

Film-Tech

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These manuals are designed to facilitate the exchange of information related to cinema projection and film handling, with no warranties nor obligations from the authors, for qualified field service engineers.

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PARAMOUNT PICTURES CORPORATION

3-D PROJECTION SYSTEM

INSTRUCTION MANUAL

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PARAMOUNT

* THE PARAMOUNT 3-D PROJECTION SYSTEM WORKS WITH A FLAT *
* LENS AND PRODUCES AN IMAGE AS WIDE AS YOUR NORMAL FLAT IMAGE. *
* HOWEVER, THE HEIGHT IS REDUCED BY APPROXIMATELY 20%. *

* IF YOUR CINEMASCOPE SCREEN WIDTH IS WIDER THAN FLAT, *
* YOU CAN USE A SMALLER FOCAL LENGTH LENS TO FILL THE SCREEN. *
* CONTACT PARAMOUNT OR YOUR THEATER- OR LENS-SUPPLY COMPANY *
* TO FIGURE OUT YOUR EXACT REQUIREMENTS. TELL THEM YOUR *
* WIDEST SCREEN WIDTH AND YOUR THROW, AND ASK THEM FOR A *
* FLAT LENS FOCAL LENGTH TO FILL THE WIDTH OF THIS SCREEN. *
* DO NOT USE ANY ANAMORPHIC (CINEMASCOPE) ATTACHMENTS WITH *
* THIS 3-D PROJECTION SYSTEM.* *

* PARAMOUNT PICTURES CORPORATION 3-D FILM CAN ONLY BE *
* PROJECTED ONTO A SILVER SCREEN. IT WILL NOT WORK ON ANY *
* OTHER TYPE OF SCREEN. IF IN DOUBT ABOUT THE KIND OF SCREEN *
* IN YOUR THEATER, CALL PARAMOUNT. *

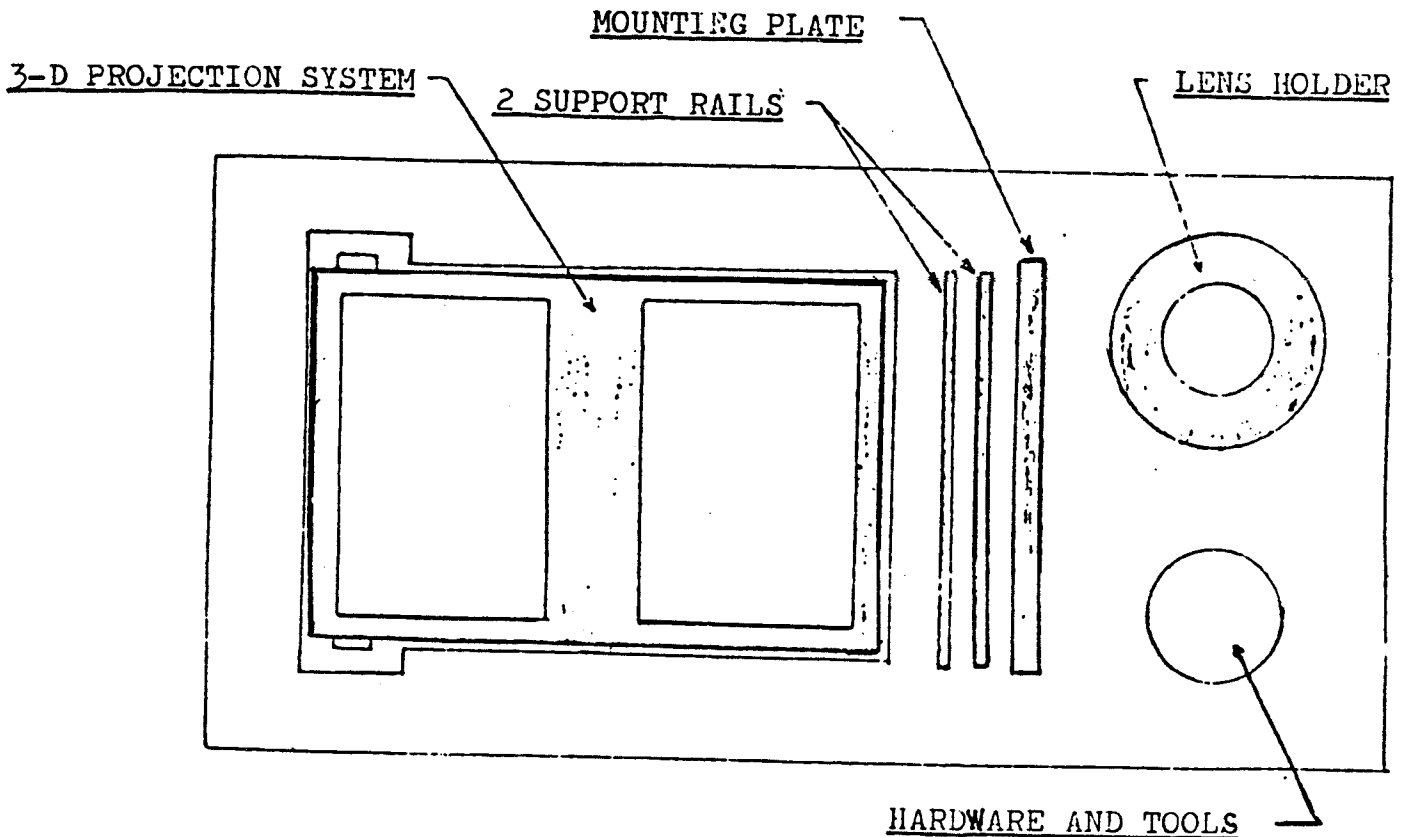
* 3-D FILM MUST BE FRAMED WITH THE THICK BLACK LINE IN *
* THE CENTER OF THE FRAME. ALL SPLICES MUST BE MADE ON THE *
* THIN FRAME LINES. INCORRECT FRAMING WILL DISTORT THE 3-D *
* EFFECT. *

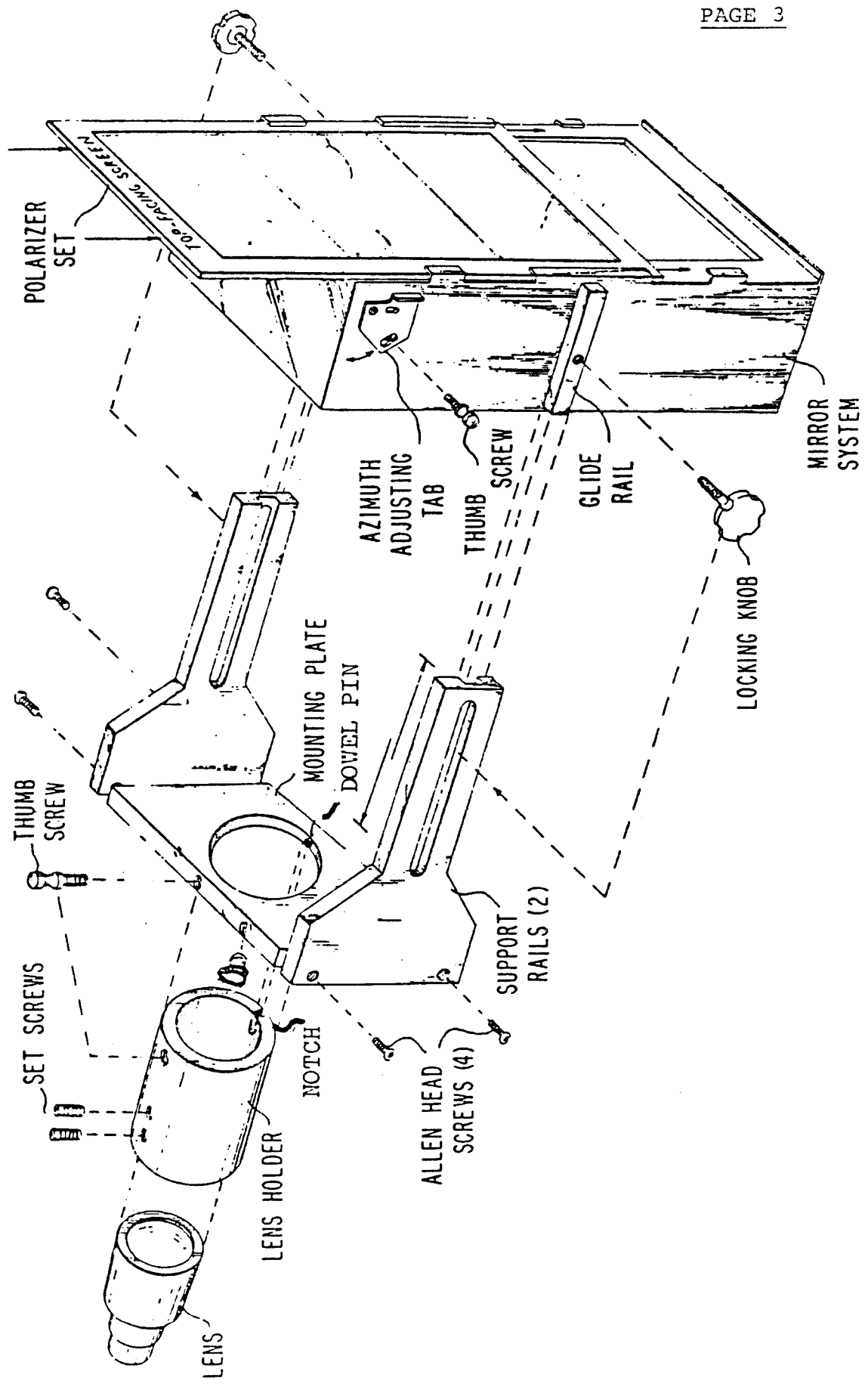
FOR ANY HELP, CALL PARAMOUNT COLLECT: (213) 468-4450.

*If your screen is wider for scope and the height does not change, and you project your flat image in a wide-screen format, then as a general rule you may choose a new focal length equal to 80% of your flat lens.

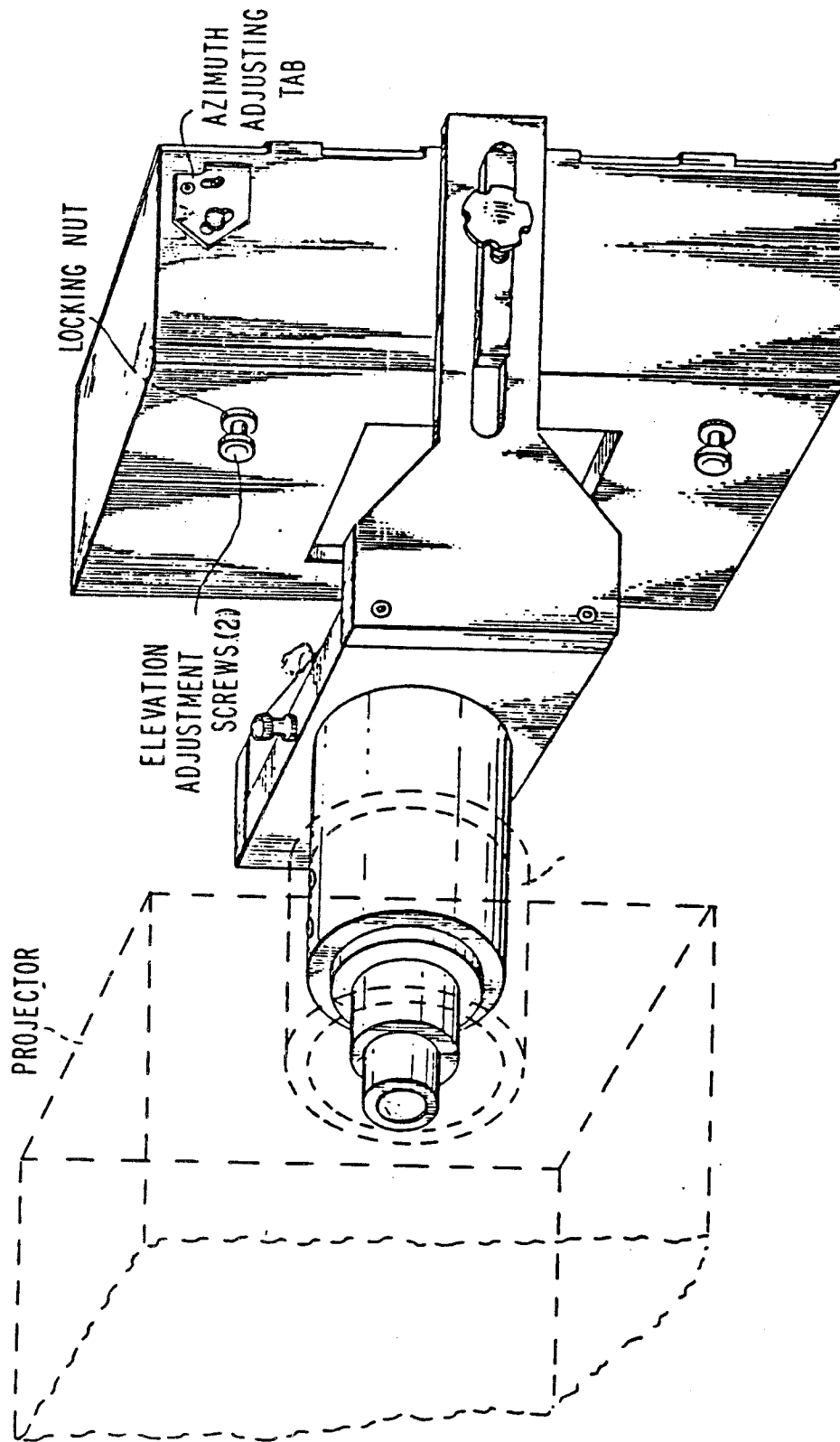
CONTENTS OF SHIPPING CONTAINER

1. Paramount Lens Holder
with 2 set screws, and
an Allen wrench taped to it
 2. Mounting Plate
with locking thumb screws
 3. Support Rails (2)
 4. Projection System
with Polarizer Set
 5. Aperture Plates
 6. Special Lens Adapter & Extension Tube
(only if your projector does not
have a 4-inch lens holder)
- In the small plastic bag:
1 Allen wrench
2 black Locking Knobs
4 Socket Head Screws
- Plus:
1 loop of 3-D alignment film
Cardboard masking squares
Extra Polarizer Sets
- You should also have:
Tape





EXPLODED VIEW OF PROJECTION SYSTEM

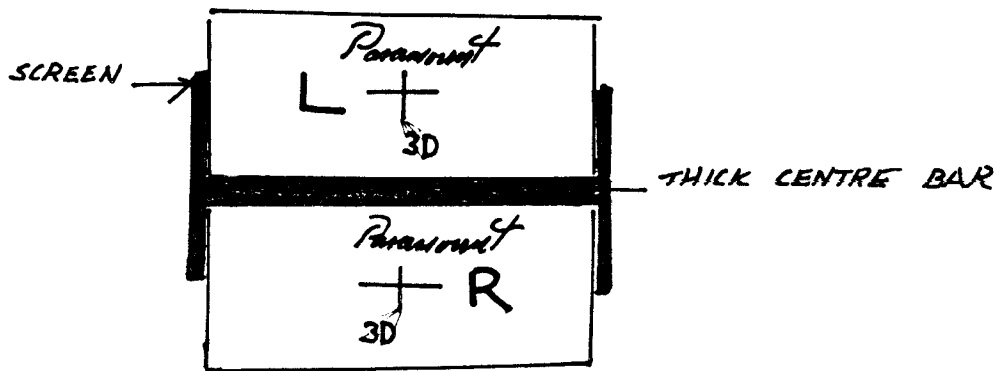


PROJECTION SYSTEM INSTALLED

INSTALLATION

1 ALIGNMENT FILM

- Remove the loop of alignment film from the shipping container, and run it through the projector.
- The loop image on screen should resemble the figure below. There will be a spill-over of image at the top and bottom of the screen. DO NOT BE CONCERNED ABOUT THIS FOR NOW: IT WILL BE ELIMINATED BY THE SYSTEM FRAMING KNOBS.



LOOP OF ALIGNMENT FILM PROJECTED ON SCREEN

● IT IS ESSENTIAL THAT YOU LEARN TO FRAME THE FILM SO THAT IT PROJECTS LIKE THE FIGURE ABOVE. THE THICK BLACK LINE IS ALWAYS AT THE CENTER OF THE FRAME!

● Practice threading the film loop several times. When you can easily thread the film so that the thick black line is consistently at the center of the frame:

Leave the loop threaded.

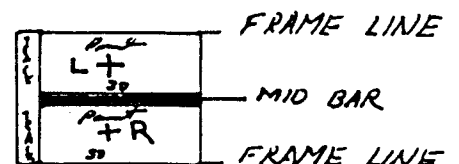
Stop the projector.

- If your projector has a 4-inch diameter lens holder:

GO ON TO STEP 2.

- If your projector does not use a 4-inch lens holder:

SKIP TO STEP 3.



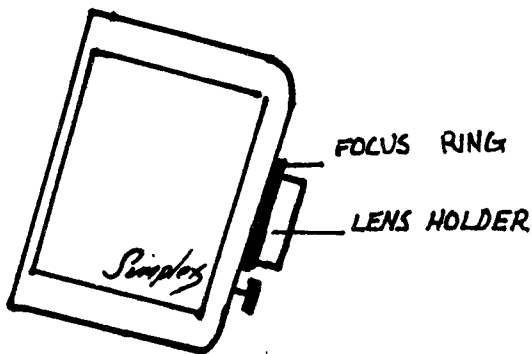
2 LENS HOLDER SETUP (ONLY FOR 4-INCH LENS HOLDERS)

● Remove from the shipping container the Paramount Lens Holder with attached Allen wrench. Remove your existing aperture plate from your projector, which should be on.

● Position the lens holder so that the side with the hole and the notch face away from the front of the projector, with the hole on top and the notch on the bottom. Slide the lens holder into the projector as far as possible, while allowing enough room for the projection system to fit on the holder's outside end (as in the figures below, the holder should just clear the framing knobs on the projector).

● Place the lens into the holder and, holding it with one hand, insert it to the point where the best focus on screen is reached. Then, carefully remove both lens and lens holder, and, with the Allen wrench, tighten the set screws on the lens holder, thus clamping the lens into place.

● Place the lens holder back into the projector, and place a focus ring over the lens holder.

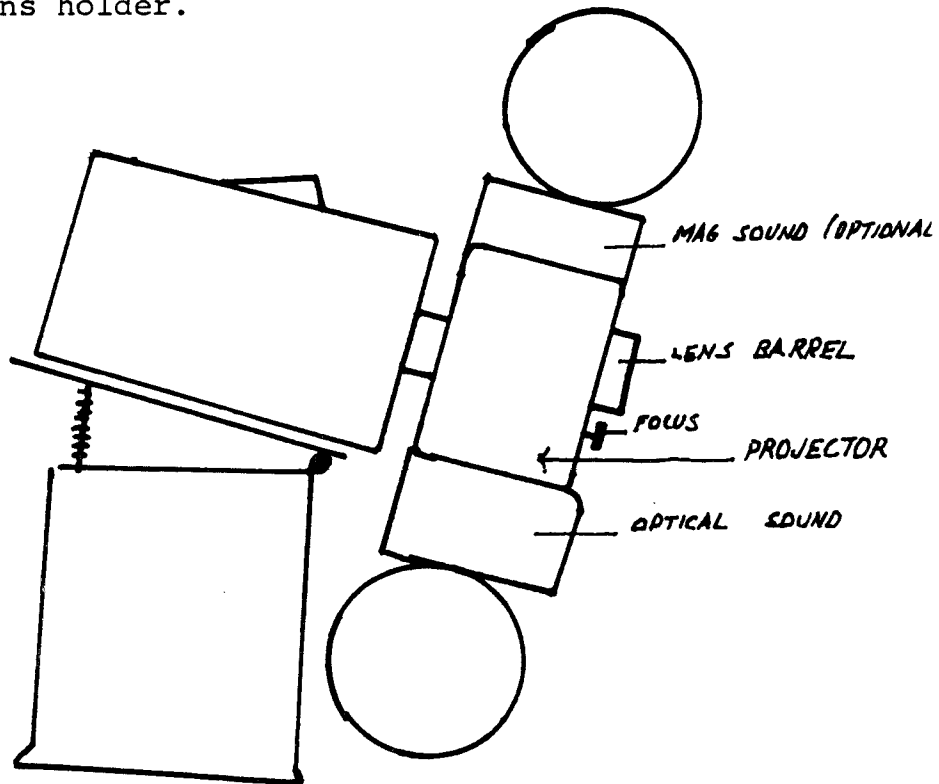


LENS HOLDER INSTALLED IN
SIMPLEX PROJECTOR

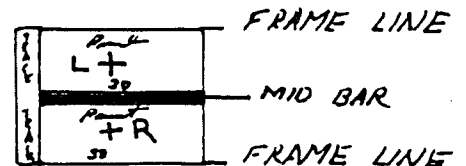
● Focus again the lens assembly and tighten the lens clamp inside the projector.

● Do not clamp down the focus ring yet.

● Leave the film loop threaded and proceed to Step 4.



BARREL OF LENS HOLDER INSTALLED IN PROJECTOR



3 SPECIAL LENS ADAPTER (ONLY FOR PROJECTORS WITHOUT 4-INCH LENS HOLDERS)

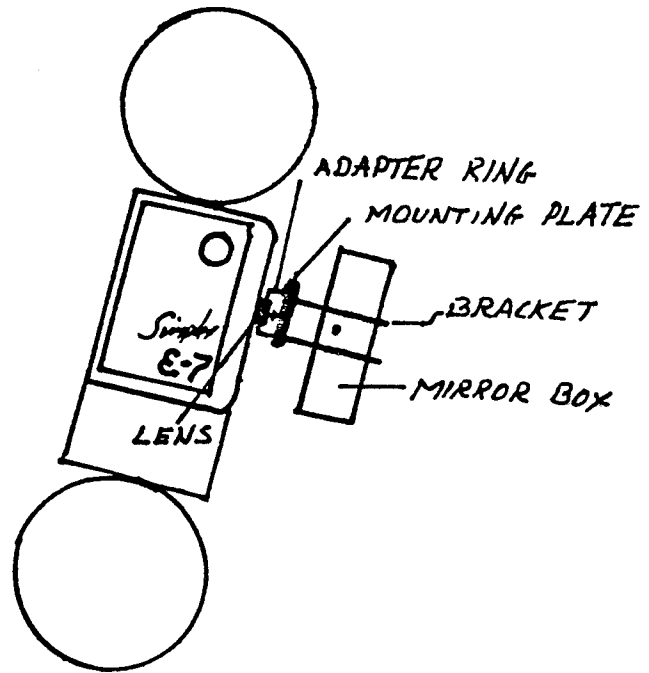
●Projectors which do not use a 4-inch lens holder are provided with a special Lens Adapter which clamps onto the end of the flat lens.

●IF YOUR LENS DOES NOT EXTEND FAR ENOUGH FROM THE PROJECTOR FOR THE ADAPTER TO SLIDE ON, YOU MUST USE AN EXTENDER TUBE. IF YOU DO NOT HAVE ONE, USE THE 2½-INCH TUBE SUPPLIED. IF THIS DOES NOT WORK, AND YOU CANNOT OBTAIN AN EXTENDER TUBE LOCALLY, CALL PARAMOUNT.

●Position the Lens Adapter so that the end with a small hole and a notch face away from the projector, with the hole on top and the notch on the bottom.

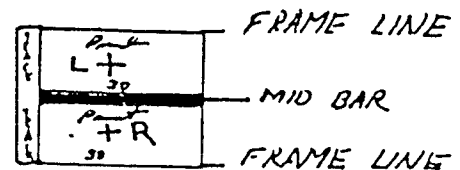
●Slide the Lens Adapter onto the end of the flat lens, or the Extender Tube, if one is used. Then clamp the Lens Adapter onto the flat lens or Extender Tube by tightening the clamp screw with the Allen wrench provided.

●The Mounting Plate can now be attached to the Adapter or Extension Tube, and the rest of the Projection System attached to it, as in the figure to the right.



PROJECTOR WITH SPECIAL LENS ADAPTER AND PROJECTION SYSTEM MOUNTED

●Proceed to Step 4.



4 PROJECTION SYSTEM ASSEMBLY

● Remove the Support Rails and Mounting Plate from the shipping container. Remove the Allen wrench and the 4 Socket Head Screws from the plastic bag.

● Making sure that the grooves on the Support Rails face inward, line up the Support Rails and the Mounting Plate.

● Clamp the Support Rails onto the Mounting Plate by tightening the Socket Head Screws with the Allen wrench.

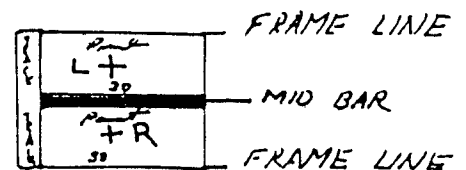
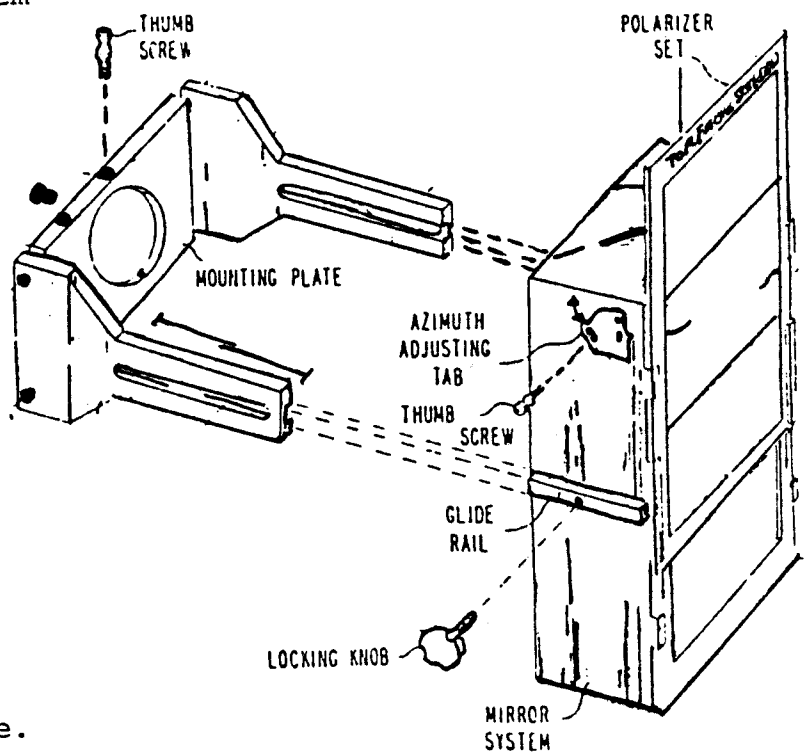
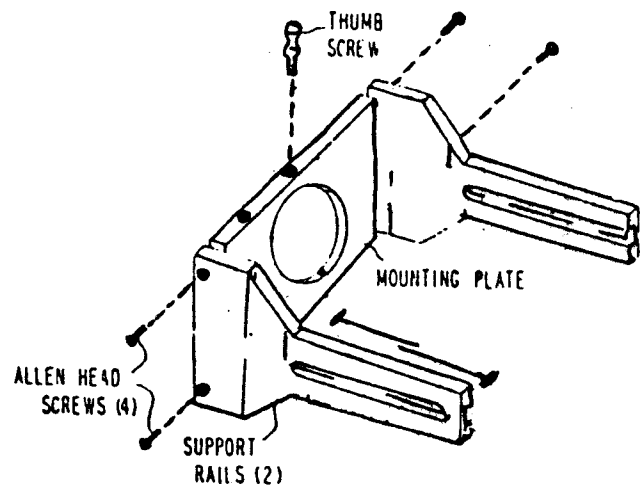
● Remove the Projection System from the shipping container. Remove the 2 black Locking Knobs from the plastic bag.

● Position the Projection or Mirror System so that the red Adjustment Screws on the back of the system face the Mounting Plate. Now slide the system onto the Support Rails.

● Tighten the 2 black Locking Knobs into the glide rail of the system, thus locking it unto the Support Rails.

● On top of the Mounting Plate, loosen the brass Thumb Screw and the red knob, so that the center of the Mounting Plate is free.

● PROCEED TO STEP 5.

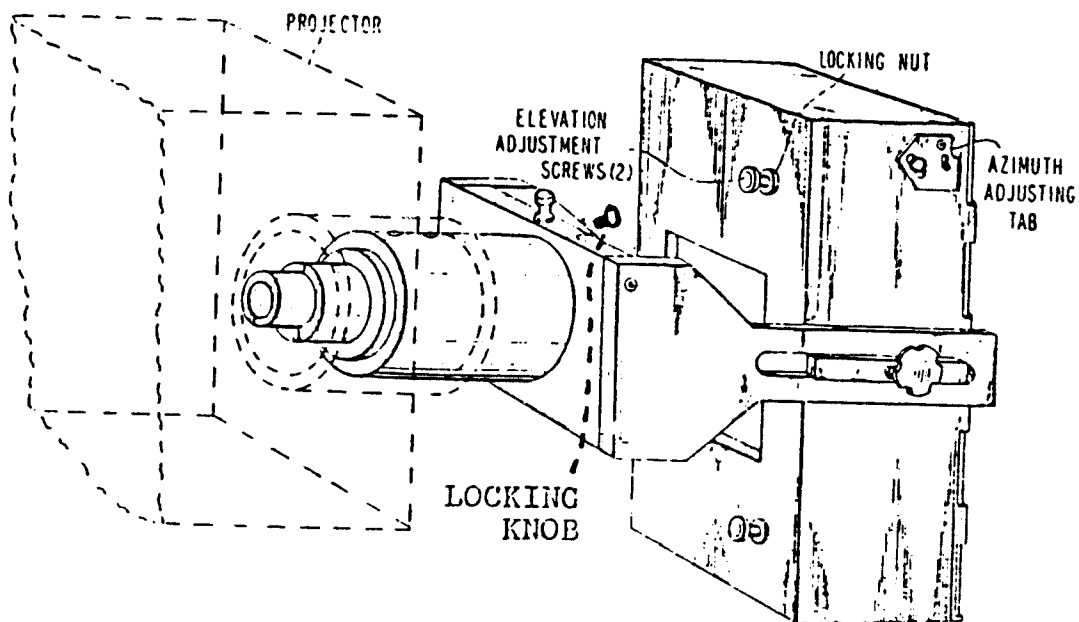


5 PROJECTION SYSTEM INSTALLATION

●Slide the Mounting Plate, with the rest of the Projection System attached, over the end of the Paramount Lens Holder. The Dowel Pin on the bottom of the Mounting Plate will mate with the Notch on the bottom of the Paramount Lens Holder. The brass Thumb Screw on top of the Mounting Plate will mate with the hole in the top of the lens holder.

●Tighten the brass Thumb Screw and the red knob on top of the Mounting Plate to lock the system into place.

●Make sure the mirror box is not tilted sideways.



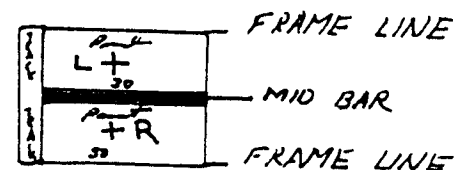
●If your focal length is 3 inches or longer, slide the Projection System as far as possible from the projector.

●If your focal length is between 2 and 3 inches, slide the Projection System to the middle of the Support Rails.

●If your focal length is 2 inches or less, slide the Projection System all the way toward the projector.

Tighten the black Locking Knobs.

Proceed to System Alignment (next section).



ALIGNMENT

1 APERTURE PLATE INSTALLATION

●Install the 3-D Aperture Plate. Only use the Paramount 3-D Aperture Plate. Other aperture plates for other 3-D systems will not work. The Paramount system should either be run with the Paramount 3-D Aperture Plate, or with no plate at all.

2 ELEVATION ALIGNMENT

●In aligning the system, only be concerned with the "L+" image which projects from the top mirror of the Mirror Box, and the "+R" image which projects from the bottom mirror. (With longer-focal-length lenses, there might be a slight extra image emitted from each mirror. These will be eliminated by Masking.)

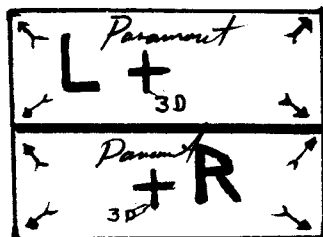
●To bring the "L+" and "+R" into perfect on-screen alignment, start by making sure that the Polarizer Set is positioned with the printing "Top-Facing Screen" at the top. Turn on the projector.

●On the back of the Mirror Box, find the two black Locking Nuts beneath the two red Adjustment Screws. Loosen these nuts, thus allowing the red Adjustment Screws to be adjusted.

●Without touching the Polarizer, place your hand in front of the bottom mirror. The "+R" image should disappear. Now adjust the upper red Adjustment Screw, bringing the "L+" image down into the center of the screen.

●Remove your hand and, by adjusting the lower red Adjustment Screw, bring the "+R" image up until it is as close to the "L+" as you can get it. The two crosses should be nearly superimposed.

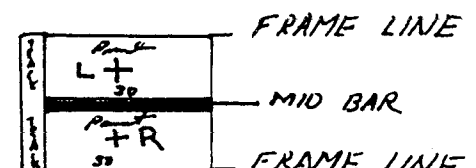
●If the crosses are not superimposed, grip the Mounting Plate and very slightly rotate the entire system right or left. This should move the two crosses into perfect alignment.



BEFORE ALIGNMENT



AFTER ALIGNMENT



●IF THE TWO CENTRAL CROSSES ARE ALIGNED, BUT THE CORNER ARROWS AT THE EDGES OF THE FRAME ARE SEVERELY MIS-ALIGNED, PROCEED IMMEDIATELY TO STEP 3.

●If the two central crosses are aligned, and the corner arrows are completely or nearly superimposed:

Gently tighten the two black Locking Knobs, locking this alignment into place. Check again that the two crosses are aligned.

Lock down the focus ring (If your focus ring does not have a small dowel pin to locate the ring to the projector, mark the yoke and projector so that, if the Paramount Lens Holder is removed, it can be replaced without requiring much subsequent alignment).

SKIP TO STEP 4.

3 HORIZONTAL ALIGNMENT

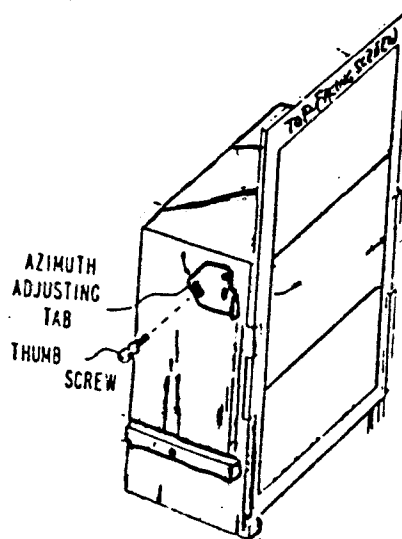
●THIS ADJUSTMENT SHOULD ONLY BE USED IF A SLIGHT ROTATION DOES NOT ALIGN THE CROSSES, OR IF THE CORNER ARROWS ARE SEVERELY MIS-ALIGNED.

●Make sure the system is directly vertical. Locate the two Azimuth Adjusting Tabs, one on either side of the system.

●Carefully push one of the Azimuth Adjusting Tabs down. This should move the "L+" image diagonally upward, away from the "+R" image. If it does, then push this Tab once again "up" as far as it will go, and clamp it into place by tightening the Thumb Screw.

●Push the other Azimuth Adjusting Tab down. This should move the "L+" image directly over the "+R" image. When the "L+" image is directly above the "+R" image, re-adjust the upper red Adjustment Screw. This will bring the two images into superimposition. Clamp down this Tab by tightening its Thumb Screw.

●Clamp down the red Adjustment Screws by tightening the black Locking Nuts. Make certain the two central crosses are aligned.



- Lock down the focus ring.
- PROCEED TO STEP 4.

4 3-D CHECKOUT

- Put on 3-D glasses and look at the loop image on screen.

You should see: the "L+" image, emitted from the top of the Mirror Box, visible only with the left eye. The "+R" image, emitted from the bottom of the Mirror Box, should be visible only with the right eye.

The 3-D image, below the cross, should appear to be coming out of the screen toward you.

IF EITHER THE "L+" IMAGE OR THE "+R" IMAGE IS EMITTED FROM THE WRONG MIRROR, RE-CHECK THE FRAMING OF THE FILM AND THE PROJECTION SYSTEM ALIGNMENT.

● If your theater has a small porthole or a low ceiling, the image may hit the top or bottom of the porthole, or the ceiling. If this is happening, you will see dark areas in either eye at the top or bottom of the screen. For this problem:

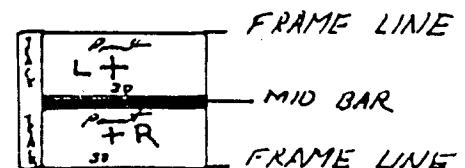
PROCEED TO STEP 5.

- Otherwise, PROCEED TO MASKING.

5 PROJECTOR TILT (ONLY IF THE IMAGE IS OBSTRUCTED BY A SMALL PORT OR A LOW CEILING)

● If the projector does not shoot through the center of the port, it must be raised or lowered. While doing so, count the number of turns of the tilt wheel required to obtain proper tilt, and write this number on the projector. This will make it easier to switch from 3-D to flat film and back again by turning the wheel the correct number of revolutions.

● After the projector has been correctly tilted, re-adjust the red Adjustment Screws until the images on screen are re-centered.



MASKING

MASKING IS ESSENTIAL
TO ENHANCE THE 3-D EFFECT, AND
TO REMOVE UNWANTED IMAGES WHICH
MIGHT DISTRACT FROM THE CENTRAL
IMAGE ON SCREEN.

1 SCREEN MASKING

• Proper use of screen masking will greatly enhance the effect of 3-D, by increasing audience sense of distance between itself and the screen. This will heighten the effect of objects "jumping out" of the screen.

• If you have chosen to use the Paramount Projection System with a lens which leaves some of your screen space empty, mask this empty space by drawing your screen masking to the edges of the image on screen whenever possible.

2 PORT MASKING

With 3-D Aperture Plate

• Focus on a piece of paper held up in front of the port window, and look at it without 3-D glasses.

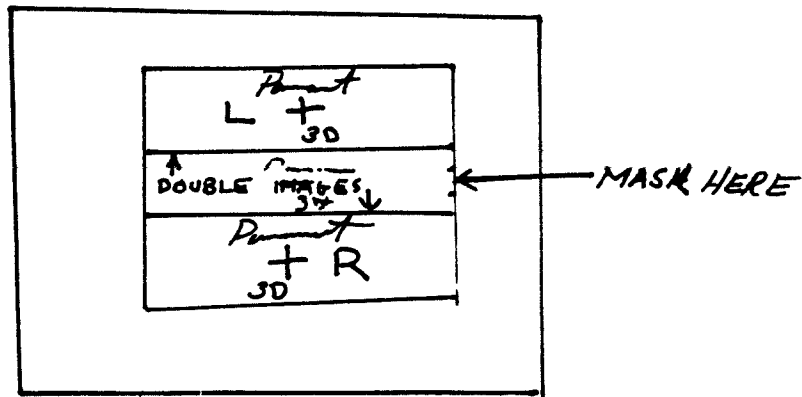


IMAGE ON PORT WINDOW WITH
APERTURE PLATE

• At the top of the window, you will see half the frame, the half with the "L+" image. At the bottom will be the half-frame with the "+R" image. Between them will be a strip of the two frames superimposed. THIS STRIP OF MATERIAL MUST BE MASKED.

• Cut a piece of cardboard which exactly masks this area, and tape it over the port window, thus masking it off.

Without Aperture Plate

●Focus on a piece of paper held up in front of the port window, and look at it without 3-D glasses.*

●At the top will be the half-frame containing the "L+" image, and above it a sliver of an unwanted partial frame. Between the "L+" and "+R" image at the bottom will be an area of unwanted superimposition of the two. The soundtrack will also be visible. THESE THREE AREAS MUST BE MASKED.

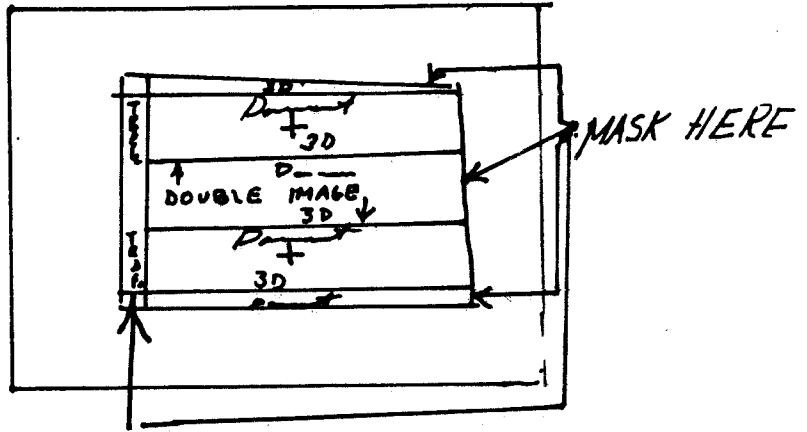


IMAGE ON PORT WINDOW WITHOUT APERTURE PLATE

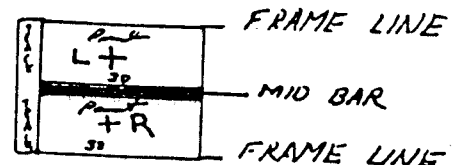
●Cut pieces of cardboard which will exactly mask these three areas: the middle superimposed area; the soundtrack area; and the extra frame above the "L+" half-frame. Tape the cardboard over these areas on the port window.

●Re-focus on the screen. The masking may have to be adjusted slightly.

SPLICING

IF THE FILM MUST BE SPLICED, BE CAREFUL TO DO SO ONLY ON THE THIN FRAME LINES. Triangular frame pointers, in the area of the sprockets at the edge of the film, will assist you in finding these frame lines. The pointers may be better seen with a magnifying glass.

*Instead of focusing on a paper held up to the port, you could also focus on screen, and follow the same masking procedure above.



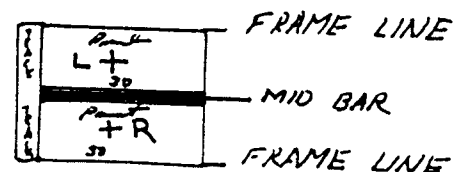
CLEANING

- The Paramount 3-D Projection System contains four mirrors and one Polarizer Set, which may be cleaned by the use of canned air.
- The Polarizer Set may be removed to clean the mirrors. If removed, it must be re-inserted with the proper orientation.
- If canned air is not available, a good, commercially-available lens cleaner and tissue may be used gently.
- If the Polarizer becomes damaged, there are replacements in the shipping container.

OPERATION

THE WIDER THE IMAGE YOU CAN PROJECT
ON SCREEN, THROUGH THE USE OF A LENS
WHICH FILLS SCREEN SPACE, THE MORE
EFFECTIVE WILL BE THE 3-D EXPERIENCE.

THE LAMP HOUSE SHOULD BE OPERATED
AT MAXIMUM SAFE LEVELS DURING ALL
OPERATION WITH 3-D FILM.



TROUBLESHOOTING

Listed below are some common problems which may be encountered, along with possible causes and remedies.

<u>PROBLEM</u>	<u>POSSIBLE CAUSES</u>	<u>REMEDIES</u>
1. "Ghosting" or double images	A. Polarizers damaged B. Screen not painted silver or improperly painted C. Polarizer installed upside-down D. 3-D glasses are defective	Replace Polarizer Call Paramount Turn Polarizer over Call Paramount
2. Reversed 3-D image (foreground appears in back)	A. Film mis-framed B. Film incorrectly spliced C. Polarizer upside-down	See page 5 See page 14 Turn Polarizer over
3. Extra images on screen	A. Improper masking B. Aperture plate not installed C. Oversized aperture plate	See page 13 See page 10 Plate must be 0.730 inches by 0.860 inches, or use no plate at all
4. Left and right eye see different brightness levels	A. Misadjusted lamp reflector B. Damaged or dirty optics or polarizers	See page 15 Replace optics or polarizers
5. Dark areas in corners	A. Light spill or vignetting	Move Projection System closer to projector
6. Dark areas near top or bottom	A. Wrong aperture plate B. Wrong masking	See page 10 See page 13
7. One eye not in focus	A. Mirror Box not parallel to front of projector	Tilt box so it is parallel to front of projector

FOR PROBLEMS CALL PARAMOUNT COLLECT: (213) 468-4450.

PARAMOUNT 3-D PROJECTION SYSTEM

QUICK REFERENCE

1. THREAD ALIGNMENT FILM LOOP, WITH WIDE BAR IN CENTER OF FRAME!
2. MOUNT PROJECTION SYSTEM TO LENS HOLDER.
3. CENTER "L+" IMAGE WITH UPPER RED ADJUSTMENT SCREW.
4. ALIGN "+R" IMAGE WITH LOWER RED ADJUSTMENT SCREW TO PUT EACH CROSS AT THE SAME HEIGHT.
5. SLIGHTLY ROTATE THE SYSTEM AROUND THE LENS HOLDER TO SUPERIMPOSE THE TWO IMAGES. CAUTION: DO NOT ROTATE EXCESSIVELY. INSTEAD, USE THE AZIMUTH (KEystone) ADJUSTING TABS AS DESCRIBED IN THE MANUAL.
6. LOOK AT THE "3-D" AT THE BOTTOM OF THE FRAME, WHILE WEARING 3-D GLASSES. IT SHOULD APPEAR IN FRONT OF THE SCREEN. IF NOT, CHECK TO BE SURE THE FILM IS PROPERLY FRAMED IN THE GATE, WITH THE WIDE BAR AT THE CENTER OF THE FRAME.
7. MASK OFF UNWANTED LIGHT SPILL.