Analyzer Recovery after a A16 Memory Loss

The procedures in this section restore the correction constants recorded on the Correction Constant Backup-Data Record to analyzer memory, initialize the analyzer settings that are lost after a memory failure, and recalibrate the analyzer.

Note

If the current correction constants are not valid, new correction constants must be generated and stored in memory.

- Perform the steps in "Resetting the Analyzer Power-On Units."
- Generate new correction constants using the following adjustment procedures from Chapter 2:
  - "10 MHz Reference (Standard)."
  - "Frequency Response."
  - "Cal Attenuator Error Correction."
  - "External ALC Error Correction (Option 010 and 011)."
- Return to this procedure and perform the steps in "Instrument Recalibration after Reloading the Correction Constants."

Resetting the Analyzer Power-On Units

1. Turn the analyzer on.

Note

After a memory loss, the analyzer may display one of the following symptoms:

- A random display periodically flashes on-screen.
- An empty rectangle appears, closely followed by the message `SYMTAB EMPTY`. Approximately 8 seconds later, the instrument performs an instrument preset and the error message `FAIL: 0330 0000000000` is displayed.

Perform the steps in "Instrument Response after Memory Reset" in the previous section and then continue with this procedure.

2. Set the analyzer power-on units by pressing the following analyzer keys:

   (PRESET)
   (FREQUENCY) −2001 (Hz)
   (AMPLITUDE) `MORE 1 of 2` `INPUT Z` (50) (*Option 001:* `INPUT Z` (75))
   (AMPLITUDE) `SCALE LOG LIN` (LOG) `MORE 1 of 2` `AMPTD UNITS` `dBm` (*Option 001:* `dBmV`)
   (AMPLITUDE) `SCALE LOG LIN` (LIN) `MORE 1 of 2` `AMPTD UNITS` `Volts`
   (AMPLITUDE) `SCALE LOG LIN` (LOG)
   (CAL) `MORE 1 of 3` `MORE 2 of 3` `SERVICE CAL` `STOR POWR ON UNITS`

Reloading the Timebase and Flatness Correction Constants

Ensure that all recorded correction constants are valid before they are reentered in the instrument memory. Repair, replacement, or adjustment of particular assemblies requires the generation of new correction constants. Refer to Table 6-2, "Adjustments and Tests for Replaced or Repaired Assemblies," for the assemblies that affect the correction constants.

1. Press the following keys to eliminate erroneous data that may be stored in RAM:

   (PRESET)

   (FREQUENCY) −37 (Hz)

   (CAL) MORE 1 of 3 MORE 2 of 3

   DEFAULT CAL DATA

2. Press the following keys to enter the service calibration menu:

   (PRESET)

   (FREQUENCY)

   −2001 (Hz)

   (CAL)

   MORE 1 of 3

   MORE 2 of 3

   SERVICE CAL

Note For Option 004 instruments, bypass the next four steps.

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3. Press CAL TIMEBASE.
4. Enter the value from Table 9-1 and press (ENTER) to complete the timebase-data entry.
5. Press the following keys to store the timebase data in memory:

   (CAL)

   MORE 1 of 3

   CAL FETCH

   MORE 2 of 3

   MORE 3 of 3

   CAL STORE

6. Press the following keys to reenter the passcode and return to the service calibration menu:

   FREQUENCY

   −2001 Hz

   CAL

   MORE 1 of 3

   MORE 2 of 3

   SERVICE CAL

7. Press FLATNESS DATA to enter the flatness data menu.

8. Press INIT FLT to set the start frequency, stop frequency and step size for the entry of the flatness correction constants.

9. Press the following keys before entering the correction data:

   FREQUENCY

   −2001 Hz

   CAL

   MORE 1 of 3

   MORE 2 of 3

   SERVICE CAL

   FLATNESS DATA

   EDIT FLATNESS

10. Enter the correction constant for 4 MHz from Table 9-2 and terminate the entry with the +dBm or −dBm key, as appropriate.

11. Enter each correction constant from Table 9-2.

    - On later analyzers, each entry is displayed briefly before the data-entry routine steps to the next correction data point.
    - On earlier analyzers, the value of the current data point is displayed until another data point is selected using the ⇧ or ⇩ key.

12. Use ⇧ and ⇩ to edit previously entered correction data.

13. When all flatness correction constants are entered, press STORE FLATNESS. The analyzer will automatically preset.

Reloading the A12 Step Gain and CALTGX Correction Constants

1. Press the following keys before reloading the step-attenuator correction constants:

   (PRESET)

   (FREQUENCY)

   Enter −2001 (Hz)

   (CAL)

   MORE 1 of 3

   MORE 2 of 3

   SERVICE CAL

   SET ATTN ERROR

2. REF LVL OFFSET is displayed in the active-function block above the prompt ENTER CAL ATTEN ERROR 1.

3. At the prompt, Enter the five step-attenuator correction constants (resolution 0.01 dB) from Table 9-3.

   Terminate each entry with either (+dBm) or (−dBm), as appropriate. Each entry is displayed to the left of the graticule as an amplitude offset, but only with 0.1 dB resolution. An instrument preset occurs after the 16 dB step-attenuator error is entered.

Note

The next step is for analyzers equipped with a tracking generator (Option 010 or 011) only.

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4. Restore the CALTGX slope and offset correction constants from Table 9-4 using the "Entering External ALC Correction Constants (Option 010 and 011)" procedure in Chapter 2.

Instrument Recalibration after Reloading the Correction Constants

1. Connect the CAL cable from CAL OUT to the RF INPUT. Connect the 75Ω CAL cable for analyzers with Option 001, 75Ω Impedance Input.

2. Perform the self-calibration routines by pressing the following keys:

   (PRESET)
   (FREQUENCY) −37 (Hz)
   CAL FREQ & AMPTD

   When CAL: DONE is displayed in the active-function block, the instrument is calibrated. The calibration procedure takes approximately 8 minutes.

3. Adjust the vertical and horizontal position of the display using CRT VERT POSITION and CRT HORZ POSITION.

   Refer to the "Display Position" section of the "Display" adjustment procedure in Chapter 2.

4. Press (CAL) and CAL STORE to store the correction values in nonvolatile memory.

Note

Refer to the *HP 8591A/8593A Spectrum Analyzer Installation, Verification, and Operation Manual* for a description of the default settings provided by DEFAULT CONFIG.

5. Press the following keys to return the instrument to the default configuration:

   (CONFIG)
   MORE 1 of 2
   DEFAULT CONFIG

Note

The 3.1.90 version of firmware has added a new feature, POWERON. The command, POWERON, allows the analyzer power-on state to be set to one of the following:

- POWERON IP. This selection performs an instrument preset at power-on.
- POWERON LAST. This selection recalls the last state of the analyzer before it was powered off.

After enabling DEFAULT CONFIG, the analyzer defaults to POWERON LAST at power-on.

The POWERON IP power-on state is set at the factory and it is recommended that POWERON IP be used as the standard power-on state.

The EXECUTE TITLE function is used to select the power-on state.

6. Perform the following steps to set the power-on state to POWERON IP:
   1. Press (DISPLAY) CHANGE TITLE. If necessary, clear the current screen title by pressing the YZ_# SPC CLEAR and CLEAR softkeys.
   2. Enter POWERON IP; in the screen title using the front-panel keys.
   3. Press the following keys to execute the POWERON IP; command:
      (CAL)
      MORE 1 of 3
      MORE 2 of 3
      SERVICE CAL
      EXECUTE TITLE
7. If a new A16 assembly (with a new battery attached) is installed, enter the replacement date on the battery label located on the rear-frame of the analyzer.
8. Adjust the time and date. Refer to the "Time and Date" adjustment procedure in Chapter 2 of this manual.