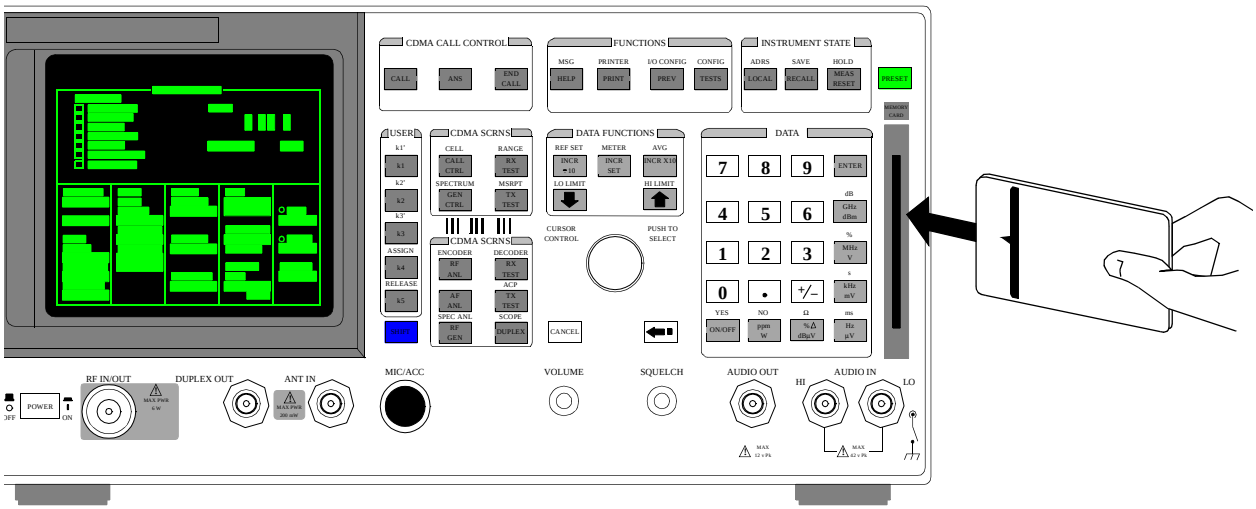
HP 83217A Test Software
Introduction to Operation



HP Part No. 83217-90005
Printed in U. S. A.
August 1999

Rev. E

Copyright © Hewlett-Packard Company 1996

Notice

Information contained in this document is subject to change without notice.

All Rights Reserved. Reproduction, adaptation, or translation without prior written permission is prohibited, except as allowed under the copyright laws.

This material may be reproduced by or for the U.S. Government pursuant to the Copyright License under the clause at DFARS 52.227-7013 (APR 1988).

Hewlett-Packard Company
Learning Products Department
24001 E. Mission
Liberty Lake, WA 99019-9599
U.S.A.

Contents

1 HP 83217A Introduction to Operation

Read Me First 6

Section I. Getting Started 8

Section II. Loading and Running a Test Procedure 13

Section III. Modifying the Order of Tests 22

Section IV. Modifying a Parameter and a Specification 33

Section V. Saving a Test Procedure on a Memory Card 42

Section VI. Modify the Test Execution Conditions 46

Contents

1

HP 83217A Introduction to Operation

Read Me First

The Introduction to Operation is a step-by-step procedure designed to acquaint you with the HP 83217A software. The instructions will guide you through the following operations:

- Loading a test procedure
- Running a test procedure
- Modifying the order of tests in a test procedure
- Modifying parameters and specifications in a test procedure
- Saving a customized test procedure
- Modifying test execution conditions

To follow this procedure, you must obtain the following equipment:

- The HP 83217A PCMCIA memory card.
- The HP 8924C or HP E8285ACDMA Mobile Station Test Set.
- A CDMA dual-mode mobile station, programmed to operate in both CDMA and analog modes.
- A test fixture for making an RF connection from the mobile station to the Test Set.
- A dc power source for the mobile station; either a charged battery or a dc power supply with a fixture for connecting power to the mobile station.
- A BNC to BNC cable.
- An initialized PCMCIA SRAM memory card.

  Refer to “To Initialize a Memory Card (DOS Format)” of the *HP 83217A User’s Guide.*

If you are testing PCS mobile stations using HP 83217A Option 004 software and you are not using the HP E8285A, you must obtain the following additional equipment:

- The HP 83236B PCS Interface
- Two type N to type N cables, part number 83236-61602.
- One BNC-BNC cable, part number 8120-1839.
- One SMC-SMA cable, part number 83215-61643.
- One serial DB-9 to RJ-11 serial cable, part number 83236-61601.

Regardless of which equipment you are using, you must also know the CDMA channel number (including channel standard) of the mobile station you will be testing, and, if the mobile station does not roam, you must know the system ID (SID) and network ID (NID).

Section I. Getting Started

1. Power up the Test Set.

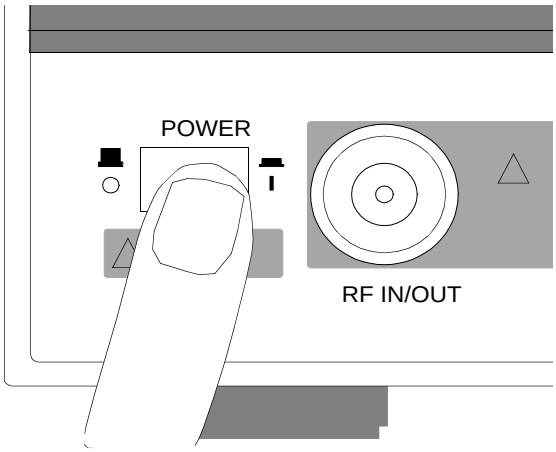
NOTE:

If you are using the HP 83217A software with the HP 83236B PCS Interface in testing PCS mobile stations, you must turn on power to the PCS Interface before turning on power to the Test Set.

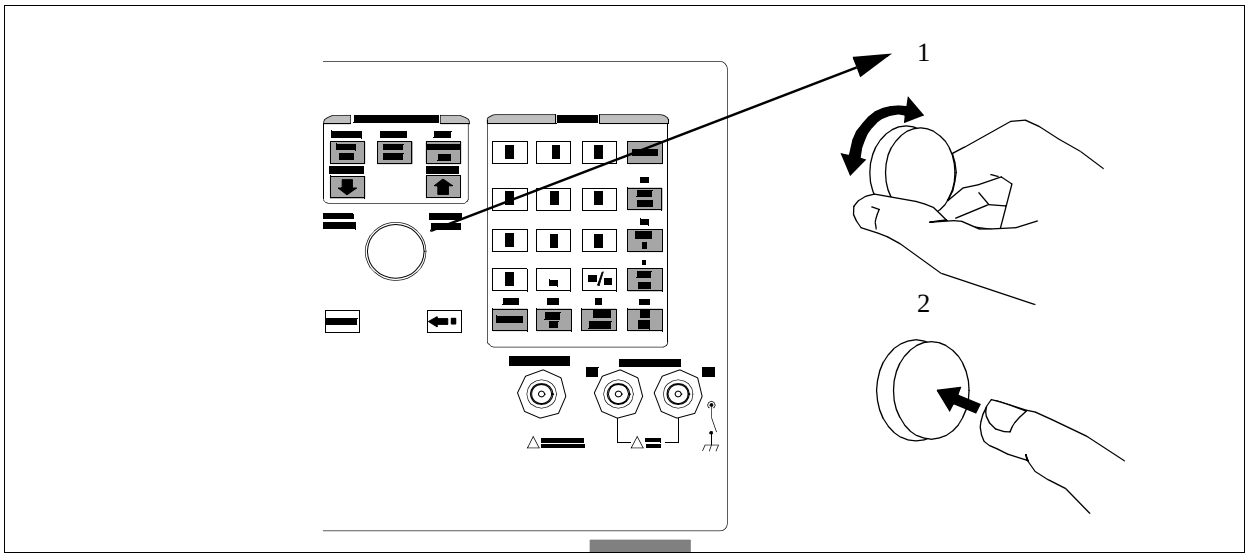
a. Press the POWER key.

If power is already on, perform an off/on power cycle by pressing the POWER key two times; once to turn the power off, and once to turn the power back on.

During the power-up routine, a world map appears. When the world map disappears, the power-up routine is complete. This routine takes approximately 1 minute to complete.



2. Familiarize yourself with the CURSOR CONTROL knob.



Throughout this tutorial, the terms “position” and “select” are used to describe the action of the cursor, which appears as a small, lighted rectangular box.

1. Position

To position the cursor, rotate the cursor-control knob.

2. Select

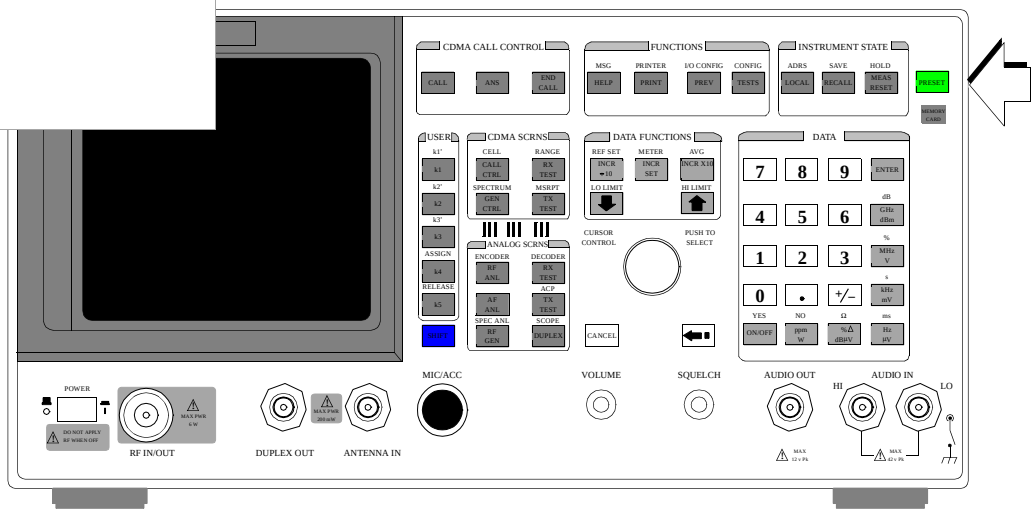
To select, position the cursor in front of a field or menu item and press the cursor-control knob.

When a field is selected, one of several actions may occur; the background of the item selected may become highlighted (brighter intensity), a selection may be underlined, or an item from a list of choices may be copied into a selected field.

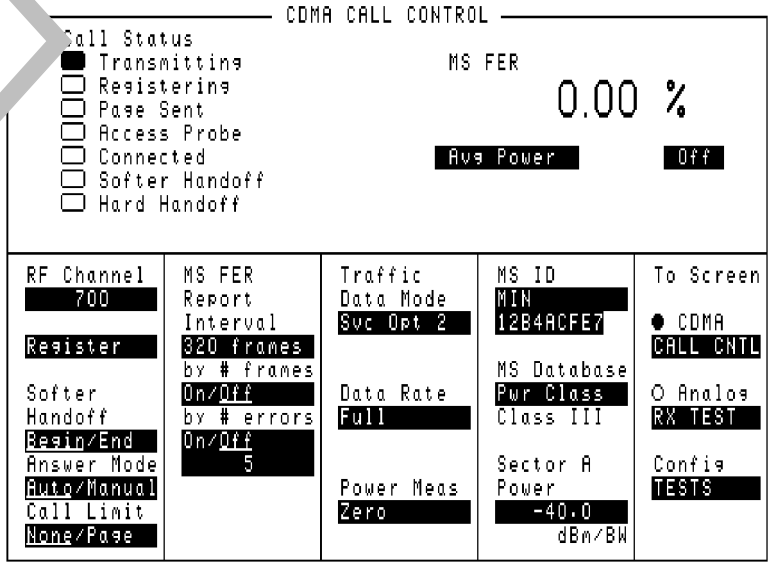
If you are unfamiliar with operation of the Test Set, turn the cursor-control knob now to position the cursor at any field and select it.

3. Preset the Test Set.

a. Press the PRESET key.



The CDMA CALL CONTROL screen should be displayed.



callcntl.pcx

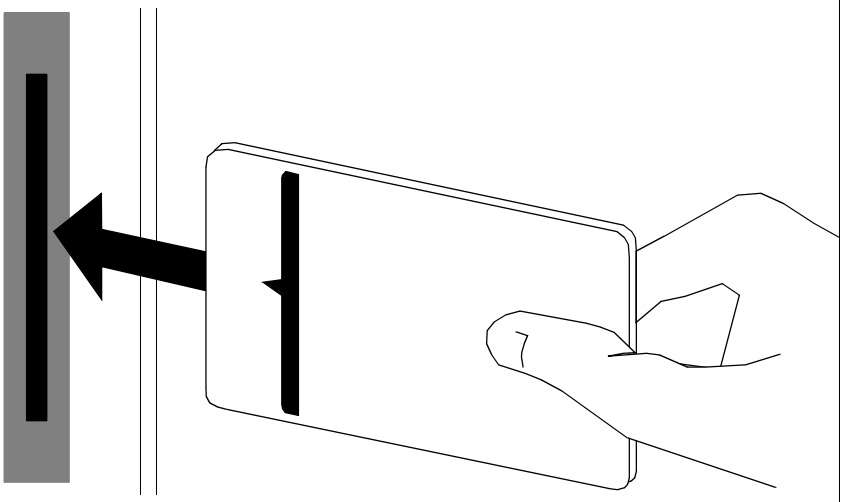
4. Insert the software memory card.

a. Push the memory card firmly into the slot.

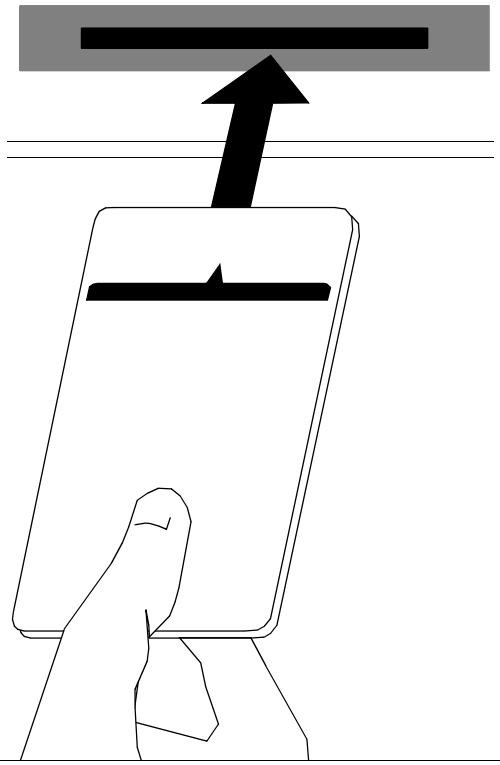
Use the label markings to determine the left side of the card as it is being inserted.

You must push firmly enough to overcome a slight resistance as pins are seated inside the card.

The memory card can be safely inserted or removed with the Test Set's power on or off.



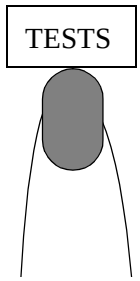
HP 8924C/E

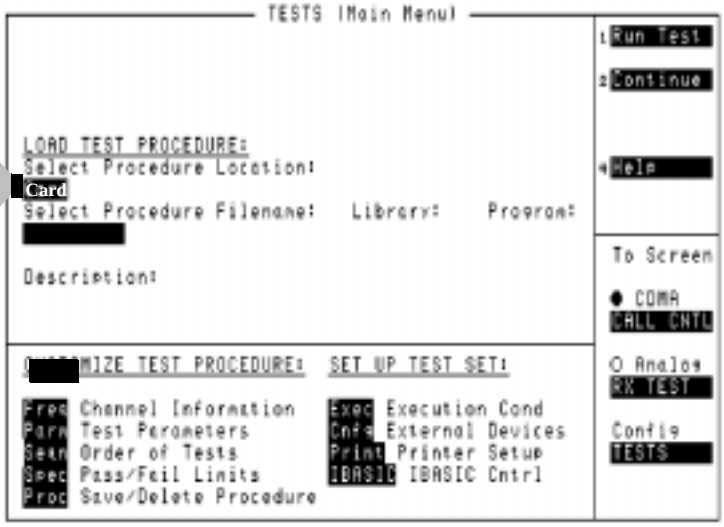


HP E8285A

5. Select the TESTS (Main Menu) screen.

a. Press the TESTS key.





The TESTS (Main Menu) screen should be displayed, and the cursor should be positioned in front of the **`Select Procedure Location`**: field.

Section II. Loading and Running a Test Procedure

1. Load DIGTL_CP.

a. Press the knob to select the **`Select Procedure Location:`** field.

The Select Procedure Location: field should be highlighted (brighter intensity), and the cursor should be displayed in the list of Choices.

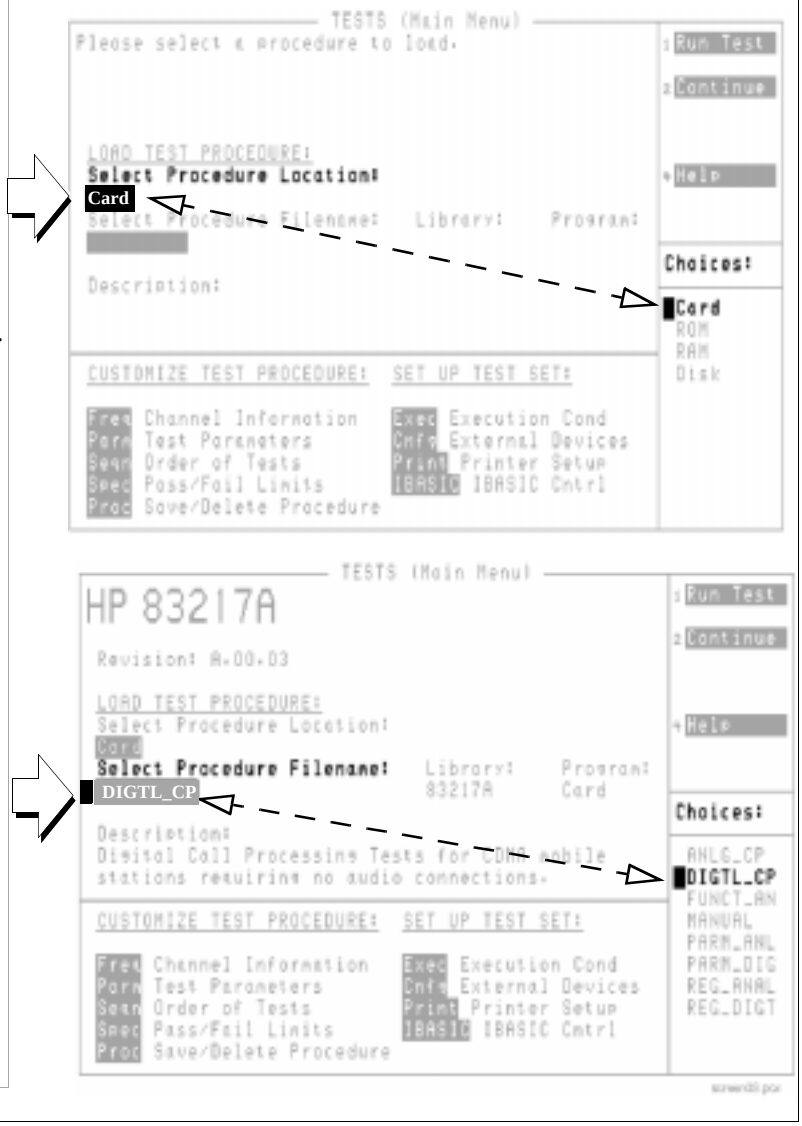
b. In the **`Choices:`** menu, select **`Card`**.

Card should be displayed in the Select Procedure Location: field.

c. Select the **`Select Procedure Filename:`** field.

d. In the **`Choices:`** menu, select **`DIGTL_CP`**.

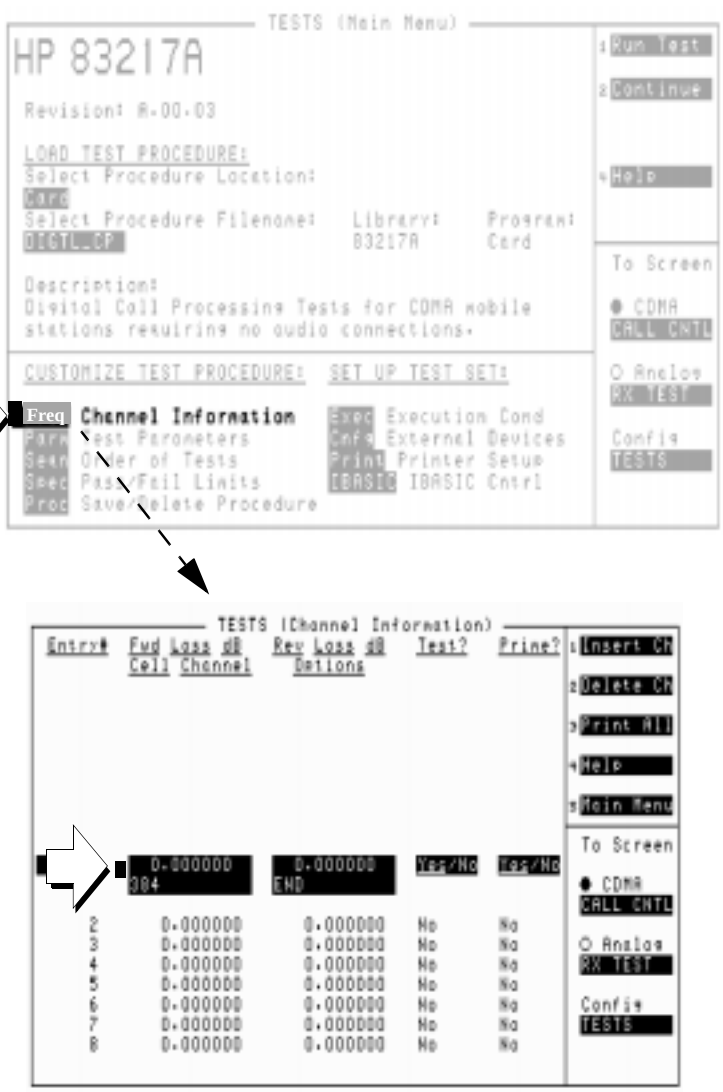
"DIGTL_CP" should be displayed in the Select Procedure Filename: field.



2. Enter the mobile station's primary CDMA channel number.

a. Select the **`Channel Information`** field.

The TESTS (Channel Information) screen should be displayed.



If the channel number in the "Cell Channel" field is correct for the mobile station you are using, you may skip steps c and d.

c. Position the cursor at the **`Cell Channel`** field and select it.

d. Use the Test Set's DATA keys to enter the mobile station's primary CDMA channel number. Press the knob to enter the number.

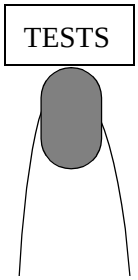
Entry 1, 384 , is the primary CDMA channel number for serving system B in the EIA/TIA IS-95A standard.

Entry 2, 525P, is a PCS band channel number. Refer to the HP 83217A User's Guide for other letter codes used to designate a channel standard.

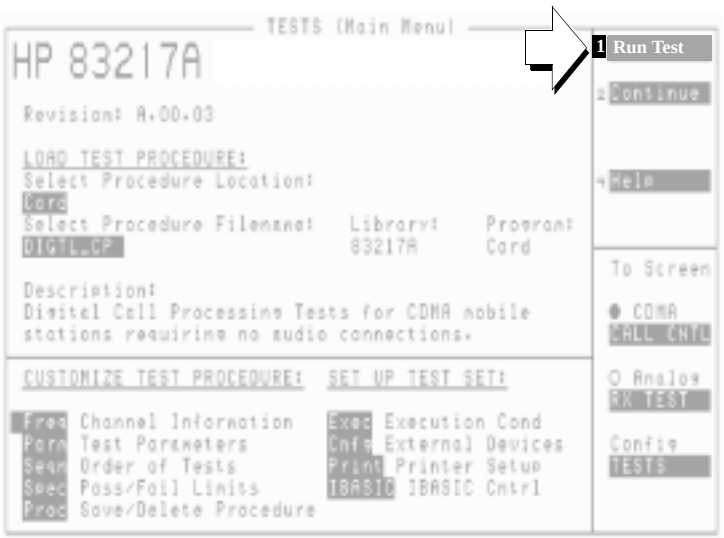
The software will always establish a call (see tests CPD Page and CPD Origination) using the first channel in the "Cell Channel" field.

3. Run the test procedure.

a. Press the TESTS key to return to the TESTS (Main Menu).



The TESTS (Main Menu) screen should be displayed.



b. If there is a “1” displayed next to the **`Run Test`** field, press the K1 key on the Test Set’s front panel. Otherwise, use the cursor-control knob to select the **`Run Test`** field.

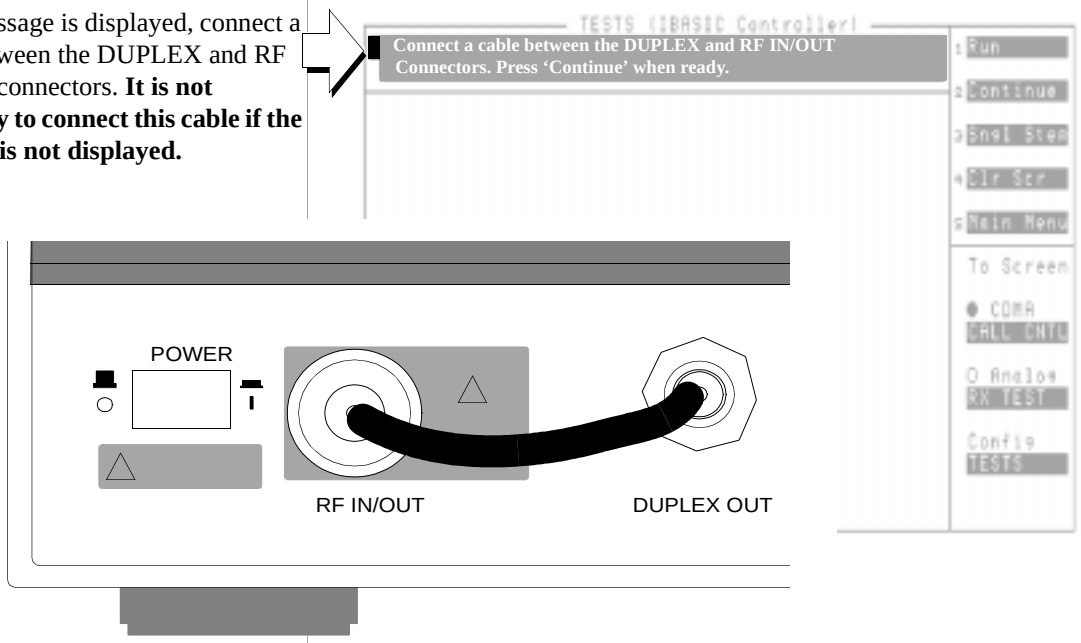
Wait until the Test Set beeps to perform the next step. The Test Set may prompt you to press the K1 key, labeled “Yes” to continue.

4. Perform the Channel Power measurement calibration.

NOTE: The software performs a Channel Power measurement calibration the first time a test procedure is run after the Test Set's power has been turned off. The software will not repeat this calibration during subsequent testing, unless the 24-hour channel Power Calibration measurement timer expires.

NOTE: Newer versions of software provide a prompt to allow you to skip Channel Power measurement calibration if desired.

a. If this message is displayed, connect a cable between the DUPLEX and RF IN/OUT connectors. **It is not necessary to connect this cable if the message is not displayed.**



b. Select the **`Continue`** field.

Wait until the Test Set beeps, indicating that the calibration process has completed, then perform Step 5 on the following page. (Calibration will take about 1 minute).

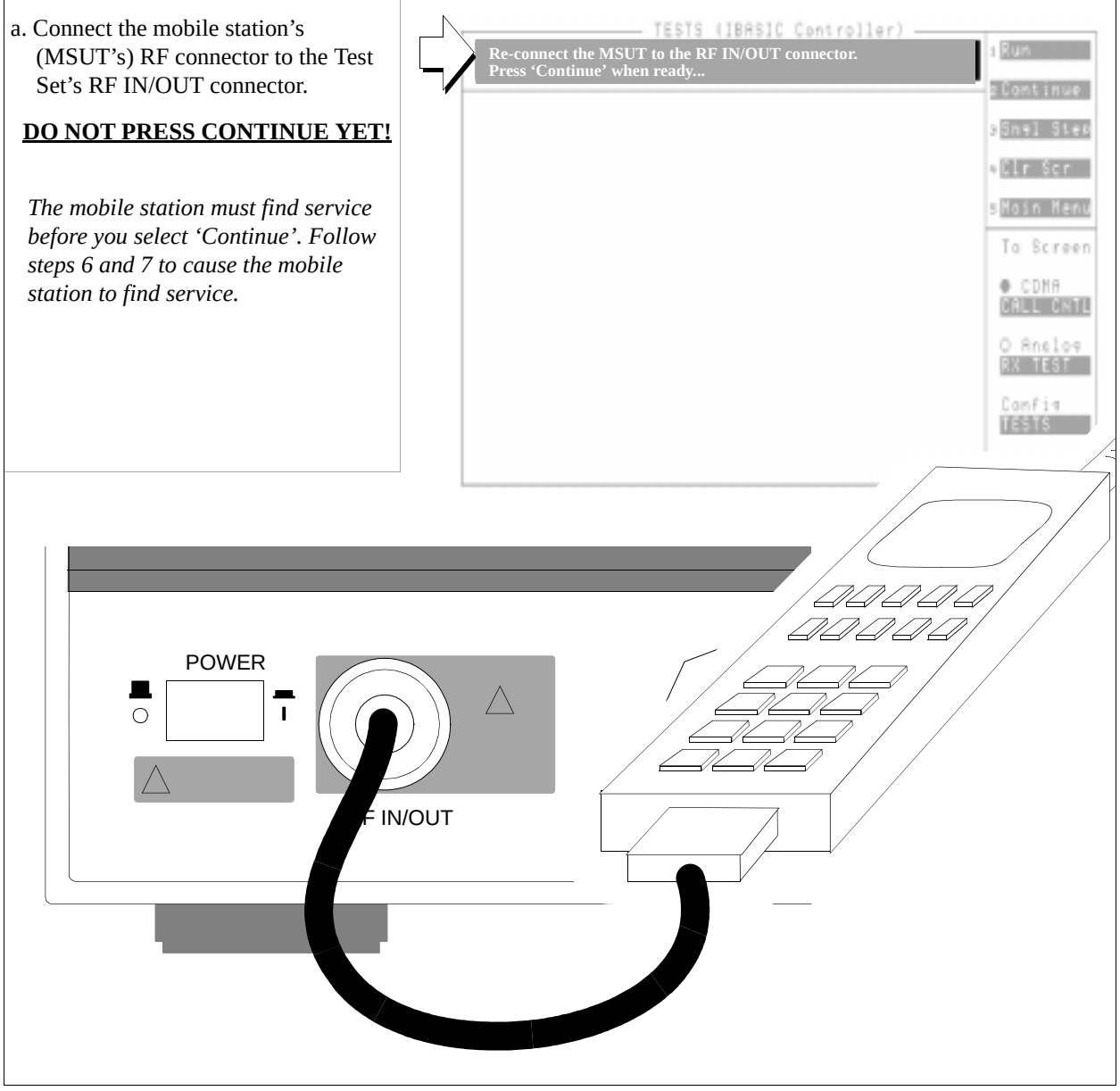
When the calibration process has completed, the Test Set will begin transmitting a CDMA pilot signal at a power level of -50 dBm/1.23 MHz bandwidth.

5. Connect the mobile station to the Test Set.

a. Connect the mobile station's (MSUT's) RF connector to the Test Set's RF IN/OUT connector.

DO NOT PRESS CONTINUE YET!

The mobile station must find service before you select 'Continue'. Follow steps 6 and 7 to cause the mobile station to find service.

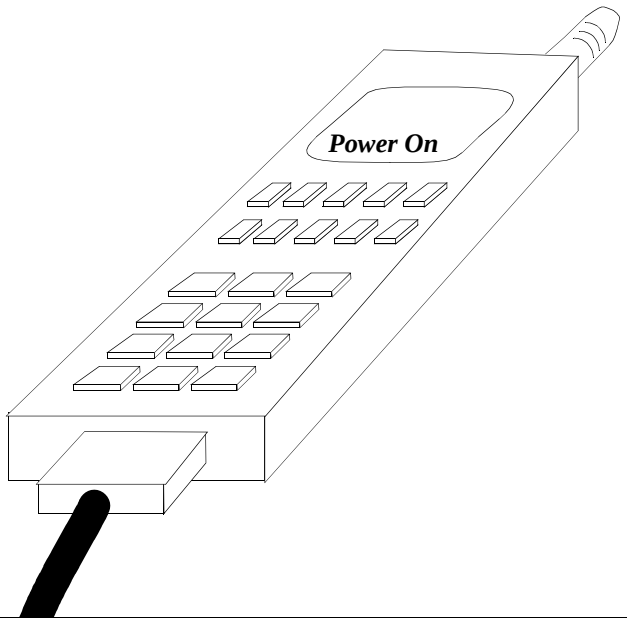


6. Turn on the mobile station.

a. Turn the mobile station's power on. If power is already on, turn it off and then turn it on again.

For battery powered mobile stations, simply press the Power key or On/Off key.

For mobile stations using a dc power supply, adjust the voltage and current to the levels recommended by the mobile station manufacturer, then connect dc power to the mobile station.

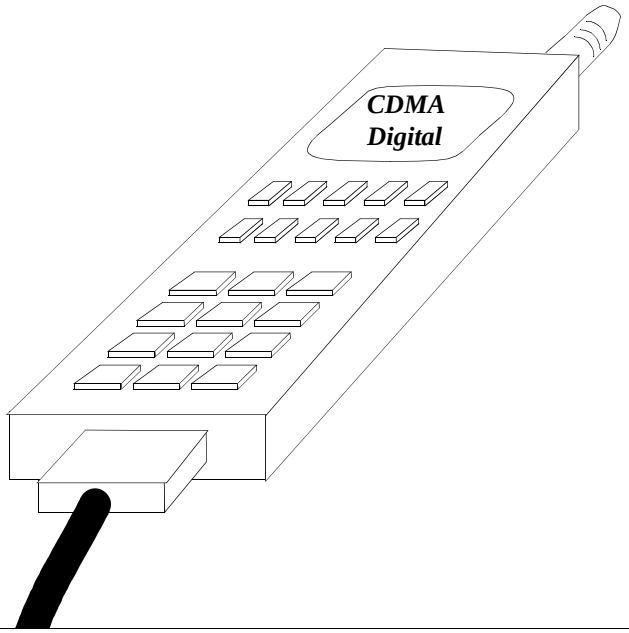


7. Verify that the mobile station has found CDMA service.

a. Check the mobile station's display to determine if it has found CDMA service. Do not proceed with step 8 until the mobile station has found CDMA service.

Each manufacturer's mobile station has a different way of displaying that the mobile station has found CDMA service. Usually, CDMA service will be indicated by a "D" or the word "DIGITAL" after power-up.

If the mobile station does not find CDMA service, verify that the Mobile Station is programmed to operate on the CDMA channel number you entered in the cell channel number field.



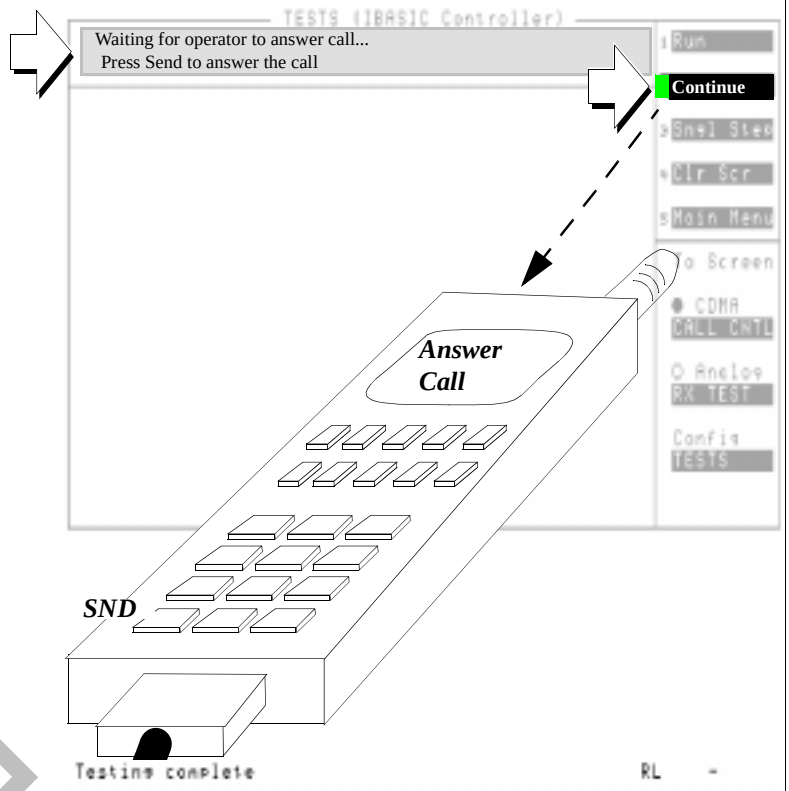
8. Continue the test procedure.

a. Select the **`Continue`** field now. The test procedure will begin by registering the mobile station, then will display this message.

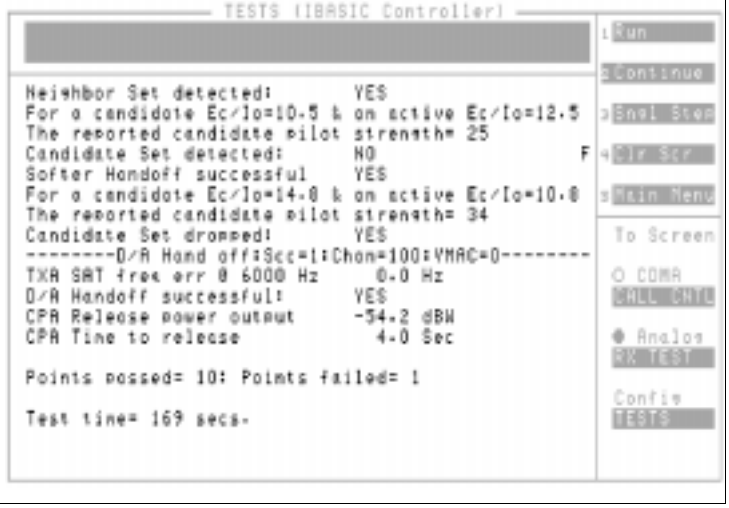
b. When the Test Set beeps the first time, press the SEND key on the mobile station's handset.

c. Proceed through testing by following the directions on the display each time the Test Set beeps.

This test procedure will take about 3 minutes to complete.



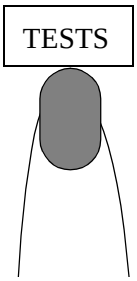
When the test procedure is complete, the message "Testing complete" will be displayed.



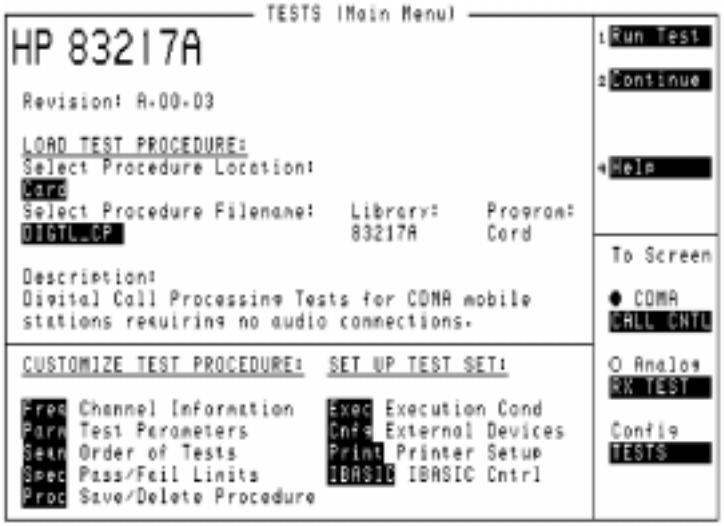
Section III. Modifying the Order of Tests

1. Display the TESTS (Main Menu) screen.

a. Press the TESTS key.



The TESTS (Main Menu) screen should be displayed.



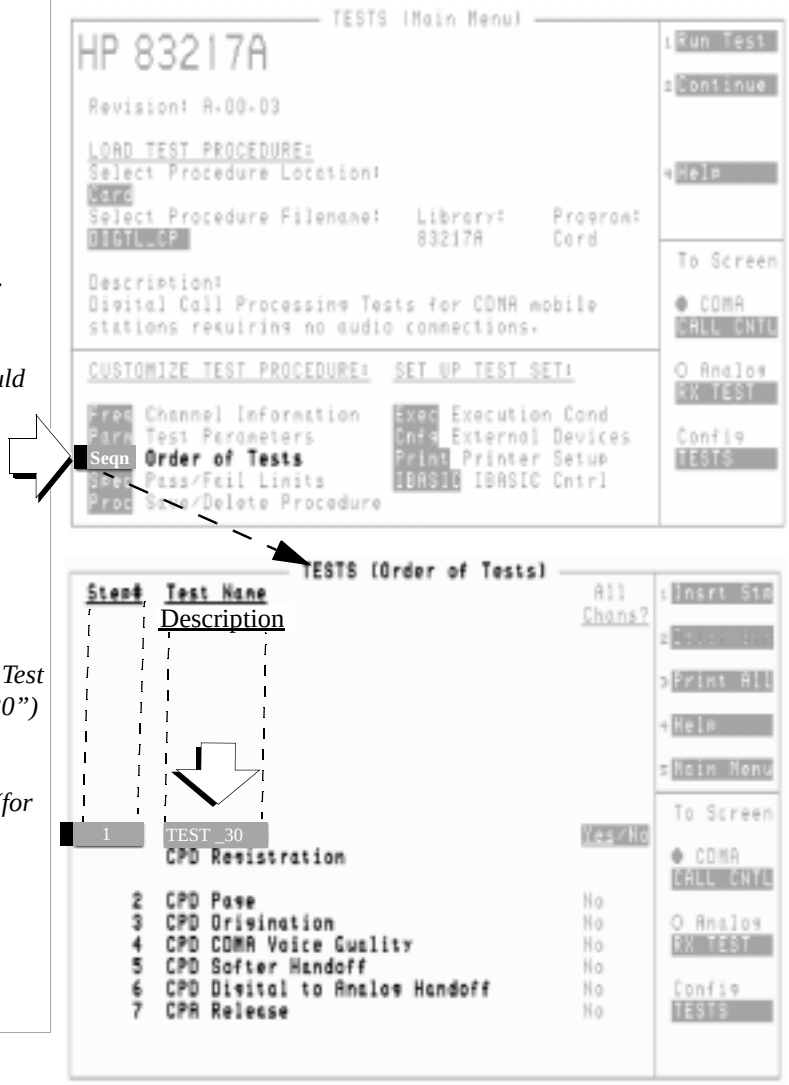
2. Access the test procedure's list of tests.

a. Select the **`Order of Tests`** field.

The TESTS (Order of Tests) screen should be displayed.

Notice that the highlighted Step# has a Test Name (for example, "Step# 1...TEST_30") assigned to it.

Under the Test Name is a Description (for example, "CPD Registration").



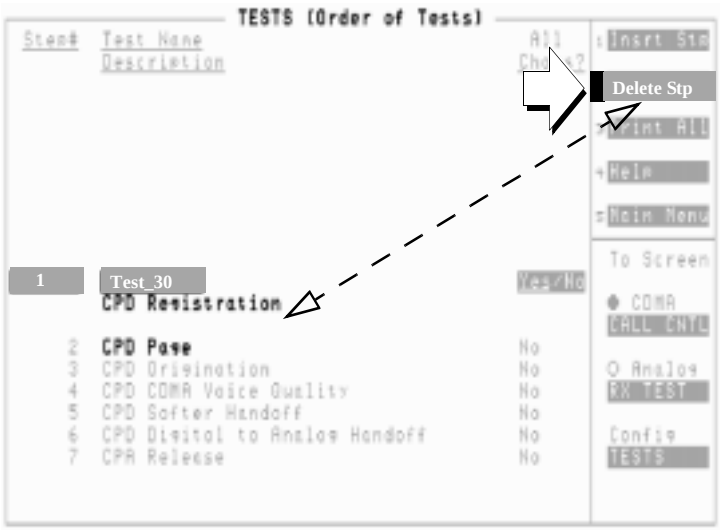
3. Delete tests.

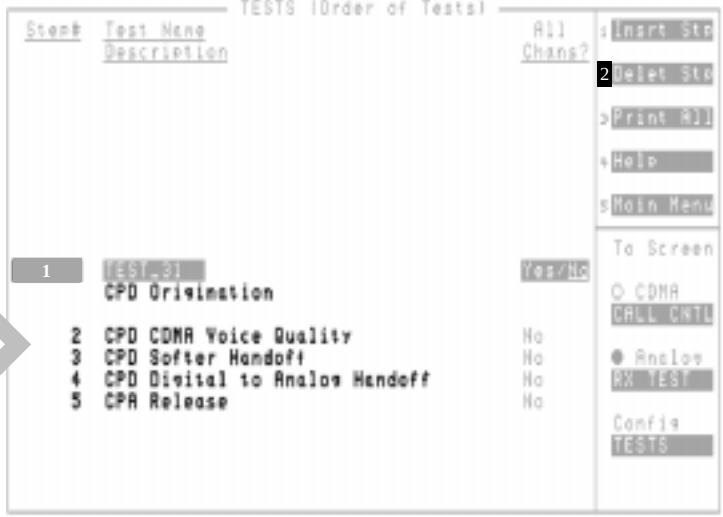
a. Select the **`Delet Stp`** field to delete **`Step# 1, CPD Registration`**.

Step#1 should now be assigned to CPD Page.

Refer to the HP 832127A Reference Guide for Test descriptions.

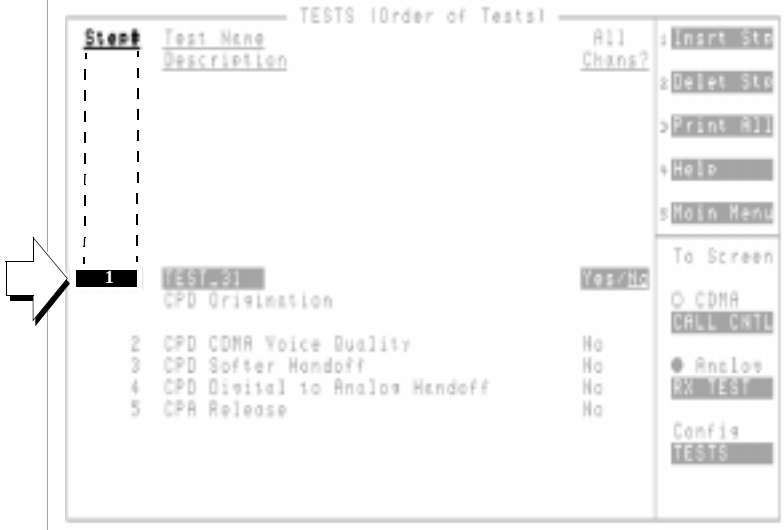
b. Select **`Delet Stp`** again to delete **`Step# 1, CPD Page`**.





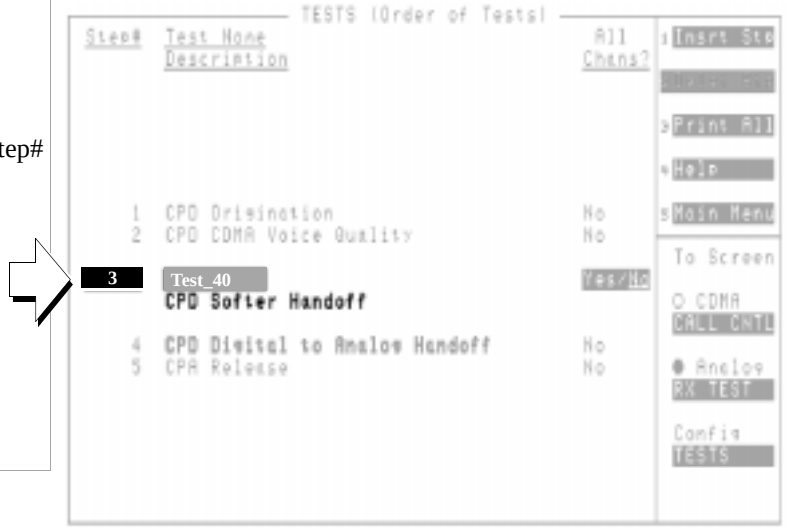
Now the lists of tests should look like this.

c. Select the **Step#** field.



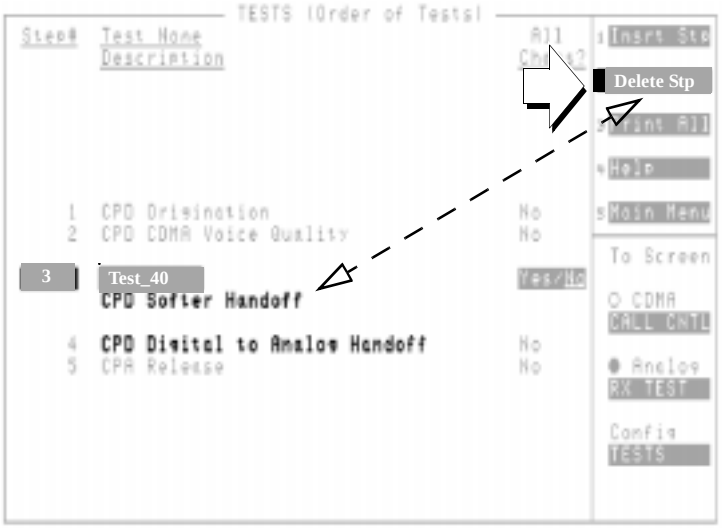
d. Rotate the cursor control knob until Step# **3** is highlighted, then press the knob.

Now the Step# field is not highlighted.

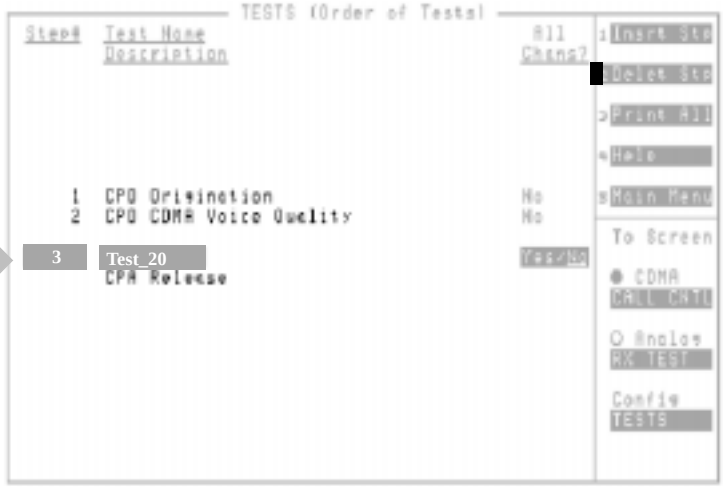


e. Select the **`Delet Stp`** field to delete **`Step# 3,`** the **`CPD Softer Handoff`** test.

f. Select **`Delet Stp`** again to delete the new **`Step# 3,`** which is the **`CPD Digital to Analog Handoff`** test.



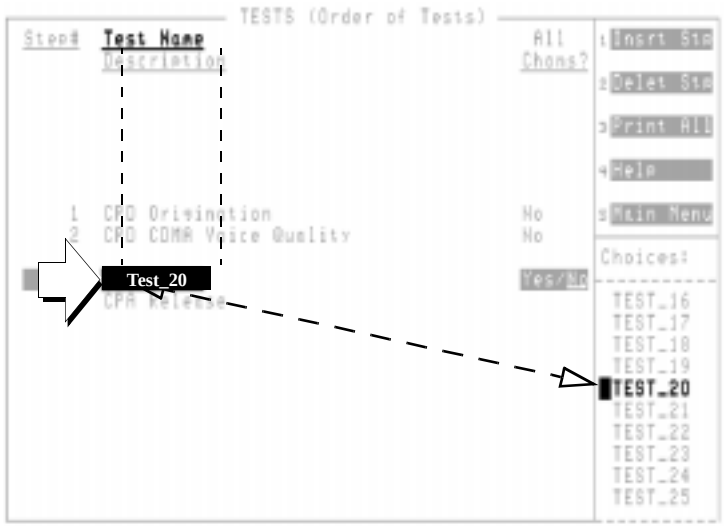
Now the lists of tests should look like this.



4. Replace a test.

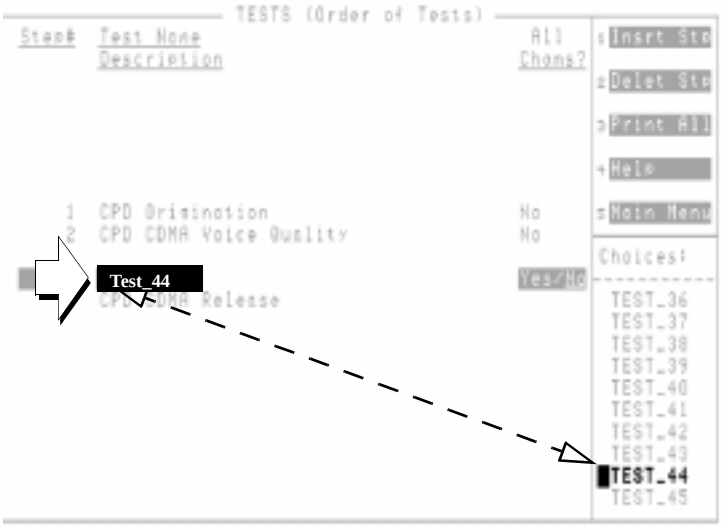
a. Select the **`Test Name:`** field.

The Test Name: field should be highlighted, and the cursor should be located in the list of Choices.

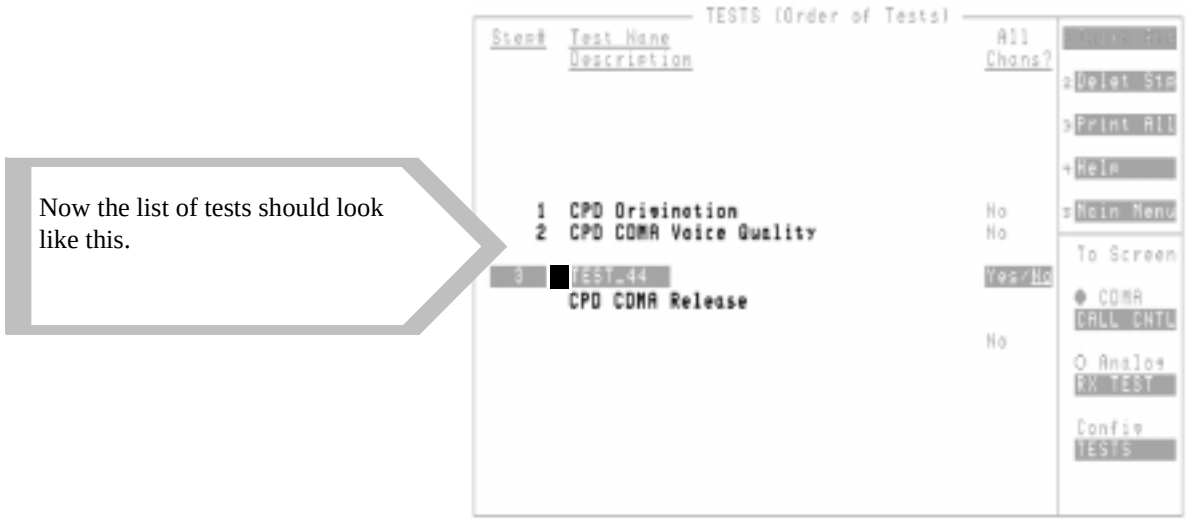


b. In the **`Choices:`** menu, select **`TEST_44`**.

Test_44 should be displayed in the Test Name field.



Now the list of tests should look like this.

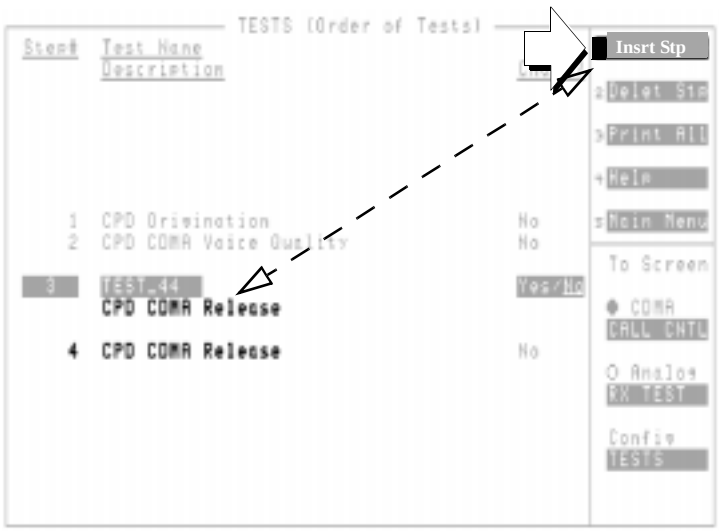


5. Add a test.

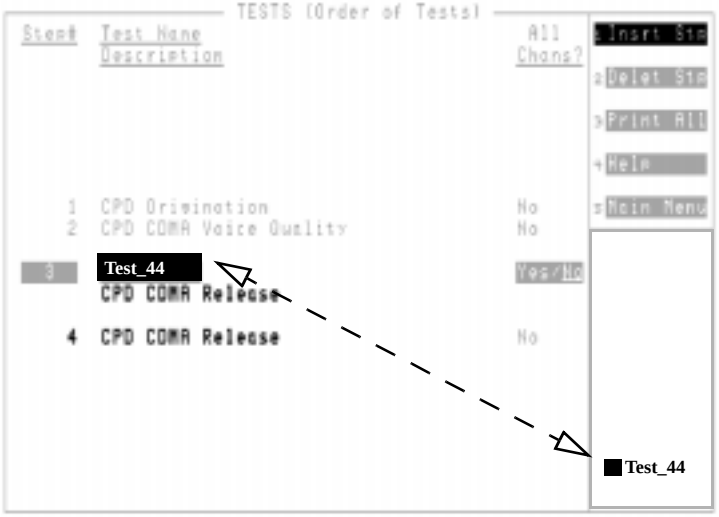
a. Select the **`Insrt Stp`** field.

Notice that there are two "CPD CDMA Release" tests.

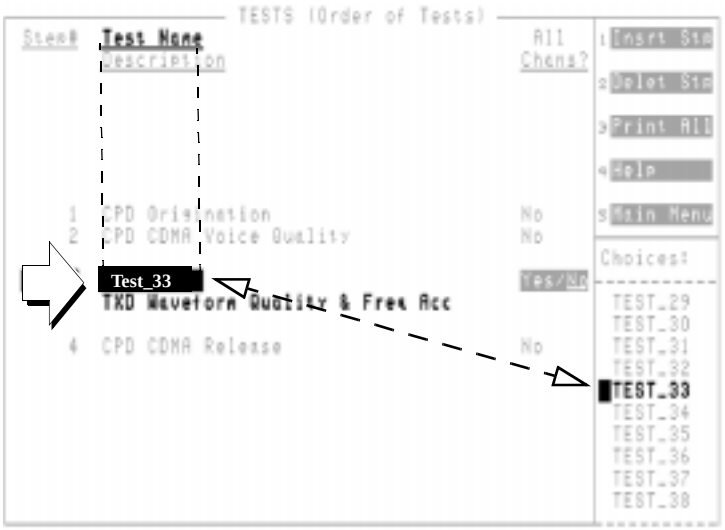
The two "CPD CDMA Release" tests should be assigned Step# 3 and Step# 4.



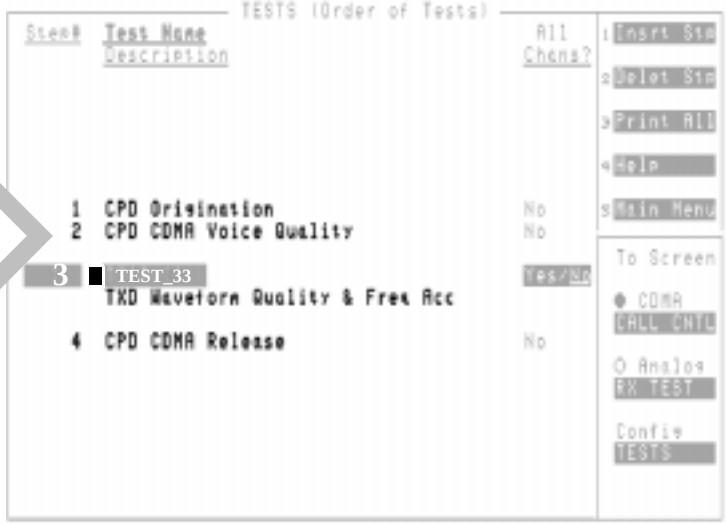
b. Select the **`Test Name`** field.



c. Select **TEST_33** in the **Choices:** menu.

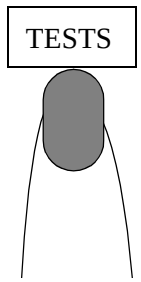


Now the list of tests should look like this.

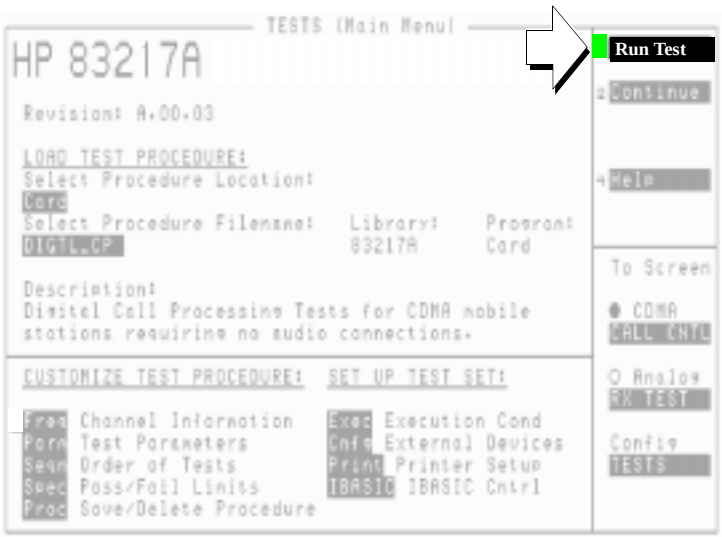


6. Run the new test procedure.

a. Press the TESTS key to return to the TESTS (Main Menu).

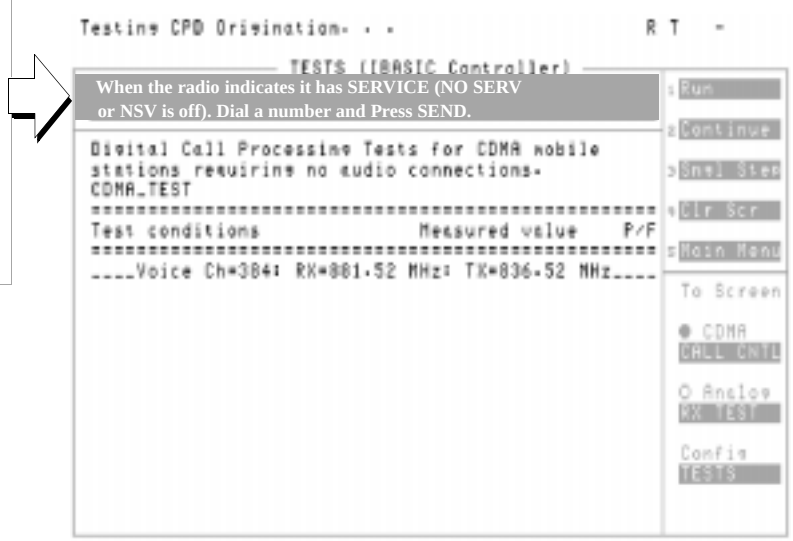


b. Select the **`Run Test`** field.

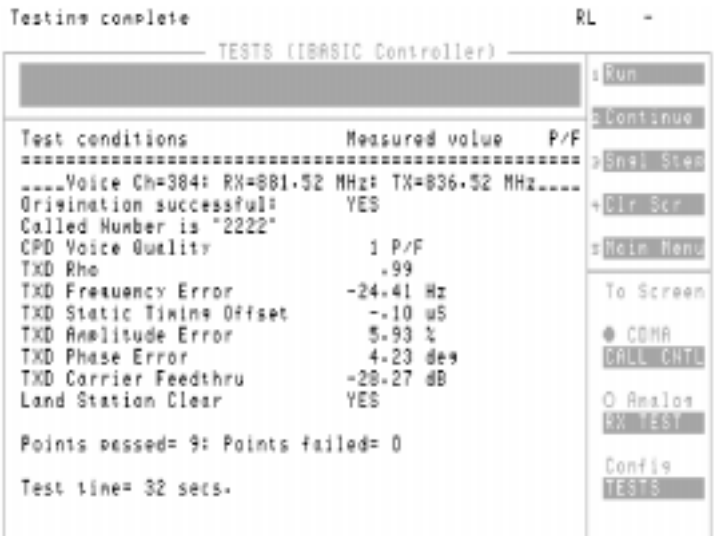


c. Follow the directions that appear on the Test Set.

The test procedure should begin with CPD Origination.



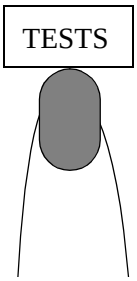
When testing is complete, the message “Testing complete” will be displayed.



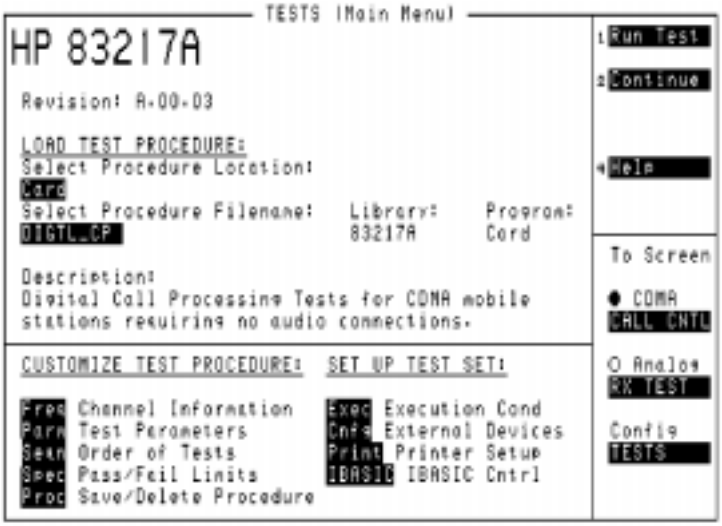
Section IV. Modifying a Parameter and a Specification

1. Display the TESTS (Main Menu).

a. Press the TESTS key.



The TESTS (Main Menu) screen should be displayed.



2. Modify a parameter.

a. Select the **`Test Parameters`** field.

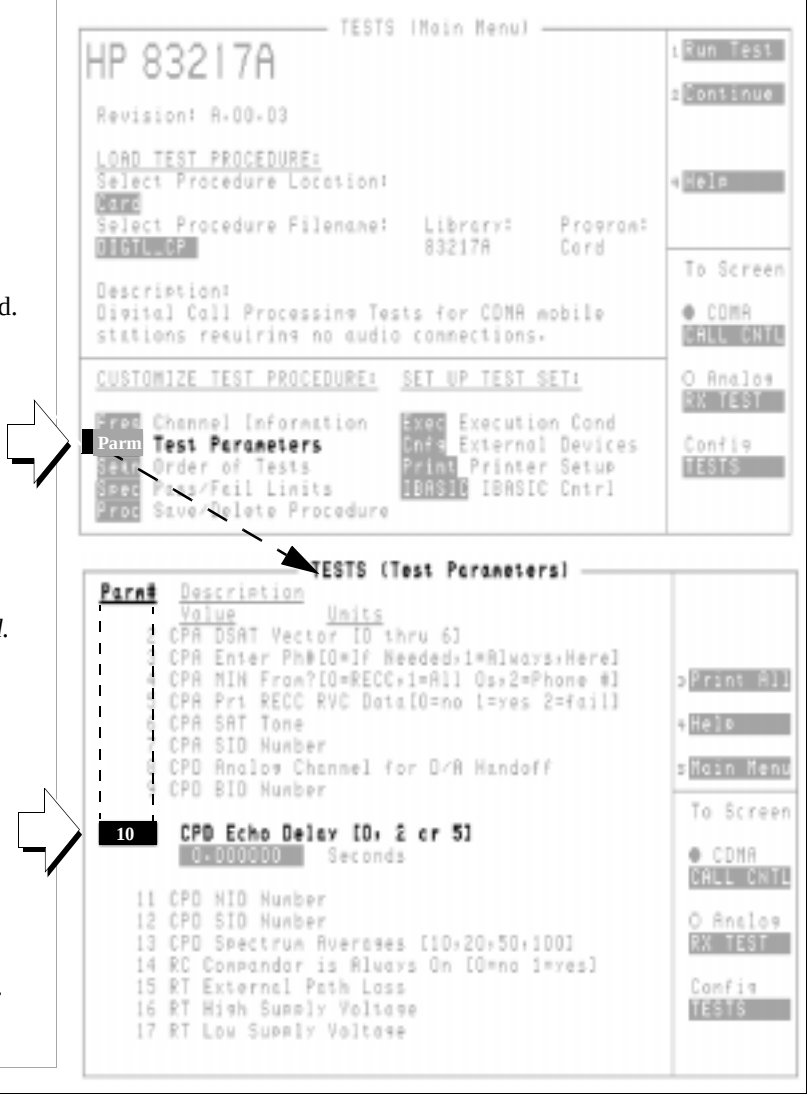
The TESTS (Test Parameters) screen should be displayed, and the cursor should be positioned at the Parm# field.

b. Select the **`Parm#`** field.

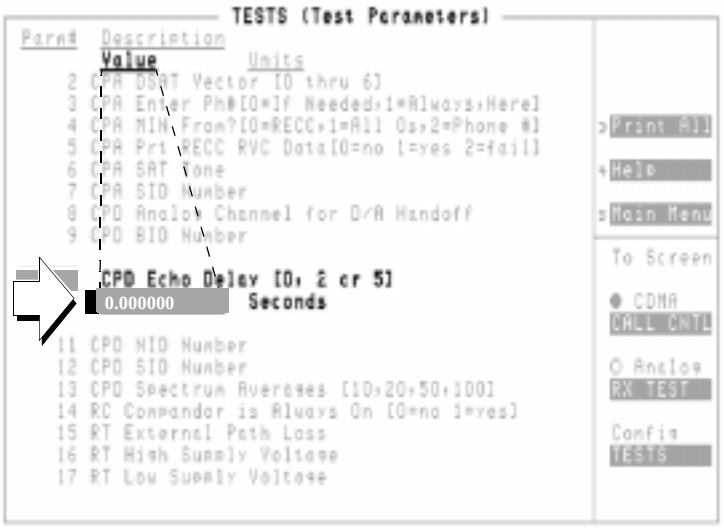
c. Rotate the cursor control knob until Parm# **`10`** is displayed.

d. Press the knob.

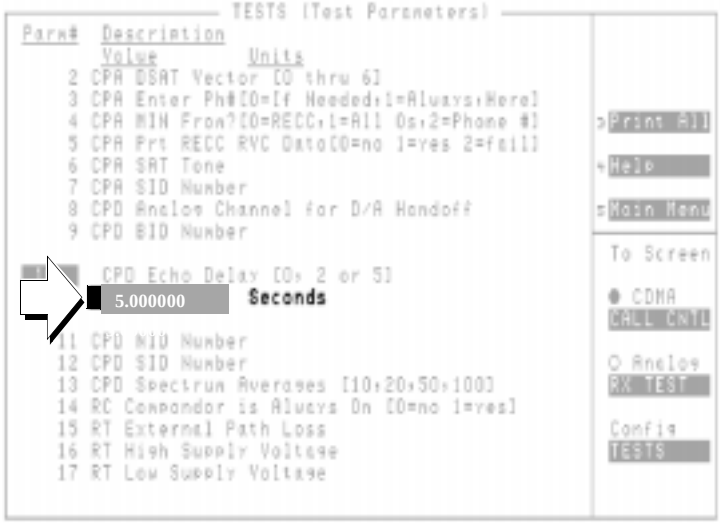
Now the Parm# field is <u>not</u> highlighted.



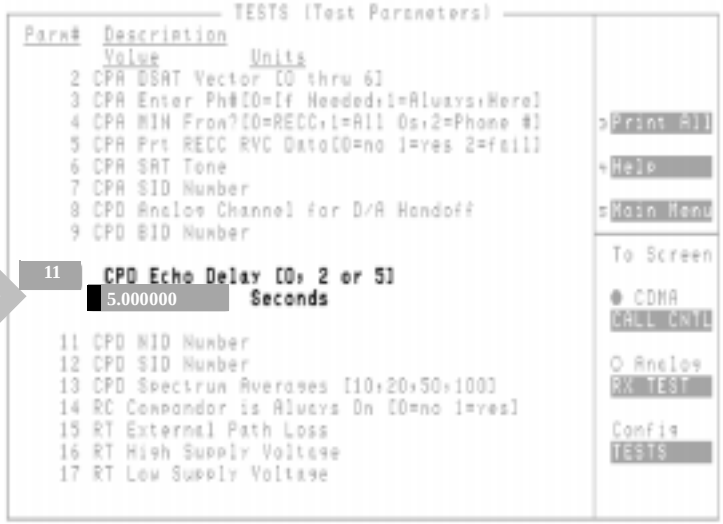
d. Position the cursor at the **`Value`** field.



e. Use the Test Set's DATA keys to enter a value of **`5.0`**. Press the knob or the ENTER key to enter the number.

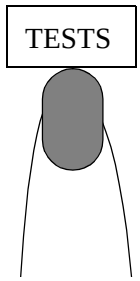


The new value of CPD Echo Delay should be 5.000000, and the Value field should not be highlighted.

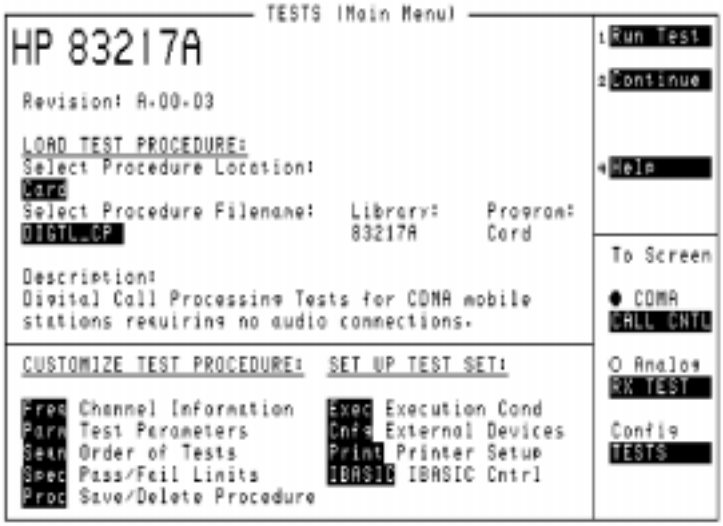


3. Display the TESTS (Main Menu).

a. Press the TESTS key.

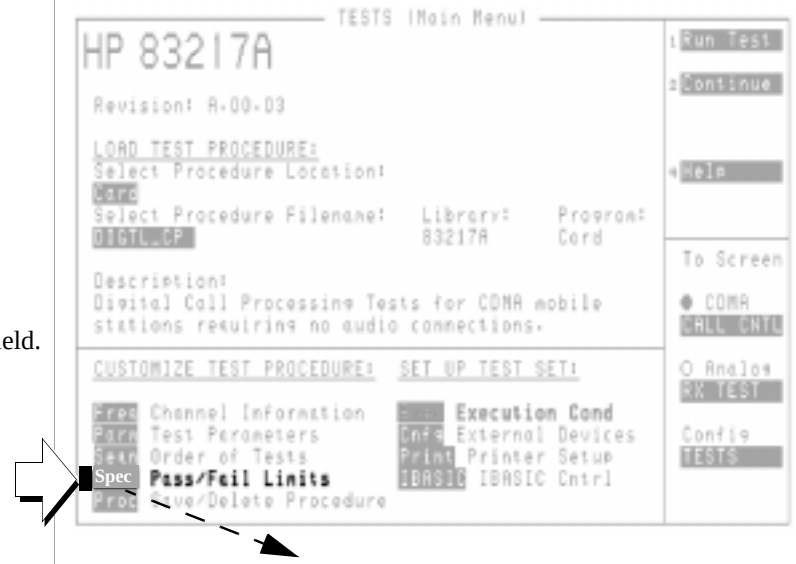


The TESTS (Main Menu) screen should be displayed.



4. Change a specification.

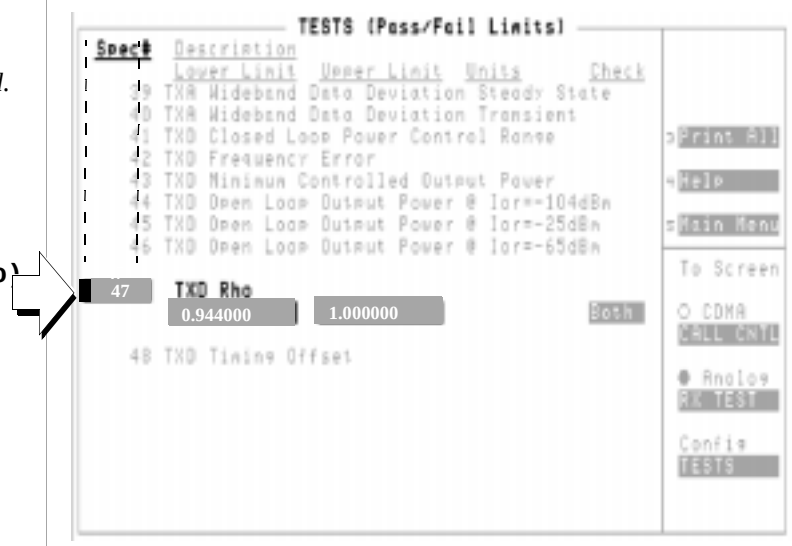
a. Select the **`Pass/Fail Limits`** field.



The TESTS (Pass/Fail Limits) screen should be displayed, and the cursor should be positioned at the Spec # field.

b. Select the **`Spec#`** field.

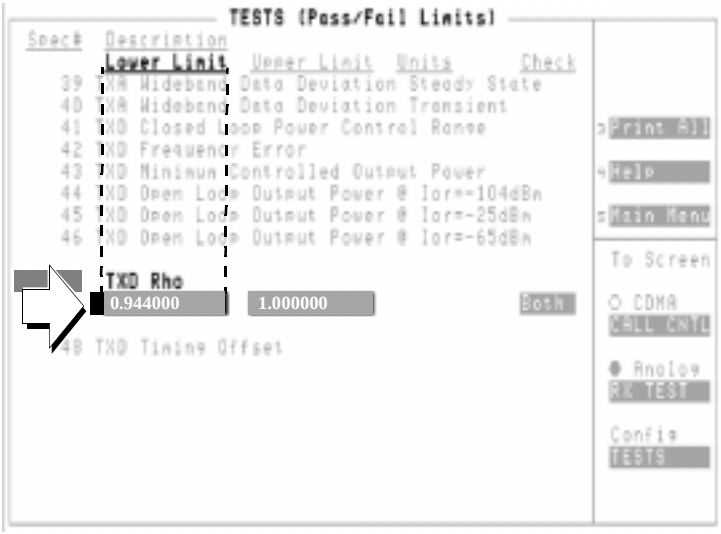
c. Rotate the cursor control knob to **`47 (TXD Rho), (46 (TXD Rho) if you are using Option 004),`** in the **`Spec#`** field.



d. Press the knob

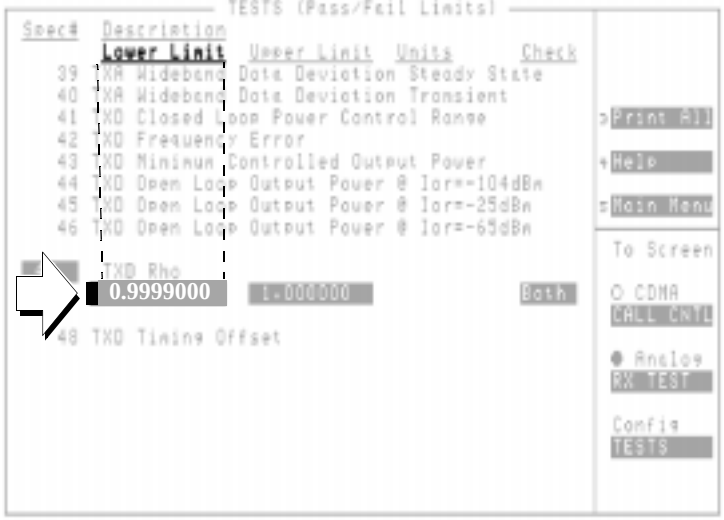
Now the Spec# field should <u>not</u> be highlighted

d. Position the cursor at the **`Lower Limit`** field.



e. Use the DATA keys to enter a value of **`.999000`**. Press the knob to enter.

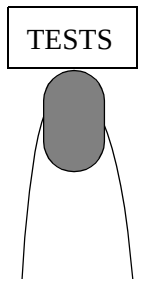
This value was chosen intentionally to cause the TXD Rho test to fail.



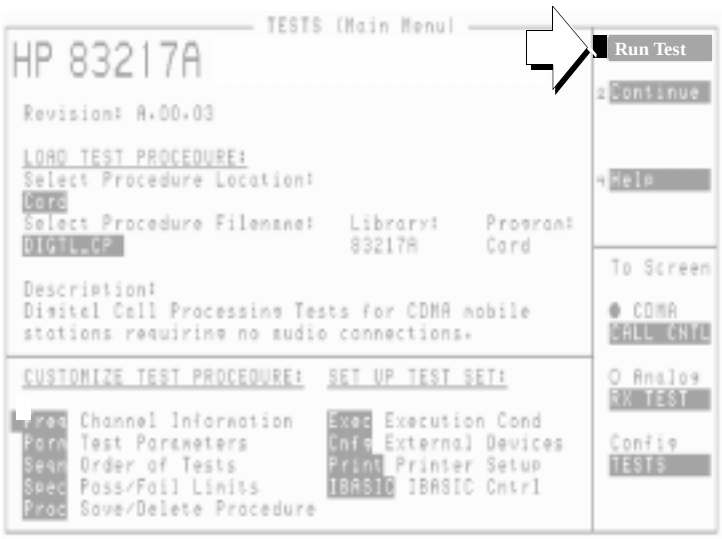
The new value for TXD Rho Lower Limit should be .999000, and the Lower Limit field should not be highlighted.

5. Start the test procedure.

a. Press the TESTS key to return to the TESTS (Main Menu).

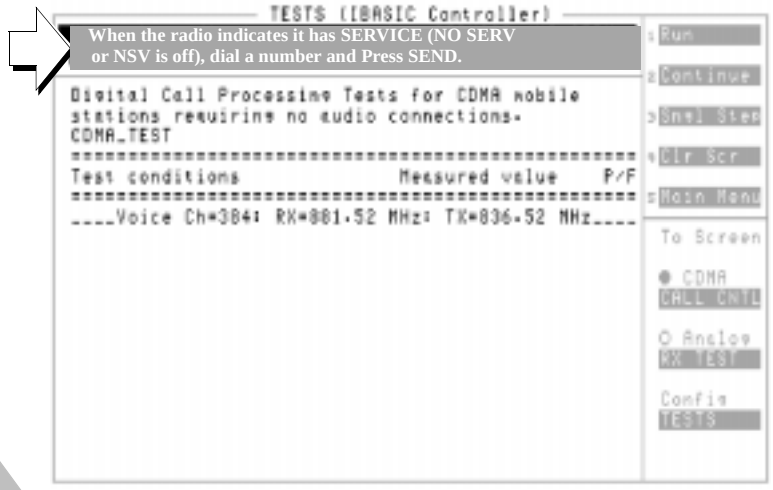


b. Select the **`Run Test`** field.

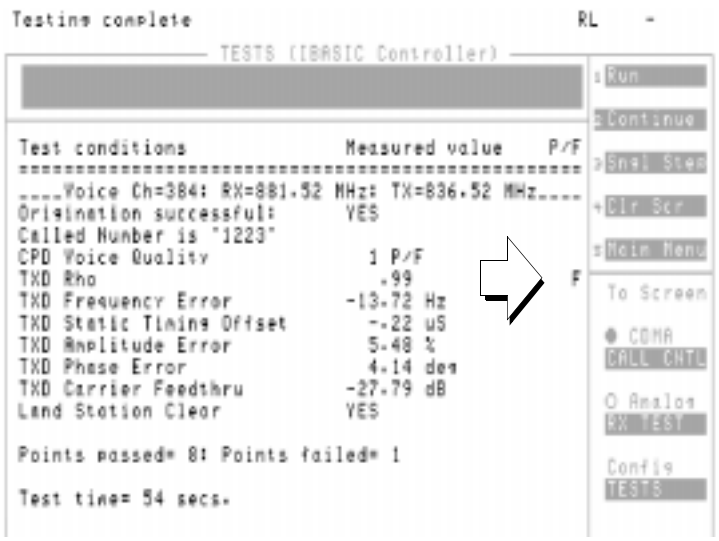


c. Follow the directions that appear on the Test Set.

When the software prompts you to speak into the phone, notice the longer (5 second) delay.



When the testing is complete, the message “Testing complete” will be displayed, and the TXD Rho test should have an “F” displayed in the P/F column

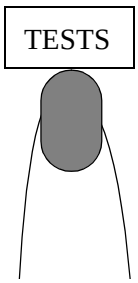


Section V. Saving a Test Procedure on a Memory Card

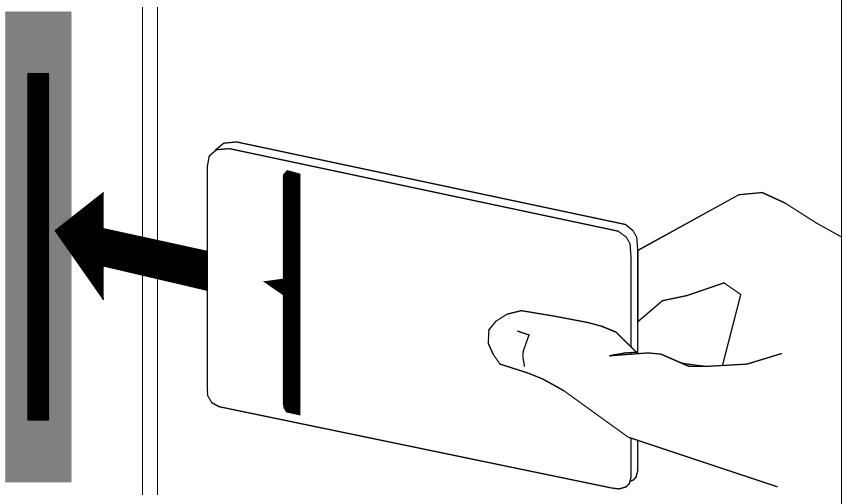
1. Insert a PCMCIA SRAM card.

a. Press the TESTS key.

The TESTS (Main Menu) screen should be displayed.



b. Remove the HP 83217A PCMCIA card and insert a PCMCIA SRAM card.



If your PCMCIA SRAM card is not initialized, follow the procedure for initializing the card in Step 2a.

2. Select "Card" as a test procedure location.

a. Select the **`Save/Delete Procedure`** field.

The TESTS (Save/Delete Procedure) screen should be displayed.

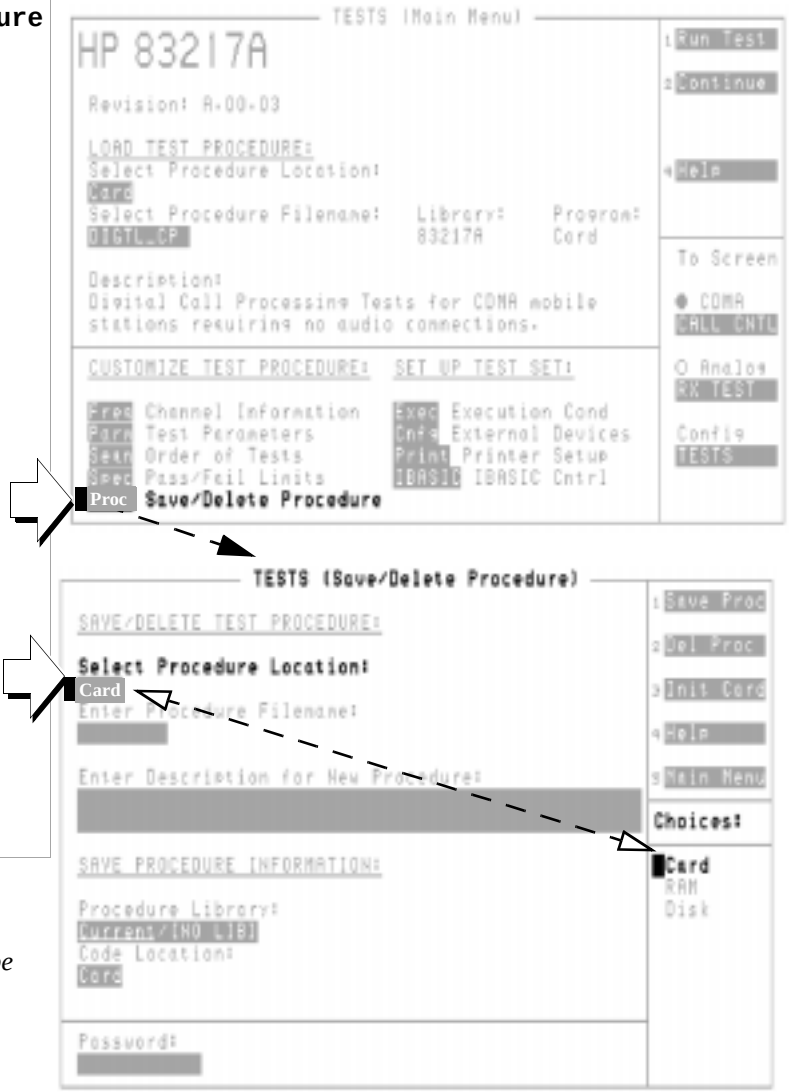
If your PCMCIA SRAM card is not initialized, select the Init Card (USER key K3) now and follow directions in the message displayed on the screen.

b. Select the **`Select Procedure Location:`** field.

The Select Procedure Location: field should be highlighted, and the cursor should be located in the list of choices.

c. Select **`Card`**.

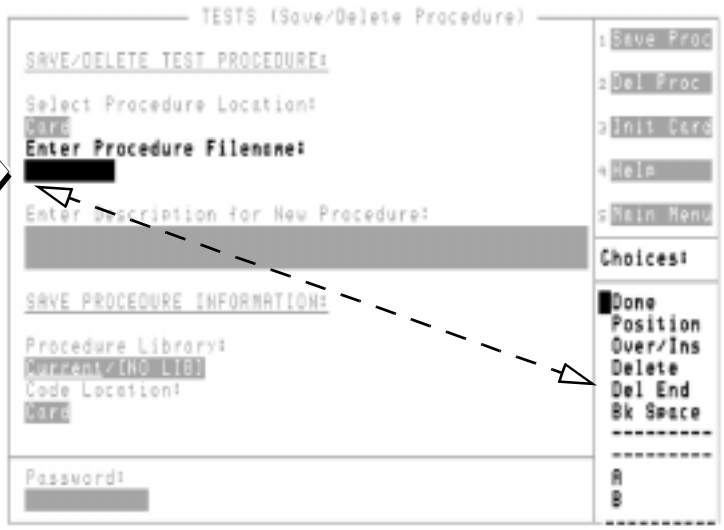
"Card" should appear and the "Select Procedure Location:" field should <u>not</u> be highlighted.



3. Name the test procedure.

a. Select the **`Enter Procedure Filename:`** field.

The "Enter Procedure Filename:" field should be highlighted, and the cursor should be positioned in the list of choices.

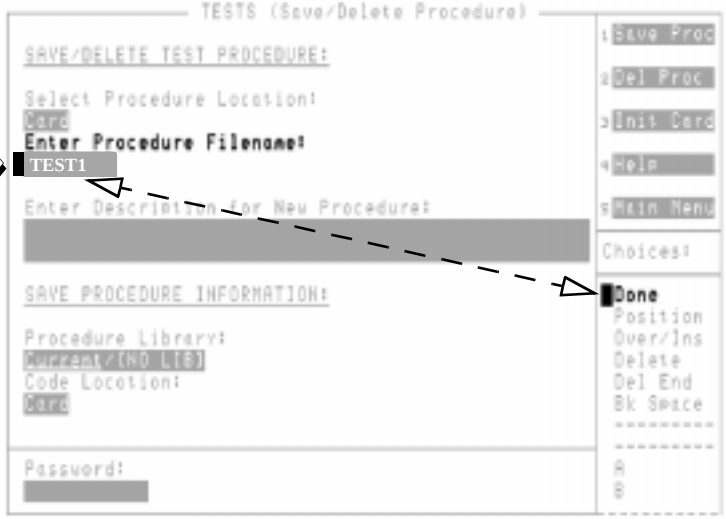


b. Use the cursor control knob to enter each character of the filename you have chosen (8 characters maximum).

As each character is entered, it will appear in the "Enter Procedure Filename:" field.

c. Select to **`Done`** enter the name of the procedure.

The "Enter Procedure Filename:" field should <u>not</u> be highlighted now.



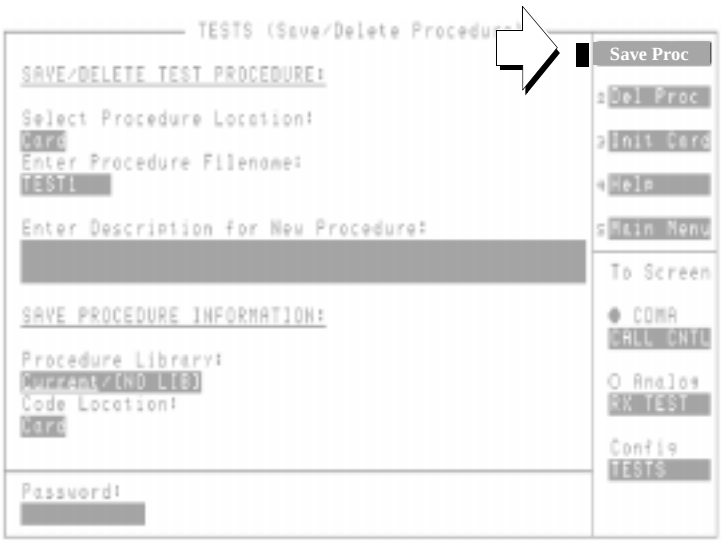
4. Save the test procedure.

a. Select the **`Save Proc`** field.

"Procedure saved." will be displayed when the test procedure has been saved to the memory card.

The test procedure you just saved can now be loaded and run on any Test Set that has HP 83217A software installed in it.

Procedure saved.

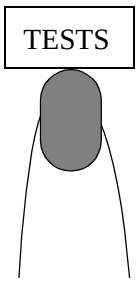


Section VI. Modify the Test Execution Conditions

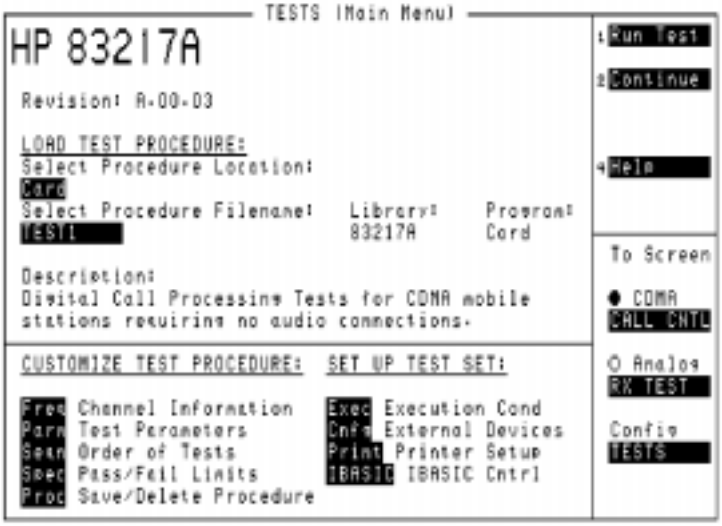
NOTE: Test Execution Conditions are not and can not be saved as part of a test procedure.

1. Display the TESTS (Main Menu).

a. Press the TESTS key.

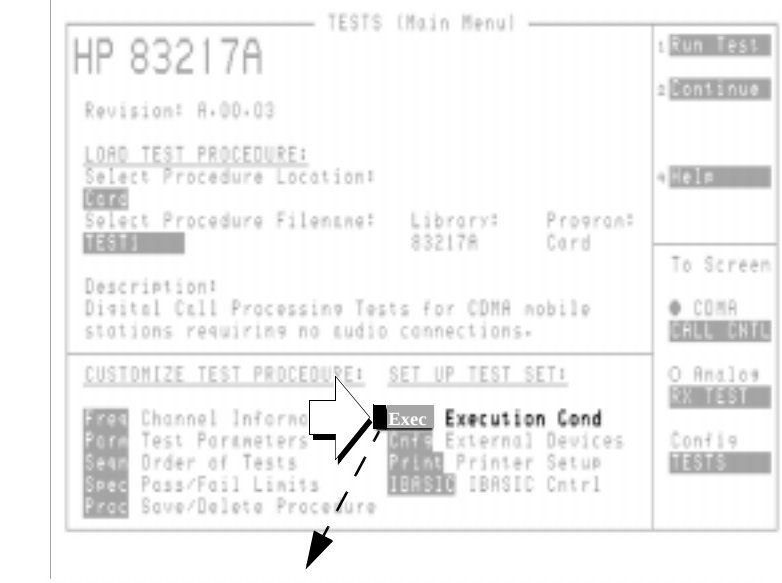


The TESTS (Main Menu) screen should be displayed.



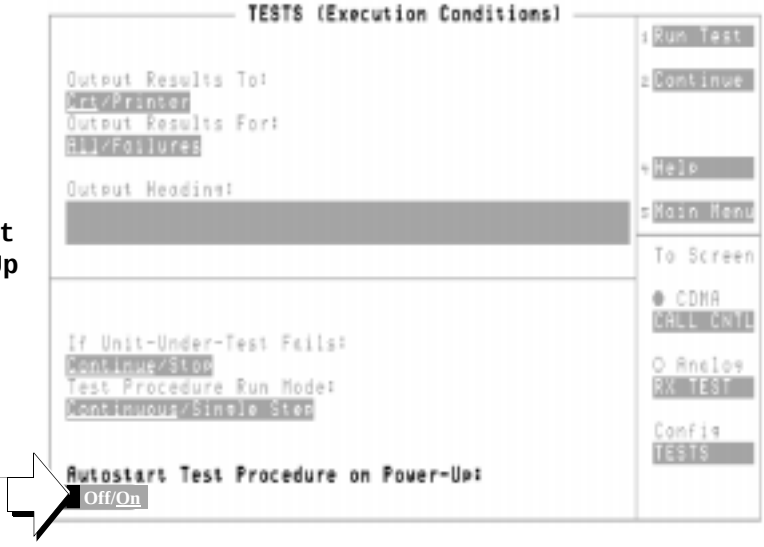
2. Select the autostart feature.

a. Select the **`Execution Cond`** field.



The TESTS (Execution Conditions) screen should now be displayed.

b. Position the cursor at the **`Autostart Test Procedure on Power-Up`** field and select **`On`**.

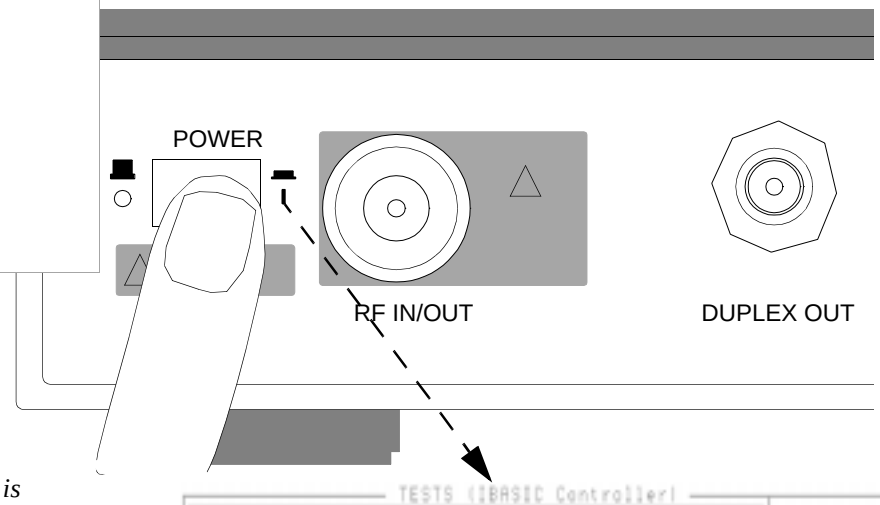


The word "On" should be underlined.

3. Autostart the test procedure.

a. Disconnect the mobile station.

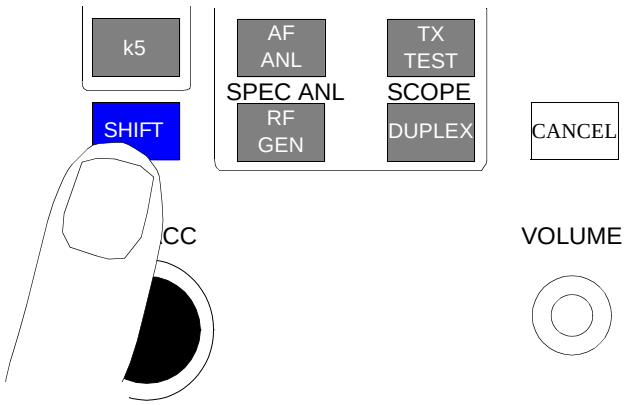
b. Press the POWER key twice; once to turn off power, and once to turn power back on.



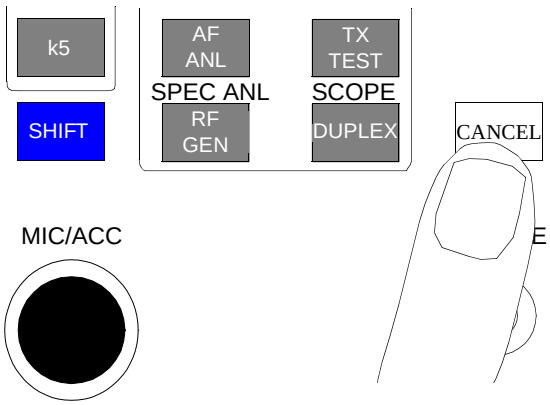
After the power-up routine is finished, the test procedure you have been modifying will automatically load and run. Because the power was turned off, the procedure begins again with calibrating channel power.

4. Stop the test procedure and turn off Autostart.

a. Press SHIFT key.



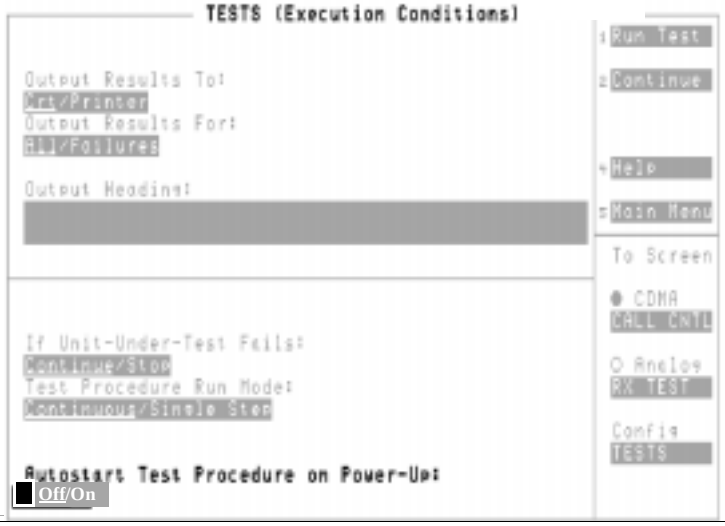
b. Press the CANCEL key.



The message "IBASIC Reset" will be displayed at the top of the screen.

c. Press the TESTS key.

d. Select the **`Execution Cond`** field.



The TESTS (Execution Conditions) screen should be displayed.

e. Position the cursor at the **`Autostart Test Procedure on Power-Up`** field and select

The word "Off" should be underlined.

5. Change the test procedure to stop on test failures.

a. Press the TESTS key.

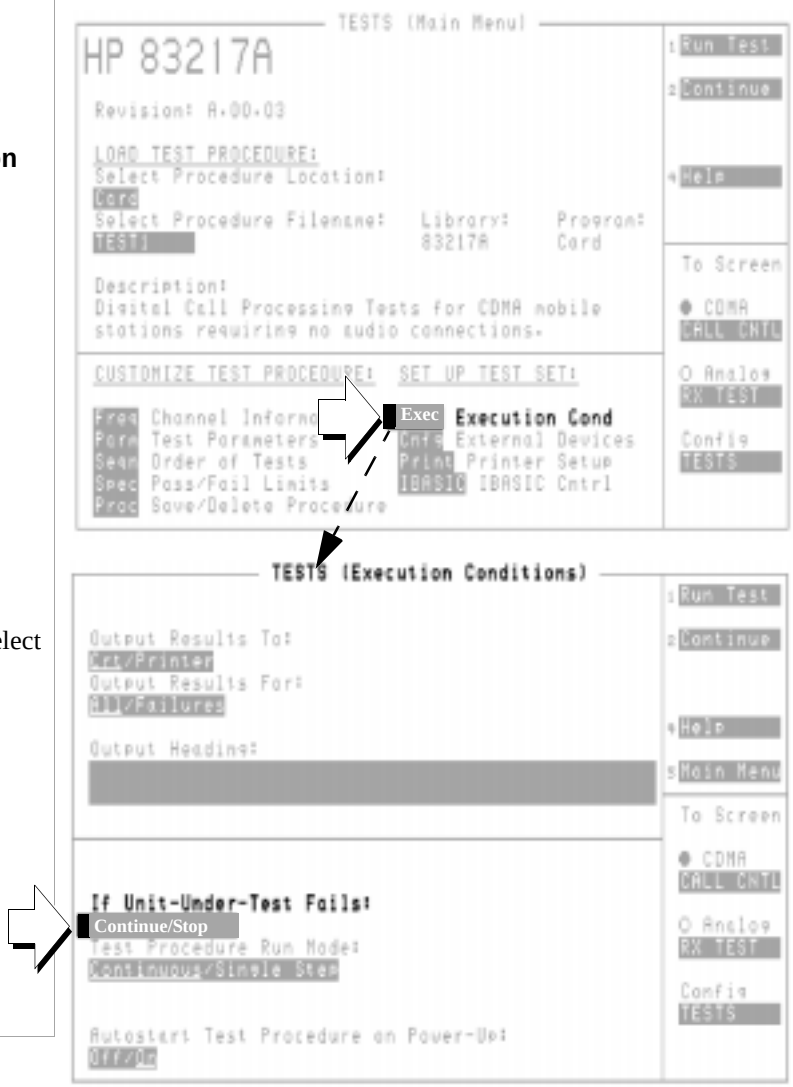
b. Position the cursor at the **`Execution Cond`** field and select it.

The TESTS (Execution Conditions) screen should be displayed.

c. Position the cursor at the **`If Unit-Under-Test-Fails:`** field and select **`Stop`**.

The word "Stop" should be underlined.

d. Select the **`Run Test`** field.

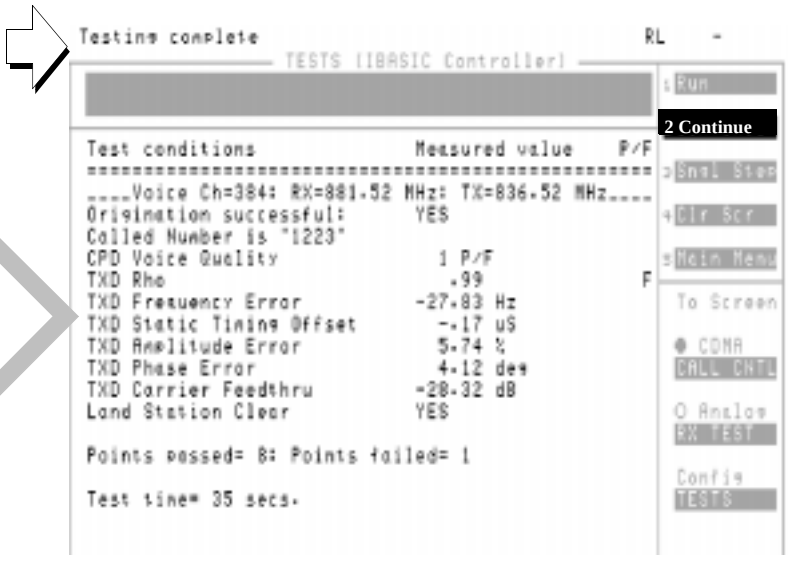


6. Continue the Procedure.

a. Follow the directions that appear on the Test Set.

The procedure should now stop on the first failure encountered, TXD Rho.

b. Select the **`Continue`** field.



When the test procedure is complete, the message “Testing complete” will be displayed.