

Table G-6. TEMP DROP CODE

EXTRACT FROM: WMO-No. 306 MANUAL ON CODES

FM 37-X Ext. TEMP DROP: Upper-level pressure, temperature, humidity and wind report from a sonde released by carrier balloons or aircraft. See Figure G-3 for an example TEMP DROP message for tropical cyclone operations.

CODE FORM:

PART A

SECTION 1 $M_i M_i M_j M_j$ $YYGGI_d$ $99L_a L_a L_a$ $Q_c L_o L_o L_o$ $MMM U_{L_a} U_{L_o}$

SECTION 2 $99P_o P_o P_o$ $T_o T_o T_{a0} D_o D_o$ $d_o d_o f_o f_o f_o$

$P_1 P_1 h_1 h_1 h_1$ $T_1 T_1 T_{a1} D_1 D_1$ $d_1 d_1 f_1 f_1 f_1$

$P_n P_n h_n h_n h_n$ $T_n T_n T_{an} D_n D_n$ $d_n d_n f_n f_n f_n$

SECTION 3 $88P_t P_t P_t$ $T_t T_t T_{at} D_t D_t$ $d_t d_t f_t f_t f_t$
or
88999

SECTION 4 $77P_m P_m P_m$ $d_m d_m f_m f_m f_m$ $(4v_b v_b v_a v_a)$
or
 $66P_m P_m P_m$ $d_m d_m f_m f_m f_m$ $(4v_b v_b v_a v_a)$
or
77999

SECTION 10 31313

51515 $101A_{df} A_{df}$ $0P_n P_n P'_n P'_n$
or

$101A_{df} A_{df}$ $P_n P_n h_n h_n h_n$
61616

62626

PART B

SECTION 1 $M_i M_i M_j M_j$ $YYGG8$ $99L_a L_a L_a$ $Q_c L_o L_o L_o$ $MMM U_{L_a} U_{L_o}$

SECTION 5 $n_o n_o P_o P_o P_o$ $T_o T_o T_{a0} D_o D_o$

$n_1 n_1 P_1 P_1 P_1$ $T_1 T_1 T_{a1} D_1 D_1$

$n_n n_n P_n P_n P_n$ $T_n T_n T_{an} D_n D_n$

SECTION 6 21212 $n_o n_o P_o P_o P_o$ $d_o d_o f_o f_o f_o$

$n_1 n_1 P_1 P_1 P_1 \quad d_1 d_1 f_1 f_1 f_1$
 $n_n n_n P_n P_n P_n \quad d_n d_n f_n f_n f_n$
 SECTION 7 31313 $s_r r_a s_a s_a \quad 8GGgg$
 SECTION 9 51515 $101A_{df} A_{df} \quad \text{or}$
 $101A_{df} A_{df} \quad 0P_n P_n P'_n P'_n \quad \text{or}$
 $101A_{df} A_{df} \quad P_n P_n h_n h_n h_n$
 SECTION 10 61616
 62626

PART ALPHA (A)

IDENTIFICATION LETTERS: $M_j M_j$

Identifier: $M_j M_j$ - Identifier for Part A of the report.

DATE/TIME GROUP: $YYGGI_d$

Identifier: YY - Date group

Identifier: GG - Time group

Identifier: I_d - The highest mandatory level for which wind is available.

LATTITUDE: $99L_a L_a L_a$

Identifier: 99 – Indicator for data on position follows.

Identifier: $L_a L_a L_a$ – Latitude in tenths of degrees

LONGITUDE: $Q_c L_o L_o L_o$

Identifier: Q_c – The octant of the globe.

Identifier: $L_o L_o L_o$ – Longitude in tenths of degrees

MARSDEN SQUARE: $MMMU_{1a} U_{1o}$

Identifier: MMM - Marsden square.

Identifier: $U_{1a} U_{1o}$ – Units digits in the reported latitude and longitude.

SEA LEVEL PRESSURE: $99P_0 P_0 P_0 \quad T_0 T_0 T_0 D_0 D_0 \quad d_0 d_0 f_0 f_0$

Identifier: 99 – Indicator for data at the surface level follows

Identifier: $P_0 P_0 P_0$ – Indicator for pressure of specified levels in whole millibars (thousands digit omitted)

Identifier: $T_0 T_0 T_0$ – Tens and digits of air temperature (not rounded off) in degrees Celsius, at specified levels beginning with surface.

Identifier: $D_0 D_0$ – Dewpoint depression at standard isobaric surfaces beginning with surface level.

NOTE

When the depression is 4.9C or less encode the units and tenths digits of the depression. Encode depressions of 5.0 through 5.4C as 50. Encode depressions of 5.5C through 5.9C as 56. Dew point

depressions of 6.0 and above are encoded in tens and units with 50 added. Dew point depressions for relative humidities less than 20% are encoded as 80. When air temperature is below -40°C report $\mathbf{D_nD_n}$ as //.

Identifier: $\mathbf{d_0d_0}$ – True direction from which wind is blowing rounded to nearest 5 degrees. Report hundreds and tens digits. The unit digit (0 or 5) is added to the hundreds digit of wind speed.

Identifier: $\mathbf{f_0f_0}$ – Wind speed in knots. Hundreds digit is sum of speed and unit digit of direction, i.e. 295° at 125 knots encoded as 29625.

NOTE: 1. When flight level is just above a standard surface and in the operator's best meteorological judgment, the winds are representative of the winds at the standard surface, then the operator may encode the standard surface winds using the data from flight level. If the winds are not representative, then encode /////.

NOTE: 2. The wind group relating to the surface level ($d_0d_0f_0f_0$) will be included in the report; when the corresponding wind data are not available, the group will be encoded as /////.

STANDARD ISOBARIC SURFACES : $\mathbf{P_1P_1h_1h_1h_1 T_1T_1T_1D_1D_1 d_1d_1f_1f_1}$

Identifier: $\mathbf{P_1P_1}$ – Pressure of standard isobaric surfaces in units of tens of millibars.

(1000 mbs = 00, 925mbs = 92, 850mbs = 85, 700mbs = 70, 500mbs = 50, 400mbs = 40, 300mbs = 30, 250mbs = 25).

Identifier: $\mathbf{h_1h_1h_1}$ – Heights of the standard pressure level in geopotential meters or decameters above the surface. Encoded in decameters at and above 500mbs omitting, if necessary, the thousands or tens of thousands digits. Add 500 to hhh for negative 1000mb or 925mb heights. Report 1000mb group as 00///
///// when pressure is less than 950mbs.

Identifier: $\mathbf{T_1T_1T_1D_1D_1}$ – Same temperature/dew point encoding procedures apply to all levels.

Identifier : $\mathbf{d_1d_1f_1f_1}$ – Same wind encoding procedures apply to all levels.

DATA FOR TROPOPAUSE LEVELS: 88 $\mathbf{P_tP_tP_t T_tT_tT_tD_tD_t d_td_tf_tf_t}$

Identifier: **88** – Indicator for Tropopause level follows

Identifier: $\mathbf{P_tP_tP_t}$ – Pressure at the tropopause level reported in whole millibars. Report $88P_nP_nP_n$ as 88999 when tropopause is not observed.

Identifier: $\mathbf{T_tT_tT_tD_tD_t}$ – Same temperature/ dew point encoding procedures apply.

Identifier: $\mathbf{d_td_tf_tf_t}$ – Same wind encoding procedures apply.

MAXIMUM WIND DATA: 77 $\mathbf{P_nP_nP_n d_nd_nfnfn 4v_bv_bv_av_a}$

Identifier: 77 – Indicator that data for maximum wind level and for vertical wind shear follow when max wind does not coincide at flight. If the maximum wind level coincides with flight level encode as 66

Identifier: $\mathbf{P_nP_nP_n}$ – Pressure at maximum wind level in whole millibars.

Identifier: $\mathbf{d_nd_nfnfn}$ - Same wind encoding procedures apply.

VERTICAL WIND SHEAR DATA: 4 $\mathbf{v_bv_bv_av_a}$

Identifier: **4** – Data for vertical wind shear follow.

Identifier: $\mathbf{v_bv_b}$ – Absolute value of vector difference between max wind and wind 3000 feet BELOW the level of max wind, reported to the nearest knot. Use “//” if missing and a 4 is reported. A vector difference of 99 knots or more is reported with the code figure “99”.

Identifier: $v_a v_a$ – Absolute value of vector difference between max wind and wind 3000 feet above the level of max wind, reported to the nearest knot. Use “/” if missing and a 4 is reported. A vector difference of 99 knots or more is reported with the code figure “99”.

SOUNDING SYSTEM INDICATION, RADIOSONDE/ SYSTEM STATUS, LAUNCH TIME:

31313 $s_r r_a r_a s_a s_a$ **8GGgg**

Identifier: $s_r r_a r_a s_a s_a$ - Sounding system indicator, radiosonde/ system status: $s_a r_a r_a s_a s_a$

Identifier: s_a - Solar and infrared radiation correction (**0** – no correction)

Identifier: $r_a r_a$ – Radiosonde/sounding system used (**96** – Descending radiosonde)

Identifier: $s_a s_a$ – Tracking technique/status of system used (**08** – Automatic satellite navigation)

Identifier: **8GGgg** – Launch time

Identifier: **8** – Indicator group

Identifier: **GG** – Time in hours

Identifier: **gg** – Time in minutes

ADDITIONAL DATA GROUPS: 51515 101XX 0P_nP_nP_nP_n

Identifier: **51515** – Additional data in regional code follow

Identifier: **10166** – Geopotential data are doubtful between the following levels 0P_nP_nP_nP_n. This code figure is used only when geopotential data are doubtful from one level to another.

Identifier: **10167** – Temperature data are doubtful between the following levels 0P_nP_nP_nP_n. This code figure shall be reported when only the temperature data are doubtful for a portion of the descent. If a 10167 group is reported a 10166 will also be reported. EXAMPLE: Temperature is doubtful from 540mbs to 510mbs. SLP is 1020mbs.

The additional data groups would be : 51515 10166 00251 10167 05451.

Identifier: **10190** – Extrapolated altitude data follows:

When the sounding begins within 25mbs below a standard surface, the height of the surface is reported in the format **10190 P_nP_nh_nh_nh_n**. The temperature group is not reported. EXAMPLE: Assume the release was made from 310mbs and the 300mb height was 966 decameters. The last reported standard level in Part A is the 400mb level. The data for the 300mb level is reported in Part A and B as 1019030966.

When the sounding does not reach surface, but terminates within 25mbs of a standard surface, the height of the standard surface is reported in Part A of the code in standard format and also at the end of Part A and Part B of the code in the format as **10190 P_nP_nh_nh_nh_n**.

EXAMPLE: Assume termination occurred at 980mbs and the extrapolated height of the 1000mb level was 115 meters. The 1000mb level would be reported in Part A of the code as 00115 //// //// and in Part B as 10190 00115.

Identifier: **10191** – Extrapolated surface pressure precedes. Extrapolated surface pressure is only reported when the termination occurs between 850mbs and the surface. Surface pressure is reported in Part A as 99P₀P₀P₀ //// and in Part B as 00P₀P₀P₀ ////. When surface pressure is extrapolated the 10191 group is the last additional data group reported in Part B.

AIRCRAFT AND MISSION IDENTIFICATION: 61616 AFXXX XXXXX XXXXX OB X

Identifier: **61616** – Aircraft and mission identification data follows.

Identifier: **AFXXX** – The identifier AF for U.S. Air Force and the last three digits of the aircraft’s tail number.

Identifier: **XXXXX XXXXX** – The identifier for the type of mission being flown.

If a training mission the mission identifier is **WXWXA TRAIN**. The fifth letter “A” is the only character that could possibly change. The “A” indicates that the flight originated in the Atlantic basin. The letter “C” identifies the Central Pacific area, and the letter “E” identifies the Eastern Pacific.

If an operational storm mission: the first two numbers Identifier the number of times an aircraft has flown this system and the second two numbers Identifier the system number. The last character

again identifies the basin flown. The name of the storm would replace TRAIN.
EXAMPLE: AF968 0204A MARIE – Aircraft number 50968, this was the second flight into this system and the system was the fourth of the season. The system reached tropical storm strength and was named MARIE.

Identifier: **OB 14** – The observation (both vertical and horizontal) number as transmitted from the aircraft.

NATIONALLY DEVELOPED CODES: 62626

Identifier: **62626** – This is the remarks section. Only the remarks EYE, EYEWALL XXX, MXWNDBND, or RAINBAND will be used. If the remark EYEWALL is used it will be followed by the octant (degrees) sonde is located relative to eye center. Example: If the sonde is released in the NE quad of the storm, XXX is 045.

Identifier: **REL XXXXNXXXXXXW hhmss** – Release location of the sonde and the release time.

Identifier: **SPG XXXXNXXXXXXW hhmss** - Impact location of the sonde based on its last GPS position and the splash time.

Identifier: **SPL XXXXNXXXXXXW hhm** - Impact location of the sonde based on its last GPS position and the splash time. (SPL has less precision than SPG and may be removed in the next version of the NHOP).

Identifier: **LAST WND XXX** - Height of the last reported wind. If a surface wind is reported the Last Wind remark is omitted. XXX will never be less than 13 meters

Identifier: **MBL WND dddff** - The mean boundary level wind. The mean wind in the lowest 500 meters of the sounding

Identifier: **AEV XXXXX** - This is the software version being used for the sounding.

Identifier: **DLM WND dddff bbbttt** - The Deep Layer Mean wind. It is the average wind over the depth of the sounding. Where dddff is the wind averaged from the first to the last available wind (these would correspond to the first and last significant levels for wind); ttt is the pressure at the top of the layer, and bbb is the pressure at the bottom of the layer (in whole mbs, with thousands digit omitted).

Identifier: **WL150 dddff zzz** - Average wind over the lowest available 150 m of the wind sounding. Where dddff is the mean wind over the 150 m layer centered at zzz m.

PART ALPHA (B)

DATA FOR SIGNIFICANT TEMPERATURE AND RELATIVE HUMIDITY LEVELS SIGNIFICANT ISOBARIC LEVELS:

n₀n₀P₀P₀P₀ T₀T₀T₀D₀D₀

IDENTIFICATION LETTERS: M_JM_J

Identifier: **M_JM_J** - Identifier for Part B of the report.

DATE/TIME GROUP: YYGG8

Identifier: **YY** - Date group

Identifier: **GG** - Time group

Identifier: **8** - Indicator for the use of satellite navigation for windfinding.

LATTITUDE: 99L_aL_aL_a (Same as Part A)

LONGITUDE: QcL₀L₀L₀L₀ (Same as Part A)

MARSDEN SQUARE: MMMU_{1a}U_{1o} (Same as Part A)

SEA LEVEL PRESSURE: n₀n₀P₀P₀P₀ T₀T₀T₀D₀D₀

Identifier: **nono** – Indicator for number of level starting with surface level. Only surface will be numbered as “00”.

Identifier: **P₀P₀P₀** – Indicator for pressure of specified levels in whole millibars (thousands digit omitted)

Identifier: **T₀T₀T₀** – Tens and digits of air temperature (not rounded off) in degrees Celsius, at specified levels beginning with surface.

Identifier: **D₀D₀** – Dewpoint depression at standard isobaric surfaces beginning with surface level. Encoded the

