

Hygrothermometer Configurations

General :

This maintenance note describes the configurations of hygrothermometers now in use in standard surface instrumentation and the Automated Surface Observing System (ASOS) and their respective logistic support. Design changes and testing of the hygrothermometer continue. We expect the configurations to remain relatively stable, but further changes are possible. We will provide updates as required through maintenance and modification notes.

Hygrothermometer Configurations:

A summary of the five basic hygrothermometer configurations and their Field Replaceable Units (FRU) is provided below and in Figure 1.

H083	Standard NWS hygrothermometer
R83I	Interim refurbished H083
R83F	Final refurbished H083
1088I	Interim ASOS vendor-supplied hygrothermometer
1088F	Final version of 1088

The following sections describe the configuration and FRU requirements for each configuration.

H083 - The H083 is our standard hygrothermometer that was fielded in 1985. After implementation of ASOS, all but about 20 units will have been refurbished by the ASOS program and installed in ASOS systems. The requirements for the residual units will be reviewed, and units refurbished as appropriate.

The H083 can be supported over its expected life with the standard complement of FRUs. Three of these FRUs have variations that require discussion.

A. Dew Point Sensor. The H083 uses a P/N 1063-104 (ASN H083-1A1) dew point assembly as its standard sensor. The redesigned sensor, P/N 1063-104F, (ASN H083-1A1-1) is the preferred sensor and can be used with minor changes to the H083 calibration procedures. (See EHB-8, Section 2.4,

Maintenance Note 10.) For ordering information see EHB-1, section H.

B. Transmit Logic Card. The H083 uses a P/N 1063-204 (ASN H083-2A1) transmit logic card. Some repaired 1063-204 cards and recently procured cards have higher quality amplifiers (OP14EZ or OP200AZ) installed. These cards are fully compliant and completely interchangeable.

C. Power Supplies. Both the H083 +5V power supply (P/N 1063-202, ASN H083-2A3) and the auxiliary power supply (P/N 1063-203, ASN H083-2A4) have redesigned versions (1063-202A and 1063-2031 respectively) that are fully compliant and completely interchangeable. The same power supplies support all versions of the hygrometer.

R83I - The interim refurbished H083 (R83I) is the unit initially supplied with ASOS. The R83I can be distinguished by its 1088-100 aspirator, which is a double hat, downward flow, small fan aspirator. Its production has been discontinued in lieu of the R83F. The R83I's currently installed in ASOS will be replaced with a R83F or a 1088F, both of which are described below. The replacement schedule is undetermined at this time. The R83I will be supported logistically as follows:

R83I FRUs -

A. Transmit Logic Card. The R83I uses the R1063-204 transmit logic card. The primary difference between the R1063-204 and the 1063-204 is the operating software. We will stock the R1063-204 under ASN S100-2M4A2A1. For ordering information see EHB-1, section S.

B. Dew Point Sensor. The R83I uses a 1063-104F-1 dew point sensor for the first 17 ASOS commissioned units. For ordering information see EHB-1, section S. The 1063-104F-1 will be stocked under ASN S100-2M4A1A1. All ASOS R83I sites that are not scheduled for commissioning use the 1063-104F.

C. Aspirator. The R83I uses the double hat 1088-100 aspirator. The fan is the only logistic support required. The R83I uses the standard H083 fan (1063-108).

D. Calibrator Assembly. The R83I uses the R1063-205 calibrator assembly. For H083's with serial numbers 1 through 22, change the calibration targets to 122.9 ± 0.2 (rather than 122.0 ± 0.2) for the +50°C calibrate for the Ta and Td channels and to 32.6 ± 0.2 (rather than 32.0 ± 0.2) for the 0°C calibrate position for both channels. For serial numbers 23 or greater follow normal procedures. This information was previously supplied through ASOS maintenance channels.

- E. Power Supplies. Same for all hygrometers.
- F. Autobalance Module. Same for all hygrometers.

R83F - The final version of the refurbished H083 differs from the R83I in the aspirator used and the configuration of the dew point sensor. The R83F can be distinguished by its 1088-400 aspirator, which is a single hat, upward flow, large fan aspirator. The R83F dew point sensor board and its cable are an integral unit. Elimination of the connector reduces the potential for corrosion under humid conditions. This is in some aspirators and sensors used on the final version of the 1088 (1088F). The schedule for replacement of installed R83I's with R83F's is undetermined.

R83F FRUs -

- A. Aspirator/Fan. The R83F uses a reverse flow, large fan aspirator. The part number for the large fan is 1088-408. The part number for the shell is 1088-400.
- B. Dew Point Sensor. The dew point sensor card for the R83F is the 1088-404, the integrated cable version. An ASN will be assigned later.
- C. Transmit Logic Card. The R83F uses the R1063-204, the same as the R83I.
- D. Calibrator Assembly. The R83F uses the R1063-205.
- E. Power Supplies. Same for all hygrometers.
- F. Autobalance Module. Same for all hygrometers.

1088 (General) - The 1088 is the contractor-furnished ASOS hygrometer. Since the subcontractor for the 1088 also designed and built the H083, the systems have common elements.

1088I - The 1088I is the current version of the 1088 that is being installed in ASOS. The 1088I can be distinguished by its 1088-100 aspirator, which is a double hat, downward flow, small fan aspirator. The 1088I uses the same aspirator as the R83I.

1088I FRUs -

- A. Dew Point Sensor. 1063-104F.
- B. Aspirator/Fan. 1088-100 (double hat) with the 1063-108 fan, the same as the R83I.

- C. Transmit Logic Card. 1088-204C, ASN S100-31A2A1.
- D. Calibrator Assembly. 1088-205A.
- E. Power Supplies (+5V and Auxiliary). Same for all hygrometers.
- F. Autobalance. Same for all hygrometers.

1088F - The 1088F is the final version of the 1088 hygrometers. The 1088F can be distinguished by its 1088-400 aspirator, which is a single hat, upward flow, large fan aspirator. The 1088F uses the same aspirator as the R83F. However, deployment of the 1088F with that aspirator and sensor occurs much earlier than the R83F. The 1088F is being used in new ASOS installations.

1088F FRUs -

- A. Dew Point Sensor. 1088-404.
- B. Aspirator/Fan. Reverse flow aspirator (1088-400) with large fan (P/N 1088-408). Same comments on levels as R83F.
- C. Transmit Logic Card. 1088-204C.
- D. Calibrator Assembly. 1088-205A.
- E. Power Supplies. Same for all hygrometers.
- F. Autobalance. Same for all hygrometers.

Effect on Other Instructions: None.

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Attachment
W/OS0321: BGMcCormick: rhz:
disk ehbs 6, 7, 10, 11, 12
WP5.1 Speller

HYGROTHEROMETER					
FRU	H083	R83I	R83F	1088I	1088F
Dew Point Sensor	1063- 104 1063- 104F (W/CAL MODS)	1063- 104F noncommi ssi oned 1063- 104F- 1 commi ssi oned	1088- 404	1063- 104F	1088- 404
Aspirator	1063- 100	1088- 100 <u>NOT FRU</u>	Reverse Flow Aspirator 1088- 400 <u>NOT FRU</u>	1088- 100 <u>NOT FRU</u>	Reverse Flow Aspirator 1088- 400 <u>NOT FRU</u>
Aspirator Fan	1063- 108	1063- 108	Large Fan 1088- 408	1063- 108	Large Fan 1088- 408
Transmit Logic Card	1063- 204	R1063- 204	R1063- 204	1088- 204C	1088- 204D
Calibrator Assembly	1063- 205	R1063- 205 <u>NOT FRU</u>	R1063- 205 <u>NOT FRU</u>	1088- 205A <u>NOT FRU</u>	1088- 205A <u>NOT FRU</u>
+5V Power Supply	1063- 202 or 1063- 202A	1063- 202 or 1063- 202A	1063- 202 or 1063- 202A	1063- 202 or 1063- 202A	1063- 202 or 1063- 202A
Auxiliary Power Supply	1063- 203 or 1063- 2031	1063- 203 or 1063- 2031	1063- 203 or 1063- 2031	1063- 203 or 1063- 2031	1063- 203 or 1063- 2031
Auto Balance Module	1063- 600	1063- 600	1063- 600	1063- 600	1063- 600

Figure 1