Film-Tech

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www.film-tech.com

Table Of Contents

PSA-200

Projection System Analyzer

PSA Patented Technology

Please record the following information for your records:

Model: Serial Number:
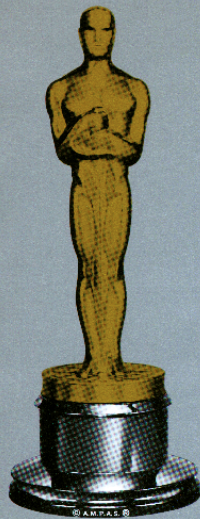
Date of Purchase: Purchased from:

One Year Limited Warranty

★★★★★

Ultra★Stereo Labs, Inc. warrants that each product manufactured by it will be free from defects in material and workmanship under normal usage for a period of one (1) year after its purchase new from an authorized dealer. Our obligation under this warranty is limited to repairing or replacing any product or component which we are satisfied does not conform with the foregoing warranty and which is returned to our factory, freight paid, or serviced by one of our authorized contractors. The foregoing warranty is exclusive and in lieu of all other warranties, whether expressed or implied. Such warranty shall not apply to any product or component (A) repaired or altered by anyone other than Ultra★Stereo Labs or an authorized service contractor; (B) tampered with or altered in any way or subjected to misuse, negligence or accident or (C) which has been improperly connected, installed or adjusted other than in accordance with Ultra★Stereo Labs instruction.

Technical Achievement Award

TO

JACK CASHIN,
ROGER HIBBARD and
LARRY JACOBSON

for the design, development and implementation of a projection system analyzer.

This device permits any projection system to be analyzed and uniformly quantified with a simple set-up. This allows for the adjustment of the weave, jitter and screen illumination for optimum projection performance.

Robert Rehme
President

Presented
February 28, 1998

ACADEMY
OF
MOTION
PICTURE
ARTS
AND
SCIENCES

General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product. To avoid potential risk, use this product only as specified and only for the purpose described in the instruction manual.

To Avoid Fire and Personal Injury:

- **Use Correct Power Cable.** Use only the power cable provided. Ensure that the AC power outlet is located near the product and is easily accessible.

- **Use a Correctly Grounded Power Source.** The Power Supply earth ground is established through the ground conductor in the power cable. To avoid the potential of electric shock, the ground conductor must be correct.

- **Observe Source Ratings.** To avoid risk of fire or electric shock, the power source must be 110 - 240VAC, 50-60 Hz

- **Do Not Operate this Product with Any Covers Opened or Removed.**

- **Avoid Exposed Circuitry.** Do not attempt to open the Power Supply as its safety certification would be invalidated. The Power Supply is a non-repairable sealed device.

- **Do Not Operate with Suspected Failures.** If you suspect there is damage or malfunction with this product, call the factory.

- **Do Not Attempt Repair.** Only a trained factory service person is authorized to repair this product.

- **Do Not Operate this Product Near Heat Sources.** This product should not be located near heat sources such as radiators, heat registers, stoves, or other high temperature sources.

- **Provide Proper Ventilation.** The operating temperature should be between 0° C and 50° C. The humidity should be <90% at +40° C or below and <60% at 41° C to 50° C. The cooling method is by convection.

- **Keep Product Surfaces Clean and Dry.** Disconnect the power cable from the power source before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning the outside of camera. Use lens cloth for lens cleaning.

- **Do Not Push Objects Into Opening of this Product.** Never insert objects into the product through openings.

- **Do Not Operate In Wet or Damp Conditions.**

- **Do Not Operate In an Explosive Atmosphere.**

- **Prevent the Spilling of Liquids onto the System Components.**

- **Inspect the Power Cable and All Cables Prior to Use.** Confirm that the power cable and other interconnecting cables are free from damage.

- **Be Especially Alert When Setting Up Product in Theaters.** Establish adequate light. Position cables to avoid trip dangers. The tripod and camera box should be carefully and securely attached to each other. The tripod leg angles should be fully extended outwardly in three directions for maximum stability. The leg length extensions can be varied to accommodate the inclination of the theater flooring.

INTRODUCTION

The USL, Inc. Projection System Analyzer 200 (PSA-200) is an advanced system for aligning and analyzing motion picture projection systems.

The PSA-200 is a portable system that comes in a single, high-quality carrying case. The system primarily consists of a specialized TV camera, a Video Interface PCMCIA card (PC Card), and custom software. It is designed for use with a laptop PC operating with Windows 95 or 98. The software is very easy to use.

The PSA-200 greatly improves the quality of projection system alignment and significantly reduces the time and effort involved. The PSA-200 displays the luminance values for every part of the screen. It also indicates and accentuates variations in screen brightness by shading of the laptop display. An optional feature also allows analysis and reporting of the weave, jitter and flicker components of the projected image. The PSA-200 can also be used as a spot meter. The standard luminance range is from three to 30 foot-Lamberts (10-100 candelas/square meter). With the addition of an optional ND1 neutral density filter, the range can be changed to 30 to 300 foot-Lamberts.

All information measured and displayed can be saved in a report file suitable for hardcopy print out. A listing of all equipment for each theatre auditorium can be entered into the report along with any pertinent comments. The report files can be exported to a spreadsheet program such as Microsoft Excel. This makes the measurement data available for analysis of equipment performance and experimental results.

PSA COMPONENT LIST

Camera (PS2-CA2, 48Hz two-blade shutter or PS2-CA23, 72Hz three-blade shutter)

Tripod (PS2-TR1)

Case (PS2-CC)

75-foot camera cable (PS2-C75)

Proprietary Video Interface PCMCIA Card (PS2-VC1)

"Y" Cable (PS2-JY), connects power to PCMCIA card and camera cable

Power adapter 110V-240V (PS2-UP)

Power Cord (US: PC-USA, European: PC-EUR, Australian: PC-AUS)

Software diskettes/CD ROM

Manual

OPTIONS

Weave and Jitter Software Upgrade (PS2-FWJ), includes RP-40 Test Film (SMPTE-35PA)

10-foot camera cable (PS2-C10), for use in projection booth.

Neutral Density Filter (PS2-ND1) 30-300 foot-Lamberts luminance range.

72 Hz, three-blade shutter after-purchase upgrade (PS2-3BS0)

PSA-200 Component Identification

Camera

User's Laptop

Video Interface
PC Card

Camera Cable

Y Adaptor
and Cable

Power
Connector

Power Adaptor

Tripod

Test Film
(Optional)

Software

CD ROM

SETUP PROCEDURE

IMPORTANT! The software must be installed in the laptop computer before the PC Card is inserted into the computer.

WARNING TO OWNERS OF MORE THAN ONE PSA-200 SYSTEM

The PSA-200 software contains calibration information. This information is matched to the hardware of the same serial number. For this reason, using the hardware from one system with the software from another will result in a loss of accuracy. Measurements obtained in this way are not guaranteed to be within specifications. It is recommended that users of multiple systems label the "target" and "program" directories by the serial number when installing them and run the software corresponding to the hardware being used.

Software Installation

The software is compatible with Windows 95, and Windows 98.

If this is the first time you are using the PSA-200, you need to install the software on your laptop computer. There are two steps required to install the operating software. The first is to install the PSA-200 application program; the second installs the drivers for the PCMCIA video card.

PSA 200-Application Installation:

1. Insert the floppy disk, labeled PSA200 application into the floppy drive.

2. Click on the Start button then click on the run icon. The "Run Dialog" box will appear.

3. Type in "a:/setup.exe" Then click on OK; a welcome box will then appear.

4. Click install. A "Target Directory" dialog box will appear, along with the name of the directory where the PSA-200 program will reside. The default directory is c:\PSA.

5. Click on OK. A "Program Group" box will appear, along with the name of the program group, which will hold the icons for the PSA-200 program.

6. Click on OK. An "Installation Completed" box will appear.

7. Click on OK. A window containing the PSA-200 shortcut icon and the uninstaller icon (used to remove the PSA-200 program from your laptop computer) will appear. (The PSA shortcut icon can be moved on to the desktop now.)

8. Remove the floppy disk.

PCMCIA Driver Installation. Do Not Insert PC Card.

1. Insert the CD ROM labeled PSA 200 Install into the CD ROM drive.

2. Click on "My Computer" on the windows desktop. Then click on the CD ROM icon.

3. The "Vppro95" folder will appear. Click on the Vppro95 folder to open it.

4. There are three setup icons. Double click on the setup icon showing a computer with an open box and disk to begin the driver install process.

5. Enter your name and company in the Registration dialog box that appears and click on "Next."

6. A registration Confirmation dialog box will appear, click "Next."

7. The destination dialog box will appear. Click next to install the driver files in the default location.

8. The "Setup Type" dialog box will appear. Select the Custom button and click "Next."

9. A group of check box options will appear. Deselect all but the following three boxes: Window 95 Device Driver, MRT Video for Window Driver, and MRT MCI Driver. Then click "Next."

10. Verify information in the next two confirmation windows to complete the installation.

11. You must reboot the computer before the driver settings take effect.

Hardware Setup

The laptop computer, the Video Interface PCMCIA card and the Power Adapter are usually set up in the projection booth of the theater, while the camera may be set up in either the auditorium or the projection booth. If the camera is set up in the center of the auditorium, the camera sees the movie screen exactly as the audience does. (The PSA-200 camera should be positioned at least one screen width back from the screen.) If the camera is set up in the projection booth, looking through the projection port, compensation for the vertical angle-of-view can be made in the software (see page 15).

NOTE: The software **must** be installed before the PC Card is inserted into the laptop computer.

NOTE: The Power Adapter will accept any 50 or 60 Hz power source from 100 to 240 VAC. The power cord itself is specific to the region and type of outlet connector.

1. The power cord of the power adapter should be disconnected during hardware set-up.

2. Mount the camera on the tripod and set it either in the center of the auditorium or in the projection booth.

3. Connect the flat AMP connector into the PC Card, being careful that small hooks on either side engage the PC card Frame and the AMP logo is facing up.

4. Insert the PC card into the PCMCIA (PC Card) slot of the laptop computer (assuming that the software has already been installed in the laptop)

5. Connect the camera cable to the camera and to the circular, nickel-plated connector of the "Y" cable.

6. Connect the female DC output connector of the power supply to the male connector of the "Y" cable.

7. Connect the AC power cord of the Power Adapter to the Power Adapter and to an AC outlet.

8. Remove the lens cap from the camera lens, orient the camera and adjust the zoom control at the rear of the camera (see Fig. 1) so that the movie screen fills about 90% of the camera viewfinder screen and is centered. (It may be necessary to turn on the projection lamp to provide adequate light for the camera positioning and zoom adjustment.)

OUT ◄ ZOOM ► IN

CAMERA   POWER
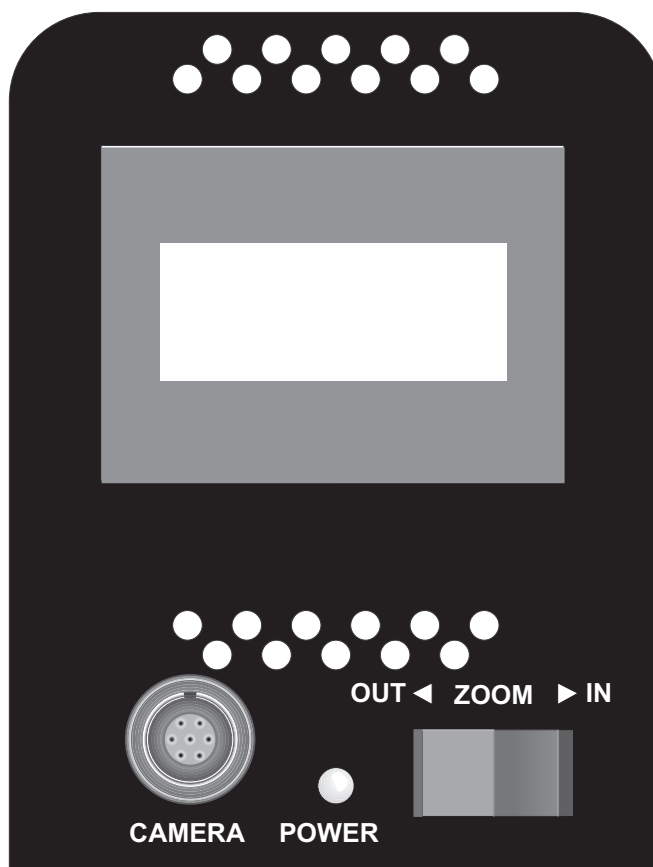
(Fig. 1) Viewfinder Display

9. Turn on the laptop computer.

10. Access the PSA.exe program on the laptop computer. The laptop computer display should show a 9 by 5 grid of luminance values (see Fig. 2). Across the top will be a toolbar with function key buttons which access various PSA-200 functions.
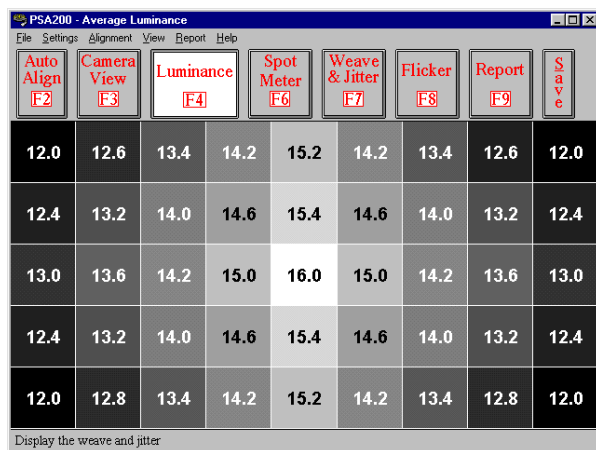

(Fig. 2) Luminance Grid (9x5)

NOTE: If the camera is not connected or the PC card is not responding, an error message will be displayed. (See Troubleshooting section.)

11. Turn the projector on with no film inserted. Turn the projection lamp on. Open the dowser to illuminate the screen. WARNING: Do not leave the dowser open for more than one (1) minute. Heat from the projection lamp light can damage the projector lens.

12. Press or click on F3, Camera View. The display should show the movie screen as seen by the camera (see Fig. 3). It should look centered on the laptop computer screen. The image of the movie screen should fill about 90% of the laptop computer screen and all edges of the movie screen should be visible, along with a darker border around the edges. If no border is visible, zoom out until the movie screen's border appears. You can use the zoom control on the camera or the zoom

control on the laptop computer (Camera View [F3]) screen, whichever is more convenient.
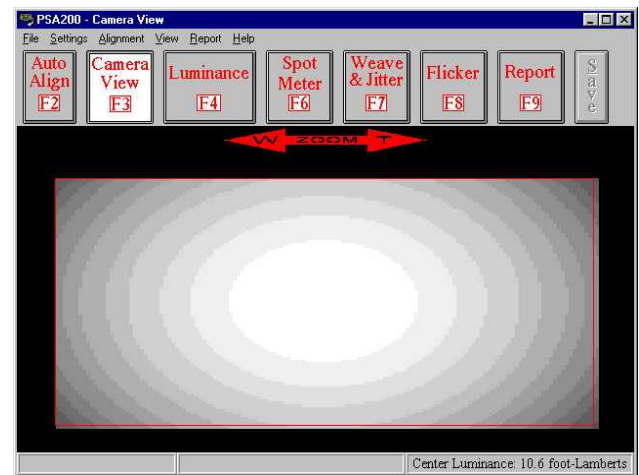
(Fig. 3) Camera View

13. Press or click on F2, Auto Align. This function automatically senses the edges of the movie screen image. It creates an artificial border for the luminance measurements. This border is a rectangle inset from the screen edges by 5% of the screen dimensions. All screen luminance measurements are made within this border.

14. Press or click on F4, Luminance. The displayed grid will now show the actual luminance readings for each of the 45 zones of the grid (Fig.2). The shading of each zone should show the relative brightness with respect to the other zones, giving a good display of the light pattern for ease of lamp house adjustment.

NOTE: The PSA-200 and laptop computer require a warm-up period of at least two minutes before measurement readings are accurate.

OPERATION

This section describes the operation of the PSA-200 in detail. It is organized by specific activity for easy reference. These activities appear in the usual order they are performed when using the PSA-200.
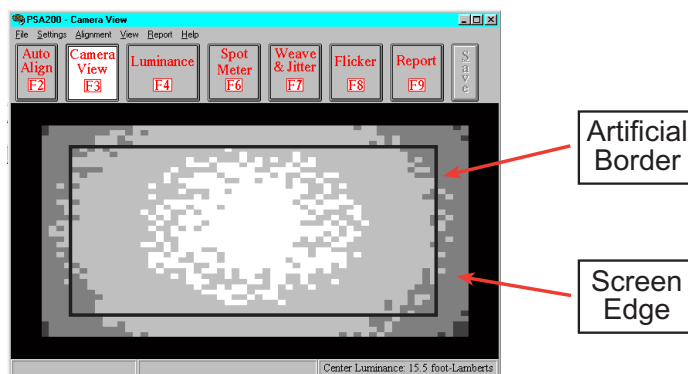
Automatic Alignment

Manually adjust the camera angle and the camera zoom switch so that the theater screen appears centered in the camera's viewfinder (see Fig. 3). Press or click on F3, Camera View. The image should appear centered in the laptop computer display. Adjust the zoom control so that the edges of the screen are visible in the laptop computer display. Now press or click on F2, Auto Align. The PSA-200 software will automatically sense the edges of the movie screen image and create an artificial border for the luminance measurements. This border is a rectangle inset from the screen edges by 5% of the screen dimensions. All screen luminance measurements are made within this border. NOTE: The Camera View, Luminance and Spot Meter are the only functions that use the alignment border.

Manual Alignment

In rare instances, when the lamphouse is severely misaligned, the automatic alignment software will not be able to locate the screen edges. In this case, the manual alignment function must be selected. This function allows the user to manually set the borders of the screen area to be analyzed. First, press or click on F3, "Camera View," then click on the "Alignment" menu, then on "Manual." Position the mouse pointer on the top-left corner of the desired area, then click and drag the mouse pointer to the bottom-right corner of the area and click again. The manual alignment border and the previous alignment border will both remain on the screen. Now select "Camera View" again. A single alignment border, representing the manual alignment, should be present on the screen (see Fig. 4). The manual alignment border that is produced must lie in-

side the image and not in the darker border surrounding it in order for a manual alignment border to work.


(Fig. 4) Manual Alignment

Measuring Luminance

First, use the Automatic or Manual Alignment function. Next, press or click on F4, Luminance. The PSA-200 software breaks down the luminance of the projection screen into 45 (9 X 5) zones (see Fig. 2). A separate luminance value is measured and displayed for each zone. Each of these luminance values is an average of 10 separate measurements taken at different places in that zone. The shading of each zone shows the relative luminance with respect to the other zones, giving a good display of the light pattern for ease of lamphouse adjustment. Zones are numbered, left to right, starting from the top, for reference. The status bar (located at the bottom of the screen) displays the zone that the mouse pointer is in, along with the average luminance and the center zone's luminance.

Using the Spot Meter

The Spot Meter function is useful in taking measurements of ambient light, reflected light and lens flare. While in Camera View (F3) or Luminance (F4), press or click on F6, Spot Meter. Use the mouse to move to any part of the area being analyzed and the luminance value displays in the status bar at the bottom of the screen, along with the center luminance and the number of the zone the Spot Meter is in (see Fig. 5).
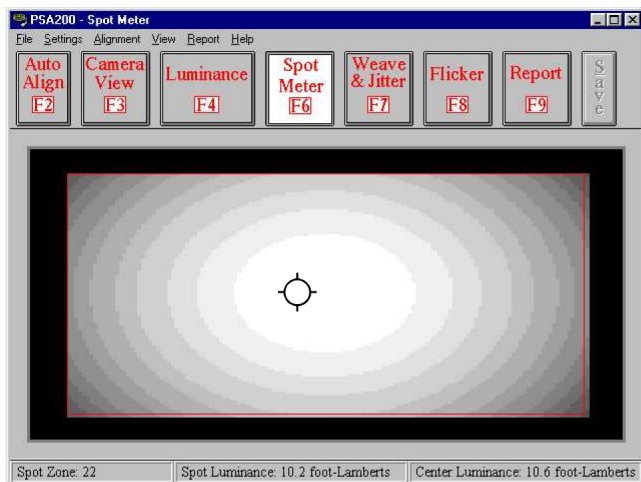
(Fig. 5) Spot Meter

Checking Weave and Jitter (Optional Feature)

The PSA-200 measures picture steadiness in terms of Weave and Jitter (or Jump). Weave is the residual horizontal motion of a projected image. Jitter is the residual vertical motion of the image. The software uses the image of the SMPTE test film RP 40 for calibration and measurements. (For information on measurements and acceptable values, please refer to SMPTE Recommended Practice # RP1-5-1995. The width of one square on the test pattern represents 0.5% weave. The vertical dimension of a square represents 0.94% jitter when the aspect ratio is 1.85 to 1.)

Procedure

1. Run a copy of the SMPTE-35PA/RP40 test film in the projector. (If a film loop is used, make the loop as long as is practical). Make sure that the projector lens is properly focused. Be sure to have the appropriate screen aspect ratio present in the Program Setup box (Settings menu).

2. Press or click on F3, Camera View. Make sure that the RP40 test image is centered in the Camera View presentation (see Fig. 6).
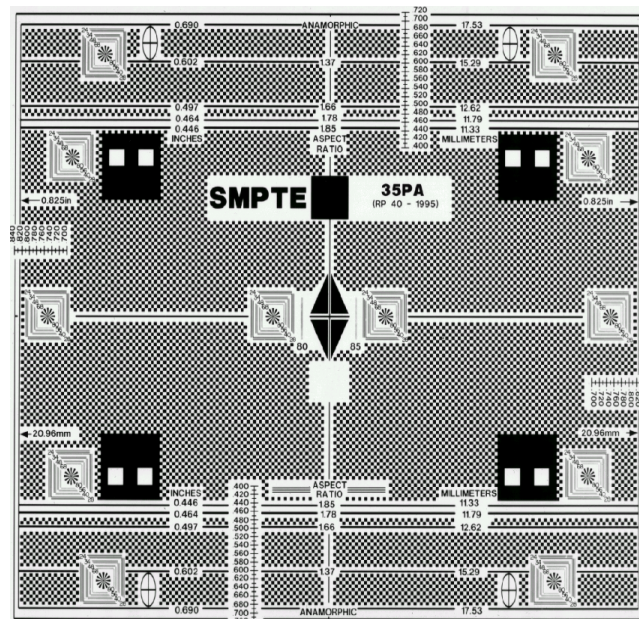

(Fig. 6) SMPTE Test Pattern

3. Use the Camera View [F3] zoom control to zoom in on the image until the wide white bar in the center of the frame approximately fills the Camera View in the horizontal direction. (See Fig. 7.)
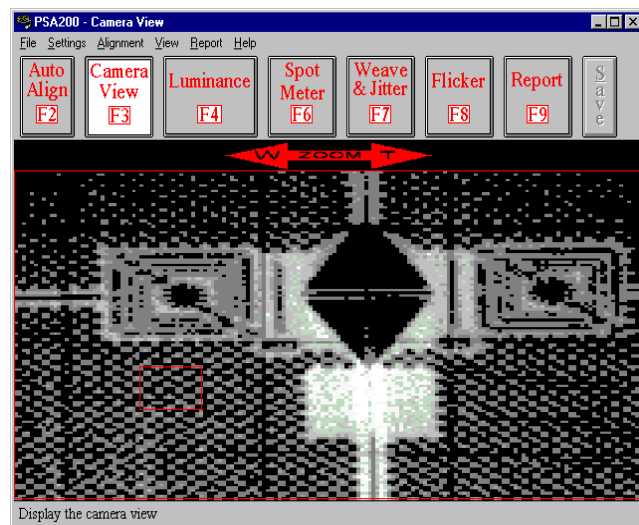

(Fig. 7) SMPTE Test Pattern

4. Press or click on F7 (Weave and Jitter). Press or click on F3 again. A red square should appear in the lower left part of the screen. This indicates the area that is being analyzed by the software. Check and ensure that this area encloses only the black and white squares part of the image and does not overlap any of the white portion. The software uses the black and white squares of the image for the calibration and measurements.

5. Press or click on F7 again. This will initiate the weave and jitter measurements. After approximately 10 to 20 seconds, the display should appear and present the initial readings. (See Fig. 8) The graphs display amplitude vs. frequency of the spectral components as a troubleshooting aid. As the PSA-200 analyzes the image motion and accumulates more data, the accuracy of the readings increases. After approximately two minutes, the software will have completed the analysis and will present figures that are quite accurate.

6. Press or click on the Save bar at the upper right of the screen to save the figures to the report.
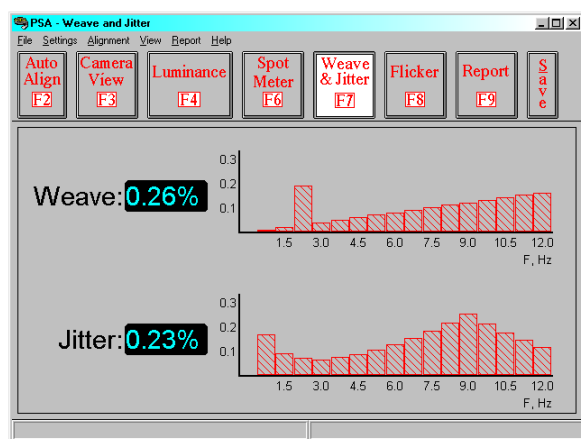
Checking Flicker (Optional Feature)

Press or click on F8, Flicker (see Fig. 9). This function displays the flicker as a percentage of the amplitude of the desired component (the 48 or 72 light pulses per second component). The graph displays the frequency and amplitude of the flicker components as a troubleshooting aid.

(Fig. 9) Flicker

(Fig. 8) Weave
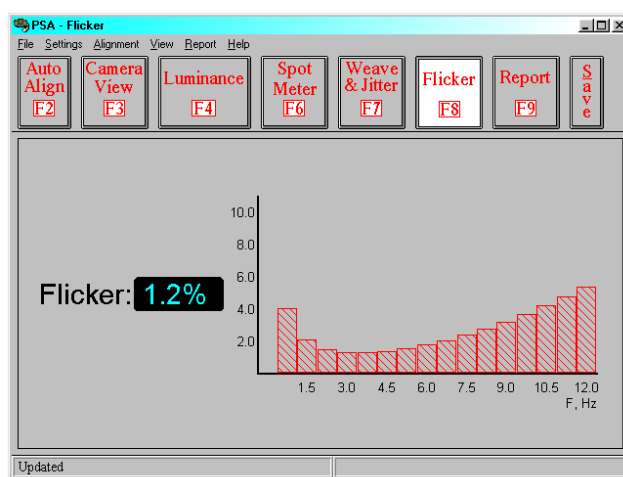
Report Function

This function allows all measurement data and equipment configuration to be summarized in a concise report suitable for printing or exporting to a database.

Saving Data to the Report

Luminance and other data can be saved to the report. Select the function to be saved so that the data shows on the screen, then press the S key on the keyboard or click on the Save button on the toolbar. You can also select "Save" from the "View" menu to save data to the report. To overwrite existing data on the report, select the desired function and save it to the report. The old data for that function will be replaced with the new data.

Adding Text to a Report

Once data has been saved to a report, text information about the equipment and the measurements can be added. First, press or click on F9, "Report," to view the saved data (see Fig. 10). Press or click again on F9, "Report," again to bring up the "Report Edit" dialog box (see Fig.11). Press the tab key to scroll through the different text entry blocks or click on the desired text entry block with the mouse, then enter the text. When you are finished, press the enter key or click on the OK button.

The Clear Data button deletes all of the text of the report. The Cancel button deletes all of the text of the report and returns to the PSA-200 report screen.

(Fig. 10a) Report - Top

(Fig. 10b) Report - Bottom

(Fig. 11) Report Edit

Deleting all Data and Text from a Report

To delete all data from the report, including text, select "New" from the File menu. A message will appear which asks whether you want to save the changes made to the report. Selecting "Yes" will bring up the "Save As" dialog box, enabling you to save the current report before going to a new, blank report. Selecting "No" will delete all report contents.

Saving a Report to a File

Select "Save As" from the File menu. Enter a name for the file. Select the drive and directory. Press the enter key or click on the OK button .

Printing a Report

Select "Print" from the File menu. A print dialog box will appear. Press the enter key or click on the OK button.

Viewing a Saved Report file

The PSA-200 program must be running in order to view a report. Select "Open" from the File menu. Select the file name and press the enter key or click on the OK button.

Deleting a Previously Saved Report

First, exit the PSA-200 program. Using My Computer or Windows Explorer for Windows 95 and 98, double-click on the drive where the PSA-200 files are stored. Double-click on the PSA-200 folder or other directory and folder (where files are saved). Select the .rpt file to be deleted, then press the Delete key or select File, then "Delete." **WARNING:** Care should be taken to insure that only the intended files are selected for deletion.

Creating a Report with the same (or similar) file name as a previously saved report

Select "Open" from the File menu. Choose the previously saved file and click on OK. Save the new data to the report, then make any necessary changes in the text. Select "Save As" from the File menu. Enter the file name for the new report, then click on OK.

Creating Multiple Reports with the same (or similar) file name

After saving the first report, be sure not to select "New" from the File menu (this clears the report contents but does not delete the last saved report file). Instead, save the new data onto the first report and make any necessary changes in the text. Select "Save As" from the File menu. Enter the new file name, then click on OK. (Entering the same name as the first report instead of a new one at this point will overwrite the first report.)

Menu Bar

File

This menu includes all the standard functions as well as two specialized ones to allow the export of report information.

Settings

This menu allows choice of options for three sections of the software, Program, Export and Authorization.

Under Program, optional settings for the display and measurements are established (see page 15).

The Export section provides options for the export format of the report functions.

The Authorization function allows the upgrading of software in the field. The user enters an authorization code (provided by contacting USL) into the dialog box to implement software upgrades.

Alignment

Refer to page 10.

View

This menu feature allows the selection of each of the main functions of the PSA-200. It also provides an alternate way of saving data on the screen to the report.
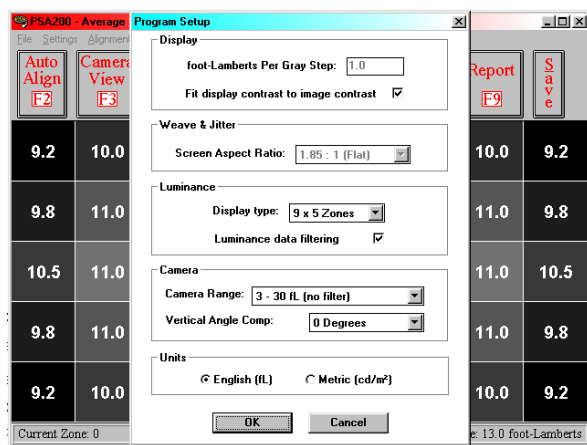
Report

This menu item selects the Report function.

Help

This item displays the PSA serial number, and the software version number. The Help portion has not yet been implemented.

Program

The Program section controls values for the display and measurement functions (see Fig. 12).

(Fig. 12) Program Setup

Display

Five shades of gray are used to show brightness differences among the zone squares. The "foot-Lamberts per gray step" value sets the number of foot-Lamberts variation between steps or displayed shades of gray. A value of one is the default value and is proper for most applications.

"Fit display contrast to image contrast": This asks the software to maximize the contrast of the display and to have it follow the camera video closely. This is normally checked.

Weave and Jitter

If the Weave and Jitter option is included and such measurements are to be made, the screen aspect ratio should be inserted here. Correct calculation of the results is dependant upon the aspect ratio.

Luminance

This section allows choice of display window type, either 9x5=45 zones (see Fig. 13) or 3x3=9 zones (see Fig. 14). In the 9x5 display, the luminance value is displayed for each zone. In the 3x3 display, the luminance value for the center zone is displayed and the rest of the zones show the luminance value as a percentage of the center value reading.
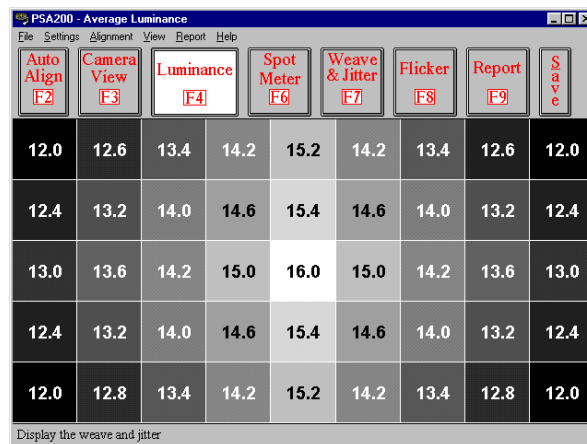
(Fig. 13) Luminance Grid 9x5
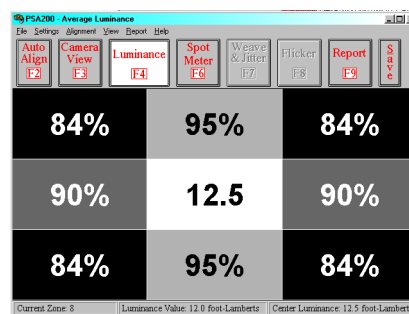
(Fig. 14) Luminance Grid 3x3

A check box is provided for the choice of luminance data being displayed rapidly as measured or after filtering. The filtered data is updated more slowly and is easier to read.

Camera

This section sets the measurement range of the camera and display. It also will adjust the data to compensate for the vertical angle-of-view when the camera is positioned in the projection booth.

The nominal measurement range of the PSA-200 is three to 30 foot-Lamberts. With the addition of an optional ND1 neutral density filter, the range can be changed to 30 to 300 foot-Lamberts. The PSA camera is normally set to read luminance in the audience area. If the camera is situated in the projection booth, there is a vertical angle between the audience view of the screen and the view from the projection booth. This causes the apparent centering of the light pattern on the screen to move upward. If this apparent

centering error is not corrected, the lamphouse adjustments will be in error. The selection box in this section allows you to input the approximate vertical angle between the audience view and the projection booth view so that the error can be compensated. The precise angle does not have to be measured. If the angle that is estimated and entered is within five or 10 degrees of the actual value, the vertical centering will be within a few percent.

Units

This section provides a choice between English and metric units of luminance.

Export Features

This software version has new single and multiple report file handling features which includes the capability of combining previously saved report files and storing such combined files in an export format (suitable for import into spreadsheet programs such as MS-Excel). This file handling feature couples the PSA-200 cinema analyzer to the power and utility inherent in database analysis.
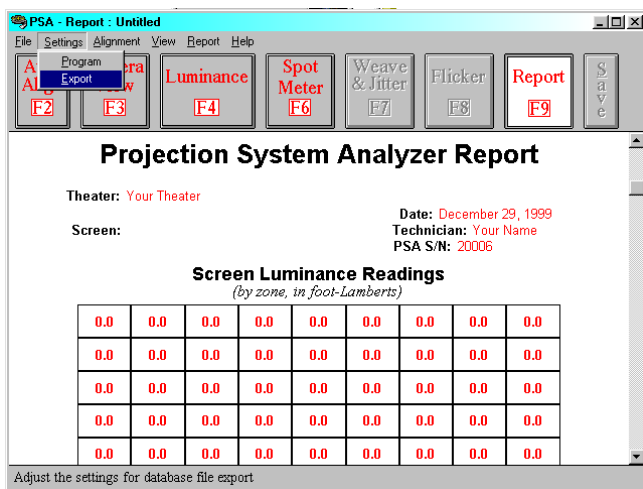
(Fig. 15) Settings & Export

Export Features

• Maximum number of report files selectable for export (at one time) is now 3000.

• "Save As" recognizes numeric file names and auto-increments each new file.

• Report displays pop up with luminance values centered on screen.

• Database file export now has its own setup screen under Settings (see Fig. 15 and Fig. 16). Options are explained in the order that they appear on the screen.

File Type

"Export multiple reports to single database file."
   Collects all data from selected report ".rpt" files for inclusion in to a single export ".csv" file. Single report format is the default.

Export Format

"All information formatted on a single row."
   Everything laid out in cells on a horizontal row.

"Insert luminance information in a single row."
   Lays out data in a row of 45 cells (instead of 9 x 5 cell matrix).

"Insert field names in database."
   Includes field names in database cell structure.

Field to Export

"Report header (theater, screen, etc.)."
   Data/information in these fields can be included or excluded.
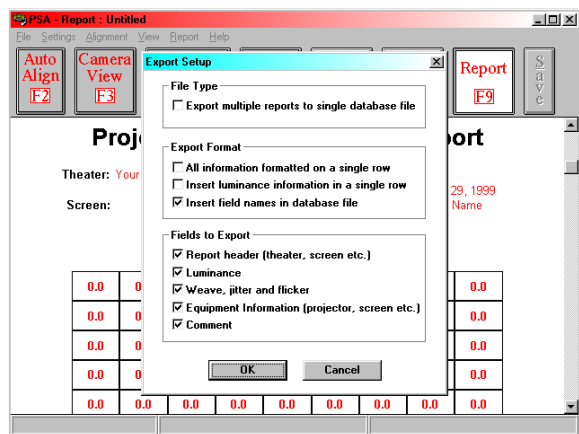
"Luminance"
   Luminance data values can be included or excluded.

"Equipment information (projector, screen, etc.)"
   Data/information in these fields can be included or excluded.

"Comment"
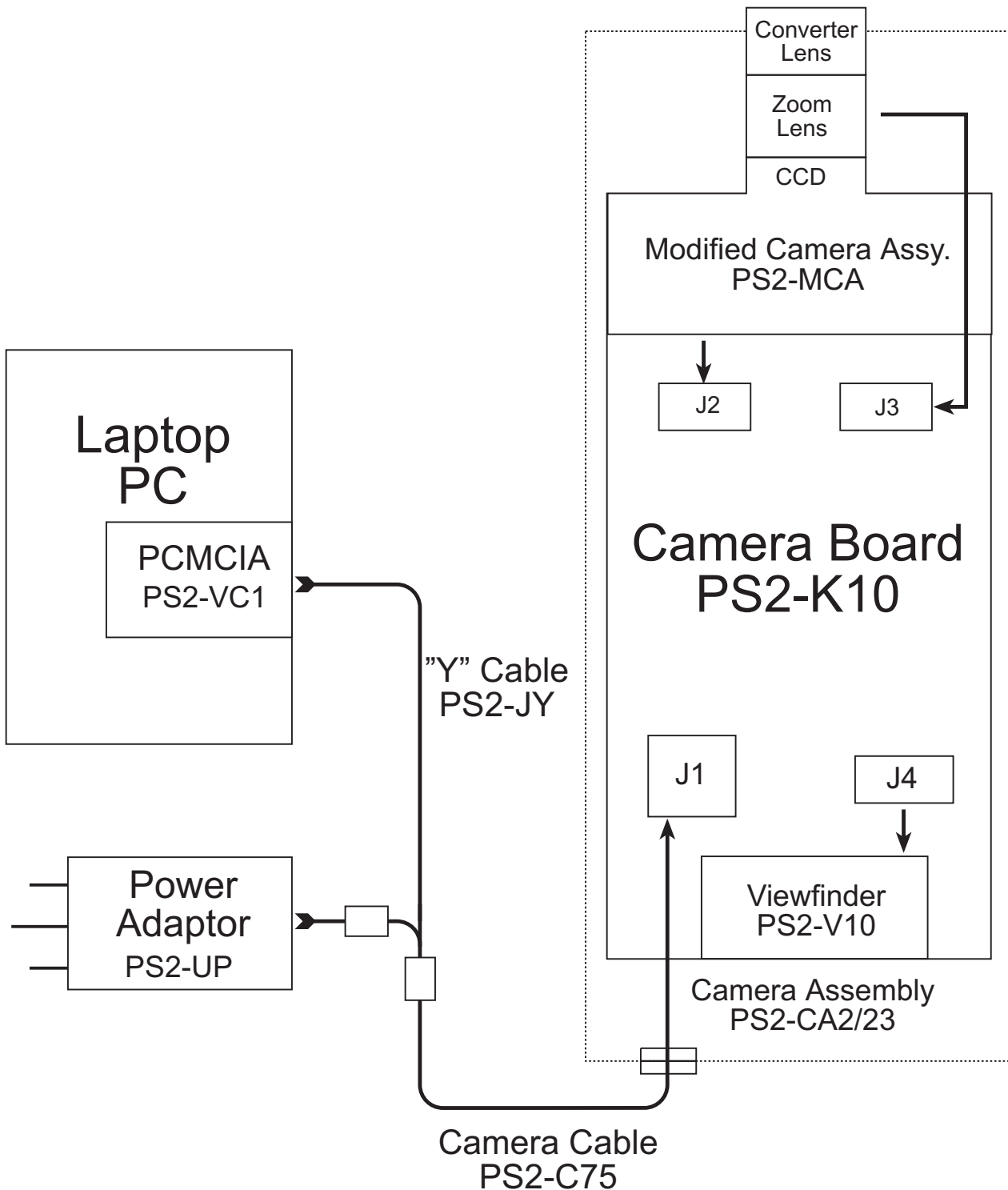   Information in comment section can be included or excluded.

(Fig. 16) Export Settings

Specifications

1. Laptop Operating System Requirements: Windows 95 or 98

2. Case Size: 21" x 13.5" x 7" (53cm x 34cm x 18cm)

3. Weight: 19.5 lb (8.8 kg)

4. Power Requirements: 100 to 240VAC, 50 to 60 Hz at .07A (8.5W)

5. Luminance Measurement Range: three to 30 foot-Lamberts (10-100cd/m)

   Optionally 30 to 300 foot-Lamberts (100-1000cd/m)

6. Luminance Measurement Accuracy: ±5%, ±2 digits

7. Spot Meter Acceptance Angle: approximately 1° when camera is 1.5 screen-widths distant from the movie screen, and the screen image fills approximately 90% of the camera's horizontal image area.

8. Spot Meter Accuracy: ±5%, ±2 digits

9. Weave, Jitter and Flicker Measurements Accuracy: ±10% of reading

10. Weave, Jitter and Flicker Measurements Resolution: .05%

11. Environment: Temperature 40°-110° F, Humidity 10% to 90% non-condensing

PSA-200 Block Diagram

Converter
Lens

Zoom
Lens

CCD

Modified Camera Assy.
PS2-MCA

J2

J3

Laptop
PC

PCMCIA
PS2-VC1

Camera Board
PS2-K10

"Y" Cable
PS2-JY

J1

J4

Power
Adaptor

PS2-UP

Viewfinder
PS2-V10

Camera Assembly
PS2-CA2/23

Camera Cable
PS2-C75

Software

Should you receive an error message such as "Video capture card not responding" or encounter problems with the PSA-200 PCMCIA card, please refer to the following troubleshooting instructions:

The changes that are listed should not affect any other components of your system. If at any time you are uncomfortable changing your computer's configurations, and would like some guidance, please call USL, Inc. for technical support at 805-549-0161.

Please be advised that there is a known conflict between the PSA-200 Video Capture card and some network interface cards. It is recommended to check for IRQ or memory allocation conflicts or to remove any network interface cards from the "Device Manager' if a problem occurs during the installation or operation of the PSA-200 system.

1. Verify you have installed the PSA-200 software before you inserted the PCMCIA card. If you did not, proceed to step 4.

2. Be sure that the card is properly inserted in the PC Card socket. Eject the card and insert it again.

3. Ensure that all cables are correctly connected together. Check that all connectors are fully inserted, and latched, if applicable, to their mating parts.

4. Check to make sure the PCMCIA card is correctly initializing.

   A. Right click the "My Computer" icon and select "Properties" from bottom of list.

   B. Click the "Device Manager" tab at the top of the System properties dialog box.
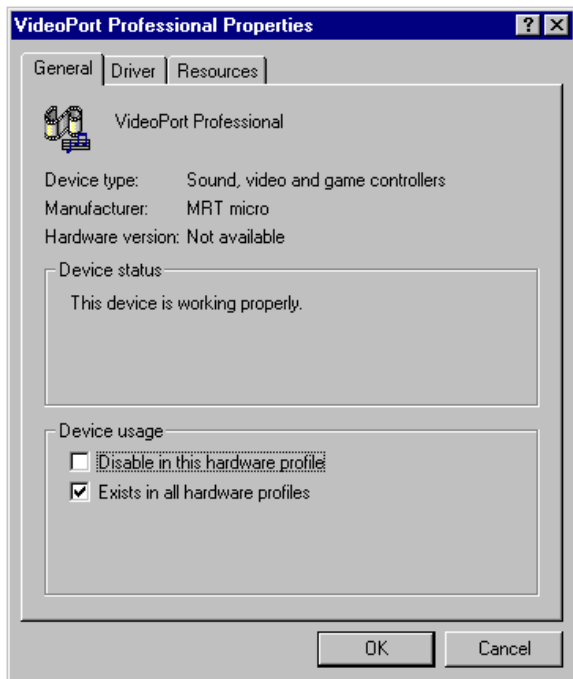
   C. Scroll down to "Sound, video and game controllers" and double click to expand

   D. Double click "Video Port Professional" icon on the device list (see Fig. 17).
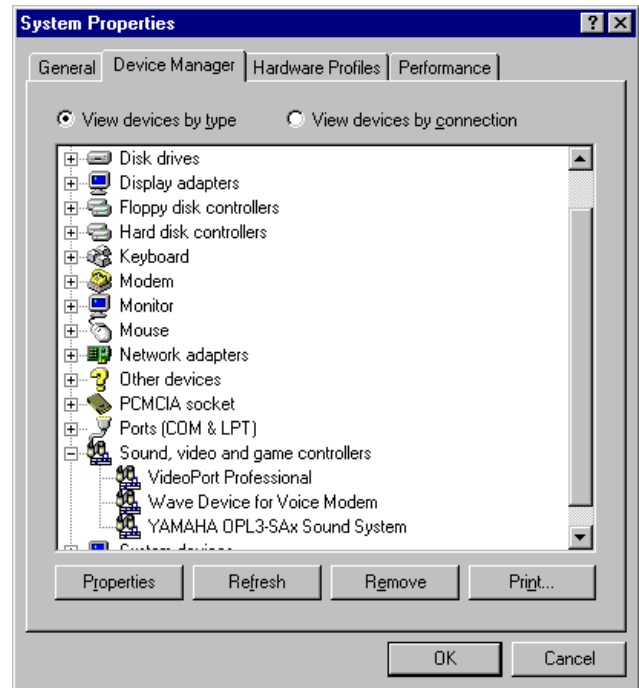
Fig. 17

   E. In the Device Status field it should say "This device is working properly." (See Fig. 18)

   If not, select/highlight "Video Port Professional" icon in previous window and click "Remove."

Fig. 18

F. Shutdown the system and remove the PCMCIA card. Never remove the PCMCIA card without first shutting down the system or by using the stop communication button through the PCMCIA control panel first.

G. Restart the system.

H. After your computer has completely rebooted, insert the PSA-200 software diskette into your floppy drive.

I. Double click the "My Computer" icon.

J. Double click the "Floppy drive A:" icon.

K. Double click the "Setup" icon and follow the installation instructions.

L. Restart the system.

M. After your computer has completely rebooted, insert the PCMCIA card and wait for the new hardware to install

N. Hookup the PSA-200 camera and

power, and launch the PSA software.

The PSA-200 should now work properly, if not:

5. Make sure the Windows operating system is located in C:\Windows and the USL support files are as follows:

The "Ms80x.inf" driver is in the "C:\Windows\Inf" folder.

The "Ms80x.vxd" is in the "C:\Windows\System" folder.

The "Ms80x.vxd" file might be hidden in your "C:\Windows\System" folder.

To configure your system to show this file you must:

A. Double click on the "My Computer" icon.

B. Choose "View" from the menu at the top of that window and click on "Options" at the bottom of that list.

C. Click on the "View" tab and choose the "Show all files" option (see Fig. 19). Click OK.
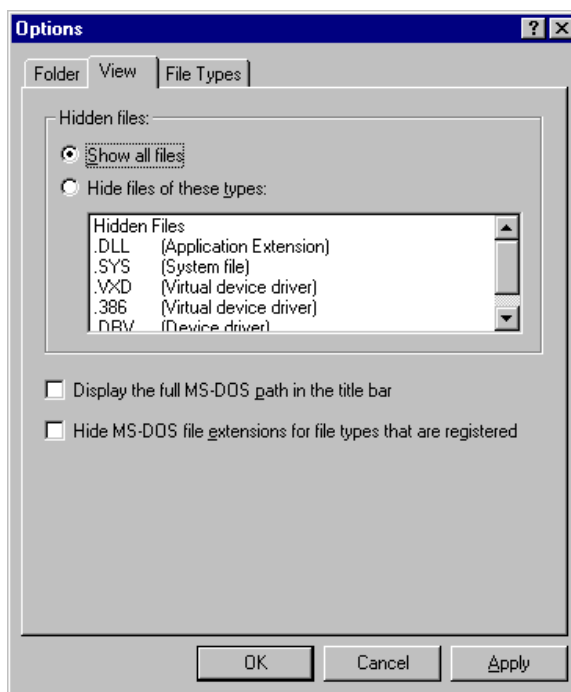
Fig. 19

D. Return to the "C:\Windows\System" folder, and check for the "Ms80x.vxd" file.

If either of the two files specified are not listed, manually copy the files from the floppy to the appropriate directories and proceed back to step 3.

If the above steps have not resolved the problem, then proceed to step 6.

6. Check your "Card Services Software". If Card services or another third party PCMCIA slot manager is present, the PSA-200 capture card may have problems being identified by the Windows operating system. The PSA-200 Video Capture Card as been designed to work in the "Plug and Play" card driver mode. Laptops configured with Win95 or Win98 plug and play, 32bit mode will not have this problem. Card Soft is the most common of these PCMCIA managers. The example below describes how to remove the "Card Soft" card driver mode. To change the Card Driver mode:

A. Insert the PSA-200 Video Capture Card.

B. Open the PCMCIA slot controller software by double clicking on the PCMCIA icon usually located in the icon tray at the lower right corner of your desktop or open the "CardWizard" software from your "Start Menu".

C. Find "VideoPort Professional 5/2 MRT" on the list of cards installed.

D. If the card ID has a question mark (?), then the software must be changed (see Fig. 20).

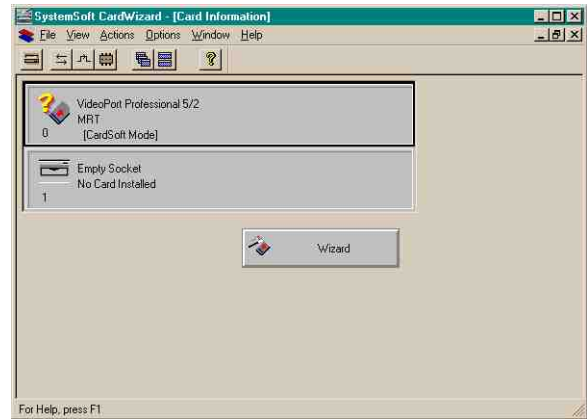E. Right click on the box onscreen where it says "VideoPort Professional 5/2 MRT" and choose properties.

Fig. 20

F. Choose the "Drivers" tab and click on the boxes for:
   1. "Change Card Driver"
   2. "Use Plug and Play" (See Fig. 21)
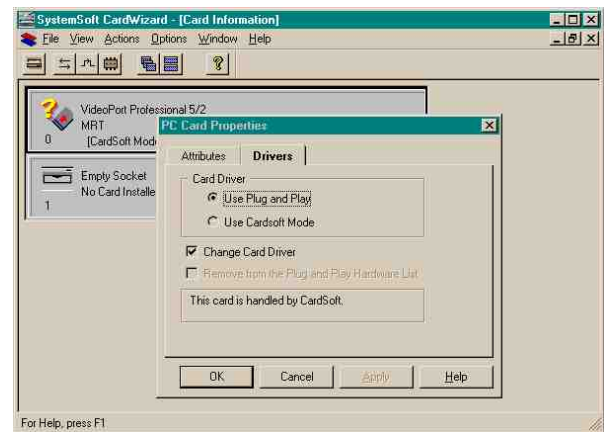
Click OK

Fig. 21

G. From this point the computer will search for a driver and might not find one. Put the PSA installation disk in the "A" drive and use the "Browse" button to choose the "A" drive location. The computer will find the file "Ms80x.vxd" and place it into the proper location.

H. Remove the PSA-200 PCMCIA card from the slot. Never remove the PCMCIA card without first

shutting down the system or by using the stop communication button through the PCMCIA control panel first.

I. Re-insert the PSA-200 PCMCIA card and confirm the driver information by opening CardSoft. The screen should no longer have the question mark and the driver will be properly identified (see Fig. 22).
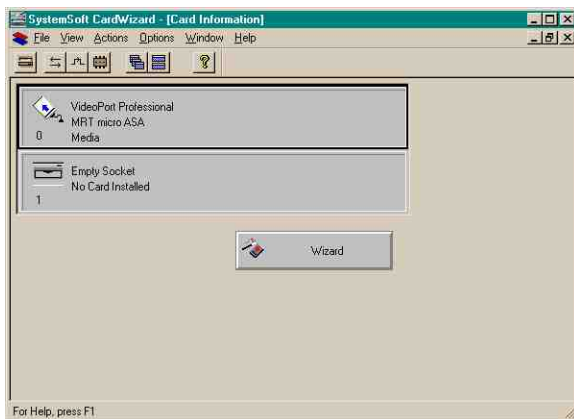

Fig. 22

7. Check the PCMCIA socket controller. This is the hardware that controls your PCMCIA slot. Some laptops also use a socket controller from a manufacturer other than Windows. The PSA-200 needs the generic Windows socket controller. To check your PCMCIA socket controller:

A. Enter into the "System" window from the "Control Panel". Choose the "Device Manager" tab.

B. Scroll down to "PCMCIA socket" and double click to expand.

C. The entry under this heading should be "PCIC or compatible PCMCIA controller." (See Fig. 23)
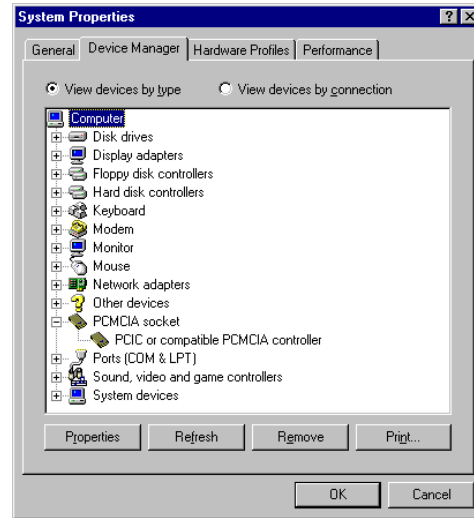

Fig. 23

D. If not, double click on the entry that is currently configured, and under the "General" tab choose "Disable in this hardware profile". Do not "remove" it (see Fig. 24). Click OK.
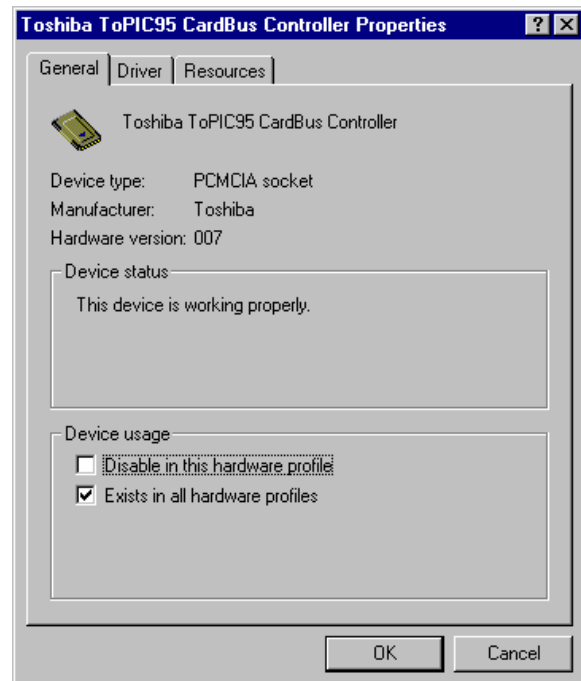

Fig. 24

E. Windows will prompt you to reboot your system, answer "Yes."

F. After your system has completely rebooted, enter back into the "Control Panel" and click on "Add New Hardware."

G. Windows will prompt: "To begin installing your new hardware, click "Next."

H. You will be asked: "Do you want Windows to search for your new hardware?" Select "No" and click "Next."

I. Now you will be prompted to select the type of hardware you want to install. Scroll down the list to highlight "PCMCIA socket" (see Fig. 25) and click "Next."

Fig. 26

Fig. 25

J. Windows will provide you with a list of Manufacturers and, to the right of that window, a list of Models. Find "(Standard PCMCIA drivers)" under "Manufacturers" and click on that choice. "PCIC or compatible PCMCIA controller" will appear, highlighted, to the right (see Fig. 26). Click "Next."
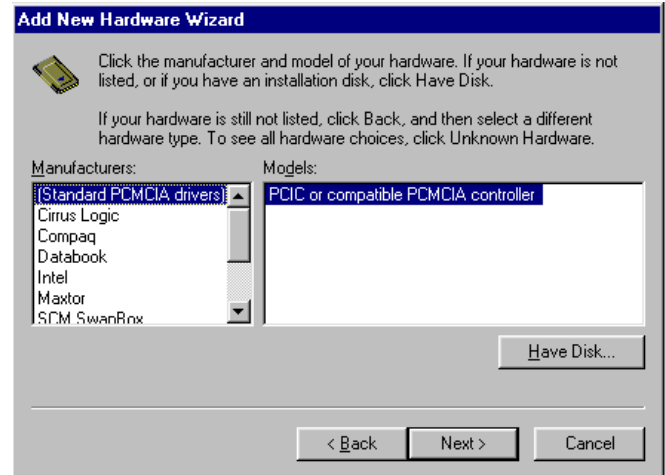
K. Windows will then inform you of the setting it is assigning to your new hardware. Click "Next."

L. Windows will advise you that your new device is now installed and might ask you if you want 32-bit support. You probably do if you have more than one PCMCIA slot. Click Finish.

M. If you did not already have 32-bit support enabled, you will now be prompted through a series of windows to enable 32-bit support. If you are not prompted for this, please skip to step P.

N. You will be asked if you are using a PC card to install windows, (we assume you are not), answer "No" and click "Next."

O. You will now be asked: "Do you want to review your system files and select real-mode PC card drivers so Windows can disable them?" Select "No" and click "Finish."

P. Windows will prompt you to click "Finish" to enable 32-bit support. Click "Finish" and follow the instructions to turn your computer completely off.

Q. Check to ensure your PSA-200

Video Capture card is installed and turn on your computer.

R. You should now be able to run the PSA-200 software.

8. Check for hardware conflicts. By running the Windows Hardware Conflict TroubleShooter, Windows will help you identify and resolve conflicts between your PSA-200 Video Capture card and other devices in your system.

A. Enter into the Control Panel and then into the "Help Topics" menu listed at the top of that window.

B. Scroll to the end of that list to "Trouble-shooting" and double click on that icon to expand the list.

C. Scroll down and highlight "If you have a hardware conflict". Click on "Display".

D. Windows will now guide you through a set of instructions to determine and correct any hardware conflicts that might be interrupting your systems performance.

If you are still unable to initialize the PCMCIA card, please contact our factory.

Hardware

No power to camera

Check power adapter connections. If there is still no power, verify that the power adapter indicator is lit. If the power adapter is working, check the camera cable connections, and the "Y" cable connections. If there is still no power, the camera or camera cable may need repair. Call us for technical support.

Camera viewfinder is dark but camera power indicator light is on

Make sure the camera lens cap is removed from the camera lens. If the viewfinder is still dark, make sure the camera is receiving at least five foot-Lamberts of light. If the viewfinder is still dark, the camera may

need repair. Call us for technical support.

Computer message: Error from Capture Hardware Driver

If any of the following errors appear when starting the PSA program.

Exit the PSA program, shut down your computer, check to insure that the PCMCIA card is fully inserted in the card slot. Restart your computer, and then restart the PSA program. If the errors shown in Figures 27a-27c appear again, call us for technical support. If the errors shown in Figures 28a-28b appear, check to insure that the connector on the "Y" cable is fully seated into the PCMCIA card, check to insure that the camera cable is fully seated into the camera and into the "Y" cable. If the errors shown in Figures 28a-28b appear again call us for technical support. If you cannot fix the problem, call us for technical support.
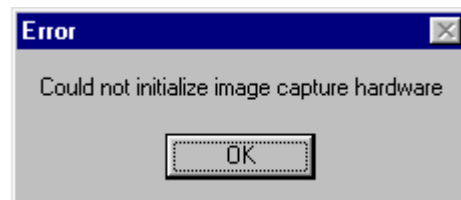

Fig. 27a

Fig. 27b

Fig. 27c

Error from Capture Hardware Driver

"Image height is out of range"
in function VPP_prepareSnap during Init

OK

Fig. 28a

Error from Capture Hardware Driver

"No Capture card driver detected"
in function VPP_init during Detect

OK

Fig. 28b

Luminance values are off

If the Luminance values are off, they will be off by a factor of 10. Check the Camera Range (Settings in the Program menu). Check to see if the neutral density filter is attached to the camera lens if you have a unit with the 30 - 300 foot-Lamberts (100 - 1000 cd/m2) option. (See the Program section for details on correct operation of the Camera Range settings.)

Computer message: Alignment Error!

Manually adjust the camera angle and the camera zoom switch so that the image appears centered in the camera's viewfinder. Press or click on F3, Camera View. The image should appear centered in the computer display. Adjust the zoom switch on the camera or the W / T with the mouse in "Camera View" so the edges of the image are visible in the computer display. Now press or click on F2, Auto Align. If the error message in Fig. 29 appears again, try using the Manual Alignment function. If you cannot fix the problem, call us for technical support.
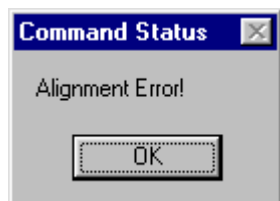
Command Status

Alignment Error!

OK

Fig. 29

Computer message: Weave and Jitter Warning - Screen luminance may be too high/ low for accurate measurement

Verify that you have at least 6 to 18 foot-Lamberts of light from the lamp house. If you cannot fix the problem, call us for technical support.

Weave and Jitter measurements are not constant

The initial period that the PSA takes to sample the projected image is 30 seconds. When this occurs, the Weave and Jitter readings will be high or zero for a few seconds until they are updated. This is an erroneous reading which is normal and should be ignored. The Weave and Jitter function should be left to run for two minutes in order to obtain enough samples of the frame to recognize samples of the film splice. The film splice samples will then be discarded automatically and will not be included in the analysis. If you are having problems that do not seem to be due to this, call us for technical support.

Weave and Jitter measurements do not seem to be accurate

Make sure the camera is zoomed in on the small squares of the RP40 test pattern (see Fig. 6). The camera should be aimed at the center of the test pattern and the Analysis Square (in the bottom left corner) should be trained only on the small black and white squares of the RP40 test pattern. Be sure that the projector is properly focused on the image. The pattern in the center of the screen, generated by the Weave and Jitter test film, cannot be used for analysis. Zooming in or out too far will cause errors in readings.