

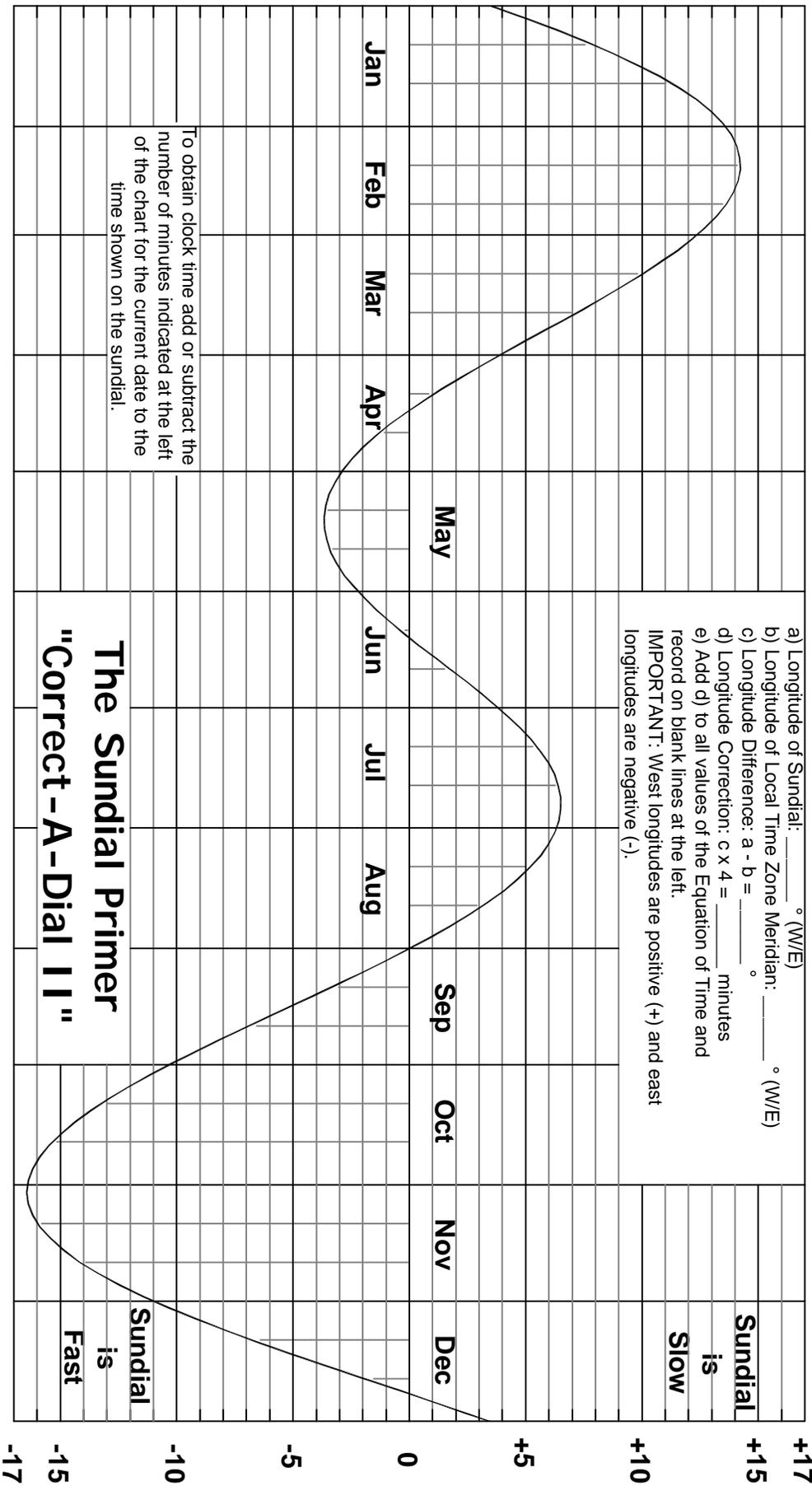
**minutes EQUATION OF TIME & LONGITUDE CORRECTION**

**EQUATION OF TIME minutes**

- a) Longitude of Sundial: \_\_\_\_\_ ° (W/E)
  - b) Longitude of Local Time Zone Meridian: \_\_\_\_\_ ° (W/E)
  - c) Longitude Difference:  $a - b =$  \_\_\_\_\_ °
  - d) Longitude Correction:  $c \times 4 =$  \_\_\_\_\_ minutes
  - e) Add d) to all values of the Equation of Time and record on blank lines at the left.
- IMPORTANT:** West longitudes are positive (+) and east longitudes are negative (-).

**Sundial is Slow**

To obtain clock time add or subtract the number of minutes indicated at the left of the chart for the current date to the time shown on the sundial.



**The Sundial Primer  
"Correct-A-Dial 11"**

**Sundial is Fast**

# The Sundial Primer

## "Correct-A-Dial II"

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The "Correct-A-Dial II" is provided to help you with task of correcting a solar time sundial reading to clock time. What you will be doing is combining the longitude and Equation of Time corrections into one chart. You will need to add or subtract only one number from the time shown by the sundial to obtain clock time. To complete the simple calculations required to fill in the blanks you need to know the longitude where the sundial is located and the longitude of the local time zone meridian. The following examples show how to perform the calculations for various longitudes. It is important to remember that west longitudes are positive and east longitudes are negative.

### **Example 1:**

- a) Longitude of Sundial: +95° W
- b) Longitude of Local Time Zone Meridian: +90° W
- c) Longitude Difference:  $a - b = 95 - 90 = 5^\circ$  The sundial is located west of the local time zone meridian. The sundial is slow.

If the value of "c" is positive the sundial is located west of the local time zone meridian and its time indication is slow. If the value of "c" is negative the sundial is located east of the local time zone meridian and its time indication is fast.

- d) Longitude Correction:  $c \times 4 = 5 \times 4 = 20$  minutes
- e) The values that would be entered into the blanks on the left side of Figure 2 would be the values of the EoT on the right plus 20. From the top to bottom the nine values are: +37, +35, +30, +25, +20, +15, +10, +5 and +3. All the values are positive and you would always be adding a value to the sundial reading.

### **Example 2:**

- a) Longitude of Sundial: -95° E
- b) Longitude of Local Time Zone Meridian: -90° E
- c) Longitude Difference:  $a - b = -95 - (-90) = -95 + 90 = -5^\circ$  The sundial is located east of the local time zone meridian. The sundial is fast.
- d) Longitude Correction:  $c \times 4 = -5 \times 4 = -20$  minutes
- e) The values that would be entered into the blanks on the left side of Figure 2 would be the values of the EoT on the right plus -20. Adding a negative number is the same as subtracting the number. From the top to bottom the nine values are: -3, -5, -10, -15, -20, -25, -30, -35 and -37. All the values are negative and you would always be subtracting a value from the sundial reading.

### **Example 3:**

- a) Longitude of Sundial: 87° W
- b) Longitude of Local Time Zone Meridian: 90° W
- c) Longitude Difference:  $a - b = 87 - 90 = -3^\circ$  The sundial is located east of the local time zone meridian. The sundial is fast.
- d) Longitude Correction:  $c \times 4 = -3 \times 4 = -12$  minutes
- e) The values that would be entered into the blanks on the left side of Figure 2 would be the values of the EoT on the right plus -12. From the top to bottom the nine values are: +5, +3, -2, -7, -12, -17, -22, -27 and -29. The values are both positive and negative and you would add or subtract a value from the sundial reading.

### **Example 4:**

- a) Longitude of Sundial: -87° E
- b) Longitude of Local Time Zone Meridian: -90° E
- c) Longitude Difference:  $a - b = -87 - (-90) = -87 + 90 = 3^\circ$  The sundial is located west of the local time zone meridian. The sundial is slow.
- d) Longitude Correction:  $c \times 4 = 3 \times 4 = 12$  minutes
- e) The values that would be entered into the blanks on the left side of Figure 2 would be the values of the EoT on the right plus 20. From the top to bottom the nine values are: +29, +27, +22, +17, +12, +7, +2, -3 and -5. The values are both positive and negative and you would add or subtract a value from the sundial reading.

This calculation can be performed for any sundial location and if you have any problems ask a friend to give you some help.