SP565 Hot Wire Air Velocity Smart Probe

Test Products International, Inc.

Measures Air Velocity and Temperature; calculates Air Flow (Volume)

Connects to mobile device and uses the TPI Smart Probe App

Perform average air velocity and air volume tests

Up to 6 SP565 smart probes can connect to a single mobile device (most devices)

3 Year Limited Warranty

Uses hot wire sensor for accurate air velocity measurements.

Test the TPI Advantage

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A. INTRODUCTION

1. Congratulations: Thank you for purchasing TPI products. The SP565 is easy to use and built to last. It is backed by a 3 year limited warranty.

2. Product Description: The SP565 is a hot wire air velocity "Smart Probe". It connects to your mobile device and uses the TPI Smart Probe App to display temperature readings. Data can be exported to a CSV file as well.

B. SAFETY CONSIDERATIONS

1. Never insert the sensor into hot air.

2. Never allow a foreign object into the sensor cage. The sensor may be damaged.

3. Do not expose the unit to damp environments for extended periods of time.

C. SPECIFICATIONS

SP565 Smart Probe Air Velocity Meter Specifications	
Sensor Type	Hot wire
Air Velocity Measurement Range	-40 ft/min to 3900 ft/min (0.2 m/s to 20 m/s)
Air Velocity Accuracy	+/- (5% of rdg + 10 digits) or +/- (1% FS + 10 digits)
Resolution	1 ft/min / 0.01 m/s
Temperature Measurement Range	-4^{0}F to 140^{0}F (-20^{0}C to 60^{0}C)
Temperature Accuracy	+/- 1^{0}F (0.5^{0}C) (32^{0}F to 113^{0}F / 0^{0}C to 45^{0}C) +/- 2^{0}F (1^{0}C) (<32^{0}F (0^{0}C) and >113^{0}F (45^{0}C)
Units of Measure	m/s, km/s, ft/min, miles/hr, knots/hr
Operating Temperature	-4^{0}F to 122^{0}F (-20^{0}C to 50^{0}C)
Communication	Bluetooth version 4.2 (Use with TPI Smart Probe App) FCC ID: QOQBGM113 IC: 5123A-BGM113 209-J00204
Battery Type	AAA x 3
Battery Life	60 hours typical
CFM Calculation	Performed via TPI Smart Probe App

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D. INSTRUMENT OVERVIEW

SP341 status LED indicator.
Orange and blinking = Bluetooth not connected

Green and blinking = Bluetooth connected

Blinking Red with either of the above = Low battery

Power Key. Press and hold to turn the instrument on. Press and hold to turn the instrument off.

SP565

Hot Wire Velocity

Hot Wire probe in storage position.

A Rotate the probe until it is in the "UP" position.

B The back of the SP565 is marked "UP" and "DN" indicating rotation direction.

Hot wire sensor is on top.

Temperature sensor is on the bottom.

Hot wire sensor cage. Rotate the cage closed to protect the sensor when in storage.

Rotate to the open position to take measurements.

SP341 hot wire probe rotated into measurement position.

The probe can be extended to reach into ducts and vents.

The probe is laser etched with measuring marks to indicate how far into a duct the sensor is.

C Pull up on the sensor housing to extend the hotwire probe.

SP565

Hot Wire Velocity

Using the Rotating Hotwire Probe

1. Take the hotwire probe and rotate it to the "UP" position (see A above).

   The back of the SP565 is marked to indicate the rotation direction for"UP" and "DOWN" (see B above).

   sensor housing to extend the probe (see C above).

3. Reverse these steps when storing the SP565.

E. TAKING A MEASUREMENT

1. Download and install the TPI Smart Probe App onto your mobile device. Run the App. The "Main-Real Time" screen will be displayed.

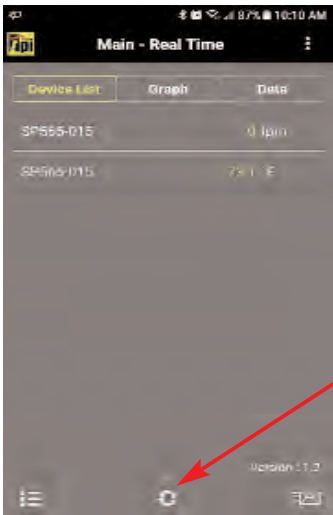   The App will say "No Devices" until a smart probe has been connected.

2. Press and hold the SP565 On/Off key down until it turns on. The LED indicator will initially be orange and blink.

   The SP565 will auto connect to your mobile device. The LED indicator will turn Green and blink to indicate a link has been established. The App will display the model and ID number of the smart probe connected.
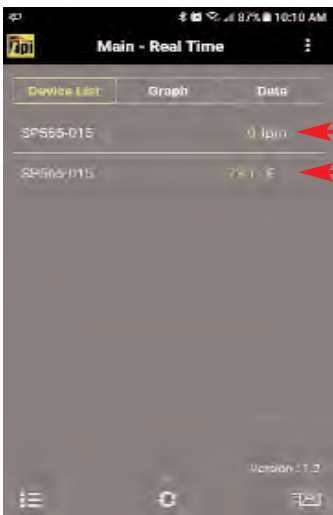
   If the SP565 does not auto con-nect tap refresh on the App.

   Rotate the SP565 probe into the "UP" position. Turn the cage cover so the sensor is exposed.

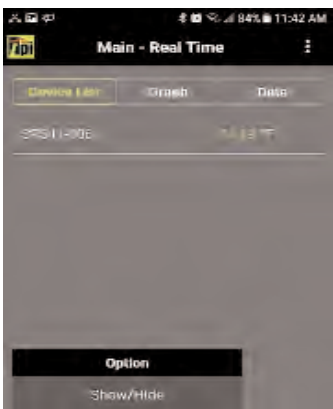   The air velocity and temperature will be displayed.

3. Tapping the list icon allows optional functions to be accessed. These include Show/Hide, Unit, and Zeroing Sensors.

Refresh
This also clears any data accumulated.

Displays the measured air velocity and temperature.

Show/Hide : Allows a device to be seen or hidden. Useful when multiple devices are connected.
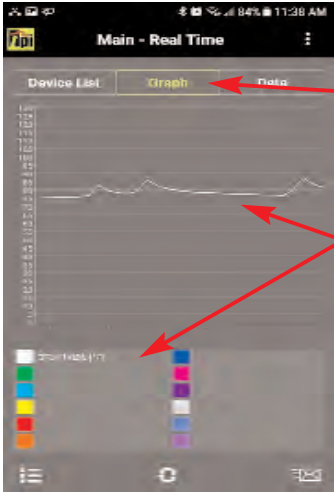
Unit : Switch between °C and °F and the unit of veloc-ity.

Zeroing Sensors: This func-

F. ADDITIONAL APP FEATURES

1. Tapping "Graph" switches the display to graph mode. The temperature will be displayed as a line graph.

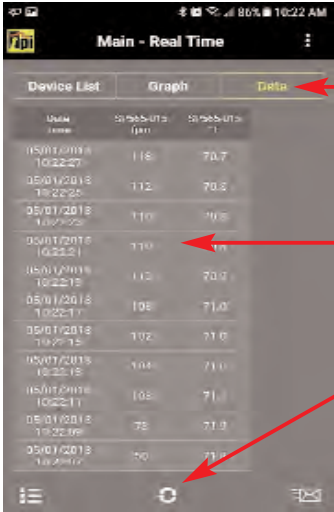   If multiple SP565's are being used, each will have a different color in the App.

Tap "Graph".

Each SP565 is displayed in a different color in the line graph.

2. Tapping "Data" switches the display to show the measured data in a list format.

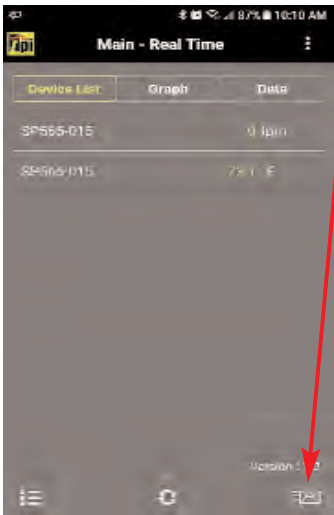   Each reading in the list will be dated and time stamped.

Tap "Data".

The measurement data is shown in a list with a date and time stamp.

Tapping the Refresh icon clears this data.

3. Tapping the mail icon enables test data to be exported in a CSV file via email.

Tap the mail icon.

Test data will be exported in a CSV file via email.

4. Exported data in the CSV file display with the date and time stamp.

   If a company and customer name has been entered they will be exported too. See page 5 for setting up the customer and company name.

Company Name : Test Products Intl. Company
Customer Name : Sample Customer Customer
Building Name : Building 1
Building Address :

Date	Time	SP565-015(fpm)	SP565-015(F)
5/1/2018	10:28:11	112	70
5/1/2018	10:28:09	114	70.1
5/1/2018	10:28:07	112	70.1
5/1/2018	10:28:05	114	70.2
5/1/2018	10:28:03	114	70.2
5/1/2018	10:28:01	114	70.3
5/1/2018	10:27:55	120	70.3
5/1/2018	10:27:53	122	70.3
5/1/2018	10:27:51	124	70.3
5/1/2018	10:27:49	124	70.3

G. DROP DOWN MENU

The Smart Probe App has a Drop Down menu allowing access to additional app features.

1. Tap the Drop Down Menu icon to access additional features.
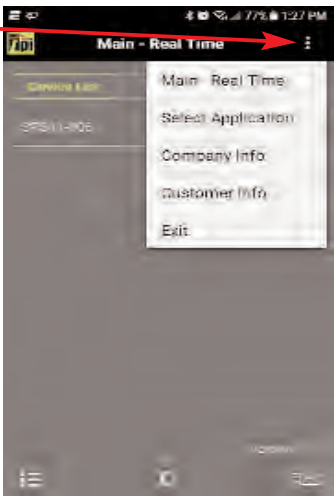
Main - Real Time: Tapping this returns you to the main screen.

Select Application: Tapping this pulls up sub applications for variious smart probes. These include Temperature differential (SP341), Air Volume Calulation (SP565), and Tightness Test (SP620). Note: There are no sub applications for the SP1000.

Company Info: Allows you to enter your information to show up on the CSV file report. You can enter your company name, address, and email.

Customer Info: Allows you to enter the information of the customer the tests are being performed for. You can enter the customer name, address, and email. You can also enter the building information in cases where the tests are being performed somewhere off-site from the customer.

Exit: Closes the Smart Probe App.

H. ENTERING COMPANY AND CUSTOMER INFORMATION

The Smart Probe App allows you to enter your company information and the customer information who the test is being performed for. This information will be exported in the CSV file (see page 4).

1. Tap the Drop Down Menu icon to access additional features.

2. Select "Company Info" to enter your information to show up on the CSV file report. You can enter your company name, address, and email.

3. Select "Customer Info" to enter the information of the customer the tests are being performed for. You can enter the customer name, address, and email. You can also enter the building information in cases where the tests are being performed somewhere off-site from the customer.
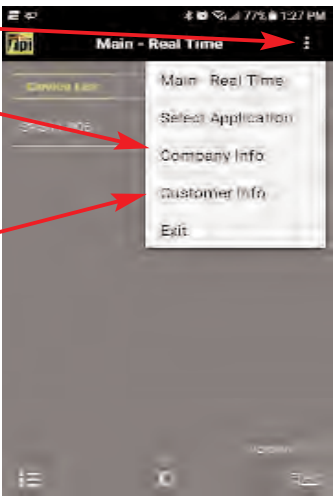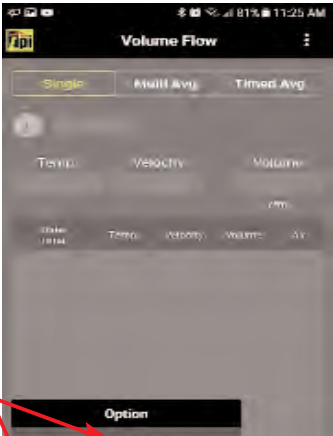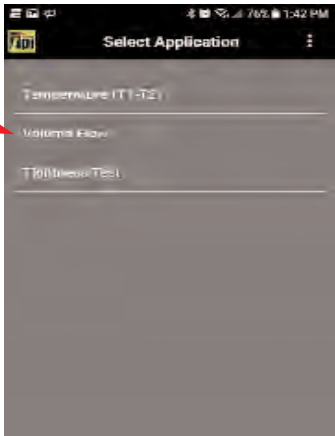
I. PERFORMING AIR VOLUME (FLOW) TEST

The Smart Probe App allows you to perform air volume measurements.

1. Tap the Drop Down Menu icon to access additional features.

2. Tap "Select Application".
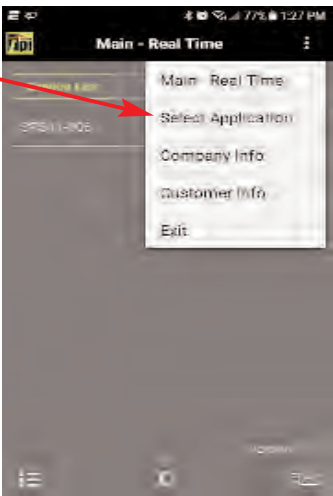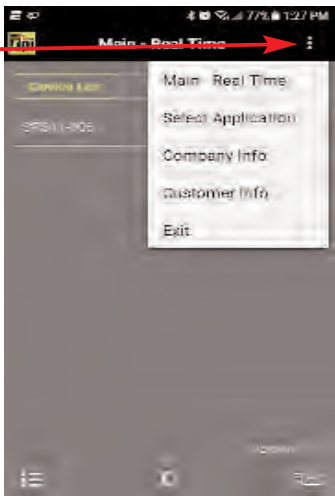
3. Select "Volume Flow".

Note: The other applications shown are for different model smart probes and do not work with the SP565.

4. Tap on the list icon to pull up the option menu.
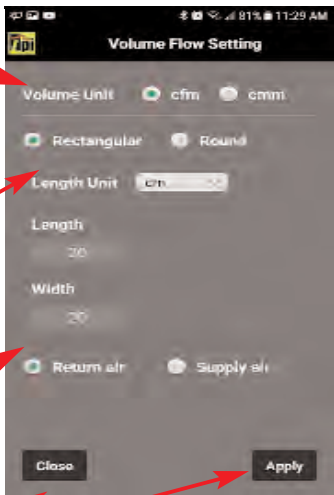
Tap on "Volume Flow Setting".

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# PERFORMING AIR VOLUME (FLOW) TEST (cont)

5. From this screen the unit of volume can is selected.

   The type of duct and the unit of measure for the duct is selected.

   The size of the duct and whether it is a return or supply air duct is set.

   Tap "Apply" and "Close"

6. Tap the + icon to select the SP565 to use for the air flow measurement.

   Tap on the SP565 to be used and tap on "Close".
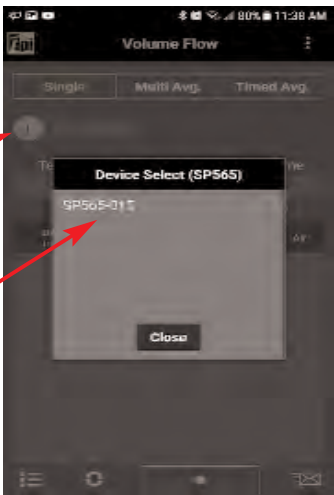
7. The Temperature, Air Velocity, and Air Volume will be displayed. These are live readings.

8. Tapping the "Point" record icon stores a reading with date and time stamp. Repeatedly tapping this icon stores a reading each time.
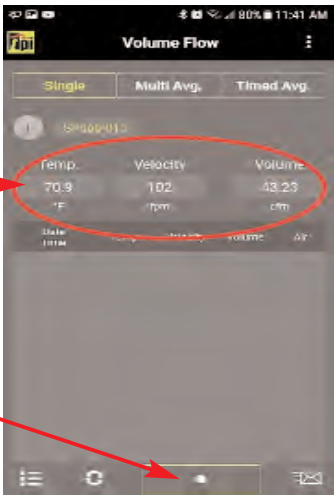
9. The test data can be exported in a CSV file vial email by tapping on the email icon.

10. Use the drop-down menu to return to normal operation by tapping on "Main-Real Time".
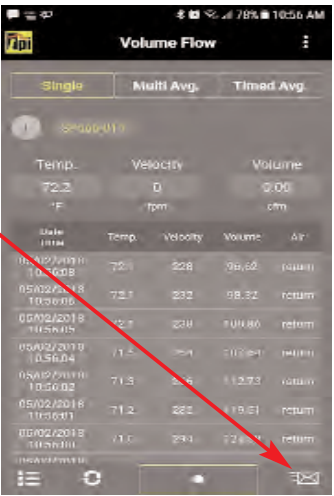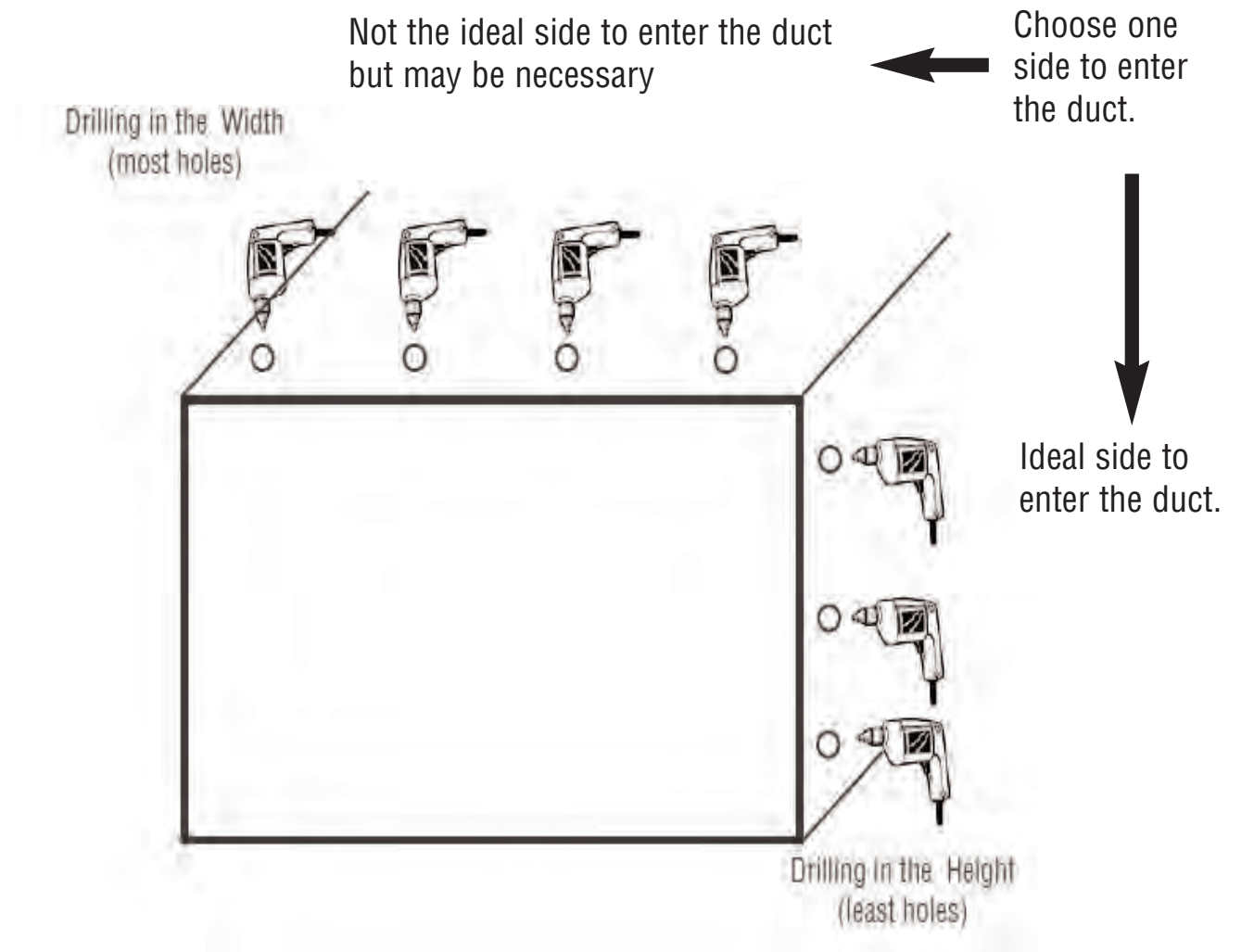
J. AIR VOLUME MEASUREMENT - TRAVERSING RECTANGULAR DUCTS

Preparing to Traverse a Rectangular Duct

To do a proper airflow measurement (CFM) you should do traverse readings to obtain the true average airflow through the duct. It is recommended to do at least 12 points of measurement. There are two ways to perform this test using the SP565, Time Based Traverse and Spot Based Traverse. Time based is typically easier but both are explained in the next sections.

1. You will need to determine the easiest access to take your readings. Normally it is best to enter from the side (Height) of the duct since you will have to drill less holes, but you may have to drill from the bottom (Width) of the duct. See below.


Not the ideal side to enter the duct but may be necessary

Choose one side to enter the duct.

Drilling in the Width (most holes)

Ideal side to enter the duct.

Drilling in the Height (least holes)

TIME BASED TRAVERSE - RECTANGULAR DUCT

1. Prepare the duct as outlined on page 7 and connect the SP565 to the App as outlined on page 3.

2. Set the App up to measure Air Flow and enter the duct type and size as outlined in section H.

3. Insert the hotwire probe all the way into the duct at the first hole. Make sure the open area of the sensor isf acing into the air flow. HINT: If you turn the probe you will see the readings change up or down, when the reading is at the highest you are in the proper position.
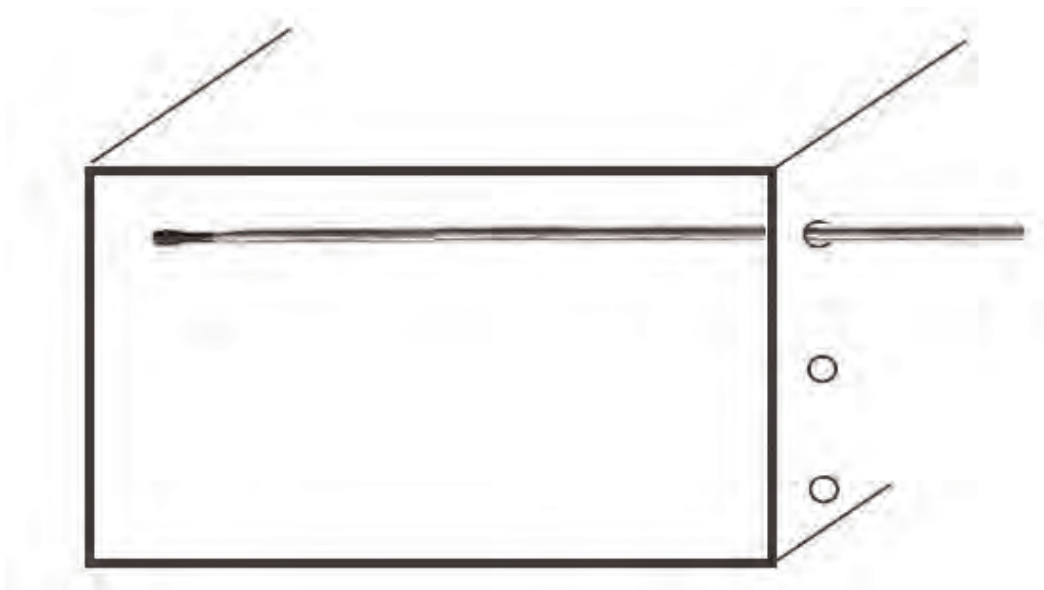
4. Select "Timed Avg.".
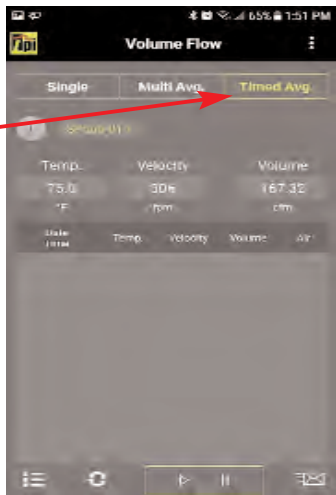
5. Tap the "Play" icon to begin the test process.
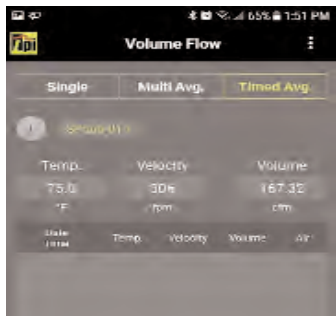
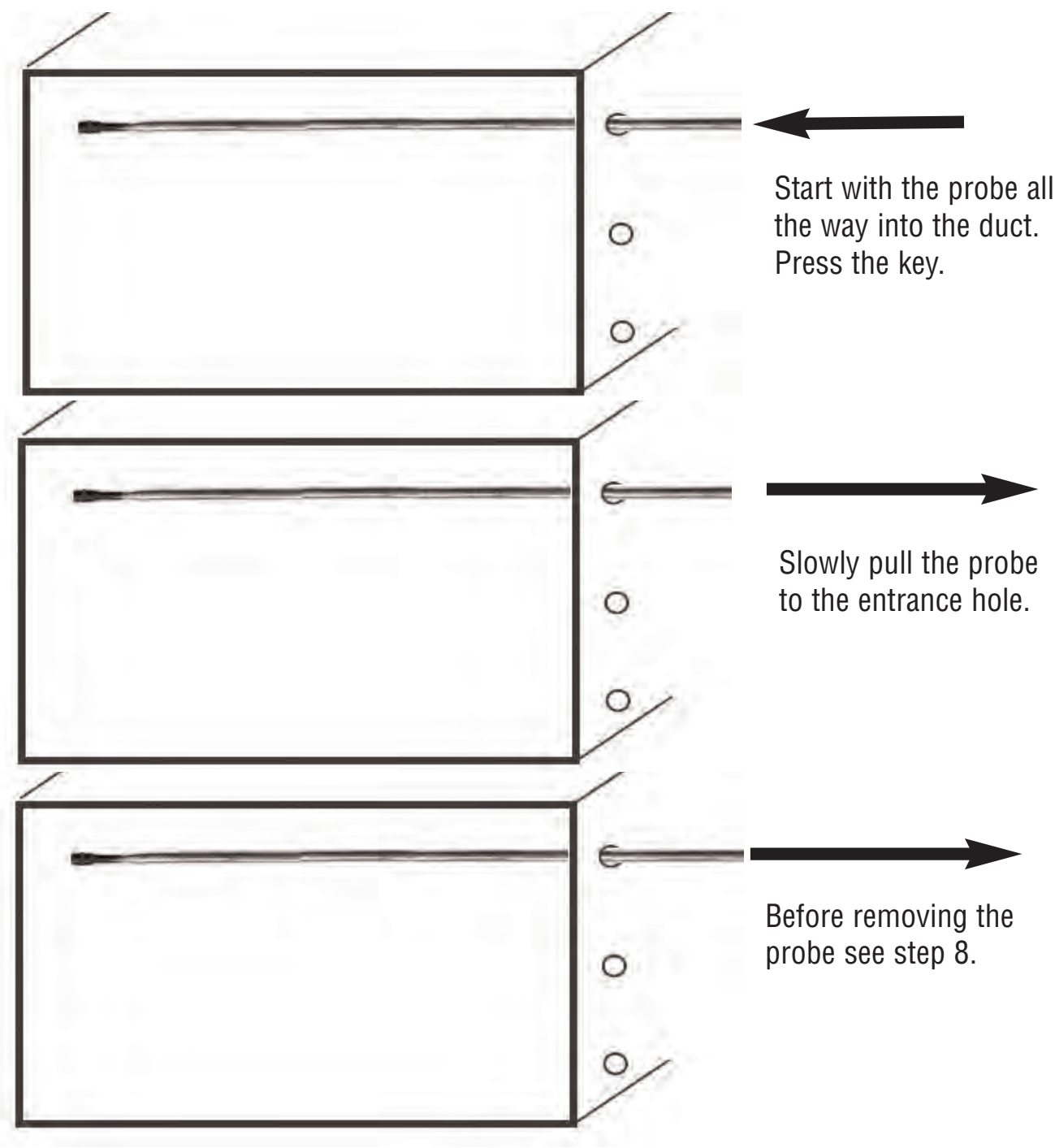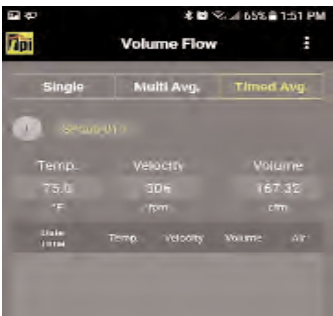1.888.610.7664   www.calcert.com   sales@calcert.com

TIME BASED TRAVERSE - RECTANGULAR DUCT (Continued)

6. Slowly pull the probe towards the entrance point of the duct.

Start with the probe all the way into the duct. Press the key.

Slowly pull the probe to the entrance hole.

Before removing the probe see step 8.

8. Stop at the last measurement point prior to pulling the probe out of the duct. Press the "Pause" icon to pause the recording.

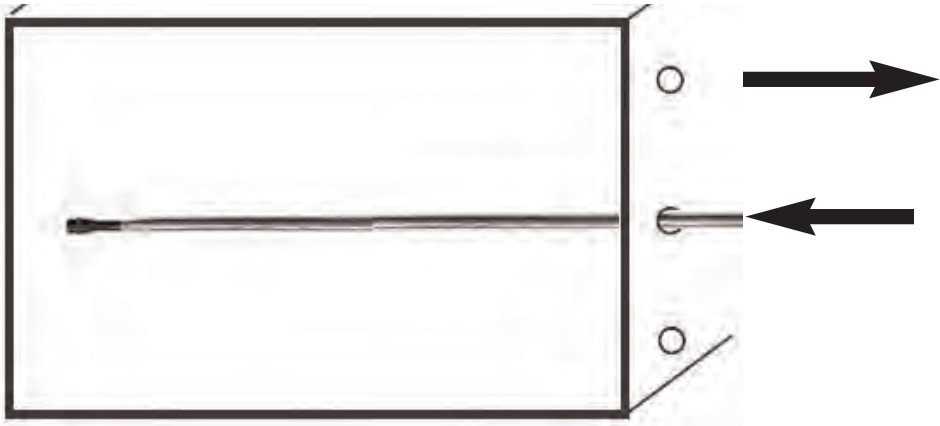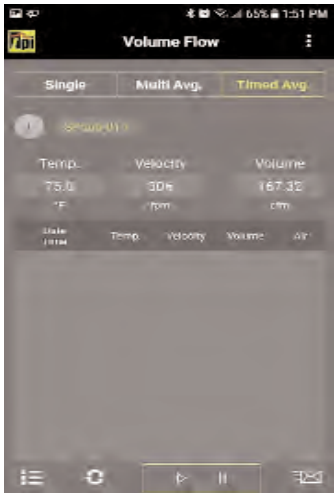9. Pull the probe out and insert it into the next test hole all the way into the duct.

10. Press the "Pause" icon to begin recording. Repeat these steps for all test holes.

11. When the duct has been completely traversed and prior to pulling the probe out of the last test hole, press the "Stop" icon.

12. The stored reading is the average Temperature, Velocity, and Volume during the timed test.

   This data can be sent in a CSV file format vial email by tapping the Email icon.

13. Return to normal operation using the Time .

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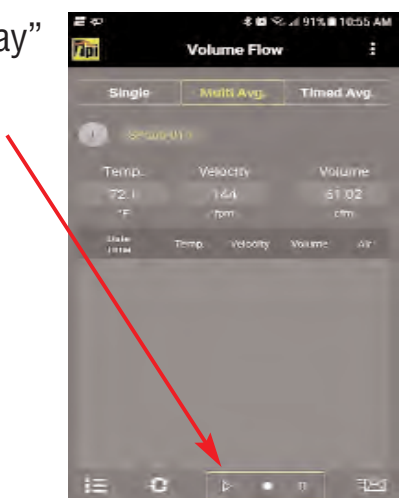
POINT BASED TRAVERSE - HORIZONTAL DUCT

1. Prepare the duct as outlined on page 7 and connect the SP565 to the App as outlined on page 3.

2. Set the App up to measure Air Flow and enter the duct type and size as outlined in section H.

3. Divide the duct into at least 12 equal boxes, you will need to take the reading in the center of each box. Be sure that the sample points are no more than 4 inches apart from center to center. If needed you can add more sample points (boxes) to cover larger duct sizes. Insert the hotwire probe all the way into the duct at the first hole. Make sure the sensor is facing the air flow.
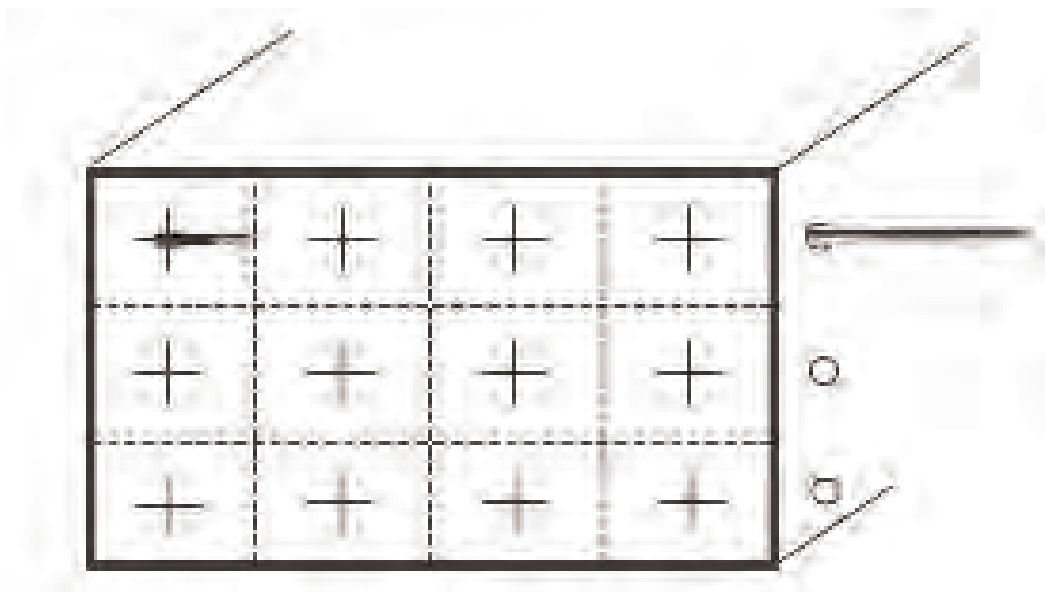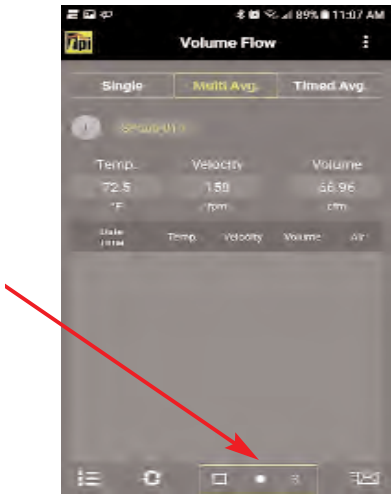

4. Select "Multi Avg.".
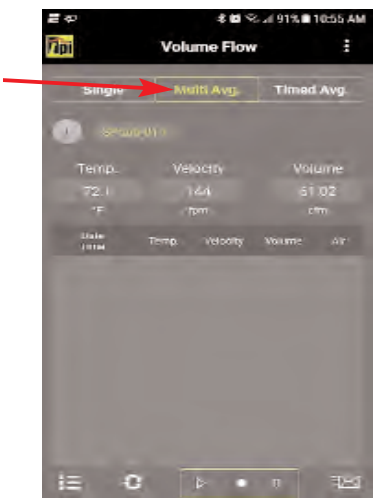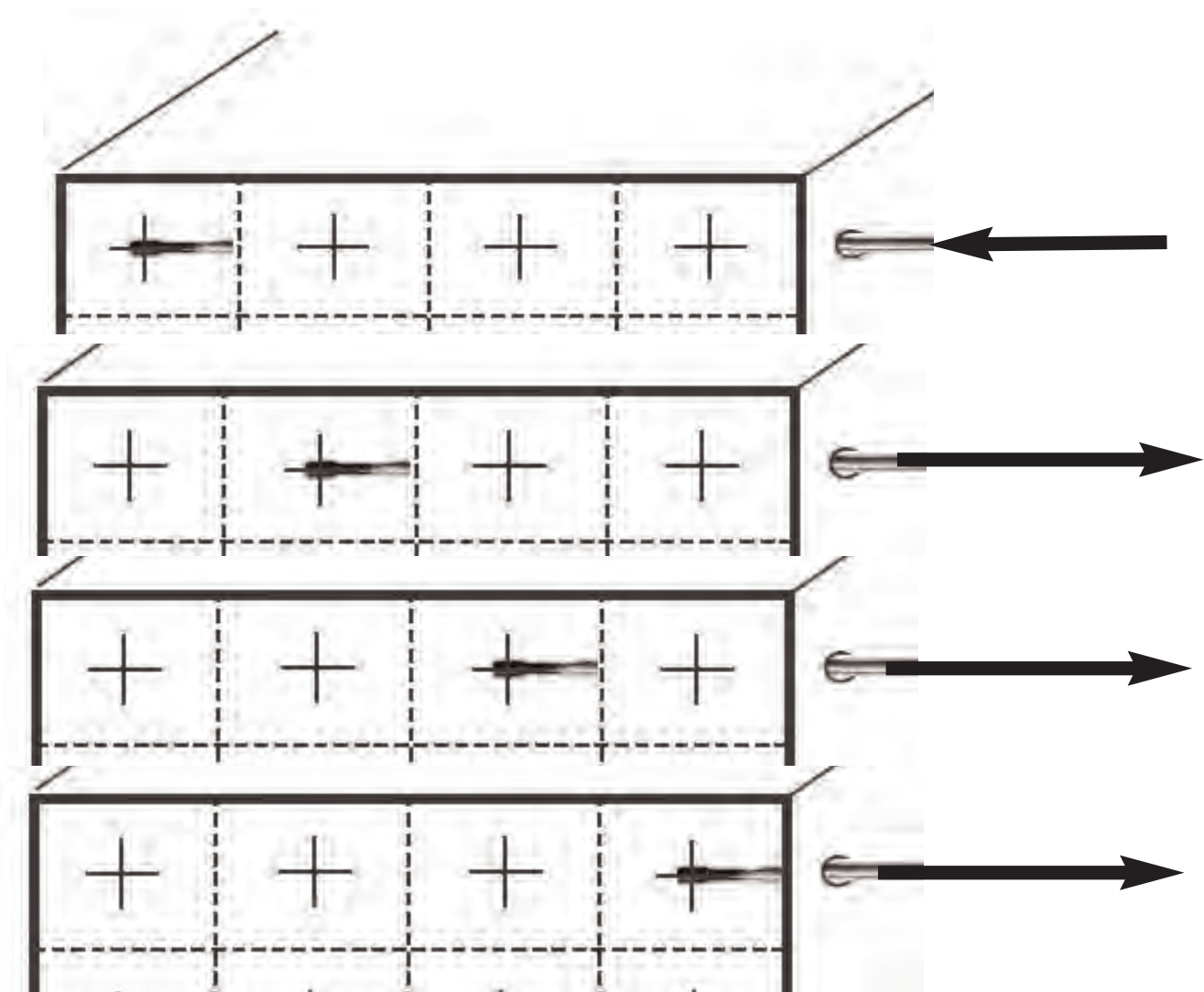

5. Tap the "Play" icon.

POINT BASED TRAVERSE - HORIZONTAL DUCT (continued)

6. Press the "Point" icon to record the reading. The number of readings will increase by one (next to the point icon).
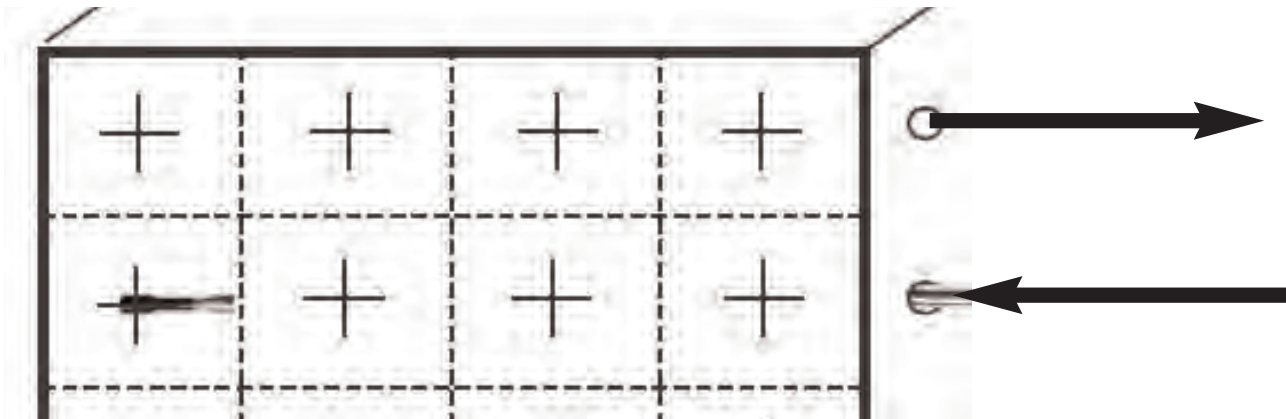

7. Slowly pull the probe towards the entrance point of the duct. Stop at each point and press the "Point" icon to record the reading.

8. Pull the probe out and insert it into the next test hole all the way into the duct. Repeat this process until the duct is completely traversed.

8. When the duct has been completely traversed tap the "Stop" icon to store the readings.

   The stored reading is the average Temperature, Velocity, and Volume during the timed test.

   This data can be sent in a CSV file format vial email by tapping the Email icon.
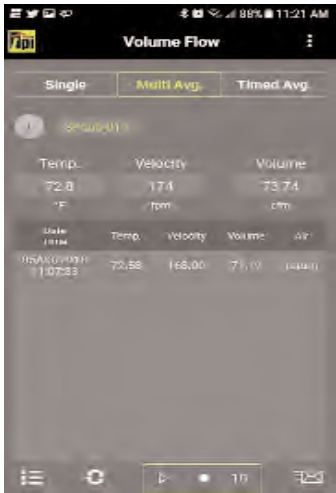
9. Return to normal operation using the drop down menu to select "Main-Real Time".

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K. AIR VOLUME MEASUREMENT - TRAVERSING ROUND DUCTS

Traversing a round duct is very similar to traversing a horizontal duct. The preparation of the duct is slightly different. When traversing a round duct the traverse must be made vertically and horizontally.

Preparing the Duct

You will need to drill 2 holes at 90 degrees to each other, similar to the drawing below.
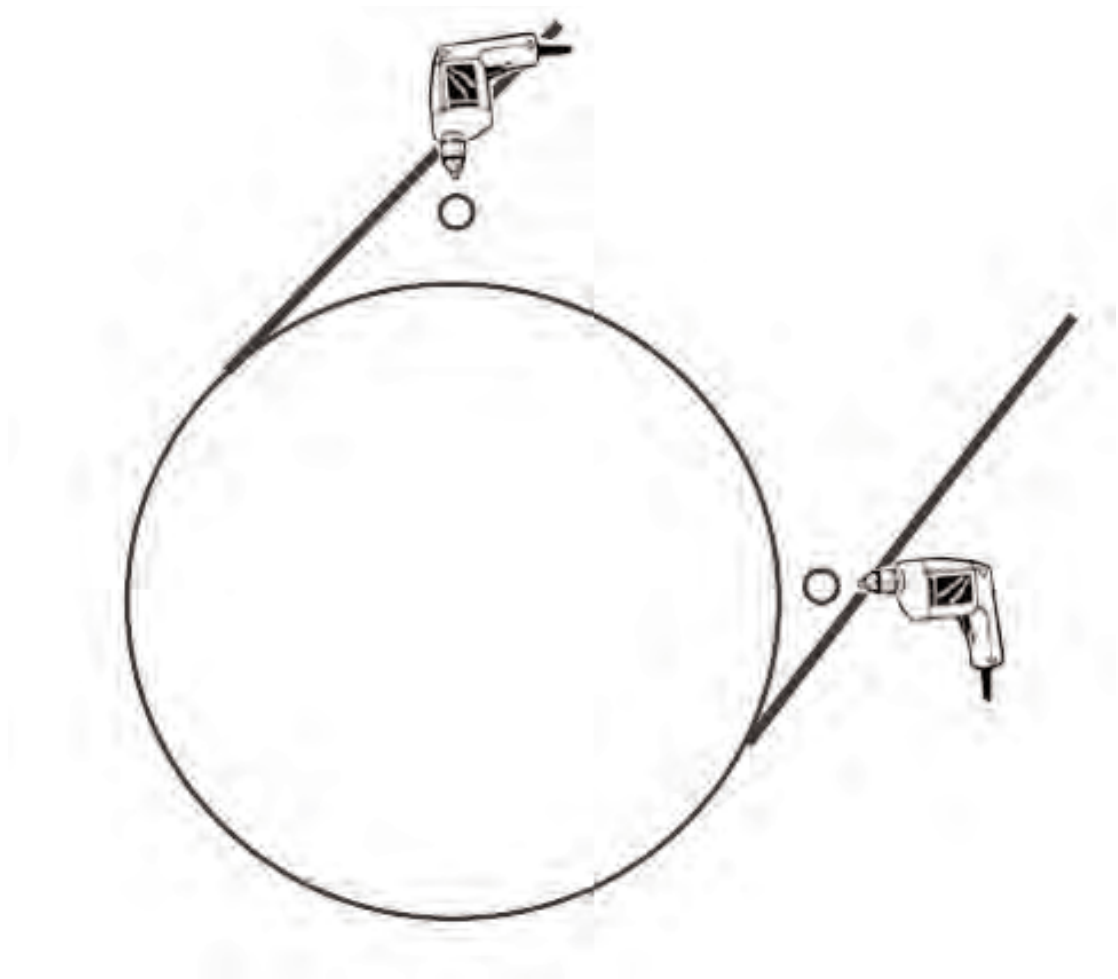
TRAVERSING A ROUND DUCT (continued)

Time Based Traverse

1. Prepare the duct as outlined on page 14.

2. Traverse the duct both horizontally and vertically (see below). Use the instructions on pages 8 through 10 substituting a round duct for the horizontal duct.

Traverse vertically

Traverse horizontally
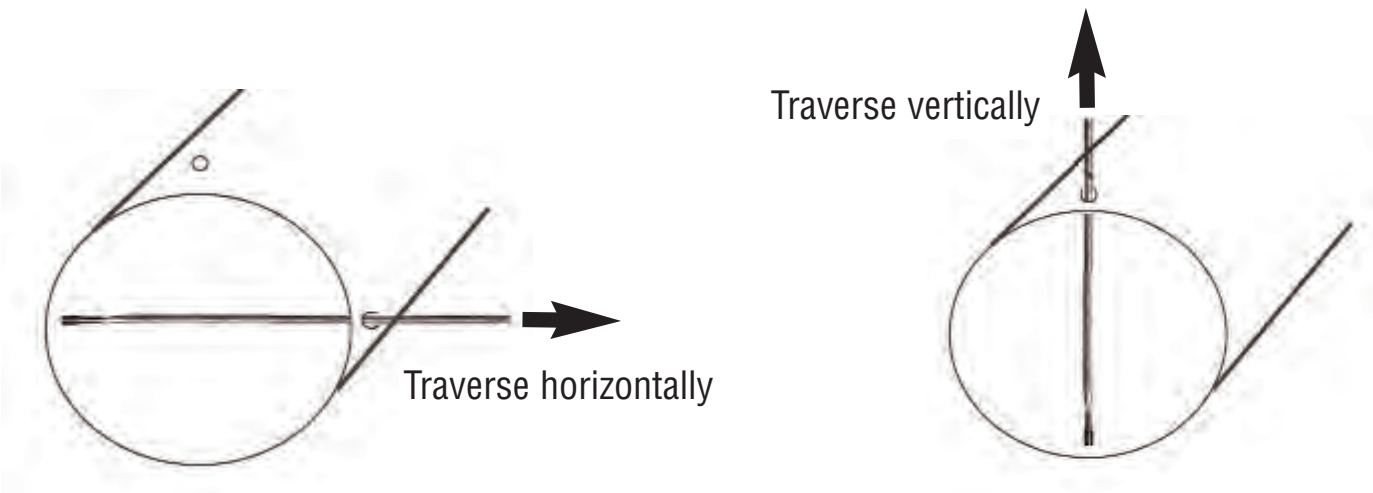
Point Based Traverse

1. Prepare the duct as outlined on page 14.

2. Traverse the duct both horizontally and vertically (see below). Use the instructions on pages 11 through 13 substituting a round duct for the horizontal duct.

Traverse vertically

Traverse horizontally

L. MAINTENANCE

1. Clean the surface of the instrument with a damp cloth.
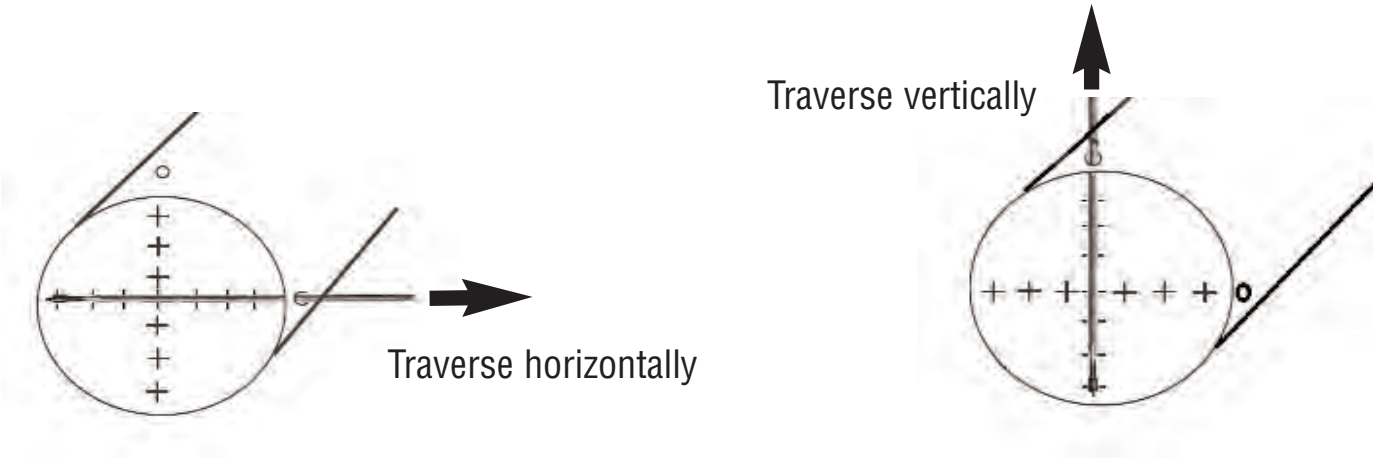2. Replace the three AAA batteries when the low battery indicator appears.

M. TROUBLE SHOOTING

Symptom	Probable Cause
Temperature seems inaccurate.	• Low battery. • Non K-Type probe being used. • Ensure connection with phone is working.
SP565 does not turn on.	• Dead or low batteries. • Not holding down power switch until unit turns on. • Defective POWER ON switch.
Air velocity readings seem low	• Dead or low batteries. • Protective hood not open all the way. • Sensor not turned completely into the air stream.

N. ACCESSORIES

Included Accessories

Part Number	Description
A565SP	Soft pouch

Optional Accessories

Part Number	Description
A925	Carrying case for 4 smart probes
A926	Carrying case for 1 or 2 smart probes

O. WARRANTY

This product is warranted to the purchaser against defects in material and workmanship for three years from the date of purchase.

Covered by Warranty: Repair parts and labor; or replacement of the product at company's option. Normal transportation charges to the purchaser are also covered.

Not Covered by Warranty: Damages to the product which are the result of abuse, improper use or maintenance are not covered. Any other expense, consequential damages, incidental damages, or incidental expenses including damages to property are not covered. Transportation expenses to the company are not covered.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

To Obtain Warranty Performance: Include with the product: your name, address, phone number, written description of the problem and proof of purchase date. Carefully package and return to:

Implied Warranties: Any implied warranties including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to three years from date of purchase. To the extent any provision of this warranty is prohibited by federal or state law and cannot be preempted, it shall not be applicable. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

P. REPLACING BATTERIES

1. Adjust the air probe so it is out of the way of the battery compartment.

Turn the battery compartment screw counter clockwise until it is just above the compartment door. Lift on the screw to open the compartment.

2. Replace the three AAA batteries.

3. Re-install the battery cover and tighten the screw by turning it clockwise.

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