# PART I CORRECTION & CONVERSION CHARTS

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***Note...**
*Mod.4147 introduces height Pressure Error Correction to the Air Data System by the embodiment of an Air Data Computer Mk.2, Type C, and Static Transducer Mk.2, Type B.*

**1. Machmeter calibration**

No PEC to the machmeter has been included as a correction is already incorporated in the Air Data System. This correction is optimized; errors existing are small and can be neglected.

**2. IAS correction**

Fig.1.1 gives the correction to the ASI as a function of indicated altitude. The dashed line represents the transonic jump-up. No correction is necessary at supersonic speeds.

*Example*
At 10,000 ft indicated altitude and 500 kts IAS an addition of 13 kts should be made.

**3. Altimeter correction**

(a) Fig.1.2 gives the PEC on the altimeter (prior to Mod.4147) from 0.6M to 1.0M for heights from sea level up to 50,000 ft. At sea level the PEC has been continued below 0.6M and expressed in terms of IAS.

(b) Figs.1.3 and 1.4 give the PEC on the altimeter for the landing configuration. Two weights are given to cover normal range of operation.

(c) Figs.1.2, 1.3 and 1.4 show PEC to the altimeter over a range of speeds and heights due to the position of the static vents.

**4. Conversion charts and tables**

(a) Figs.1.5, 1.6 and 1.7 give the subsonic and super-

◀ sonic relationship between IAS, TMN and indicated height. Subsonic relationships are given pre and post Mod.4147.

*Example*
450 kts IAS is equal to 0.87M around 12,500 ft *(Fig.1.5)*, 13,500 ft *(Fig.1.6)*. As the recommended climbing speeds *(refer to Part 3)* are 450 kts/0.87M, the changeover from airspeed to Mach number occurs at either 12,500 or 13,500 ft.

(b) Table 1.9 gives temperature conversion from °C to °F and vice versa. To use the Table find the known temperature to be converted in the centre column (bold type), then read the Centigrade conversion to the left and Fahrenheit to the right.

| *Example* | °C | | °F |
|---|---|---|---|
| From the Table | -2.8 | 27 | 80.6 |

then 27°C = 80.6°F
27°F = -2.8°C ▶

**5. Determination of wind components**

Fig.1.8 provides a chart for determining the wind components along and at right angles to the runway *(head- or tail-wind and crosswind)* given the total wind strength and its direction relative to the runway. This is necessary because Parts 2 and 7 use head- and crosswinds as a variable.

For example: a 40 kt wind at 60° to the runway gives a 20 kt headwind and a 34 kt crosswind.

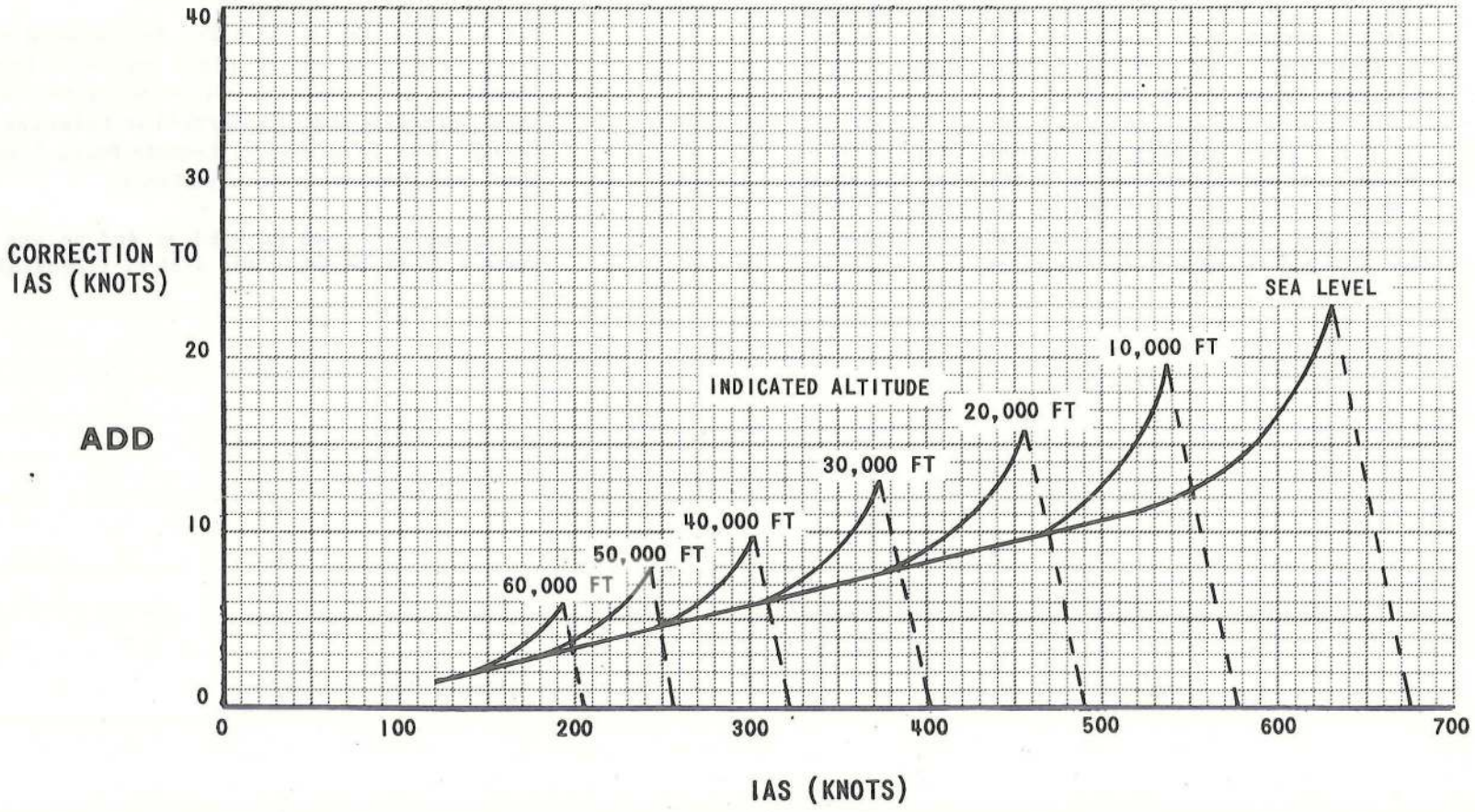


FIG. 1.1. P.E.C. TO I.A.S.

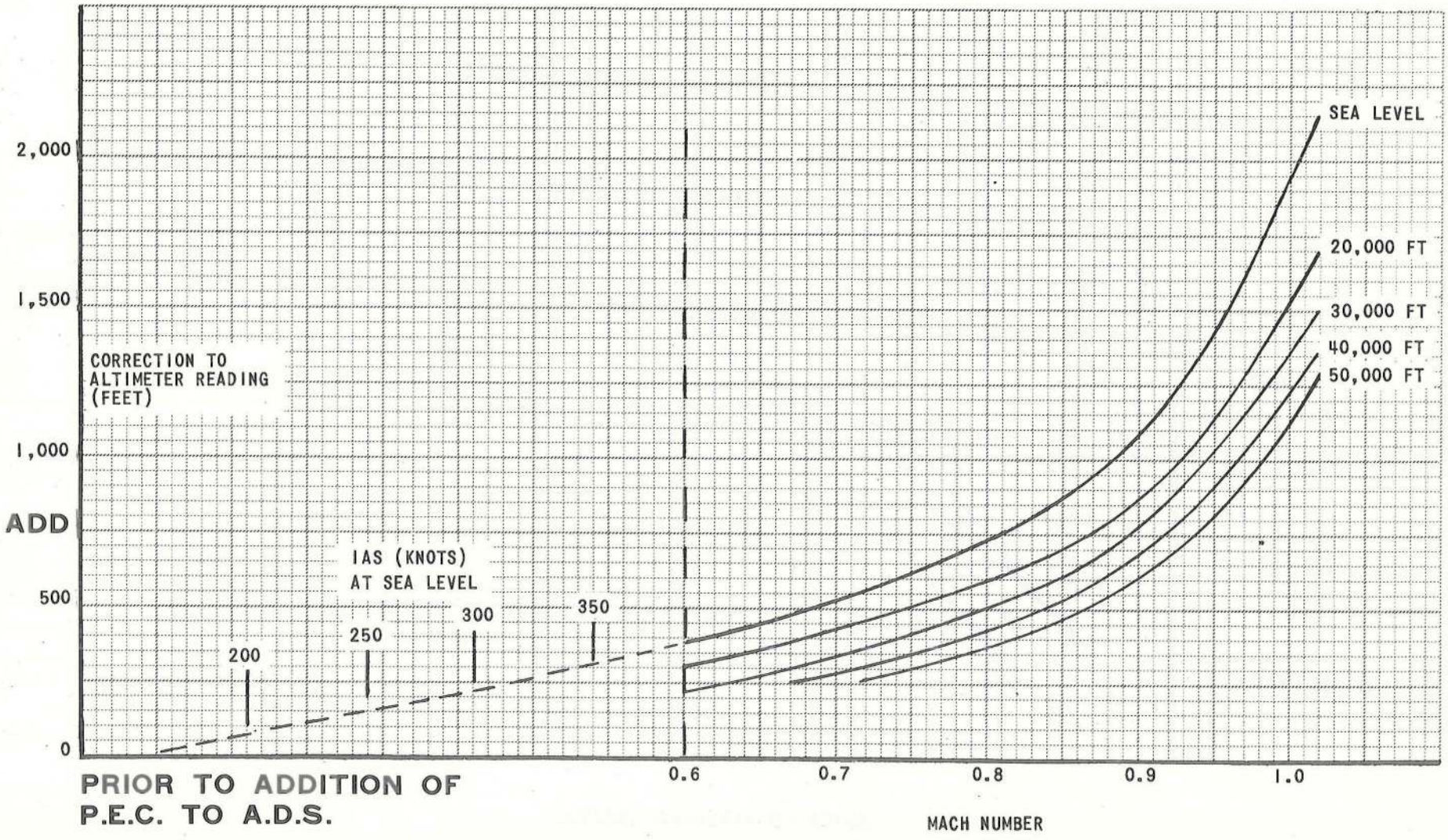


FIG. 1.2. P.E.C. TO ALTIMETER

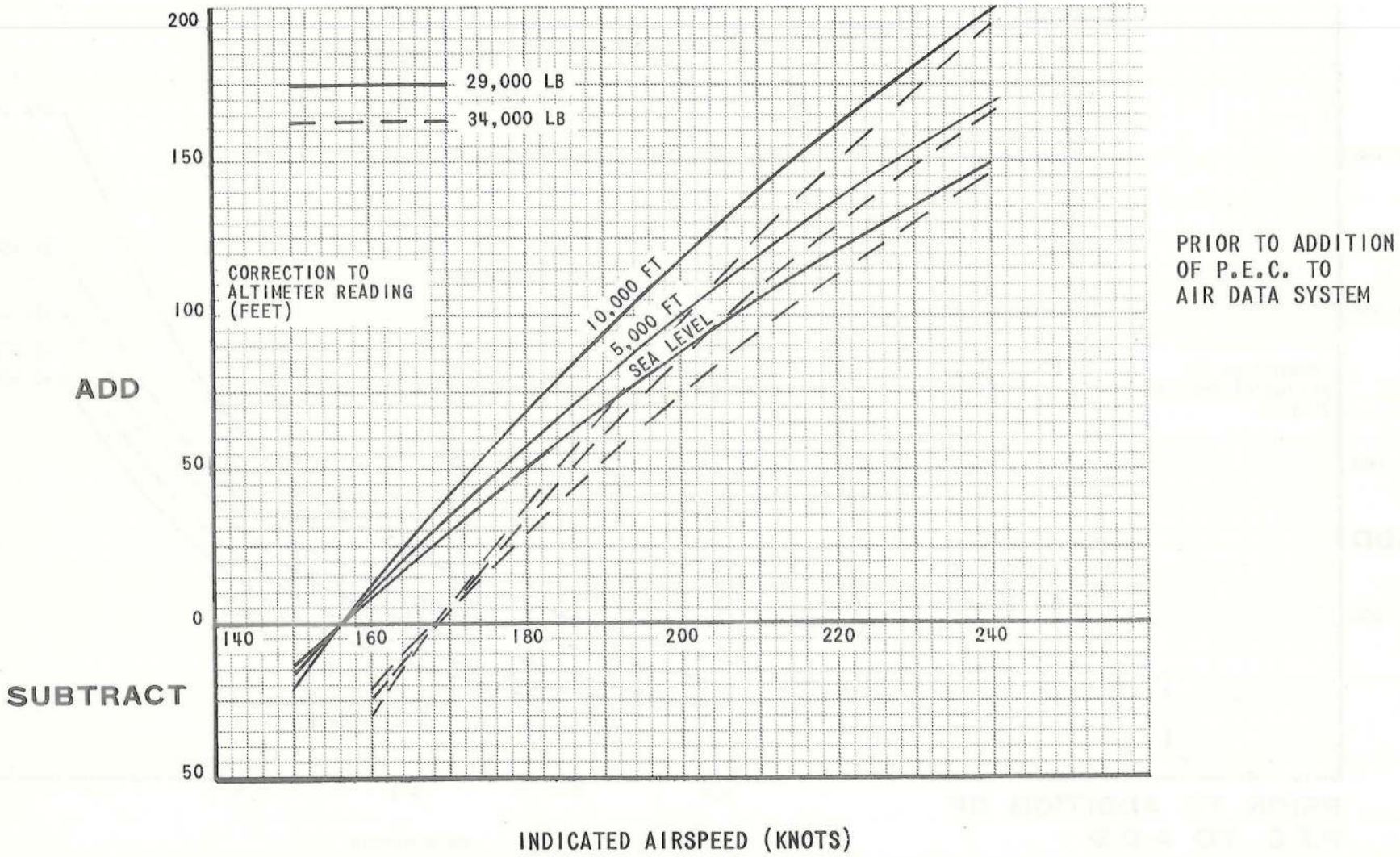


FIG. 1.3. P.E.C. TO ALTIMETER LANDING CONFIGURATION

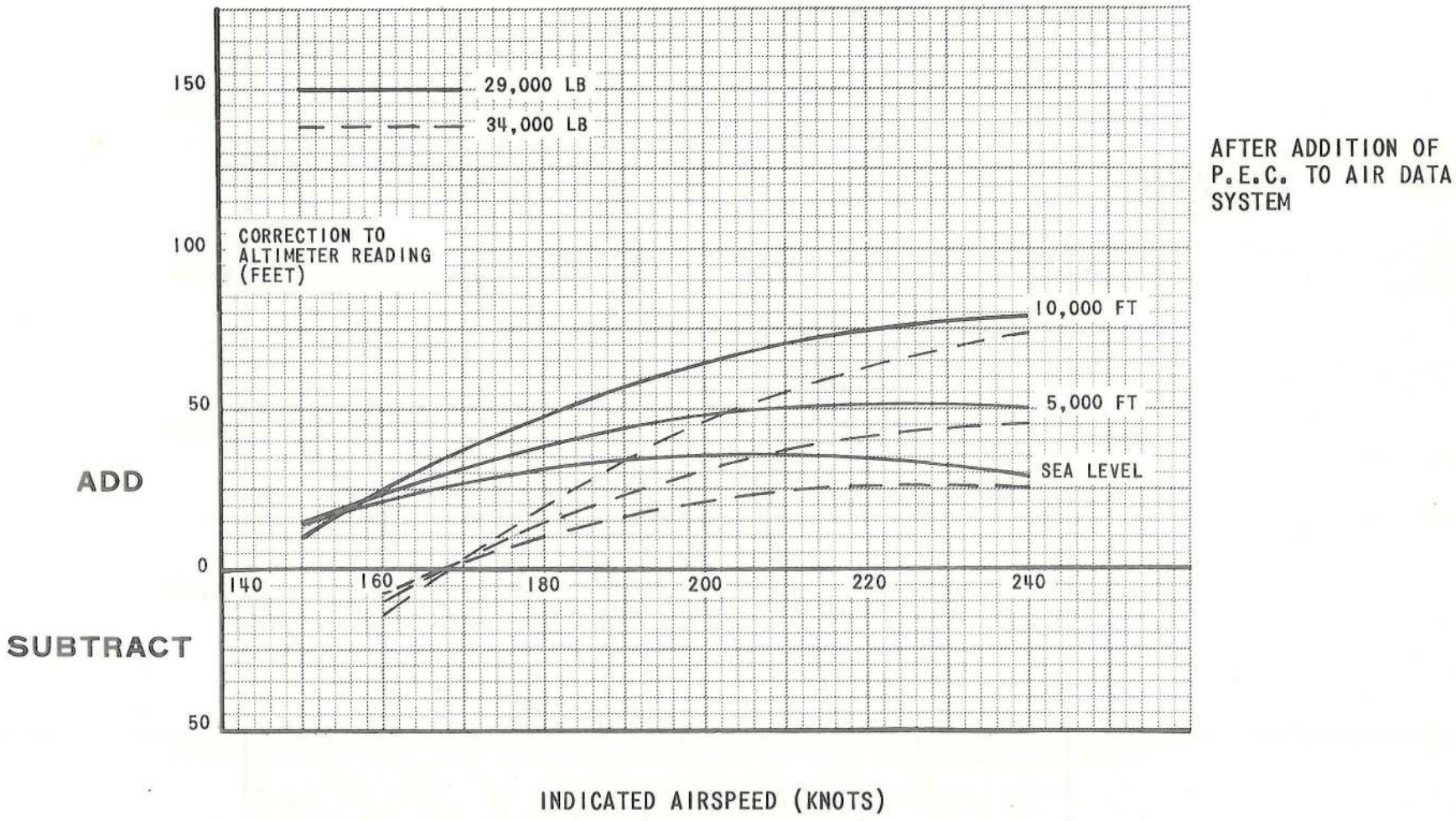


FIG. 1.4. P.E.C. TO ALTIMETER LANDING CONFIGURATION

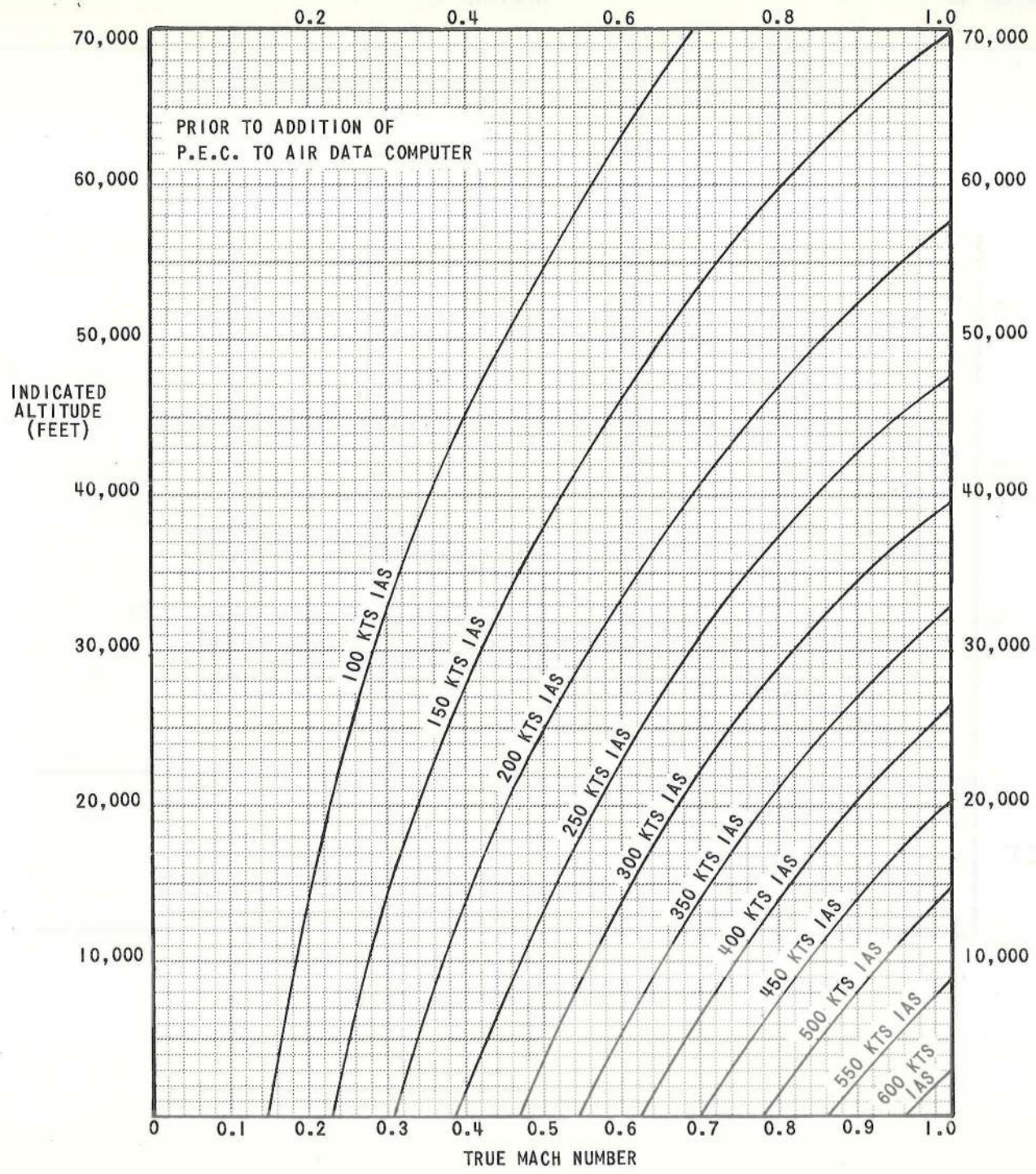


**FIG. 1.5. CONVERSION CHART I.A.S/T.M.N. SUBSONIC**

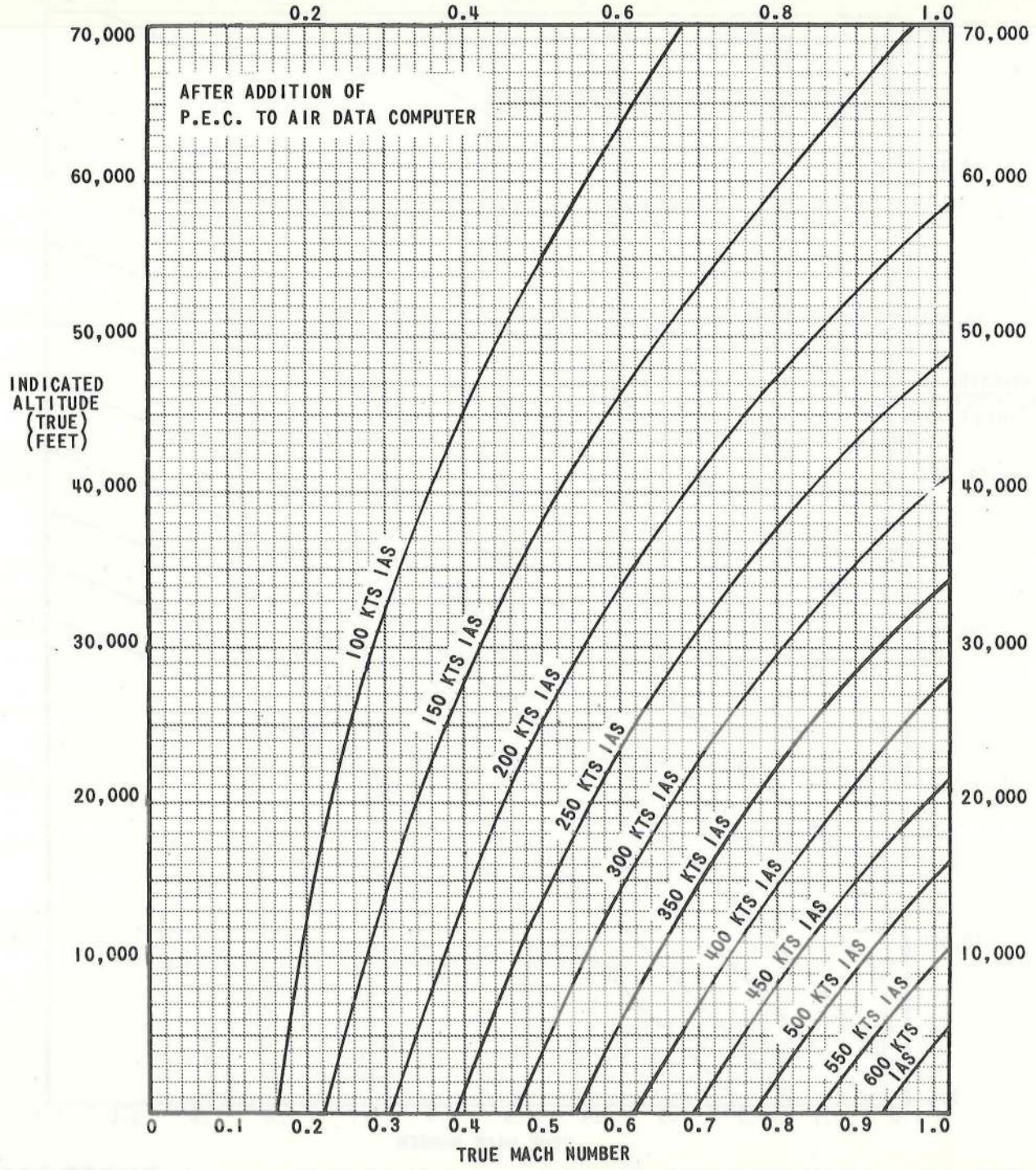


FIG. 1.6. CONVERSION CHART I.A.S/T.M.N. SUBSONIC

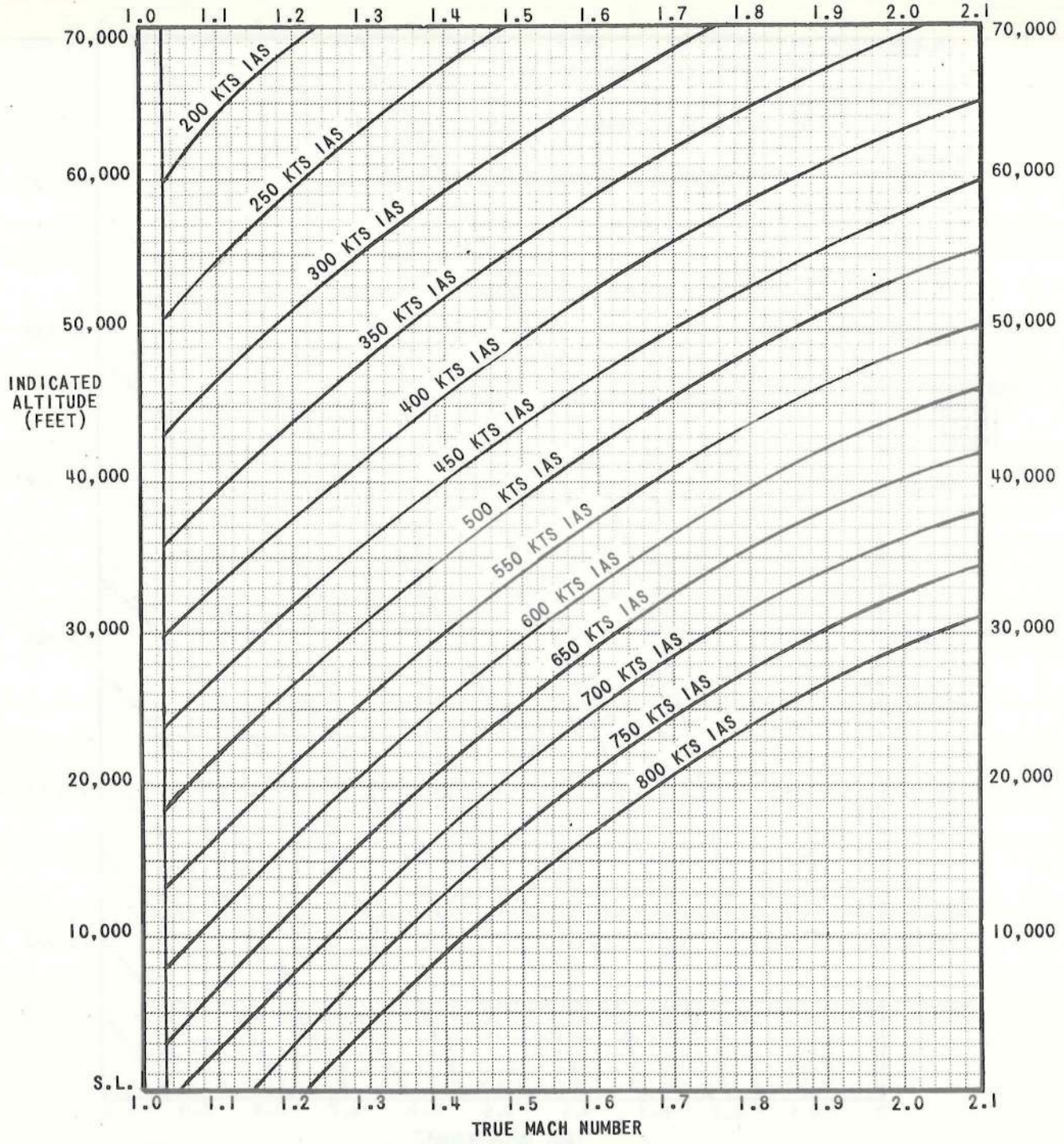


**FIG. 1.7. CONVERSION CHART I.A.S/T.M.N. SUPERSONIC**

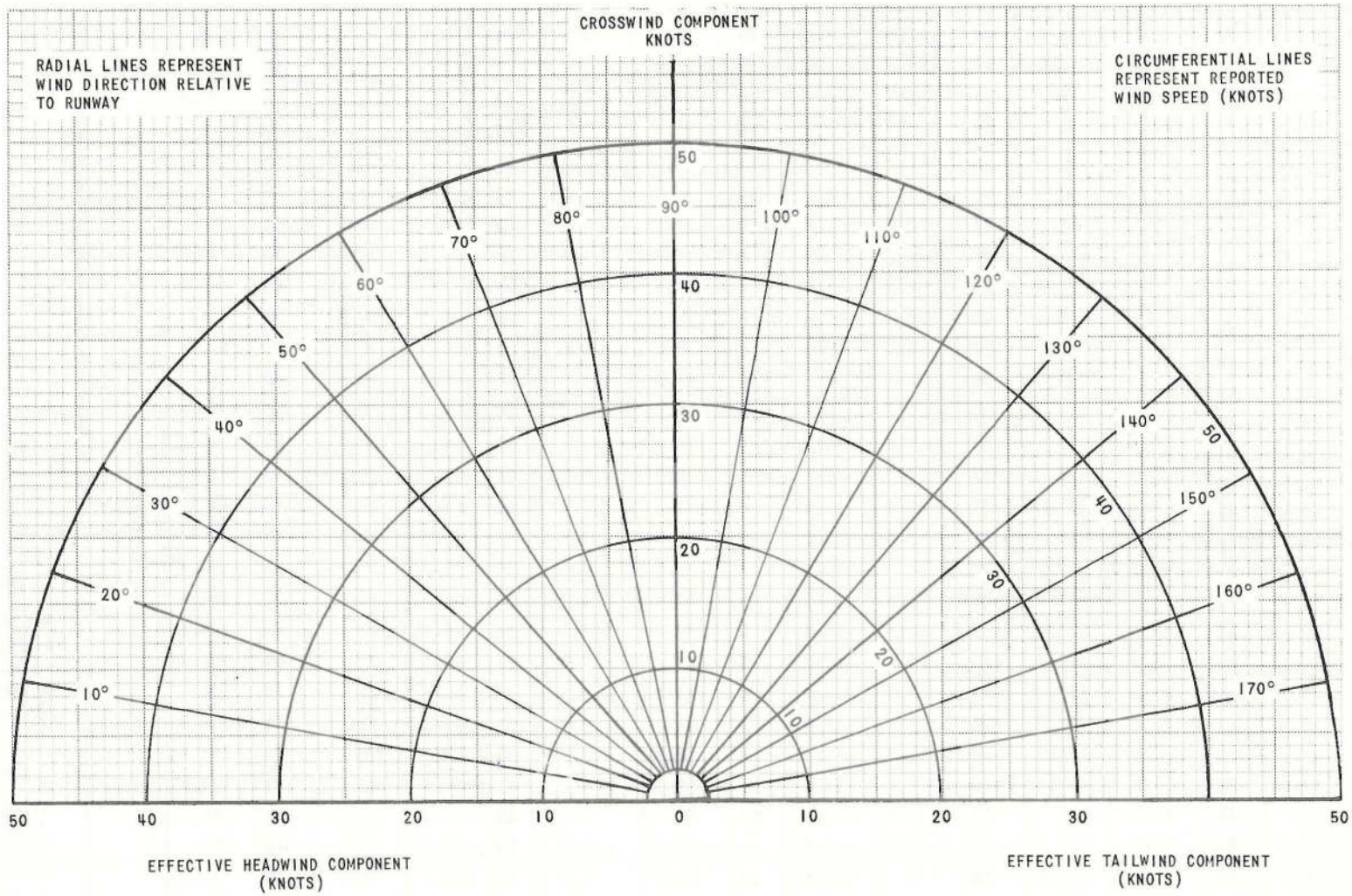


FIG. 1.8 DETERMINATION OF WIND COMPONENTS

## TABLE 1.9

**Temperature conversion table**

| °C | | °F | °C | | °F | °C | | °F | °C | | °F | °C | | °F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -62 | **-80** | -112 | -43.9 | **-47** | -52.6 | -26.1 | **-15** | 5 | - 8.3 | **17** | 62.6 | 9.4 | **49** | 120.2 |
| -61.4 | **-79** | -110.2 | -43.3 | **-46** | -50.8 | -25.6 | **-14** | 6.8 | - 7.8 | **18** | 64.4 | 10 | **50** | 122 |
| -60.9 | **-78** | -108.4 | -42.8 | **-45** | -49 | -25 | **-13** | 8.6 | - 7.2 | **19** | 66.2 | 10.6 | **51** | 123.8 |
| -60.3 | **-77** | -106.6 | -42.2 | **-44** | -47.2 | -24.4 | **-12** | 10.4 | - 6.7 | **20** | 68 | 11.1 | **52** | 125.6 |
| -59.8 | **-76** | -104.8 | -41.7 | **-43** | -45.4 | -23.9 | **-11** | 12.2 | - 6.1 | **21** | 69.8 | 11.7 | **53** | 127.4 |
| -59.2 | **-75** | -103 | -41.1 | **-42** | -43.6 | -23.3 | **-10** | 14 | - 5.6 | **22** | 71.6 | 12.2 | **54** | 129.2 |
| -58.7 | **-74** | -101.2 | -40.6 | **-41** | -41.8 | -22.8 | **- 9** | 15.8 | - 5 | **23** | 73.4 | 12.8 | **55** | 131 |
| -58.1 | **-73** | -99.4 | -40 | **-40** | -40 | -22.2 | **- 8** | 17.6 | - 4.4 | **24** | 75.2 | 13.3 | **56** | 132.8 |
| -57.6 | **-72** | -97.6 | -39.4 | **-39** | -38.2 | -21.7 | **- 7** | 19.4 | - 3.9 | **25** | 77 | 13.9 | **57** | 134.6 |
| -57 | **-71** | -95.8 | -38.9 | **-38** | -36.4 | -21.1 | **- 6** | 21.2 | - 3.3 | **26** | 78.8 | 14.4 | **58** | 136.4 |
| -56.6 | **-70** | -94 | -38.3 | **-37** | -34.6 | -20.6 | **- 5** | 23 | - 2.8 | **27** | 80.6 | 15 | **59** | 138.2 |
| -56 | **-69** | -92.2 | -37.8 | **-36** | -32.8 | -20 | **- 4** | 24.8 | - 2.2 | **28** | 82.4 | 15.6 | **60** | 140 |
| -55.5 | **-68** | -90.4 | -37.2 | **-35** | -31 | -19.4 | **- 3** | 26.6 | - 1.7 | **29** | 84.2 | 16.1 | **61** | 141.8 |
| -55 | **-67** | -88.6 | -36.7 | **-34** | -29.2 | -18.9 | **- 2** | 28.4 | - 1.1 | **30** | 86 | 16.7 | **62** | 143.6 |
| -54.4 | **-66** | -86.8 | -36.1 | **-33** | -27.4 | -18.3 | **- 1** | 30.2 | - 0.6 | **31** | 87.8 | 17.2 | **63** | 145.4 |
| -53.8 | **-65** | -85 | -35.6 | **-32** | -25.6 | -17.8 | **0** | 32 | 0 | **32** | 89.6 | 17.8 | **64** | 147.2 |
| -53.3 | **-64** | -83.2 | -35 | **-31** | -23.8 | -17.2 | **1** | 33.8 | 0.6 | **33** | 91.4 | 18.3 | **65** | 149 |
| -52.7 | **-63** | -81.4 | -34.4 | **-30** | -22 | -16.7 | **2** | 35.6 | 1.1 | **34** | 93.2 | 18.9 | **66** | 150.8 |
| -52.2 | **-62** | -79.6 | -33.9 | **-29** | -20.2 | -16.1 | **3** | 37.4 | 1.7 | **35** | 95 | 19.4 | **67** | 152.6 |
| -51.6 | **-61** | -77.8 | -33.3 | **-28** | -18.4 | -15.6 | **4** | 39.2 | 2.2 | **36** | 96.8 | 20 | **68** | 154.4 |
| -51 | **-60** | -76 | -32.8 | **-27** | -16.6 | -15 | **5** | 41 | 2.8 | **37** | 98.6 | 20.6 | **69** | 156.2 |
| -50.4 | **-59** | -74.2 | -32.2 | **-26** | -14.8 | -14.4 | **6** | 42.8 | 3.3 | **38** | 100.4 | 21.1 | **70** | 158 |
| -49.9 | **-58** | -72.4 | -31.7 | **-25** | -13 | -13.9 | **7** | 44.6 | 3.9 | **39** | 102.2 | 21.7 | **71** | 159.8 |
| -49.3 | **-57** | -70.6 | -31.1 | **-24** | -11.2 | -13.3 | **8** | 46.4 | 4.4 | **40** | 104 | 22.2 | **72** | 161.6 |
| -48.8 | **-56** | -68.8 | -30.6 | **-23** | - 9.4 | -12.8 | **9** | 48.2 | 5 | **41** | 105.8 | 22.8 | **73** | 163.4 |
| -48.2 | **-55** | -67 | -30 | **-22** | - 7.6 | -12.2 | **10** | 50 | 5.6 | **42** | 107.6 | 23.3 | **74** | 165.2 |
| -47.7 | **-54** | -65.2 | -29.4 | **-21** | - 5.8 | -11.7 | **11** | 51.8 | 6.1 | **43** | 109.4 | 23.9 | **75** | 167 |
| -47.1 | **-53** | -63.4 | -28.9 | **-20** | - 4 | -11.1 | **12** | 53.6 | 6.7 | **44** | 111.2 | 24.4 | **76** | 168.8 |
| -46.6 | **-52** | -61.6 | -28.3 | **-19** | - 2.2 | -10.6 | **13** | 55.4 | 7.2 | **45** | 113 | 25 | **77** | 170.6 |
| -46 | **-51** | -59.8 | -27.8 | **-18** | - 0.4 | -10 | **14** | 57.2 | 7.8 | **46** | 114.8 | 25.6 | **78** | 172.4 |
| -45.6 | **-50** | -58 | -27.2 | **-17** | 1.4 | -9.4 | **15** | 59 | 8.3 | **47** | 116.6 | 26.1 | **79** | 174.2 |
| -45 | **-49** | -56.2 | -26.7 | **-16** | 3.2 | -8.9 | **16** | 60.8 | 8.9 | **48** | 118.4 | 26.7 | **80** | 176 |
| -44.4 | **-48** | -54.4 | | | | | | | | | | | | |

## TABLE 1.10

**Conversion of OAT to $\sqrt{t}$**

| OAT (°C) | $\sqrt{t}$ |
|---|---|
| 50 | 1.060 |
| 40 | 1.040 |
| 30 | 1.025 |
| 20 | 1.017 |
| 15 | 1.000 |
| 10 | 0.990 |
| 0 | 0.970 |
| -10 | 0.956 |
| -20 | 0.937 |
| -30 | 0.920 |
| -40 | 0.900 |
| -50 | 0.880 |
| -60 | 0.860 |
| -70 | 0.840 |
| -80 | 0.820 |

## TABLE 1.11

**Standard atmosphere - height/temperature**

| HEIGHT | t°C |
|---|---|
| 0 | 15.0 |
| 5000 | 5.1 |
| 10,000 | - 4.8 |
| 15,000 | -14.7 |
| 20,000 | -24.6 |
| 25,000 | -34.5 |
| 30,000 | -44.4 |
| 35,000 | -54.3 |
| 36,090 | -56.5 |