

## 3.0 Installation

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### 3.1 Before Installation - Location Considerations

Take the time now to carefully observe the requirements for optimum projector setup. The Model 200 is an advanced projector that delivers a premium image, but it must be set up correctly in order to run ideally. Improper location and setup will cause problems later during image adjustment procedures.

Prior to installing the projector, consider the following:

- Table or Ceiling mounting
- Projector-to-Screen Alignment
- Screen Size
- Seating Arrangements
- Lens type Selection
- Physical Access
- Heat Dissipation

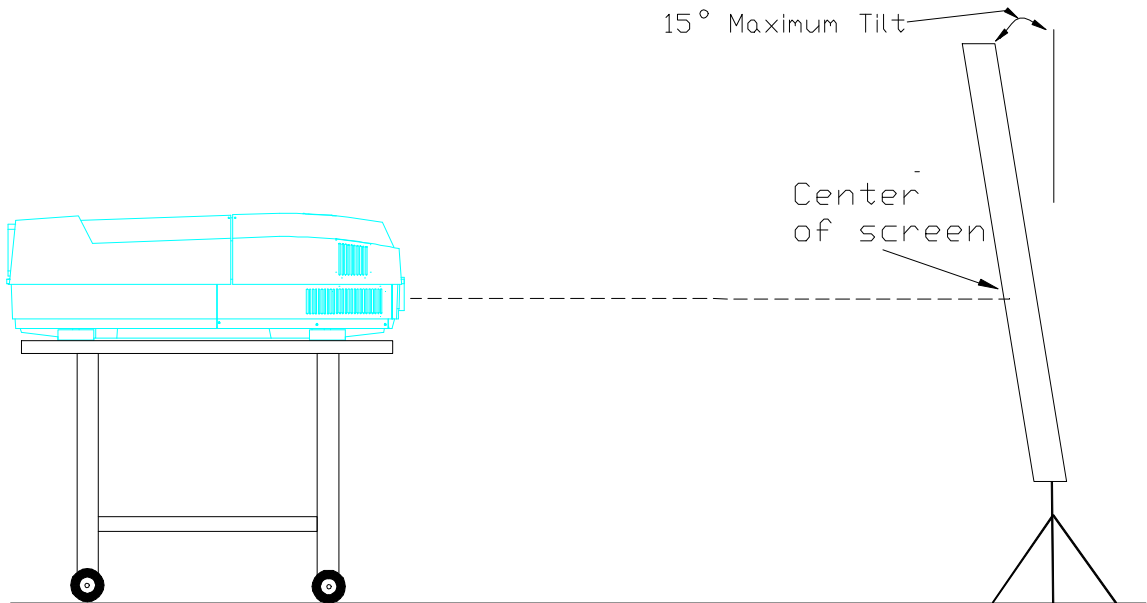
### 3.2 Table vs. Ceiling Mounting

Whether a projector is table mounted or ceiling mounted has an affect on the screen type, the ease of installation, the connections and the service requirements.

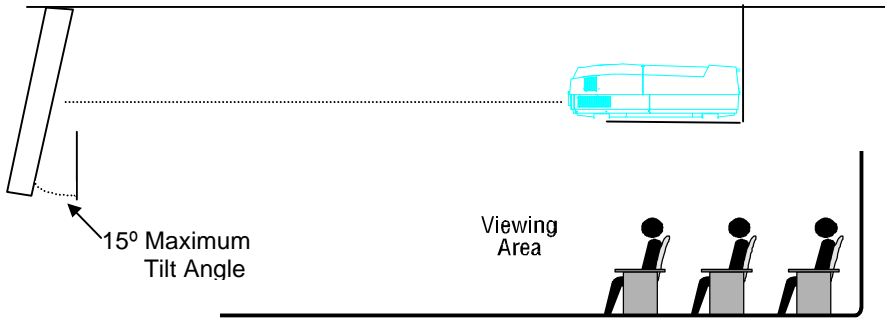
**Table Mount:** A *table mounted* projector can be "hidden" within a cabinet if desired, but takes up floor space and frequently blocks the view from some seating areas (*Figure 3-1*).

**Ceiling Mount:** A *ceiling mount* (*Figure 3-2 and 3-3*) moves the projector out of the path of the audience, allows more seating

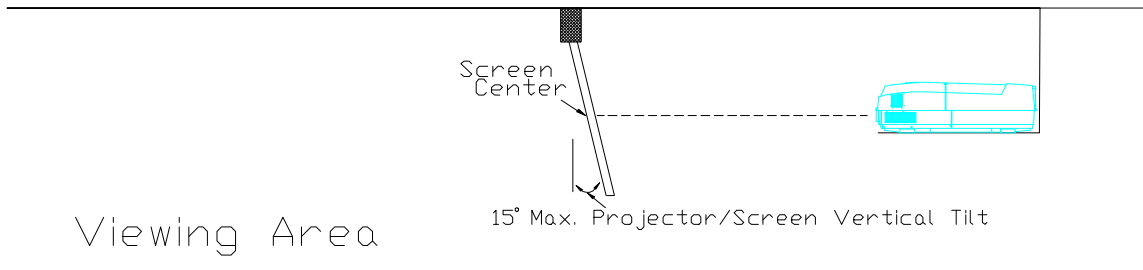
and clear viewing paths. It is typically more permanent than a table mount. A ceiling mount may disappear into the ceiling by an available projector lift when not being used.



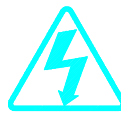
**Figure 3-1.** Table Mount, Front View. Maximum projector to screen tilt angle is 15°



**Figure 3-2.** Ceiling Mount, Front Projection (side view). Maximum projector-to-screen tilt angle is 15°.



**Figure 3-3.** Ceiling Mount, Rear Projection (side view). Maximum projector-to-screen angle vertical tilt is 15°.



**WARNING!!!** To ensure proper support and safety, install the ceiling mount in accordance with the manufacturer's instructions.

**WARNUNG!!!** Aus Sicherheitsgründen muß zur Gewährleistung einer ausreichenden Befestigung die Deckenabhängung entsprechend den Anleitungen des Herstellers angebracht werden.

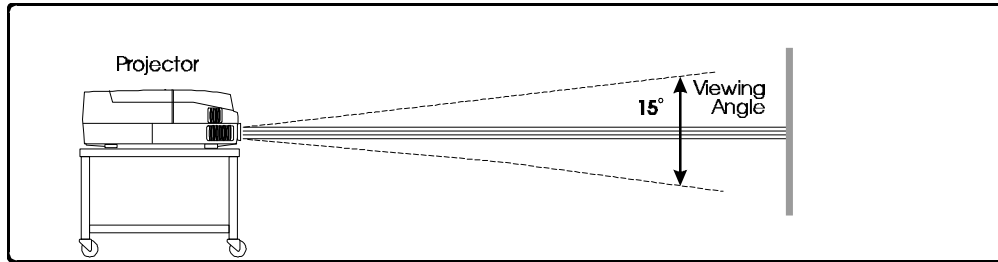
**ATTENTION!!!** Pour assurer un bon support et la sécurité, installer une suspension au plafond en respectant les instructions du fabricant.

### 3.3 Projector-to-Screen Alignment

Set the projector to the proper distance from the screen as determined by the screen width and lens ratio illustration (see *Section 3.4*). The Lens Pattern illustration (Figure 3-7) will assist in determining optimal screen widths and throw distances for the zoom lens.

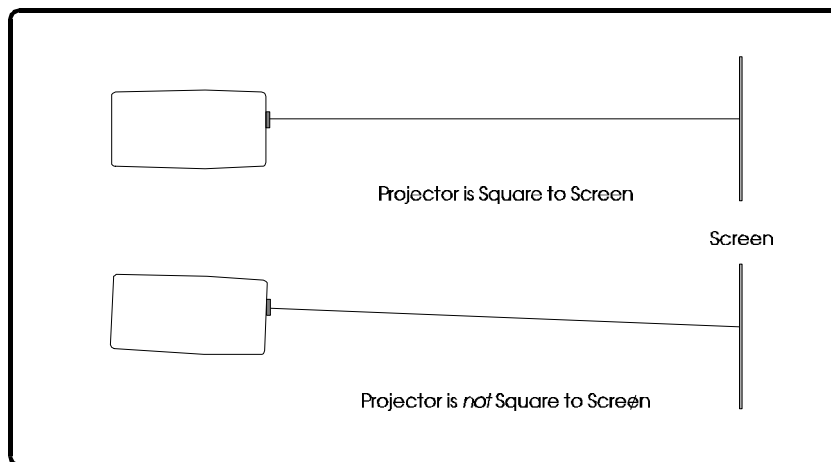
Whatever mounting method is chosen, the maximum *projector-to-screen* vertical tilt angle is 15° vertical. Any tilt more than 15° will result in a severe keystone error that cannot be corrected. Keystone correction will only account for ±15°.

The Model 200 Projector can be used upright or downright at any angle from 5° to 85°. Due to prism bubbles, avoid angles within 5° of the vertical (upward or downward).



**Figure 3-4.** Maximum projector-to-screen vertical tilt angle for table mounting, front or rear projection.

Verify that the projector is centered horizontally on the screen, with the front corners equidistant from the screen (*Figure 3-5*).



**Figure 3-5.** The projector should be exactly centered to the screen (side to side).

Ensure that the projector is as level as possible from a side to side orientation. If yawed (shifted from the horizontal plane) greater than  $\pm 10^\circ$  the Arc Lamp interior components will not work properly (see Figure 3-6A below).

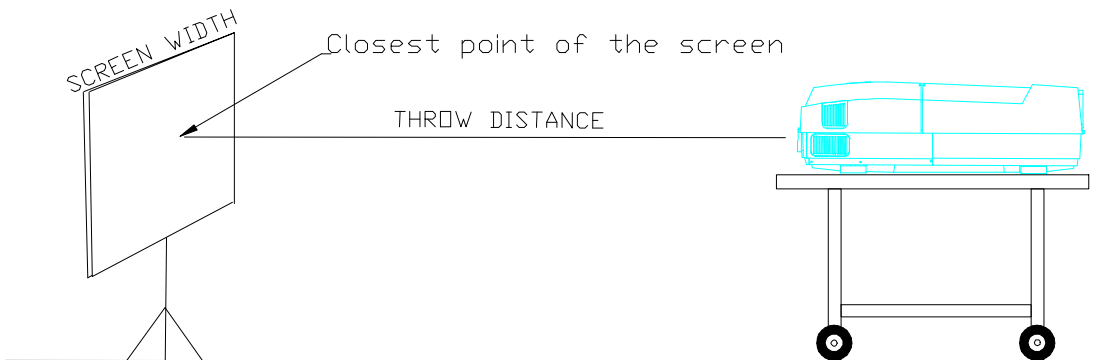
### 3.4 Lens Throw Distance and Screen Width

**Throw Distance and Screen Width.** An illustration of screen width and throw distance is shown in Figure 3-6. Information on lens dynamics is provided graphically in Figure 3-7.

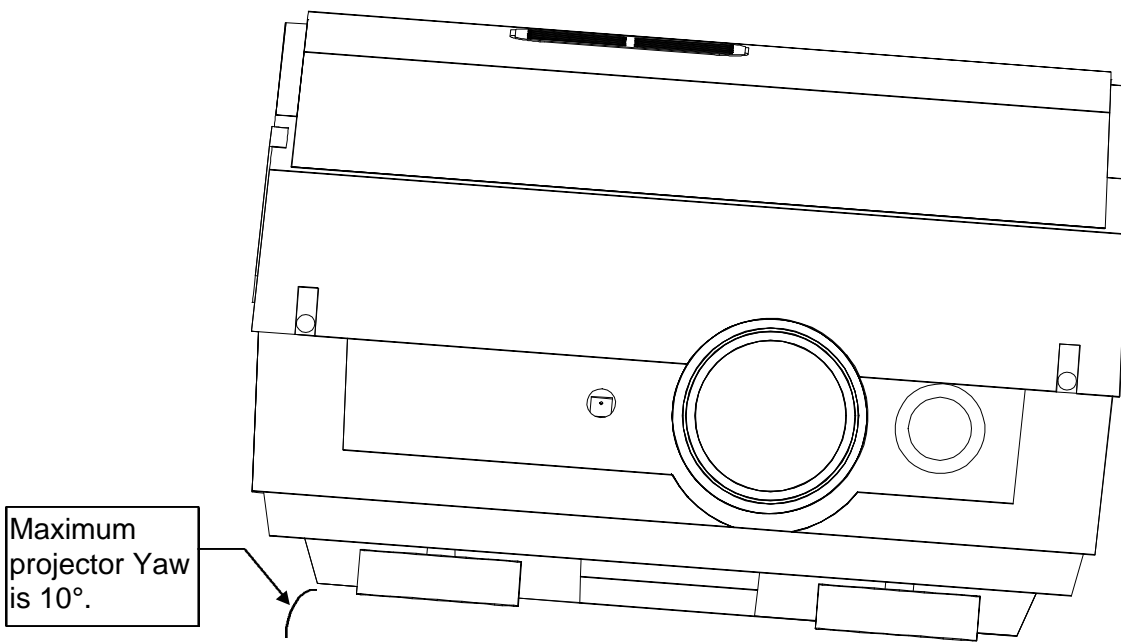
Model 200 Projectors have variable throw distances from 2.6 to 5.1 times the screen width. For example the Zoom Lens Pattern (*Figure 3-7*) shows that a 4 meter wide picture can be projected from 11 meters, 15 meters, or up to 20 meters depending on the zoom lens position.

**Throw distance** is the distance from the projector lens to the closest point on the screen. **Screen width** is the maximum width of picture that can be displayed.

**NOTE ON CHANGING LENSES:** Refer to the Service Manual when changing from the Zoom lens to a fixed lens or from a fixed lens to the Zoom lens.

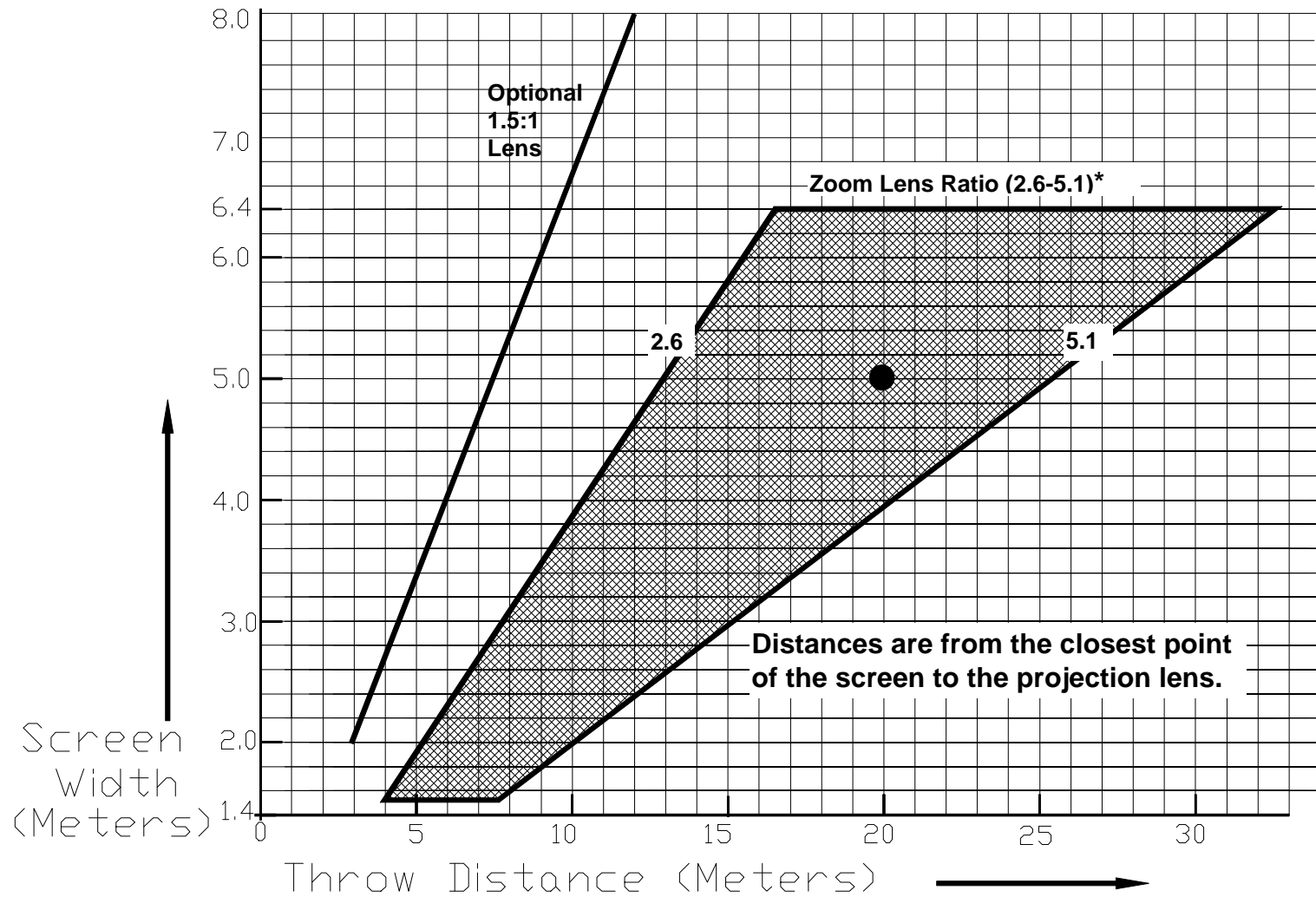


**Figure 3-6.** Throw distance and Screen Width.



**Figure 3-6A.** Projector yaw (twisted from horizontal position) maximum is 10°.

**Figure 3-7. Lens Pattern for Model 200. All dimensions are in meters.**

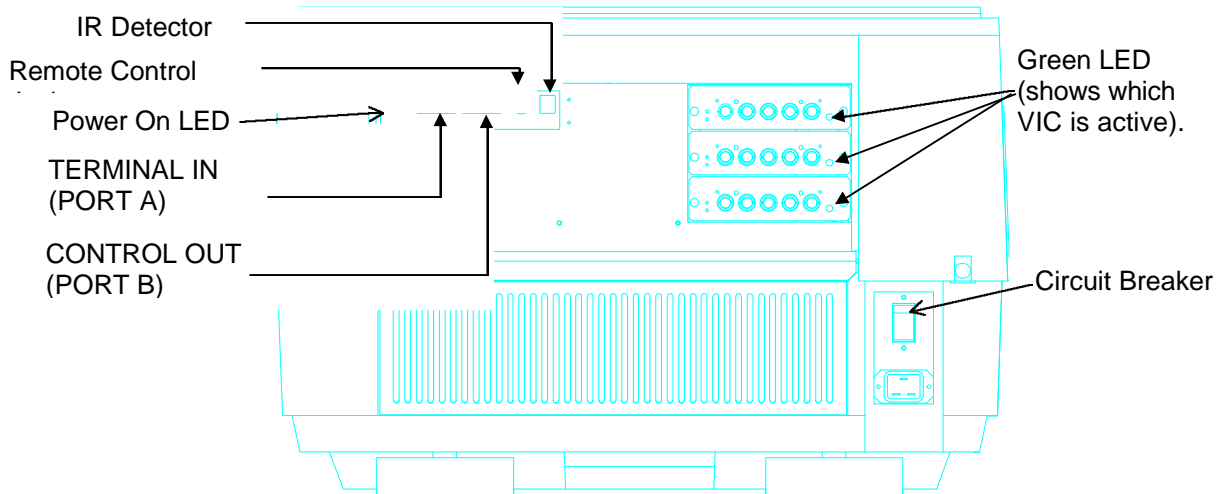


The Zoom lens can be used for any screen width *and* throw distance points that fall inside the shaded zoom lens outline as shown on the above pattern.

\*Zoom Lens numbers represent the ratio of throw distance to screen width. Thus, a throw distance of 20 and a screen width of 5 falls inside the shaded area where the large dot is.

### 3.5 System Connections

Figure 3-8 shows the rear panel connections of the Model 200 Projector.



**Figure 3-8.** Model 200 Projector rear panel connections.

**Power Connections:** Verify that the Model 200 Projector is connected to a 100-240V, 20A single-phase, 50-60 Hz AC power source.

**Stromversorgung:** Der Projektor Modell 200 muß an eine Wechselstromquelle mit 100-240 V, 20 A, einphasig, 50-60 Hz angeschlossen werden.

**Alimentation électrique:** vérifier que le projecteur modèle 200 est branché sur une alimentation entre 100 V et 240 V c.a., 50 à 60 Hz, monophasée, 20 A.

**Terminal or Remote Control:** Verify that the remote control tether is connected to the phone jack (or a VT100 Control Terminal is connected to the RS-232 jack on the projector back panel marked "Terminal In"). The other port marked "Control Out" can also be used but must be selected from the Comm Setup menu. The projector can also be controlled by an optional Technician Remote (connected to the phone jack or operating as an IR) which provides for setup functions to be accessed instantly by keys on the remote instead of navigating through the menu tree.

**InfraRed (IR) Windows:** The Model 200 Projector has two IR windows, one in front, one in back. These windows receive projector control signals from the IR remote.

## 3.6 Video Sources

The Model 200 Projector accommodates a wide range of video formats, from standard composite video to a multitude of computer graphics and many other standard and custom formats. For any installation, it is critical that source files in the projector be set up to be compatible with all anticipated video sources. The key parameters are the horizontal and vertical scan rates, interlaced or non-interlaced scanning, and plus/minus sync levels. In the Model 200, up to 20 video sources can be handled by one channel. The correct projector source file is matched and automatically selected for the video source being received by the projector.

**Types of Standard Composite Signals:** There are a number of different standards for composite video, the more commonly known being NTSC 3.58/4.43 (for US consumer television), PAL and SECAM (standards used in Europe and Asia), and RS-170 (closed circuit monochrome). These standards differ in relation to parameters such as signal timing and the encoding scheme for the "video" information.

**Red, Green and Blue Analog Signals:** The most common input is separate red, green and blue (RGB) analog signals. The sync signals for RGB analog sources can be separate horizontal and vertical, composite (horizontal and vertical combined) or included with the green analog signal (sync on green).

**Signal Inputs:** The Model 200 allows the source(s) to be connected directly to the projector via appropriate connecting cables. Signal input jacks are located on the rear panel of the projector and are illustrated in Figure 3-8.

Verify that the video source input is connected to the appropriate VIC (Video Input Card) input at the rear of the projector. The R, G, B, H, V inputs should be connected to the appropriate jacks on the rear panel. RGBHV is the standard VIC that is supplied with the projector. Other VIC options are available for NTSC, PAL, SECAM, HDTV, and S-VHS (see Options in Chapter 1). **NOTE:** Composite sync (H/V) should be connected to the H input on the rear panel.

If using an Extron switcher, it should be connected to either Port A or Port B. A switcher can be connected to either port but only one switcher can be used. The switcher must be selected under Comm Setup (refer to Section 4.4, Navigating the Menu-Video Switchers).

If using a communications controller such as an AMX or Crestron, connect it to either port A or port B. Only one controller per projector can be used.