# Backing Up Analyzer Correction Constants

This section describes how to retrieve the correction-constant data from the instrument memory and record the data as a backup copy. As long as the data remains valid, it can be used to recalibrate the instrument quickly after a memory loss. It is recommended that a copy of this data be maintained in the user's records. Procedures for restoring the correction constants to battery-backed RAM memory are also provided in this section.

Note that if the current correction constants are not valid, new correction constants must be generated. Refer to the following adjustment procedures in Chapter 2 of this service guide.

- Adjusting the 10 MHz Reference.
- Adjusting the Frequency Response *(for your analyzer)*.
- Adjusting the Cal Attenuator Error.
- Correcting the External ALC Error Correction *(for Option 010 and 011 only)*.

The 8590 E-Series and L-Series spectrum analyzer, 8591C cable TV analyzer, and 8594Q QAM analyzer stores the following correction constants in RAM.

**Flatness-correction constants.** Used to correct frequency-response amplitude errors.

**Step-attenuation correction constants.** Used to correct A12 Amplitude Control step-attenuator errors and provide a relative amplitude reference for the CAL AMPTD self-calibration routine.

**Timebase correction constant.** Used by the DAC that tunes the RTXO (10 MHz timebase) on the A25 Counter Lock assembly. *Analyzers equipped with the precision frequency reference do not use this correction constant.*

**CALTGX slope and offset correction constants.** Used to improve the performance of the external automatic level control (ALC). *Only analyzers equipped with Option 010 or 011 use these corrections.*

## Retrieve the timebase and flatness-correction constants

1. Make a copy of the Correction Constant Backup-Data Record at the end of this chapter.
2. Record the date and instrument serial number.

   Skip Step 3 and Step 4 if your instrument is equipped with a precision frequency reference or if testing an 8590L with Option 713.
3. Press the following keys.

   **PRESET**

   **FREQUENCY**, –37, **Hz**

   **CAL**, **More 1 of 4**, **More 2 of 4**
4. Press **VERIFY TIMEBASE**, then record the number that is displayed in the active-function block in Table 3-2.
5. Press the following keys.

   **SERVICE CAL**, **FLATNESS DATA**, **EDIT FLATNESS**
6. The signal trace represents the frequency-response (flatness) correction-constant data. The active-function block displays the frequency response error.
7. Record the frequency-response error in the appropriate table for your analyzer.Table 3-3 is for the 8590L and 8591E spectrum analyzers and 8591C cable TV analyzers. Table 3-5 through Table 3-12 are for all other 8590 E-Series and L-Series spectrum analyzers.
8. Press ⇑, then record the next frequency-response error in the appropriate table.
9. Repeat the previous step until all frequency-response errors are recorded. Use ⇓ to view previous data points.
10. Press **EXIT** when all frequency-response errors have been recorded.

## Retrieve the A12 step-gain and CALTGX correction constants

1. Press the following keys to view the current A12 step-attenuator correction constants.

   **CAL**, **More 1 of 4**, **More 2 of 4**

   **SERVICE DIAG**

   **DISPLAY CAL DATA**

2. Look at the first five entries in the CA ATT ERR column; they are the amplitude errors for the 1 dB, 2 dB, 4 dB, 8 dB, and 16 dB step-attenuators.

3. Record the amplitude errors (correction constants) for the five step-attenuators in Table 3-14.

   Step 4 is for analyzers equipped with Option 010 or 011 only. Skip this step for all other analyzers.

4. Record the CALTGX slope and offset correction constants in Table 3-15. The correction constants are printed on a label that is located on the A7A1 Tracking Generator Control Board assembly.

File the completed copy of the Correction Constant Backup-Data Record for future reference.