

AT555

Auto Non-Contact Tonometer

User's Guide

Reichert
Ophthalmic Instruments

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Introduction

Congratulations on your purchase of the AT555 Auto Non-Contact Tonometer.

The AT555 is an auto-aligning, non-contact tonometer used to measure the intraocular pressure of the eye by delivering a very soft air puff to the eye.

This User's Guide is designed as a training and reference manual. We recommend you carefully read and follow the steps in this guide to ensure optimum performance from your new instrument.

Please retain this guide for future reference and to share with other users. Additional copies can be obtained from your authorized Reichert, Inc. dealer or contact our Customer Service Department directly at:

Tel: 716-686-4500
Fax: 716 686-4555
E-mail: info@reichert.com

Contraindications

Use of the AT555 is contraindicated in instances of:

- Edematous/ulcerated cornea
- Following keratoplasty
- Following penetrating trauma

Warnings & Cautions

Reichert, Inc. (Reichert) is not responsible for the safety and reliability of this instrument when:

- Assembly, disassembly, repair or modification is made by unauthorized dealers or persons
- Instrument is not used in accordance with this User's Guide

WARNING: **ANY REPAIR OR SERVICE TO THE AT555 MUST BE PERFORMED BY EXPERIENCED PERSONNEL OR DEALERS THAT ARE TRAINED BY REICHERT SO THAT CORRECT OPERATION OF THE AT555 IS MAINTAINED.**

WARNING: **THE AREA AROUND THE AT555'S NOSEPIECE MAY CREATE A "PINCH HAZARD." DO NOT PLACE YOUR FINGER INTO THE APERTURE SURROUNDING THE NOSEPIECE.**

WARNING: **THIS INSTRUMENT IS NOT SUITABLE FOR USE IN THE PRESENCE OF FLAMMABLE ANESTHETIC MIXTURES, SUCH AS OXYGEN OR NITROUS OXIDE.**

CAUTION: **ENSURE THAT THE VOLTAGE APPLIED TO THE UNIT IS THE SAME AS THE VOLTAGE THAT IS INDICATED ON THE DATA PLATE NEXT TO THE INPUT CORD RECEPTACLE OR DAMAGE TO THE UNIT MAY OCCUR.**

CAUTION: **THIS INSTRUMENT MUST BE PLUGGED INTO AN OUTLET WITH AN EARTH GROUND THAT IS CONNECTED TO THE RECEPTACLE OR DAMAGE TO THE UNIT MAY OCCUR. DO NOT DISABLE OR REMOVE THE GROUND PIN.**

CAUTION: **DO NOT USE SOLVENTS OR STRONG CLEANING SOLUTIONS ON ANY PART OF THIS INSTRUMENT OR DAMAGE TO THE UNIT MAY OCCUR.**

CAUTION: **USE OF ALCOHOL ON THE LIQUID CRYSTAL DISPLAY (LCD) MAY CAUSE DAMAGE TO THE DISPLAY.**

CAUTION: **PARTS AND ACCESSORIES USED MUST MEET THE REQUIREMENTS OF THE APPLICABLE IEC601 SERIES. SAFETY STANDARDS AND/OR THE SYSTEM CONFIGURATION MUST MEET THE REQUIREMENTS OF THE IEC601-1-1 ELECTRICAL SYSTEMS STANDARD.**

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Instrument Setup

Great care has been taken to deliver your new AT555 Auto Non-Contact Tonometer to you safely. The container and packaging was specially designed to transport this unit. Please retain the packaging if future transportation is required.

Unpacking Instructions

Please remove the packaging material from the instrument in the following manner (Refer to Figures 1 thru 3).

The instrument is packaged in a shipping container to protect the instrument from damage during shipment. Please read the User's Guide before operating the unit. A quick Reference Card is provided for your convenience and reference during operation of the unit.

1. Remove the Top Foam from the Shipping Container.
2. Remove the accessories from the Upper Foam:
   - Power cord
   - Dust cover
   - Spare printer paper (2 rolls)
   - Phillips-head screwdriver
   - Quick Reference Card
   - User's Guide
3. Remove the Upper Foam that secures the unit. Lift the unit out of the Inner Box using the handle slots provided on the Cradle.
4. Unfold the Cradle and remove the plastic bag over the unit. Set the unit on a secure table.
5. Put the packaging materials in a safe place of storage so that if transportation is required in the future, they will be available.



Figure 1, Shipping Container

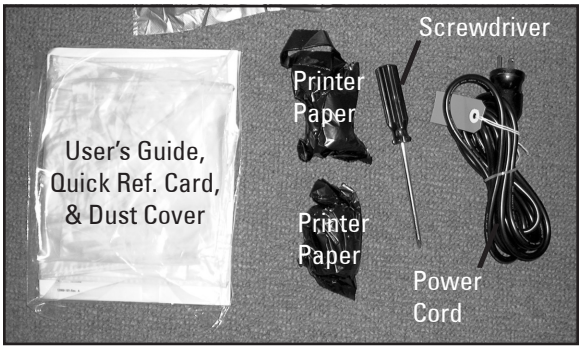


Figure 2, Instrument Components

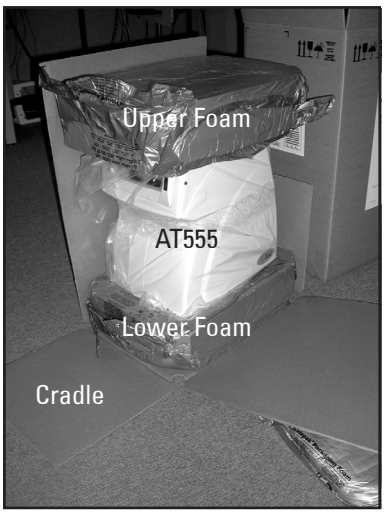


Figure 3, AT555 with Cradle

Instrument Setup (Continued)

Disengage Travel Lock

Disengage the Travel Lock located behind the Printer Door as follows:

1. Open the Printer Door by pushing on the door above the printer paper slot. Refer to Figure 4.
2. Remove the foam insert that secures the printer paper during shipment and store it with the packaging materials.
3. Insert the Screwdriver (Phillips-head) into the Travel Lock hole and locate the travel lock screw. Refer to Figure 5.
4. Turn the screw six full turns counterclockwise (the screw remains inside the Travel Lock hole).
5. Remove the Screwdriver, align the printer paper through the paper slot and close the Printer Door.

Note: If at any time the unit is transported, the Travel Lock must be engaged prior to packaging the unit into the shipping box.



Figure 4, Opening Printer Door

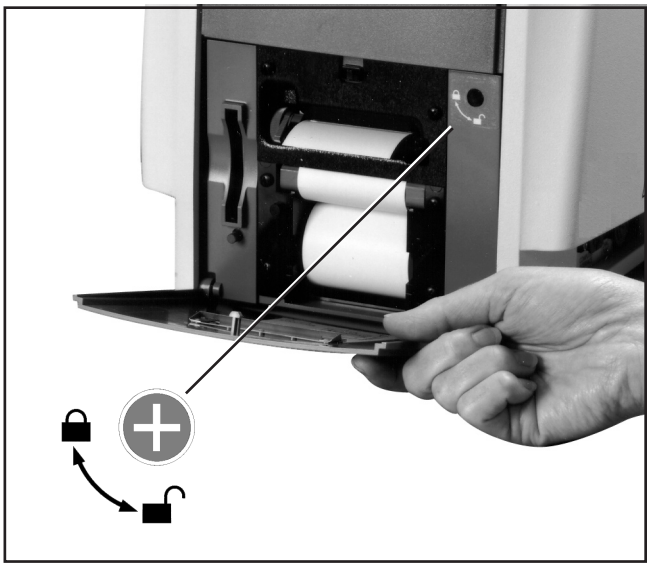


Figure 5, Travel Lock

Application of Input Power

CAUTION: **ENSURE THAT THE VOLTAGE APPLIED TO THE UNIT IS THE SAME AS THE VOLTAGE THAT IS INDICATED ON THE DATA PLATE NEXT TO THE INPUT CORD RECEPTACLE OR DAMAGE TO THE UNIT MAY OCCUR.**

CAUTION: **FOR CONTINUED PROTECTION AGAINST THE RISK OF FIRE, ANY REPLACEMENT OF DAMAGED FUSES MUST BE IN ACCORDANCE WITH THE FOLLOWING TYPE AND RATING.**

(Use "T 1.00 AL 250V" fuses)

1. After the unit is at its secure location, apply the correct input voltage to the instrument using the Power Cord that was contained in the Accessory Tray. Press down on the "—" located on the ON/OFF Switch.
2. Read and fully understand the User's Guide and the Quick Reference Card before operating this instrument.

WARNING: **DO NOT REMOVE THE OUTSIDE COVERS OF THE UNIT OR ATTEMPT TO REPAIR ANY INTERNAL PARTS. REPAIR AND SERVICE OF THE UNIT MUST BE PERFORMED BY EXPERIENCED PERSONNEL OR DEALERS THAT ARE TRAINED BY REICHERT.**

Instrument Setup (Continued)

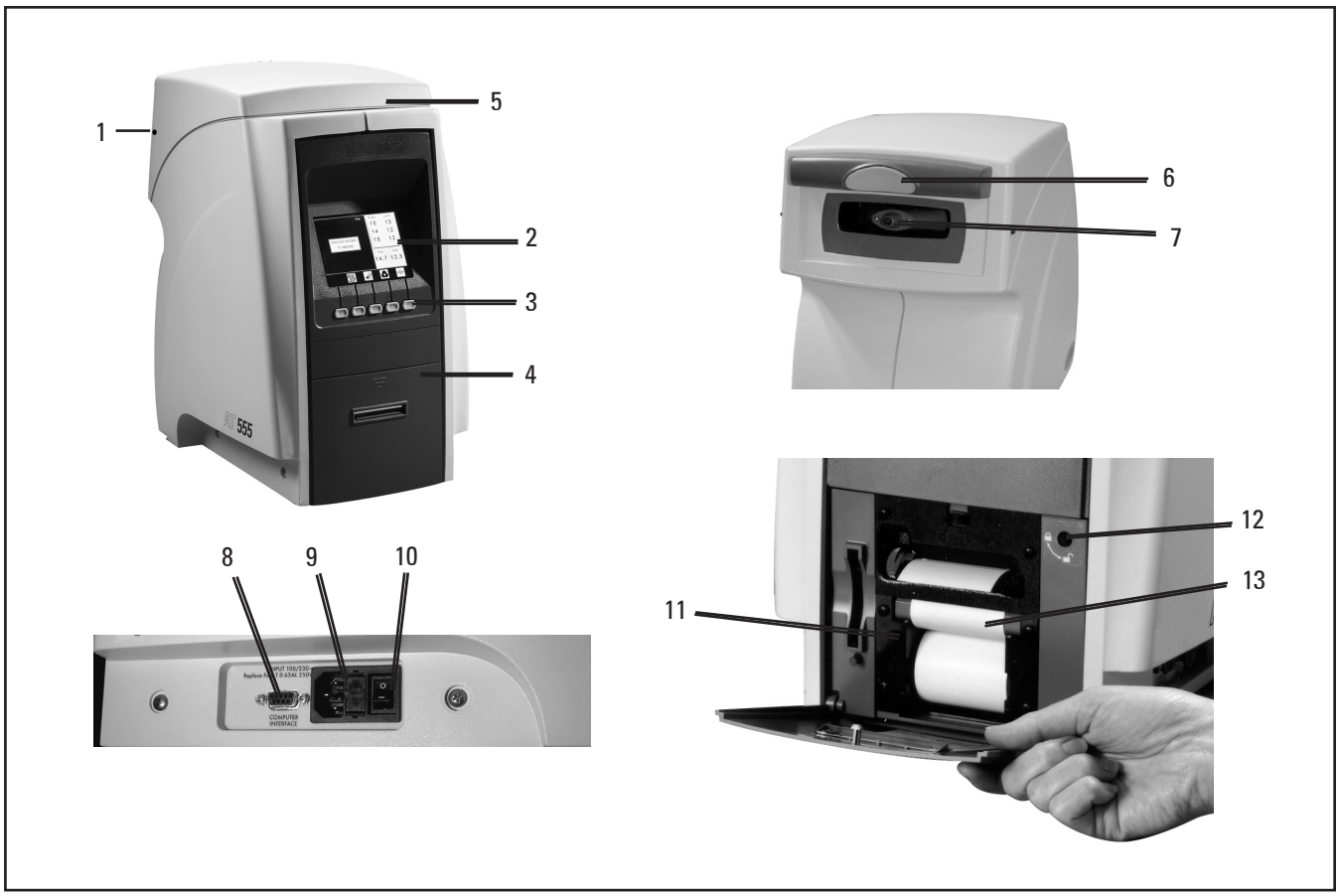


Figure 6, Parts Identification

Parts Identification

1. **Canthus Alignment Marks** (right and left side):
   Alignment mark that indicates the vertical position of the center of the patient's eye.
2. **Operator Display**:
   Operator Display that displays measurement data.
3. **Control Buttons**:
   Buttons used to select the Icons displayed on the Operator Display.
4. **Printer Door**:
   Door (push to open) to access travel lock and printer paper.
5. **Top Cover**:
   Outside top cover that provides access to the optical head assembly.
6. **Forehead Rest** :
   Alignment mechanism that moves right / left for correct patient positioning.
7. **Nosepiece Objective:**
   Airtube where "air puff" is emitted.
8. **RS-232C Port**:
   Communication port that transfers printer data.
9. **Main Power Connector & Fuse Holder**:
   Connection point for input power and the fuses. Press the top tab and bottom tab together on the fuse panel to remove the fuse holder and fuses.
10. **ON/OFF Switch**:
    Switch that controls input power to the unit. "O" indicates OFF, and "—" indicates ON.
11. **Printer Paper Advance Button**:
    Button for advancing the printer paper and setting the printer off-line / on-line.
12. **Travel Lock**:
    Locking mechanism that secures the internal parts of the unit during shipment.
13. **Printer**:
    Thermal printer supplied with the unit.

Instrument Setup (Continued)

Icon Definition

The AT555 incorporates a user-friendly icon/menu-based operating system that will increase the speed of measurements, training and use. Below are the Icons that are used during the operation of this instrument.

Icon	Icon Description	
	**MODE**	Accesses secondary level menus such as setup and help.
	**MEASURE**	Initiates the measurement sequence.
	**DEMO**	Allows patient to feel a soft demonstration air puff.
	**CLEAR DATA**	Clears both right and left data on the Operator Display and in memory.
	**PRINT**	Sends the data to the printer.
	**SETUP**	Provides access to the default settings so that changes can be made.
	**HELP**	Displays help instructions.
	**SERVICE**	Displays service information.
	**TRAVEL LOCK**	Positions the instrument to the “park” position so that the travel lock can be engaged.
	**MEASURING**	Provides visual indication of alignment during the measurement process.

Instrument Setup (Continued)

Default Settings

The AT555 has default settings that are set at the factory. A summary of these settings are given on the next page. A detailed definition/explanation of each setting is given on pages 11-14.

The following steps provide the details on how to customize the default settings.

How To Customize:

1. Press the button below the MODE icon.
2. Press the button below the SETUP icon.
3. Press the button below the UP/DOWN ARROWS icon to choose the appropriate setup category (e.g., Printout Setup).
4. Press the button below the SELECT icon to display the parameters and settings of the setup categories.
5. Press the button below the UP/DOWN ARROWS icon to move the cursor box to the desired parameter.
6. Press the button below the SELECT icon to activate the highlighted parameter.
7. Press the button below the appropriate RIGHT/LEFT ARROWS icon to move the cursor box to the desired setting for the parameter.
8. Press the button below the SELECT icon to activate the highlighted setting.
9. Press the button below the RETURN icon to step back thru the previous menus until the Main Menu is shown.

Icon	Icon Description	
	**MODE**	Accesses **setup categories** such as setup and help.
	**SETUP**	Provides access to the **parameters** so that the default **settings** can be modified.
	**RETURN**	Returns to preceding screen.
	**RIGHT ARROW**	Used in the setup menus to move right horizontally.
	**LEFT ARROW**	Used in the setup menus to move left horizontally.
	**UP ARROW**	Used in the setup menus to move up vertically.
	**DOWN ARROW**	Used in the setup menus to move down vertically.
	**SELECT**	Used in the setup menus to activate the new **parameter** or **setting**.

Instrument Setup (Continued)

Default Settings (Continued)

This instrument is sent from the factory with measurement, printer, communication, and miscellaneous parameters set to default settings. These settings can be changed to suit the needs of the individual operator/clinician. A summary of these settings are given below with the default selections shown in **bold** type. To customize these settings, follow the steps given on page 9, Instrument Setup, Default Settings.

Customized Options

This instrument has the following default settings:

Tonometer Setup: (page 11)

Readings:	Single **Avg (3)**
Pressure:	kPa **mmHg**

Printout Setup: (page 12)

Date Format:	**MDY**, DMY, YMD
Time Format:	**AM/PM**, 24 HR
Date:	04/17/2000
Time:	05:00 PM
Printer:	**On**, Off
Practice:	Reichert

Communications Setup: (page 13)

Baud:	2400, 4800, 9600, **19200**
Parity:	**None**, Odd, Even
Data Bits:	7, **8**
Stop Bits:	**1**, 1.5, 2
Flow:	**None**, Xon/Xoff
Printer:	**On**, Off

Miscellaneous Setup: (page 14)

Language:	**Eng**, Fra, Deu, Esp, Por, Ita
Tone:	**On**, Off
Sleep:	5, **10**, 20, 90
Contrast:	+, –

Note: Default settings are shown in **Bold** type.

Instrument Setup (Continued)

Tonometer Settings


Right

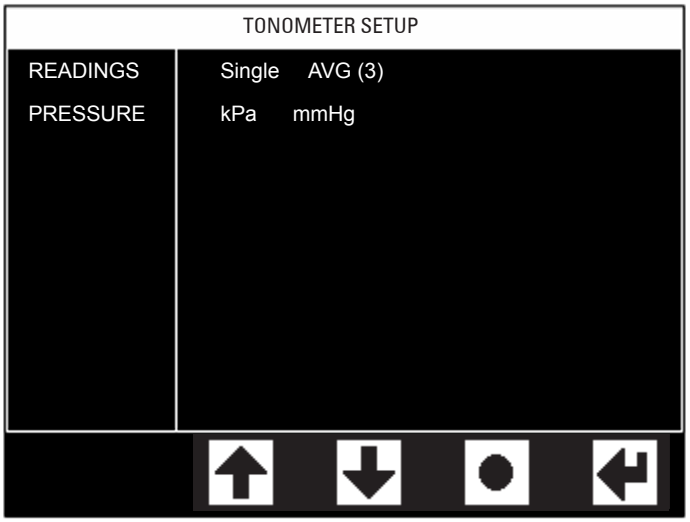

Left


Up


Down


Return


Select



The following options are available in the Tonometer Setup menu:

Parameters	Settings
READINGS	Choose one measurement per eye (Single), or three measurements per eye with the average being shown (Avg (3)).
PRESSURE	Choose either kilo Pascals (kPa) or millimeters of mercury (mmHg).

Instrument Setup (Continued)

Printout Settings


Right

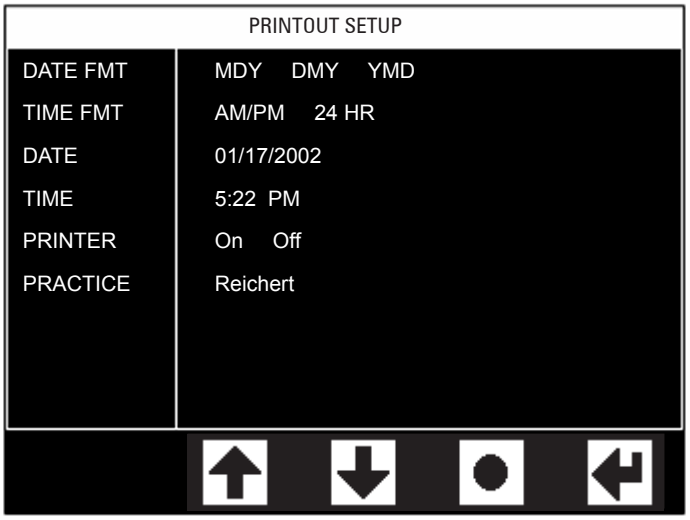

Left


Up


Down


Return


Select



The following options are available in the Printout Setup menu:

Parameters	Settings
DATE FMT	Choose the date format that will be shown on the printer paper: D=Day, M=Month, Y=Year.
TIME FMT	Choose the time format: AM/PM or 24 HR.
DATE	Change the current date. Use the PLUS (+) or MINUS (-) buttons to increase or decrease the numbers, then press the SELECT button.
TIME	Change the current time. Use the PLUS (+) or MINUS (-) buttons to increase or decrease the numbers, then press the SELECT button.
PRINTER	Option that sets the printer to print (ON) or not to print (OFF) when the print button is pressed.
PRACTICE	Up to 30 characters (letters and numbers) can be printed at the bottom of the printer paper. To change the characters, use the PLUS and MINUS buttons to scroll through the alphabet. Once you have found the letter you require, press the button below the RIGHT or LEFT arrow to move horizontally to the next letter. To exit, press the button below the SELECT icon, then the RETURN button.

Instrument Setup (Continued)

Communications Settings


Right

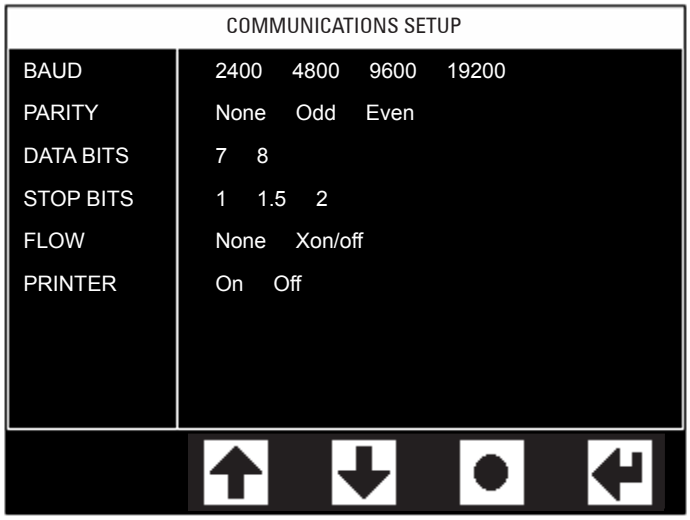

Left


Up


Down


Return


Select



The AT555 can transfer data to an external device, such as a computer, through the RS-232C serial port.

The following options are available in the Communications Setup menu:

Parameters	Settings
BAUD	Serial transmission data rate, transfers in bits per second (bps).
PARITY	Bits added to data transmission used to detect transmission errors. None, Even, or Odd are the available options.
DATA BITS	Number of bits that make up data transmission word. Usually 7 or 8 bits in length.
STOP BITS	Number of bits added to the end of the data transmission word to signal the end of transmission. Usually 1, 1.5, or 2 bits in length.
FLOW	The means used to control data transmission flow between the sender and the receiver. Often called handshaking. Can be either hardware or software controlled (Xon/Xoff) or none.
PRINTER	Option that sets the printer to print (ON) or not to print (OFF) when the print button is pressed. When the printer is set to OFF, the patient data is sent only to the RS-232C serial port. When the printer is set to ON, the patient data is sent to the printer and the RS-232C serial port.

Instrument Setup (Continued)

Miscellaneous Settings


Right

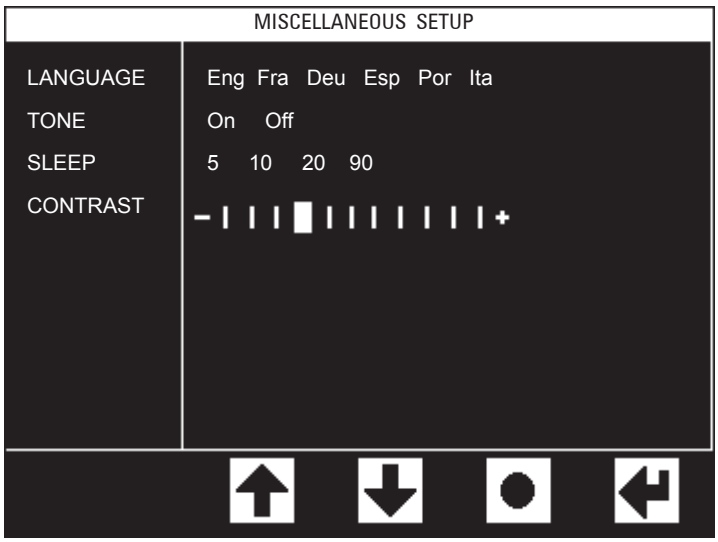

Left


Up


Down


Return


Select



The following options are available in the Miscellaneous Setup menu:

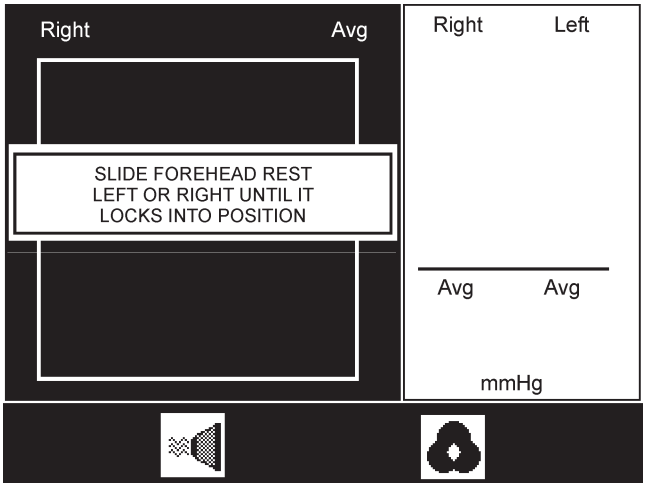
Parameters	Settings
LANGUAGE	Sets the language that is used on the Operator Display.
TONE	The audible tone indicator ("beep") can be set to be silent (OFF) or audible (ON).
SLEEP	Choose the duration of time (5, 10, 20 or 90 minutes) that the instrument is inactive before it initiates the "sleep" mode (the Operator Display goes blank when the "sleep" mode is active). To illuminate ("wake") the Operator Display after the "Sleep" mode is active, press any Control Button.
CONTRAST	Changing the position of the slide bar adjusts the contrast of the Operator Display.

Note: If the Travel Lock has not been disengaged, perform the steps in the Disengage Travel Lock, paragraph in the Instrument Setup section of this manual.

When power is applied to the AT555, it will initially perform a calibration check. After completion of the calibration, the message "Press any button to continue" will be displayed. After this message is displayed, press any Control Button on the operator side and the instrument will be ready for use.

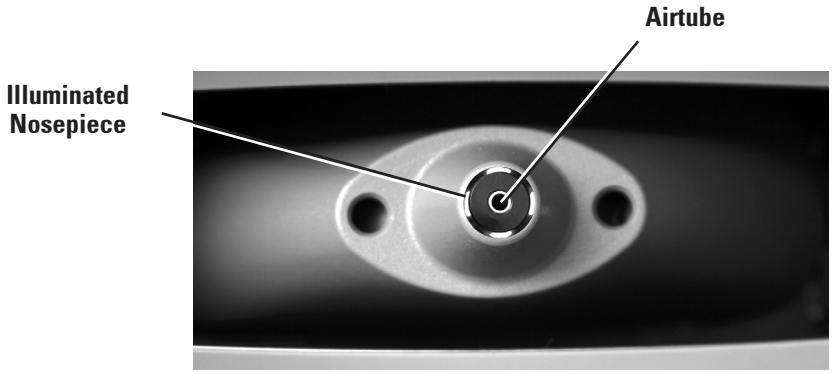


After you press any button, the Operator Display will display a message to move the Forehead Rest fully to the left or right until it locks into position if it is not already in this position.





The AT555 features a fully automated alignment system that enables the instrument to align itself to the apex of the patient's left or right eye. This innovative system makes the measurement process quicker and more comfortable for the patient. Perform the following steps to take a measurement of the patient's eye.



1. Instruct the patient to locate the airtube inside the red circle on the end of the nosepiece.
2. After they have located the airtube, have the patient find the green target inside the airtube and then slowly lean forward until their forehead is on the soft pad in the middle of the Forehead Rest. Refer to Figures 7 and 8.



Figure 7, Proper patient alignment (chin close to unit)



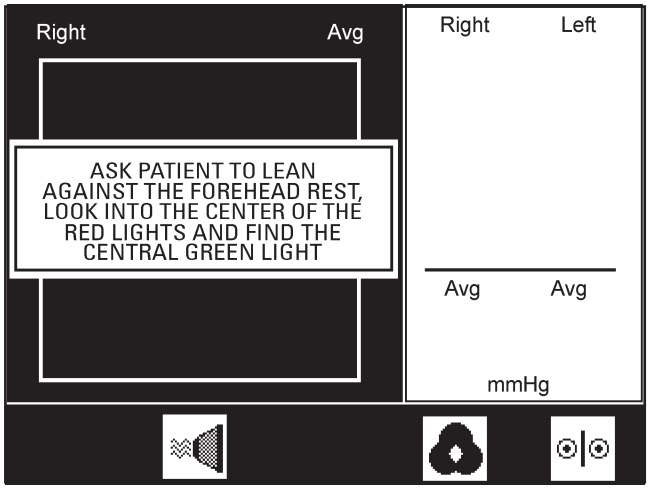
Figure 8, Improper patient alignment (chin moved away from unit)

Note: **If the patient cannot see the green target, use the canthus marks on the sides of the instrument to set the vertical alignment of the eye and then have the patient move forward until the center of their forehead is against the Forehead Rest pad.**

Note: **The patient should be seated comfortably on the patient side of the instrument.**

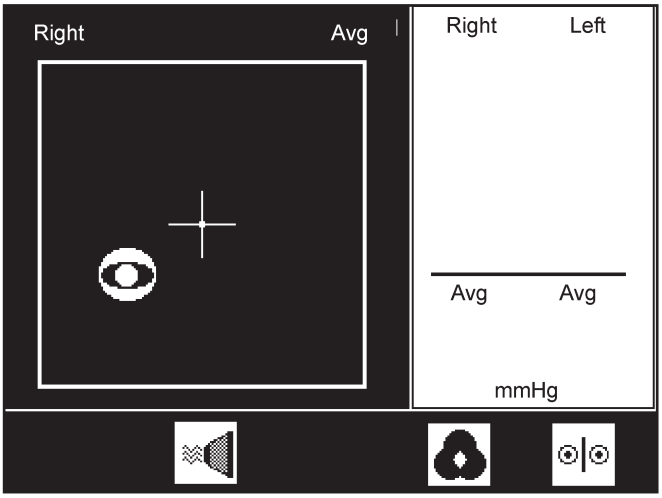
Note: **The patient should be positioned in a way that encourages them to lean forward with their chin as close to the instrument as possible. This will reduce the difficulties associated with misalignment and low confidence readings.**

Measure




Measure

3. Once the patient is leaning against the Forehead Rest , press the Measure icon to begin the measurement process.
4. During the positioning process, the Operator Display will change and look similar to the one shown below. The measuring icon will move around on the Operator Display when the patient is within the instrument's acquisition zone. As the positioning system aligns to the apex of the eye, the measuring icon will move to the center of the screen and align over the center alignment mark (+). Once the positioning system is aligned the air "puff" is delivered to the eye and the pressure is acquired.



Note: If the instrument seems to have trouble acquiring the patient's eye during the measurement process (e.g., it keeps aligning but never takes a reading), it may be necessary to ask the patient to:

- **Remain still and try not to move**
- **Open his/her eyes wider, or**
- **Tilt his/her head toward the window**

Note: If the instrument still seems to have difficulty aligning to the patient's eye, refer to the Maintenance section of this manual and perform the Position Window Cleaning procedure.

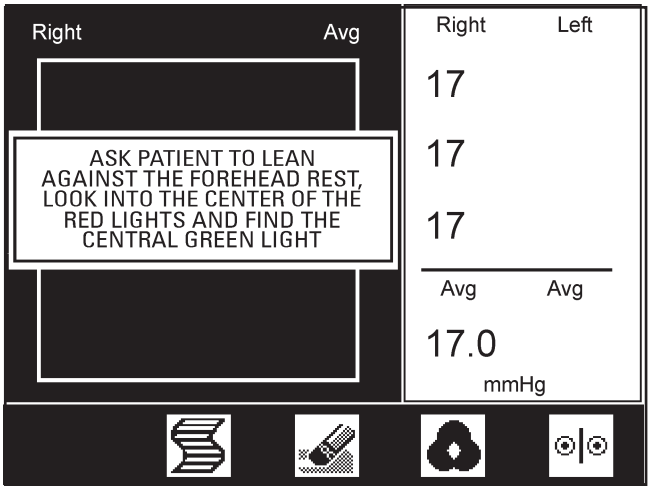

Measure


Clear Data


Print

5. After the measurement is completed for the first eye, ask the patient to move their forehead away from the instrument.
6. There are several options available at this point:
   a. The Forehead Rest may be slid to the opposite side to continue taking measurements on the other eye
   b. All data may be cleared and other measurements taken (press the button below the CLEAR icon)
   c. The data can be printed by pressing the button below the PRINT icon

Note: The instrument will print out the data from both eyes if the button below the PRINT icon is selected after both eyes are measured.



Demo Puff



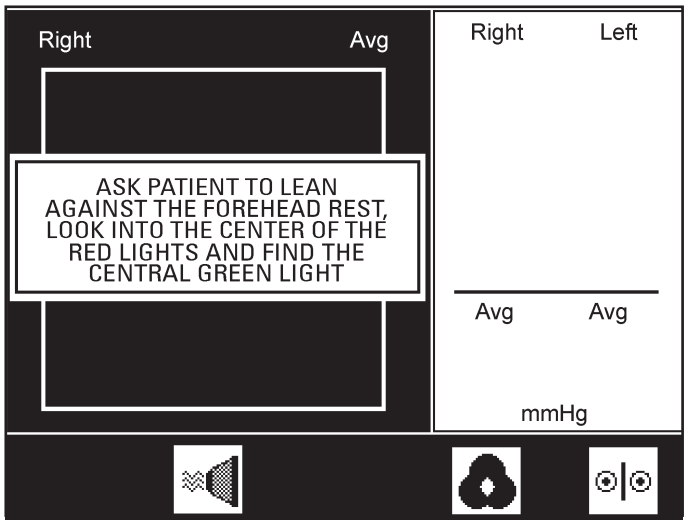
Demo



Clear Data

Pressing the button under the DEMO icon initiates a sample air puff. This can be used to demonstrate the air puff to the patient.

After each time the DEMO button is pressed and the air puff is delivered, an internal check of the AT555's systems is conducted to ensure optimum performance of your instrument.



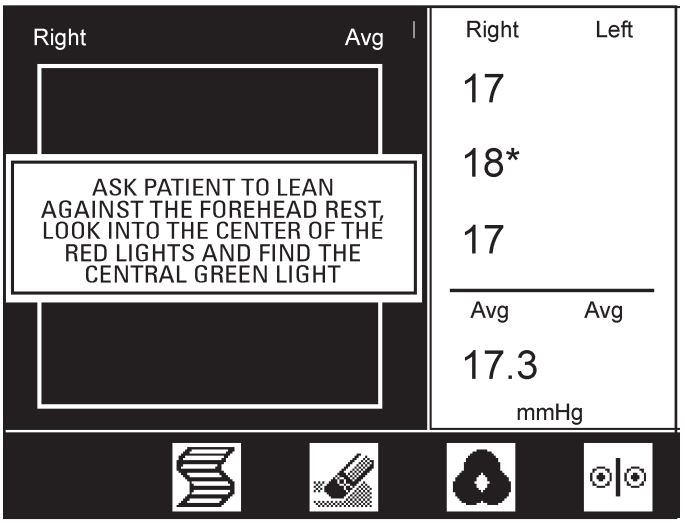
Note: The DEMO icon will not display if there are measurements displayed on the screen. Press the button below the CLEAR DATA icon to make the DEMO icon visible.

Instructions for Use (Continued)

Low Confidence Readings

During the measurement process, the AT555 may detect a condition that could create a low confidence reading, which is identified with an asterisk after the reading.

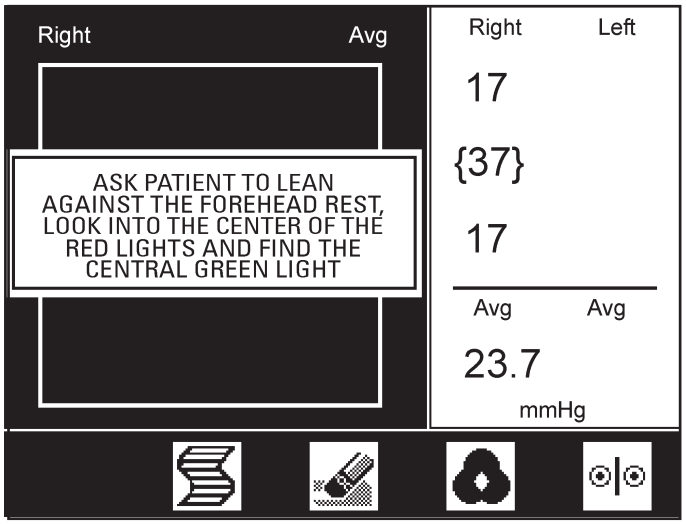
Asterisk readings can result from an untimely blink or interference from a patient's eyelashes. These measurements are highlighted with an asterisk next to the reading as shown below.



Note: **If a reading has an asterisk following it, that reading will be used in the computation of the average value. If a fourth measurement is taken, the AT555 will replace the asterisk reading with the new reading.**

Measurements with the AT555 are made within a few milliseconds after the instrument "puffs" the eye. Since this measurement cycle is so short, IOP readings can be acquired at different times within a cardiac pulse period. Therefore, repetitive readings for an eye may fluctuate from 2 to 4 mmHg during this cardiac period.

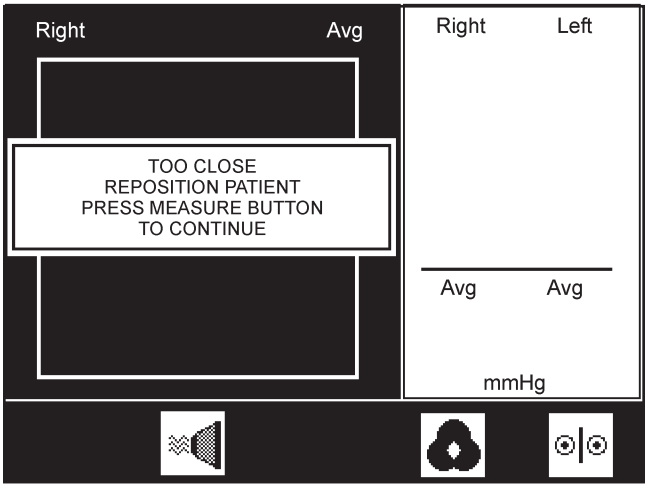
Occasionally a reading greater than 4 mmHg may be shown (referred to as a "flier") due to patient movement or other reasons. The AT555 distinguishes these readings by putting brackets around the value, as shown on the screen below.



Note: If a reading is surrounded by brackets (a "flier"), it will be used in the computation of the average value and cause the average value to be out of range from the non-bracket readings. If a fourth measurement is taken, the AT555 will automatically replace the "flier."

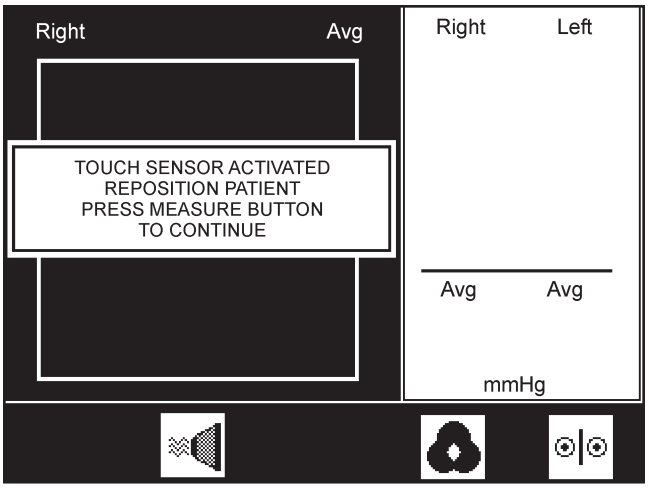
Too Close Activated

During the measurement process, the AT555 may detect a situation where the patient's eye is too close to the nosepiece. Should this occur, the instrument will back away from the patient's eye and then start aligning and measuring again. After three attempts, the instrument will back away completely, and the screen will change to that shown below.



Should this situation arise, ask the patient to move away from the instrument, then reposition the patient and proceed with the next measurement.

If something, such as a finger, is placed inside the open space surrounding the AT555's nosepiece, the unit's screen will change to that shown below.



This is meant to prevent damage to the instrument and/or to prevent the possibility of causing injury to the patient. Should this situation arise, make sure the patient is not touching the AT555 anywhere near its nosepiece. The instrument will not function until the finger is removed.



Print

To print the measurement data, press the button below the PRINT icon.

A sample printout is shown below.

NAME_____
1-31-99 12:00PM

				Avg
(L)	16	16	16	[16.0]
(R)	17	17	17	[17.0]

Reichert AT555

Figure 9, Sample Printout



Clear Data

If you decide not to make a printout, press the button under the CLEAR DATA icon. This will clear all data from the memory and the screen. The instrument is now ready for the next patient.

Fuses

Fuses are located next to the power inlet (Refer to page 7, Item# 9). Replace fuses with only a rating of T1.00 AL 250V as indicated on the power inlet panel.

An internal fuse for the power circuits is located on the main circuit board inside the unit.
Note: Replacement of this fuse must be performed by qualified service personnel only.

External Cleaning

Clean the external surfaces of this instrument using a clean, soft cloth moistened with a mild detergent solution (1 cc of liquid dish soap to one liter of clean, filtered water (filtered below 5 microns)).

Forehead Rest Cleaning

For hygienic reasons, the Forehead Rest may be cleaned with a clean cloth moistened with a mild detergent solution (1 cc of liquid dish soap to one liter of clean, filtered water (filtered below 5 microns)).
Note: If the Forehead Rest pad must be sanitized, a sterile wipe may be used occasionally.

Positioning Windows Cleaning

When the Positioning Windows or the Applanation Windows become occluded with contaminants, degradation of the positioning signal occurs. When signal degradation occurs, the system may not recognize or position at the center of the eye. Consequently, the instrument will not find the center of the eye or align off center, which may prevent the unit from taking a measurement or can cause asterisk readings.



CAUTION: DO NOT USE ALCOHOL, SOLVENTS OR STRONG CLEANING SOLUTIONS ON THE ALIGNMENT WINDOWS OR DAMAGE TO THE WINDOWS WILL OCCUR.

1. Locate the Positioning Windows and the Applanation Windows and wipe the outside surfaces with a clean, long handle cotton-tip swab moistened with a mild detergent solution (1 cc of liquid dish soap to one liter of clean, filtered water (filtered below 5 microns)) to remove dirt and contaminants.
2. Remove any remaining dust or foreign particles using only clean, dry, compressed air at less than 90 psig (620 kPa).

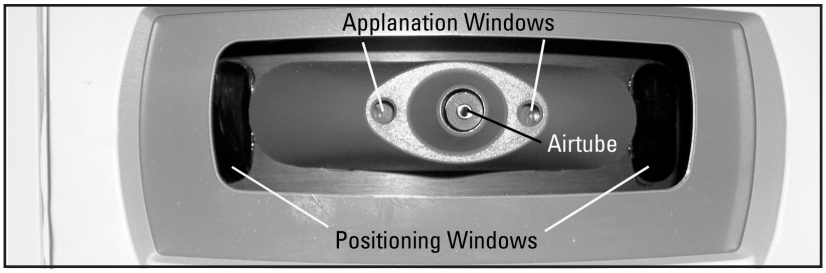


Figure 10, Positioning Windows

Printer Paper

Instructions for changing printer paper can be found on the inside of the printer door. To order replacement thermal paper, call your local dealer and ask for replacement paper, catalog No. 12441.

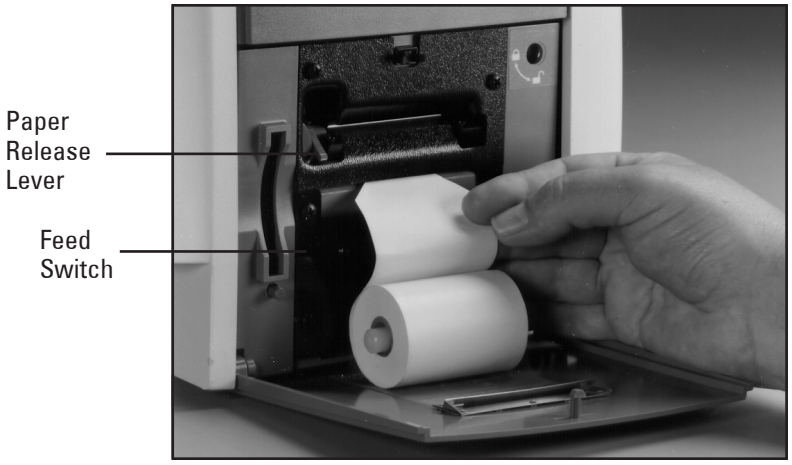


Figure 11, Printer Paper Replacement

Troubleshooting

Help Screens


Mode


Help


Up

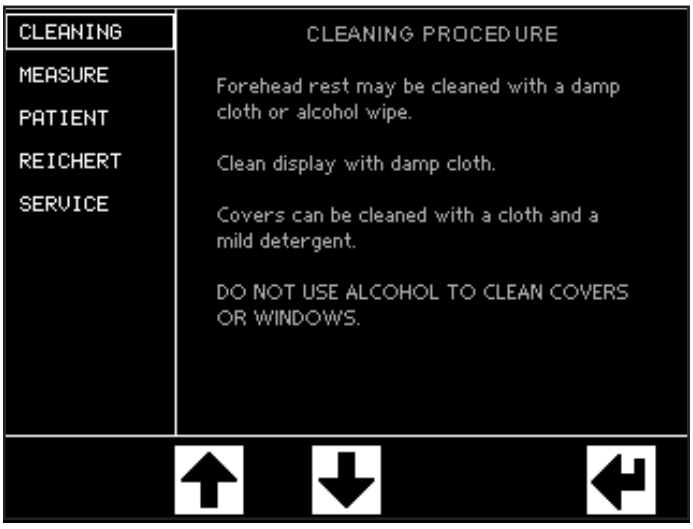

Down


Return

The AT555 includes HELP screens, which provide useful information and tips on its operation. These screens are intended to be used as a quick reference to a selection of operations.

To access the HELP menu, press the button below the MODE icon. The screen will change and look similar to that below.





Troubleshooting (Continued)

Troubleshooting Chart

The following chart provides details of common problems and solutions for the AT555.

Definition	**Probable Cause**	**Solution**
Screen blank.	Unit in Sleep Mode. ON/OFF Switch set to OFF. Contrast is set too low. Fuse(s) Blown.	Depress any button. Press the "—" on the ON/OFF Switch. Adjust contrast in Setup menu. Replace blown fuse(s) (Refer to page 26).
Instrument not responding to button push.	Instrument is "locked up."	Press the ON/OFF button to OFF, wait 2 minutes then push it to ON.
Disengage Travel Lock shown.	Travel Lock engaged.	Disengage the Travel Lock.
Touch Sensor Message shown.	Touch sensor activated.	Push the touch plate in and then release it to desensitize the circuit.
Too Close Message shown.	Eyelashes touching the end of the air-tube.	Have the patient open their eye wide.
Position Patient Message shown.	Patient not looking at green fixation LED.	Instruct patient to look for green LED, then move in toward headrest.
Does not find the eye (moves straight out , then goes straight back).	Dirty Positioning Windows External light confusing positioning system.	Clean the Positioning Windows (Refer to the Maintenance section of this manual). Isolate sources of external light (e.g., incandescent or infrared light) and remove light source.
Finds one eye not the other. Infrared interference.	Light interference on measuring side	Remove interference (e.g., infrared light source).
Tries three times to find the eye then returns to the home position.	Proximity detector is activated.	Eliminate touching end of nosepiece.
Will not take a reading.	Patient not holding still. Patient's eye too far from Patient Window. Patient not focusing on target (eye moving around). Patient has dry eye. Dirty Positioning Windows	Encourage patient to remain still. Have patient move toward nosepiece. Have patient look only at target. Have patient blink eyes. Clean the Positioning Windows (Refer to the Maintenance section of this manual).
Asterisk readings or No Applanation readings.	Unit needs reboot of hardware. Dirty Positioning Windows.	Unplug unit, wait 2 minutes then apply input power. Clean the Positioning Windows (Refer to the Maintenance section of this manual).
Printer not printing.	Printer out of paper. Printer paper in backwards. Not using Reichert thermal paper.	Replace paper with Reichert P/N 12441. Reverse the printer paper. Replace paper with Reichert P/N 12441.

If problems still persist, contact Reichert as shown in the *Introduction* section of this manual.

Troubleshooting (Continued)

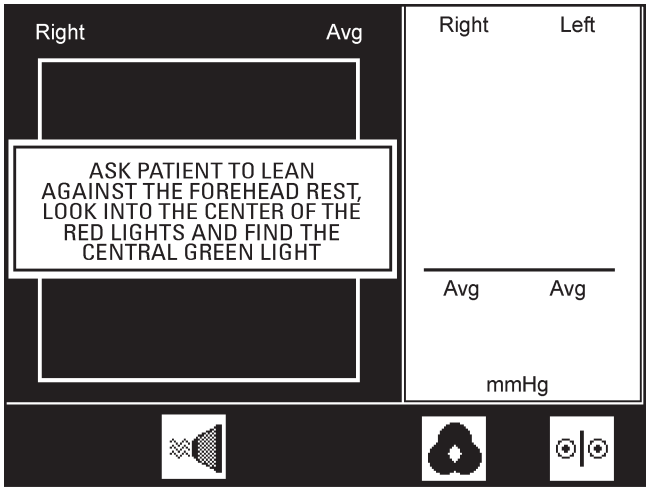
Engaging the Travel Lock


Mode


Travel Lock

If it is necessary to ship the instrument to another location, engage the travel lock as follows.

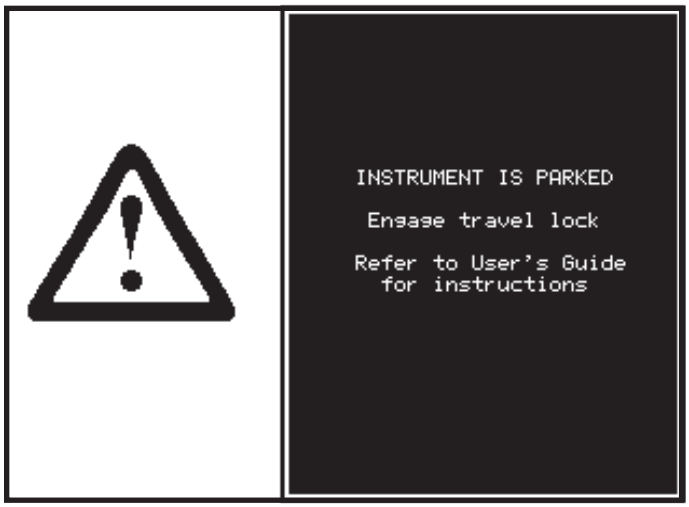
Press the button below the MODE icon. The MODE icon can be found on most operating screens.



After pressing the mode button the screen will change and look similar to the one below. Now press the button below the TRAVEL LOCK icon – you will hear the instrument's motors moving and position into the "parked" position.



The screen will also change (as shown below) to indicate the instrument is in the "parked" position.



Note: If the instrument does not go to the parked position or the Lock icon is not displayed:

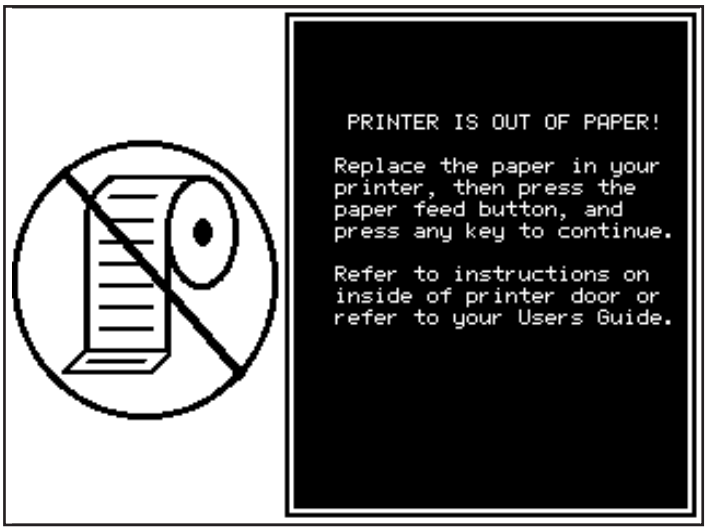
a. Disconnect power to the unit.
b. Press and hold the three middle Control Buttons (refer to p.7) below the Operator Display.
c. Apply power to the unit while pressing the three middle Control Buttons.
d. Release the three Control Buttons when the screen displays that the unit is parked.

Once the instrument is "parked," you can engage the Travel Lock. Perform the following steps to engage the Travel Lock (for illustrations of the Travel Lock and packaging, refer to the Instrument Setup section in this manual):

1. Open the Printer Door by pushing on the door above the printer paper slot.
2. Insert the Phillips head screwdriver into the hole of the Travel Lock and locate the screw inside the Travel Lock.
3. Push the screw in and turn it six full turns clockwise (or until it is hand-tight).
4. Remove the screwdriver, align the printer paper through the paper slot and close the door.

If transportation of the instrument is required, you may now disconnect the input power to the instrument and repackage the instrument.

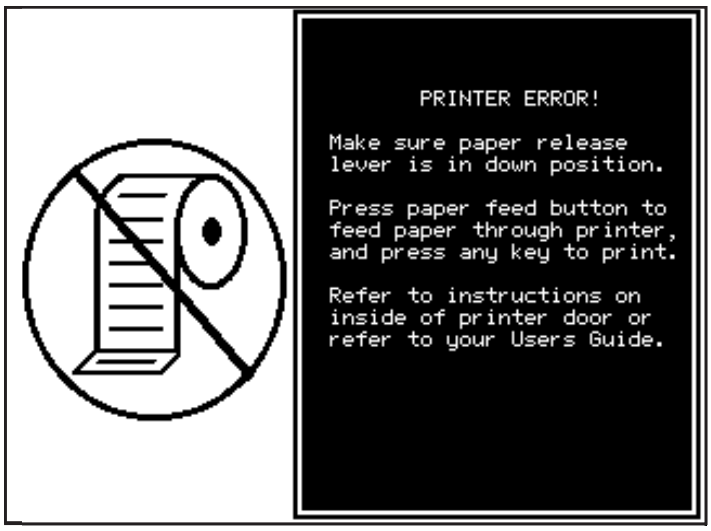
If your printer is out of paper, the following message will appear.



Instructions for changing printer paper are located on the inside of the printer door (refer to the *Maintenance* section of this manual).

Note: If the printer paper runs out before printing all the measurement data, the data will be stored. Once the printer paper is replaced, a complete print out of all measurement data will start.

Note: After replacing printer paper, if you do not lower the paper release lever, follow the instructions on the screen. The following screen will appear.



Appendix A - General Specifications

Specifications:

Height:	17 in., 43.0 cm.
Width:	9 1/2 in., 24.0 cm.
Depth:	13 1/2 in., 34.0 cm.
Weight, unpacked:	30 lbs., 13.6 kg.
Voltage:	100/240 VAC
Current:	1.0 Amp
Frequency:	50/60 Hz
Measurement Range:	0 - 60 mmHg (0 - 8.0 kPa)

Ordering Information - Accessories

Catalog	**Description**
12430-273	Cleaning Cloth
12441	Printer paper
13920-084	Dust Cover
13910-104	AT555 Quick Reference Card

To order any of these accessories, contact your local authorized Reichert dealer.

Transportation & Storage

This instrument can withstand the following conditions while packed for transportation or storage:

- An ambient temperature range of -40°F to +158°F (-40°C to + 70°C)
- A relative humidity range of 10% to 90%
- An atmospheric pressure range of 14.7 inHg to 31.3 inHg (50.0 kPa to 106.0 kPa)

Exposure to these extreme conditions indicated above should not exceed 15 weeks.

Disposal

This product does not generate any environmentally hazardous residues. At the end of its product life, follow your local laws and ordinances regarding the proper disposal of this equipment.

Appendix A - General Specifications (Continued)

Classification

The AT555 is classified as Class 1 Equipment.
Class 1 Equipment is equipment in which protection against electric shock does not rely on basic insulation only, but which includes an additional safety precaution in that means are provided for the connection of the equipment to a protective earth conductor in the fixed wiring of the installation in such a way which accessible metal parts cannot become live in the event of a failure of the basic insulation.

The AT555 is classified as Class B Equipment.
Class B Equipment provides an adequate degree of protection against electrical shock, particularly regarding allowable leakage currents and reliability of the protective earth connection.

The AT555 is classified as IPX0 Equipment.
IPX0 Equipment is ordinary equipment enclosed without protection against ingress of water.

The AT555 is not suitable for use in the presence of flammable anesthetic mixtures with air or with oxygen or nitrous oxide.

According to the mode of operation, the AT555 is a Continuous Operation instrument.

Symbol Information

The following symbols appear on the instrument.



Caution symbol indicating important operating and maintenance instructions that are included in this User's Guide.



Type B Product Classification
Class 1 Equipment, Continuous Operation



Alternating Current Power



Protective Earth Connection

CE 0120

Compliance to Medical Device Directive 93/42/EEC



ON / OFF



Date of Manufacture



Authorized to mark given by Intertek ETL Semko for conformance with electrical standards

[REF]

Catalog Number



Waste of Eletrical and Electronic Equipment

Warranty

This product is warranted by Reichert, Inc. ("Reichert") against defective material and workmanship under normal use for a period of one year from the date of invoice to the original purchaser. (An authorized dealer shall not be considered an original purchaser.) Under this warranty, Reichert's sole obligation is to repair or replace the defective part or product at Reichert's discretion.

This warranty applies to new products and does not apply to a product that has been tampered with, altered in any way, misused, damaged by accident or negligence, or that has the serial number removed, altered or effaced. Nor shall this warranty be extended to a product installed or operated in a manner not in accordance with the applicable Reichert instruction manual, nor to a product that has been sold, serviced, installed or repaired other than by a Reichert factory, Technical Service Center, or authorized Reichert, Inc. Dealer.

Lamps, bulbs, charts, cards and other expendable items are not covered by this warranty.

All claims under this warranty must be in writing directed to the Reichert factory, Technical Service Center, or authorized instrument dealer making the original sale and must be accompanied by a copy of the purchaser's invoice.

This warranty is in lieu of all other warranties implied or expressed. All implied warranties of merchantability or fitness for a particular use are hereby disclaimed. No representative or other person is authorized to make any other obligations for Reichert. Reichert shall not be liable for any special, incidental, or consequent damages for any negligence, breach of warranty, strict liability or any other damages resulting from or relating to design, manufacture, sale, use or handling of the product.

PATENT WARRANTY

If notified promptly in writing of any action brought against the purchaser based on a claim that the instrument infringes a U.S. Patent, Reichert will defend such action at its expense and will pay costs and damages awarded in any such action, provided that Reichert shall have sole control of the defense of any such action with information and assistance (at Reichert's expense) for such defense, and of all negotiation for the settlement and compromise thereof.

PRODUCT CHANGES

Reichert reserves the right to make changes in design or to make additions to or improvements in its products without obligation to add such to products previously manufactured.

CLAIMS FOR SHORTAGES

We use extreme care in selection, checking, rechecking and packing to eliminate the possibility of error. If any shipping errors are discovered:

1. Carefully go through the packing materials to be sure nothing was inadvertently overlooked when the unit was unpacked.
2. Call the dealer you purchased the product from and report the shortage. The materials are packed at the factory and none should be missing if the box has never been opened.
3. Claims should be filed within 30 days.

CLAIMS FOR DAMAGES IN TRANSIT

Our shipping responsibility ceases with the safe delivery in good condition to the transportation company. Claims for loss or damage in transit should be made promptly and directly to the transportation company.

If, upon delivery, the outside of the packing case shows evidence of rough handling or damage, the transportation company's agent should be requested to make a "Received in Bad Order" notation on the delivery receipt. If within 48 hours of delivery, concealed damage is noted upon unpacking the shipment and no exterior evidence of rough handling is apparent, the transportation company should be requested to make out a "Bad Order" report. This procedure is necessary in order for the dealer to maintain the right of recovery from the carrier.

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