

OPERATIONS MANUAL

EFT-3000

Frequency Extender

800-058-002

GENTNER
ELECTRONICS
CORPORATION

ADDENDUM TO EFT-3000 OPERATIONS MANUAL
Version 2.0/2.0A Firmware

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ADDENDUM TO EFT-3000 OPERATIONS MANUAL
Version 2.0/2.0A Firmware
Date of this Addendum: September 9, 1989

SECTION ONE -- BASIC INFORMATION

1.1 Introduction

From time to time Gentner Electronics offers new options and advanced firmware updates for the EFT product line. The Version 2.0/2.0A Firmware for the EFT-3000 offers the latest refinements in this unique frequency extension system.

This addendum to the Gentner EFT-3000 Operations Manual contains important updated information which you need to properly use and maintain an EFT-3000 system equipped with Version 2.0/2.0A Firmware.

The Firmware upgrade enhances and alters some of the functional aspects of the EFT-3000 system as described in the original manual. Much of the valuable input that made the upgrade possible came from you, our customers.

This addendum is accurate for EFT-3000 units equipped with Version 2.0/2.0A firmware.

IMPORTANT: In order to ensure proper operation, EFT-3000 units which are to be used together must all be equipped with the same version of firmware.

If your system is not equipped with the Version 2.0/2.0A Firmware, an upgrade kit is available at no charge to registered users. Instructions for the upgrade procedure are found in Section Five of this addendum.

A completely revised manual is being prepared, and you will receive a copy at no charge if you are a registered owner of the EFT-3000 system. Please return your warranty card if you have not already done so.

Please refer to the manual and this addendum if you have any questions or problems regarding the use of the EFT-3000. If you can't find an answer in the original manual or this addendum, please contact:

Gentner Electronics Corporation
Customer Support
1825 Research Way
Salt Lake City, Utah 84119
Tel: (801) 975-7200
FAX: (801) 977-0087

Please check your EFT-3000 shipment to be certain that each item listed below is included. If any item is missing, notify Gentner immediately.

ITEM	GENTNER PART NUMBER
a) [1] EFT-3000 Unit Assembly	800-058-001
b) [1] Operations Manual	800-058-001
c) [1] Addendum to Manual	800-058-002
d) [2] Optional Rack Ears	740-058-004
e) [4] Rack Screws	681-400-001
f) [4] Rack Cups	684-400-001
g) [4] 6/32" X 1/2" Phillips Screws	681-010-608
h) [1] Hex Key	460-065-002
i) [3] 12' Modular Telephone Cables	830-000-012
j) [1] Quick Reference Sheet	432-058-006
k) [1] Warranty Registration Card	400-600-000

1.2 Overview

The Gentner EFT-3000 provides you with these benefits:

- a) Frequency response of 50 Hz to 7.5 kHz using three standard telephone lines.
- b) Built-in return channel provides two-way communication for cueing personnel at the Transmit site.
- c) Built-in telephone couplers with auto-answer/auto-disconnect capability provide direct connection to the telephone lines.
- d) Advanced Digital Signal Processing (DSP) technology delivers high quality audio.
- e) Built-in Touch-Tone key pad and memory dialer eliminate the need for a separate telephone instrument and speed connect time.
- f) Ten second, one button set-up automatically equalizes each telephone line's frequency response; compensates for differential line delay; matches amplitude levels between lines.
- g) Digital noise reduction algorithm significantly reduces noise.
- h) Three line, two line, or single line operation.
- i) Two built in microphone/line level selectable inputs and headset amplifier. Phantom power for condenser microphones is internally selectable.
- j) User friendly set-up and operation. One person can initiate calls, set-up, and operate the EFT-3000 system from either location without any assistance.

1.3 Version 2.0/2.0A Firmware Enhancements

These are the highlights of the enhancements of Version 2.0/2.0A Firmware over earlier versions:

- a) Auto-Answer/Auto-Disconnect operation has been improved.
- b) Touch-Tone levels have been increased.
- c) Band-level controls are front-panel user-adjustable for all three bands (at the receive unit only). This provides equalization to taste.
- d) Both units may now be dropped out of SETUP simultaneously from either location. When one unit is dropped out of SETUP, the other unit will drop out automatically (provided SEND audio is not present at that unit).
- e) Distortion and signal-to-noise ratio are improved over the Version 1.0 Firmware.
- f) Whenever you invoke SETUP, the unit connected at the other end of the lines is automatically configured as complimentary.

For example, if you have configured a unit as a RECEIVER and press SETUP, the other unit will become the SEND unit (or vice-versa).

- g) If SETUP cannot be automatically accomplished, the units will revert to a default setup and audio will be un-muted.

Each Gentner EFT-3000 unit carries out 20 Million Instructions Per Second (MIPS). The processing power of the two digital signal processors in each EFT-3000 unit have been maximized. The features which can be offered in this system have been prioritized according to their usefulness to our customers. The following features will not be available on the EFT-3000 in Version 2.0/2.0A:

- a) Auto-Line Allocation. You must match telephone line assignments on your units. Line #1 on the transmit unit must connect to Line #1 on the receive unit, and so on.
- b) Automatic Reconfiguration. In the rare event a phone line is lost, you must manually drop out of SETUP and re-establish the lines.

1.4 Hardware Upgrade Information

An improved power transformer is available for installation in EFT-3000 units having serial numbers between 000101 and 000140. Signal-to-noise performance is improved with the newer transformer.

For further information or any assistance, please contact our Customer Support department. Registered users may arrange to return the units directly to the factory for a free upgrade, or order the transformer, supplied at no charge, for installation in the field.

SECTION TWO -- SPECIAL NOTICES

2.1 Copyright, Warranty, and Patent Information

The information contained in this addendum is subject to change without notice. Gentner Electronics Corporation makes no warranty of any kind with regard to this material including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Gentner Electronics Corporation shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

The copyright on this addendum is held solely by Gentner Electronics Corporation.

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A patent on the technology used in the EFT-3000 is pending with the U.S. Patent and Trademark Office.

SECTION THREE -- BASIC SETUP ADDENDA

3.1 Verify Installation of Proper Fuse

The rear-panel fuse should have a value of 0.5 Amps (Slo-Blo) for 117 VAC operation.

This fuse should have a value of 0.25 Amps (Slo-Blo) for 234 VAC operation.

Please inspect this fuse to ensure that the proper fuse is installed.

3.2 Changing Telephone Line Gain Structure

Your EFT-3000 arrived from the factory configured for a 10dB gain on each telephone line input. This is the normal gain structure required to bring a standard dial-up telephone signal to line level.

If you will be using your EFT-3000 with non-standard telephone lines, the internal gain structure may need to be altered to avoid distortion caused by input overload.

The gain jumpers for all three telephone lines are located on the bottom circuit board (Interface Assembly). It is not necessary to remove the top boards in order to access the jumpers. To change the gain structure, move the jumpers to the desired positions as indicated below:

Gain	LINE 1	LINE 2	LINE 3
0 dB	JP5	JP4	JP1
10 dB	JP7*	JP6*	JP2*
20 dB	JP9	JP8	JP3

* Factory setting

SECTION FOUR -- BASIC OPERATION

NOTE: Due to the nature of the changes in the EFT-3000 incorporating the Version 2.0/2.0A Firmware, the entire Section Four of the original EFT-3000 Operations Manual is replaced by this addendum.

4.1 Manually Establishing a Telephone Connection with the EFT-3000

Before you begin, make certain that the EFT-3000 units at both the Transmit and Receive locations are:

- a) Connected to AC power, and
- b) Properly connected to three telephone lines.

Dialing out can be initiated from either the Transmit or Receive unit. Connect a headphone to the MONITOR jack on the EFT-3000 you will use to initiate the telephone calls.

When manually dialing calls, (that is, when you are not using the memory dialer), the AUTO button's LED indicator must be OFF. If the indicator is ON, simply press the AUTO button once to toggle it to the OFF mode.

To use the EFT-3000's built-in Touch-Tone keypad, press the DIAL button, then the CONNECT button (both are located on the front panel of the unit) for the line you wish to use. You will hear a dial tone in your headset.

Dial the desired number (the telephone number for the corresponding line connected to the matching EFT-3000 unit). Line #1 on the unit you are using must connect to Line #1 on the other unit. Line #2 must connect to Line #2, and so on. You will hear the Touch-Tones in the headphones.

If you are using an attendant telephone set for dialing (for example, you need to use pulse dialing), press the DIAL button only. Place the call using the telephone set; once the line starts ringing, press the CONNECT button.

Only one telephone line at a time can be dialed; however, you do not have to wait for the line to be answered to start dialing the next line. As soon as the line starts ringing, you can move to the next desired line for dialing out.

At the other EFT-3000 unit, ringing lines are indicated by flashing LED's in the CONNECT buttons. The ringing lines can be answered by pressing the flashing CONNECT buttons. (If you want the EFT-3000 to automatically answer the lines, place it in the AUTO mode by depressing the AUTO button once.) See Section Five for more details on the AUTO mode.

4.2 Setting Up the EFT-3000 for Extended Audio Transmission and Reception

Once the proper telephone connections have been established for all three telephone lines, press the SETUP button. This causes the EFT-3000 units to configure the telephone lines and begin sending and receiving frequency extended audio.

The set-up process is automatic, and takes about ten seconds to complete. You can press the SETUP button on either the Transmit or Receive unit to start this process.

During the set-up process, the SETUP button LED indicator will flash rapidly. When the set-up process is complete, this LED will remain lit continuously. The audio output of the EFT-3000 Receive unit will be automatically muted during the set-up process.

Note: Any time the SETUP button is illuminated, the EFT-3000 freezes the number of lines in use. It is not possible to manually disconnect lines, to add lines or to toggle in or out of AUTO mode when the SETUP button's LED is lit.

If the EFT-3000 cannot successfully set up the telephone lines, the SETUP button LED will remain flashing and audio will be unmuted using default setup configurations. It may be necessary to re-dial the telephone lines and repeat the setup procedure.

4.3 Electrical Power Interruptions

The Gentner EFT-3000 uses magnetic latching relays to connect each telephone line. They retain their latest instruction regardless of power outages. After an outage, you are right back on the air without having to re-dial and initiate SETUP.

Similarly, EFT-3000 units retain their configuration status through power interruptions, that is, a receiver will still be configured as a receiver, etc.

After a power outage, the units will be back on and immediately usable, however the audio will be the default setup. During the next break, SETUP may be initiated.

NOTE: The default mode is frequency extended and corrected in a manner that is typical of the average telephone line conditions. In many instances, the sound quality is very good.

4.4 Adjusting the Relative Levels of Each Frequency Band

You can change the relative level of each of the three frequency bands on the Receive EFT-3000 unit.

This equalization feature enables you to adjust the frequency response of the audio received by the EFT-3000 system.

The frequency bands for the EFT-3000 are as follows:

LOW BAND -- 50 Hz to 2.5 kHz

MID BAND -- 2.5 kHz to 5 kHz

HIGH BAND -- 5 kHz to 7.5 kHz

Looking at the touch-tone keypad, the functional arrangement is very simple, similar to the layout of a three-band graphic equalizer.

For the Low band, pressing the 1 button on the keypad increases low frequencies incrementally to +6 dB. Pressing the 7 button on the keypad decreases low frequencies incrementally to infinity. Pressing the button 4 on the keypad resets low band to flat.

The mid and high bands are adjusted in the same way. Pressing the 2 button on the keypad increases mid-band. Pressing 8 button decreases mid-band, and pressing the 5 button resets the mid-band to flat response.

The high band is adjusted similarly with the 3, 6, and 9 buttons on the keypad.

The adjustment covers the range in about 8 seconds in small increments. Only one band may be adjusted at a time.

Band level equalization adjustment are active only at the receive unit, and only when the SETUP LED is lit.

4.5 What To Do If You Lose a Telephone Line

If you lose a telephone line while you are using the EFT-3000 system, the corresponding CONNECT button LED indicator will go OFF.

Press the SETUP button and hold it down for four seconds.

Dropping either unit out of SETUP will cause the matching unit to drop out of SETUP, provided that unit is not sending audio.

If the unit is sending audio, it cannot sense the drop SETUP command, and lines will remain frozen. You must drop the telephone lines as described in Section 4.3 below.

Next re-allocate line assignments in order of priority. For instance, if you lose line #1 (top priority), you may have to manually re-position an alternate line to the RJ11C jack. If only two lines are usable, line #3 would be lowest priority.

Re-dial the corresponding line numbers at the matching unit and simply press the SETUP button. The EFT-3000 system will adapt to operate with excellent quality, however at reduced bandwidth.

When the set-up process is complete, the SETUP button LED indicator lamp will be ON.

4.6 Using the EFT-3000 as a Two Line Frequency Extender

You can use the EFT-3000 system as a two line frequency extender. In the two line mode, the system will provide a frequency response of 50 Hz to 5 kHz.

To use the EFT-3000 system in the two line mode, simply establish only telephone connections between line #1 on both units, and line #2 on both units. Next, press SETUP button at either unit.

NOTE: The EFT-3000 is not compatible with any other telephone frequency extension system when used in the two line mode. You must use an EFT-3000 unit on both ends of your telephone connections.

4.7 Using the EFT-3000 as a Single Line Frequency Extender

You can use the EFT-3000 system as a single line frequency extender. In the single line mode, the system will provide a frequency response of 50 Hz to 2.5 kHz.

To use the EFT-3000 system in the single line mode, simply establish a telephone connection for line #1 between the EFT-3000 Transmit and Receive units.

Next, press SETUP button at either unit.

NOTE: The EFT-3000 is not compatible with any other frequency extension system when used in the single line mode. You must use an EFT-3000 unit on both ends of your telephone connection.

If you are only using one or two telephone lines, and wish to add another line while you are using the EFT-3000 system, you must press the SETUP button and hold down for four seconds. The SETUP button LED indicator will go OFF.

You may now establish the telephone connection for each line you wish to add. (See Section 4.1.) Once you have established the proper telephone connections, press the SETUP button again to configure the system.

4.8 Breaking the Connection

If you wish to manually disconnect a telephone line, you must first take the EFT-3000 out of SETUP. This is done by pressing the SETUP button for more than four seconds. The SETUP indicator should now be off.

To disconnect a telephone line, press the corresponding CONNECT button and hold it down until the CONNECT button's LED goes OFF.

NOTE: If the other EFT-3000 is operating in the AUTO mode, it will automatically disconnect the corresponding line on sensing the loss or reversal of loop current. If the unit is NOT in the AUTO mode, it will NOT disconnect.

Remember that breaking a single line during operation could have undesirable effects. For example, dropping out the middle line would cause the 2.5 to 5.0 kHz frequency components to drop out of the output from the EFT-3000 Receive unit.

In general, you should not break line connections until after you are finished using the EFT-3000 system.

4.9 Feeding Audio Signals into the EFT-3000

The EFT-3000 contains a two channel mixer with microphone or line level inputs. Mix pots for each channel are located on the front panel of the EFT-3000.

The input channels are labeled INPUT 1 and INPUT 2. Both connectors are XLR's, appearing on the rear panel; the connector for INPUT 1 is duplicated on the front panel of the unit. Be sure to use only one of the connectors for INPUT 1 at a time.

To select an input for microphone or line level, use the small two position slide switch located next to the input connectors on the rear panel of the unit.

Use the VU meter and the INPUT 1 mixer pot on the front panel of the EFT-3000 to adjust the level of your input.

Be sure to not overdrive the EFT-3000 inputs. Watch the VU meter and be sure that the level indicator does not frequently go into the red area of the meter. The LED indicator marked PEAK should only flash occasionally.

4.10 Using the Built-In Audio Processor

The EFT-3000 has a built-in audio processor (limiter) which will help prevent distortion due to overdriven telephone lines and digital signal processing circuitry.

The audio processor acts on both input channels of the EFT-3000. The limiting helps prevent distortion from excessive audio peaks.

Before activating the audio processor, be sure that you are not overdriving either EFT-3000 input. Verify that the Mic/Line selector switches on the rear panel are properly set.

NOTE: The EFT-3000 processor cannot correct distortion caused by overdriven inputs.

To activate the audio processor, do the following in sequence:

- a) Move the small slide switch above the VU meter (marked AUDIO PROCESSOR) to the OFF position.
- b) Adjust audio level for occasional peaks on the PEAK LED indicator.
- c) Move the AUDIO PROCESSOR slide switch to the ON position.

In this mode, the function of the PEAK LED indicator changes to show the threshold of limiting.

4.11 The EFT-3000 Audio Output

The EFT-3000 has one audio output connector located on the rear panel of the unit. This XLR connector is labeled OUTPUT.

To take an audio output from the EFT-3000, simply plug a cable from your console or audio amplifier into the OUTPUT jack.

Output level is adjustable with the trimmer marked "LEVEL" located next to the OUTPUT connector on the rear panel of the unit.

NOTE: The Output for an EFT-3000 which has been programmed as a Receive unit provides a wideband audio output, with a frequency response of 50 Hz to 7.5 kHz.

The Output for an EFT-3000 which has been programmed as a Transmit unit provides audio output with response from 50 Hz to 2.5 kHz for use as a return cue channel.

4.12 Using Headphones with the EFT-3000

To use a headset with the EFT-3000, plug your headset into one of the jacks marked MONITOR. The EFT-3000 has three MONITOR jacks. Two are located on the rear panel of the unit. One MONITOR jack is located on the front panel of the unit.

NOTE: The tone command to drop SETUP is both a loud and complex waveform that can cause discomfort to the operator at the receive unit when listening with headphones.

All MONITOR outputs are individually buffered. Headsets can be connected to all three MONITOR jacks at the same time. Short-circuit protection is included on each MONITOR output.

Headset level is adjusted the pot labeled MONITOR. This pot is located on the front panel of the EFT-3000.

The MONITOR output for an EFT-3000 which has been programmed as a Receive unit provides a wideband audio signal, with a frequency response of 50 Hz to 7.5 kHz.

The MONITOR output for an EFT-3000 which has been programmed as a Transmit unit provides a narrow band audio signal, with a frequency response of 50 Hz to 2.5 kHz. This signal contains real-time send audio with user-adjustable side-tone (see paragraph below). When the Transmit unit is not sending audio, the half-duplex return (cue) audio may be heard from the Receive unit.

You can mix a portion of your audio input into the MONITOR output. (This is often referred to as Side Tone.) To increase the level of Side Tone, press the star (*) button on the EFT-3000's Touch-Tone pad until the desired level is reached. To decrease the level of Side Tone, press the pound (#) button on the Touch-Tone pad. Holding a button down causes level to ramp gradually.

4.13 Sending Cues with the EFT-3000

The EFT-3000 Transmit unit will send specially encoded audio over three standard dial-up telephone lines. The EFT-3000 Receive unit will receive the signals sent over the telephone lines and re-assemble them into a single audio feed with a frequency bandwidth of 50 Hz to 7.5 kHz.

The EFT-3000 system will allow you to send audio cues from the EFT-3000 Receive unit to the EFT-3000 Transmit unit. These cues will be received over the low band of the frequency extended telephone lines, and will therefore have a frequency bandwidth of 50 Hz to 2.5 kHz.

NOTE: Any cue audio sent from the Receive unit to the Transmit unit will be mixed with your main send audio, since it is sharing a telephone line with the program material. Therefore, cue audio should only be sent during program breaks.

To send audio cues from the Receive unit to the Transmit unit, connect the desired audio source to one of the input channels on the Receive unit.

4.14 Using the EFT-3000 with Cellular Telephones

To provide proper operation of the EFT-3000 system, true Tip/Ring equivalency is necessary. "Battery" must be provided so the EFT-3000 can sense loop current.

Many manufacturers of Cellular Telephones, such as Motorola, are providing this type of interface.

There are methods for modifying the EFT-3000 for use without true Tip/Ring equivalency, if necessary.

If your application requirements include operation of your EFT-3000 with Cellular telephones, please contact Gentner Customer Support for assistance.

4.15 Programming Memory Dial Numbers

To program the EFT-3000 memory dial numbers, do the following:

- a) Make sure AUTO LED is OFF.
- b) Press # twice on touch-tone keypad.
- c) Enter memory dial location number (1 through 9).
- d) Enter telephone number. The * is used for one-second pause in dialing.
- e) Press # once to store this number.
- f) Repeat steps b) through e) to store additional numbers.

Battery backup RAM retains memory dial numbers for several years under normal operating conditions.

4.16 Resetting the CPU

The EFT-3000 is a microprocessor based device. If the unit starts behaving erratically, reset the CPU in the following manner:

- a) Turn off power to the unit by moving the POWER slide switch to the OFF position.
- b) Press and hold the star (*) and pound (#) buttons simultaneously on the built-in Touch-Tone pad.
- c) While continuing to hold these buttons down, turn the POWER switch back on.

The CPU does NOT reset on simple power down. You must follow the above procedure to reset the unit.

SECTION FIVE -- UPGRADING THE EFT-3000 FREQUENCY EXTENDER

5.1 Upgrading an Existing EFT-3000 to Version 2.0/2.0A

These instructions are for upgrading your Gentner EFT-3000 to incorporate Version 2.0/2.0A Firmware. Many additional features and enhancements may be enjoyed by simply installing the new firmware integrated circuit included with the EFT-3000 Upgrade Kit.

These instructions contain all the information needed to perform the EFT-3000 upgrade installation procedure. If you need further assistance, or if any of the items listed below are missing from the upgrade kit, please contact:

Gentner Electronics Corporation
Customer Support
1825 Research Way
Salt Lake City, Utah 84119

Telephone: (801) 975-7200
FAX: (801) 977-0087

ITEM	GENTNER PART NUMBER
a) [1] U32 I.C. Version 2.0	805-058-001
b) [1] U32 I.C. Version 2.0A	805-058-006
c) [1] Warranty Registration Card	432-600-001

Early EFT-3000 units will be upgraded by replacement of U32 with Version 2.0 Firmware. Later units will be upgraded with the Version 2.0A Firmware. To ensure that you have the proper I.C., both versions are included with the upgrade kit. Instructions follow for determining which version to use.

Firmware Upgrade Procedure

CAUTION: Anti-static precautions must be taken when performing any service operation for the EFT-3000 Frequency Extender!

General precautions to observe during this firmware upgrade procedure include the following:

- a) Avoid handling the I.C.'s by the leads.
- b) Perform this upgrade in a static-free environment.
- c) Keep the I.C.'s in the anti-static container used for shipping until called for in the installation procedure.

Step 1: Remove all connections from the EFT-3000, INCLUDING A.C. ELECTRICAL POWER.

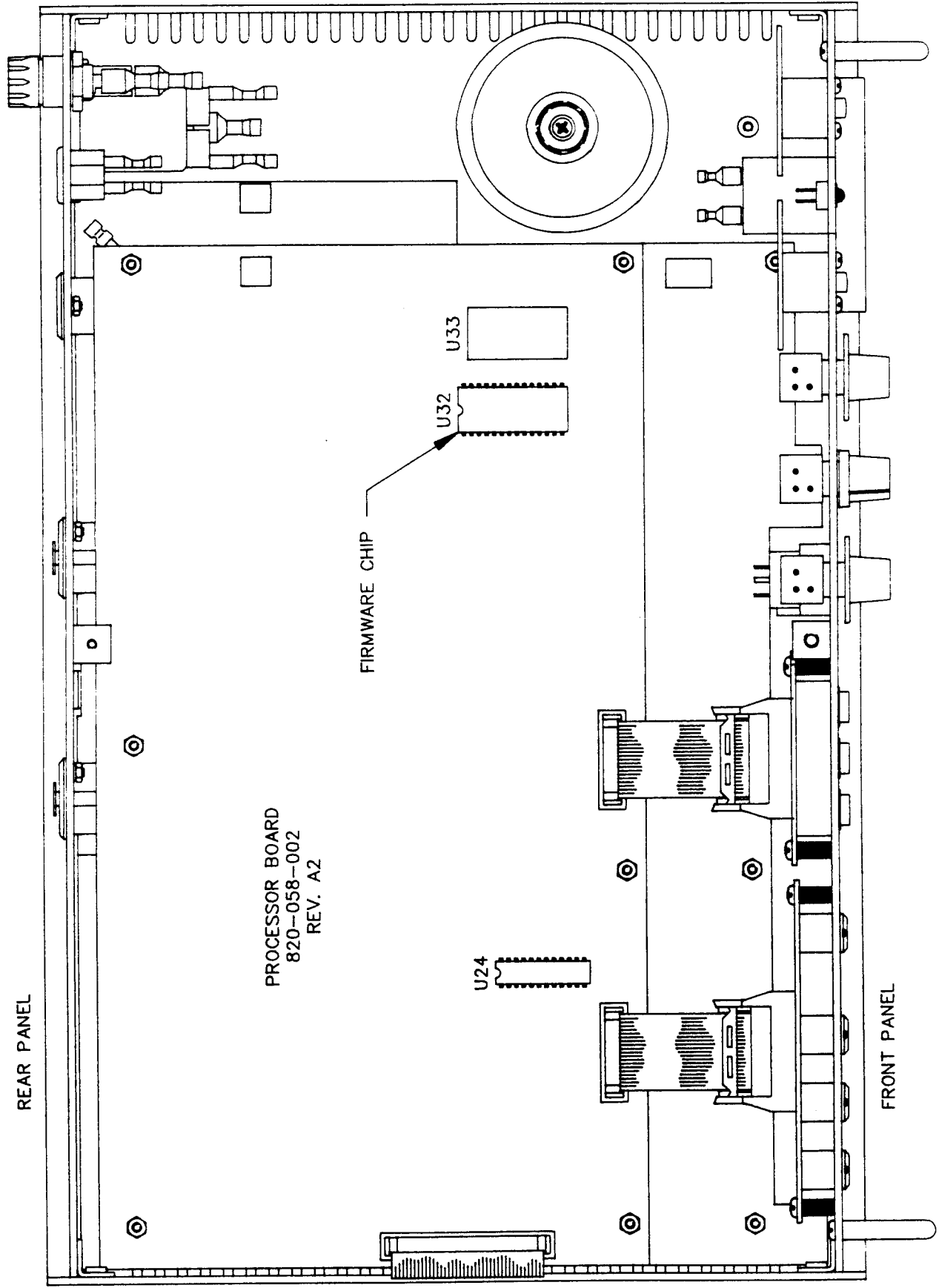
Step 2: Place the EFT-3000 in front of you, top side up, with the front panel facing you. Remove the six cover screws and the top cover.

Refer to Figure 1 for help in locating U24.

Examine U24. DO NOT REMOVE U24. If U24 is soldered in place, U32 must be replaced with Version 2.0 Firmware. If U24 is mounted in a socket, you will replace U32 with Version 2.0A.

Next, locate U32. It is on the right side and toward the front of the top circuit board.

NOTICE THE ORIENTATION OF THE SMALL NOTCH ON THIS I.C. TOWARD THE REAR OF THE UNIT AND ADJACENT TO THE SILK-SCREENED DESIGNATION: "U32". IT IS IMPERATIVE THAT THE PROPER REPLACEMENT U32 SUPPLIED WITH THIS KIT IS INSTALLED WITH THE SMALL NOTCH ORIENTED THE SAME WAY. INCORRECT INSTALLATION MAY RESULT IN SYSTEM FAILURE!



PROCESSOR BOARD
820-058-002
REV. A2

FIRMWARE CHIP

U32

U33

U24

REAR PANEL

FRONT PANEL

LOCATION DIAGRAM FOR U24 AND U32
TOP VIEW WITH COVER REMOVED

FIGURE 1

Step 3: Gently slip the blade of a small screwdriver under I.C. and lift up on the I.C. while gently rocking the screwdriver up and down to loosen the I.C.

Step 4: Carefully remove the old U32 from its socket on the circuit board and set it aside. Verify that you have selected the correct Firmware Version (see Step 2 above).

Step 5: Carefully insert the new U32 into its socket on the circuit board.

CAUTION: U32 MUST BE ORIENTED SO THAT THE SMALL NOTCH ON THE TOP IS TOWARD THE REAR OF THE UNIT. (See Figure 1.)

Be extremely careful not to bend any of the pins on the I.C. during insertion. Make certain that the I.C. is firmly seated in its socket. Place the old U32 into the anti-static container that previously held the new I.C.

Step 6: Replace and secure the top cover of the EFT-3000 using the six screws previously removed. Reconnect telephone lines, audio connections and electrical power.

Step 7: You must reset the CPU after installation of new firmware. The CPU is battery-backed and does not reset with simple power-down. Use the following procedure:

- a) Turn off power to the unit by moving the POWER slide switch to the OFF position.
- b) Press and hold the star (*) and pound (#) buttons simultaneously on the built-in Touch-Tone pad.
- c) While continuing to hold these buttons down, turn the POWER switch back on.

Restore unit to service. The upgrade procedure is now completed.

NOTE: Previously stored speed dial numbers will have been erased by this procedure and must be re-programmed.