUVERCLE SUPERIEUR. AUCUN DES ELEMENTS INTERNES NE DOIT ETRE REPARÉ PAR L'UTILISATEUR. NE CONFIER L'ENTRETIEN QU'A UN PERSONNEL QUALIFIE.



L'éclair fléché dans un triangle équilatéral est destiné à avertir l'utilisateur de la présence, dans l'appareil, d'une zone non-isolée soumise à une haute-tension dont l'intensité est suffisante pour constituer un risque d'électrocution.



Le point d'exclamation dans un triangle équilatéral est destiné à attirer l'attention de l'utilisateur sur la présence d'informations de fonctionnement et d'entretien importantes dans la brochure d'accompagnement l'appareil.

DOC avis de conformation

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

WARNING

This equipment has been tested and found to comply with the limits for a Class A 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 installation 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.

Important Safeguards

The following are important safety instructions designed to ensure the long life of your projector and to prevent fire and shock hazards. Be sure to read these safety instructions carefully and follow all warnings given below.

■ Installation

The projector must be installed by trained personnel.

Place the projector on a flat, level surface and in a dry area free from dust and moisture. Do not place the projector in direct sunlight, near stoves or other heat radiating appliances. Smoke, steam and exposure to direct sunlight could adversely affect the internal components. Avoid rough handling when moving your equipment as a strong shock could damage its internal components. If installing the projector on the ceiling, use only the optional ceiling kit supplied by the manufacturer. Since installing the projector on the ceiling requires special techniques, users must not try to install it. Contact your dealer for ceiling installation. Observe all instructions and warnings.

■ Power supply

The projector is designed to operate on 120V 60Hz AC power supply. Make sure your local power supply matches these requirements before operation. Handle the power cord carefully and avoid excessive bending. A damaged cord may cause electric shock or fire. If the projector is not to be used for an extended period, remove the plug from the power outlet.

■ Cleaning

Unplug the projector from the power outlet before cleaning. Clean the cabinet and front panel periodically with a soft cloth. If heavily stained, use a mild detergent solution. Never use strong detergents or solvents such as alcohol or thinner to clean your projector.

Lens cleaning: Avoid touching the lens surface.
 Special coating is applied to the lens surface.
 Consult your dealer for lens cleaning.

■ Fire and shock precautions

Adequate ventilation must be provided to prevent heat build-up inside the projector. Make sure the ventilation holes are unobstructed. Keep inside of the projector free from foreign objects, such as paper clips, nails, paper, and screw-drivers inside the projector. If a hazardous object falls inside the projector, unplug it immediately and call a qualified electrical repairman for removal. Do not set liquids on top of the projector.

Mesures de sécurité importantes

Les instructions de sécurité importantes ci-dessous ont été conçues pour garantir une longue durée de service du projecteur et éviter les risques d'incendie et de décharge électrique. Lire attentivement ces instructions et suivre les mises en garde indiquées en bas de page.

■ Installation

Le projecteur doit être installé par un personnel qualifié. Placer le projecteur sur une surface plate, stable et uniforme, dans un endroit sec sans poussière ni humidité. Ne pas placer le projecteur en plein soleil, près de fours ou d'autres appareils émettant de la chaleur. De la fumée, de la vapeur et une exposition en plein soleil pourrait affecter les composants internes. Éviter une manipulation brusque lorsque l'appareil est déplacé, car un choc violent pourrait endommager ses composants internes. Dans le cas d'une installation du projecteur au plafond, n'utiliser que l'équipement optionnel pour une installation au plafond fournis par le fabricant. L'installation du projecteur au plafond exigeant une technique spéciale, les utilisateurs ne doivent pas essayer de l'installer. Contacter votre vendeur en cas d'installation au plafond. Observer toutes les instructions et mises en garde.

■ Alimentation

Le projecteur est conçu pour fonctionner sur une source d'alimentation secteur de 120V 60Hz CA. Vérifier que l'alimentation locale correspond à cette tension avant de brancher l'appareil. Manipuler le cordon d'alimentation avec précaution et éviter de trop le courber. Un cordon endommagé peut provoquer une décharge électrique ou un incendie. Si le projecteur ne doit pas être utilisé pendant longtemps, débrancher la fiche de la prise secteur.

■ Nettoyage

Débrancher le projecteur de la prise d'alimentation avant de le nettoyer.

Nettoyer périodiquement le coffret et le panneau avant avec un chiffon doux. S'ils sont très tachés, utiliser une solution de détergent doux. Ne jamais utiliser de détergents ou solvants puissants comme de l'alcool ou un diluant pour nettoyer le projecteur.

Nettoyage de la lentille: Éviter de toucher les surfaces de la lentille.

Un revêtement spécial a été appliqué sur les surfaces de la lentille.

Consulter votre revendeur pour le nettoyage de la lentille.

■ Précautions à prendre contre l'incendie et les décharges électriques

Une bonne aération doit être prévue pour éviter l'accumulation de chaleur à l'intérieur du projecteur. Vérifier que les ouvertures d'aération ne sont pas bouchées.

Ne laisser pénétrer aucun objet étranger, comme des épingles, des clous, du papier, etc. à l'intérieur du projecteur et ne pas essayer de récupérer soi-même de tels objets en insérant des objets métalliques comme un fil ou un tournevis à l'intérieur du projecteur. Si un objet tombe à l'intérieur du projecteur, débrancher immédiatement celui-ci et appeler un électricien qualifié pour qu'il le retire.

Ne pas poser de liquides sur le projecteur.

INSTALLATION SET-UP INSTRUCTION

Before Installation

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 items	Various adjustments	Polarity change	Decorative lens panel, focus ring and CRT angle change
	Screen size (diagonal)			
Ceiling mounting Front projection	100 inch	None	None	None (Set the focus ring when changing projection angle)
	other than 100 inch	Yes	None	Yes
Desk top Front projection type	100 inch	Yes	Yes	None (Set the focus ring when changing projection angle)
	other than 100 inch	Yes	Yes	Yes
Ceiling mounting/Rear projection	100 inch	Yes	Yes	None (Set the focus ring when changing projection angle)
	other than 100 inch	Yes	Yes	Yes
Desk top Rear projection	100 inch	Yes	Yes	None (Set the focus ring when changing projection angle)
	other than 100 inch	Yes	Yes	Yes

NOTE: The "100 inch" covers the range of screen size between 91 and 130 inches.

NOTE: Knob adjustment on page 13.

NOTE: Refer to PG CMKIT-F (Page 1-3-5-1-3-7).

Note on Installation

CAUTION ON INSTALLATION

Position the projector according to the procedures specified in the following pages. Be sure to maintain the correct projection distance, direction and angle for optimum performance. Deviating from the correct installation could degrade the performance of the projector and may cause reliability problems.

WARNING

Static displays that are left on for extended periods may cause CRT burns that are not covered under warranty.

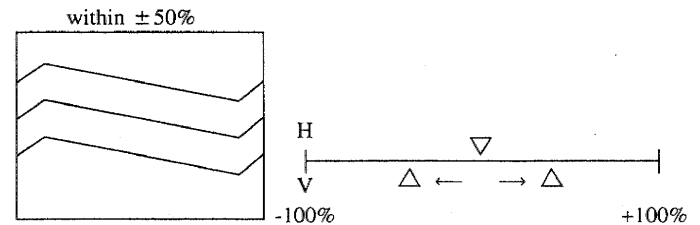
For screen sizes other than 100", 200", and 300" diagonal, adjust the CRT angle using the threaded holes marked "60-300". See page 14 for detailed procedures.

CAUTION ON ALIGNMENT ADJUSTMENT

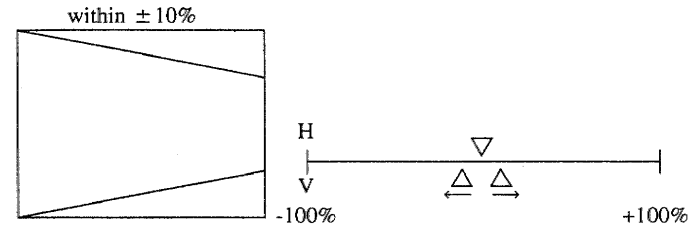
The adjustment value of the items on the right must be within the recommended range of the values on the right. If it is hard or impossible to adjust the items on the right within the recommended range of values, the most probable cause of this is incorrect position of the projector. Check for correct projection distance, direction and angle, and reposition as recommended in this manual.

Value Recommendation

• TILT



• V-KEY

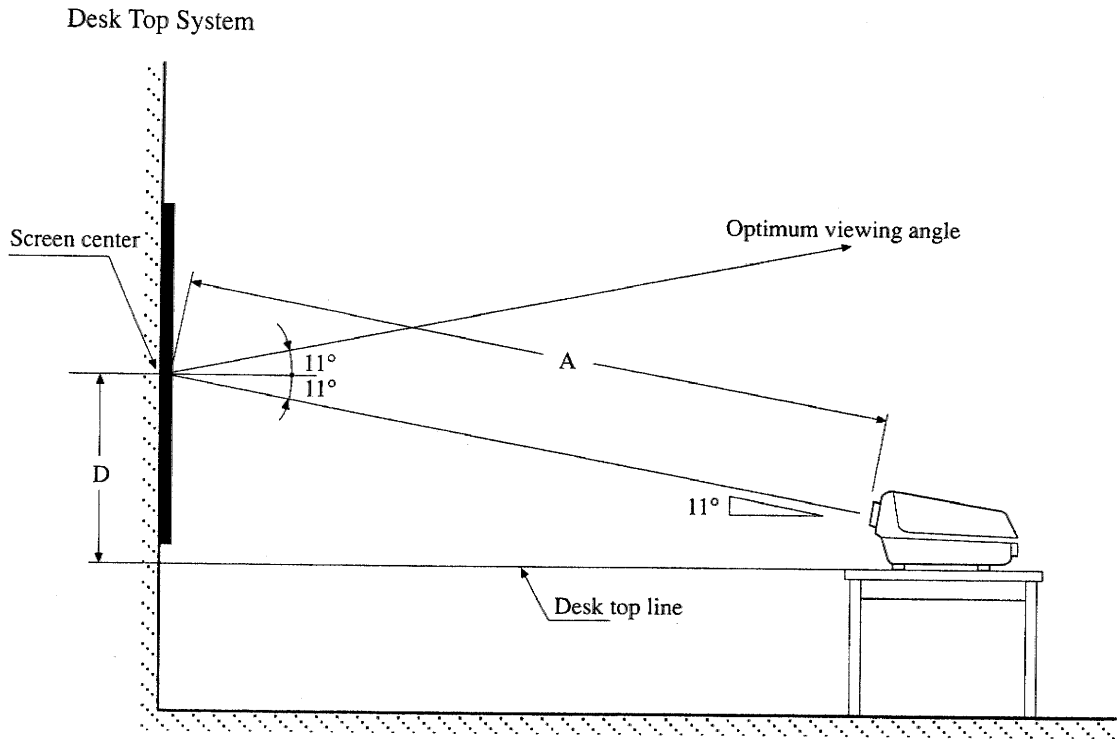


- V-BOW within $\pm 50\%$
- H-BOW within $\pm 50\%$

INSTALLATION SET-UP INSTRUCTION

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

Screen size H-Width (4:3 Diagonal)		48" (60")	56" (70")	64" (80")	72" (90")	80" (100")	96" (120")	120" (150")	144" (180")	160" (200")	192" (240")	216" (270")	240" (300")
A	inch	78 3/8	90 1/8	101 13/16	113 1/2	123 7/16	148 5/8	183 3/4	218 7/8	242 5/16	289 3/16	324 5/16	359 7/16
	mm	1990	2288	2585	2882	3135	3775	4667	5559	6154	7344	8236	9129
D	inch	23 1/16	25 5/16	27 1/2	29 3/4	31 11/16	36 7/16	43 1/8	49 7/8	54 5/16	63 1/4	70	76 11/16
	mm	585	642	698	755	804	925	1095	1266	1379	1606	1777	1947

NOTE:

- The projection distance is based on the screen width.
- Sizes not found between 48 (60) and 240 (300) inches are determined by the following formula.

Units=inches W=Screen H-Width

$A = (5/18 \times W + 1) \times 5\ 5/16"$

$D = 0.191 \times A + 8\ 1/8"$

Units=mm W=Screen H-Width

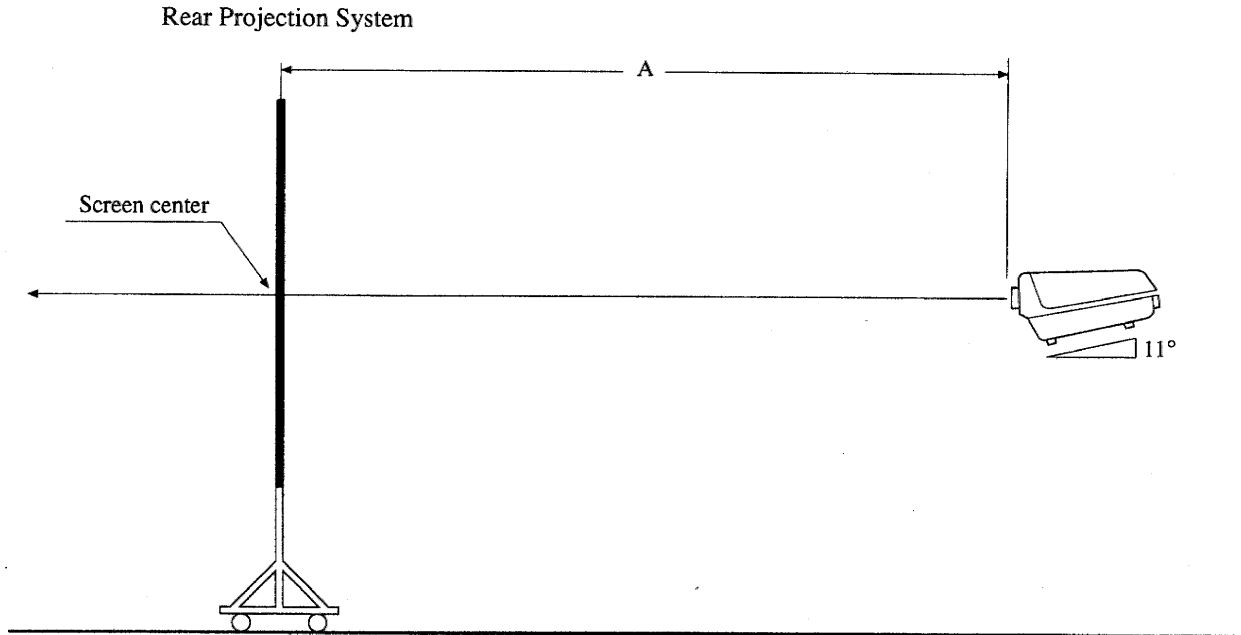
$A = (5/18 \times W + 1) \times 135\text{mm}$

$D = 0.191 \times A + 205\text{mm}$

- 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.

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

Screen size H-Width (4:3 Diagonal)		48" (60")	56" (70")	64" (80")	72" (90")	80" (100")	96" (120")	120" (150")	144" (180")	160" (200")	192" (240")	216" (270")	240" (300")
A	inch	78 3/8	90 1/8	101 13/16	113 1/2	123 7/16	148 5/8	183 3/4	218 7/8	242 5/16	289 3/16	324 5/16	359 7/16
	mm	1990	2288	2585	2882	3135	3775	4667	5559	6154	7344	8236	9129

NOTE:

- The projection distance is based on the screen width.
- Sizes not found between 48(60) and 240(300) inches are determined by the following formula.

Units=inches W"=Screen H-Width
 $A = (5/18 \times W" + 1) \times 5 \ 5/16"$

Units=mm W"=Screen H-Width
 $A = (5/18 \times W" + 1) \times 135\text{mm}$

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. Follow the change procedures according to the instructions below.

To change screen size only :

1) Set the focus ring to the proper position.	
For 60" screen size R —A-2, B-2 G —A-1, B-2 B —A-2, B-2	For 200-300" screen size R —A-5, B-5 G —A-1, B-5 B —A-5, B-5
2) Adjust the angle of the CRT's.	
For 60" screen size Move the CRT to the 60 position	For 200-300" screen size Move the CRT to the 200 or 300 position
3) Adjust the decorative lens panel.	
For 60" screen size Adjust to match the 60 position	For 200-300" screen size Adjust to match the 200 or 300 position
4) Degauss the projector. See "Degaussing" on page 64 in the set-up manual.	

To change to the desk top system (front)

1) Reverse the scan.	
H —1-Red, 2-Blue V —1-Brown, 2-Yellow A —1-Blue, 2-Red B —1-Brown, 2-Yellow	
2) Set the focus ring to the proper position.	
For 60" screen size R —A-2, B-2 G —A-1, B-2 B —A-2, B-2	For 200-300" screen size R —A-5, B-5 G —A-1, B-5 B —A-5, B-5
3) Adjust the angle of the CRT's.	
For 60" screen size Move the CRT to the 60 position	For 200-300" screen size Move the CRT to the 200 or 300 position
4) Adjust the decorative lens panel.	
For 60" screen size Adjust to match the 60 position	For 200-300" screen size Adjust to match the 200 or 300 position
5) Degauss the projector. Select installation type from ASTIG OUTPUT. See "ASTIG OUTPUT" on page 62 in the set-up manual.	

To change to the ceiling mount system (rear)

1) Reverse the scan.	
H — 1-Red, 2-Blue V — 1-Yellow, 2-Brown A — 1-Blue, 2-Red B — 1-Yellow, 2-Brown	
2) Set the focus ring to the proper position.	
For 60" screen size	For 200-300" screen size
R — A-2, B-2	R — A-5, B-5
G — A-1, B-2	G — A-1, B-5
B — A-2, B-2	B — A-5, B-5
3) Adjust the angle of the CRT's.	
For 60" screen size	For 200-300" screen size
Move the CRT to the 60 position.	Move the CRT to the 200 or 300 position
4) Adjust the decorative lens panel.	
For 60" screen size	For 200-300" screen size
Adjust to match the 60 position	Adjust to match the 200 or 300 position
5) Degauss the projector. See "Degaussing" on page 64 in the set-up manual.	

To change to the front desk top system (rear, 0 projection angle)

1) Reverse the scan.	
H — 1-Blue, 2-Red V — 1-Brown, 2-Yellow A — 1-Red, 2-Blue B — 1-Brown, 2-Yellow	
2) Set the focus ring to the proper position.	
For 60" screen size	For 200-300" screen size
R — A-2, B-1	R — A-5, B-1
G — A-1, B-1	G — A-1, B-1
B — A-2, B-1	B — A-5, B-1
3) Adjust the angle of the CRT's.	
For 60" screen size	For 200-300" screen size
Move the CRT to the 60 position.	Move the CRT to the 200 or 300 position
4) Adjust the decorative lens panel.	
For 60" screen size	For 200-300" screen size
Adjust to match the 60 position	Adjust to match the 200 or 300 position
5) Degauss the projector. Select installation type from ASTIG OUTPUT. See "ASTIG OUTPUT" on page 62 in the set-up manual.	

PROJECTION CONFIGURATION CHANGE

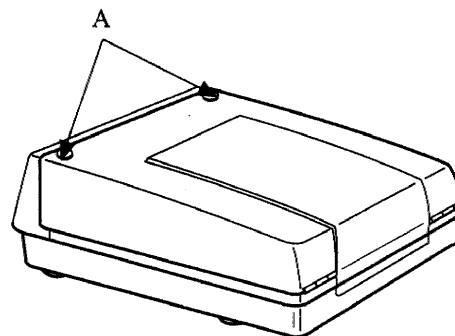
Opening Top Cover

CAUTION:

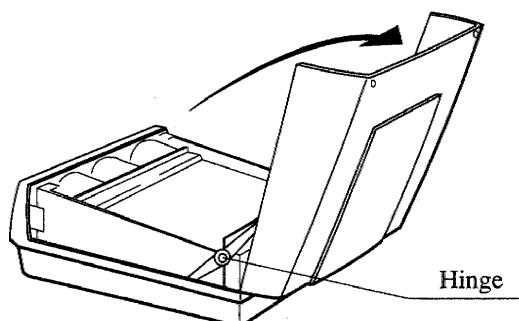
- Be sure to turn off the projector and unplug the power cord before opening the top cover.

To open the top cover, proceed as follows:

- ① Loosen two screws A.
 - A is a retaining screw.

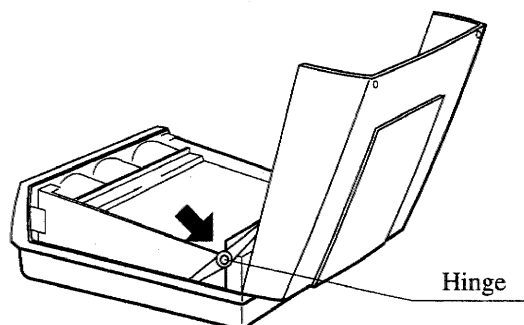


- ② Raise the top front of the projector in the direction of the arrow.
 - Be sure to open the top cover until the hinges lock.



- 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 projector's configuration. To reverse the scan, proceed as follows:

CAUTION: Always disconnect the projector from the AC source before reversing the plug. Failure to observe this precaution may result in electric shock or damage to the projector.

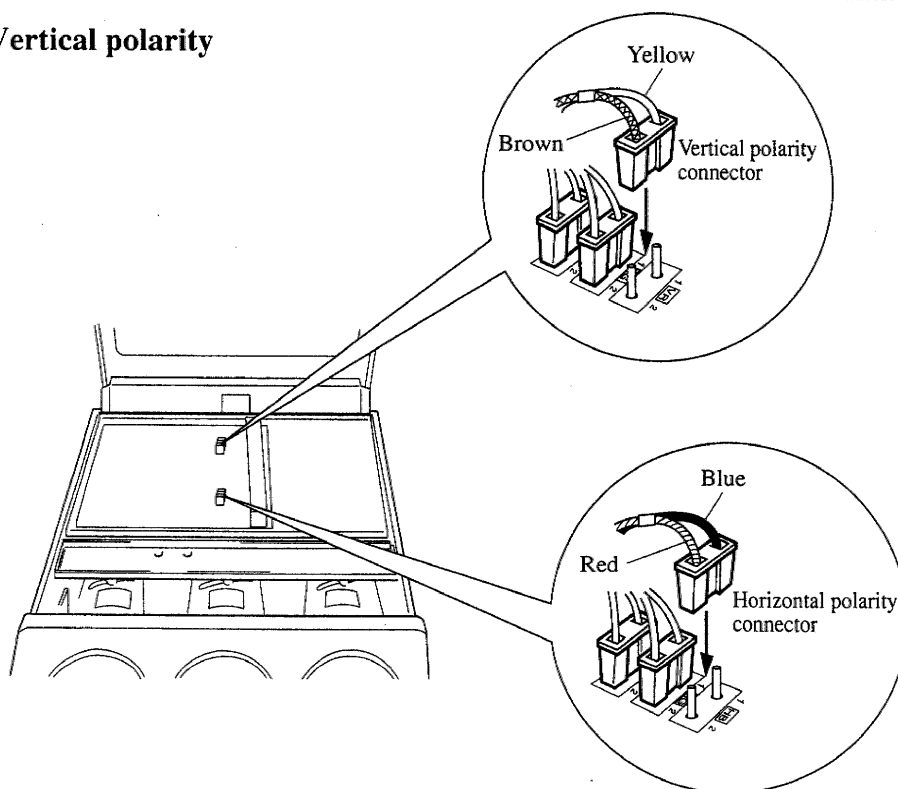
- ① Open the top cover.
 - See Opening Top Cover section.
- ② Reverse the vertical and horizontal scan.
 - To reverse the scan there are two sets of plugs on the sweep board. VR, VG and VB are the vertical connectors(V=vertical and RGB=color) and HR, HG and HB are the horizontal connectors(H=horizontal 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)

Setting \ Connector pin	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

NOTE: The table is for non mirror applications.

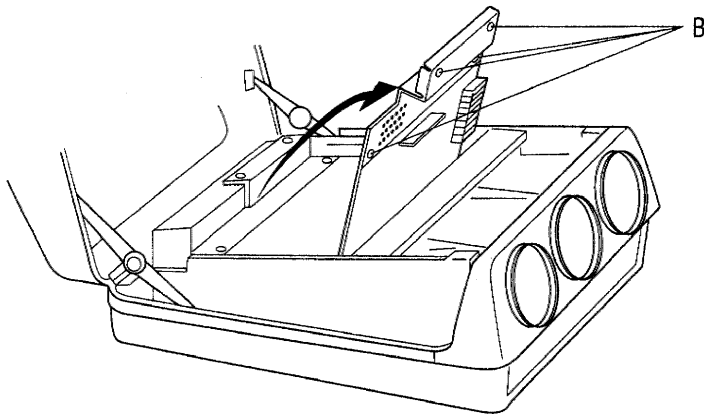
NOTE: Refer to PG CMKIT-F (Page 1-3-5-1-3-7).

Horizontal and Vertical polarity



PROJECTION CONFIGURATION CHANGE

- ③ Loosen the four screws B, then lift the upper chassis(DFC).
- B is a retaining screw.



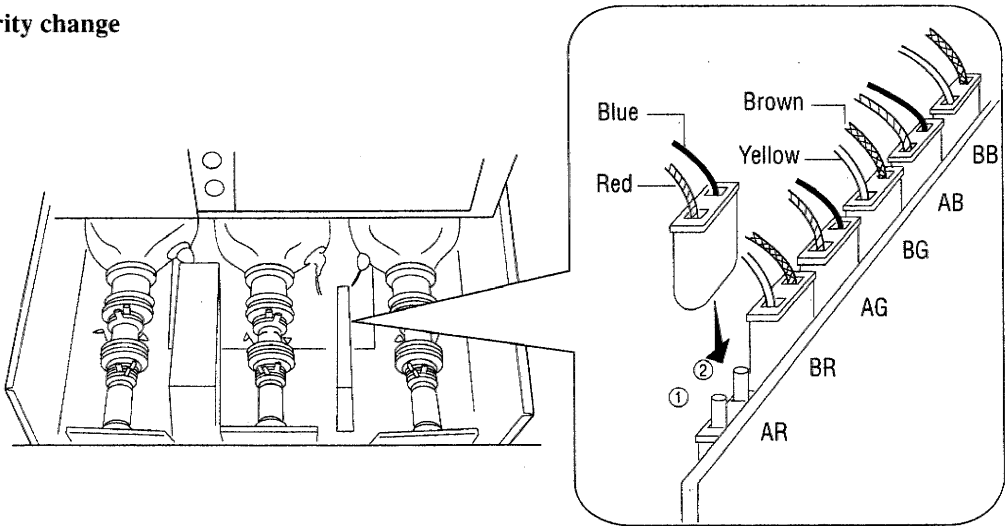
- ④ Reverse the convergence connectors (AR, BR, AG, BG, AB and BB) on CONV-DRIVE.
See Table below.

Setting \ Connector pin	AR,AG,AB		BR, BG, BB	
	① Lead	② Lead	① Lead	② Lead
Ceiling front	Red	Blue	Yellow	Brown
Desk top front	Blue	Red	Brown	Yellow
Ceiling rear	Blue	Red	Yellow	Brown
Desk top rear	Red	Blue	Brown	Yellow

NOTE: The table is for non mirror applications.

NOTE: Refer to PG CMKIT-F (Page 1-3-5-1-3-7).

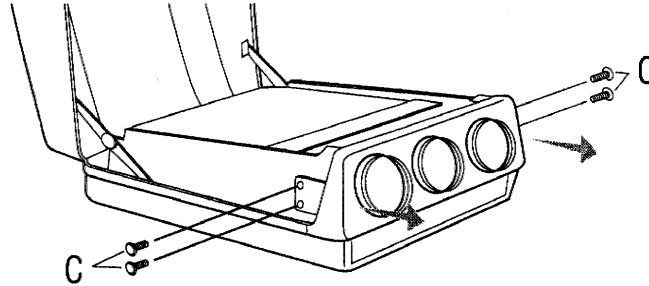
Convergence polarity change



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

Screen Size Change(Adjusting Focus Rings and CRT Angle)

The projector can project an image from 60 to 300 inches diagonal. From the factory the projector is set for ceiling mount, 100 inch diagonal screen size and a projection angle of 11 degrees. The projector can be used in either 11 or zero degree application. Before the following procedures, remove the front panel by removing the four screws C which hold the front panel. There are two screws on each side.



• Adjusting Focus Rings

There are three sets of adjusting focus rings, two between each CRT and lens.

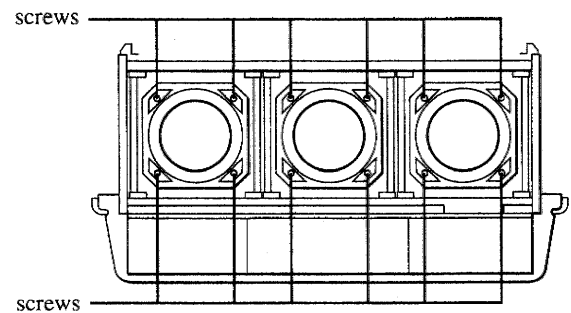
These focus rings are used for maintaining optimum edge focus for the various screen sizes and projection angles.

*When setting the focus rings or changing CRT angle, you must first remove the front panel.

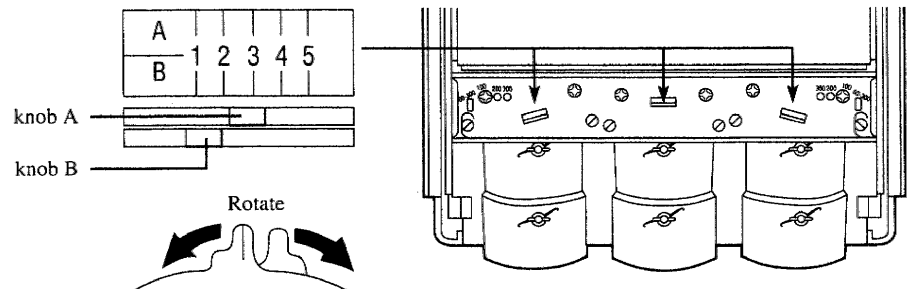
- ① Loosen the four screws at the lens.

CAUTION: Be careful not to remove any of the four screws completely. The falling lens can cause serious injury especially when the projector is installed on the ceiling.

NOTE: Refer to PG CMKIT-F (Page 1-3-5~1-3-7).



- ② Rotate and set the knobs (A and B) to the right position. The table below lists which position the knob should be set to for any given screen size and angle. The similar table is also on the back of the top cover.



- ③ Tighten the four screws at the lens.

Position of Knobs

Projection angle and screen size		CRT		R		G		B	
				Knob		Knob		Knob	
		A	B	A	B	A	B	A	B
11°	60" - 90"	2	2	1	2	2	2	2	2
	91" - 130"	3	3	1	3	3	3	3	3
	131" - 170"	4	4	1	4	4	4	4	4
	171" - 300"	5	5	1	5	5	5	5	5
	60" - 90"	2	1	1	1	2	1	2	1
0°	91" - 130"	3	1	1	1	3	1	3	1
	131" - 170"	4	1	1	1	4	1	4	1
	171" - 300"	5	1	1	1	5	1	5	1

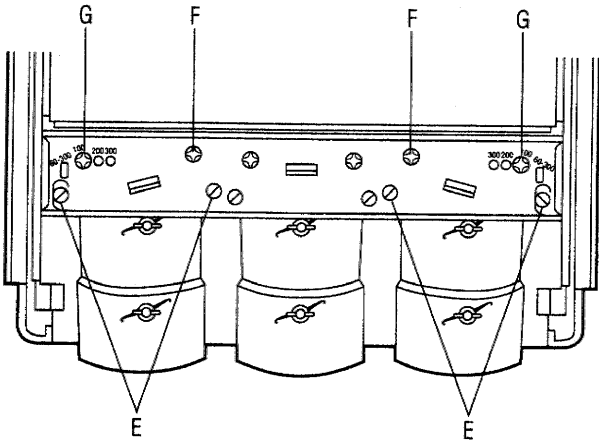
PROJECTION CONFIGURATION CHANGE

• Adjusting Angle of CRTs

To adjust the angle of the CRTs, remove screws G and loosen screws E and F.

Now you can move the tube and lens assembly to one of the three other positions. Then replace screws G and tighten screws E and F. This process needs to be done for the red and blue CRTs. The green CRT is never repositioned. Use the table below to select the proper setting for your screen size.

NOTE: The threaded hole marked "60-300" is drilled lengthwise so you can move the CRT assembly to any screen size. Adjust the red and blue lens so that the red or blue beam is aligned with the green beam. After doing this, adjust the static convergence and the lens focus (see the next page).



Then tighten the screws G.

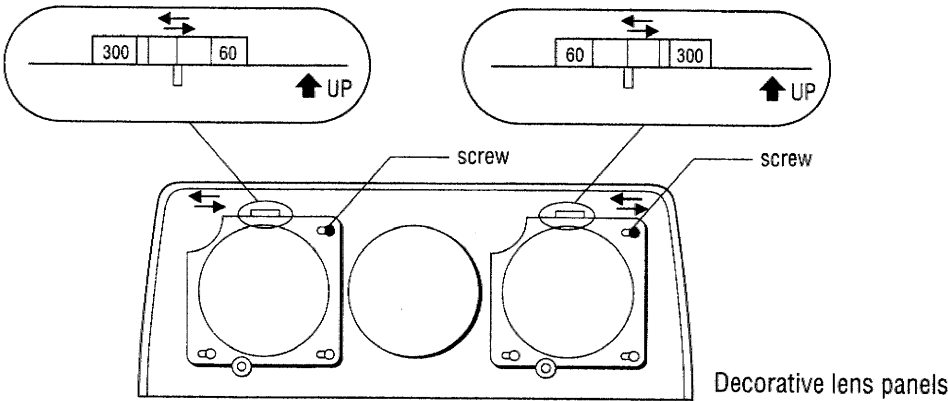
Metal impression stamp screen size	60-300	100	200	300
Range of screen size (diagonal)	60"-300"	100"	200"	300"

• Adjusting Decorative Lens Panels

Before replacing the front panel adjust the decorative lens panels to match the screen size so that they do not touch the lens barrels or interfere with the normal operations of the lens.

Loosen the two screws at the top on the two left and right decorative lens panels, then slide the panels to match the screen size.

- Tighten the screws after completing the above procedures.
- Reinstall the front panel, then replace and tighten the four screws.



Lens Focus Adjustment

Adjust the center focus and edge focus mechanically to obtain the best screen focus.

NOTE:

- Plug the power cord and turn on the projector before adjustment.
- The lens focus adjustment must be performed for each lens.
- Select the FOCUS test pattern using the TEST button on the full function remote control.

Proceed as follows:

- ① Press the R, G, or B button on the full function remote control to project the CRT beam to be adjusted.
 - You can turn on or off each CRT beam(R, G and B)separately.

- ② Adjust the CENTER focus.
 - Loosen the wing nut A. Rotate the lens using the wing nut A until the center of the screen is in focus. When you get the best center focus, tighten the wing nut A.

NOTE: Do not over-tighten the wing nut.

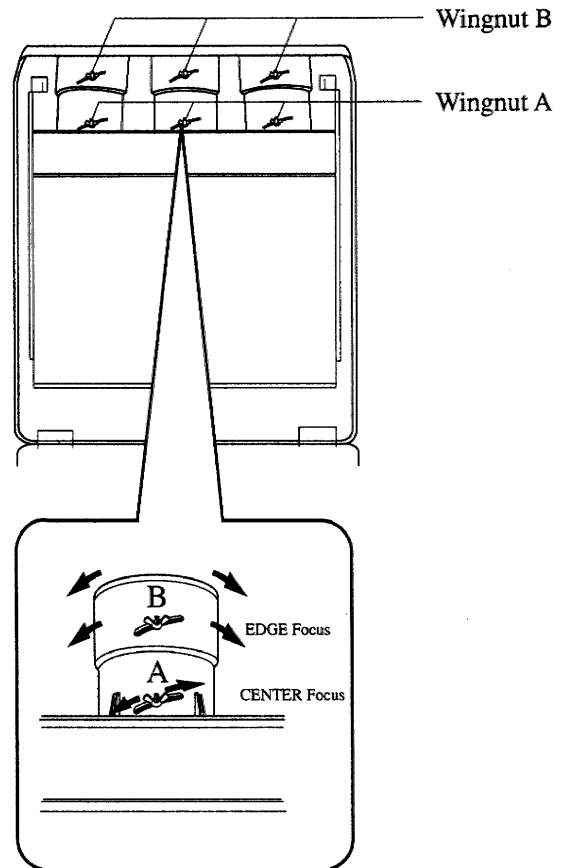
- ③ Adjust the EDGE focus.
 - Loosen the wing nut B. Rotate the lens barrel until the edge area of the screen is focused. Tighten the wing nut B.

- ④ Recheck center focus.
 - If it is out of focus, repeat steps ② and ③.

- ⑤ Repeat steps ① to ④ for the other CRTs.

- ⑥ Close the top cover.

NOTE: Refer to Focus Aadjustment (Page 5-1-13) in the case of Electrical Focus Adjusement.





PG CMKIT-F



HEED THE FOLLOWING

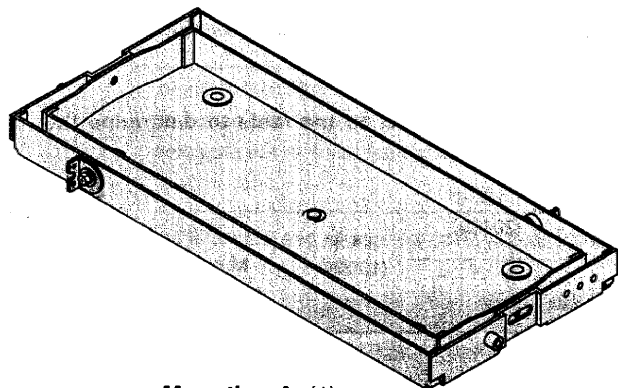
WARNING

- When installing the projector, be sure to do so as explained in this manual.
The projector may fall and cause injury if it is installed improperly.
- To prevent the projector from falling, install it in a place and fasten it in a way with sufficient strength to support the combined weight of the projector and the ceiling mount kit for an extended period of time as well as to withstand earthquakes. Insufficient strength or fastening may result in the projector falling and causing injury.
- To ensure safety, be sure to tighten the bolts and screws securely. Also be sure to use the included brackets and other metal fittings.
Failure to do so may result in the projector falling and causing injury.
- When installing the projector and ceiling mounting A, check that the protrusions on the sides are in the bracket's catcher holes. If not, the projector may fall and cause injury.
- Do not modify any parts.
Doing so may result in the projector falling and causing injury.
- Do not use broken parts. Doing so may result in the projector falling and causing injury.
If a part should be broken, consult your dealer.
- The projector should only be lifted by four or more persons. When using a lifter, two or more persons should hold the projector. If not, the projector may fall and cause injury.
- Do not look into the CRTs for extended periods of time.
Doing so could damage your eyesight.
- Make adjustments as described in the Set-Up manual included with the projector or the service manual.
Incorrect adjustments may result in electric shocks or injury.

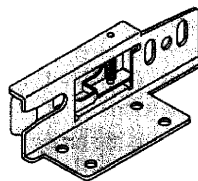
CAUTION

- Do not obstruct the projector's ventilation holes. Doing so will prevent the dissipation of heat and may result in fires. In particular, do not use the projector in the following ways:
Do not install the projector in a wall or in a tight place where ventilation is poor, place a cover over it, etc.
- Do not install the projector in front of the outlets of an air-conditioner or heater or in a place where vibrations are strong.
Doing so may result in fires or electric shocks.
- Do not install the projector in humid or dusty places or places exposed to smoke or steam (such as near cooking equipment or humidifiers).
Doing so may result in fires or electric shocks.
- When installing the projector, leave sufficient space between it and surrounding objects.
Failure to leave sufficient space will prevent the dissipation of heat and may result in fires.
- Be sure to install the included chains.
Failure to do so may result in the projector falling and causing injury.

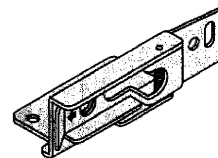
____NAMES OF PARTS AND SPECIFICATIONS



Mounting A (1)



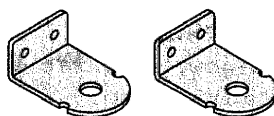
Bracket B (1)



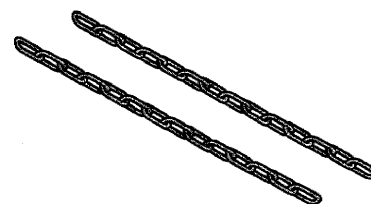
Bracket C (1)



Fittings D (4)



Fittings E (2)



Chains (2)



Special bolts (2)



Special washers (2)



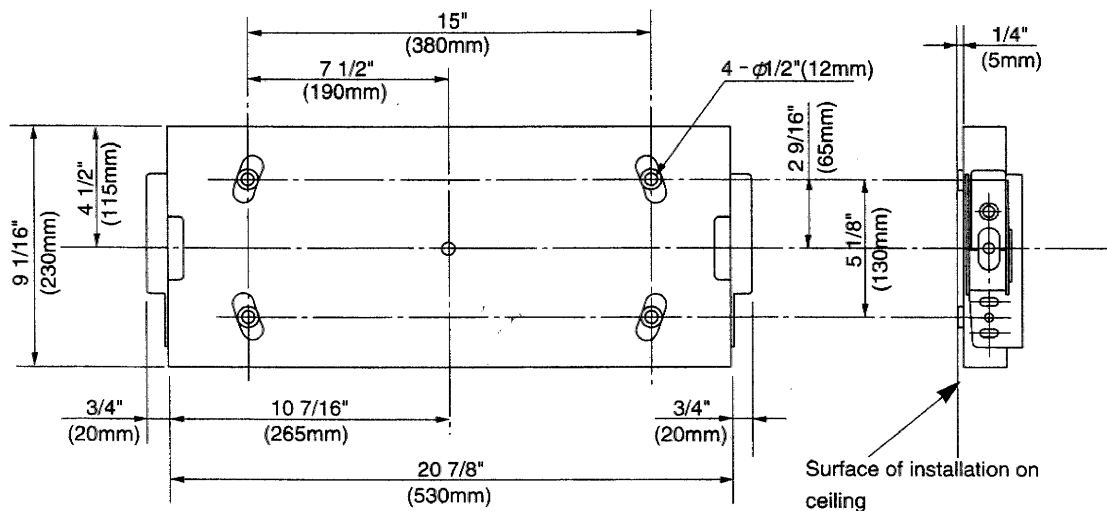
M6 screws (6)



M4 screws (8)

Dimensions of ceiling mounting bolt positions

Weight: 13.23 lbs/6.0kg

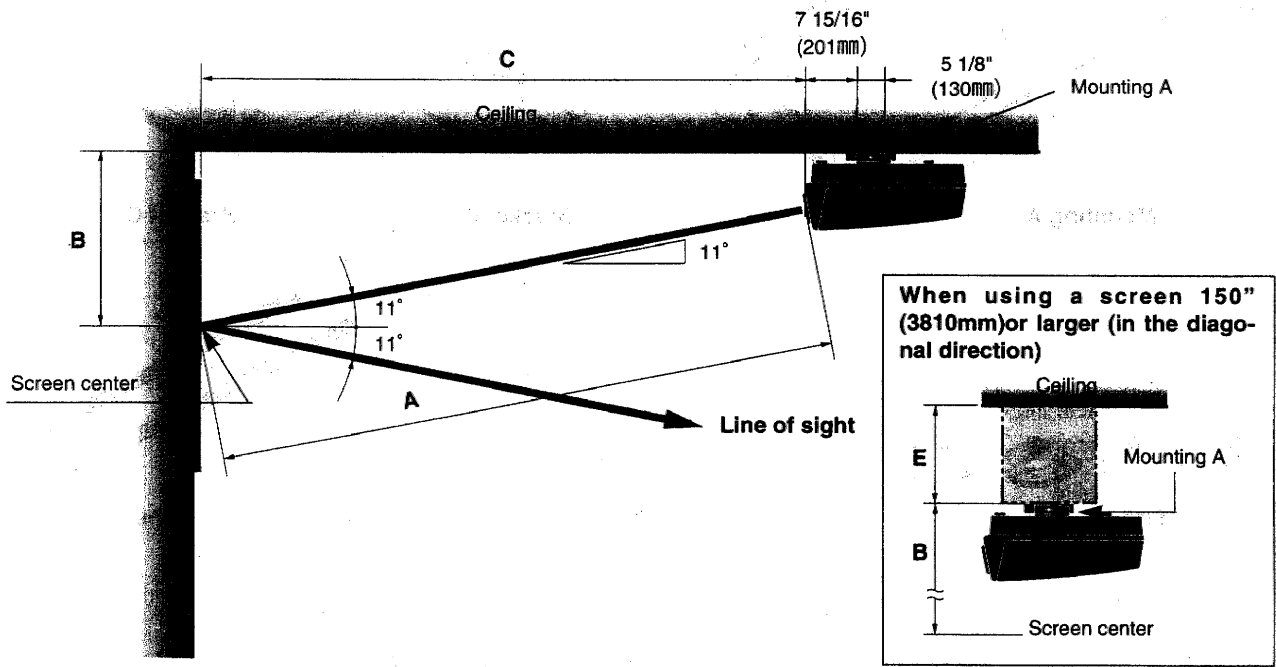


SCREEN SIZE AND PROJECTOR INSTALLATION POSITION

Install in such a way that the projector and screen are positioned in the proper direction and at the proper angle. If not, the projector's performance will be affected and its reliability will decrease. Be sure to position the projector properly.

The manufacturer will not be held responsible for any problems occurring when the projector is not installed in the proper position.

The following shows the proper relative positions of the projector and screen. Refer to the table to determine the position of installation.



Screen size	H-Width (4:3 Diagonal)	inch mm	48"	56"	64"	72"	80"	96"	120"	144"	160"	192"	216"	240"
			1219 (60")	1422 (70")	1626 (80")	1829 (90")	2032 (100")	2438 (120")	3048 (150")	3658 (180")	4064 (200")	4877 (240")	5486 (270")	6096 (300")
A		inch mm	78 3/8 1990	90 1/8 2288	101 13/16 2585	113 1/2 2882	123 7/16 3135	148 5/8 3775	183 3/4 4667	218 7/8 5559	242 5/16 6154	289 3/16 7344	324 5/16 8238	359 7/16 9129
B		inch mm	24 5/8 624	26 7/8 682	29 1/16 738	31 5/16 795	33 1/4 844	38 965	44 3/4 1135	51 7/16 1306	55 7/8 1419	64 13/16 1646	71 9/16 1817	78 1/4 1987
C		inch mm	76 15/16 1953	88 7/16 2246	99 15/16 2538	111 7/16 2829	121 9/16 3077	145 15/16 3706	180 3/8 4581	214 7/8 5457	237 7/8 6041	283 7/8 7209	318 5/16 8085	352 13/16 8961
E		inch mm							5/16 8	2 5/8 67	4 3/16 105	7 1/4 183	9 9/16 242	11 13/16 300

- For screens 150 inches (3810mm) or larger (in the diagonal direction), set so that the distance between the surface of installation of the mounting A and the ceiling is E.
- Set the projection distance based on the width of the screen.
- If the figures on the table do not match the figures in the formulae, use the figures on the table.
- For screen sizes of 1219 to 6096 mm (60 to 300 inches) not indicated on the table, use the following proportional formulae:

Units: inches

W: screen H-width (inch)

$A = (5/18 \times W + 1) \times 5 \frac{5}{16}$

$B = 0.191 \times A + 9 \frac{11}{16}$

$C = 0.981 \times A$

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

Units: mm

W: screen H-width (mm)

$A = (25/2286 \times W_{mm} + 1) \times 135\text{mm}$

$B = 0.191 \times A + 245\text{mm}$

$C = 0.981 \times A$

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

The margin of error for projection distance (A) is $\pm 3\%$.

INSTALLING THE PROJECTOR

Preparations:

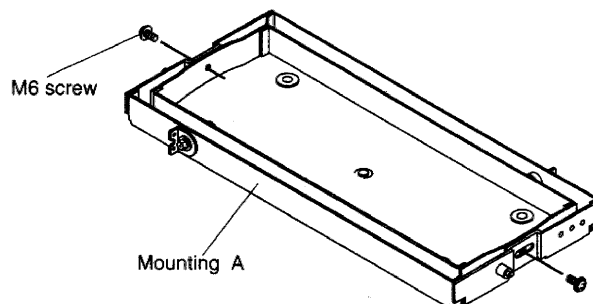
Determine the relative positions of installation of the screen and projector and perform the necessary work on the ceiling.

- Use commercially available M10 bolts to install the ceiling Mounting kit (Mounting A).
- Make the ceiling pedestal from a flat object. In some cases the ceiling mounting kit (Mounting A) must be rotated $\pm 3^\circ$ horizontally.

1 Tighten two M6 screws on Mounting

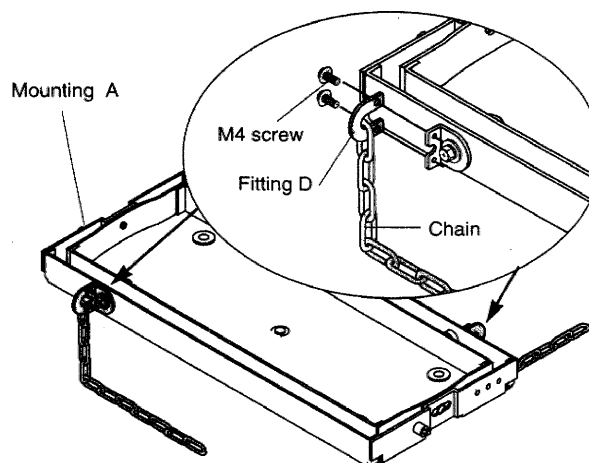
A.

- Line up with the "0" position on the scale.



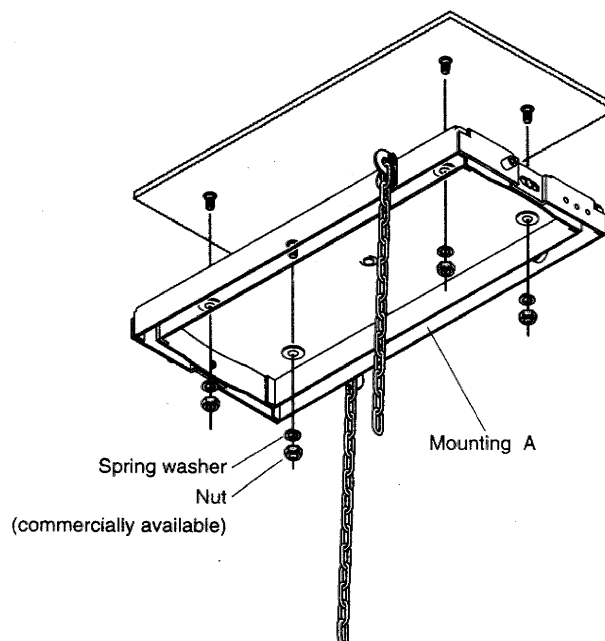
2 Attach the two chains to Mounting A.

- Pass the chains through fittings D and fasten the fittings with two M4 screws.



3 Fasten Mounting A to the ceiling.

- Fasten in four places using commercially available spring washers and nuts.

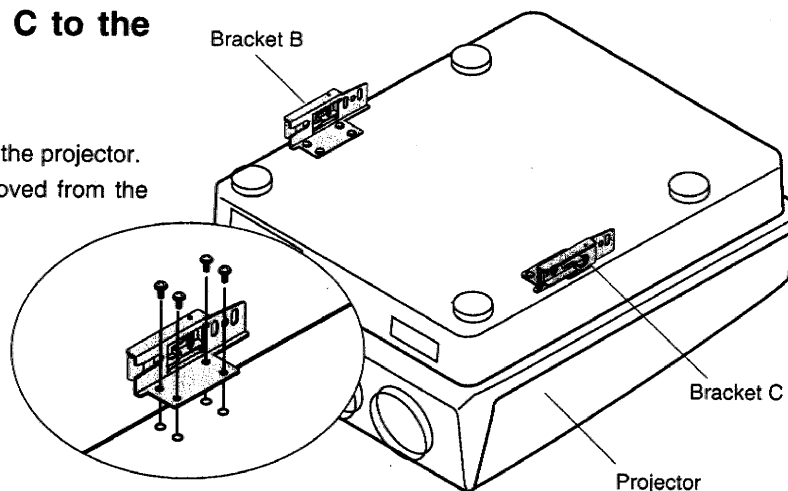


INSTALLING THE PROJECTOR

4 Install bracket B and bracket C to the bottom of the projector.

- 1 Remove the four screws from the bottom of the projector.
- 2 Fasten the brackets using the screws removed from the bottom of the projector.

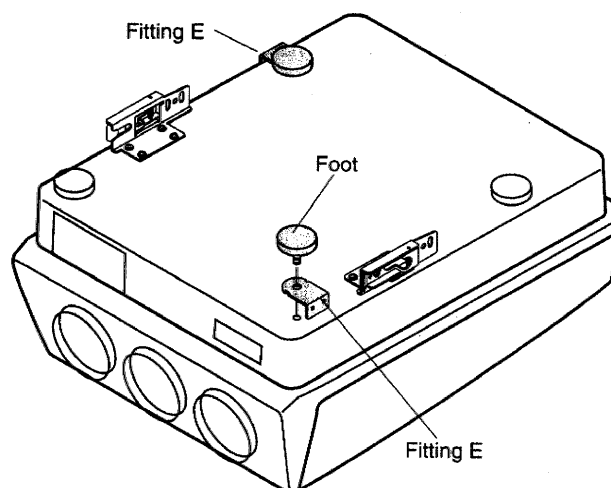
Make sure that the brackets B and C are firmly installed and secured.



5 Remove the projector's two feet and install fittings E.

Make sure that the fittings E are firmly installed and secured.

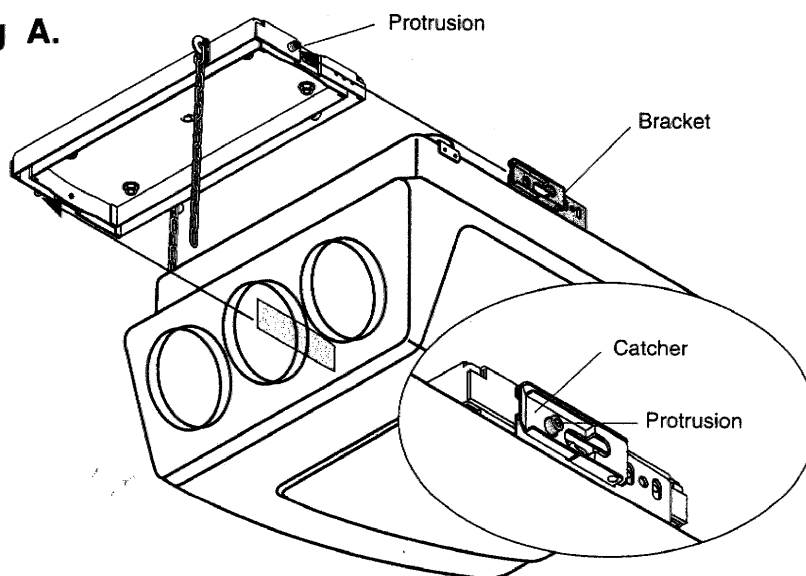
Be careful to install fittings E in the proper position. If they are in the wrong position, it will not be possible to install the chains.



6 Install the projector on Mounting A.

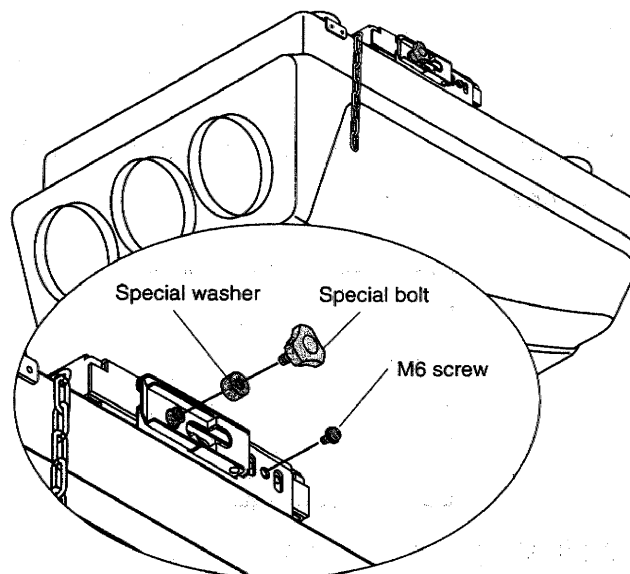
- Set the projector in the horizontal position and press it into the protrusions on Mounting A. (The protrusions should go into the bracket's catcher holes.)

Be sure to check that the protrusions are in the catcher holes on both sides.



7 Fasten the projector.

- 1 Insert the special washers into the protrusions on both sides and fasten using the special bolts.
- 2 Fasten the vertical angle adjustment parts on both sides using M6 screws.



Make sure that the bolts and screws are securely tightened.

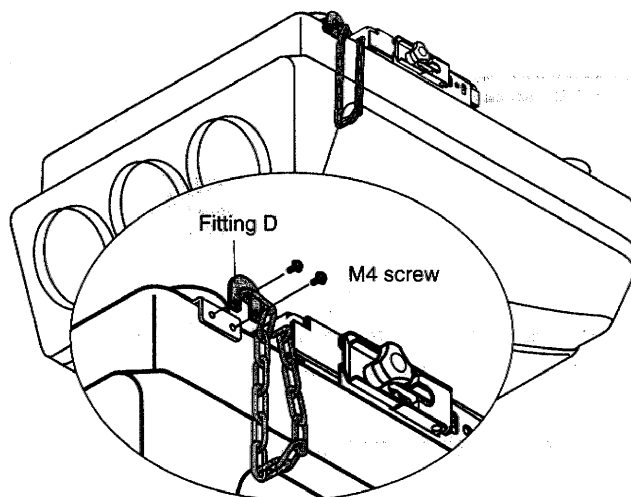
8 Fasten the chains to the projector.

- Pass the chains through fittings D and fasten them using M4 screws. (Do this on both sides.)

Make sure that the bolts and screws are securely tightened.

The chains protect the projector from falling. Be sure to install them.

Projector installation is now complete.



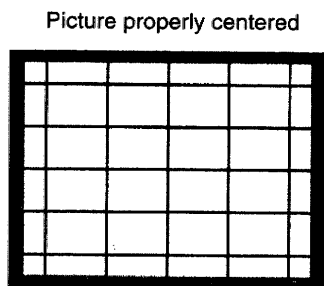
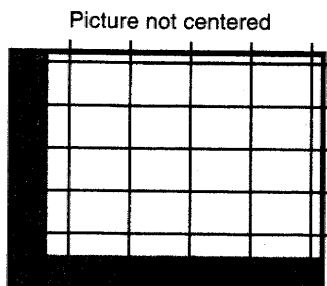
ADJUSTING THE PROJECTION ANGLE

Preparations:

Install the screen.

Turn on the power and project a test pattern as described in the projector's manual.

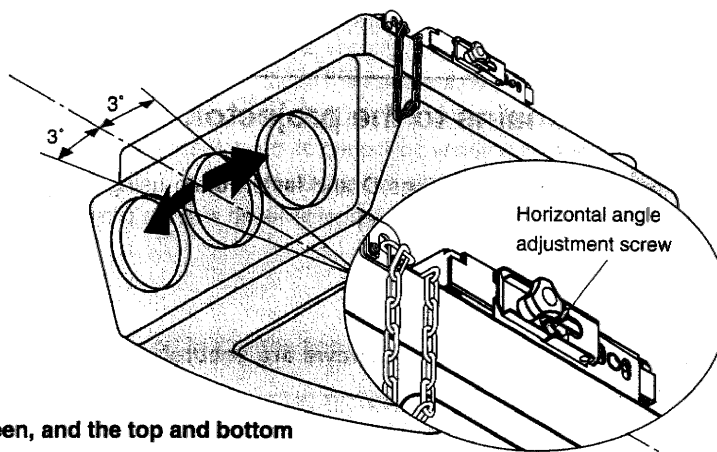
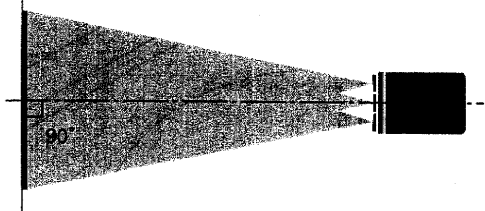
Adjust the projector's angle of projection so that the test pattern is at the center of the screen.



Adjusting the horizontal angle

- Loosen the horizontal angle adjustment screws and the special bolts on each side, adjust the horizontal angle, then retighten the screws and bolts. The adjustment range is 3° to the left, 3° to the right.

Bottom view

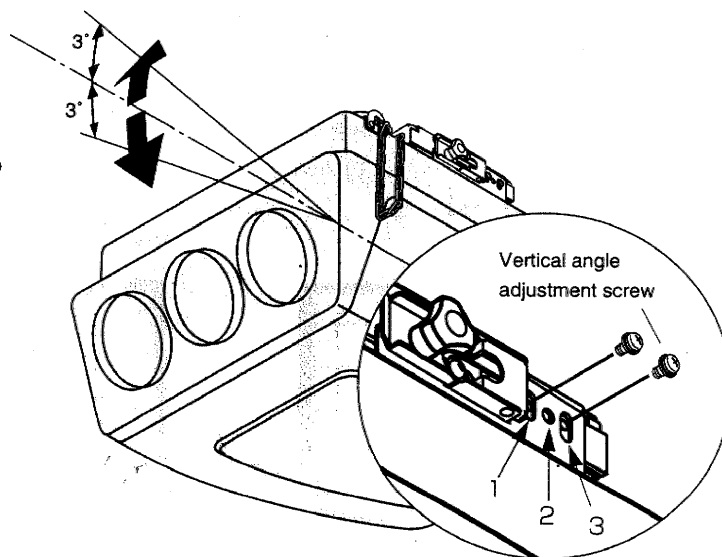
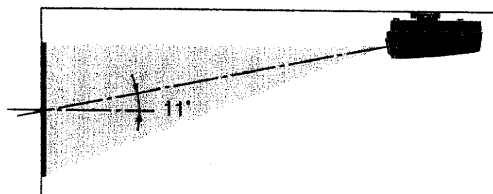


Adjust so that the center line is squared to the screen, and the top and bottom lines of the projected image are straight and parallel to the screen edge.

Adjusting the vertical angle

- 1 Install a screw at "1".
 - 2 Remove the screw at "2".
 - 3 Install the screw removed from "2" at "3".
 - 4 Adjust the vertical angle, then tighten the screw. (Do this for both sides.)
- The adjustment range is 3° upwards, 3° downwards.

Side view



Adjust so that the image is projected at 11° angle.

Once these adjustments are completed, check that all the bolts and screws are securely tightened.

If the test signal (raster) is not centered on the screen:

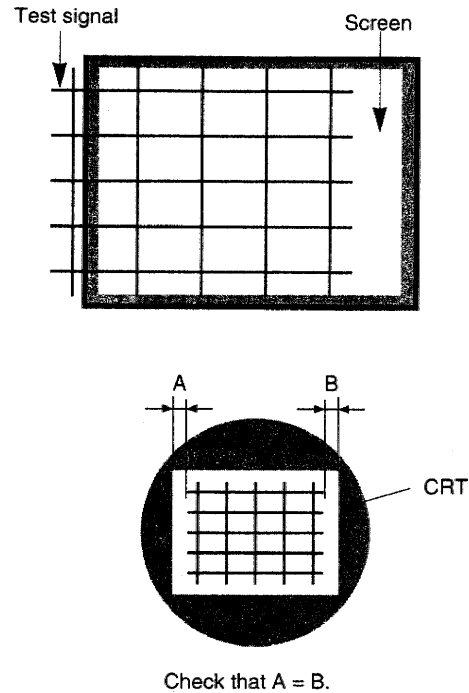
- The relative positions of the projector and screen may not be correct. Check.
- If the test signal (raster) is properly centered but picture signals are not, adjust the picture position (SHIFT).
- In some cases the test signal (raster) may not be centered on the screen even if the relative positions of the projector and screen are correct.

In such cases, check the condition of the test signal (raster) on the CRTs (lower the projector's brightness and look into the lens) to see if the non-signal areas on the sides are equal.

If they are not equal, adjust the G-CRT's centering magnet so that the green pattern is properly positioned on the screen.

Next adjust the positions of the red and blue patterns.

(For details, refer to the Set-up manual included with the projector or the service manual.)



Do not look into the CRTs for extended periods of time.

Alignment adjustment

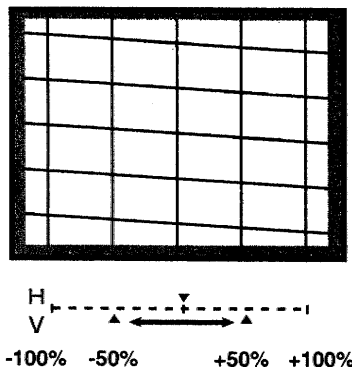
When adjusting the alignment, adjust the items below (tilt and V-key) to within the recommended values. If this is not possible, the projector may not be installed in the proper position.

If this is the case, recheck and change the projection distance and angle.

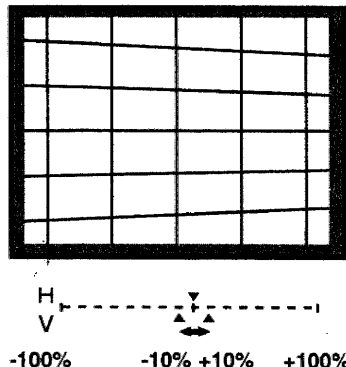
(For details, refer to the Set-up manual included with the projector or the service manual.)

[Recommended values]

Tilt..... $\pm 50\%$



V-key..... $\pm 10\%$



V-bow..... $\pm 50\%$

H-bow..... $\pm 50\%$

