

CAUTION:

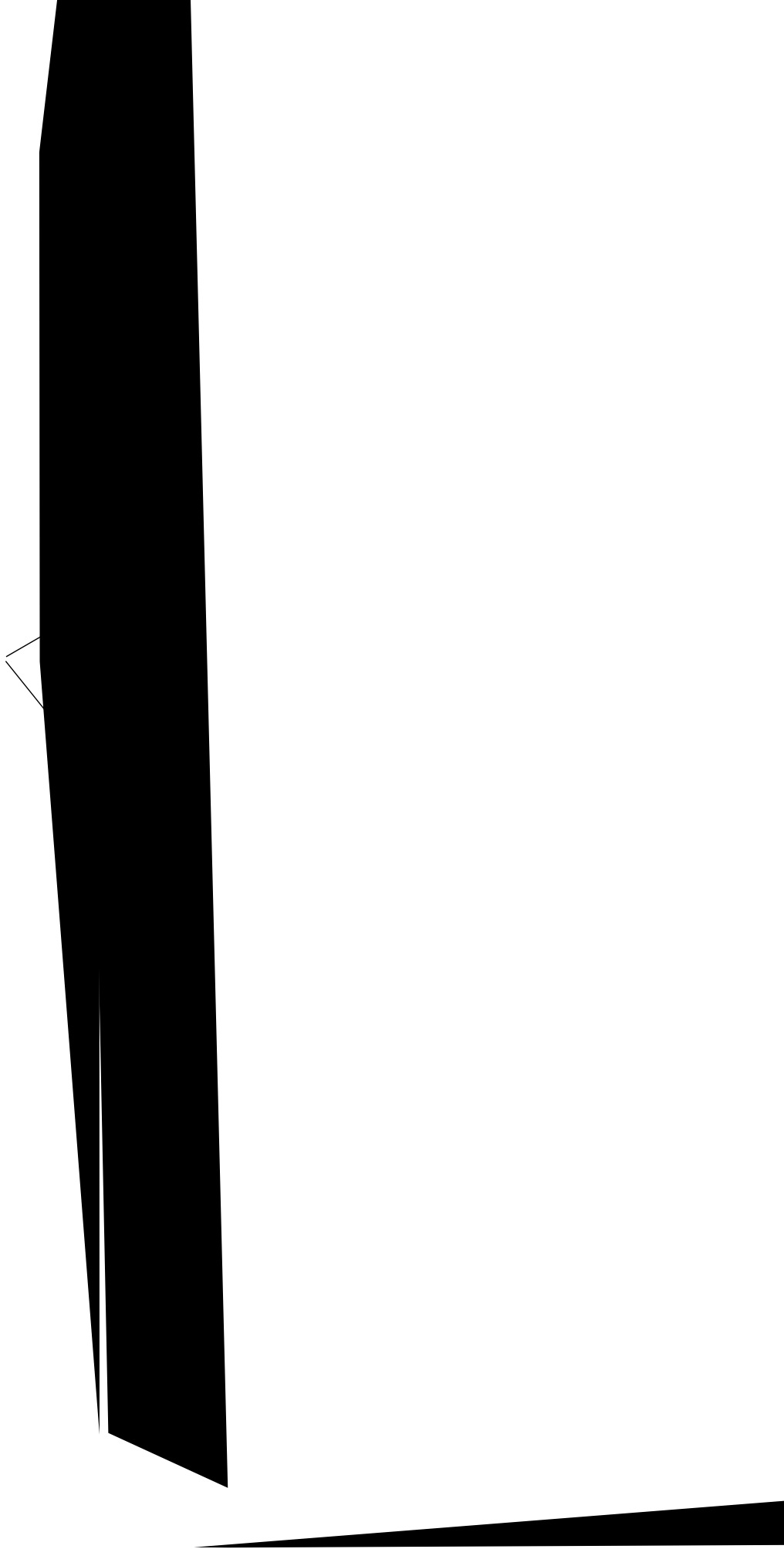
WARNING: This instrument is not for use in explosive environment.

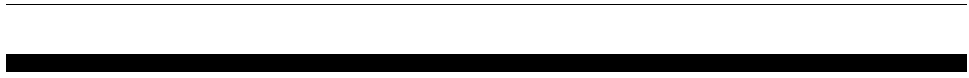
WARNUNG: Das Gerät soll in einer explosiven Umgebung NICHT verwendet

DECLARATION OF CONFORMITY

complies to

Dear Customer:





General Description . . . continued

Twenty four different *reference values* (Ref 01 - Ref 24) can be entered into the 948 and 968 manually (numerically) or by measuring a reference sample. The exceptions are that the reference values for Δ Whiteness and Δ Yellowness can only

User Interface

This section will familiarize you with the typographical conventions, display functions, and general terms used in this manual.

- In the text portion of this manual the 968 keys are shown with brackets on both sides and in boldface. Ex., **[FUNCTION]**, **[ILLUM]**, and **[DIF]**

What To Do First!

See how to unlock the shoe and charge the batteries...read *Section 1 - Getting Started*.

2nd

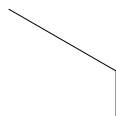
See how the positioning of the instrument during measurement affects the reading...read

5

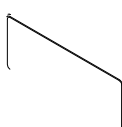
1. Getting Started

1.1 Packaging Check List

After removing the instrument from the shipping carton, inspect for possible



8



1.2

Shoe Lock

The shoe can be locked next to the housing for ease of storage.

Unlocking Shoe

1. Hold shoe **[1]** against unit.
2. Slide black lock button **[2]** on bottom of unit towards the back until it stops, then slowly release shoe **[1]**.

Locking Shoe

1. Hold shoe **[1]** against unit.
2. Slide black lock button **[2]** towards the front until it stops, then release shoe **[1]**.

2. Positioning Techniques

The variety of items that the 948 and 968 can measure is almost endless. However, in order to obtain accurate and repeatable measurements, the bottom of the shoe must be:

- *Parallel* with the surface to be measured if the surface is *flat*.
- *Tangent* to the surface to be measured if the surface is *curved*.

The reason for this is that any movement during measurement can cause the reading to vary. To obtain the most accurate and repeatable measurements, there are

3. Operation

3.1 Key Descriptions

[FUNCTION]/[t]

- Selects the function that will be used for measurement. Each momentary depression will cause the display to page through XYZ, Yxy, L*a*b*, L*u*v*, L*C*h°, Whiteness, & Yellowness.
- Decreases numeric values when used with the [DIF] key during entry of reference or calibration values.
- Selects Calibration when pressed with [ILLUM] key.
- Selects various steps when in system setup procedures.

[ILLUM]/[s]

- Selects Calibration when pressed with [ILLUM] key.
- Decreases numeric values when used with the [DIF] key during entry of reference or calibration values.

3.3 Illuminant/Observer Selection

There are eight different illuminants and two observers to choose from.

- 1) To enable illuminant selection: Hold down **[ILLUM]** until **"SELECT ILLUMINANT"** is displayed.

- 2) The active illuminant & observer are displayed.

Press

Illuminant/Observer Selection...continued

3) To exit press **[FUNCTION]**.

When "Function Key" is pressed,. 6 6 T a . 7 K e y 6 6 T a 2 ,3dels auTunibt s ier7t

Difference Measurement...continued

> When entering references with any illuminant other than C²

Entry of Reference values - By measurement . . . continued

4) Select the reference location.

If the cursor is not blinking
next to the reference location,
press **[DIF]** until it does.

Hold down **[DIF]**

Entry of Reference values - By Numeric Entry . . . continued

5) The cursor will blink over the

3.5.2 Taking A Difference Measurement

> If the Δ is not displayed, press **[DIF]**

3.6 CMC Difference Operation

CMC Difference Operation...continued

3) Press **[FUNCTION]**

3.7 Measurement Averaging Procedure

When averaging is activated in setup, averaging operation will occur on absolute measurements, reference entry measurements, and difference measurements.

There are two averaging methods that are used: (refer Sec. 5.1 to activate averaging):

- **SAMPLES AVERAGED** - allows you to enter the number of measurements you will make (1-99) at various locations on a sample, to obtain an average value.
-

Measurement Averaging Procedure . . . continued

4) Center the target window over second area on the sample to measure.

5) Lower unit to target window and hold compressed.

3.8 Store Data Operation

The data storage feature allows the unit to store measurement data for up to 500 readings. (Refer to Sec. 5.4 to activate.)

There are four basic operations of the store data function that can be utilized in the store data function.

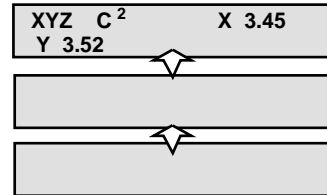
- **Group Selection -**

Store Data Operation . . . continued

3) Measure second sample.

"**READING XYZ C²**" is momentarily displayed, then the measurement.

Upon release of the read head,
"**DATA STORED 2 OF 500**" and then



Store Data Operation . . . continued

"CALIBRATION - NOT CHANGED" is displayed when the user decides to terminate the calibration procedure by simultaneously pressing **[FUNCTION]** and **[ILLUM]**.

"CALIBRATION - UPDATED" is displayed after the calibration procedure has been

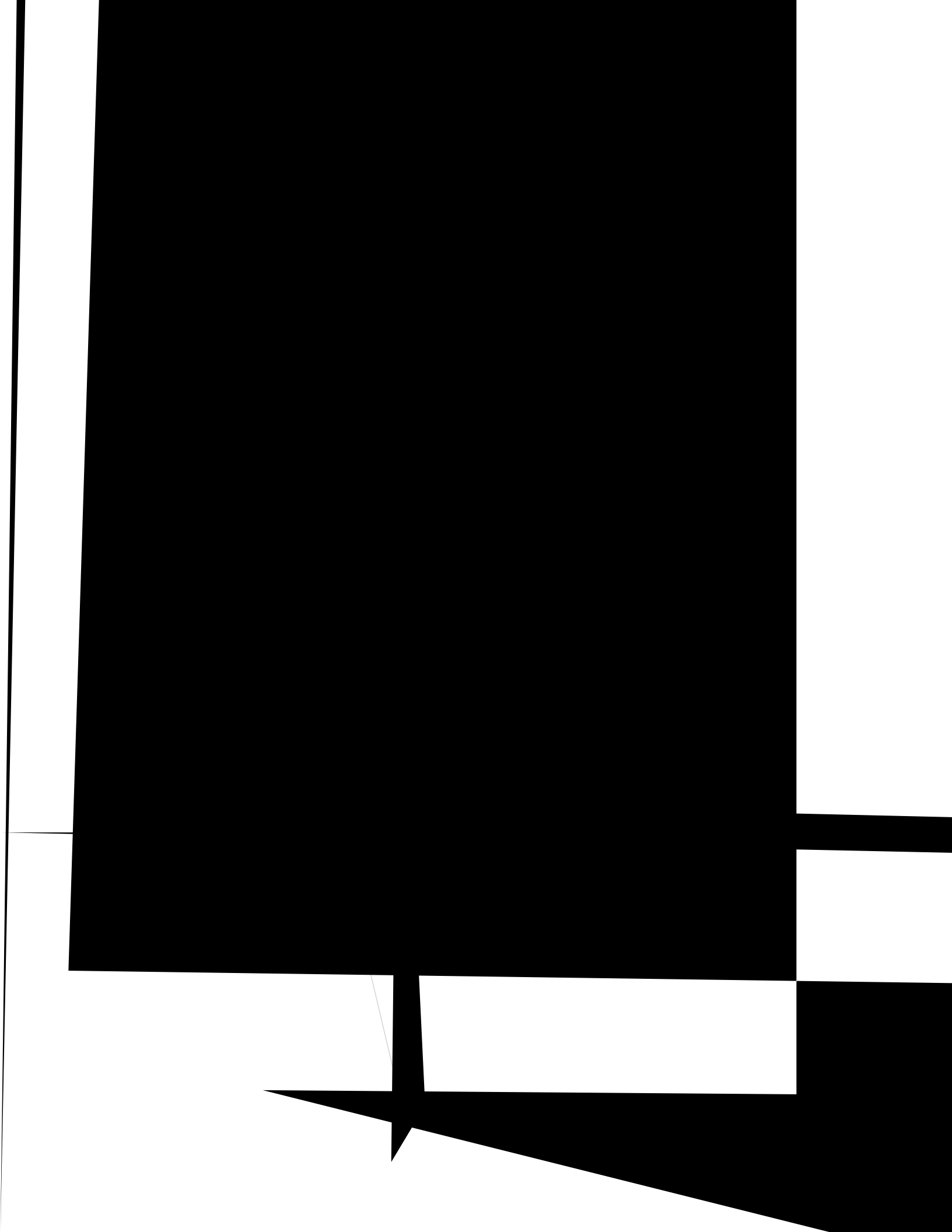
4. Calibration

4.1 Positioning the 968 Onto the X-Rite Standard

You must set the 948/968 on the white standard so that the maximum amount of the bottom rubber pad of the shoe resides on the standard, and the target is centered on the circle. If you do not, the unit may rock slightly and cause an erroneous reading of the standard.

- 1) Center the target window on the White circle, making sure that the rubber pad is completely on the standard **and is down flat**.

- 2) Take the measurement.



- 4) Measure the WHITE patch on the standard. You must hold the unit depressed until all five readings have been completed.
 - > You must set the unit on the standard so that the maximum amount of the bottom rubber pad of the shoe resides on the

Averaging . . . continued

5.2 Operation Parameters

Operation Parameters setup . . . continued

6) Select Yxy ON or OFF.

7) Select Lab (CIE), Lab (Hunter), or OFF.

8) Select L*u*v* ON or OFF.

9) Select L*C*h° ab, CMC, uv, or OFF.

10) Select Whiteness ON or OFF.

11) Select Yellowness ON or OFF.

12) Select SeAuto Reference

5.3 RS232 I/O Parameters

Your instrument comes equipped with a serial port that allows data to be transmitted/received to/from an external device. Listed below are the available I/O parameters.

- **"RCI ON/OFF"**

2) Select **"NO"**, press **[FUNCTION]** four times.

3) Select **"YES"**, press **[DIF]**.

> The basic procedure for the following steps is to press **[TOGGLE]**

6. Printing Data

The RS232 parameters for the 948/968 serial interface are configured in Section 5.3. The variables are:

- Remote Control Interface (On/Off)
- Baud Rate (300, 600, 1200, 2400, 4800, or 9600)
-

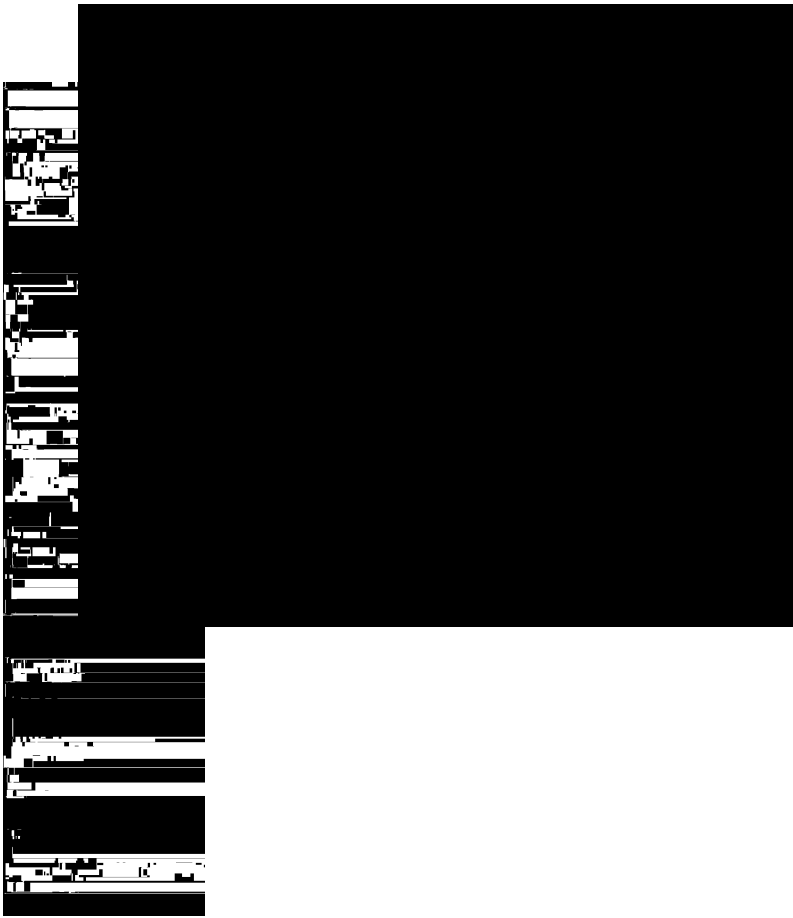
Print Example 1:

- Printer ON
- All Print ON
- Header ON
- References ON
- Decimal Point ON

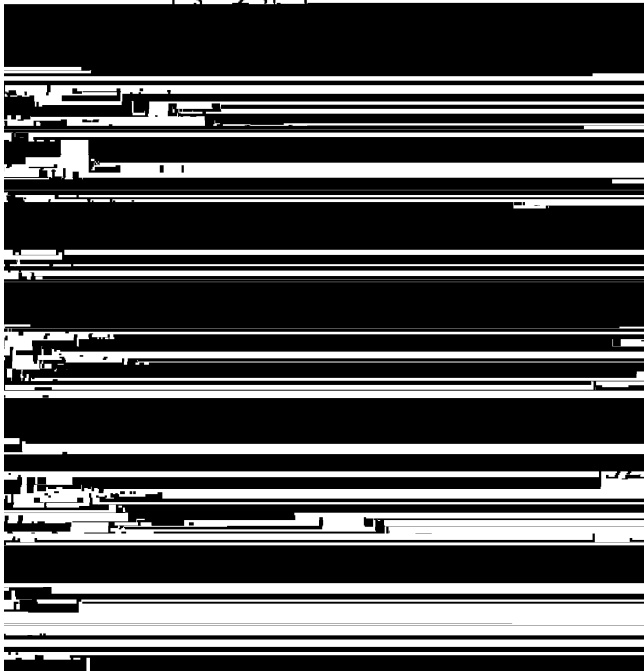
> If Header, References, or
Decimal Point> |

[illegible]

Print Example 2:



S 2 51



7. Changing Apertures

X-Rite has three different aperture kits available for the 948 & 968, and they are listed below.

- 8mm/4mm Aperture Kit P/N 968-100-08
- 8mm UV Excluded Aperture Attachment P/N 968-61-08E
- 20mm Aperture Kit P/N 968-100-20

- 3) Unscrew the existing aperture [5] with the aperture wrench [6].

Note: The aperture wrench tool has two sides, one side fits the 8mm aperture and the other fits the 20mm aperture.

The aperture wrench has two pins that fit into the holes in the aperture.

- 4) Screw in the new aperture using the aperture wrench.

IMPORTANT! The new aperture must be clean.

- 5) Attach the new nose piece to the housing with two thumb screws.

Note: When you tighten the thumb screws, be sure that the nose piece is flush against the housing. Gently tighten one screw, then the other. Then finish tightening both screws.

IMPORTANT! The new nose piece must be clean.

- 6) Replace the existing target window [7] with the new target window.

Refer to Section 8.4, Target Window Replacement for this procedure.

8. Maintenance

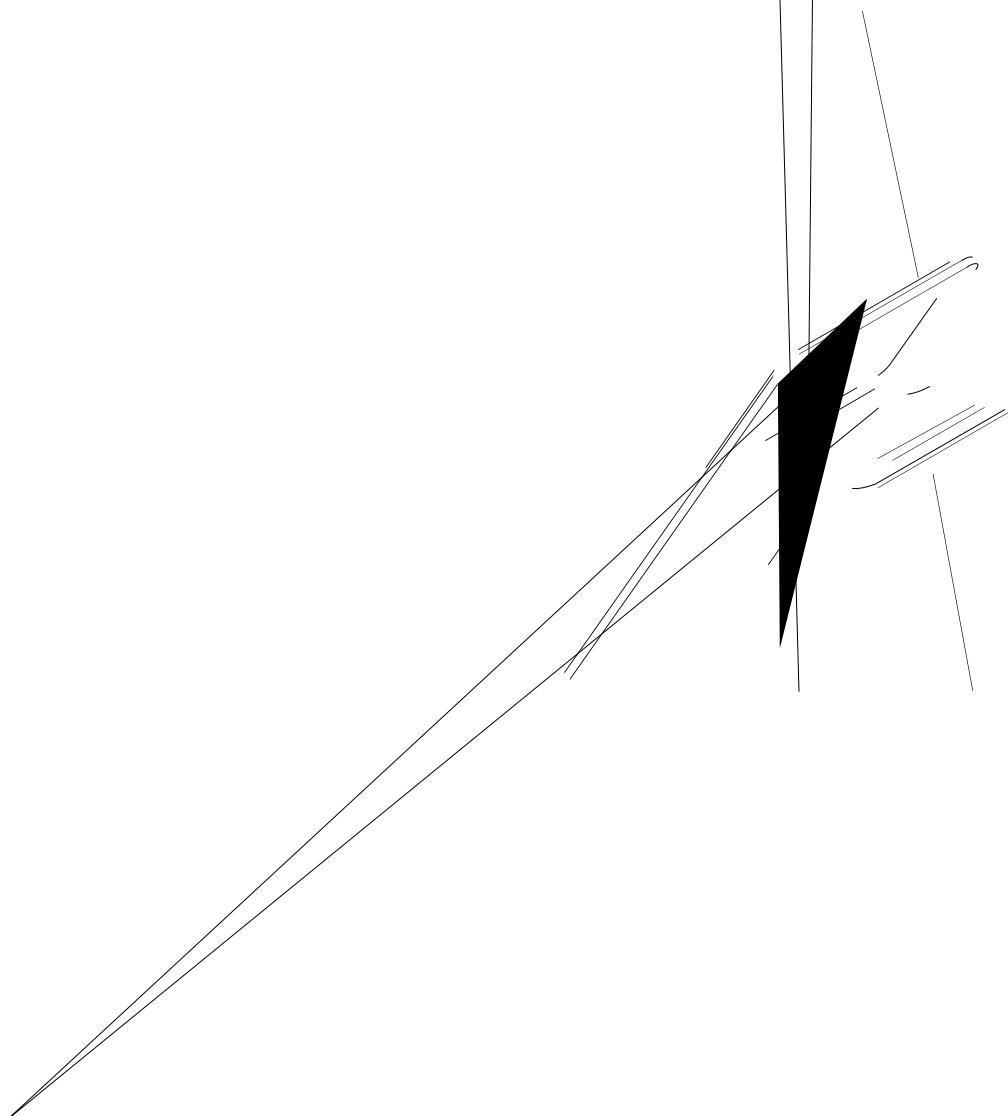
8.1. Troubleshooting

8.3. Battery Replacement

1. Set the 948/968 on it's side and lock shoe in place. The shoe must be locked.
2. Slide battery access door **[1]** toward bottom of unit and remove.
3. Disconnect plug **[4]** and pull battery pack **[2]** out of unit.
4. Remove old AA NI-CAD batteries **[3]**, and install six fresh AA NI-CAD (recognizing proper polarity).
5. Slide battery pack **[2]**

8.4. Target Window Replacement

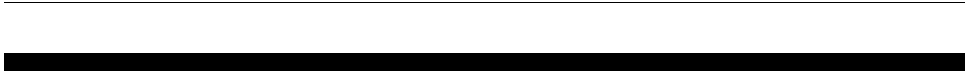
1. Remove old target window **[2]** by pushing downward from top of shoe **[1]**.
2. Place the instrument on end and align the target window so that the word "front" runs parallel with the top edge of the shoe **[1]**.
3. Insert one edge (top or bottom) of the new target window **[2]** in the opening of the shoe **[1]**.
4. Place the other side of the target window **[2]** in the shoe **[1]** by snapping into position.



A1	Specifications
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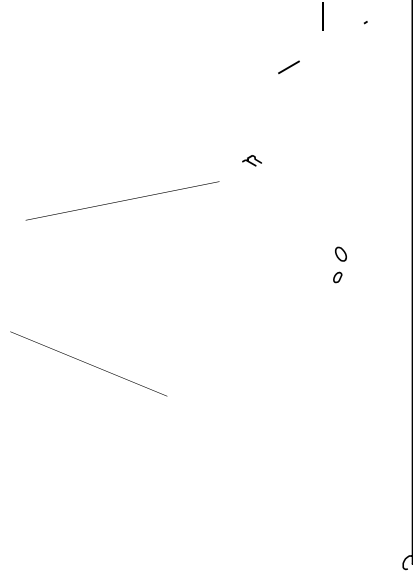
Specifications . . . continued

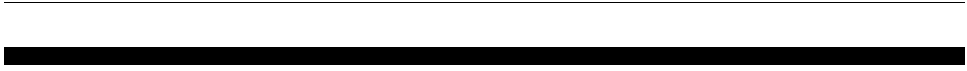
Storage Temp. Range:



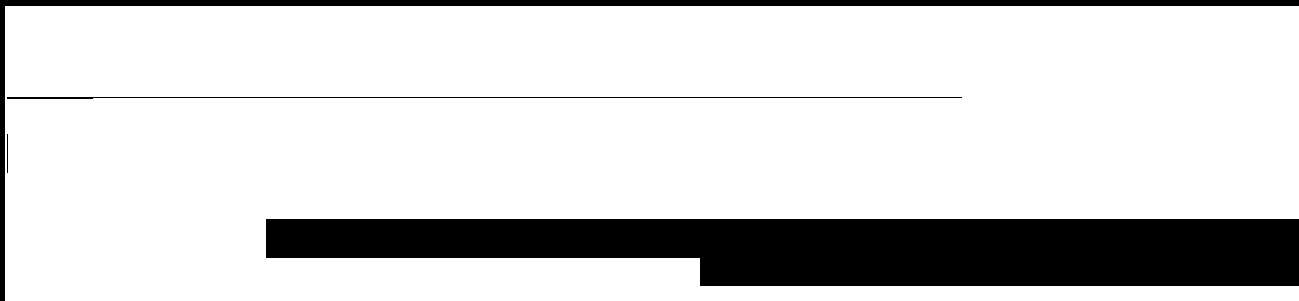
A4 Spectrophotometer Stand

X-Rite has an optional mounting fixture available (P/N 968-80). The fixture can hold items that are a maximum of four inches wide, or two inches to the center of the object.





Color Check . . . continued



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