The upper air reports are derived in the same general manner as the surface data. For the most part, these observations have been for 0000Z, especially in Canada, Alaska, and the United States, with some additional observations at other hours when the station does not report at or near 0000Z. In the U.S.R. observations for all available hours have been included. Stations using the 1945 Radiosonde Code use the convention of adding 50 to the Greenwich time to indicate that part of the observation above 400 millibars of pressure, commonly known as the second transmission. Many stations outside North America indicate the time of observation other than on-the-hour by adding to the Greenwich hour 25, for 15 minutes past the hour; 55, for 30 minutes; and 75, for 45 minutes. Although this has not been "subtracted out" of the report, the data have been listed chronologically by hour within station.

Assignment of Index Numbers:
The same method used in assigning station numbers in surface reports has been employed.

Station Lists:
The upper-air numerical station index which precedes the upper-air data is presented in the same form as the surface index. The alphabetic index following the charts includes all stations, both surface and upper-air. Stations for upper-air only are designated with a single asterisk; those for both upper-air and surface, with two asterisks; while those for surface only are merely listed.

Method of Presentation:
The upper-air data are presented in the same general way as the surface data. Stations are listed numerically within certain geographical areas according to their International Index Numbers. The teletype data have been edited for obvious errors, garbled data, etc., but no attempt has been made to present the various winds aloft and radiosonde codes in a standard-level form. To the right of each line of the listed observations is a code number which indicates the type of code used for that report, as follows:

1. PIBAL 5. TEMPS
2. EAWIN 6. PRAT
3. RAWY 7. RAE
4. RUSSIAN PIBAL 8. CORAC and 1945 Radiosonde Code
9. RUSSIAN RAIBS

While the upper-air observations usually have more than one line to an observation, the station number and hour appear only on the first line.

All land stations are listed first, and are followed by ship reports.

Description of Codes:
1. Winds Aloft
   a. IIIOG H8dv V8dv 88dv ....... H8dv
   b. IIIOG H8dv V8dv 8999n H8dv
   c. IIIOG H8dv V8dv 88dv C8C8H8N
   d. IIIOG H8dv V8dv 88dv H8dv88v
   e. IIIOG H8dv V8dv 88dv C8H8H8C
      (Russian)

The meaning of symbols in above codes, whose values will be found in tables of International codes and symbols, is as follows:

C International cloud code.
C8 Form of low cloud (International code).
C88 Form of middle cloud (International code).
dd Wind direction in tens of degrees.
QG Greenwich hour or Moscow time.
NH Height in thousands feet/meters.
NH8 Height of last observation.
HH Height in hectometers.
88 NH Height at which observations were discontinued in tens of meters.
III Station index number.
M Reason for ceasing upper wind observation (International code).

W Reasons for ceasing upper wind observation
(x) (Russian code).
0 - Entering cloud
1 - Lost in fog
2 - Lost in mist
3 - Lost accidentally
4 - Lost in precipitation
5 - Lost behind cloud
6 - Lost in background
7 - Lost in distance
8 - Lost, balloon burst
9 - Lost, other causes

V8 Wind speed (International code).
vV Wind speed in miles per hour/knots.
vv Wind speed in miles per hour/knots (Russian code).
8,9,0,1 etc. Height levels (Russian code).

9999 Change in decade of thousands, the figure for n to give the tens of thousands digit for levels following.
Code "s" is generally used in North America and from stations controlled by United States. Code "b" is readily identified by group, 99999, and is used mainly in Europe. Code "c" may be identified by its last group and is also used in some European reports. Code "s" is identified by its height indicators and by the code number 4 at the extreme right-hand column of each line of the observation.

Only when a station designates its winds aloft observation by the word EAWIN or RAIB have the codes 2 and 3 been listed in the right-hand column.

2. RAIBS
   a. 1945 Radiosonde Code.
      IIIOG P88TT T ... U88dv
      (Odddv) 888hh TTU88n 88
      508hh TTU88n noPPP TTU88n ....
      308hh TTU88n noPPP (Odddv) 20hh
      TTU88n 10hh TTU88n noPPP TTU88n ....
      1011 H8df
   b. TEMPS
      IIIOG H8H8PP TTU88n .... 00000
      H8H8H8H8 TTU88 ....
   c. PRAT
      IIIOG P88TT T ... U88dv
      H88H8H8H8 TTU88n
      IIIOG 88dv 95TTU 88dv H8TTU 85TTU
      88dv ....... 77788 P88TT P88TTTTU 88dv
   d. PRAT
      IIIOG P88TT T ... U88EX
      H88H8H8H8 TTU88n
      IIIOG 88dv 95TTU 88dv H8TTU 85TTU
      88dv ....... 77788 P88TT P88TTTTU
   e. CORAC
      IIIOG P88TT T ... U88dv 88dv
      (Odddv) P88TT TTU88n
      H8TTU888TTU P88TTTTU 88dv
      s. 11199 noPPP TTU88
      or
      77788 P88TT TTU88n .... 00000
      888H88H888 888H88H888 888H88H888
The meaning of symbols in above codes, whose values will be found in tables of international codes and symbols, is as follows:

- $A_{df}$: Form of additional data follows (1945 Radiosonde code).
- DD: Direction of wind near ground on 32-point scale.
- dd: Wind direction in tens of degrees.
- EE: Equivalent potential temperature in °C.
- GG: Greenwich hour or Moscow time.
- HH: Height in hundreds of geodynamic meters.
- H H a, H H b: Height in hectometers.
- H H d, H H D: Height in geodynamic decameters.
- R H 2 H 2: Relative humidity in percent at surface.
- vv: Wind speed.
- xx: Wind speed in knots; half barb = 5 knots, whole barb = 10 knots, more than 50 knots.

Station level pressure

Pressure in tens of millibars of 1st, 2nd, etc., levels.

Units figure of pressures for following levels which report in tens of millibars.

000: (Russian code) Mixing ratio in grams and tenths.

TT: Temperature of air in whole degrees.

T T T T: Temperature of air at surface.

T T T T: Temperature in degrees and tenths.

U, U v: Relative humidity (International code).

U U: Relative humidity in percent (split between 2 groups in PRAT code).

U U n: Relative humidity in percent at surface.

v v: One-fifth actual wind speed.

X: Used to make a five digit group.

x x x x: Indicator figures to show units used, x 1 for heights, x 2 for wind, x 3 for moisture values. (International code.)

O: Indicator figure for wind group.

00000: Indicates that temperatures and humidities are for fixed pressures, 1000, 900, 800 mb., etc.

00, 05, 70, 80 etc.: (1945 Radiosonde) Indicator figures for 1000, 850, 700 mb., levels.

101: Indicator for additive data group.

11199: Indicator for additional groups following.

77788: * * * * moisture groups following.

98765: Indicator (Russian code) that significant levels follow.

The following symbols, not used in the data section, are listed here to explain the symbols in the station models printed at the lower left corner of each upper air map:

- HHHH: Height in tens of feet above MSL.
- vv: Wind speed in knots; half barb = 5 knots, whole barb = 10 knots, more than 50 knots.

Thousands figure in heights above M.S.L. of the 1000 mb., 900 mb., etc.

PP: Pressure in tens of millibars.

PPP: Pressure in whole millibars.