

**NATIONAL WEATHER SERVICE PACIFIC REGION SUPPLEMENT 02-2003  
APPLICABLE TO INSTRUCTION 10-1302**

**March 14, 2003**

*Operations and Services*

***Instrument Requirements and Standards for the NWS Surface Observing Program Land  
NWSI 10-1302***

***Barometers used in Pacific Region***

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**NOTICE:** This publication is available at: <http://www.nws.noaa.gov/directives/>.

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**OPR:** W/PR12 (K. Turner)

**Certified by:** W/PR1 (E. Young)

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***SUMMARY OF REVISIONS:*** This supplement supersedes Regional Operations Manual Letter (ROML) P-06-01, dated 7/15/01, filed with B-10 and B-11.

Signed by \_\_\_\_\_ February 28, 2003  
R. J. LaDouce Date  
Director, Pacific Region

<u>Table of Contents:</u>	<u>Page</u>
1. Policy.....	2
2. Operations.....	2
3. Comparisons.....	2
4. Annual Calibrations.....	3

Appendix

A. WS Form 11-1 (3-99) Modified for PR Use.....	A-1
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1. Policy. The Precision Digital Barometer (PDB) shall be used as the barometric home station standard (HSS) for the upper-air program and other meteorological programs not associated with the Automated Surface Observing System (ASOS).
  - a. At Pacific Region stations with an upper-air program and collocated with an ASOS (Hilo, Lihue, Guam), the ASOS shall be the HSS for the surface observing program and the PDB shall be the HSS for the upper-air program. The PDB shall be the backup instrument for ASOS. The Paroscientific Digiquartz model 760-16B (traveling pressure standard), shall be used as a secondary backup.
  - b. At Pacific Region stations with an upper-air program but no ASOS (Pago Pago, Koror, Yap, Chuuk, Pohnpei, Majuro), the PDB shall be the HSS for both the upper-air and surface observing programs. The Paroscientific Digiquartz model 760-16B (traveling pressure standard), shall be the backup instrument to the PDB. Additionally, these stations shall maintain aneroid barometers as a secondary backup.
  
2. Operations. The PDB's are programmed by NWSH with the necessary elevations and R values. Manual stations using MAPSO in the surface observing program shall enter the **sensor pressure** value into the MAPSO program. MAPSO will compute Sea Level Pressure (SLP) and Altimeter Setting (QNH). As a backup, MAPSO stations shall maintain pressure reduction tables for manual backup observations.
  
3. Comparisons. PR stations shall conduct **weekly** comparisons of the PDB against the Paroscientific traveling standard and the aneroid barometer. Two comparisons shall be taken 15 minutes apart on the same day of the week and the results entered on WS form 11-1 modified for PR use (See Appendix A-1). The traveling standard must be positioned within one (1) foot vertically and three (3) feet horizontally during the comparison. If both readings are within 0.007 inches/Hg, no further action is required. If the difference deviates more than 0.007 inches/Hg, stations shall notify the Data Systems Branch (DSB) immediately.

4. Annual Calibrations. Stations will follow the procedures listed below:
- a. PDB's shall be calibrated on an annual basis at the NWS Pressure Standards Laboratory. Station's will receive a replacement PDB prior to returning the PDB due for calibration.
  - b. Paroscientific Digiquartz 760-16B (traveling standard) shall be calibrated on an annual basis and returned to the pressure standards laboratory by the calibration due date.
  - c. All shipping boxes and containers shall be saved on station for use in returning PDB's and Paroscientific barometers to the pressure standards laboratory. When replacement barometers are received, each station shall check for damage and accuracy before placing in use. Return barometers due for calibration to the following address:

NOAA/National Weather Service, W/OPS12  
Pressure Standards Laboratory  
1325 East-West Highway, Room #2378  
Silver Spring, MD 20910

WS Form 11-1 (3-99) (Modified for PR Use)  U.S. Department of Commerce National Oceanic and Atmospheric Administration National Weather Service  <b>Precision Digital (PDB) Comparison/Verification</b> (See detailed instructions for preparation of form on reverse side)						Station				
						Location				
						Traveling Standard Serial Number (1)				
						PDB Serial Number (2)				
Mo/Day/Year	Readings from Paroscientific (4)		Readings from PDB (5) (Sensor Pressure)		Readings from Aneroid (6)		Differences btw.PDB & Paroscientific (7)		Differences btw.PDB & Aneroid (8)	
(3)	1 <sup>st</sup> reading (4a)	2 <sup>nd</sup> reading (4b)	1 <sup>st</sup> reading (5a)	2 <sup>nd</sup> reading (5b)	1 <sup>st</sup> reading (6a)	2 <sup>nd</sup> reading (6b)	1 <sup>st</sup> reading (7a)	2 <sup>nd</sup> reading (7b)	1 <sup>st</sup> reading (8a)	2 <sup>nd</sup> reading (8b)

**Guide for Preparing Form**

- Headings: Enter your Station name in plain language, e.g., WSO Majuro, RMI  
Enter Location as Latitude/Longitude, e.g., 07.05 North 171.23E
- Col. 1 Enter the serial number of the Traveling Standard (Paroscientific) used to compare the PDB.
- Col. 2 Enter the serial number of the Precision Digital Barometer (PDB) being compared.
- Col. 3 Enter the month, day and year the comparison/verification is made. Comparisons shall be conducted weekly usually on the same day of the week. (Stations choice). When a new PDB is received from HQ, conduct daily comparisons for 7 days before placing in service.
- Col. 4a Enter the first sensor pressure reading from the Traveling Standard to the closest 0.001 inch of Mercury (Hg), e.g., 30.014
- Col. 4b Enter the second sensor pressure reading from the Traveling Standard (taken at least 15 minutes after the 1<sup>st</sup> reading).
- Col. 5a Enter the first sensor pressure reading from the PDB to the closest 0.001 inch Hg. (Read same time as 4a).
- Col. 5b Enter the second sensor pressure reading from the PDB to the closest 0.001 inch Hg. (Read same time as 4b).
- Col. 6a Enter the first sensor pressure reading from the Aneroid to the closest 0.001 inch Hg. (Read same time as 5a).
- Col. 6b Enter the second sensor pressure reading from the Aneroid to the closest 0.001 inch Hg. (Read same time as 5b).
- Col. 7a Enter the difference between 4a and 5a to the closest 0.001 inch of Hg.
- Col. 7b Enter the difference between 4b and 5b to the closest 0.001 inch of Hg.
- Col. 8a Enter the difference between 5a and 6a to the closest 0.001 inch of Hg.
- Col. 8b Enter the difference between 5b and 6b to the closest 0.001 inch of Hg.

\*Notify DSB/PRH immediately if either 7a or 7b exceeds 0.007 inches of Hg. Send copy of this form to DSB at the end of each quarter. (Mar, Jun, Sep, Dec).

**Appendix A-1**