TRACEABILITY TO

NATIONAL INSTITUTE OF STANDARDS & TECHNOLOGY

All PRINCO Barometers, Model Series 453 and 469, have been tested in comparison with the Fortin type mercurial barometer, serial no. W12655, which was calibrated on May 3rd 1994 against a Hass primary standard Type MS-3 Micrometer Standard Barometer, serial number 2510, certified by the National Institute of Standards & Technology (NIST Identification No. P-7485).

Barometer scales are positioned to read correctly with no correction for capillary depression. Compensation has been made for the average condition of capillary by tapping the instrument slightly before each reading to bring the meniscus height to its average value. The length of the scale of this barometer has a zero correction at 62°F on the English side and 0°C on the metric side. The density of the mercury is standard at 0°C. To correct for temperature of both density and scale length, use the combination temperature correction table as published in National Weather Service, Circular F. (See PRINCO Instruction Manual). To correct for gravity use the gravity correction tables in the same publication. No gravity correction is needed at 45° latitude.

This barometer is accurate to ±0.3 mb, 0.2 mm, or 0.01 inch of mercury when carefully set and read, and after temperature and gravity corrections have been applied. The thermometer on the barometer is accurate to ±0.5°C.

The National Institute of Standards & Technology does not state any recommendations for a barometer to be re-certified.

If the barometer is not abused in any way it should never go out of calibration.

Princo Instruments, Inc. recommends that you return the barometer every 3 to 5 years.

Instruction M4961 Issued 22 January 1996

INSTRUCTION FOR REMOVING AN AIR BUBBLE & CLEANING

PRINCO NOVA™ BAROMETER CAT. NO. D469

Note: The following instructions may be useful for removing an air bubble which has inadvertently gotten into the barometer tube, but has not risen to the top of the barometer. Once air has reached the top of the barometer tube, it will be necessary to completely empty, vacuum degas and refill the tube.

1. Provide a slender glass funnel and two dry clean cups or glasses. Avoid the use of damp, unclean or metal cups. Provide some clean cloths, tissue paper for cleaning the glass cistern and a few pieces of clean white paper, 4 by 6 inches for use in filtering the mercury.

2. Screw the adjusting screw up until it feels snug. The mercury column will fill the tube.

3. Remove the barometer from its panel and slowly turn it horizontal. Lay the barometer on a bench top with the cistern slightly elevated over a clean cup to catch the mercury.

4. Loosen the three cistern screws (part nos. P469-21) so that the mercury spills into the cup.

5. Remove the cistern screws, cistern bottom, and cistern glass (part no. P453-36). Be careful to preserve the chipboard gaskets (part no. P453-44) which are on each end of the cistern glass. If these become torn or badly creased, they can be replaced with new ones. Unscrew the adjusting screw to the extent of its travel for later reassembly.

6. Clean the cistern glass with cloth or tissue paper. If necessary use soap and water, but be careful to dry it well before reassembling it.

7. Clean the mercury by pouring it through a paper funnel. The paper funnel is made by using a piece of 4 by 6 inch white paper. It is coned into a funnel shape with a small pin hole for an opening. The mercury will run through the pin hole and the dust or oxidized mercury will adhere to the paper. One or two pourings, using fresh paper each time, will usually restore the mercury to a clean bright condition.

8. Slowly turn the Barometer to the inverted, vertical position and support it securely. Attach a vacuum pump hose to the open end of the mercury tube and pull a vacuum on it.

9. While maintaining the vacuum, tap the Top Post cap gently to encourage the air bubble to rise up to the opening of the tube.

10. Fill the open end of the tube with mercury using a slender glass funnel, taking care that no air bubbles adhere to the tube walls.

11. Reposition the cistern glass and top gaskets against the cistern top taking care to center the glass and gaskets properly. Holding the glass firmly in place, refill the cistern with mercury to a level 1/16 of an inch lower that the height of the glass. If a few drops of mercury have been lost, the accuracy will not be affected since the level is adjusted to the zero point prior to each reading.

12. While still holding the cistern glass firmly against its gaskets, reassemble the cistern bottom (with adjusting screw unscrewed to its full extension) and replace the three cistern screws. Tighten gradually and sequentially, making sure that all the parts are properly centered.

13. While the barometer is still inverted, tighten the adjusting screw until it feels snug. While slowing turning the barometer from the inverted position to the horizontal continue to retighten the adjusting screw, as needed to restore the snug condition. The barometer may then be returned to its normal up right position.

TO REMOVE AIR (SEPARATIONS) WITHOUT DISASSEMBLY.

1. Screw the cistern adjusting screw up until it feels snug.

2. Remove the barometer from its mounting board and invert.

3. Loosen the cistern screw two turns.

4. Tap the top of the barometer on a pad to cause the separations to move up to the cistern area. Small bubbles that do not move can be "picked-up" by a large bubble being manipulated to them.

5. Warming the tube gently with a hot air gun may also be used to drive the air into the cistern mercury.

6. Retighten the cistern screw and return the barometer to its position on the mounting board.