

SERVICE MANUAL

5180A WAVEFORM RECORDER

VOLUME 1

Section IV
PERFORMANCE TESTS

Section V
ADJUSTMENTS

Section VI
REPLACEABLE PARTS

Section VII
MANUAL CHANGES

SERIAL PREFIX: 2630A

This manual applies to Serial Number 2630A and below, unless accompanied by a Manual Change Sheet indicating otherwise.

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MANUAL ORGANIZATION

Volume 1

SECTION IV, PERFORMANCE TESTS; contains the necessary tests to verify that the electrical operation of the instrument is in accordance with published specifications of Section I, Operating and Programming manual.

SECTION V, ADJUSTMENTS; contains the necessary adjustment procedures to properly adjust the instrument after repair or to meet published specifications.

SECTION VI, REPLACEABLE PARTS; contains the information necessary to order replacement parts and/or assemblies for the instrument.

SECTION VII, MANUAL BACKDATING CHANGES; contains backdating information to adapt this manual to older instrument configurations.

Volume 2

SECTION VIII, SERVICE; contains assembly identification, disassembly and reassembly, theory of operation, troubleshooting procedures, and detailed block and schematic diagrams.

TABLE OF CONTENTS

Section	Title	Page
IV	PERFORMANCE TESTS	4-1
4-1.	Introduction	4-1
4-3.	Operational Verification	4-1
4-5.	Dynamic Performance Test	4-1
4-7.	Power-On Check and Self-Test	4-1
4-9.	Power-On Check Procedure	4-1
4-11.	Self-Test Procedure	4-1
4-13.	Operational Verification Test	4-2
4-15.	Equipment Required	4-2
4-16.	Procedures	4-2
4-17.	Performance Tests	4-9
4-19.	Equipment Required	4-9
4-20.	Abbreviated Dynamic Performance Test	4-10
4-22.	Procedures	4-10
4-24.	Complete Dynamic Performance Test	4-14
4-26.	Histogram Test	4-14
4-28.	Description	4-14
4-31.	Procedure	4-14
4-33.	Fast Fourier Transform (FFT) Test	4-17
4-35.	Description	4-17
4-39.	Procedure	4-19
4-41.	Sine Wave Curve Fit Test	4-22
4-43.	Description	4-22
4-47.	Procedure	4-24
V	ADJUSTMENTS	5-1
5-1.	Introduction	5-1
5-4.	Equipment Required	5-1
5-6.	Adjustments	5-5
5-8.	Safety Considerations	5-6
5-10.	A22 -5.2 Volt Regulator Board Adjustment	5-6
5-12.	A23 +5 Volt Regulator Board Adjustment	5-7
5-14.	A12 Oscillator Adjustment	5-7
5-16.	A11 Timebase Chop Clock Adjustment	5-8
5-18.	A5 Data Decoder LEOC (Low End-of-Conversion) Adjustment	5-10
5-20.	A1 Voltage Regulator Adjustments	5-11
5-22.	ADC Tracking Loop Adjustment	5-13
5-24.	A20 Input Amplifier Adjustments	5-20
5-26.	A7 Multiplexer Comparator External Trigger Adjustment	5-26
5-28.	A17 XYZ Clock Adjustment	5-28
5-30.	A16 XYZ Driver Adjustment	5-29

TABLE OF CONTENTS (Continued)

Section	Title	Page
VI	REPLACEMENT PARTS	6-1
	6-1. Introduction	6-1
	6-3. Exchange Assemblies	6-1
	6-5. Abbreviations and Reference Designations	6-1
	6-7. Input Connector A20J2 and Fuse F1	6-1
	6-9. Replaceable Parts List	6-1
	6-13. Ordering Information	6-3
	6-16. Direct Mail Order System	6-4
VII	MANUAL CHANGES	7-1
	7-1. Introduction	7-1
	7-3. Manual Changes	7-1
	7-6. Older Instruments	7-1

LIST OF TABLES

Table	Title	Page
4-1.	Abbreviated Performance Test	4-10
4-2.	Typical Performance Test Printouts	4-26
5-1.	A1 Voltage Regulator Adjustments	5-11
5-2.	Subcover Labels versus A20 Reference Designators	5-23
6-1.	Exchange Assemblies	6-1
6-2.	Abbreviations and Reference Designations	6-2
6-3.	Replaceable Parts List	6-5
6-4.	Manufacturers Code List	6-60
7-1.	Manual Backdating	7-1

LIST OF FIGURES

Figure	Title	Page
4-1.	Turn-On Transient Test Setup	4-2
4-2.	Turn-On Transient (A) and 1 kHz (B) Display	4-3
4-3.	Constantly Shifting	4-4
4-4.	First Half Main, Second Half Delay Timebase	4-5
4-5.	Toggle Mode (Main, Delay, then Main)	4-6
4-6.	Sine Wave and Sync Output	4-6
4-7.	Shifted Waveform	4-7
4-8.	Step Function Voltage Levels	4-8
4-9.	Histogram Test Setup	4-11
4-10.	Service Accessory Cassette Tape (Adjustments and Performance Tests) Softkey Selections	4-13
4-11.	Histogram Plot Data	4-16
4-12.	HP 5180A Histogram Test	4-18
4-13.	Fast Fourier Transform and Sine Wave Curve Fit Test Setup	4-20
Flowchart 1.	Calibration (Sequence of Adjustment to Perform System Calibration)	5-2
Flowchart 2.	ADC Section Adjustment Sequence	5-3
Flowchart 3.	Power Supply Section Adjustment Sequence	5-4
Flowchart 4.	XYZ Section Adjustment Sequence	5-4
Flowchart 5.	Timing Oscillator Section Adjustment Sequence	5-5
5-1.	A11 Board Switch Settings for Record Forever Mode	5-9
5-2.	AMPCLK and CHPCLK Waveform	5-9
5-3.	Normal Switch Settings	5-9
5-4.	WE2 Waveform	5-10
5-5.	A1 Voltage Regulator Test Points	5-12
5-6.	Test Points on Back of A3 Board	5-14
5-7.	ADC Tracking Loop Test Setup	5-15
5-8.	Tracking Loop Accuracy Plot (Absolute Accuracy of 1.175, Relative Accuracy of 0.594)	5-19
5-9.	A20 Input Amplifier Adjustments Test Setup	5-22
5-10.	A20 Input Amplifier Compensation Capacitors Designation	5-24
5-11.	Tracking Loop Adjustment Test Setup	5-25
5-12.	Calibration Waveform	5-30
5-13.	Uncalibrated Calibration Waveform	5-30
5-14.	Double Image Waveform	5-31
6-1.	Details of AUXILIARY Input Connector J2 and Fuse F1 Mounting	6-3
7-1.	A10 Memory Control Board	7-15
7-2.	A11 Timebase Board	7-17

SECTION IV PERFORMANCE TESTS

4-1. INTRODUCTION

4-2. This section provides operational verification test procedures and dynamic performance test procedures for the HP 5180A. The operation verification test verifies the overall general operation of the HP 5180A, and the dynamic performance tests verify the operation to the dynamic performance specifications listed in *Table 1-1* of the Operating and Programming Manual.

4-3. OPERATIONAL VERIFICATION

4-4. The verification checks in paragraphs 4-13 through 4-16 can be performed to give a high degree of confidence that the HP 5180A is operating properly without performing the dynamic performance test. The operational verification is useful for incoming QA, routine maintenance, and after instrument repair.

4-5. DYNAMIC PERFORMANCE TEST

4-6. The dynamic performance test is provided in two different forms. One form is an abbreviated test, using preselected input channels and frequencies and partial test procedures. The other form consists of complete individual tests that allow the user to select the signal input channel and frequency. Both tests use the dynamic performance specifications in *Table 1-1* as performance standards.

4-7. POWER-ON CHECK AND SELF-TEST

4-8. Prior to the operational verification or the performance test, a power-on check and self-test should be performed, as described in the following paragraphs. The power-on check verifies several operations of the microprocessor section and the self-test provides additional tests. If an error occurs during either of these tests, the HP 5180A will display an error indication. Refer to the troubleshooting portion of Section VIII for details on self-test and error indications.

4-9. Power-on Check Procedure

4-10. Connect power cord from the power mains to the HP 5180A. Press the POWER switch in to the ON position and observe the HP 5180A main display for error indications.

4-11. Self-Test Procedure

4-12. To perform the self-test, press SHIFT then SELF-TEST key on the front panel. Observe the HP 5180A main display for error indications. At the end of the self-test, the time since the HP 5180A was serviced is displayed (in seconds).

4-13. OPERATIONAL VERIFICATION TEST

4-14. The operational verification test uses an HP 3312A Function Generator, HP 5315A Universal Counter, and an HP 1725A Oscilloscope (or equivalent), as follows:

- a. A turn-on transient of the HP 3312A is captured by the HP 5180A. The proper operation of the single sweep mode, the DATA ENTRY knob, and the cursor functions (volts, time) are verified.
- b. A 1 kHz, 2V p-p sine wave is input to the HP 5180A in the normal sweep mode. The proper operation of the internal and external triggering features, mixed and delay timebase functions, TR1-TR2 and ARM output functions are verified.

4-15. Equipment Required

- HP 3312A Function Generator
- HP 5315A Universal Counter
- HP 1725A Oscilloscope (or equivalent — used as a display).
- HP 10503 BNC Cables (5)
- HP 10100C 50-Ohm Feedthrough (2)

NOTE

Allow a 20-minute warmup of equipment prior to test.

4-16. Procedures

- a. Connect the equipment in the test setup shown in *Figure 4-1*.
- b. Set the HP 3312A to output a 1 kHz, 2V p-p sine wave (0 offset) to the HP 5180A Channel A input. Press the HP 3312A LINE switch to OFF. **For proper configuration of the HP 5180A when used with an external XYZ Display or oscilloscope, refer to the Operating and Programming Manual.**

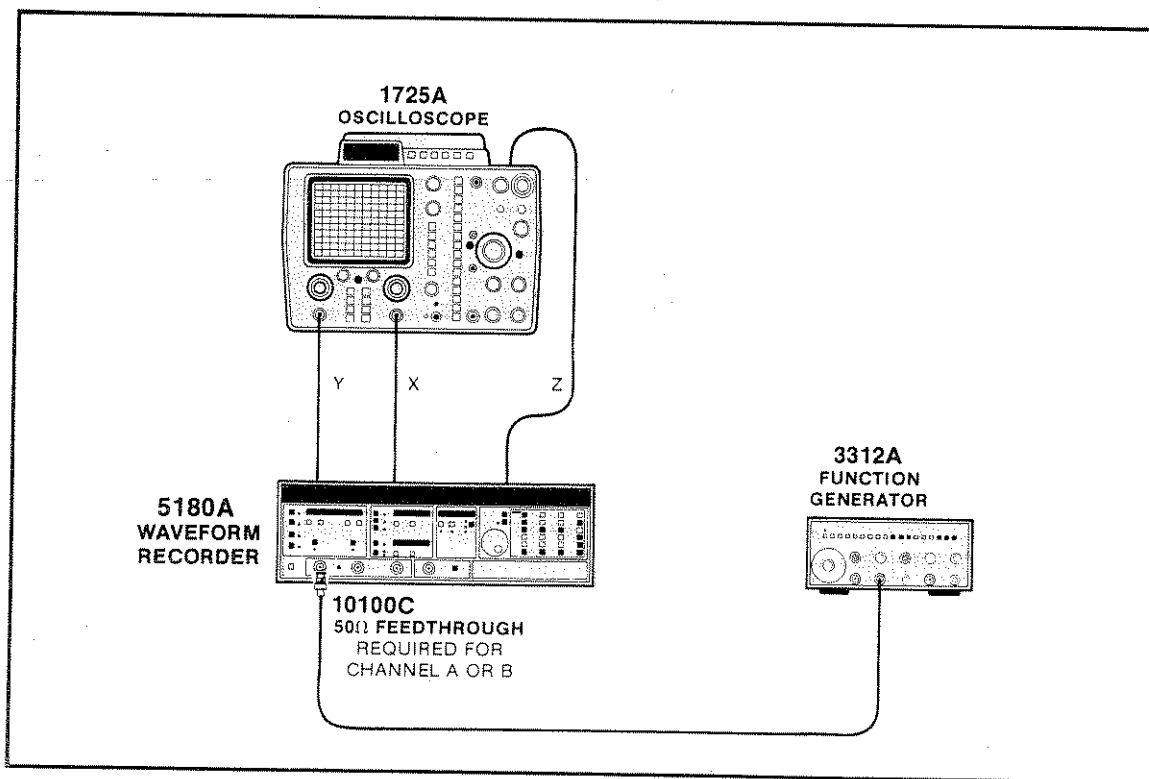


Figure 4-1. Turn-on Transient Test Setup

- c. Apply power to the HP 5180A and set controls as follows:
 1. Press SHIFT, then PRESET.
 2. Press Channel A RANGE, turn DATA ENTRY knob to display 2V.
 3. Press RECORD LENGTH, turn DATA ENTRY knob to display 4096.
 4. Press %MEM, turn DATA ENTRY knob to display -10%.
 5. Press MAIN/SMPL, turn DATA ENTRY knob to display 5 μ s.
 6. Press SINGLE (SWEEP ARM).
- d. Apply power to the HP 3312A and verify that a turn-on transient has been recorded, similar to that shown in *Figure 4-2(A)*.
- e. Set the HP 5180A to display 1 kHz:
 1. Press AUTOSET and verify 1 kHz displayed, *Figure 4-2(B)*.
 2. Press NORM (SWEEP ARM) and verify 1 kHz displayed, *Figure 4-2(B)*.
 3. Save front panel setting: press SAVE LOC, turn the DATA ENTRY knob to 1, then press SHIFT, SAVE.

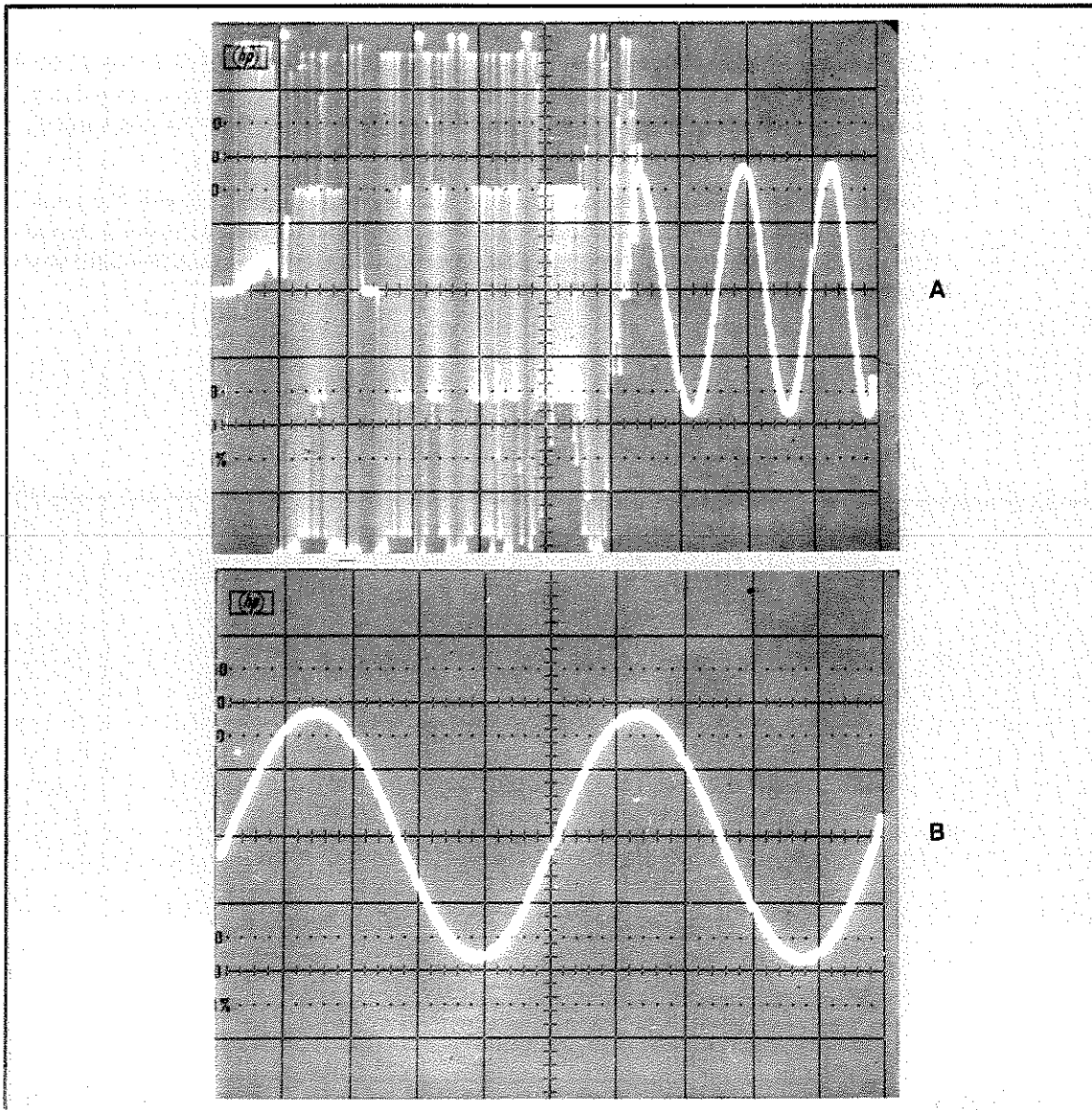


Figure 4-2. Turn-On Transient (A) and 1 kHz (B) Display

- f. CURSOR VOLT. Set the HP 5180A to display volts at cursor:
1. Press CURSOR, then CURSOR VOLT to display the voltage at the cursor position.
 2. Turn the DATA ENTRY knob to verify that the displayed voltage levels follow the cursor's position along the sine wave.
- g. CURSOR TIME. Set the HP 5180A to display cursor time:
- Position the "X" cursor at the low peak of the sine wave. Press CURSOR Δ then turn the DATA ENTRY knob to position the "+" cursor at the high peak of the sine wave. Verify that the peak-to-peak value of the voltage is displayed. Press CURSOR TIME and verify that one-half the sine wave period is displayed (i.e., for a 1 kHz sine wave, approximately 500.6 s should be displayed).
- h. GAIN. Set the HP 5180A to display gain:
- Press GAIN then turn the DATA ENTRY knob to vary the gain of the displayed data. Verify that the displayed sine wave changes amplitude.
- i. AUTO ADVANCE. Set the HP 5180A to test AUTO ADVANCE:
1. Recall the front panel settings saved in step e: Press RECALL LOC, turn the DATA ENTRY knob to 1, then press SHIFT, RECALL.
 2. With the HP 3312A set for 1 kHz, 2V p-p output (0 offset), press SWP, select 1 Hz MODULATION RANGE (turn VERNIER fully cw). Set the start frequency vernier to center range to implement the sweep mode. Verify that the HP 1725A displays a constantly shifting sine wave as shown in *Figure 4-3*.
 3. Press AUTO ADVANCE, then NORM to fill all memory locations with digitized signal data. Press TRACE LOC and turn the DATA ENTRY knob to verify that the memory locations contain the digitized signal data (represented by the different waveforms displayed on the CRT).

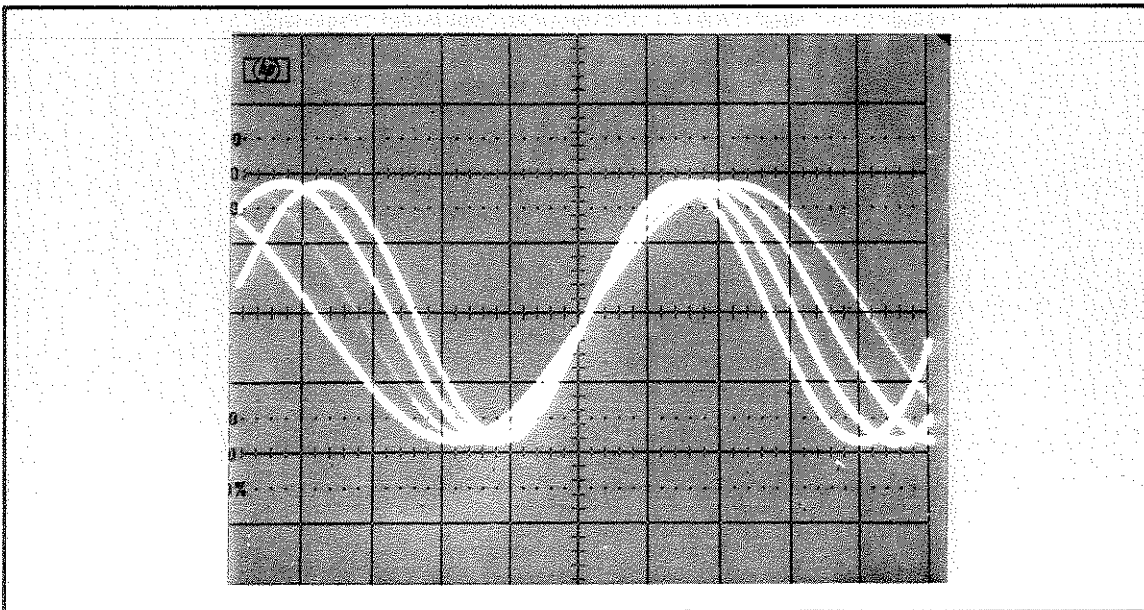


Figure 4-3. Constantly Shifting

- j. TRACE FUNCTIONS. Verify the TRACE, TRACE LOC, SGL/DUAL, and TR1-TR2 functions, as follows:
1. Set the waveform in memory record location 1 to be the reference waveform for comparison purposes: Press TRACE 1, TRACE LOC, and turn DATA ENTRY knob to 1.
 2. Compare the waveform in memory record location 4 to the reference waveform in memory location 1: Press TRACE 2, TRACE LOC, and turn DATA ENTRY knob to 4. Press SGL/DUAL to verify the display of both traces.
 3. Press SHIFT, TR1-TR2. Verify that the HP 5180A subtracts TRACE 2 (waveform 4) from TRACE 1 (waveform 1) and shows the result on the CRT display (TR1-TR2).
- k. MIXED, TOGGLE, AND DELAY TIMEBASE. Verify these functions, as follows:
1. Turn off SWP on the HP 3312A function generator, and keep it set for a 1 kHz, 2V p-p sine wave (0 offset) into the HP 5180A Channel A input.
 2. Set the HP 5180A as follows:
 - (a) Press SHIFT, PRESET.
 - (b) Press Channel A RANGE, turn DATA ENTRY knob to displayed 2V.
 - (c) Press NORM.
 - (d) Press %FS, turn DATA ENTRY knob to display 5%.
 - (e) Press /SMPL (TIMEBASE-MAIN), turn DATA ENTRY knob to display 2 μ s.
 - (f) Press /SMPL (TIMEBASE-DELAY), turn DATA ENTRY knob to display 10 μ s.
 - (g) Press SEQUENCE to put HP 5180A into MIXED timebase mode.
 3. Verify that the resulting displayed waveform shows one cycle of the sine wave recorded at the main timebase rate, followed by 5 cycles recorded at the delay timebase rate, similar to *Figure 4-4*.

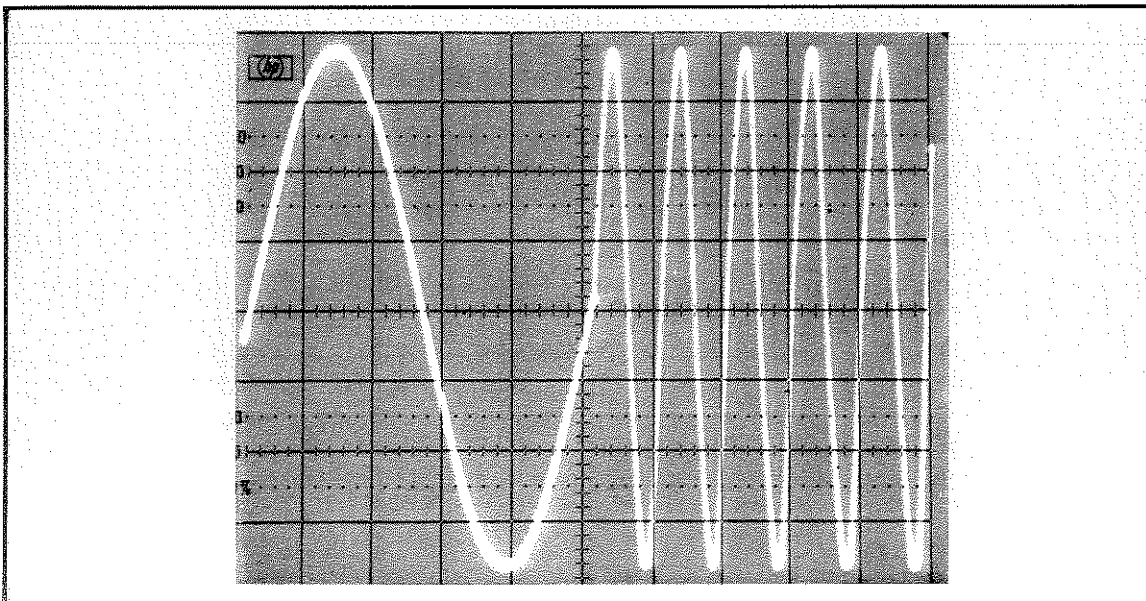


Figure 4-4. First Half Main, Second Half Delay Timebase

4. Press SEQUENCE to put the HP 5180A into TOGGLE timebase mode. Verify that the resulting waveform shows a portion of one cycle recorded at the main timebase rate, followed by 5 cycles recorded at the delay timebase rate, followed by a portion of a sine wave recorded at the main timebase rate, similar to Figure 4-5.

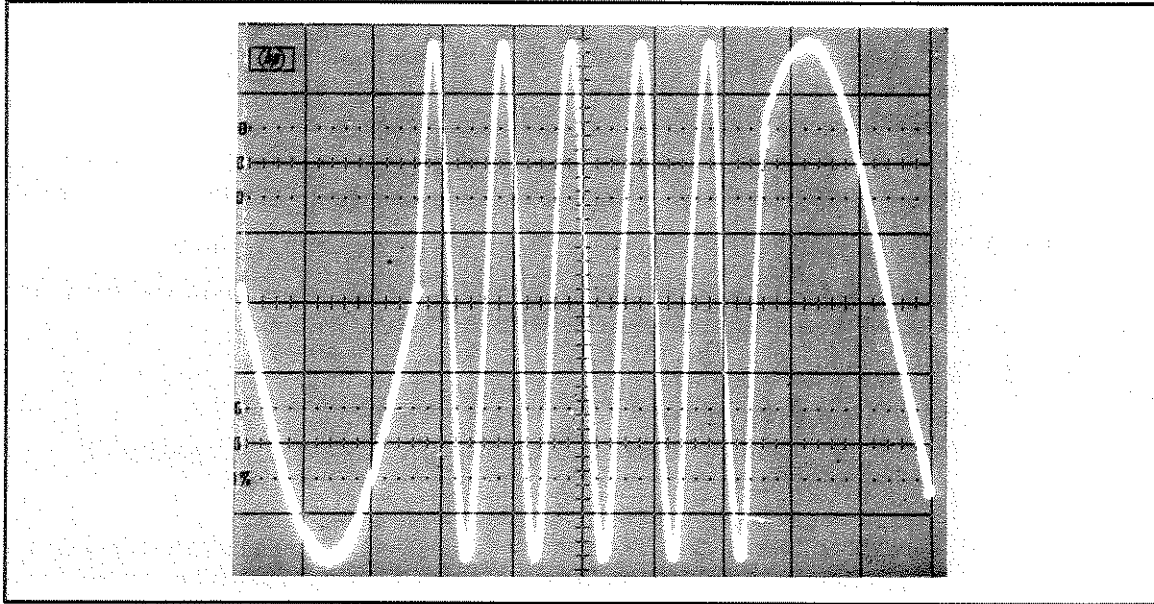


Figure 4-5. Toggle Mode (Main, Delay, then Main)

- I. CHOP MODE. Test the chopped sampling mode by connecting the HP 3312A SYNC output to the HP 5180A Channel B input (using a 50-ohm feedthrough):
 1. Press AUTOSET for optimal front panel settings of Channel A.
 2. Press Channel B RANGE and adjust DATA ENTRY knob for 2V display.
 3. Press CHOP A,B. Verify that both the sine wave and square wave SYNC output are displayed, as shown in Figure 4-6.

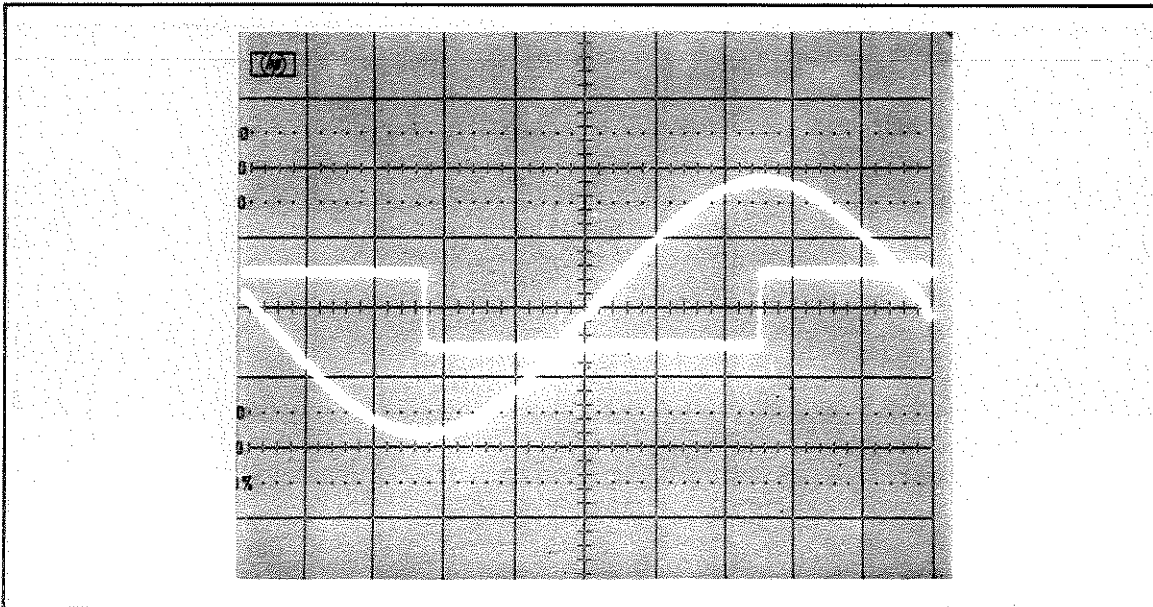


Figure 4-6. Sine Wave and Sync Output

- m. EXTERNAL TRIGGER. Test the EXTERNAL TRIGGER function by connecting the HP 3312A SYNC output to the HP 5180A EXTERNAL TRIGGER input through a 50-ohm feedthrough connector. Keep the 1 kHz, 2V p-p sine wave output connected to the HP 5180A Channel A input:
1. Press CH A to display the sine wave shown in *Figure 4-2(B)*. Check that the internal triggering is utilized by noting that the SOURCE EXT is not lit.
 2. Press SOURCE so that EXT is lit. Verify that the displayed waveform has shifted, as shown in *Figure 4-7*.

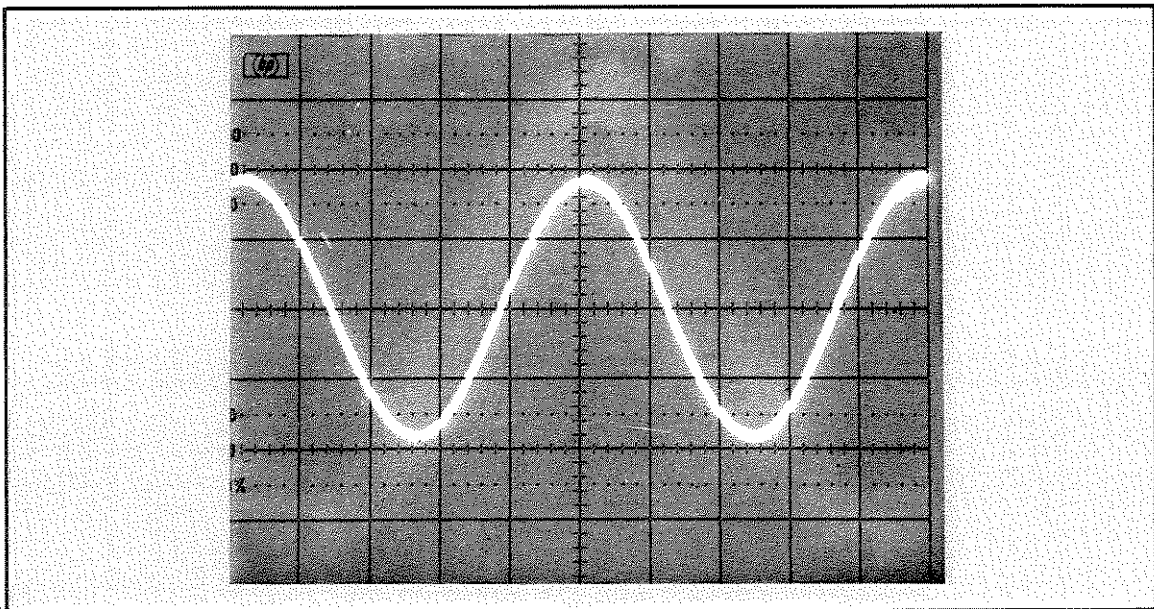


Figure 4-7. Shifted Waveform

- n. ARMED OUT. Test the ARMED OUT output by connecting the ARMED OUT at the rear panel of the HP 5180A to the front panel Channel B input, through a 50-ohm feedthrough connector. Keep the HP 3312A 1 kHz sine wave connected to the HP 5180A Channel A input. On the HP 5180A:
1. Press CH B to display the ARMED OUT waveform.
 2. Press SOURCE so that SOURCE INT triggering is utilized.
 3. Press AUTOSET for optimal front panel settings. Press /SMPL (TIMEBASE-MAIN) and adjust DATA ENTRY knob for 10 μ s.
 4. Press SINGLE.
 5. Press CURSOR and verify (using DATA ENTRY knob) that the voltage levels of the step function are approximately 0.0 to 0.1V (low level) and 1.4 to 1.6V (high level) as shown in *Figure 4-8*.

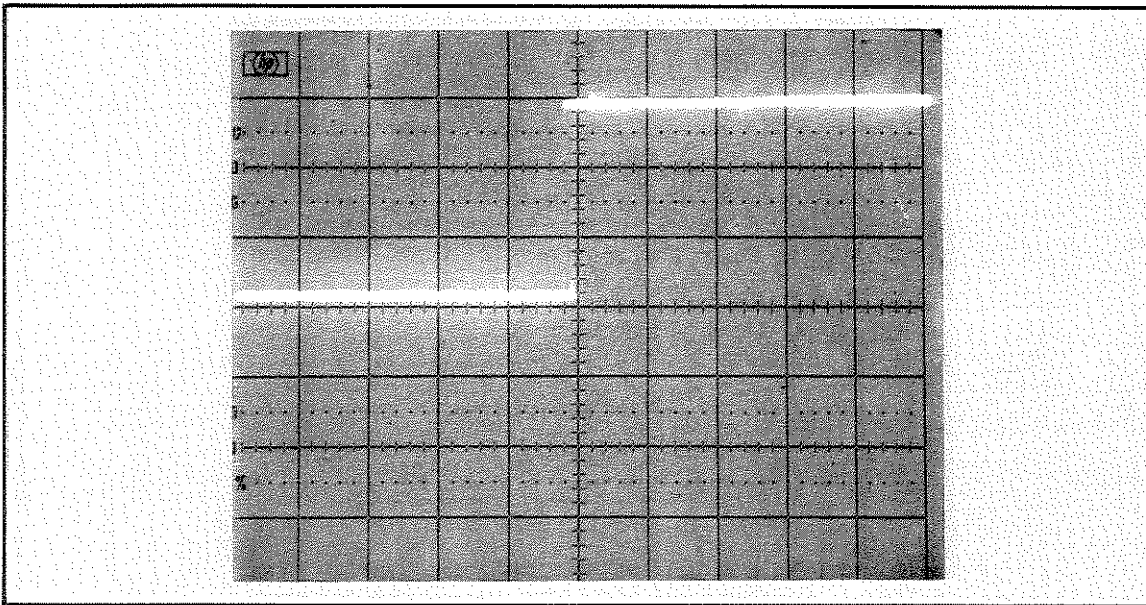


Figure 4-8. Step Function Voltage Levels

- o. TIME BASE OUT. Test the TIME BASE OUT as follows:
1. Apply power to the 5315A and set controls as follows:

Function	FREQ A
Blue Key	out
GATE TIME	MIN
CHANNEL A SETTINGS	
AC/DC	AC
ATTN	X1
FILTER	NORM
SEP/COM	SEP
SLOPE	Positive
TRIGGER LEVEL	LEVEL
 2. Connect the TIME BASE OUT from the rear panel of the HP 5180A to INPUT A of the HP 5315A. Adjust the LEVEL/SENS control for Channel A of the counter to obtain a stable triggering condition and frequency readout. Verify that 20 MHz (400 Hz) is displayed on the counter.

- p. TIME BASE IN. Test the TIME BASE IN as follows:
1. Connect the HP 3312A output to the HP 5180A rear panel TIME BASE IN.
 2. Set the HP 3312A to generate a square wave output that is about 10 MHz, 1V peak (0 offset).
 3. Set the HP 5180A INT/EXT rear panel TIME BASE switch to EXT. Make sure the ENCODE LEVEL switch on the rear panel of the HP 5180A is set on 3 (0V).
 4. Verify that 10 MHz is displayed on the HP 5315A, and that as the frequency of the HP 3312A is varied, the display follows (TIME BASE IN = TIME BASE OUT).

This concludes the Operational Verification.

4-17. PERFORMANCE TESTS

4-18. The performance tests consist of an abbreviated dynamic performance test, paragraph 4-20, where portions of the following listed tests are conducted using the preselected inputs listed in *Table 4-1*. The complete dynamic performance tests, paragraph 4-24, consist of all the procedures in the tests listed. The complete test allows the user to select the inputs for the tests.

- a. Histogram test (paragraph 4-26).
- b. Fast Fourier Transform Test (paragraph 4-33).
- c. Sine wave Curve Fit Test (paragraph 4-41).

NOTE

For additional detailed information on Analog-to-Digital Converter (ADC) Tests, refer to HP Product Note 5180-2, Dynamic Testing of ADCs. Product Notes are available from your nearest HP Sales and Service Office, listed at the back of this manual.

4-19. Equipment Required

HP 9825T Computer or HP 9816A/9826A/9836A Computer (with 3/4 Meg Byte RAM; HPL 2.0)*
HP 2225A Printer or equivalent (required with Series 200 Controller)
HP 3335A Frequency Synthesizer
HP 1725A Oscilloscope (or equivalent)
HP 98034A HP-IB Interface (required for the 9825T Desktop Computer)
HP 10871A/B Service Accessory
05180-13302 HP 5180A Service Cassette (part of the 10871A Ser. Acces.); or
05180-13403 HP 5180A Service Floppy Disc (part of the 10871B Ser. Acces.)
HP 10100C 50-ohm Feedthrough
HP 10833A, B, C, or D Cables
HP 10503 BNC Cables
HP 3455A DVM
Optional:
HP 7475A 6-Pen Graphics Plotter

NOTE

Allow a 20-minute warmup of equipment prior to test.

*Use any one of these computers to run tests. The HP 9825T Computer operates with a cassette tape supplied with the 10871A Service Accessory. The HP 9816A, HP 9826A, and HP 9836A computers operate with a 3 1/2-inch floppy disc supplied with the HP 10871B Service Accessory.

4-20. ABBREVIATED DYNAMIC PERFORMANCE TEST

4-21. The tests listed in *Table 4-1* measure the dynamic performance of the HP 5180A, using the input selections listed. These tests determine whether or not the instrument meets the specifications listed under Dynamic Performance in *Table 1-1* of the Operating and Programming Manual. The abbreviated performance tests consists of those portions of the individual test that are listed in *Table 4-1*, using the procedure in paragraph 4-22.

Table 4-1. Abbreviated Performance Test

TEST	INPUT CHANNEL	INPUT SINEWAVE		PROCEDURES USED FOR EACH TEST
		(MHz)	(V p-p)	
Histogram	AUXILIARY	9.85	2.3	Paragraph 4-32, steps b through i
Fast Fourier Transform	A	9.85	2	Paragraph 4-40, steps b through j
	B	9.85	2	
Sine Wave Curvefit	A	9.85	2	Paragraph 4-48, steps b through i
	A	0.95	2	
	B	9.85	2	
	B	0.95	2	

4-22. Procedures

4-23. Connect the equipment in the test setup shown in *Figure 4-9* and proceed as follows:

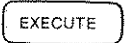

- a. Load and run the System Main Program. If you are using a HP 9825T Computer, perform the following:
 1. Insert the cassette tape (part of HP 10871A) into the computer.
 2. Turn on the computer power. This will cause the computer to automatically load and run the System Main Program. Proceed to step b.

If you are using a HP 9816A/26A/36A, perform the following:

1. Insert the HPL 2.0 disc in Drive 0 of the computer.

NOTE

If HPL 2.0 is already in the system proceed to step 4.

2. Turn on the computer power and the HPL disc will automatically be loaded in.
3. The prompt "(RAM) HPL 2.0 READY" will appear on the computer display.
4. Remove the HPL 2.0 disc.
5. Insert the HP 5180A Service Disc in Drive 0 of the computer.
6. Type: **get "sysmain"** or Press **K6** Softkey and type **"sysmain"**, then press .
7. Press  to run the system main program.

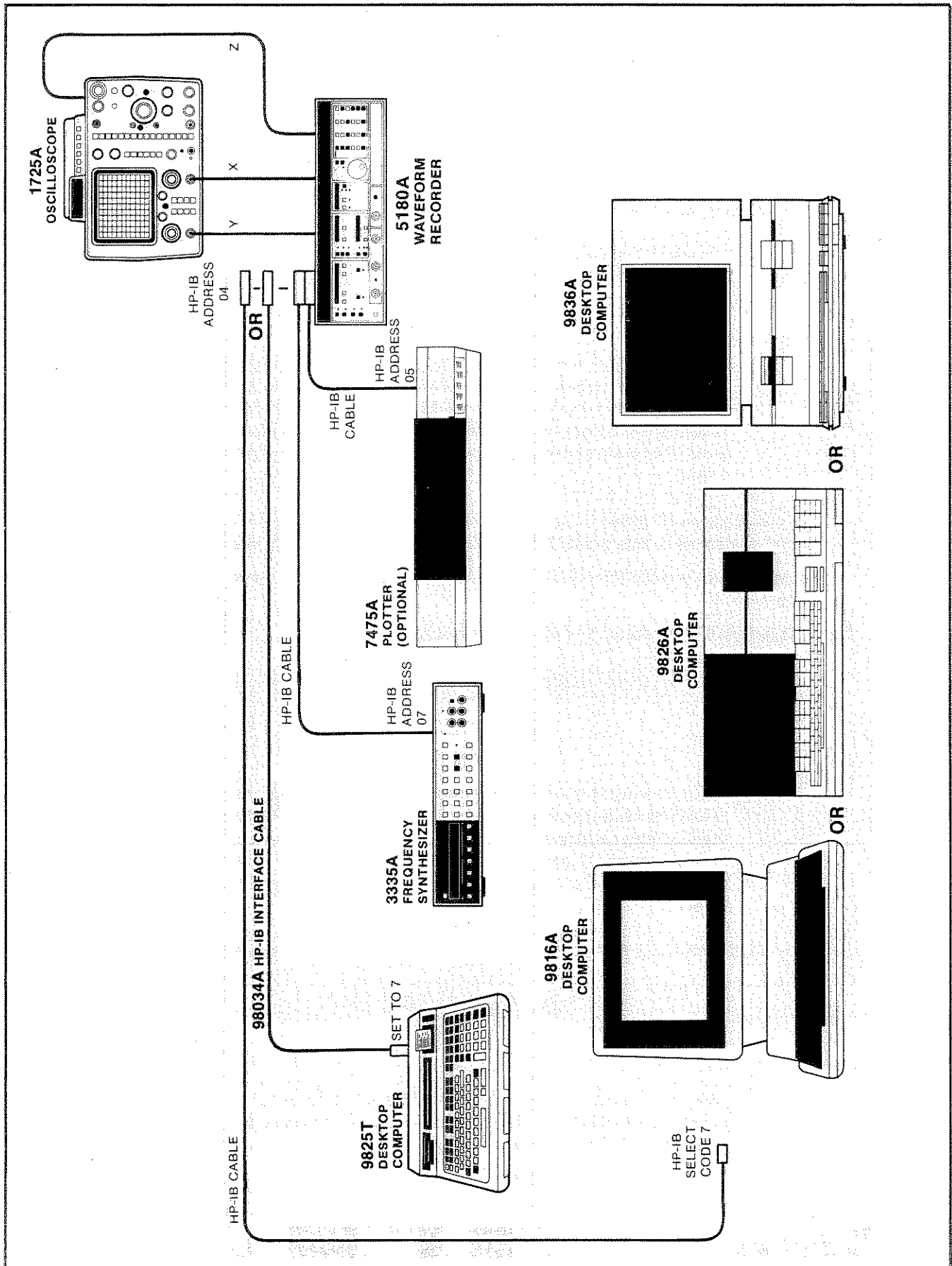


Figure 4-9. Histogram Test Setup

- b. You should now see the following on the computer display:
on HP 9825T display

MAIN: ADJUSTMENTS (F0) or PERFORMANCE (F1)

OR

on HP 9816A/26A/36A display

MAIN: ADJUSTMENTS (K5) or PERFORMANCE (K6)

NOTE

The computer is now in the System Main Program level. The computer will go from this level to either the System Adjustments Program level (for doing adjustments) or the System Performance Program level (for doing performance tests). The program selection flowchart is shown in *Figure 4-10*.

- c. If you are using a HP 9825T, place the overlay for softkeys (HP 10871A Service Accessory) over the softkeys at this point. The plastic overlay is shown in *Figure 4-10*.
If you are using a HP 9816A/26A/36A, the softkey labels will be displayed at the bottom of the screen.
- d. Press MAIN PERF softkey. The computer display will now be:

PERFORMANCE COMMAND:

NOTE

The computer is now in the System Performance Program level. From this point on, if you press **STOP**, then the MAIN PERF softkey, you will return to the System Performance Program level. If you press **STOP**, then the MAIN ADJ softkey, you will go to the System Adjustments Program level.

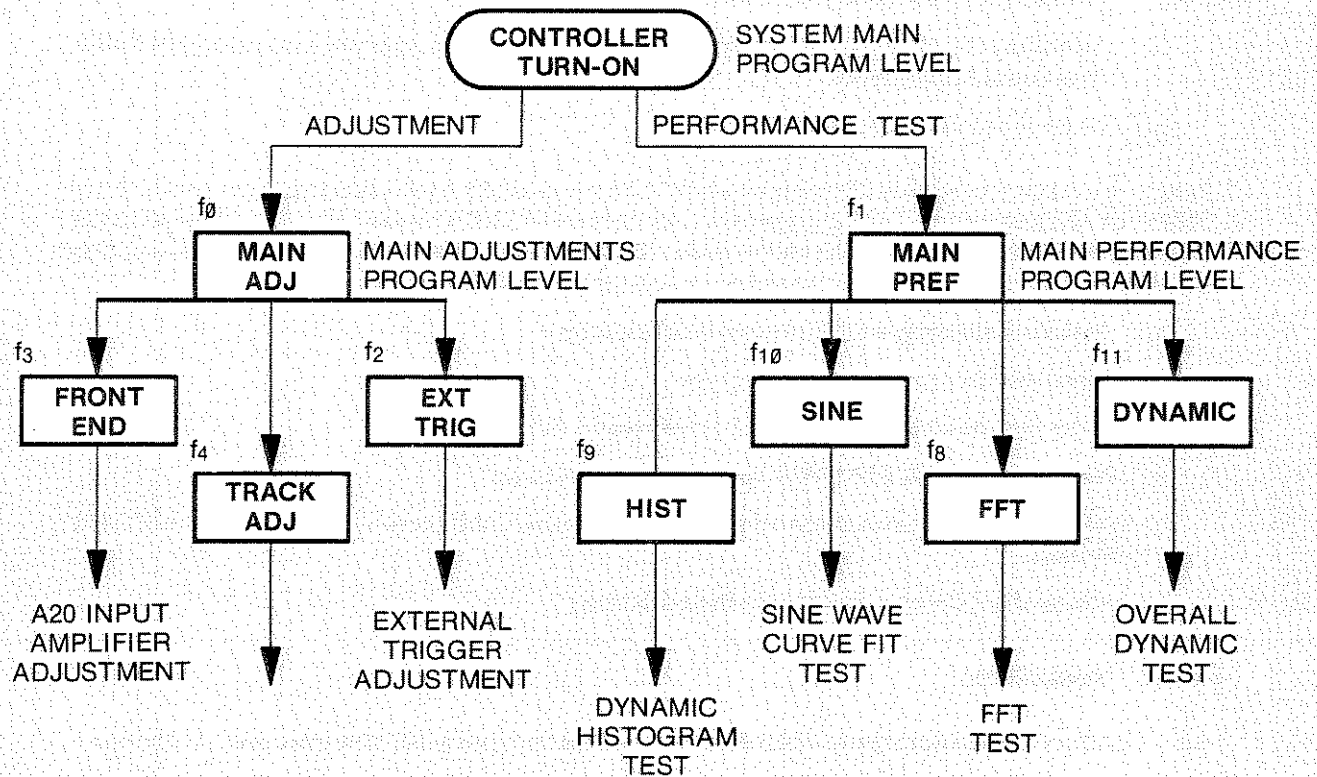
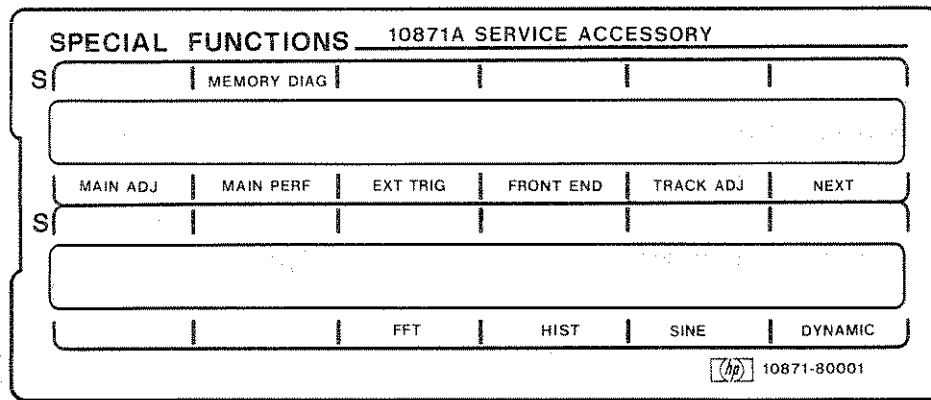
- e. Press DYNAMIC (or OVERALL) softkey. The computer display is now:

OVERALL DYNAMIC TEST

NOTE

From this point on, the computer display will direct the user to perform the abbreviated procedures that correspond with the following:

1. Paragraph 4-32, steps b through l (Histogram)
2. Paragraph 4-40, steps b through j (Fast Fourier Transform)
3. Paragraph 4-48, steps b through j (Sine Wave Curve Fit)



f5. **NEXT** USED IN THE **FRONT END**, **TRACK ADJ**, AND **EXT TRIG** ADJUSTMENTS PROGRAMS TO GO FROM THE PRESENT STEP TO THE NEXT STEP.

f6. AND

= **SOFT KEY**

Figure 4-10. Service Accessory Cassette Tape (Adjustments and Performance Tests) Softkey Selections

4-24. COMPLETE DYNAMIC PERFORMANCE TEST

4-25. The complete dynamic performance test consists of the Histogram Test, the Fast Fourier Transform Test, and Sine Wave Curve Fit Test, contained in the following paragraphs.

4-26. Histogram Test

4-27. Specifications:

Channels A, B, Auxiliary:	Nominal Test Frequency	
	1 MHz	10 MHz
Missing Codes	0	0
Differential Nonlinearity	≤3 LSB	≤4 LSB

4-28. Description

4-29. The histogram test computes the following:

- a. Differential nonlinearity of each HP 5180A output code and the maximum HP 5180A differential nonlinearity.
- b. Number of HP 5180A missing codes.

4-30. A greater-than-full-scale sine wave of 2.3V p-p, at 9.85 MHz (noncoherent with the HP 5180A 20 MHz sampling rate) is input to one of the HP 5180A input channels. The HP 5180A digitizes the input sine wave. Twenty records (1K-word in length) of the digitized sine wave data are sent to the computer. The computer processes the data as follows:

- a. Displays a histogram plot on the Oscilloscope.
- b. Prints the number of missing codes.
- c. Prints the maximum differential nonlinearity in terms of LSB.
- d. Prints a PASS/FAIL HP 5180A specification message.
- e. Allows the user the option to plot a differential nonlinearity graph on the HP 7475A Plotter.
- f. Allows the user to repeat the histogram test.

4-31. Procedure

4-32. Connect the equipment in the test setup shown in *Figure 4-9* and proceed as follows:

NOTE

Refer to paragraph 4-23 a through c if the system is not already loaded.

- a. Press MAIN PREF softkey. The computer display will now be:

PERFORMANCE COMMAND:

NOTE

The computer is now in the System Performance Program level. From this point on, if you press **STOP**, then the MAIN PERF softkey, you will return to the System Performance Program level. If you press **STOP**, then the MAIN ADJ softkey, you will go to the System Adjustment Program Level.

- b. Press HIST softkey. The computer display is now:

Channel A, B or AUX?

If the Abbreviated Dynamic Performance Test is desired, select AUX and select 10 MHz in the next step.

If Channel A or B is selected, install a 50-ohm feedthrough at the HP 5180A input.

- c. On the computer keyboard, type the input channel desired and press . The computer display is now:

FREQ, nominal (1) or (10) MHz?

- d. Type 1 or 10 to select 0.95 or 9.85 MHz, respectively, from the HP 3335A to the HP 5180A input channel. Press .

- e. The computer display is now:

3335A connected to X Channel?

NOTE

The value X in the display above corresponds to the channel selected in step c. Verify that the HP 3335A is connected to the proper channel (that was selected in step c). When performing the abbreviated test, refer to *Table 4-1* for channel selected. Press .

- f. The HP 5180A will now output 20 records (1K-word in length) of data to the computer. The computer display is now:

data record, X

where the display value X increments from 1 to 20. If the computer displays:

SIGNAL LEVEL LOW, START AGAIN

the histogram test must be repeated with a greater input amplitude sine wave. Check that all test setup connections and all HP-IB settings are correct. Then, turn off the computer and repeat the test.

- g. The computer will display:

inputting data to display

NOTE

As the histogram plot data is sent to the HP 5180A, the oscilloscope will display the plot as shown in *Figure 4-11*.

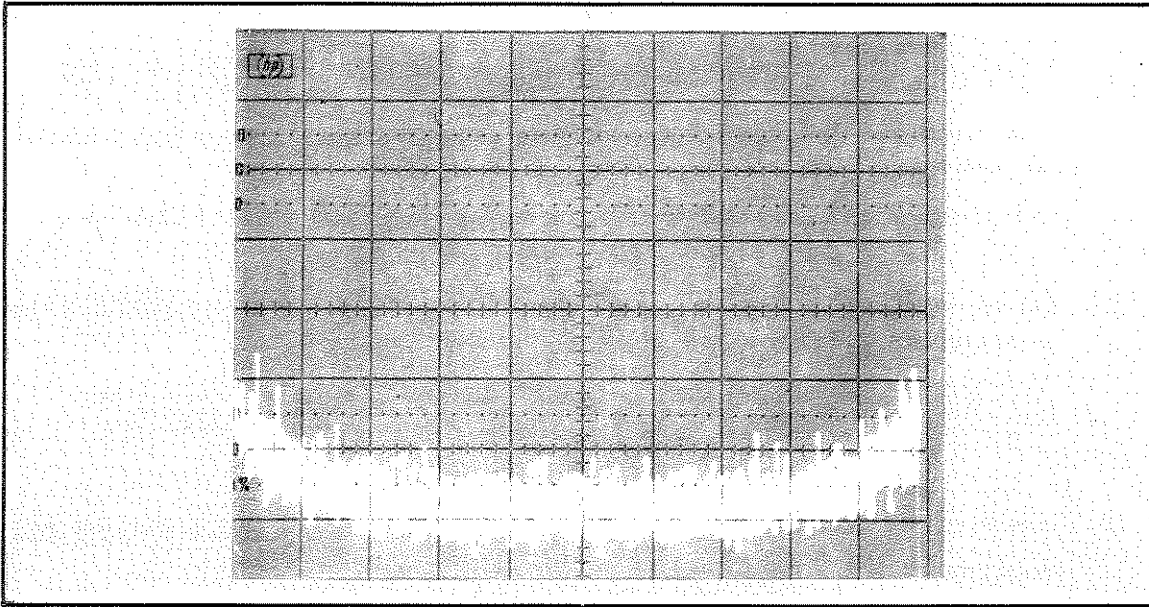


Figure 4-11. Histogram Plot Data

- h. The computer will display:

diff nonlinearity X

where the display value X increments from 0 to 1023. The computer calculates the differential nonlinearities of the 1024 output codes of the HP 5180A.

NOTE

Refer to Table 4-2 for typical examples of the computer printouts listed in the following steps.

- i. The computer will print:

MISSED CODES=X

where X = number of HP 5180A missed codes.

- j. The computer will print:

max nonlin in LSB=X

where X is the maximum differential nonlinearity of the HP 5180A expressed in least significant bit (LSB) units.

- k. The computer will print:

PASS

when the results of the histogram test indicate that the HP 5180A is within relevant specifications. See Paragraph 4-27, Specifications.

- l. If the computer prints:

FAIL

the HP 5180A is not within specifications. See Section V, Adjustments or Section VIII, Troubleshooting.

- m. The computer will display:

plot? (yes=1)

- n. If a differential nonlinearity plot is desired (as shown in *Figure 4-12*), set the plot limits on the HP 7475A. On the computer, type 1, then press .

- o. If a plot is not desired, press .

- p. The computer will display:

repeat histogram? (no=1)

- q. Press to repeat the histogram test. Otherwise, return to the System Performance Program level, by doing either of the following:

1. Type 1, then press .
2. Press **STOP**, then MAIN PERF softkey.

4-33. Fast Fourier Transform (FFT) Test

4-34. Specifications:

Maximum spurious signal level relative to the input sine wave signals:

	Sine Wave Input Amplitude	Nominal Test Frequency	
		1 MHz	10 MHz
Channel A, B	2V p-p	≤-50 dBc	≤-46 dBc
Auxiliary	2V p-p	≤-52 dBc	≤-48 dBc

4-35. Description

4-36. The Fast Fourier Transform (FFT) test measures HP 5180A integral nonlinearity by calculating the maximum spurious input signal harmonic levels relative to the input signal carrier level. In general, low spurious harmonic levels relative to the input signal level, indicate a high degree ADC linearity.

4-37. A full-scale sine wave of 0.95 MHz or 9.85 MHz (noncoherent with the HP 5180A 10 MHz internal sampling rate to avoid the generation of input harmonics that would coincide with the HP 5180A internal fundamental frequency) is digitized by the HP 5180A at the maximum sampling rate (20 MHz). Nonlinearity errors in the HP 5180A dynamic transfer function generate harmonics of the input sine wave signal. The digitized time-domain sine wave data is then converted by Discrete Fourier Transformations (DFT) implemented by Fast Fourier Transform (FFT) software into a frequency-domain spectrum. The level of the frequency-domain harmonics relative to the frequency-domain input sine wave signal level is, therefore, a measure of the integral nonlinearity errors. The maximum spurious signal level relative to the input carrier sine wave signal (in dBc) is specified as a measure of integral nonlinearity error.

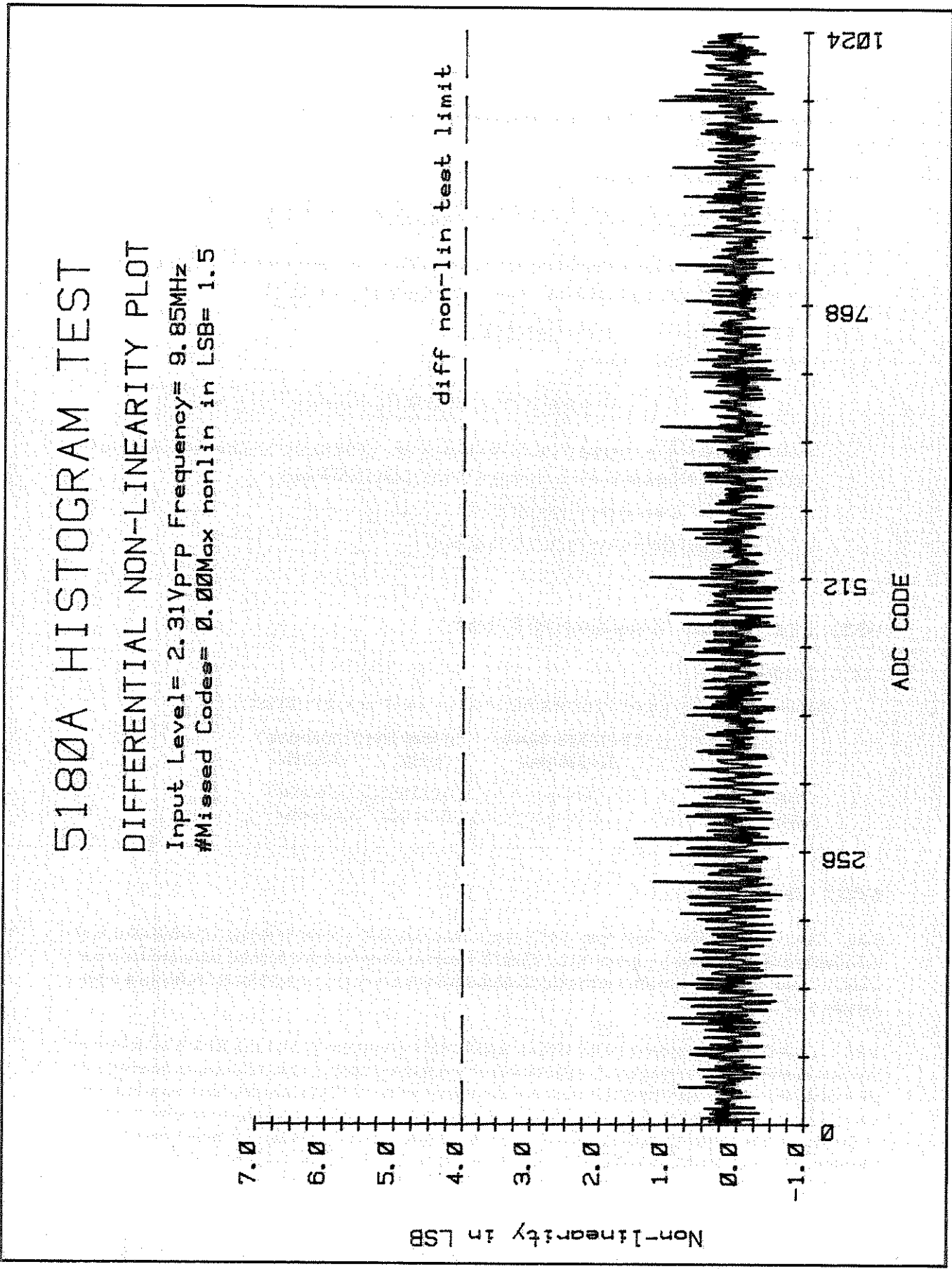


Figure 4-12. HP 5180A Histogram Test

- 4-38. The computer processes the data as follows:
- Prints the peak noise level in dB below the carrier signal.
 - Prints a PASS/FAIL HP 5180A specification message.
 - Allows the user option to plot a spectrum graph that indicates the input carrier sine wave signal and the spurious signals on the HP 7475A Plotter.

4-39. Procedure

- 4-40. Connect the equipment in the test setup shown in *Figure 4-13*, and proceed as follows:

NOTE

Refer to paragraph 4-23 a through c if the system is not already loaded.

- Press MAIN PERF softkey. The computer display will now be:

```
PERFORMANCE COMMAND:
```

NOTE

The computer is now in the System Performance Program level. From this point on, if you press **STOP**, then the MAIN PERF softkey, you will return to the System Performance Program level. If you press **STOP**, then the MAIN ADJ softkey, you will go to the System Adjustments Program level.

- Press FFT softkey. The computer will display:

```
Channel A, B or AUX ?
```

- On the computer keyboard, type the input channel desired and press . The computer display is now:

```
FREQ, nominal (1) or (10) MHz ?
```

- Type 1 or 10 to select 0.95 or 9.85 MHz, respectively, from the HP 3335A to the HP 5180A input channel. Press .
- The computer display is now:

```
X MHz filter into Y Channel ?
```

where the displayed values X and Y are the frequencies chosen in step d and input channels chosen in step c. When performing the abbreviated test, refer to *Table 4-1* for selections used for these values.

NOTE

Ensure that the proper filter assembly and HP 5180A input channel connections have been made. Press .

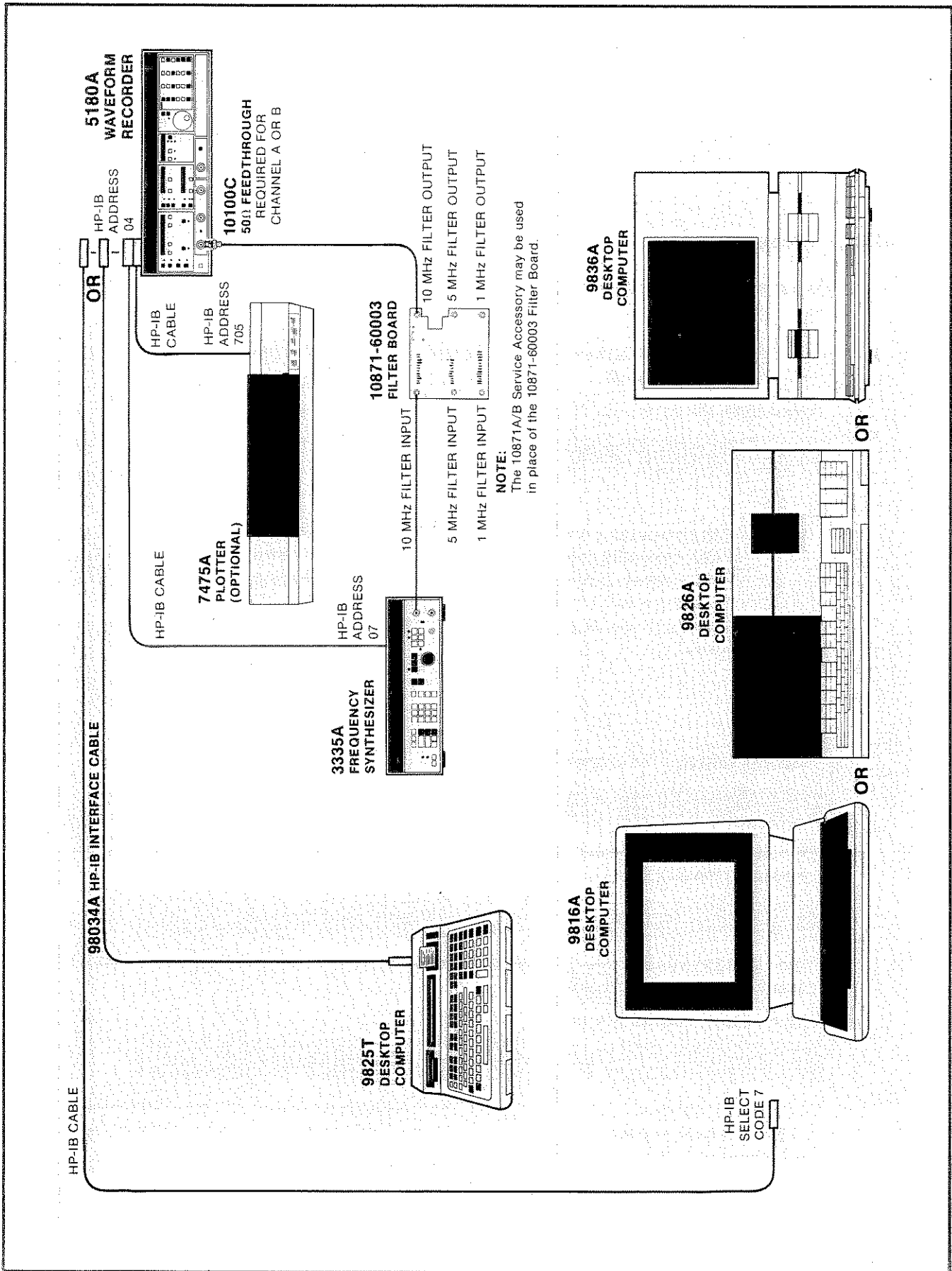


Figure 4-13. Fast Fourier Transform and Sine Wave Curve Fit Test Setup

- f. The computer will display:

collecting data

as the computer collects the HP 5180A digitized sine wave data.

- g. The computer will display:

COMPUTING FFT

- h. The computer will print:

Peak noise = X
dBc

where X represents the peak spurious signal level (in dB) relative to the input sine wave fundamental.

- i. The computer will print:

PASS

if the results of the FFT test indicate that the HP 5180A is within relevant specifications. See paragraph 4-32, Specifications.

- j. If the computer prints:

FAIL

the HP 5180A is not within specifications. Refer to Section V, Adjustments, or Section VIII, Troubleshooting.

- k. The computer will display:

Fast Fourier Transform plot FFT? (yes=1)

If a Fast Fourier Transform plot is desired (as shown in *Figure 4-14*), set the plot limits. On the computer, type 1, then press

If a plot is not desired, press

- l. The computer will display:

repeat FFT? (no=1)

Press to repeat the FFT test. Otherwise, return to the System Performance Program Level, doing either of the following:

1. Type 1, then press
2. Press **STOP**, then MAIN PERF softkey.

4-41. Sine Wave Curve Fit Test

4-42. Specifications:

	Nominal Sine Wave Amplitude	Effective Bits		S/N Ratio	
		1 MHz	10 MHz	1 MHz	10 MHz
Channel A, B	2V p-p	≥7.8 bits	≥7.5 bits	≥48.6 dB	≥46.8 dB
Auxiliary	2V p-p	≥8.0 bits	≥7.7 bits	≥49.8 db	≥48.0 dB
	0.2V p-p	≥8.0 bits	≥8.0 bits		

4-43. Description

4-44. The sine wave curve fit test computes the effective number of bits and the signal-to-noise ratio (S/N ratio) of the HP 5180A.

4-45. A full-scale sine wave of specified frequency (0.95 MHz, 9.5 MHz) is digitized by the HP 5180A into 1K bits. An idealized sine wave of the form $A \sin(2\pi ft + \theta) + DC$ is fit to the data using a least squares fit and selecting $A, f, \theta,$ and DC to minimize the squared error. The idea sine wave $A_0 \sin(2\pi f_0 t + \theta_0) + DC$ is then quantized in software by an ideal 10-bit ADC. The rms error (ideal) between the idealized data (software generated by an ideal 10-bit ADC) and the best fit sine wave is also computed. The effective number of bits is then computed:

$$\text{Effective bits} = 10 - \log_2 [\text{rms error (actual)}/\text{rms error (ideal)}]$$

The signal-to-noise ratio is calculated by the formula:

$$\text{S/N ratio} = (6.02) \times (\text{effective bits}) + 1.8.$$

4-46. The computer processes the data as follows:

- a. Prints the sine wave curve fit iteration number, the estimates for frequency (F), phase (P), peak magnitude (M), DC offset (DC) of the best fit sine wave, and the rms error (actual).
- b. Prints the effective number of bits and signal-to-noise ratio.
- c. Prints a PASS/FAIL HP 5180A specifications message.

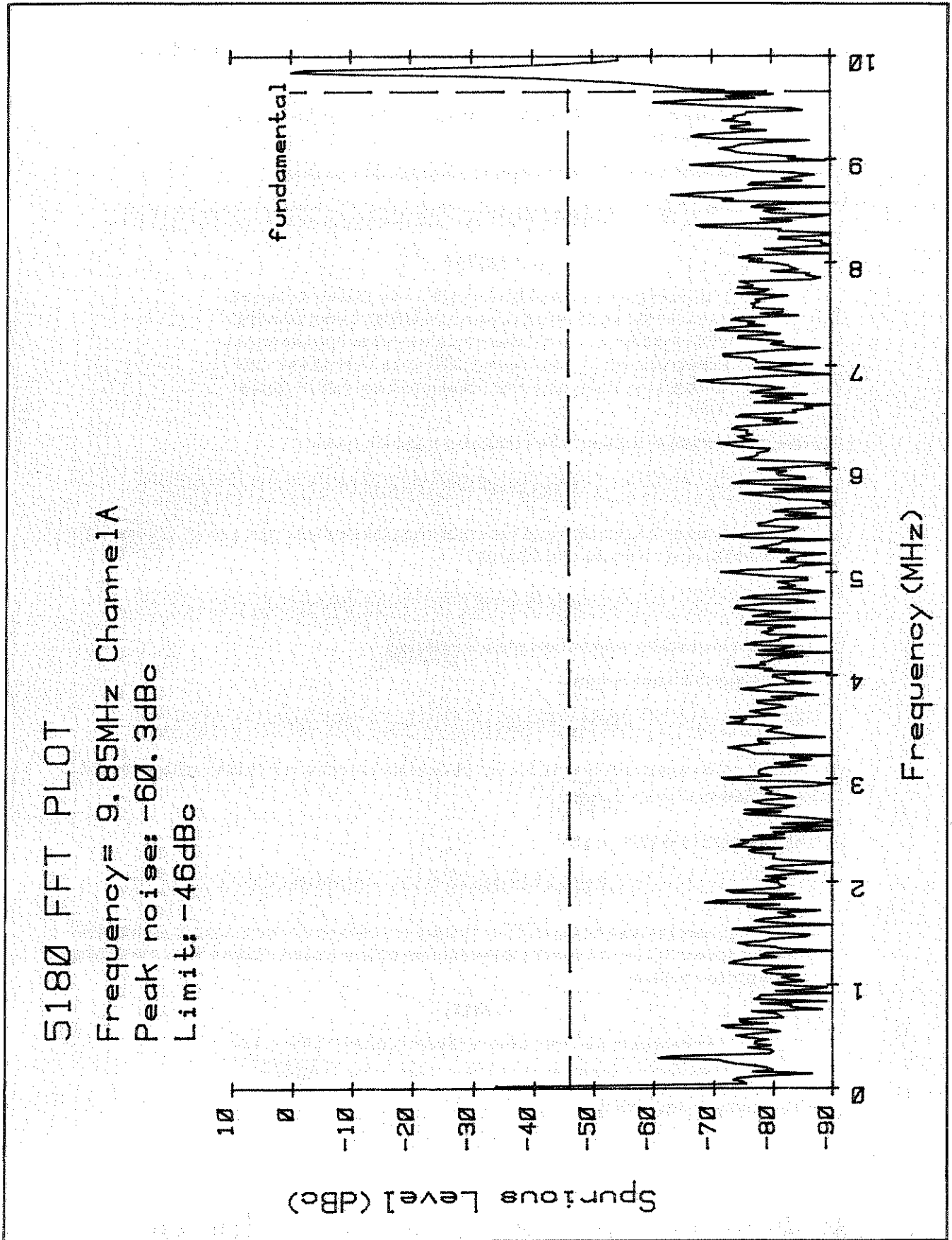


Figure 4-14. HP 5180A FFT Plot

4-47. Procedure

4-48. Connect the equipment in the test setup in *Figure 4-13*, and proceed as follows:

NOTE

Refer to paragraph 4-23 a through c if the system is not already loaded.

- a. Press MAIN PERF softkey. The computer display will now be:

```
PERFORMANCE COMMAND: MAIN PERF
```

NOTE

The computer is now in the System Performance Program level. From this point on, if you press **STOP**, then the MAIN PERF softkey, you will return to the System Performance Program level. If you press **STOP**, then the MAIN ADJ softkey, you will go to the System Adjustments Program level.

- b. Press the SINEWAVE softkey. The computer display is now:

```
Channel A, B or AUX?
```

- c. On the computer keyboard, type the input channel desired, then press . If AUX is typed, the computer will display:

```
Amplitude ? .2 or 2V p-p
```

- d. Type the amplitude desired, then press .

The computer display is now:

```
FREQ, nominal (1 or 10) MHz?
```

- e. Type 1 or 10 to select 0.95 or 9.85 MHz, respectively, from the HP 3335A to the HP 5180A input channel. Press .

- f. The computer display is now:

```
X MHz filter into Y Channel?
```

where the displayed values X and Y are frequencies chosen in step e and input channels chosen in step c. When performing the abbreviated test, refer to *Table 4-1* for selections used for these values.

NOTE

Ensure that the proper filter assembly and HP 5180A input channel connections have been made. Press .

- g. The computer will display:

```
collecting data
```

as the computer collects the HP 5180A digitized sine wave data.

- h. The computer will display:

```
CALCULATING iteration #X
```

where the displayed value X increments from 1 to a maximum of 10.

- i. For each iteration, the computer will print the following:

1. Iteration number (#)
2. Frequency estimate (F)
3. Phase estimate (P)
4. Peak magnitude (M)
5. DC offset (DC)

- j. When rms error minimization is finally obtained, the computer will print the following:

1. Number of effective bits (EFF, BITS)
2. Signal-to-noise ratio (S/N ratio)
3. Either a PASS or FAIL message.

NOTE

If PASS is printed, the HP 5180A is within the relevant specifications. If FAIL is printed, the HP 5180A is not within the relevant specifications. See Sections V, Adjustments, or Section VIII, Troubleshooting.

- k. The computer will display:

```
repeat curvefit? (no=1)
```

- l. Press to repeat the sine wave curve fit test. Otherwise, return to the System Performance Program level, by doing either of the following:

1. Type 1, then press .
2. Press **STOP**, then MAIN PERF softkey.

- m. If the computer displays:

```
did not converge in 10 iterations
```

the computer will display the message in step k. Repeat the sine wave curve fit test and ensure the following:

1. The input signal amplitude to the HP 5180A is indeed full-scale. Verify this by checking the computer printed value for M (peak magnitude) in step i.
2. The correct filter assembly frequency input and output is being used and that the signal is connected to the proper HP 5180A input channel specified in step c.
3. The input signal frequency is correct, i.e., 0.95 MHz or 9.85 MHz.

This completes the Performance Tests.

Table 4-2. Typical Performance Test Printouts

Overall Dynamic Test	SineWave CurveFit																																										
<p>-----</p> <p>HISTOGRAM</p> <p>CHANNEL AUX FREQ=9.85MHz</p> <p>MISSED CODES= 0 max nonlin in LSB= 0.9</p> <p>PASS</p> <p>-----</p> <p>FFT</p> <p>Channel A Frea=9.85MHz Limit -46dBc</p> <p>Peak noise=-53.9 dBc</p> <p>PASS</p> <p>Channel B Frea=9.85MHz Limit -46dBc</p> <p>Peak noise=-56.2 dBc</p> <p>PASS</p>	<p>-----</p> <p>Channel A Frea=9.85MHz Spec= 7.5EffBits</p> <table border="0"> <tr><td>#</td><td>1</td></tr> <tr><td>F</td><td>9849982.21</td></tr> <tr><td>P</td><td>-120.32</td></tr> <tr><td>M</td><td>87.27</td></tr> <tr><td>%</td><td></td></tr> <tr><td>DC</td><td>0.00</td></tr> <tr><td>RMS</td><td>1.25</td></tr> </table> <table border="0"> <tr><td>#</td><td>2</td></tr> <tr><td>F</td><td>9849982.21</td></tr> <tr><td>P</td><td>-120.32</td></tr> <tr><td>M</td><td>87.17</td></tr> <tr><td>%</td><td></td></tr> <tr><td>DC</td><td>0.00</td></tr> <tr><td>RMS</td><td>1.02</td></tr> </table> <p>EFF.BITS= 8.2 S/N RATIO= 50.8 PASS</p> <p>Channel A Frea=0.95MHz Spec= 7.5EffBits</p> <table border="0"> <tr><td>#</td><td>1</td></tr> <tr><td>F</td><td>949999.65</td></tr> <tr><td>P</td><td>136.21</td></tr> <tr><td>M</td><td>66.26</td></tr> <tr><td>%</td><td></td></tr> <tr><td>DC</td><td>0.00</td></tr> <tr><td>RMS</td><td>61.57</td></tr> </table>	#	1	F	9849982.21	P	-120.32	M	87.27	%		DC	0.00	RMS	1.25	#	2	F	9849982.21	P	-120.32	M	87.17	%		DC	0.00	RMS	1.02	#	1	F	949999.65	P	136.21	M	66.26	%		DC	0.00	RMS	61.57
#	1																																										
F	9849982.21																																										
P	-120.32																																										
M	87.27																																										
%																																											
DC	0.00																																										
RMS	1.25																																										
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F	949999.65																																										
P	136.21																																										
M	66.26																																										
%																																											
DC	0.00																																										
RMS	61.57																																										

Table 4-2. Typical Performance Test Printouts (Continued)

```
#          2
F      949999.71
P      136.14
M      79.27
%
DC      0.00
RMS     0.83
```

```
#          3
F      949999.71
P      136.14
M      79.18
%
DC      0.00
RMS     0.69
```

```
EFF.BITS= 8.7
S/N RATIO= 54.2
PASS
```

```
Channel B
Frea=9.85MHz
Spec= 7.8EffBits
```

```
#          1
F      949997.85
P     -157.91
M      65.18
%
DC     -0.00
RMS    66.58
```

```
#          2
F      949997.75
P     -158.00
M      79.39
%
DC     -0.00
RMS    0.95
```

```
#          3
F      949997.75
P     -158.00
M      79.26
%
DC     -0.00
RMS    0.71
```

```
EFF.BITS= 8.7
S/N RATIO= 54.1
PASS
```

```
Channel B
Frea=9.85MHz
Spec= 7.5EffBits
```

```
#          1
F      9849984.52
P     -16.56
M      87.91
%
DC     -0.00
RMS    2.16
```

```
#          2
F      9849984.52
P     -16.56
M      87.54
%
DC     -0.00
RMS    0.95
```

```
EFF.BITS= 8.3
S/N RATIO= 51.5
PASS
```


SECTION V ADJUSTMENTS

5-1. INTRODUCTION

5-2. This section contains the adjustment procedures required to maintain the HP 5180A operation within specifications. Adjustments should be made when required, such as for system calibration or after a performance test failure or after repairs have been made.

5-3. Flowcharts 1 through 5 indicate the sequence in which adjustments are To be performed, as follows:

Flowchart 1. Calibration (Sequence of adjustments to perform system calibration).

Flowchart 2. ADC Section Adjustment Sequence

Flowchart 3. Power Supply Section Adjustment Sequence

Flowchart 4. XYZ Section Adjustment Sequence

Flowchart 5. Timing and Oscillator Section Adjustment Sequence

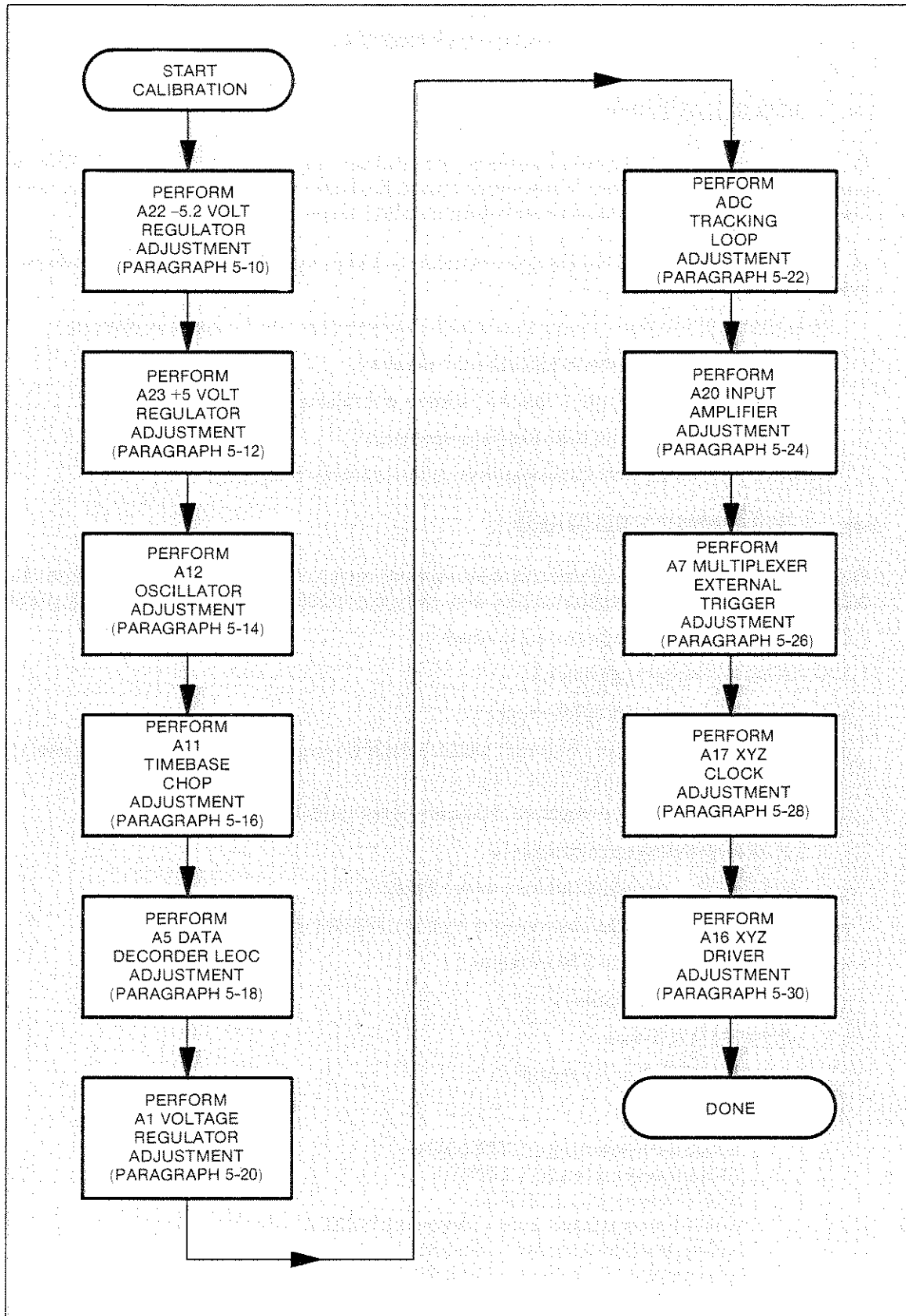
5-4. EQUIPMENT REQUIRED

5-5. The following is a list of general test equipment required for HP 5180A adjustments. Each adjustment procedure that follows lists the specific equipment required for the adjustment.

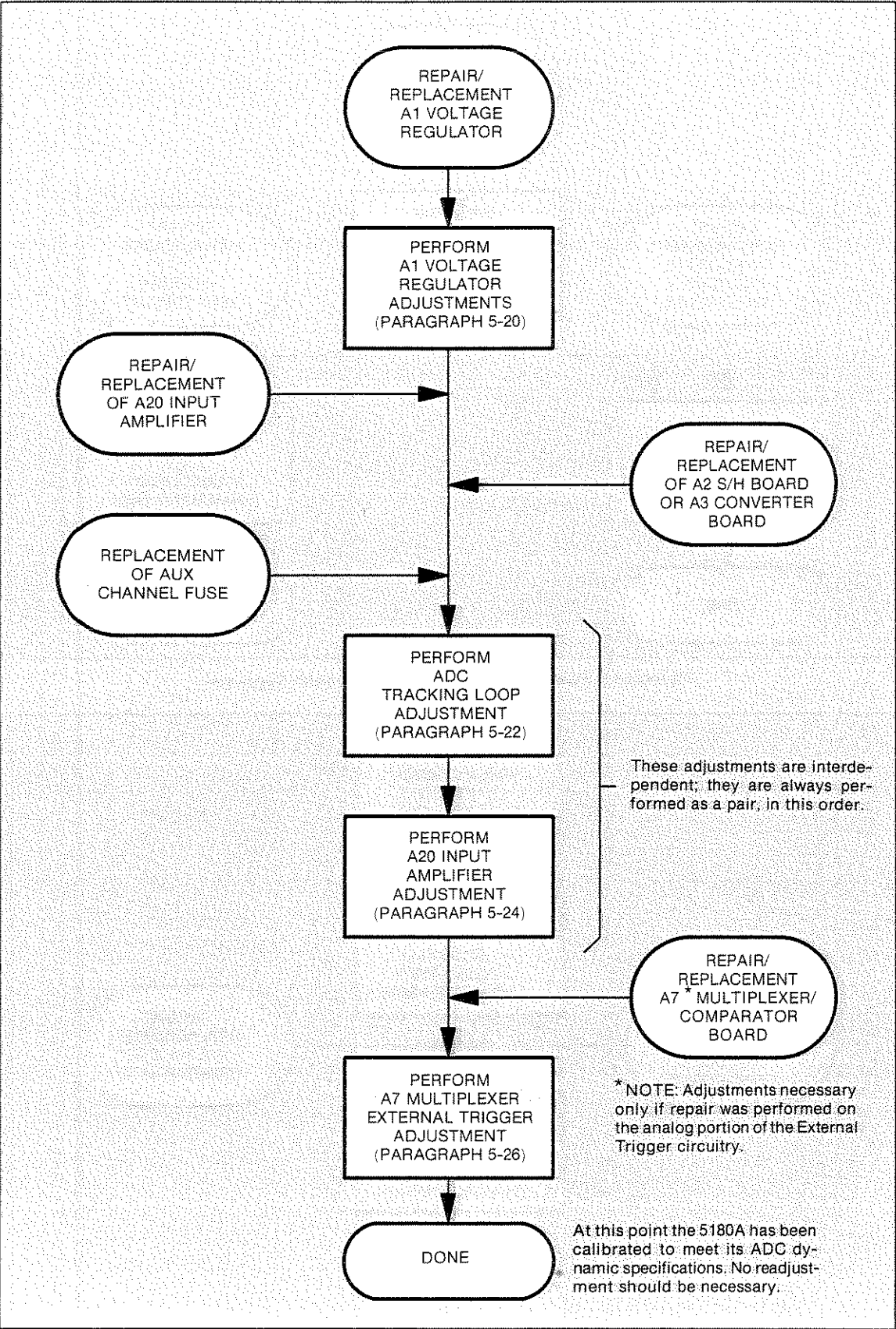
- a. HP 1725A Oscilloscope (or equivalent).
- b. HP 3455A Digital Voltmeter.
- c. HP 3335A Frequency Synthesizer.
- d. HP 9825T Computer or HP 9816A/9826A/9836A Computer (with $\frac{3}{4}$ Meg Byte RAM; HPL 2.0)*.
- e. HP 2225A Printer or equivalent (required with Series 200 Controller).
- f. HP 10871A/B Service Accessory.
- g. HP 5315A Universal Counter (or equivalent).
- h. HP 98034A HP-IB Interface (used with the HP 9825T Desktop Computer).
- i. HP 10833A, B, C, or D HP-IB Cables.
- j. HP 10503A BNC Cables.
- k. HP 10027A 1:1 Probe.
- l. HP 10013A 10:1 Divider Probe.
- m. Accessories:

1k-ohm Feedthrough, 10871-60101
50-ohm Feedthrough, 10100C
BNC T-connector, 1250-0781
BNC to dual banana plug adapter, 1251-2277
N(f) to BNC(m) adapter, 1250-0077
N(m) to BNC(f) adapter, 1250-0780
Tuning Wand

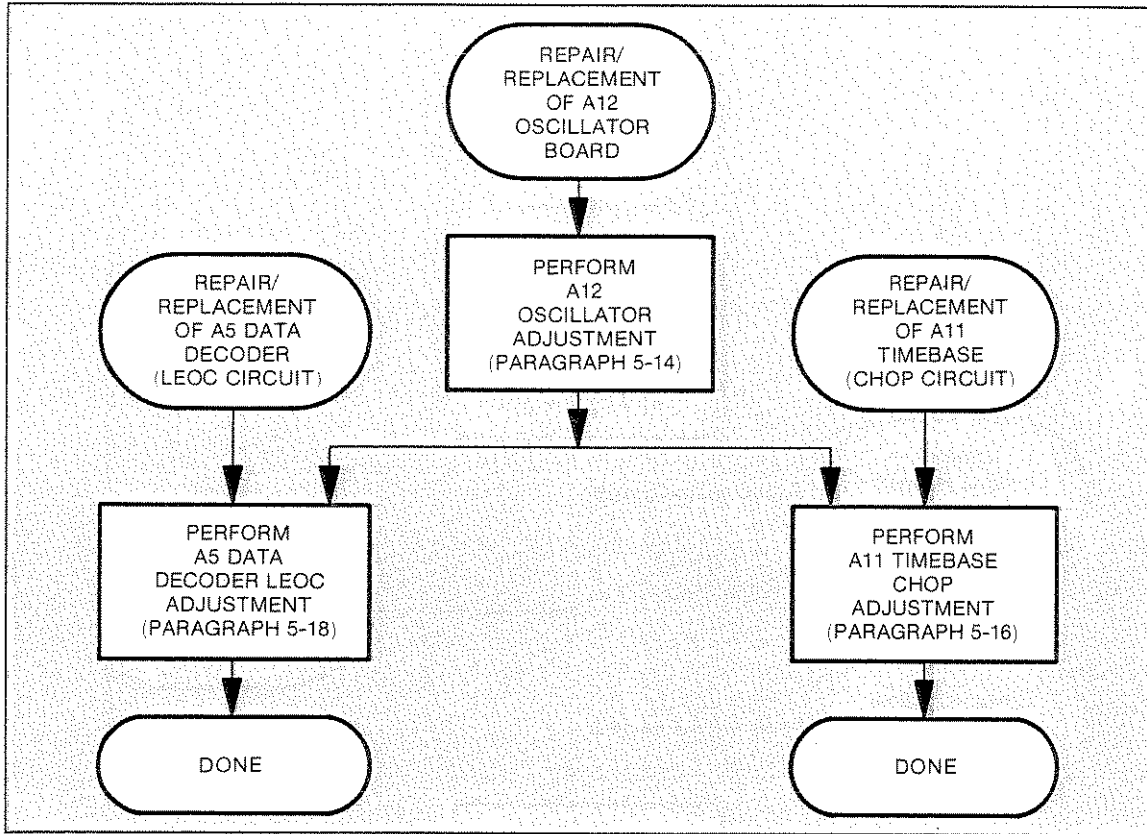
*Use any one of these computers to run tests. The HP 9825T Computer operates with a cassette tape supplied with the HP 10871A Service Accessory. The HP 9816A, HP 9826A, and HP 9836A computers operate with a 3½-inch floppy disc supplied with the HP 10871B Service Accessory.



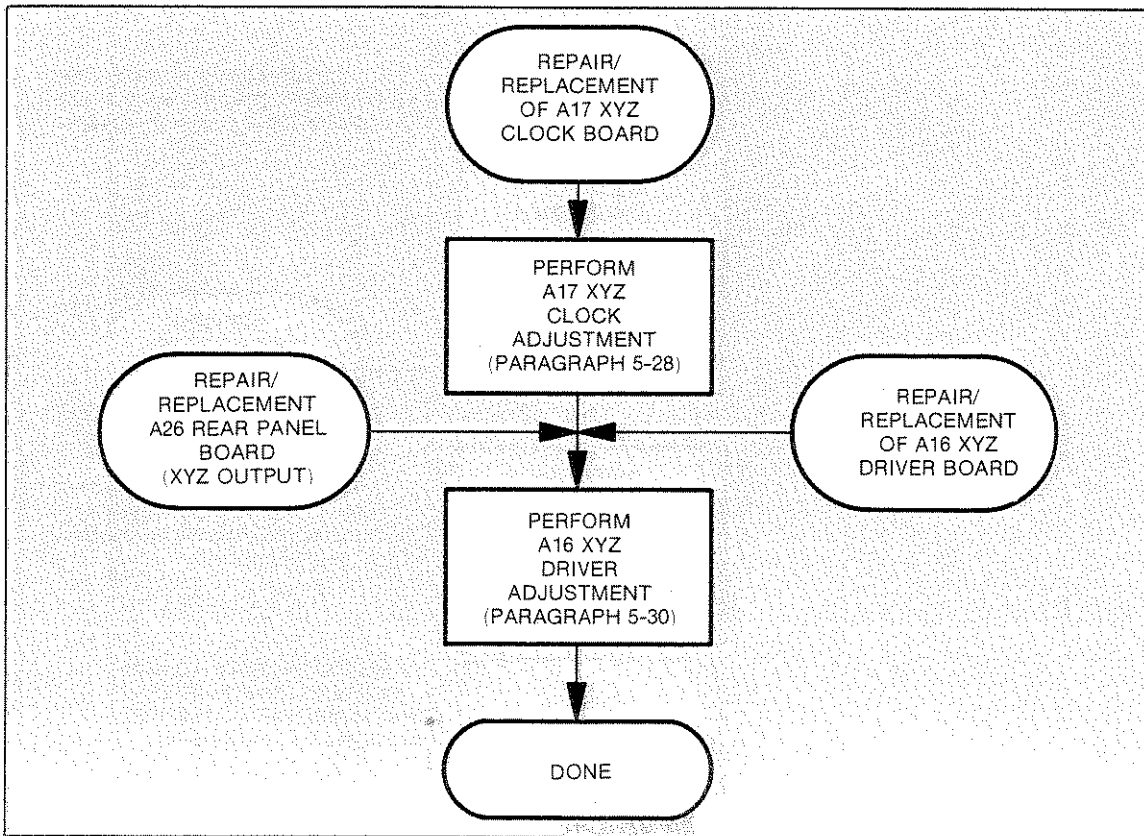
Flowchart 1. Calibration (Sequence of Adjustment to Perform System Calibration)



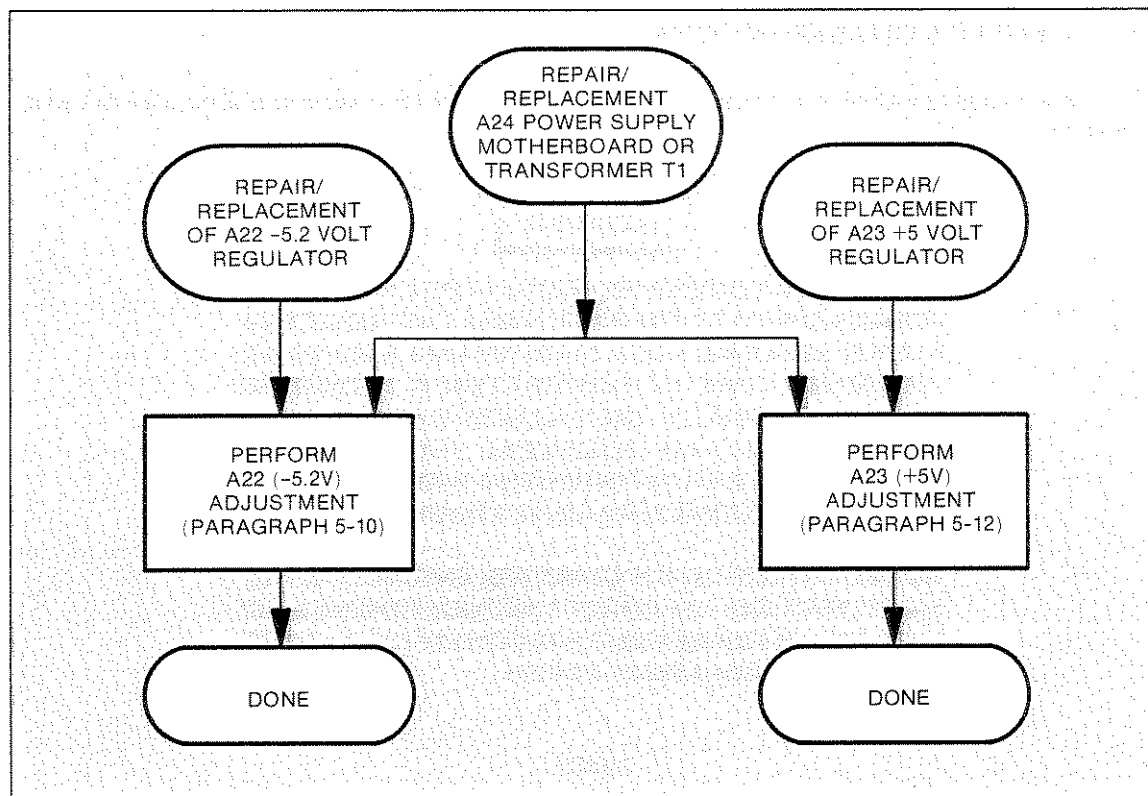
Flowchart 2. ADC Section Adjustment Sequence



Flowchart 3. Power Supply Section Adjustment Sequence



Flowchart 4. XYZ Section Adjustment Sequence



Flowchart 5. Timing Oscillator Section Adjustment Sequence

5-6. ADJUSTMENTS

NOTE

Before any adjustments are made, power-up the HP 5180A and allow it to warmup for 15 minutes.

5-7. Locations of adjustment components within the circuits are identified in the schematic diagrams in Section VIII and on the inside top subcover of the HP 5180A. In this section, locations are identified by illustrations within the specific procedure when necessary. Adjustment procedures are as follows:

- A22 -5.2 Volt Regulator Board Adjustment, paragraph 5-10.
- A23 +5 Volt Regulator Board Adjustment, paragraph 5-12.
- A12 Oscillator Adjustment, paragraph 5-14.
- A11 Timebase Chop Clock Adjustment, paragraph 5-16.
- A5 Data Decoder LEOC (Low End-of-Conversion) Adjustment, paragraph 5-18.
- A1 Voltage Regulator Adjustment, paragraph 5-20.
- ADC Tracking Loop Adjustment, paragraph 5-22.
- A20 Input Amplifier Adjustments, paragraph 5-24.
- A7 Multiplexer/Comparator External Trigger Adjustment, paragraph 5-26.
- A17 XYZ Clock Frequency Adjustment, paragraph 5-34.
- A16 XYZ Driver Adjustments, paragraph 5-36.

5-8. SAFETY CONSIDERATIONS

5-9. This section contains warnings that must be followed for your protection and to avoid damage to the equipment.

WARNING

MAINTENANCE DESCRIBED HEREIN IS PERFORMED WITH POWER SUPPLIED TO THE INSTRUMENT AND PROTECTIVE COVERS REMOVED. SUCH MAINTENANCE SHOULD BE PERFORMED ONLY BY SERVICE-TRAINED PERSONNEL WHO ARE AWARE OF THE HAZARDS INVOLVED (FOR EXAMPLE, FIRE AND ELECTRICAL SHOCK). WHERE MAINTENANCE CAN BE PERFORMED WITHOUT POWER APPLIED, THE POWER SHOULD BE REMOVED.

BEFORE ANY REPAIR IS COMPLETED, ENSURE THAT ALL SAFETY FEATURES ARE INTACT AND FUNCTIONING AND THAT ALL NECESSARY PARTS ARE CONNECTED TO THEIR PROTECTIVE GROUNDING MEANS.

NOTE

The adjustment procedures in this section require removal of instrument covers. If necessary, refer to the Disassembly and Reassembly procedures, paragraph 8-19.

5-10. A22 -5.2 Volt Regulator Board Adjustment

5-11. The -5.2 Volt Regulator adjustment is performed when the A22 board or A24 Power Supply Motherboard is repaired or replaced.

Equipment Required:

HP 10027A 1:1 Probe
HP 10503A BNC Cable
Tuning Wand
HP 3455A Digital Voltmeter

Procedures:

- a. Remove the top cover of the HP 5180A.
- b. Set the HP 3455A as follows:
FUNCTION DC Volts
TRIGGER INTERNAL
RANGE AUTO
- c. Connect HP 3455A ground to the ∇E test pin on the A11 board.
- d. Apply power to the equipment.
- e. Using the probe, measure the voltage at the A11 Timebase board -5.2V test pin (TP12).
- f. Adjust potentiometer A22R16 until the HP 3455A measures -5.20 volts (± 10 mV).

This completes the adjustment of the -5.2V Volt Regulator board.

5-12. A23 +5 Volt Regulator Board Adjustment

5-13. The +5 Volt Regulator adjustment is performed when the A23 board or the A24 Power Supply Motherboard is repaired or replaced.

Equipment Required:

HP 3455A Digital Voltmeter
HP 10027A 1:1 Probe
HP 10503A BNC Cable
Tuning Wand

Procedure:

- a. Remove the top cover of the HP 5180A.
- b. Set the HP 3455A as follows:
FUNCTION DC Volts
TRIGGER INTERNAL
RANGE AUTO
- c. Connect HP 3455A ground to the ∇T test pin on the A11 board.
- d. Apply power to the equipment.
- e. Using the probe, measure the voltage at the A11 Timebase board +5V test pin (TP2).
- f. Adjust A23R14 until the HP 3455A measures +5.00 volts (± 10 mV).

This completes the adjustment of the +5 Volt Regulator board.

5-14. A12 Oscillator Adjustment

5-15. The A12 Oscillator is adjusted to provide an accurate 20 MHz signal (for sampling control) to the ADC and accurate system clock frequencies for operation of the HP 5180A.

Equipment Required:

HP 5315A Frequency Counter

Accessories:

HP 10503A BNC Cable
Tuning Wand

Procedures:

- a. Set the HP 5315A controls as follows:
Function FREQ A
Blue key out
GATE TIME MIN
CHANNEL A SETTINGS
AC/DC AC
ATTN X1
FILTER NORM
SEP/COM SEP
SLOPE \lrcorner
TRIGGER LEVEL

- b. Connect HP 5315A Channel A to TIME BASE OUT on the rear panel on the HP 5180A.
- c. Set the INT/EXT TIME BASE switch on the rear panel of the HP 5180A to INT.
- d. Turn on the equipment and allow a 15-minute warmup.
- e. Adjust A12C1 (OSC ADJ), located inside protective shielding, for a reading on the counter of 20 MHz (± 10 Hz).

This completes the adjustment of the oscillator.

5-16. A11 Timebase Chop Clock Adjustment

5-17. The Chop Clock adjustment is performed to insure proper operation of the CHOP A, B mode of the HP 5180A.

Equipment Required:

HP 1725A Oscilloscope (or equivalent)

Accessories:

HP 10013A 10:1 Divider Probe (2)
Tuning Wand

Procedures:

- a. Remove the top covers of the HP 5180A to gain access to the A11 board.
- b. Set up the oscilloscope as follows:

Chan A	.....	dc, 0.1V/div.
Chan B	.....	dc, 0.1V/div.
INT TRIG	.....	A
VERT DISPLAY	.....	ALT
HORIZ DISPLAY	.....	MAIN
TIME/DIV	.....	.02 μ s
- c. Connect AMPCLK test point (TP8) on A11 board to Channel A of the oscilloscope and connect CHPCLK test point (TP7) on the A11 board to Channel B of the oscilloscope. Ground the probes at test point ∇_E .
- d. Turn on the HP 5180A and the oscilloscope.
- e. On the HP 5180A, press (in order) SHIFT, PRESET, and then CHOP A, B.
- f. Set the Service Switch on A11 board so that the processor is in a "record forever" mode as shown in *Figure 5-1*.
- g. Adjust A11R18 (CHPCLK) so the rising edge of the CHPCLK waveform occurs after the rising edge of the AMPCLK waveform as shown in *Figure 5-2*. The separation should be 20-25 ns.
- h. Place the Service Switch on the A11 board back into the normal position as shown in *Figure 5-3*.

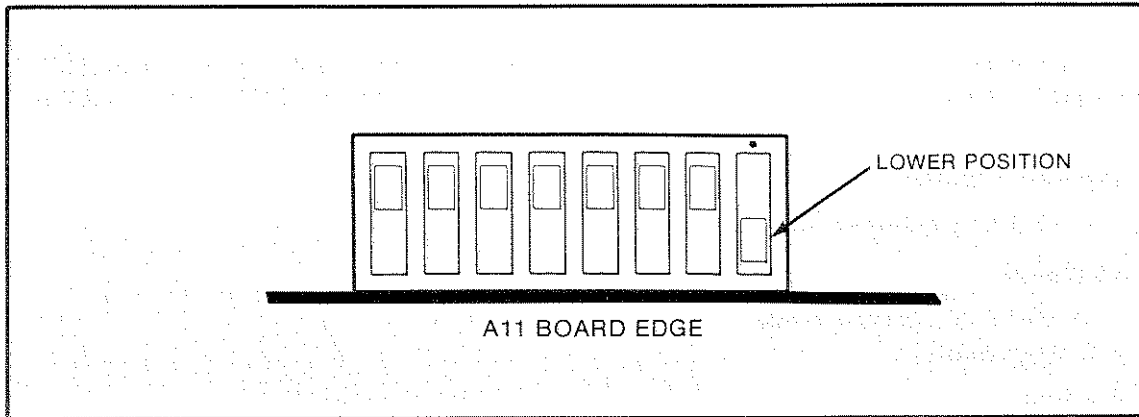


Figure 5-1. A11 Board Switch Settings for Record Forever Mode

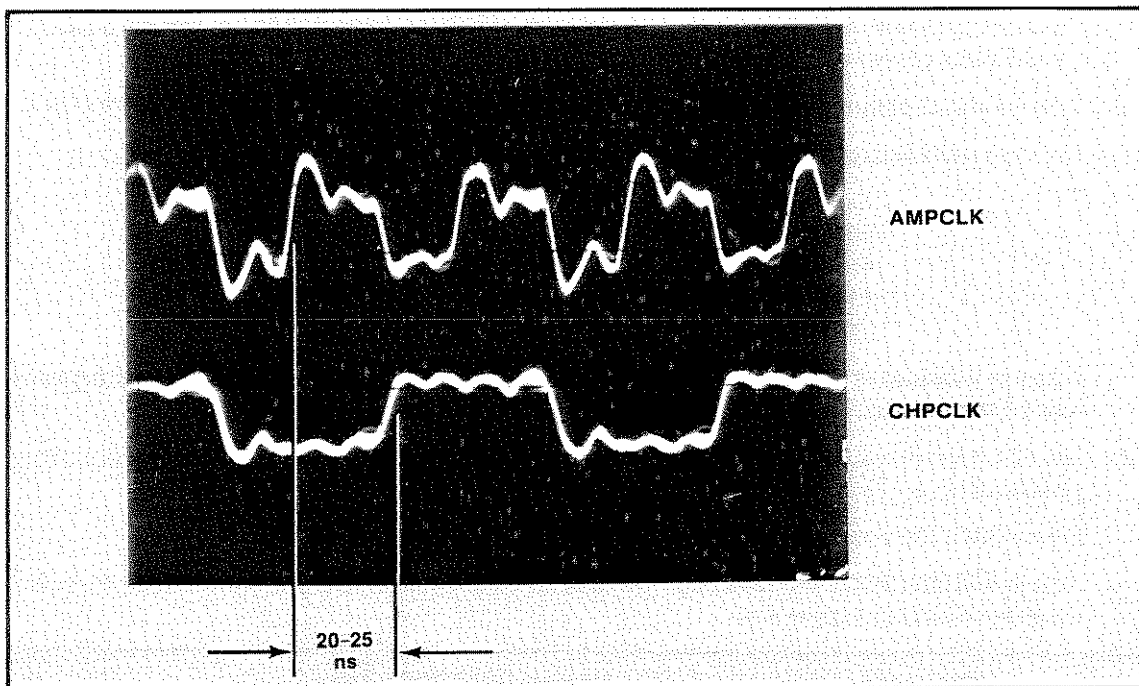


Figure 5-2. AMPCLK and CHPCLK Waveform

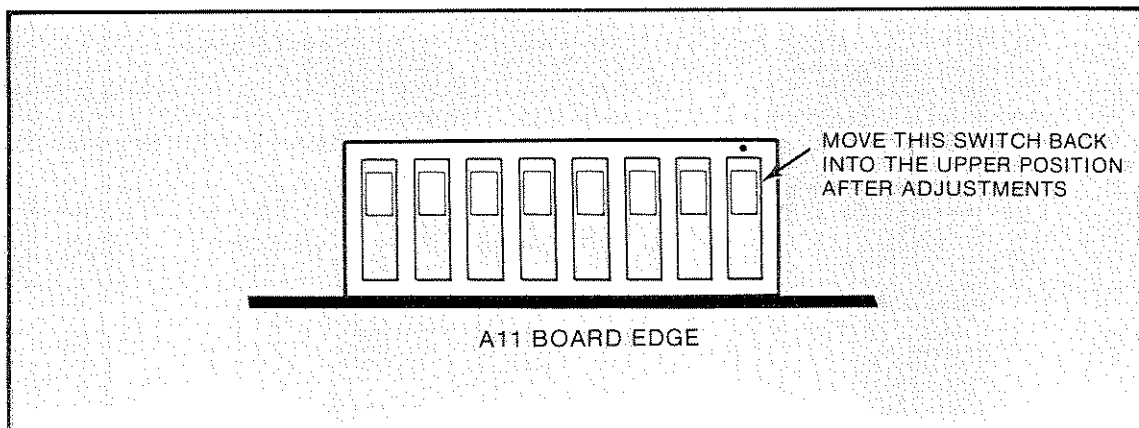


Figure 5-3. Normal Switch Settings

This completes the Chop Clock adjustment.

5-18. A5 Data Decoder LEOC (Low End-of-Conversion) Adjustment

5-19. The LEOC adjustment is performed to ensure correct pulse width of the critical LEOC pulse used by A10 Memory Controller. A10 Memory Controller uses the LEOC pulse to clock the data bits entering memory.

Equipment Needed:

HP 1725A Oscilloscope (or equivalent)

Accessories:

HP 10013 10:1 Divider Probe
Tuning Wand

Procedure:

- Remove the top covers of the HP 5180A to gain access to the A5 and A9 board.
- Connect Channel A of the oscilloscope to the $\overline{WE2}$ test point (TP10) on the A9 board. Ground the probe at test point ∇_T .
- Turn on the oscilloscope and the HP 5180A. On the HP 5180A, press SHIFT, then PRESET.
- Set the oscilloscope controls as follows:

Channel A05 volts/div, dc input
VERT DISPLAY A
INT TRIG A
HORIZ DISPLAY MAIN
TIME/DIV 0.1 μ s

Ground channel A and adjust Channel A POSITION such that ground is at the bottom line of the display.

- Set the Service Switches on the A11 board as shown in *Figure 5-1*. This will place the processor in a "record forever" mode.
- Press MAG X10 on oscilloscope.
- Adjust A5R21 (LEOC ADJ) for test point $\overline{WE2}$ to have a $30(\pm 1)$ ns pulse width at the 1.5 volt level as shown in *Figure 5-4*.

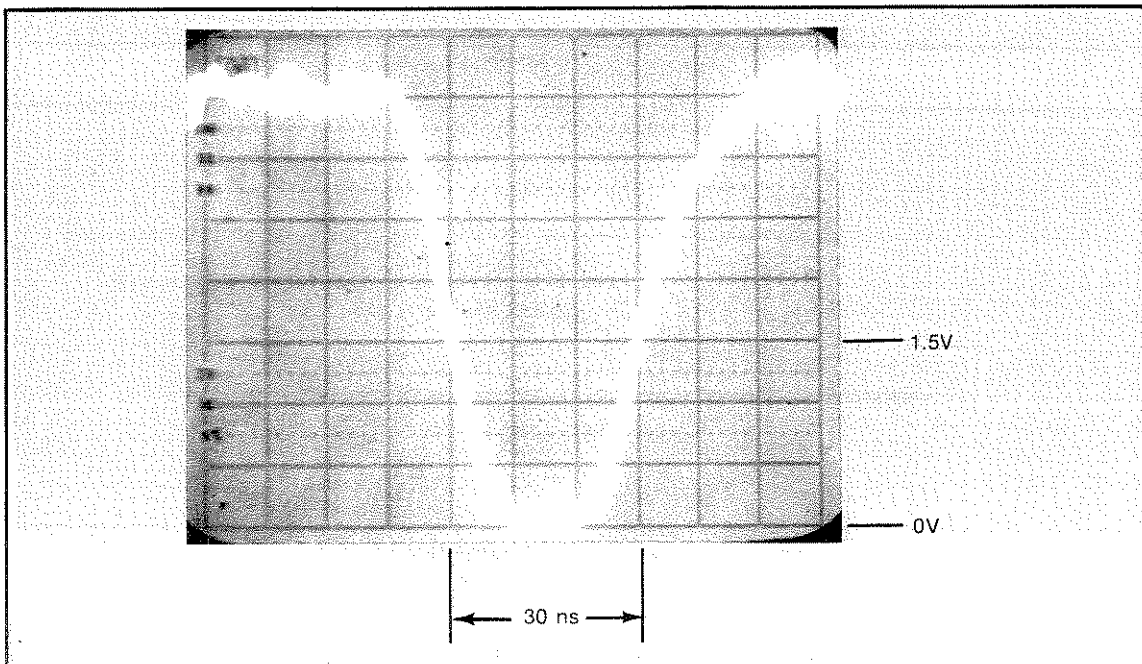


Figure 5-4. $\overline{WE2}$ Waveform

- h. Set the switches back in the normal mode as shown in *Figure 5-3*.
This completes the adjustment of the LEOC.

5-20. A1 Voltage Regulator Adjustment

5-21. Adjustments to A1 Voltage Regulator are performed to ensure that the correct operating voltages are supplied to A2 Sample and Hold board, and A3 20 MHz Converter board.

Equipment Required:

HP 3455A DVM

Accessories:

HP 10027A 1:1 Probe
Extender Board, 05180-60060
BNC (f) to dual banana plug adapter, 1251-2277
Tuning Wand

Procedure:

- a. Remove the top covers of the HP 5180A to gain access to the A1 board.
- b. Place the A1 board on the extender board in A1 position.
- c. Connect the probe to the adapter at the input to the HP 3455A.
- d. Set the DVM as follows:

FUNCTION	.....	DC volts
RANGE	.....	AUTO
TRIGGER	.....	INTERNAL
- e. Connect the ground lead of the probe to the H 5180A chassis.
- f. Turn on the HP 5180A and the DVM.
- g. While measuring the voltages at the center tap, shown in *Figure 5-5*, adjust the variable resistors on the A1 board for the voltages specified in the INDICATION column of *Table 5-1*.

Table 5-1. A1 Voltage Regulator Adjustments

ADJUST	CONNECT PROBE TO TERMINAL, FIGURE (5-5):	INDICATION
A1R10, -8 S/H	POINT A	-8V (± 1 mV)
A1R15, +8 S/H	POINT B	+8V (± 1 mV)
A1R21, +8 VCL S/H	POINT C	+8V (± 1 mV)
A1R25, +11 VCL S/H*	POINT D	+12V (± 1 mV)
A1R32, +8 VCL CONV*	POINT E	+9V (± 1 mV)
A1R40, +11 VCL CONV	POINT F	+11V (± 1 mV)

*NOTE: The voltage labeled on the board as shown in the Adjust column is not precise. Adjust for the voltage shown under INDICATION.

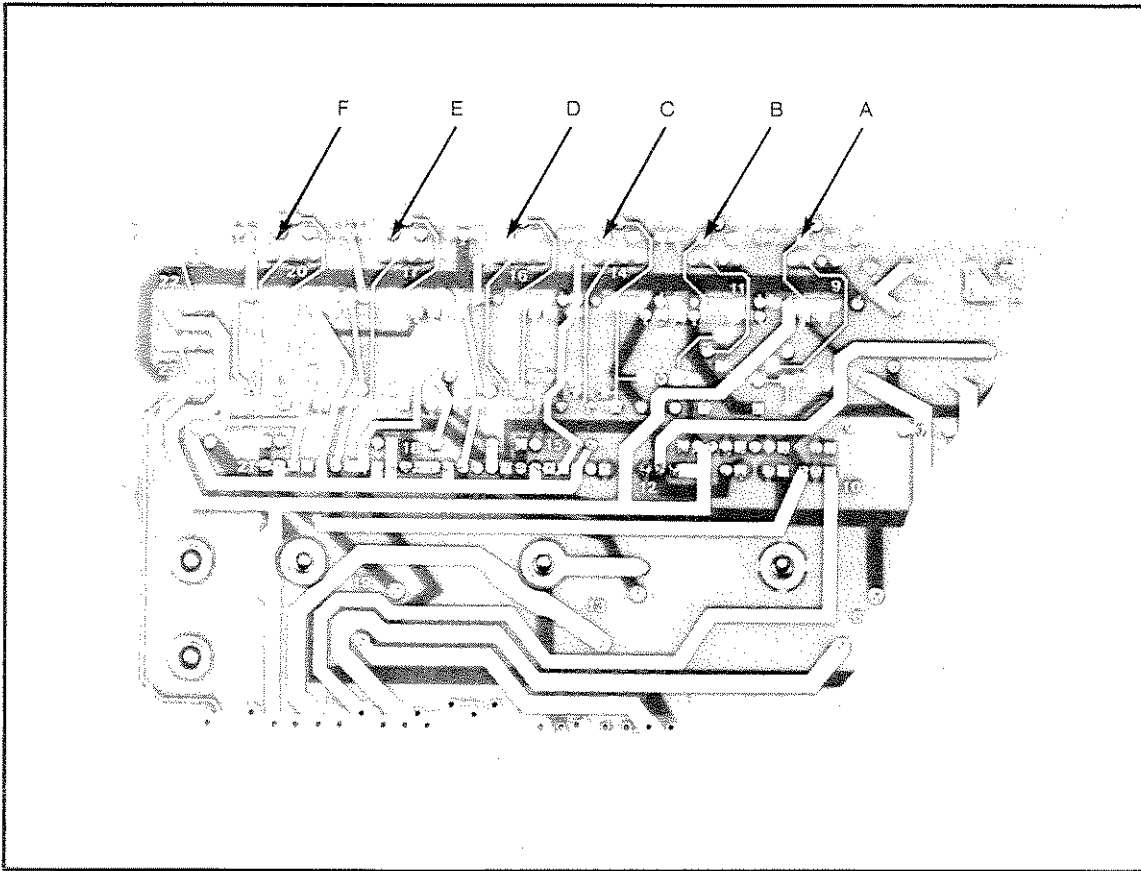


Figure 5-5. A1 Voltage Regulator Test Points

- h. The A1 Voltage Regulator board adjustments have changed the regulated critical voltages for the analog-to-digital converter (ADC). The ADC (boards A1-A5) now needs to be adjusted as described in paragraph 5-22, the Input Amplifier as described in paragraph 5-24, and the External Trigger as described in paragraph 5-26. Perform the adjustments in the order listed (refer to *Flowchart 2*).

This completes the adjustments for the A1 Voltage Regulator board.

5-22. ADC Tracking Loop Adjustment

5-23. The tracking loop adjustment is performed to ensure the relative absolute accuracy of the ADC.

Equipment Required:

- HP 3455A DVM
- HP 9825T/9816A/9826A/9836A Computer*
- HP 2225A Printer or equivalent (required with Series 200 Controller)
- HP 1725A Oscilloscope (or equivalent)

Accessories:

- HP 98034A HP-IB Interface (used with the HP 9825T Desktop Computer)
- HP 10871A/B Service Accessory*
- 1k-Ohm Feedthrough, 10871-60101
- BNC T-connector, 1250-0781
- HP 10503A BNC Cables
- HP 10833A, B, C, or D HP-IB Cables
- HP 10027A 1:1 probe
- Tuning Wand

Optional:

- HP 7475A 6-Pen Graphics Plotter

Procedure:

- a. Remove the top covers of the HP 5180A.
- b. Turn on the HP 5180A and allow it to warmup for 15 minutes. The Analog-to-Digital Converter (ADC) needs to be at operating temperature for correct adjustment. For this reason also, the subcover should be kept closed whenever possible to insure proper cooling of the ADC.
- c. Set the HP 3455A as follows:

Function	DC volts
Range	AUTO
- d. While measuring the voltage of the center wiper of the -5.2V PREC potentiometer on the A3 board (point A in *Figure 5-6*), adjust the -5.2V PREC potentiometer (R41) for a DVM reading of -5.2 volts (± 1 mV). The HP 3455A probe should be grounded at the ∇_A test point on the A3 board.

*Use any one of these computers to run tests, The HP 9825T Computer operates with a cassette tape supplied with the HP 10871A Service Accessory. The HP 9816A, HP 9826A, and HP 9836A computers operate with a 3 1/2-inch floppy disc supplied with the HP 19871B Service Accessory.

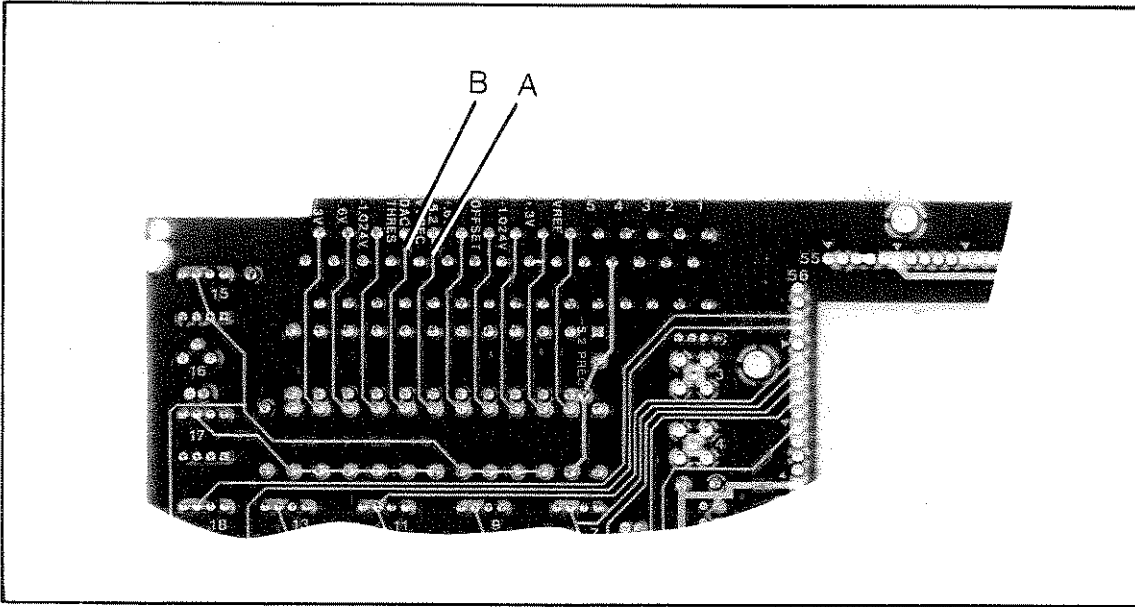


Figure 5-6. Test Points on Back of A3 Board

- e. While measuring the voltage of the center terminal of the DAC THRES potentiometer on the A3 board (point B in Figure 5-6), adjust the DAC THRES pot (R44) for a DVM reading of -0.4 volts (± 1 mV). The HP 3455A probe should be grounded at the ∇_A testpoint on the A3 board.
- f. Connect the equipment in the ADC Tracking Loop Test Setup shown in Figure 5-7.
- g. Load and run the System Main Program. If you are using a HP 9825T Computer, perform the following:
 1. Insert the cassette tape (part of HP 10871A) into the computer.
 2. Turn on the computer power. This will cause the computer to automatically load and run the System Main Program. Proceed to step h.

If you are using a HP 9816A/26A/36A, perform the following:


1. Insert the HPL 2.0 disc in Drive 0 of the computer.

NOTE

If HPL 2.0 is already in the system proceed to step 4.

2. Turn on the computer power and the HPL disc will automatically be loaded in.
3. The prompt "(RAM) 2.0 READY" will appear on the computer display. Remove the HPL 2.0 disc.
4. Insert the HP 5180A Service Disc in Drive 0 of the computer.
5. Type: **get "sysmain"** or Press **K6** Softkey and type **"sysmain"**, then press



6. Press  to run the system main program.

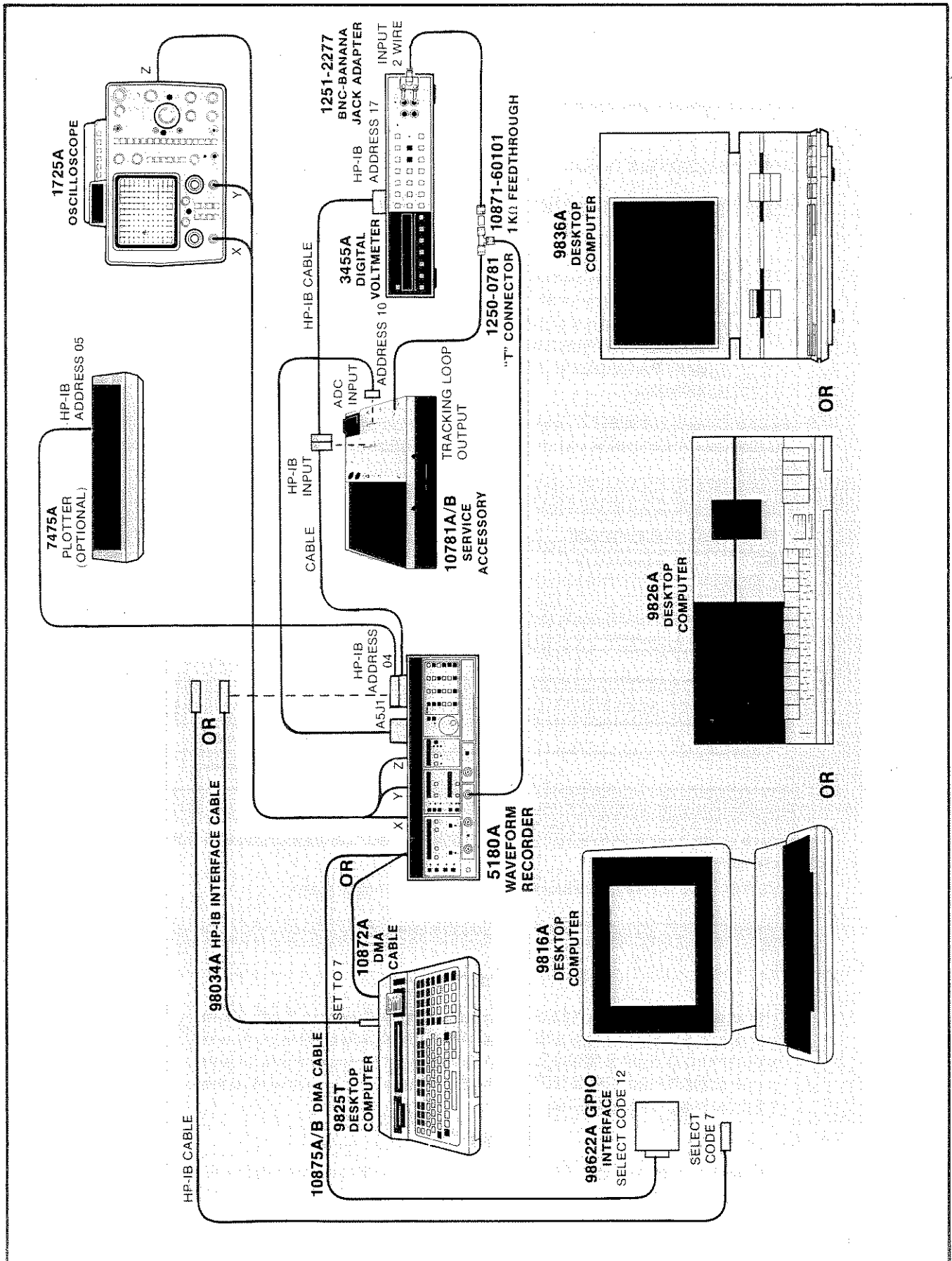


Figure 5-7. ADC Tracking Loop Test Setup

- h. You should now see the following on the computer display:
on HP 9825T display

MAIN: ADJUSTMENTS (F10) or PERFORMANCE (F11)

OR

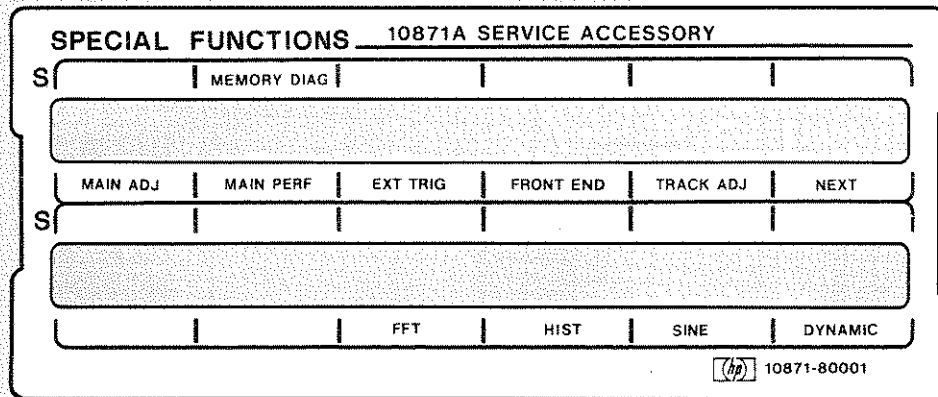
- on HP 9816A/26A/36A display

MAIN: ADJUSTMENTS (K5) or PERFORMANCE (K6)

NOTE

The computer is now in the System Main Program level. (Refer to *Figure 4-10* for the program structure.) The computer will go from this level to either the System Adjustments Program level (for doing adjustments) or the System Performance Program Level (for doing performance tests).

- i. If you are using a HP 9825T Computer, place the overlay for softkeys (part of HP 10871A Accessory) over the softkeys at this point. The plastic overlay for the HP 9825T is shown below:



If you are using a HP 9816A/26A/36A, the softkey labels will be displayed at the bottom of the screen.

Press MAIN ADJ softkey. The computer display will now be:

ADJUSTMENT COMMAND:

NOTE

The computer is now in the System Adjustment Program level. From this point on, if you press **STOP**, then the MAIN ADJ softkey, you will return to the start of the System Adjustments Program level. If you press **STOP**, then MAIN PERF softkey, you will go to the System Performance Program level.

NOTE

If you are using the HP 9825T Computer (controller) to perform the next step (j), make sure your controller is not a HP 9825B. If it is, the HP 9825B will display the error message "error 40 in 23", which means the controller has insufficient memory to operate the Tracking Loop Adjustment.

- j. Press TRACKING ADJ softkey on the computer keyboard. This will cause the file containing the tracking loop program to be loaded and run. The computer display should now be:

```
Tracking Loop adj command: ?
```

- k. Ensure that the AUX light on the HP 5180A front panel is lit. Select desired program by **typing the letters listed below (in quotation marks)**, then pressing CONTINUE :

“all” — to continue with the entire ADC tracking loop adjustment.

NOTE

You may wish to do a performance test of the ADC before it is adjusted. This will give you a “feel” for the improvement in the performance in the ADC. This test takes approximately 5 minutes to perform and is described in the NOTE that follows step y. Typed “d” to perform this test.

“d” — to perform a tracking loop performance test only.

“h” — to print a help statement.

“e” — to exit the adjustment procedure and return to the system command level.

To continue the adjustments enter “all”. Press

- l. The computer display should now be:

```
Adj R10 for even LED brightness
```

Using the HP 3455A DVM, measure the voltage at the BALANCE test point on the HP 10871A/B. Adjust the HP 10871A/B BALANCE (R10) for DVM reading of $-1.290V$ ($0.005V$) at the BALANCE test point. Reconnect the HP 3455A DVM to the 10871-60101 1k-ohm feedthrough.

- m. Press NEXT softkey. The computer display should now be:

```
LEDs should read 0000011111
```

This display refers to the ADC monitor LEDs on the HP 5180A front panel. Check the LEDs to verify proper indication or there may be a problem with the ADC. The ADC CODE LEDs on the HP 10871A/B Service Accessory will be the same as the computer. If not, check system connections.

- n. Press NEXT softkey. The computer display will now be:

```
Plug A4J4 (2nd Pass Clk.)
```

Now disconnect the second pass clock cable from A4J4. Be sure you disconnect the cable at the A4 board. Be very careful not to short the cable end as you disconnect it.

NOTE

If you short out the cable in the step above, you should turn the HP 5180A off and back on to reset the power supplies. Now press **STOP**, then MAIN ADJ softkey to go back to the System Adjustments Program level and start the procedure over.

- o. Press NEXT softkey. The next message on the computer display should be:

LEDs should read 0000010000.

If the LEDs are not correct, connect and disconnect the cable connected to the Second Pass Clock jack (A4J4) until the LEDs are correct. Leave the cable disconnected from A4J4.

- p. After obtaining the correct LED readout, press NEXT. The computer will now display:

Connect 50 ohm load to A4J4.

- q. Connect the 50-ohm load (1250-0839) to the cable (10871-60104), both supplied with the HP 10871A/B Service Accessory. Place the cable with the 50-ohm load on the second pass clock connector (A4J4). Press NEXT softkey.

- r. The computer display should now be:

LEDs should read 1111110000.

Check the LEDs to verify proper indication. Press NEXT softkey.

- s. The computer display should now be:

Adj A2 Offset for DVM = .00000.

- t. Adjust the Offset potentiometer (A2R7) on the A2 board until the DVM indicates 0.0000 volts (per computer display).

NOTE

In most cases the above procedure will allow successful completion of the Tracking Loop Adjustment. If the unit cannot be properly adjusted, one of the ADC Potentiometers may be too far out of adjustment for the Tracking Loop Procedure to work. If this is the case, you can set all the adjustments to an initial setting. By setting the potentiometers as listed in the table below, you have a starting point where all the settings are reasonably correct. Once they are adjusted, you should be able to fine tune the adjustments with the Tracking Loop Adjustment to the correct settings.

Initial Potentiometer Settings

A3 REFERENCE DESIGNATOR	SUBCOVER LABEL	POTENTIOMETER SETTING
*R53	-0.3V	-0.33V
R50	-0.6V	-0.66V
R47	-1.024V	-0.94V
R44	DAC THRES	-0.400V
R41	-5.2V PREC.	-5.20V
R38	+0.6V	+0.66V
R35	OFFSET	+2.2V
R32	+1.024V	+0.94V
R29	+0.3V	+0.33V
R26	VREF	+2.99V

*Be sure to use the ∇ test pin on the A3 board as a ground reference.

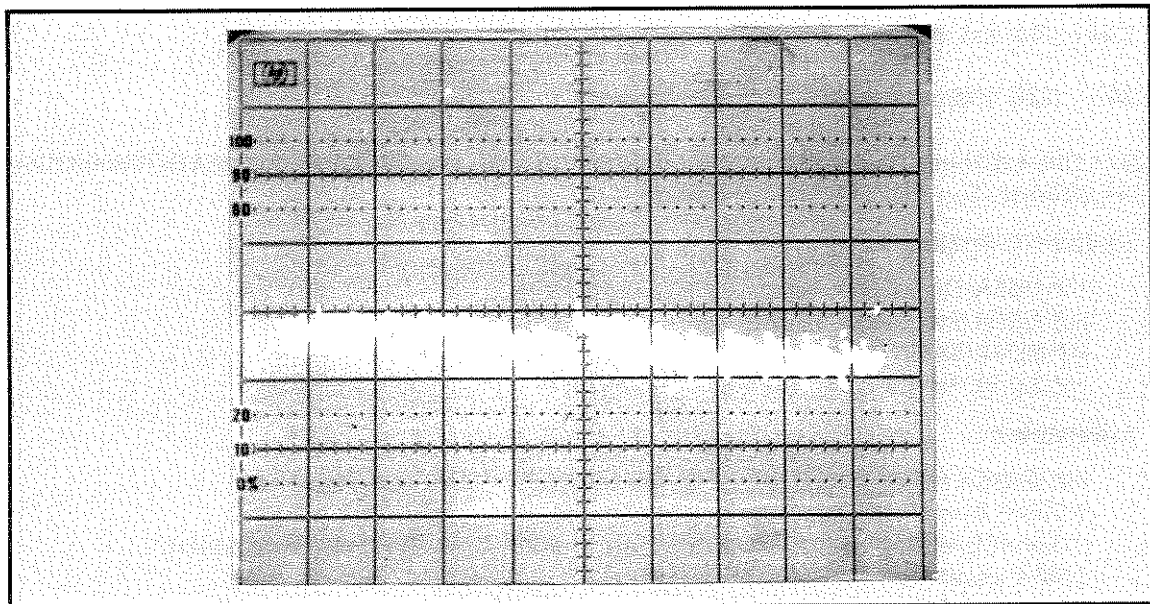
- u. Press NEXT softkey and follow instructions displayed on computer.

- v. Repeat step x and perform each adjustment displayed until the computer displays the following, with a count from 0 to 1023 (NNNN):

Tracking Loop Measurement: NNNN

NOTE

The preceding display shows that the computer is conducting a performance test of the ADC circuit. The absolute and relative accuracies* of the ADC are printed on the printer. On the oscilloscope display is a plot of the input code (from 0 to 1023) versus the difference between the theoretical and actual voltages measured in Q-levels**. The scale of the display is normally from +4 to -4 Q-levels but the range may be scaled to fit the screen. In either case, the range is printed on the printer. The plot should resemble the photo shown in *Figure 5-8*. If you are doing a before and after comparison of the ADC performance, be sure not to be misled by a change in the Q-level scale.



*Figure 5-8. Tracking Loop Accuracy Plot
(Absolute Accuracy of 1.175, Relative Accuracy of 0.594)*

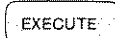
*Absolute accuracy is the maximum deviation of the ADC transfer function from the ideal transfer function where the definition of the threshold levels is given in terms of absolute units as maintained by the National Bureau of Standards.


Relative accuracy is the maximum deviation of the ADC transfer function from a “best fit” line of the ADC transfer function.

**Quantization level — the difference in voltage between consecutive levels or codes in the ADC. It is defined as 2 millivolts for the HP 5180A.

NOTE

To make a hardcopy plot of the Tracking Loop Accuracy Plot, press PAUSE (on the HP 9816A/26A/36A), and then type the following commands:

cmd 7, "?U\$", "OP", then press 

cmd 7, "D%", then press 

NOTE

After the ADC measurement is completed the program returns to the ADC tracking loop adjustment command level of the program (step j). If the ADC is still not correct or you wish to try to improve the performance of the ADC just type in "all" and go to step n to repeat the procedure.

Since the ADC adjustment and the A20 Input Amplifier are interdependent, these adjustments must be performed in sequence as shown in *Flowchart 2*.

Type in "e" or press **STOP** then the MAIN ADJ softkey to exit the Tracking loop program and return to the System Adjustments Program level.

This completes the ADC Tracking Loop adjustment.

5-24. A20 Input Amplifier Adjustments

5-25. The A20 Input Amplifier signal conditioning circuits are adjusted after the ADC circuit has been adjusted. See *Flowchart 1*, Calibration.

Equipment Required:

- HP 3455A Digital Voltmeter
- HP 3335A Frequency Synthesizer
- HP 9825T/9816A/9826A/9836A Computer*
- HP 2225A Printer or equivalent (required with Series 200 Controller)

Accessories:

- HP 98034A HP-IB Interface (used with the 9825T Desktop Computer)
- 50-ohm Feedthrough, 10100C
- 1K-ohm Feedthrough, 10871-60101 (Part of HP 10871A/B Service Accessory)
- BNC T-connector, 1250-0781
- HP 10503A BNC Cables
- HP 10013A 10:1 Divider Probe
- HP 10833A, B, C, or D HP-IB Cables
- Tuning Wand

NOTE

The following procedure assumes that the A1 through A5 boards are within specifications, as described in the ADC Tracking Loop adjustments, paragraph 5-22.

*Use any one of these computers to run tests. The HP 9825T Computer operates with a cassette tape supplied with the HP 10871A Service Accessory. The HP 9816A, HP 9826A, and HP 9836A computers operate with a 3½-inch floppy disc supplied with the HP 10871B Service Accessory.

Procedure:

- a. Remove both the top and bottom covers of the HP 5180A.
- b. Connect the equipment in the test setup shown in *Figure 5-9*.
- c. Turn on the HP 5180A and allow a 15-minute warmup.

NOTE

Refer to paragraph 5-23 steps i through k if the system is not already loaded.

- d. Press the MAIN ADJ softkey. The computer display should now be:

```
ADJUSTMENT COMMAND: /
```

NOTE

The computer is now in the System Adjustments Program level. From this point on, if you press **STOP**, then the MAIN ADJ softkey, you will return to the System Adjustments Program level. If you press **STOP**, then the MAIN PERF softkey, you will go to the System Performance Program level.

- e. Press FRONT END softkey on the computer keyboard. This will cause the file containing the front end (input amplifier) program to be loaded and run. The display should now read:

```
Front End Command:
```

- f. Select the desired program by typing the letters listed below (in quotation marks) then pressing **CONTINUE**:

“all” — to do the entire input amplifier adjustment.

“e” — to exit the input amplifier adjust program and return to the system command level.

“h” — to print a help statement.

- g. To continue the input amplifier adjustments enter “all”. Then press **CONTINUE**.

- h. The computer display will be:

```
Adj R10 for even LED brightness
```

Using the HP 3455A DVM, measure the voltage at the BALANCE test point on the HP 10871A/B. Adjust the HP 10871A/B BALANCE (R10) for a DVM reading of -1.290V (0.005V) at the BALANCE test point.

- i. Press NEXT softkey. The NEXT key is the standard key for going to the next step of the procedure. The **CONTINUE** key is only used for entering data from the keyboard. The display will be:

```
adj R POSN - 5180/82 dsp .000 +/- .004
```

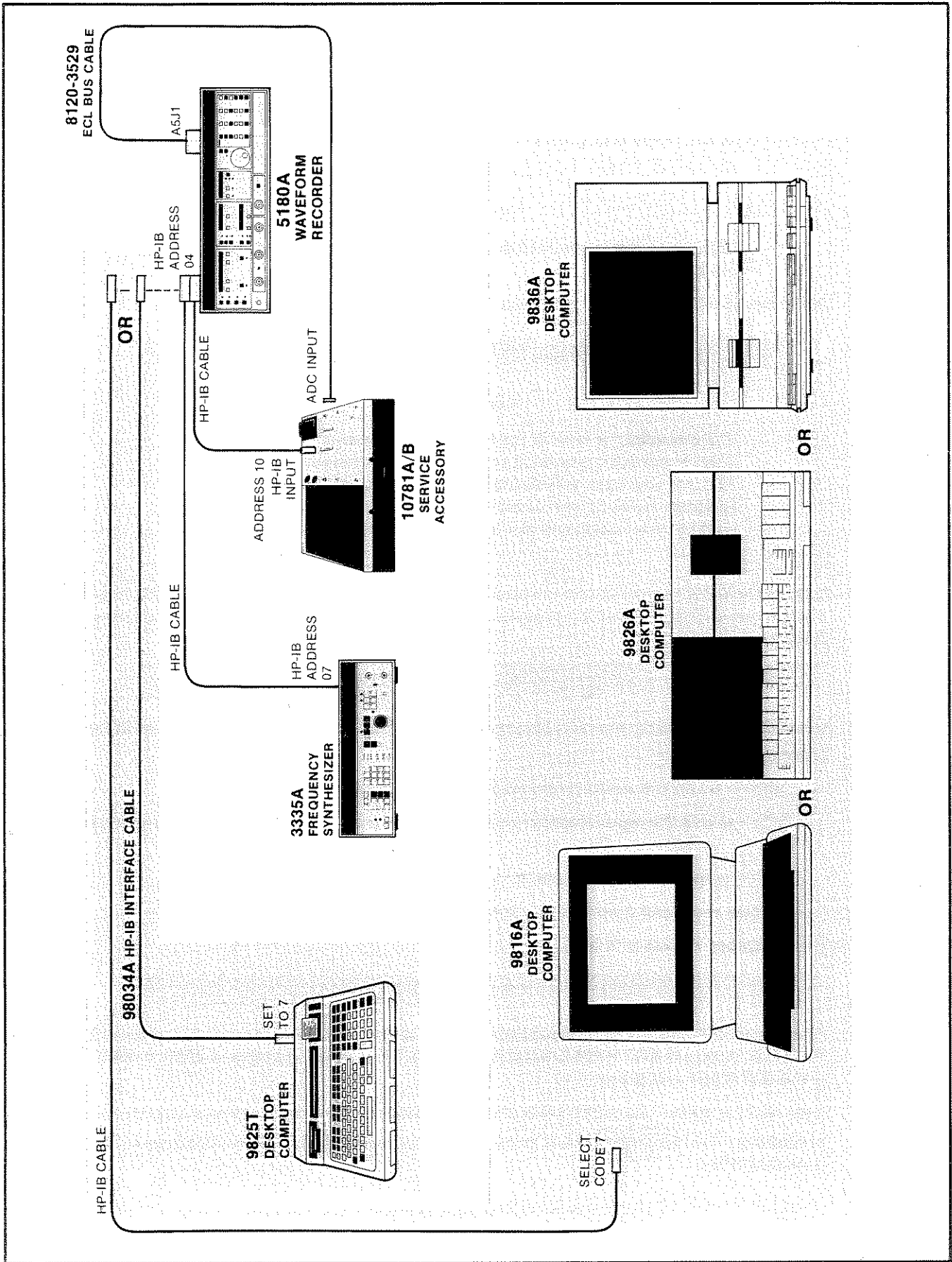


Figure 5-9. A20 Input Amplifier Adjustments Test Setup

Refer to Table 5-2 for subcover labels of the adjustments versus the reference designations that are shown on the schematic. Adjust variable resistor A POSN (A20R107), until the HP 5180A display is 0.000V with a tolerance of $\pm 0.004V$. The A FET BAL may be adjusted to bring A POSN into range. This is only a preliminary adjustment and may be repeated later. Press NEXT softkey.

Table 5-2. Subcover Labels versus A20 Reference Designators

SUBCOVER LABEL	REFERENCE DESIGNATOR
A GAIN	A20R67
B GAIN	A20R74
A DAC POSN	A20R17
B DAC POSN	A20R18
A FET BAL	A20R112
B FET BAL	A20R93
A POSN	A20R107
B POSN	A20R87
A 0.1V BAL	A20R51
B 0.1V BAL	A20R69
A 1V BAL	A20R45
B 1V BAL	A20R64
PROBE COMP BAL	A20R25

- j. Connect the 50-ohm feedthrough and the HP 3335A 50-ohm output as instructed in the next two steps of the calculator program. (Remember to press NEXT after completing each step.)

NOTE

In the following step, if the "test failed" message is displayed on the computer and you are instructed to remove the bottom cover, DO NOT DO SO AT THIS TIME. It is possible that the adjustments is not necessary. Proceed to step n and continue the adjustments through step t. Repeat steps d through k again, and if "test fail" is displayed for the second time, proceed to step l and make the adjustments.

- k. The computer will now perform a test to see if the compensator capacitor in the Channel A circuit is within specifications. If the test succeeds, the same procedure is repeated for Channel B. If both channels pass the test, proceed to step o. If either of the tests fail, you will be instructed to remove the bottom cover to expose compensation capacitors A20C113 and A20C55; and, make an adjustment (see step l). Refer to paragraph 8-19 for disassembly and reassembly instructions.

WARNING

BE SURE TO DISCONNECT THE POWER CORD FROM THE HP 5180A BEFORE YOU REMOVE THE BOTTOM COVER.

- I. After removing the bottom cover and reconnecting the HP 3335A, as instructed by the program, the computer display will be:

adj COMP CAP A - NN.NNN = 0.00 +/- .02

NOTE

Compensation capacitor A (C113) is located to the left of the Channel A input jack J1 (accessible from the underside of the front panel shield). See *Figure 5-10*. Compensation capacitor B (C55) is located approximately 2 inches to the right of Channel B input jack J4 (accessible from the underside of the front panel shield — flat ribbon cable (W11) will have to be moved aside in order to access C55.) See *Figure 5-10*.

Note that the computer is in a loop where it keeps measuring the compensator capacitor and displaying the value on the computer display. You should adjust the capacitor until the value displayed (shown as NN.NNN on the display) is within the specifications shown.

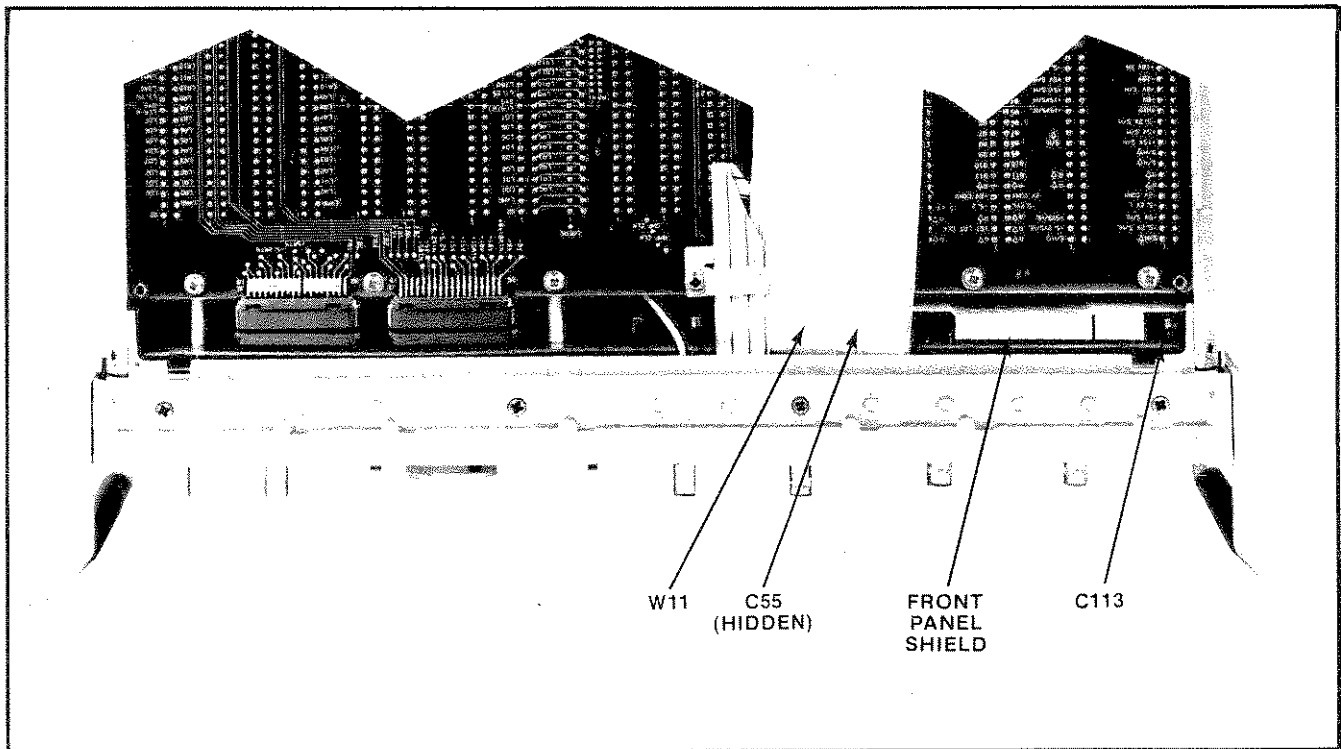


Figure 5-10. A20 Input Amplifier Compensation Capacitors Designation

- m. Reinstall the bottom cover after making the compensation capacitor adjustments.
- n. The next adjustment is the gain adjustment. Adjust A and B POSN to 0.000 ± 0.004 as instructed by the calculator. The POSN adjustment is just a preliminary adjustment and may be repeated later. Remember that A (B) FET BAL may be adjusted to bring A (B) POSN into range if needed.
- o. Now connect the 50-ohm feedthrough and the tracking loop output to Channel A. See *Figure 5-11*. Be sure that the 1k-ohm feedthrough is next to the BNC T-connector and not at the HP 3455A end of the cable.

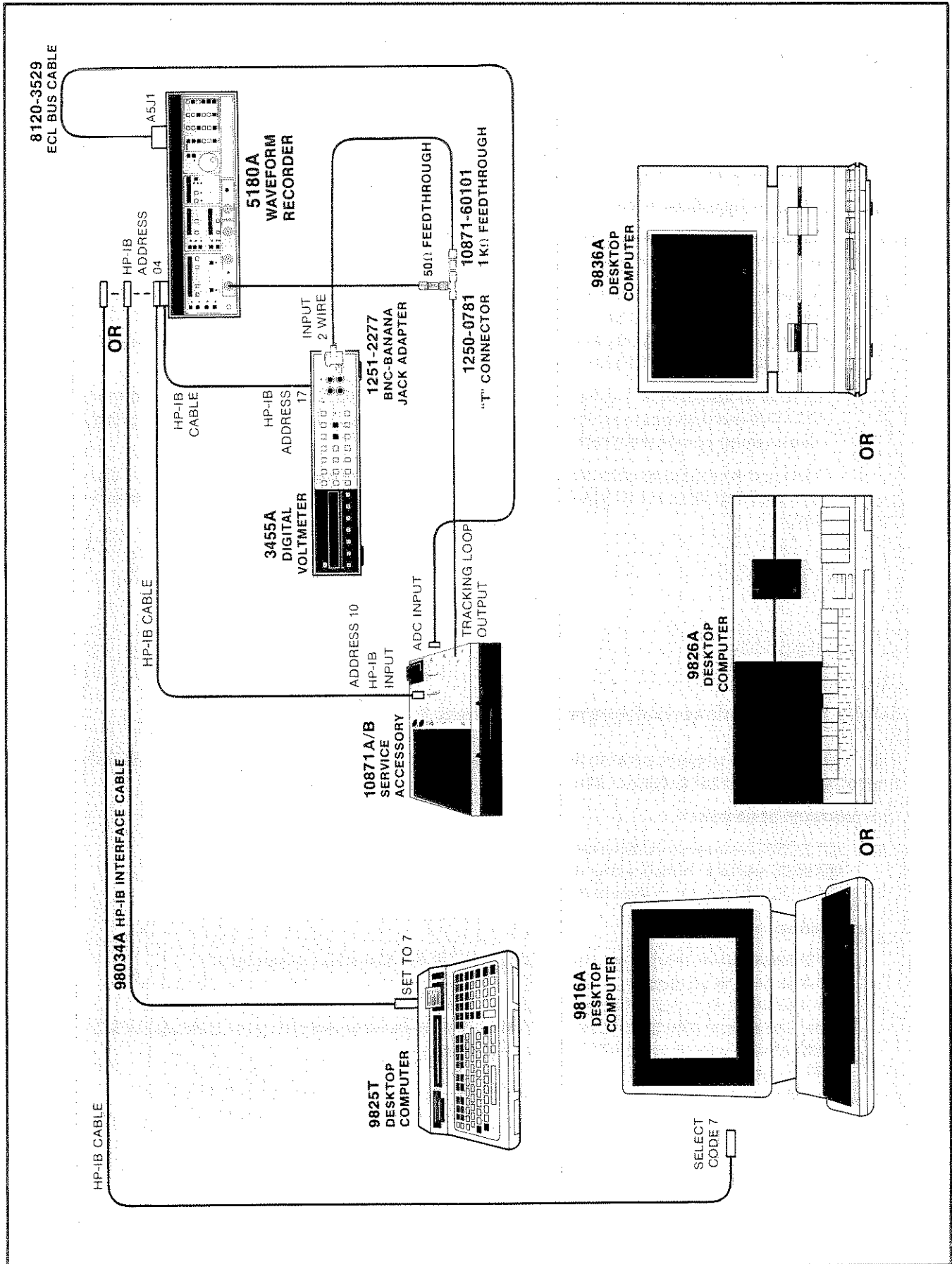


Figure 5-11. Tracking Loop Adjustment Test Setup

- p. The next computer display will be:

adj A GAIN → NNN.N = 0.0 ±.5

The computer is in a tight loop making measurements and displaying the gain (shown as NNN.N here) on the display. You should adjust the A GAIN potentiometer until the reading is within the specs as shown.

- q. Repeat the previous (steps n through p) procedure for Channel B.
- r. The next adjustment is the offset adjustment. Adjust the A DAC POSN and B DAC POSN potentiometers for the specifications shown on the computer display.
- s. The next adjustment is the baseline adjustment. This is an adjust of the .1V BAL, POSN, and 1V BAL potentiometers. The program will then check the baseline accuracy. The above two steps will be repeated as necessary until the baseline is within specifications. This is done for both Channel A and B.
- t. The final adjustment is the Probe Compensator adjustment. Connect DMA cable to the HP 5180A and the computer for this adjustment. This adjusts the amplitude of the square wave coming out of the probe compensator.
- u. The front end adjustments are completed. To perform other adjustments type "e" or press **STOP** then the MAIN ADJ softkey to return to the System Adjustments Program level.

5-26. A7 Multiplexer/Comparator External Trigger Adjustment

5-27. The external trigger adjustment is performed to ensure that the HP 5180A will trigger properly in the external trigger mode.

Equipment Required:

HP 3335A Frequency Synthesizer
HP 9825T/9816A/9826A/9836A Computer*
HP 2225A Printer or equivalent (required with Series 200 Controller)

Accessories:

HP 98034A HP-IB Interface (used with the HP 9825T Desktop Computer)
HP 10503A BNC Cables
HP 10833A, B, C, or D HP-IB Cables
Tape Cassette, 05180-13302 (part of HP 10871A Service Accessory)/3½-inch Floppy DISC, 05180-13403 (part of HP 10871B Service Accessory)
BNC T-connector
Tuning Wand

*Use any one of these computers to run tests. The HP 9825T Computer operates with a cassette tape supplied with the HP 10871A Service Accessory. The HP 9816A, HP 9826A, and HP 9836A computers operate with a 3½-inch floppy disc supplied with the HP 10871B Service Accessory.

Procedures:

- a. Remove the top covers of the HP 5180A.
- b. Turn on the HP 5180A and allow a 15-minute warmup.
- c. Using the HP-IB cables, connect the computer to the HP 5180A and the HP 3335A. Ensure that the DMA cable (part of HP 10871A/B Service Accessory) is not connected to the HP 5180A rear panel.
- d. Connect the 50-ohm output of the HP 3335A to both the AUXILIARY input and the EXTERNAL TRIGGER input of the HP 5180A.

NOTE

Refer to paragraph 5-23 steps i through k if the system is not already loaded.

- e. Press the MAIN ADJ softkey. The computer display will be:

```
ADJUSTMENT COMMAND:
```

NOTE

The computer is now in the System Adjustment Program level. From this point on, if you press **STOP**, then the MAIN ADJ softkey, you will return to the start of the System Adjustments Program Level. If you press **STOP**, then MAIN PERF softkey, you will go to the System Performance Program Level.

- f. Press the EXT TRIG softkey. This will cause the file containing the external trigger program to be loaded and run. The display will be:

```
External Trigger Commands:
```

- g. Select desired program by typing the letters listed below (in quotation marks) then pressing :

“all” — to continue with the entire External Trigger adjustment.

NOTE

You may wish to do the External Trigger test as described in the NOTE that follows step k, before making the adjustment. To perform the test, proceed to the next instruction.

“test” — to perform a test on the external trigger offset.

“h” — to print a help statement.

“e” — to exit this adjustment procedure and return to the system command level.

- h. Type all and press to proceed with the adjustment.

- i. A message will appear on the printer to inform you that you are doing the a External Trigger Offset adjustment. The display will be:

adj E.T. OFF - NN.NNN = 0.0 ±.005

NOTE

The computer is now in a loop making measurements of the HP 5180A, and displaying the values on the display. This message is telling you to adjust the External Trigger Offset (A7R17) on the A7 board until the number displayed (shown as NN.NNN here) is equal to 0.0V with a tolerance of $\pm 0.005V$. After you have completed the adjustment, press NEXT.

- j. The display will be:

adj E.T. GA - NN.NNN = .96 ±.01

Adjust The External Trigger GAIN variable resistor (A7R25) on the A7 board until the display reads 0.96 with a tolerance of ± 0.01 . After completing the adjustment, press NEXT.

NOTE

After the GAIN adjustment the computer does a test of the external trigger to see if it is within specifications. The result of the test (Passed or Failed) is printed on the printer.

- k. The computer now returns to the External Trigger command 1 of the program. If the test failed and you wish to repeat the adjustment, repeat steps h through j. If you are done with the external trigger adjustment program, enter "e" or press **STOP** then the MAIN ADJ softkey to exit this program and return to the System Adjustments Program level.

This completes the A7 Multiplexer/Comparator External Trigger adjustment.

5-28. A17 XYZ Clock Adjustment

5-29. The A17 ROM/XYZ Clock circuit adjustment is performed to obtain accurate clock frequencies for the A16 XYZ Driver circuits.

Equipment Required:

HP 5315A Universal Counter

Accessories:

HP 10013A 10:1 Divider Probe
HP 10503A BNC Cable
Tuning Wand

Procedure:

- a. Remove the top covers of the HP 5180A to gain access to the A17 board.
- b. Connect Channel A input of the counter to A17TP7 (2.1 MHz) using the BNC cable and Probe.

- c. Set up the counter as follows:

```

Function .....  FREQ A
Blue key .....  out
GATE TIME .....  MIN
CHANNEL A SETTINGS
AC/DC .....  AC
ATTN .....  X1
FILTER .....  NORM
SEP/COM .....  SEP
SLOPE .....  Positive
TRIGGER LEVEL .....  LEVEL
  
```

- d. Turn on the HP 5180A.
e. Adjust variable resistor A17R3 for a reading of 2.080 MHz (± 1 kHz).

This completes the adjustment of the XYZ clock.

5-30. A16 XYZ Driver Adjustments

5-31. The A16 XYZ Driver circuits are adjusted for proper X and Y drive and for left and right display.

Equipment Required:

HP 1725A Oscilloscope (or equivalent)
Tuning Wand

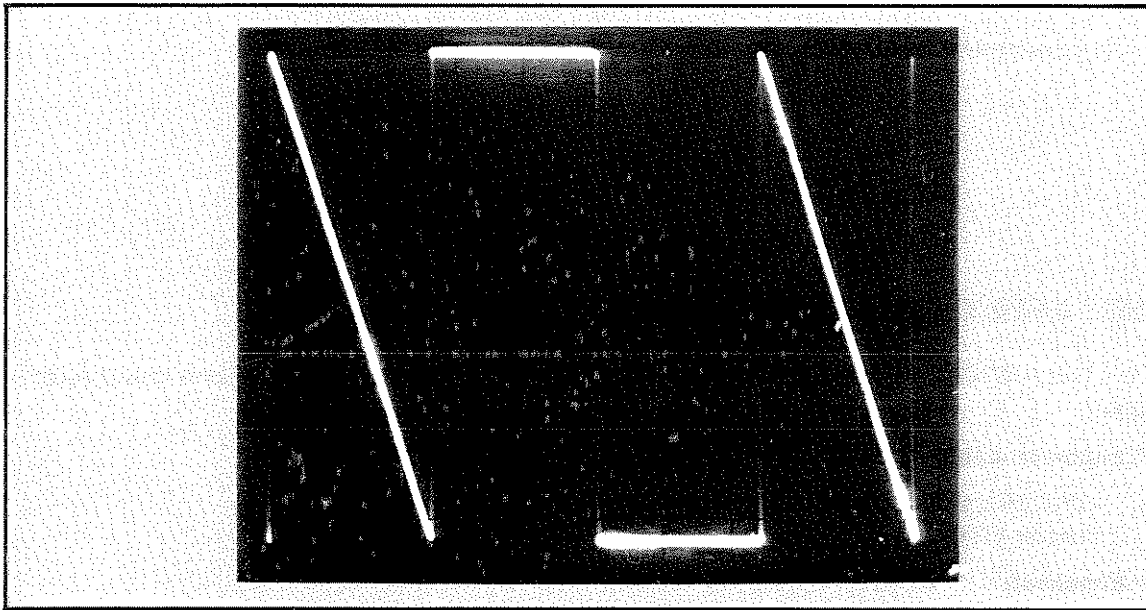
Procedures:

- a. Remove the top covers of the HP 5180A to gain access to the A16 board.
b. Connect the X, Y, and Z display outputs from the rear of the HP 5180A to the oscilloscope. Connect the HP 5180A Y-output to Channel A, X-output to Channel B, and the Z-output to the Z axis input. Set the oscilloscope as follows:
- ```

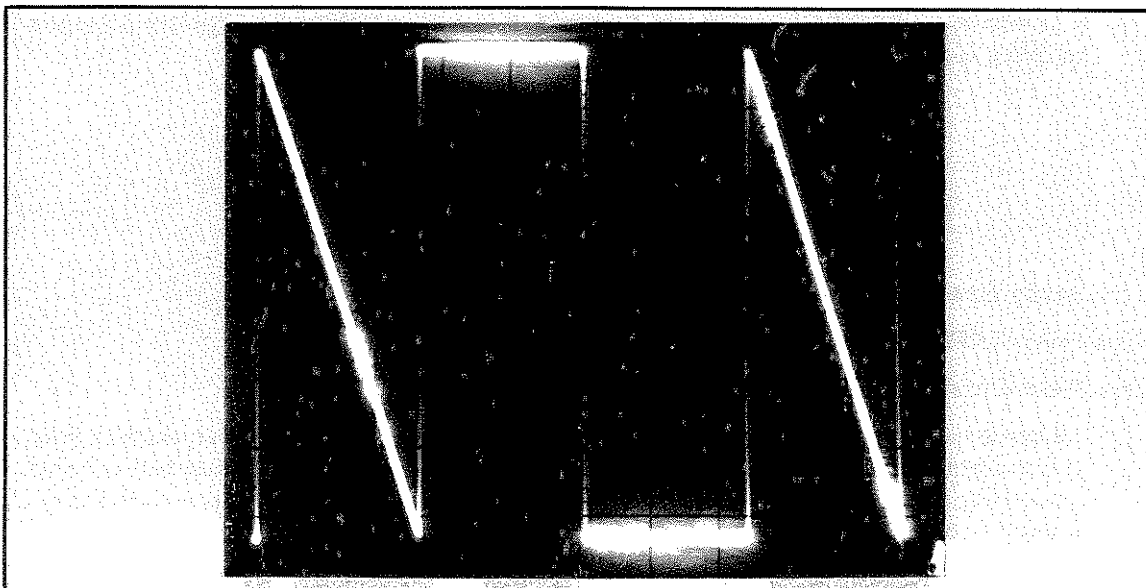
CHANNEL A 50 ohm input, 0.1V/div
CHANNEL B 50 ohm input, 0.1V/div
INT TRIG Select X
VERT DISPLAY Select Y
HORIZ DISPLAY Select X-Y

```
- c. Apply power to the equipment.  
d. Press SHIFT and then PRESET on the HP 5180A.  
e. Press CAL/UNCAL on the HP 5180A.  
f. Observe the oscilloscope for a waveform as shown in *Figure 5-12*. You may need to adjust the position and the gain calibration controls on the display to obtain the correct waveform. If an "S" shaped retrace line is visible on the display, you need to switch the "Z Blank" switch on the HP 5180A rear panel.  
g. Turn up the intensity on the oscilloscope so that the display lines are visible between the calibration waveform lines.

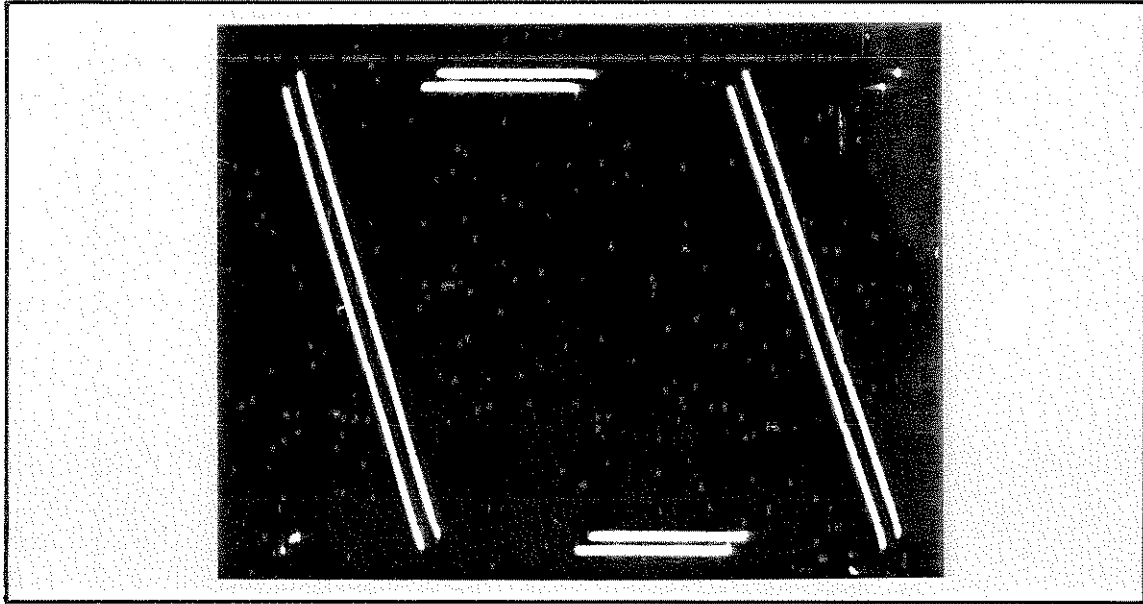
- h. Adjust A16R2 (LFT) so the the lower left end of the display line extends as far down as possible without making a bright dot. See *Figure 5-13* for example of improper adjustment.
- i. Adjust A16R3 (RHT) so that the upper right end of the display line extends as far up as possible without making a bright dot. See *Figure 5-13* for example of improper adjustment.
- j. Disconnect the Z output from the oscilloscope. A double image waveform may appear on the oscilloscope as shown in *Figure 5-14* if the A16 board is out of adjustment.
- k. Adjust variable resistors A16R27 (YADJ) and A16R34 (XADJ) until the two images superimpose exactly.



*Figure 5-12. Calibration Waveform*



*Figure 5-13. Uncalibrated Calibration Waveform*



*Figure 5-14. Double Image Waveform*

This completes the adjustment of the XYZ Driver.



## SECTION VI REPLACEABLE PARTS

### 6-1. INTRODUCTION

6-2. This section contains information for ordering parts. *Table 6-1* is a list of exchange assemblies, and *Table 6-2* lists abbreviations and reference designations used in the parts list and throughout the manual. *Table 6-3* lists all replaceable parts for the HP 5180A. *Table 6-4* contains the names and addresses that correspond to the manufacturer's code numbers.

### 6-3. EXCHANGE ASSEMBLIES

6-4. *Table 6-1* lists assemblies within the instrument that may be replaced on an exchange basis. Exchange factory repaired and tested assemblies are available only on a trade-in basis; therefore, the defective assemblies must be returned for credit. For this reason, assemblies required for spare parts stock must be ordered by the new assembly part number.

*Table 6-1. Exchange Assemblies*

| NAME                                                                      | NEW HP PART NUMBER | EXCHANGE HP PART NUMBER |
|---------------------------------------------------------------------------|--------------------|-------------------------|
| MATCHED PAIR<br>A2 Sample and Hold Board<br>and A3 20 MHz Converter Board | 05180-60100        | 05180-60500             |

### 6-5. ABBREVIATIONS AND REFERENCE DESIGNATIONS

6-6. *Table 6-2* lists abbreviations and reference designations used in the parts lists, the schematics, and throughout the manual. In some cases, two forms of the abbreviations are used, one all in capital letters, and one partial or no capitals. This occurs because the abbreviations in the parts list are always all capitals. However, in the schematics and other parts of the manual, other abbreviation forms are used with both lower case and upper case letters.

### 6-7. INPUT CONNECTOR A20J2 AND FUSE F1

6-8. Input connector A20J2 (AUXILIARY, *Figure 8-2*) is a special connector designed to house fuse F1 as shown in *Figure 6-1*.

### 6-9. REPLACEABLE PARTS LIST

6-10. *Table 6-3* is the list of replaceable parts and is organized as follows:

- a. Electrical assemblies and their components in alphanumerical order by reference designation.
- b. Chassis-mounted parts in alphanumerical order by reference designation.
- c. Miscellaneous parts.



Table 6-2. Abbreviations and Reference Designations

### REFERENCE DESIGNATIONS

|                                        |                                                                   |                                                  |                                         |
|----------------------------------------|-------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------|
| A = assembly                           | DL = delay line                                                   | K = relay                                        | T = transformer                         |
| AT = attenuator; isolator; termination | DS = annunciator; signaling device (audible or visual); lamp; LED | L = coil; inductor                               | TB = terminal board                     |
| B = fan; motor                         | E = miscellaneous electrical part                                 | M = metre                                        | TC = thermocouple                       |
| BT = battery                           | F = fuse                                                          | MP = miscellaneous mechanical part               | TP = test point                         |
| C = capacitor                          | FL = filter                                                       | P = electrical connector (movable portion); plug | U = integrated circuit; microcircuit    |
| CP = coupler                           | H = hardware                                                      | Q = transistor; SCR; triode thyristor            | U = electron tube                       |
| CR = diode; diode thyristor; varactor  | HY = circulator                                                   | R = resistor                                     | VR = voltage regulator; breakdown diode |
| DC = directional coupler               | J = electrical connector (stationary portion); jack               | RT = thermistor                                  | W = cable; transmission path; wire      |
|                                        |                                                                   | S = switch                                       | X = socket                              |
|                                        |                                                                   |                                                  | Y = crystal unit-piezo-electric         |
|                                        |                                                                   |                                                  | Z = tuned cavity; tuned circuit         |

### ABBREVIATIONS

|                                                   |                                                        |                                                             |                                                   |
|---------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------------|
| A = ampere                                        | HD = head                                              | NE = neon                                                   | SPST = single-pole, single-throw                  |
| ac = alternating current                          | HDW = hardware                                         | NEG = negative                                              | SSB = single sideband                             |
| ACCESS = accessory                                | HF = high frequency                                    | nF = nanofarad                                              | SST = stainless steel                             |
| ADJ = adjustment                                  | HG = mercury                                           | NI PL = nickel plate                                        | STL = steel                                       |
| A/D = analog-to-digital                           | HI = high                                              | N/O = normally open                                         | SQ = square                                       |
| AF = audio frequency                              | HP = Hewlett-Packard                                   | NOM = nominal                                               | SWR = standing-wave ratio                         |
| AFC = automatic frequency control                 | HPPF = high pass filter                                | NORM = normal                                               | SYNC = synchronize                                |
| AGC = automatic gain control                      | HR = hour (used in parts list)                         | NPN = negative-positive-negative                            | T = timed (slow-blow fuse)                        |
| AL = aluminum                                     | HV = high voltage                                      | NPO = negative-positive zero (zero temperature coefficient) | TA = tantalum                                     |
| ALC = automatic level control                     | Hz = hertz                                             | NRFR = not recommended for field replacement                | TC = temperature compensating                     |
| AM = amplitude modulation                         | IC = integrated circuit                                | ns = nanosecond                                             | TD = time delay                                   |
| AMPL = amplifier                                  | ID = inside diameter                                   | NSR = not separately replaceable                            | TERM = terminal                                   |
| APC = automatic phase control                     | IF = intermediate frequency                            | nW = nanowatt                                               | TFT = thin-film transistor                        |
| ASSY = assembly                                   | IMPG = impregnated                                     | OBD = order by description                                  | TGL = toggle                                      |
| AUX = auxiliary                                   | in = inch                                              | OD = outside diameter                                       | THD = thread                                      |
| AVG = average                                     | INCD = incandescent                                    | OH = oval head                                              | THRU = through                                    |
| AWG = american wire gauge                         | INCL = include(s)                                      | OP-AMPL = operational amplifier                             | TI = titanium                                     |
| BAL = balance                                     | INP = input                                            | OPT = option                                                | TOL = tolerance                                   |
| BAD = binary coded decimal                        | INS = insulation                                       | OSC = oscillator                                            | TRIM = trimmer                                    |
| BD = board                                        | INT = internal                                         | OX = oxide                                                  | TSTR = transistor                                 |
| BE CU = beryllium copper                          | kg = kilogram                                          | oz = ounce                                                  | TTL = transistor-transistor logic                 |
| BFO = beat frequency oscillator                   | kHz = kilohertz                                        | Ω = ohm                                                     | TV = television                                   |
| BH = binder head                                  | kΩ = kilohm                                            | p = peak (used in parts list)                               | TVI = television interference                     |
| BKDN = breakdown                                  | kV = kilovolt                                          | P = pulse (used in parts list)                              | TWT = traveling wave tube                         |
| BP = bandpass                                     | lb = pound                                             | PAM = pulse-amplitude modulation                            | U = micro (10 <sup>-6</sup> ); used in parts list |
| BPF = bandpass filter                             | LC = inductance-capacitance                            | PC = printed circuit                                        | UF = microfarad (used in parts list)              |
| BRS = brass                                       | LED = light-emitting diode                             | PCM = pulse-code modulation; pulse-count modulation         | UHF = ultrahigh frequency                         |
| BWO = backward-wave oscillator                    | LF = low frequency                                     | PDM = pulse-duration modulation                             | UNREG = unregulated                               |
| CAL = calibrate                                   | LG = long                                              | pF = picofarad                                              | V = volt                                          |
| ccw = counterclockwise                            | LH = left hand                                         | PH BRZ = phosphor bronze                                    | VA = voltampere                                   |
| CER = ceramic                                     | LIM = limit                                            | PHL = phillips                                              | Vac = volts ac                                    |
| CHAN = channel                                    | LIN = linear taper (used in parts list)                | PIN = positive-intrinsic-negative                           | VAR = variable                                    |
| cm = centimeter                                   | lin = linear                                           | PIV = peak inverse voltage.                                 | VCO = voltage-controlled oscillator               |
| CMO = coaxial                                     | LK WASH = lockwasher                                   | pk = peak                                                   | Vdc = volts dc                                    |
| COEF = coefficient                                | LO = low local oscillator                              | PL = phase lock                                             | VDCW = volts, dc, working (used in parts list)    |
| COM = common                                      | LOG = logarithmic taper (used in parts list)           | PLO = phase lock oscillator                                 | V(F) = volts, filtered                            |
| COMP = composition                                | log = logarithmic                                      | PM = phase modulation                                       | VFO = variable-frequency oscillator               |
| COMPL = complete                                  | LPF = low pass filter                                  | PNP = positive-negative-positive                            | VHF = very-high frequency                         |
| CONN = connector                                  | LV = low voltage                                       | P/O = part of                                               | Vpk = volts peak                                  |
| CP = cadmium plate                                | m = metre (distance)                                   | POLY = polystyrene                                          | Vp-p = volts peak-to-peak                         |
| CRT = cathode-ray tube                            | mA = milliamperes                                      | PORC = porcelain                                            | Vrms = volts rms                                  |
| CTL = complementary transistor logic              | MAX = maximum                                          | POS = positive; position(s) (used in parts list)            | VSWR = voltage standing wave ratio                |
| CW = continuous wave                              | MΩ = megohm                                            | POSN = position                                             | VTO = voltage-tuned oscillator                    |
| cw = clockwise                                    | MEG = meg (10 <sup>6</sup> ) (used in parts list)      | POT = potentiometer                                         | VTVM = vacuum-tube voltmeter                      |
| D/A = digital-to-analog                           | MET FLM = metal film                                   | p-p = peak-to-peak                                          | V(X) = volts, switched                            |
| dB = decibel                                      | MET OX = metal oxide                                   | PP = peak-to-peak (used in parts list)                      | W = watt                                          |
| dBm = decibel referred to 1 mW                    | MF = medium frequency; microfarad (used in parts list) | PPM = pulse-position modulation                             | W/ = with                                         |
| dc = direct current                               | MFR = manufacturer                                     | PREAMPL = preamplifier                                      | WIV = working inverse voltage                     |
| deg = degree (temperature interval or difference) | mg = milligram                                         | PRF = pulse-repetition frequency                            | WW = wirewound                                    |
| ° = degree (plane angle)                          | MHz = megahertz                                        | PRR = pulse-repetition rate                                 | W/O = without                                     |
| °C = degree Celsius (centigrade)                  | mH = millihenry                                        | ps = picosecond                                             | YIG = yttrium-iron-garnet                         |
| °F = degree Fahrenheit                            | mho = conductance                                      | PT = point                                                  | Zo = characteristic impedance                     |
| *K = degree Kelvin                                | MIN = minimum                                          | PTM = pulse-time modulation                                 |                                                   |
| DEPC = deposited carbon                           | min = minute (time)                                    | PWM = pulse-width modulation                                |                                                   |
| DET = detector                                    | ... = minute (plane angle)                             | PWV = peak working voltage                                  |                                                   |
| diam = diameter                                   | MINAT = miniature                                      | RC = resistance-capacitance                                 |                                                   |
| DIA = diameter (used in parts list)               | mm = millimetre                                        | RECT = rectifier                                            |                                                   |
| DIFF AMPL = differential amplifier                | MOD = modulator                                        | REF = reference                                             |                                                   |
| div = division                                    | MOM = momentary                                        | REG = regulated                                             |                                                   |
| DPDT = double-pole, double-throw                  | MOS = metal-oxide semiconductor                        | REPL = replaceable                                          |                                                   |
| DR = drive                                        | ms = millisecond                                       | RF = radio frequency                                        |                                                   |
| DSB = double sideband                             | MTG = mounting                                         | RFI = radio frequency interference                          |                                                   |
| DTL = diode transistor logic                      | MTR = meter (indicating device)                        | RH = round head; right hand                                 |                                                   |
| DVM = digital voltmeter                           | mV = millivolt                                         | RLC = resistance-inductance-capacitance                     |                                                   |
| ECL = emitter coupled logic                       | mVac = millivolt, ac                                   | RMO = rack mount only                                       |                                                   |
| EMF = electromotive force                         | mVdc = millivolt, dc                                   | rms = root-mean-square                                      |                                                   |
| EDP = electronic data processing                  | mVpk = millivolt, peak                                 | RND = round                                                 |                                                   |
| ELECT = electrolytic                              | mVp-p = millivolt, peak-to-peak                        | ROM = read-only memory                                      |                                                   |
| ENCAP = encapsulated                              | mVrms = millivolt, rms                                 | R&P = rack and panel                                        |                                                   |
| EXT = external                                    | mW = milliwatt                                         | RWV = reverse working voltage                               |                                                   |
| F = farad                                         | MUX = multiplex                                        | S = scattering parameter                                    |                                                   |
| FET = field-effect transistor                     | MY = mylar                                             | S = second (time)                                           |                                                   |
| FF = flip-flop                                    | μA = microampere                                       | ... = second (plane angle)                                  |                                                   |
| F/H = flat head                                   | μF = microfarad                                        | S-B = slow-blow fuse (used in parts list)                   |                                                   |
| FOL H = filister head                             | μH = microhenry                                        | SCR = silicon controlled rectifier; screw                   |                                                   |
| FM = frequency modulation                         | μmho = micromho                                        | SE = selenium                                               |                                                   |
| FP = front panel                                  | μs = microsecond                                       | SECT = sections                                             |                                                   |
| FREQ = frequency                                  | μV = microvolt                                         | SEMICON = semiconductor                                     |                                                   |
| FXD = fixed                                       | μVac = microvolt, ac                                   | SHF = superhigh frequency                                   |                                                   |
| g = gram                                          | μVdc = microvolt, dc                                   | Si = silicon                                                |                                                   |
| GE = germanium                                    | μVpk = microvolt, peak                                 | SL = silver                                                 |                                                   |
| GHz = gigahertz                                   | μVp-p = microvolt, peak-to-peak                        | SIL = slide                                                 |                                                   |
| GL = glass                                        | μVrms = microvolt, rms                                 | SNR = signal-to-noise ratio                                 |                                                   |
| GND = ground(ed)                                  | μW = microwatt                                         | SPDT = single-pole, double-throw                            |                                                   |
| H = henry                                         | nA = nanoampere                                        | SPG = spring                                                |                                                   |
| h = hour                                          | NC = no connection                                     | SR = split ring                                             |                                                   |
| HET = heterodyne                                  | N/C = normally closed                                  |                                                             |                                                   |
| HEX = hexagonal                                   |                                                        |                                                             |                                                   |

**NOTE**

All abbreviations in the parts list will be in upper case.

**MULTIPLIERS**

| Abbreviation | Prefix | Multiple          |
|--------------|--------|-------------------|
| T            | tera   | 10 <sup>12</sup>  |
| G            | giga   | 10 <sup>9</sup>   |
| M            | mega   | 10 <sup>6</sup>   |
| k            | kilo   | 10 <sup>3</sup>   |
| da           | deka   | 10                |
| d            | deci   | 10 <sup>-1</sup>  |
| c            | centi  | 10 <sup>-2</sup>  |
| m            | milli  | 10 <sup>-3</sup>  |
| μ            | micro  | 10 <sup>-6</sup>  |
| n            | nano   | 10 <sup>-9</sup>  |
| p            | pico   | 10 <sup>-12</sup> |
| f            | femto  | 10 <sup>-15</sup> |
| a            | atto   | 10 <sup>-18</sup> |

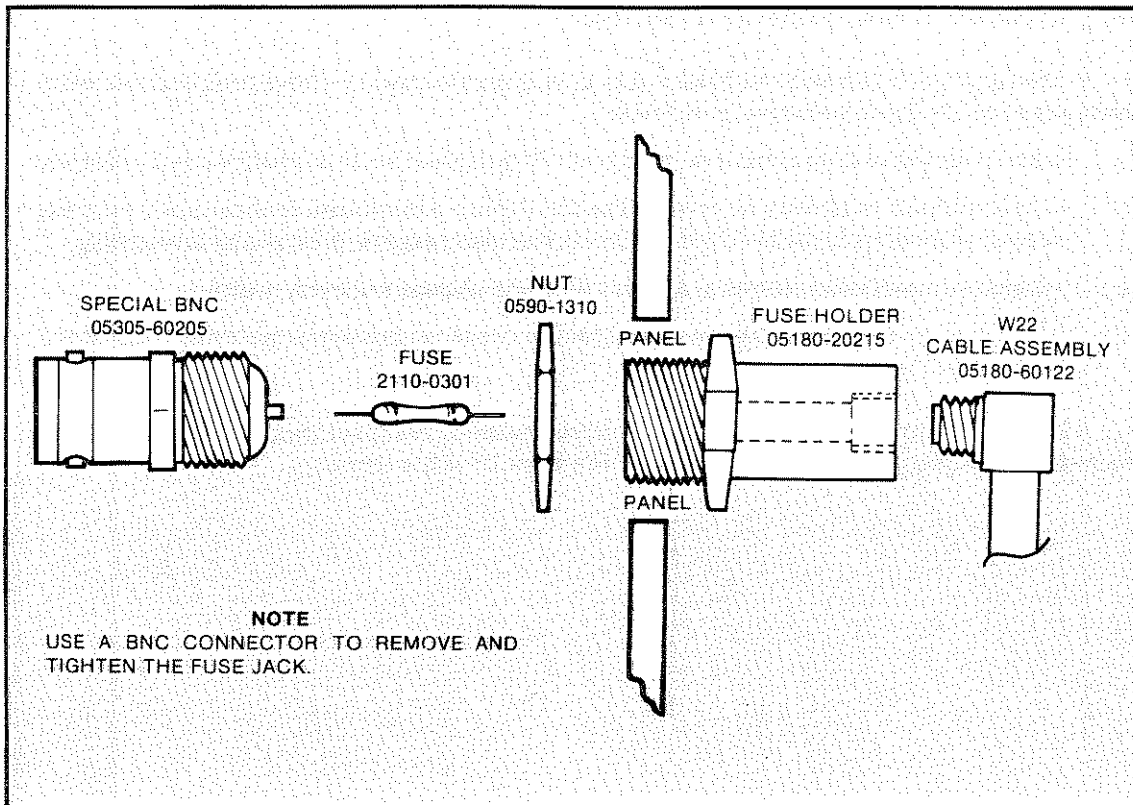


Figure 6-1. Details of AUXILIARY Input Connector J2 and Fuse F1

6-11. The information given for each part consists of the following:

- a. The Hewlett-Packard part number.
- b. Part number check digit (CD).
- c. The total quantity (Qty) in each assembly.
- d. The description of the part.
- e. A typical manufacturer of the part in a five-digit code.
- f. The manufacturer's number for the part.

6-12. The total quantity for each assembly is given only once — at the first appearance of the part number in the list for that assembly (A1,A2, etc.).

### 6-13. ORDERING INFORMATION

6-14. To order a part listed in the replaceable parts table, quote the Hewlett-Packard part number, the check digit, indicate the quantity required, and address the order to the nearest Hewlett-Packard office. The check digit will ensure accurate and timely processing of your order.

6-15. To order a part that is not listed in the replaceable parts table, include the instrument model number, instrument serial number, the description and function of the part, and the number of parts required. Address the order to the nearest Hewlett-Packard office.

## **6-16. DIRECT MAIL ORDER SYSTEM**

6-17. Within the USA, Hewlett-Packard can supply parts through a direct mail order system. Advantages of using the system are as follows:

- a. Direct ordering and shipment from the HP Parts Center in Mountain View, California.
- b. No maximum or minimum on any mail order (there is a minimum order amount for parts ordered through a local HP office when the orders require billing and invoicing).
- c. Prepaid transportation (there is a small handling charge for each order).
- d. No invoices — to provide these advantages, a check or money order must accompany each order.

6-18. Mail order forms and specific ordering information is available through your HP office. Addresses and phone numbers are located at the back of this manual.

Table 6-3. Replaceable Parts List

| Reference Designation | HP Part Number | C D | Qty | Description                       | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|-----------------------------------|----------|-----------------|
| A1                    | 05180-60901    | 8   | 1   | VOLTAGE REGULATOR (SERIES 2240)   | 28480    | 05180-60901     |
| A1C1                  | 0180-0418      | 6   | 12  | CAPACITOR-FXD 1UF+-20% 35VDC TA   | 28480    | 0180-0418       |
| A1C2                  | 0180-0418      | 6   |     | CAPACITOR-FXD 1UF+-20% 35VDC TA   | 28480    | 0180-0418       |
| A1C3                  | 0180-0648      | 4   | 6   | CAPACITOR-FXD .1UF+-10% 35VDC TA  | 90291    | TDC104K035NSE   |
| A1C4                  | 0180-2820      | 8   | 6   | CAPACITOR-FXD .22UF+-20% 35VDC TA | 28480    | 0180-2820       |
| A1C5                  | 0180-0418      | 6   |     | CAPACITOR-FXD 1UF+-20% 35VDC TA   | 28480    | 0180-0418       |
| A1C6                  | 0180-0648      | 4   |     | CAPACITOR-FXD .1UF+-10% 35VDC TA  | 90291    | TDC104K035NSE   |
| A1C7                  | 0180-2821      | 9   | 6   | CAPACITOR-FXD 22UF+-20% 35 DC TA  | 28480    | 0180-2821       |
| A1C8                  | 0180-2820      | 8   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA | 28480    | 0180-2820       |
| A1C9                  | 0180-2818      | 4   | 6   | CAPACITOR-FXD 2.2UF+-20% 35VDC TA | 28480    | 0180-2818       |
| A1C10                 | 0180-0648      | 4   |     | CAPACITOR-FXD .1UF+-10% 35VDC TA  | 90291    | TDC104K035NSE   |
| A1C11                 | 0180-2821      | 9   |     | CAPACITOR-FXD 22UF+-20% 35VDC TA  | 28480    | 0180-2821       |
| A1C12                 | 0180-0098      | 8   | 2   | CAPACITOR-FXD 100UF+-20% 20VDC TA | 56289    | 150D107X002052  |
| A1C13                 | 0180-0418      | 6   |     | CAPACITOR-FXD 1UF+-20% 35VDC TA   | 28480    | 0180-0418       |
| A1C14                 | 0180-2820      | 8   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA | 28480    | 0180-2820       |
| A1C15                 | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA | 28480    | 0180-2818       |
| A1C16                 | 0180-0418      | 6   |     | CAPACITOR-FXD 1UF+-20% 35VDC TA   | 28480    | 0180-0418       |
| A1C17                 | 0180-0098      | 8   |     | CAPACITOR-FXD 100UF+-20% 20VDC TA | 56289    | 150D107X002052  |
| A1C18                 | 0180-0418      | 6   |     | CAPACITOR-FXD 1UF+-20% 35VDC TA   | 28480    | 0180-0418       |
| A1C19                 | 0180-0097      | 7   | 2   | CAPACITOR-FXD 47UF+-10% 35VDC TA  | 56289    | 150D476X903552  |
| A1C20                 | 0180-2821      | 9   |     | CAPACITOR-FXD 22UF+-20% 35VDC TA  | 28480    | 0180-2821       |
| A1C21                 | 0180-0097      | 7   |     | CAPACITOR-FXD 47UF+-10% 35VDC TA  | 56289    | 150D476X903552  |
| A1C22                 | 0180-2821      | 9   |     | CAPACITOR-FXD 22UF+-20% 35VDC TA  | 28480    | 0180-2821       |
| A1C23                 | 0180-0648      | 4   |     | CAPACITOR-FXD .1UF+-10% 35VDC TA  | 90291    | TDC104K035NSE   |
| A1C24                 | 0180-2816      | 2   | 4   | CAPACITOR-FXD 68UF+-20% 10VDC TA  | 28480    | 0180-2816       |
| A1C25                 | 0180-2820      | 8   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA | 28480    | 0180-2820       |
| A1C26                 | 0180-0418      | 6   |     | CAPACITOR-FXD 1UF+-20% 35VDC TA   | 28480    | 0180-0418       |
| A1C27                 | 0180-0418      | 6   |     | CAPACITOR-FXD 1UF+-20% 35VDC TA   | 28480    | 0180-0418       |
| A1C28                 | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA | 28480    | 0180-2818       |
| A1C29                 | 0180-2816      | 2   |     | CAPACITOR-FXD 68UF+-20% 10VDC TA  | 28480    | 0180-2816       |
| A1C30                 | 0180-0418      | 6   |     | CAPACITOR-FXD 1UF+-20% 35VDC TA   | 28480    | 0180-0418       |
| A1C31                 | 0180-2816      | 2   |     | CAPACITOR-FXD 68UF+-20% 10VDC TA  | 28480    | 0180-2816       |
| A1C32                 | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA | 28480    | 0180-2818       |
| A1C33                 | 0180-0648      | 4   |     | CAPACITOR-FXD .1UF+-10% 35VDC TA  | 90291    | TDC104K035NSE   |
| A1C34                 | 0180-2821      | 9   |     | CAPACITOR-FXD 22UF+-20% 35VDC TA  | 28480    | 0180-2821       |
| A1C35                 | 0180-2820      | 8   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA | 28480    | 0180-2820       |
| A1C36                 | 0180-0418      | 6   |     | CAPACITOR-FXD 1UF+-20% 35VDC TA   | 28480    | 0180-0418       |
| A1C37                 | 0180-0418      | 6   |     | CAPACITOR-FXD 1UF+-20% 35VDC TA   | 28480    | 0180-0418       |
| A1C38                 | 0180-2816      | 2   |     | CAPACITOR-FXD 68UF+-20% 10VDC TA  | 28480    | 0180-2816       |
| A1C39                 | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA | 28480    | 0180-2818       |
| A1C40                 | 0180-0418      | 6   |     | CAPACITOR-FXD 1UF+-20% 35VDC TA   | 28480    | 0180-0418       |
| A1C41                 | 0180-2821      | 9   |     | CAPACITOR-FXD 22UF+-20% 35VDC TA  | 28480    | 0180-2821       |
| A1C42                 | 0180-0648      | 4   |     | CAPACITOR-FXD .1UF+-10% 35VDC TA  | 90291    | TDC104K035NSE   |
| A1C43                 | 0180-2820      | 8   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA | 28480    | 0180-2820       |
| A1C44                 | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA | 28480    | 0180-2818       |
| A1CR1                 | 1902-0783      | 1   | 5   | DIODE-ZNR 16V 5% PD=1W IR=50A     | 28480    | 1902-0783       |
| A1CR2                 | 1902-0551      | 1   | 9   | DIODE-ZNR 6.2V 5% PD=1W IR=100A   | 28480    | 1902-0551       |
| A1CR3                 | 1901-1080      | 1   | 15  | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR4                 | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR5                 | 1902-0551      | 1   |     | DIODE-ZNR 6.2V 5% PD=1W IR=100A   | 28480    | 1902-0551       |
| A1CR6                 | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR7                 | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR8                 | 1902-1299      | 6   | 1   | DIODE-ZNR 3.3V 5% PD=1W IR=100A   | 28480    | 1902-1299       |
| A1CR9                 | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR10                | 1902-0551      | 1   |     | DIODE-ZNR 6.2V 5% PD=1W IR=100A   | 28480    | 1902-0551       |
| A1CR11                | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR12                | 1902-0551      | 1   |     | DIODE-ZNR 6.2V 5% PD=1W IR=100A   | 28480    | 1902-0551       |
| A1CR13                | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR14                | 1902-0551      | 1   |     | DIODE-ZNR 6.2V 5% PD=1W IR=100A   | 28480    | 1902-0551       |
| A1CR15                | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR16                | 1902-0783      | 1   |     | DIODE-ZNR 16V 5% PD=1W IR=50A     | 28480    | 1902-0783       |
| A1CR17                | 1902-0551      | 1   |     | DIODE-ZNR 6.2V 5% PD=1W IR=100A   | 28480    | 1902-0551       |
| A1CR18                | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR19                | 1902-0783      | 1   |     | DIODE-ZNR 16V 5% PD=1W IR=50A     | 28480    | 1902-0783       |
| A1CR20                | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR21                | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR22                | 1902-0551      | 1   |     | DIODE-ZNR 6.2V 5% PD=1W IR=100A   | 28480    | 1902-0551       |
| A1CR23                | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR24                | 1902-0551      | 1   |     | DIODE-ZNR 6.2V 5% PD=1W IR=100A   | 28480    | 1902-0551       |
| A1CR25                | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR26                | 1902-0783      | 1   |     | DIODE-ZNR 16V 5% PD=1W IR=50A     | 28480    | 1902-0783       |
| A1CR27                | 1902-0551      | 1   |     | DIODE-ZNR 6.2V 5% PD=1W IR=100A   | 28480    | 1902-0551       |
| A1CR28                | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |
| A1CR29                | 1902-0783      | 1   |     | DIODE-ZNR 16V 5% PD=1W IR=50A     | 28480    | 1902-0783       |
| A1CR30                | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A      | 28480    | 1901-1080       |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                            | Mfr Code | Mfr Part Number  |
|-----------------------|----------------|-----|-----|----------------------------------------|----------|------------------|
| A1F1                  | 2110-0546      | 6   | 4   | FUSE 5A 125V .281X.093                 | 75915    | 275005           |
| A1F2                  | 2110-0546      | 6   |     | FUSE 5A 125V .281X.093                 | 75915    | 275005           |
| A1F3                  | 2110-0546      | 6   |     | FUSE 5A 125V .281X.093                 | 75915    | 275005           |
| A1F4                  | 2110-0546      | 6   |     | FUSE 5A 125V .281X.093                 | 75915    | 275005           |
| A1L1                  | 9100-1788      | 6   | 4   | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600 | 28480    | 9100-1788        |
| A1L2                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600 | 28480    | 9100-1788        |
| A1L3                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600 | 28480    | 9100-1788        |
| A1L4                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600 | 28480    | 9100-1788        |
| A1MP1                 | 05100-00015    | 0   | 1   | HEAT SNK-OUTSIDE                       | 28480    | 05100-00015      |
| A1Q1                  | 1853-0015      | 7   | 1   | TRANSISTOR PNP SI PD=200MW FT=500MHZ   | 28480    | 1853-0015        |
| A1Q2                  | 1854-0071      | 7   | 3   | TRANSISTOR NPN SI PD=300MW FT=200MHZ   | 28480    | 1854-0071        |
| A1Q3                  | 1854-0071      | 7   |     | TRANSISTOR NPN SI PD=300MW FT=200MHZ   | 28480    | 1854-0071        |
| A1Q4                  | 1853-0016      | 8   | 2   | TRANSISTOR PNP SI TO-92 PD=300MW       | 28480    | 1853-0016        |
| A1Q5                  | 1854-0071      | 7   |     | TRANSISTOR NPN SI PD=300MW FT=200MHZ   | 28480    | 1854-0071        |
| A1Q6                  | 1853-0016      | 8   |     | TRANSISTOR PNP SI TO-92 PD=300MW       | 28480    | 1853-0016        |
| A1R1                  | 0757-0403      | 2   | 6   | RESISTOR 121 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-121R-F |
| A1R2                  | 0698-3446      | 3   | 6   | RESISTOR 393 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-393R-F |
| A1R3                  | 0757-0403      | 2   |     | RESISTOR 121 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-121R-F |
| A1R4                  | 0698-3446      | 3   |     | RESISTOR 393 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-393R-F |
| A1R5                  | 0757-0398      | 4   | 1   | RESISTOR 75 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-75R0-F |
| A1R6                  | 0757-0403      | 2   |     | RESISTOR 121 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-121R-F |
| A1R7                  | 0757-0403      | 2   |     | RESISTOR 121 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-121R-F |
| A1R8                  | 0698-3446      | 3   |     | RESISTOR 393 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-393R-F |
| A1R9                  | 0698-3152      | 8   | 2   | RESISTOR 3.48K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-3481-F |
| A1R10                 | 2100-2633      | 5   | 4   | RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRN  | 30983    | ET50X102         |
| A1R11                 | 0757-0280      | 3   | 2   | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F |
| A1R12                 | 0698-3152      | 8   |     | RESISTOR 3.48K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-3481-F |
| A1R13                 | 0757-0441      | 8   | 4   | RESISTOR 8.25K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-8251-F |
| A1R14                 | 0698-3441      | 8   | 4   | RESISTOR 215 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-215R-F |
| A1R15                 | 2100-2633      | 5   |     | RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRN  | 30983    | ET50X102         |
| A1R16                 | 0757-0441      | 8   |     | RESISTOR 8.25K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-8251-F |
| A1R17                 | 0698-3441      | 8   |     | RESISTOR 215 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-215R-F |
| A1R18                 | 0757-0280      | 3   |     | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F |
| A1R19                 | 0757-1093      | 8   | 2   | RESISTOR 3K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-3001-F |
| A1R20                 | 0757-0441      | 8   |     | RESISTOR 8.25K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-8251-F |
| A1R21                 | 2100-2633      | 5   |     | RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRN  | 30983    | ET50X102         |
| A1R22                 | 0757-1093      | 8   |     | RESISTOR 3K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-3001-F |
| A1R23                 | 0757-0424      | 7   | 1   | RESISTOR 1.1K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-1101-F |
| A1R24                 | 0698-3441      | 8   |     | RESISTOR 215 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-215R-F |
| A1R25                 | 2100-2633      | 5   |     | RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRN  | 30983    | ET50X102         |
| A1R26                 | 0698-5808      | 5   | 3   | RESISTOR 4K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-4001-F |
| A1R27                 | 0698-3446      | 3   |     | RESISTOR 393 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-393R-F |
| A1R28                 | 0757-0403      | 2   |     | RESISTOR 121 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-121R-F |
| A1R29                 | 0698-3446      | 2   | 2   | RESISTOR 348 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-348R-F |
| A1R30                 | 0698-3446      | 3   |     | RESISTOR 393 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-393R-F |
| A1R31                 | 0698-4002      | 9   | 1   | RESISTOR 5K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-5001-F |
| A1R32                 | 2100-2489      | 9   | 2   | RESISTOR-TRMR 5K 10% C SIDE-ADJ 1-TRN  | 30983    | ET50X502         |
| A1R33                 | 0757-0441      | 8   |     | RESISTOR 8.25K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-8251-F |
| A1R34                 | 0698-5808      | 5   |     | RESISTOR 4K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-4001-F |
| A1R35                 | 0698-3441      | 8   |     | RESISTOR 215 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-215R-F |
| A1R36                 | 0757-0403      | 2   |     | RESISTOR 121 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-121R-F |
| A1R37                 | 0757-0280      | 7   | 1   | RESISTOR 3.62K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-3621-F |
| A1R38                 | 0698-5808      | 5   |     | RESISTOR 4K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-4001-F |
| A1R39                 | 0698-3446      | 3   |     | RESISTOR 393 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-393R-F |
| A1R40                 | 2100-2489      | 9   |     | RESISTOR-TRMR 5K 10% C SIDE-ADJ 1-TRN  | 30983    | ET50X502         |
| A1R41                 | 0757-0279      | 8   | 1   | RESISTOR 3.16K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-3161-F |
| A1R42                 | 0698-3446      | 2   |     | RESISTOR 348 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-348R-F |
| A1S1                  | 3183-0097      | 8   | 1   | SWITCH-TRMR FXD +212F 5A OPN-ON-RISE   | 28480    | 3183-0097        |
| A1TP1                 | 0360-1682      | 0   | 18  | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP2                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP3                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP4                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP5                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP6                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP7                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP8                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP9                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP10                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP11                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP12                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP13                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP14                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A1TP15                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682        |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                             | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|-----|-----|-----------------------------------------|----------|----------------------|
| A1TP16                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG         | 28480    | 0360-1682            |
| A1TP17                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG         | 28480    | 0360-1682            |
| A1TP18                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG         | 28480    | 0360-1682            |
| A1U1                  | 1826-0527      | 9   | 2   | IC 337 V RGLTR TO-220                   | 27014    | LH337K               |
| A1U2                  | 1826-0122      | 0   | 3   | IC 7805 V RGLTR TO-220                  | 07263    | 7805UC               |
| A1U3                  | 1826-0523      | 5   | 4   | IC 337 V RGLTR TO-3                     | 27014    | LH337K               |
| A1U4                  | 1826-0106      | 0   | 3   | IC 7815 V RGLTR TO-220                  | 04713    | MC7815CP             |
| A1U5                  | 1826-0122      | 0   |     | IC 7805 V RGLTR TO-220                  | 07263    | 7805UC               |
| A1U6                  | 1826-0523      | 5   |     | IC 337 V RGLTR TO-3                     | 27014    | LH337K               |
| A1U7                  | 1826-0527      | 9   |     | IC 337 V RGLTR TO-220                   | 27014    | LH337K               |
| A1U8                  | 1826-0101      | 1   | 1   | IC V RGLTR TO-3                         | 27014    | LH337K               |
| A1U9                  | 1820-0493      | 6   | 8   | IC OP AMP GP 8-DIP-P PKG                | 27014    | LH307N               |
| A1U10                 | 1826-0106      | 0   |     | IC 7815 V RGLTR TO-220                  | 04713    | MC7815CP             |
| A1U11                 | 1820-0493      | 6   |     | IC OP AMP GP 8-DIP-P PKG                | 27014    | LH307N               |
| A1U12                 | 1826-0214      | 1   | 2   | IC V RGLTR TO-220                       | 04713    | MC7915CT             |
| A1U13                 | 1826-0523      | 5   |     | IC 337 V RGLTR TO-3                     | 27014    | LH337K               |
| A1U14                 | 1820-0493      | 6   |     | IC OP AMP GP 8-DIP-P PKG                | 27014    | LH307N               |
| A1U15                 | 1826-0122      | 0   |     | IC 7805 V RGLTR TO-220                  | 07263    | 7805UC               |
| A1U16                 | 1820-0493      | 6   |     | IC OP AMP GP 8-DIP-P PKG                | 27014    | LH307N               |
| A1U17                 | 1820-0493      | 6   |     | IC OP AMP GP 8-DIP-P PKG                | 27014    | LH307N               |
| A1U18                 | 1826-0214      | 1   |     | IC V RGLTR TO-220                       | 04713    | MC7915CT             |
| A1U19                 | 1826-0523      | 5   |     | IC 337 V RGLTR TO-3                     | 27014    | LH337K               |
| A1U20                 | 1820-0493      | 6   |     | IC OP AMP GP 8-DIP-P PKG                | 27014    | LH307N               |
| A1U21                 | 1826-0106      | 0   |     | IC 7815 V RGLTR TO-220                  | 04713    | MC7815CP             |
| A1U22                 | 1820-0493      | 6   |     | IC OP AMP GP 8-DIP-P PKG                | 27014    | LH307N               |
| A1U23                 | 1820-0493      | 6   |     | IC OP AMP GP 8-DIP-P PKG                | 27014    | LH307N               |
| A1 MISCELLANEOUS      |                |     |     |                                         |          |                      |
|                       | 0340-0590      | 5   | 5   | INSULATOR-XSTR DAP BLACK                | 28480    | 0340-0590            |
|                       | 0340-0620      | 2   | 10  | INSULATOR-XSTR THRM-CNDCT               | 28480    | 0340-0620            |
|                       | 0300-0745      | 6   | 5   | STANDOFF-RVT-ON .187-IN-LG 6-32THD      | 00000    | ORDER BY DESCRIPTION |
|                       | 0300-1485      | 3   | 4   | STANDOFF-RVT-ON .219-IN-LG 6-32THD      | 00000    | ORDER BY DESCRIPTION |
|                       | 0570-0111      | 3   | 6   | SCREW-MACH 6-32 .375-IN-LG RD-HD-SLT    | 00000    | ORDER BY DESCRIPTION |
|                       | 1480-0116      | 0   | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL       | 28480    | 1480-0116            |
|                       | 4040-0748      | 3   | 1   | EXTR-PC BD BLK POLYC .062-BD-THKNS      | 28480    | 4040-0748            |
|                       | 4040-0749      | 4   | 1   | EXTR-PC BD BRN POLYC .062-BD-THKNS      | 28480    | 4040-0749            |
|                       | 2200-0139      | 4   | 2   | SCREW-MACH 4-40 .25-IN-LG PAN-HD-POZI   | 28480    | 2200-0139            |
|                       | 2360-0197      | 2   | 9   | SCREW-MACH 6-32 .375-IN-LG PAN-HD-POZI  | 28480    | 2360-0197            |
|                       | 2360-0206      | 0   | 15  | SCREW-MACH 6-32 .25-IN-LG RDG-HD-SLT    | 00000    | ORDER BY DESCRIPTION |
|                       | 3030-0005      | 5   | 5   | WASHER-SHRDR NO. 6 .14-IN-ID .375-IN-OD | 28480    | 3030-0005            |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                           | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|---------------------------------------|----------|-----------------|
| A2                    | 05180-60002    | 1   | 1   | SAMPLE & HOLD ASSEMBLY (SERIES 2222)  | 28480    | 05180-60002     |
| A2C1                  | 0180-2815      | 1   | 7   | CAPACITOR-FXD 100UF+-20% 10VDC TA     | 28480    | 0180-2815       |
| A2C2                  | 0180-2815      | 1   |     | CAPACITOR-FXD 100UF+-20% 10VDC TA     | 28480    | 0180-2815       |
| A2C3                  | 0180-0898      | 8   | 2   | CAPACITOR-FXD 100UF+-20% 20VDC TA     | 56289    | 150D107X002052  |
| A2C4                  | 0160-3879      | 7   | 19  | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C5                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C6                  | 0180-2815      | 1   |     | CAPACITOR-FXD 100UF+-20% 10VDC TA     | 28480    | 0180-2815       |
| A2C7                  | 0180-2815      | 1   |     | CAPACITOR-FXD 100UF+-20% 10VDC TA     | 28480    | 0180-2815       |
| A2C8                  | 0180-0562      | 1   | 2   | CAPACITOR-FXD 33UF+-20% 10VDC TA      | 56289    | 196D336X0010KA1 |
| A2C9                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C10                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C11                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C12                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C13                 | 0160-0576      | 5   | 7   | CAPACITOR-FXD .1UF +-20% 50VDC CER    | 28480    | 0160-0576       |
| A2C14                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C15                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C16                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C17                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C18                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C19                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C20                 | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER    | 28480    | 0160-0576       |
| A2C21                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C22                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C23                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C24                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C25                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C26                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C27                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879       |
| A2C28                 | 0180-0562      | 1   |     | CAPACITOR-FXD 33UF+-20% 10VDC TA      | 56289    | 196D336X0010KA1 |
| A2C29                 | 0180-0898      | 8   |     | CAPACITOR-FXD 100UF+-20% 20VDC TA     | 56289    | 150D107X002052  |
| A2C30                 | 0180-2815      | 1   |     | CAPACITOR-FXD 100UF+-20% 10VDC TA     | 28480    | 0180-2815       |
| A2C31                 | 0180-2815      | 1   |     | CAPACITOR-FXD 100UF+-20% 10VDC TA     | 28480    | 0180-2815       |
| A2C32                 | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER    | 28480    | 0160-0576       |
| A2C33                 | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER    | 28480    | 0160-0576       |
| A2C34                 | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER    | 28480    | 0160-0576       |
| A2C35                 | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER    | 28480    | 0160-0576       |
| A2C36                 | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER    | 28480    | 0160-0576       |
| A2C37                 | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER    | 28480    | 0160-0576       |
| A2CR1                 | 1901-0050      | 3   | 7   | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A2CR2                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A2CR3                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A2CR4                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A2CR5                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A2CR6                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A2CR7                 | 1901-0535      | 9   | 2   | DIODE-SM SIG SCHOTTKY                 | 28480    | 1901-0535       |
| A2CR8                 | 1901-0535      | 9   |     | DIODE-SM SIG SCHOTTKY                 | 28480    | 1901-0535       |
| A2CR9                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A2J1                  | 1250-0257      | 1   | 2   | CONNECTOR-RF SMB M PC 50-OHM          | 28480    | 1250-0257       |
| A2J2                  | 1250-1368      | 7   | 3   | CONNECTOR-RF SMB M PC 50-OHM          | 28480    | 1250-1368       |
| A2J3                  | 1250-0257      | 1   |     | CONNECTOR-RF SMB M PC 50-OHM          | 28480    | 1250-0257       |
| A2J4                  | 1250-1368      | 7   |     | CONNECTOR-RF SMB M PC 50-OHM          | 28480    | 1250-1368       |
| A2J5                  | 1250-1368      | 7   |     | CONNECTOR-RF SMB M PC 50-OHM          | 28480    | 1250-1368       |
| A2L1                  | 9100-1788      | 6   | 14  | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2L2                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2L3                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2L4                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2L5                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2L6                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2L7                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2L8                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2L9                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2L10                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2L11                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2L12                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2L13                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2L14                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788       |
| A2MP1                 |                |     |     | NOT ASSIGNED                          |          |                 |
| A2MP2                 | 05180-20213    | 2   | 1   | STIFFNER                              | 28480    | 05180-20213     |
| A2MP3                 |                |     |     | NOT ASSIGNED                          |          |                 |
| A2MP4                 | 05180-00033    | 2   | 1   | SHIELD-CIRCUIT                        | 28480    | 05180-00033     |
| A2MP5                 | 05180-00034    | 3   | 1   | SHIELD-COMPONENT                      | 28480    | 05180-00034     |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                             | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|-----|-----|-----------------------------------------|----------|----------------------|
| A2Q1                  | 1854-0345      | B   | 3   | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713    | 2N5179               |
| A2Q2                  | 1854-0345      | B   |     | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713    | 2N5179               |
| A2Q3                  | 1854-0345      | B   |     | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713    | 2N5179               |
| A2Q4                  | 1853-0405      | 9   | 3   | TRANSISTOR PNP SI PD=300MW FT=850MHZ    | 04713    | 2N4209               |
| A2Q5                  | 1853-0405      | 9   |     | TRANSISTOR PNP SI PD=300MW FT=850MHZ    | 04713    | 2N4209               |
| A2Q6                  | 1853-0405      | 9   |     | TRANSISTOR PNP SI PD=300MW FT=850MHZ    | 04713    | 2N4209               |
| A2R1                  | 0698-3442      | 9   | 2   | RESISTOR 237 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-237R-F     |
| A2R2                  |                |     |     | NOT ASSIGNED                            |          |                      |
| A2R3                  | 0698-3442      | 9   |     | RESISTOR 237 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-237R-F     |
| A2R4                  | 0698-3430      | 5   | 1   | RESISTOR 21.5 1% .125W F TC=0+-100      | 03888    | PM55-1/8-T0-21R5-F   |
| A2R5                  | 0757-0394      | B   | 1   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F     |
| A2R6                  | 0698-3428      | 1   | 1   | RESISTOR 14.7 1% .125W F TC=0+-100      | 03888    | PM55-1/8-T0-14R7-F   |
| A2R7                  | 2100-3056      | B   | 1   | RESISTOR-TRMR 5K 10% C SIDE-ADJ 17-TRN  | 02111    | 43P502               |
| A2R8                  | 0757-0401      | B   | 1   | RESISTOR 100 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-101-F      |
| A2R9                  | 0757-0316      | 6   | 4   | RESISTOR 42.2 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-42R2-F     |
| A2R10                 | 0757-0316      | 6   |     | RESISTOR 42.2 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-42R2-F     |
| A2R11                 | 0757-1094      | 9   | 1   | RESISTOR 1.47K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-1471-F     |
| A2R12                 | 0757-0316      | 6   |     | RESISTOR 42.2 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-42R2-F     |
| A2R13                 | 0757-0316      | 6   |     | RESISTOR 42.2 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-42R2-F     |
|                       |                |     |     | A2 MISCELLANEOUS                        |          |                      |
|                       | 1480-0116      | B   | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL       | 28480    | 1480-0116            |
|                       | 2200-0103      | 2   | 2   | SCREW-MACH 4-40 .25-IN-LG PAN-HD-POZI   | 28480    | 2200-0103            |
|                       | 2360-0809      | 3   | 6   | NUT-HEX-W/LKWR 4-40-THD .394-IN-THK     | 99000    | ORDER BY DESCRIPTION |
|                       | 2360-0129      | 0   | 4   | SCREW-MACH 6-32 1-IN-LG PAN-HD-POZI     | 00000    | ORDER BY DESCRIPTION |
|                       | 4040-0748      | 3   | 1   | EXTR-PC BD BLK POLYC .062-80-THKNS      | 28480    | 4040-0748            |
|                       | 4046-0750      | 7   | 1   | EXTR-PC BD RED POLYC .062-80-THKNS      | 28480    | 4046-0750            |

See introduction to this section for ordering information  
\*Indicates factory selected value



Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                             | Mfr Code | Mfr Part Number   |
|-----------------------|----------------|-----|-----|-----------------------------------------|----------|-------------------|
| A3                    | 05180-60063    | 2   | 1   | 20MHZ CONVERTER ASSEMBLY (SERIES 2240)  | 28480    | 05180-60063       |
| A3C1                  | 0160-3879      | 7   | 17  | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C2                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C3                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C4                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C5                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C6                  | 0180-2815      | 1   | 3   | CAPACITOR-FXD 100UF+-20% 10VDC TA       | 28480    | 0180-2815         |
| A3C7                  | 0180-2815      | 1   |     | CAPACITOR-FXD 100UF+-20% 10VDC TA       | 28480    | 0180-2815         |
| A3C8                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C9                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C10                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C11                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C12                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C13                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C14                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C15                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C16                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C17                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C18                 | 0180-2817      | 1   | 1   | CAPACITOR-FXD 6.8UF+-10% 35VDC TA       | 25088    | D6R80G1B35K       |
| A3C19                 | 0180-2821      | 9   | 4   | CAPACITOR-FXD 22UF+-20% 35VDC TA        | 28480    | 0180-2821         |
| A3C20                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C21                 | 0160-4389      | 6   | 12  | CAPACITOR-FXD 100PF +-5PF 200VDC CER    | 28480    | 0160-4389         |
| A3C22                 | 0180-2811      | 7   | 1   | CAPACITOR-FXD 10UF+-20% 35VDC TA        | 28480    | 0180-2811         |
| A3C23                 | 0160-4389      | 6   |     | CAPACITOR-FXD 100PF +-5PF 200VDC CER    | 28480    | 0160-4389         |
| A3C24                 | 0180-2821      | 9   |     | CAPACITOR-FXD 22UF+-20% 35VDC TA        | 28480    | 0180-2821         |
| A3C25                 | 0160-4389      | 6   |     | CAPACITOR-FXD 100PF +-5PF 200VDC CER    | 28480    | 0160-4389         |
| A3C26                 | 0160-4389      | 6   |     | CAPACITOR-FXD 100PF +-5PF 200VDC CER    | 28480    | 0160-4389         |
| A3C27                 | 0180-2821      | 9   |     | CAPACITOR-FXD 22UF+-20% 35VDC TA        | 28480    | 0180-2821         |
| A3C28                 | 0160-4389      | 6   |     | CAPACITOR-FXD 100PF +-5PF 200VDC CER    | 28480    | 0160-4389         |
| A3C29                 | 0160-4389      | 6   |     | CAPACITOR-FXD 100PF +-5PF 200VDC CER    | 28480    | 0160-4389         |
| A3C30                 | 0180-2815      | 1   |     | CAPACITOR-FXD 100UF+-20% 10VDC TA       | 28480    | 0180-2815         |
| A3C31                 | 0160-4389      | 6   |     | CAPACITOR-FXD 100PF +-5PF 200VDC CER    | 28480    | 0160-4389         |
| A3C32                 | 0160-4389      | 6   |     | CAPACITOR-FXD 100PF +-5PF 200VDC CER    | 28480    | 0160-4389         |
| A3C33                 | 0180-2821      | 9   |     | CAPACITOR-FXD 22UF+-20% 35VDC TA        | 28480    | 0180-2821         |
| A3C34                 | 0160-4389      | 6   |     | CAPACITOR-FXD 100PF +-5PF 200VDC CER    | 28480    | 0160-4389         |
| A3C35                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879         |
| A3C36                 | 0160-4389      | 6   |     | CAPACITOR-FXD 100PF +-5PF 200VDC CER    | 28480    | 0160-4389         |
| A3C37                 | 0160-4389      | 6   |     | CAPACITOR-FXD 100PF +-5PF 200VDC CER    | 28480    | 0160-4389         |
| A3C38                 | 0160-4389      | 6   |     | CAPACITOR-FXD 100PF +-5PF 200VDC CER    | 28480    | 0160-4389         |
| A3CR1                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 260MA 2NS 80-35     | 28480    | 1901-0050         |
| A3CR1                 | 1901-0050      | 3   | 2   | DIODE-SWITCHING 80V 260MA 2NS 80-35     | 28480    | 1901-0050         |
| A3CR2                 | 1902-1331      | 7   | 1   | DIODE-ZNR 6.9V 4% T0-92 TC=+0015Z       | 28480    | 1902-1331         |
| A3CR3                 | 1901-1080      | 1   | 1   | DIODE-SCHOTTKY 1N5817 20V 1A            | 28480    | 1901-1080         |
| A3J1                  | 1250-1368      | 7   | 4   | CONNECTOR-RF SMR M PC 50-OHM            | 28480    | 1250-1368         |
| A3J2                  | 1250-1368      | 7   |     | CONNECTOR-RF SMR M PC 50-OHM            | 28480    | 1250-1368         |
| A3J3                  | 1250-1368      | 7   |     | CONNECTOR-RF SHB M PC 50-OHM            | 28480    | 1250-1368         |
| A3J4                  | 1250-1368      | 7   |     | CONNECTOR-RF SHB M PC 50-OHM            | 28480    | 1250-1368         |
| A3L1                  | 9100-1788      | 6   | 6   | CORE-FERRITE CHOKE-WIDEBAND; IMP:7680   | 28480    | 9100-1788         |
| A3L2                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:7680   | 28480    | 9100-1788         |
| A3L3                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:7680   | 28480    | 9100-1788         |
| A3L4                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:7680   | 28480    | 9100-1788         |
| A3L5                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:7680   | 28480    | 9100-1788         |
| A3L6                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:7680   | 28480    | 9100-1788         |
| A3Q1                  | 1854-0345      | 8   | 4   | TRANSISTOR NPN 2N5179 SI T0-72 PD=200MW | 04713    | 2N5179            |
| A3Q2                  | 1854-0345      | 8   |     | TRANSISTOR NPN 2N5179 SI T0-72 PD=200MW | 04713    | 2N5179            |
| A3Q3                  | 1854-0345      | 8   |     | TRANSISTOR NPN 2N5179 SI T0-72 PD=200MW | 04713    | 2N5179            |
| A3Q4                  | 1854-0345      | 8   |     | TRANSISTOR NPN 2N5179 SI T0-72 PD=200MW | 04713    | 2N5179            |
| A3Q5                  | 1853-0036      | 2   | 1   | TRANSISTOR PNP SI PD=310MW FT=250MHZ    | 28480    | 1853-0036         |
| A3R1                  | 1810-0433      | 9   | 2   | NETWORK-RES 6-SIP470.0 OHM X 5          | 01121    | 206A471           |
| A3R2                  | 1810-0203      | 5   | 2   | NETWORK-RES 8-SIP470.0 OHM X 7          | 01121    | 206A471           |
| A3R3                  | 1810-0203      | 5   |     | NETWORK-RES 8-SIP470.0 OHM X 7          | 01121    | 206A471           |
| A3R4                  | 1810-0364      | 9   |     | NETWORK-RES 6-SIP470.0 OHM X 5          | 01121    | 206A471           |
| A3R5                  | 1810-0433      | 3   | 4   | NETWORK-RES 8-SIP MULTI-VALUE           | 28480    | 1810-0433         |
| A3R6                  | 1810-0433      | 3   |     | NETWORK-RES 8-SIP MULTI-VALUE           | 28480    | 1810-0433         |
| A3R7                  | 1810-0433      | 3   |     | NETWORK-RES 8-SIP MULTI-VALUE           | 28480    | 1810-0433         |
| A3R8                  | 1810-0433      | 3   |     | NETWORK-RES 8-SIP MULTI-VALUE           | 28480    | 1810-0433         |
| A3R9                  | 0757-0399      | 5   | 1   | RESISTOR 82.5 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-82R5-F  |
| A3R10                 | 0698-3437      | 2   | 1   | RESISTOR 133 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-133R-F  |
| A3R11                 | 0757-0394      | 8   | 6   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F  |
| A3R12                 | 0757-0394      | 8   |     | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F  |
| A3R13                 | 0757-0294      | 9   | 2   | RESISTOR 17.8 1% .125W F TC=0+-100      | 19701    | MF401/8-T0-17R8-F |
| A3R14                 | 0757-0394      | 8   |     | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F  |
| A3R15                 | 0757-0394      | 8   |     | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F  |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                             | Mfr Code | Mfr Part Number   |
|-----------------------|----------------|-----|-----|-----------------------------------------|----------|-------------------|
| A2R16                 | 0757-0294      | 9   |     | RESISTOR 17.8 1% .125W F TC=0+-100      | 19791    | MF401/8-T0-178R-F |
| A3R17                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F  |
| A3R18                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F  |
| A3R19                 | 2100-3052      | 4   |     | RESISTOR-TRMR 50 10% C SIDE-ADJ 17-TRN  | 02111    | 43P500            |
| A3R20                 | 2100-3052      | 4   |     | RESISTOR-TRMR 50 10% C SIDE-ADJ 17-TRN  | 02111    | 43P500            |
| A3R21                 | 0698-3432      | 4   |     | RESISTOR 26.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-26R1-F  |
| A3R22                 | 2100-3052      | 4   |     | RESISTOR-TRMR 50 10% C SIDE-ADJ 17-TRN  | 02111    | 43P500            |
| A3R23                 | 0698-3400      | 9   | 1   | RESISTOR 147 1% .5W F TC=0+-100         | 28400    | 0698-3400         |
| A3R24                 | 2100-3052      | 4   |     | RESISTOR-TRMR 50 10% C SIDE-ADJ 17-TRN  | 02111    | 43P500            |
| A3R25                 | 0757-0417      | 8   | 1   | RESISTOR 562 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-562R-F  |
| A3R26                 | 2100-3154      | 7   | 1   | RESISTOR-TRMR 1K 10% C SIDE-ADJ 17-TRN  | 02111    | 43P102            |
| A3R27                 | 0757-0283      | 6   | 2   | RESISTOR 2K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-2001-F  |
| A3R28                 | 0757-0274      | 3   | 1   | RESISTOR 1.21K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-1211-F  |
| A3R29                 | 2100-3122      | 9   | 2   | RESISTOR-TRMR 100 10% C SIDE-ADJ 17-TRN | 02111    | 43P101            |
| A3R30                 | 0757-0403      | 2   | 2   | RESISTOR 121 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-121R-F  |
| A3R31                 | 0698-3155      | 1   | 5   | RESISTOR 4.64K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-4641-F  |
| A3R32                 | 2100-3095      | 5   | 5   | RESISTOR-TRMR 200 10% C SIDE-ADJ 17-TRN | 02111    | 43P201            |
| A3R33                 | 0698-3446      | 3   | 2   | RESISTOR 302 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-303R-F  |
| A3R34                 | 0698-3154      | 8   | 2   | RESISTOR 4.22K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-4221-F  |
| A3R35                 | 2100-3123      | 6   | 2   | RESISTOR-TRMR 500 10% C SIDE-ADJ 17-TRN | 02111    | 43P501            |
| A3R36                 | 0757-0422      | 5   | 1   | RESISTOR 909 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-909R-F  |
| A3R37                 | 0698-5808      | 5   | 3   | RESISTOR 4K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-4001-F  |
| A3R38                 | 2100-3095      | 5   | 5   | RESISTOR-TRMR 200 10% C SIDE-ADJ 17-TRN | 02111    | 43P201            |
| A3R39                 | 0757-0407      | 6   | 2   | RESISTOR 200 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-201-F   |
| A3R40                 | 0698-3155      | 1   |     | RESISTOR 4.64K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-4641-F  |
| A3R41                 | 2100-3123      | 8   |     | RESISTOR-TRMR 500 10% C SIDE-ADJ 17-TRN | 02111    | 43P501            |
| A3R42                 | 0698-3150      | 6   | 2   | RESISTOR 2.37K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-2371-F  |
| A3R43                 | 0698-3150      | 6   |     | RESISTOR 2.37K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-2371-F  |
| A3R44                 | 2100-3095      | 3   |     | RESISTOR-TRMR 200 10% C SIDE-ADJ 17-TRN | 02111    | 43P201            |
| A3R45                 | 0757-0401      | 0   | 1   | RESISTOR 100 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-101-F   |
| A3R46                 | 0698-3155      | 1   |     | RESISTOR 4.64K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-4641-F  |
| A3R47                 | 2100-3095      | 5   |     | RESISTOR-TRMR 200 10% C SIDE-ADJ 17-TRN | 02111    | 43P201            |
| A3R48                 | 0698-3446      | 3   |     | RESISTOR 303 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-303R-F  |
| A3R49                 | 0698-3154      | 0   |     | RESISTOR 4.22K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-4221-F  |
| A3R50                 | 2100-3095      | 5   |     | RESISTOR-TRMR 200 10% C SIDE-ADJ 17-TRN | 02111    | 43P201            |
| A3R51                 | 0757-0407      | 6   |     | RESISTOR 200 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-201-F   |
| A3R52                 | 0698-3155      | 1   |     | RESISTOR 4.64K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-4641-F  |
| A3R53                 | 2100-3122      | 9   |     | RESISTOR-TRMR 100 10% C SIDE-ADJ 17-TRN | 02111    | 43P101            |
| A3R54                 | 0757-0403      | 2   |     | RESISTOR 121 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-121R-F  |
| A3R55                 | 0698-3155      | 1   |     | RESISTOR 4.64K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-4641-F  |
| A3R56                 | 0698-5808      | 5   |     | RESISTOR 4K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-4001-F  |
| A3R57                 | 0698-5808      | 5   |     | RESISTOR 4K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-4001-F  |
| A3R58                 | 0757-0283      | 6   |     | RESISTOR 2K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-2001-F  |
| A3S1                  | 1303-0032      | 3   | 1   | SWITCH-THERMAL                          | 28400    | 1303-0032         |
| A3TP1                 | 0360-1682      | 0   | 8   | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28400    | 0360-1682         |
| A3TP2                 | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28400    | 0360-1682         |
| A3TP3                 | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28400    | 0360-1682         |
| A3TP4                 | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28400    | 0360-1682         |
| A3TP5                 | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28400    | 0360-1682         |
| A3TP6                 | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28400    | 0360-1682         |
| A3TP7                 | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28400    | 0360-1682         |
| A3TP8                 | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28400    | 0360-1682         |
| A3U1                  | 1820-0801      | 0   | 3   | IC GATE ECL OR-NOR QUAD 2-INP           | 04713    | MC10101P          |
| A3U2                  | 1820-0801      | 0   |     | IC GATE ECL OR-NOR QUAD 2-INP           | 04713    | MC10101P          |
| A3U3                  | 1820-0801      | 0   |     | IC GATE ECL OR-NOR QUAD 2-INP           | 04713    | MC10101P          |
| A3U4                  | 1820-1399      | 3   | 2   | IC FF ECL D-TYPE COM CLOCK HEX          | 04713    | MC10176P          |
| A3U5                  | 1820-1399      | 3   |     | IC FF ECL D-TYPE COM CLOCK HEX          | 04713    | MC10176P          |
| A3U6                  | 1820-2149      | 3   | 1   | IC GATE ECL DUAL 3-INP                  | 28400    | B2348-0100        |
| A3U7                  | 1826-0311      | 9   | 12  | IC OP AMP GP 8-DIP-P PKG                | 04713    | MLM201AP1         |
| A3U8                  | 1826-0311      | 9   |     | IC OP AMP GP 8-DIP-P PKG                | 04713    | MLM201AP1         |
| A3U9                  | 1826-0311      | 9   |     | IC OP AMP GP 8-DIP-P PKG                | 04713    | MLM201AP1         |
| A3U10                 | 1826-0311      | 9   |     | IC OP AMP GP 8-DIP-P PKG                | 04713    | MLM201AP1         |
| A3U11                 | 1826-0311      | 9   |     | IC OP AMP GP 8-DIP-P PKG                | 04713    | MLM201AP1         |
| A3U12                 | 1826-0311      | 9   |     | IC OP AMP GP 8-DIP-P PKG                | 04713    | MLM201AP1         |
| A3U13                 | 1826-0311      | 9   |     | IC OP AMP GP 8-DIP-P PKG                | 04713    | MLM201AP1         |
| A3U14                 | 1826-0311      | 9   |     | IC OP AMP GP 8-DIP-P PKG                | 04713    | MLM201AP1         |
| A3U15                 | 1826-0311      | 9   |     | IC OP AMP GP 8-DIP-P PKG                | 04713    | MLM201AP1         |
| A3U16                 | 1826-0316      | 4   | 1   | V REF TO-5                              | 27014    | LH0070-1H         |
| A3U17                 | 1826-0311      | 9   |     | IC OP AMP GP 8-DIP-P PKG                | 04713    | MLM201AP1         |
| A3U18                 | 1826-0311      | 9   |     | IC OP AMP GP 8-DIP-P PKG                | 04713    | MLM201AP1         |
| A3U19                 | 1826-0311      | 9   |     | IC OP AMP GP 8-DIP-P PKG                | 04713    | MLM201AP1         |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                            | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|-----|-----|----------------------------------------|----------|----------------------|
|                       |                |     |     | A3 MISCELLANEOUS                       |          |                      |
|                       | 1480-0116      | B   | 2   | PIN-CRV .062-IN-DIA .25-IN-LG STL      | 28480    | 1480-0116            |
|                       | 2160-3052      | 4   | 9   | RESISTOR-TRMR 50 10% C SIDE-ADJ 17-TRN | 02111    | 43P500               |
|                       | 2260-6009      | 3   | 5   | NUT-HEX-W/LKWR 4-40-THD .894-IN-THK    | 00000    | ORDER BY DESCRIPTION |
|                       | 4040-0748      | 3   | 1   | EXTR-PC BD BLK POLYC .062-BD-THKNS     | 28480    | 4040-0748            |
|                       | 4040-0751      | B   | 1   | EXTR-PC BD GRN POLYC .062-BD-THKNS     | 28480    | 4040-0751            |

See introduction to this section for ordering information  
 \*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                            | Mfr Code | Mfr Part Number   |
|-----------------------|----------------|-----|-----|----------------------------------------|----------|-------------------|
| A4                    | 45180-60004    | 3   | 1   | TIMING ASSEMBLY (SERIES 2044)          | 28480    | 05180-60004       |
| A4C1                  | 0160-0576      | 5   | 1   | CAPACITOR-FXD .01UF +-20% 50VDC CER    | 28480    | 0160-0576         |
| A4C2                  | 0160-3879      | 7   | 10  | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 28480    | 0160-3879         |
| A4C3                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 28480    | 0160-3879         |
| A4C4                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 28480    | 0160-3879         |
| A4C5                  | 0180-2815      | 1   | 2   | CAPACITOR-FXD 100UF+-20% 10VDC TA      | 28480    | 0180-2815         |
| A4C6                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 28480    | 0160-3879         |
| A4C7                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 28480    | 0160-3879         |
| A4C8                  | 0180-2815      | 1   |     | CAPACITOR-FXD 100UF+-20% 10VDC TA      | 28480    | 0180-2815         |
| A4C9                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 28480    | 0160-3879         |
| A4C10                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 28480    | 0160-3879         |
| A4C11                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 28480    | 0160-3879         |
| A4C12                 | 0140-9292      | 2   | 1   | CAPACITOR-FXD 15PF +-5% 50VDC NICA     | 72126    | DR15C15J30000V1CR |
| A4C13                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 28480    | 0160-3879         |
| A4C14                 | 0160-2197      | 0   | 1   | CAPACITOR-FXD 15PF +-5% 300VDC NICA    | 28480    | 0160-2197         |
| A4C15                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 28480    | 0160-3879         |
| A4DL1                 | 05180-80001    | 2   | 1   | DELAY LINE-3 & 18N                     | 28480    | 05180-80001       |
| A4DL2                 | 05180-80002    | 3   | 1   | DELAY LINE-4 & 29N                     | 28480    | 05180-80002       |
| A4J1                  | 1250-0257      | 1   | 5   | CONNECTOR-RF SMB M PC 50-OHM           | 28480    | 1250-0257         |
| A4J2                  | 1250-0257      | 1   |     | CONNECTOR-RF SMB M PC 50-OHM           | 28480    | 1250-0257         |
| A4J3                  | 1250-0257      | 1   |     | CONNECTOR-RF SMB M PC 50-OHM           | 28480    | 1250-0257         |
| A4J4                  | 1250-0257      | 1   |     | CONNECTOR-RF SMB M PC 50-OHM           | 28480    | 1250-0257         |
| A4J5                  | 1250-0257      | 1   |     | CONNECTOR-RF SMB M PC 50-OHM           | 28480    | 1250-0257         |
| A4L1                  | 9100-1788      | 6   | 2   | CORE-FERRITE CHOKE-WIDEBAND; IMP: >680 | 28480    | 9100-1788         |
| A4L2                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >680 | 28480    | 9100-1788         |
| A4R1                  | 0757-0394      | 0   | 18  | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R2                  | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R3                  | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R4                  | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R5                  | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R6                  | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R7                  | 0757-0421      | 4   | 3   | RESISTOR 825 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-825R-F  |
| A4R8                  | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R9                  | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R10                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R11                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R12                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R13                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R14                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R15                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R16                 | 0757-0416      | 7   | 5   | RESISTOR 511 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-511R-F  |
| A4R17                 | 0757-0416      | 7   |     | RESISTOR 511 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-511R-F  |
| A4R18                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R19                 | 0757-0421      | 4   |     | RESISTOR 825 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-825R-F  |
| A4R20                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R21                 | 0757-0416      | 7   |     | RESISTOR 511 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-511R-F  |
| A4R22                 | 0698-3437      | 2   | 6   | RESISTOR 133 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-133R-F  |
| A4R23                 | 0757-0399      | 5   | 6   | RESISTOR 82.5 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-82R5-F  |
| A4R24                 | 0698-3437      | 2   |     | RESISTOR 133 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-133R-F  |
| A4R25                 | 0757-0399      | 5   |     | RESISTOR 82.5 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-82R5-F  |
| A4R26                 |                |     |     | NOT ASSIGNED                           |          |                   |
| A4R27                 |                |     |     | NOT ASSIGNED                           |          |                   |
| A4R28                 | 0757-0416      | 7   |     | RESISTOR 511 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-511R-F  |
| A4R29                 | 0698-3444      | 1   | 1   | RESISTOR 316 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-316R-F  |
| A4R30                 | 0757-0416      | 7   |     | RESISTOR 511 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-511R-F  |
| A4R31                 | 0757-0421      | 4   |     | RESISTOR 825 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-825R-F  |
| A4R32                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R33                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F  |
| A4R34                 | 0698-3437      | 2   |     | RESISTOR 133 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-133R-F  |
| A4R35                 | 0757-0399      | 5   |     | RESISTOR 82.5 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-82R5-F  |
| A4R36                 | 0698-3132      | 4   | 1   | RESISTOR 261 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-261R-F  |
| A4R37                 | 0757-0399      | 5   |     | RESISTOR 82.5 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-82R5-F  |
| A4R38                 | 0698-3437      | 2   |     | RESISTOR 133 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-133R-F  |
| A4R39                 | 0757-0399      | 5   |     | RESISTOR 82.5 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-82R5-F  |
| A4R40                 | 0698-3437      | 2   |     | RESISTOR 133 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-133R-F  |
| A4R41                 | 0757-0283      | 6   | 1   | RESISTOR 2K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-2001-F  |
| A4R42                 | 0757-0399      | 5   |     | RESISTOR 82.5 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-82R5-F  |
| A4R43                 | 0698-3437      | 2   |     | RESISTOR 133 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-133R-F  |
| A4U1                  | 1088-0502      | 4   | 1   | IC-DIG SPECIAL                         | 28480    | 1088-0502         |
| A4U2                  | 1820-1940      | 0   | 2   | IC CNTR ECL BIN SYNCHRO POS-EDGE-TRIC  | 28480    | B196A-0100        |
| A4U3                  | 1820-2149      | 3   | 1   | IC GATE ECL DUAL 3-IMP                 | 28480    | B234B-0180        |
| A4U4                  | 1820-1940      | 0   |     | IC CNTR ECL BIN SYNCHRO POS-EDGE-TRIC  | 28480    | B196A-0100        |
| A4U5                  | 1828-2324      | 6   | 2   | IC RCVR ECL DIFF LINE TPL              | 04713    | MC10114P          |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                           | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|-----|-----|---------------------------------------|----------|----------------------|
| A4U6                  | 1828-0803      | 2   | 1   | IC GATE ECL OR-NOR TPL                | 04713    | HC10105P             |
| A4U7                  | 1828-0817      | 8   | 1   | IC FF ECL D-M/S DUAL                  | 04713    | HC10131P             |
| A4UB                  | 1820-2324      | 6   |     | IC RCVR ECL DIFF LINE TPL             | 04713    | HC10114P             |
|                       |                |     |     | A4 MISCELLANEOUS                      |          |                      |
|                       | 0380-0004      | 0   | 2   | SPACER-RND .100-IN-LG .18-IN-ID       | 00000    | ORDER BY DESCRIPTION |
|                       | 0386-0906      | 1   | 4   | STANDOFF-RVT-OM .1-IN-LG 5-32THT      | 00000    | ORDER BY DESCRIPTION |
|                       | 1480-0116      | 0   | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL     | 28480    | 1480-0116            |
|                       | 2360-0121      | 2   | 4   | SCREW-MACH 6-32 .5-IN-LG PAN-HD-POZI  | 00000    | ORDER BY DESCRIPTION |
|                       | 2360-0125      | 6   | 2   | SCREW-MACH 6-32 .75-IN-LG PAN-HD-POZI | 00000    | ORDER BY DESCRIPTION |
|                       | 4040-0748      | 3   | 1   | EXTR-PC BD BLK POLYC .062-BD-THKNS    | 28480    | 4040-0748            |
|                       | 4040-0752      | 9   | 1   | EXTR-PC BD YEL POLYC .062-BD-THKNS    | 28480    | 4040-0752            |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                            | Mfr Code | Mfr Part Number   |
|-----------------------|----------------|-----|-----|----------------------------------------|----------|-------------------|
| A5                    | 05180-60085    | 0   | 1   | DATA DECODER ASSEMBLY (SERIES 2044)    | 20480    | 05180-60085       |
| ASC1                  | 0180-2815      | 1   | 1   | CAPACITOR-FXD 100UF+-20% 100VDC TA     | 20480    | 0180-2815         |
| ASC2                  | 0160-3879      | 7   | 10  | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 20480    | 0160-3879         |
| ASC3                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 20480    | 0160-3879         |
| ASC4                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 20480    | 0160-3879         |
| ASC5                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 20480    | 0160-3879         |
| ASC6                  | 0160-0369      | 4   | 1   | CAPACITOR-FXD 17PF +-5% 500VDC MICA    | 20480    | 0160-0369         |
| ASC7                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 20480    | 0160-3879         |
| ASC8                  | 0140-0145      | 2   | 1   | CAPACITOR-FXD 23PF +-5% 500VDC MICA    | 72136    | PH15C220J3500V1CR |
| ASC9                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 20480    | 0160-3879         |
| ASC10                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 20480    | 0160-3879         |
| ASC11                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 20480    | 0160-3879         |
| ASC12                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 20480    | 0160-3879         |
| ASC13                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER   | 20480    | 0160-3879         |
| ASCR1                 | 1901-0050      | 3   | 24  | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR2                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR3                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR4                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR5                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR6                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR7                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR8                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR9                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR10                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR11                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR12                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR13                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR14                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR15                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR16                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR17                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR18                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR19                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR20                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR21                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR22                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR23                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASCR24                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35    | 20480    | 1901-0050         |
| ASJ1                  | 1251-5997      | 0   | 1   | CONN-POST TYPE .100-PIN-SPCG 26-CONT   | 20480    | 1251-5997         |
| ASL1                  | 9100-1788      | 6   | 1   | CORE-FERRITE CHOKE-WIDEBAND; IMP > 600 | 20480    | 9100-1788         |
| ASR1                  | 1010-0433      | 3   | 0   | NETWORK-RES 8-SIP MULTI-VALUE          | 20480    | 1010-0433         |
| ASR2                  | 0757-0284      | 7   | 12  | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F   |
| ASR3                  | 0757-0284      | 7   |     | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F   |
| ASR4                  | 0757-0284      | 7   |     | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F   |
| ASR5                  | 0757-0284      | 7   |     | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F   |
| ASR6                  | 0757-0284      | 7   |     | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F   |
| ASR7                  | 0757-0284      | 7   |     | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F   |
| ASR8                  | 0757-0284      | 7   |     | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F   |
| ASR9                  | 0757-0284      | 7   |     | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F   |
| ASR10                 | 1010-0433      | 3   |     | NETWORK-RES 8-SIP MULTI-VALUE          | 20480    | 1010-0433         |
| ASR11                 | 1010-0433      | 3   |     | NETWORK-RES 8-SIP MULTI-VALUE          | 20480    | 1010-0433         |
| ASR12                 | 1010-0433      | 3   |     | NETWORK-RES 8-SIP MULTI-VALUE          | 20480    | 1010-0433         |
| ASR13                 | 0757-0284      | 7   |     | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F   |
| ASR14                 | 0757-0284      | 7   |     | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F   |
| ASR15                 | 0757-0284      | 7   |     | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F   |
| ASR16                 | 0757-0284      | 7   |     | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F   |
| ASR17                 | 0698-3437      | 2   | 1   | RESISTOR 133 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-123R-F  |
| ASR18                 | 0757-0399      | 5   | 1   | RESISTOR 82.5 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-0285-F  |
| ASR19                 | 1010-0433      | 3   |     | NETWORK-RES 8-SIP MULTI-VALUE          | 20480    | 1010-0433         |
| ASR20                 | 0757-0416      | 7   | 1   | RESISTOR 511 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-511R-F  |
| ASR21                 | 2100-3352      | 7   | 1   | RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRN  | 20480    | 2100-3352         |
| ASR22                 | 1010-0433      | 3   |     | NETWORK-RES 8-SIP MULTI-VALUE          | 20480    | 1010-0433         |
| ASR23                 | 1010-0433      | 3   |     | NETWORK-RES 8-SIP MULTI-VALUE          | 20480    | 1010-0433         |
| ASR24                 |                |     |     | NOT ASSIGNED                           |          |                   |
| ASR25                 | 1010-0370      | 7   | 2   | NETWORK-RES 8-SIP220.0 OHM X 7         | 01121    | 208A221           |
| ASR26                 | 1010-0433      | 3   |     | NETWORK-RES 8-SIP MULTI-VALUE          | 20480    | 1010-0433         |
| ASR27                 |                |     |     | NOT ASSIGNED                           |          |                   |
| ASR28                 | 1010-0370      | 7   |     | NETWORK-RES 8-SIP220.0 OHM X 7         | 01121    | 208A221           |
| ASR29                 | 0757-0283      | 6   | 12  | RESISTOR 2K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-2001-F  |
| ASR30                 | 0757-0283      | 6   |     | RESISTOR 2K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-2001-F  |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C<br>D | Qty | Description                         | Mfr Code | Mfr Part Number  |
|-----------------------|----------------|--------|-----|-------------------------------------|----------|------------------|
| ASR31                 | 0757-0283      | 6      |     | RESISTOR 2K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2001-F |
| ASR32                 | 0757-0283      | 6      |     | RESISTOR 2K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2001-F |
| ASR33                 | 0757-0283      | 6      |     | RESISTOR 2K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2001-F |
| ASR34                 | 0757-0283      | 6      |     | RESISTOR 1K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2001-F |
| ASR35                 | 0757-0283      | 6      |     | RESISTOR 2K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2001-F |
| ASR36                 | 0757-0283      | 6      |     | RESISTOR 2K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2001-F |
| ASR37                 | 0757-0283      | 6      |     | RESISTOR 2K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2001-F |
| ASR38                 | 0757-0283      | 6      |     | RESISTOR 2K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2001-F |
| ASR39                 | 0757-0283      | 6      |     | RESISTOR 2K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2001-F |
| ASR40                 | 0757-0283      | 6      |     | RESISTOR 2K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2001-F |
| ASTP1                 | 0360-1682      | 6      | 2   | TERMINAL-STUD SGL-TUR PRESS-MTG     | 28480    | 0360-1682        |
| ASTP2                 | 0360-1682      | 6      |     | TERMINAL-STUD SGL-TUR PRESS-MTG     | 28480    | 0360-1682        |
| ASU1                  | 1820-0831      | 6      | 2   | IC ARITH-LGC-UN ECL 4-BIT           | 04713    | MC10181L         |
| ASU2                  | 1820-0809      | 8      | 3   | IC RCVR ECL LINE RCVR QUAD 2-INP    | 04713    | MC10115P         |
| ASU3                  | 1820-1400      | 7      | 1   | IC GATE ECL AND QUAD 2-INP          | 04713    | MC10104P         |
| ASU4                  | 1820-0809      | 8      |     | IC RCVR ECL LINE RCVR QUAD 2-INP    | 04713    | MC10115P         |
| ASU5                  | 1820-0802      | 1      | 1   | IC GATE ECL NOR QUAD 2-INP          | 04713    | MC10102P         |
| ASU6                  | 1820-0809      | 8      |     | IC RCVR ECL LINE RCVR QUAD 2-INP    | 04713    | MC10115P         |
| ASU7                  | 1820-0865      | 4      | 1   | IC GATE ECL EXCL-OR/NOR TPL 2-INP   | 04713    | MC10167P         |
| ASU8                  | 1820-0803      | 2      | 2   | IC GATE ECL OR-NOR TPL              | 04713    | MC10105P         |
| ASU9                  | 1820-0831      | 6      |     | IC ARITH-LGC-UN ECL 4-BIT           | 04713    | MC10181L         |
| ASU10                 | 1820-0811      | 2      | 3   | IC GATE ECL OR-AND-INV DUAL 2-3-INP | 04713    | MC10117P         |
| ASU11                 | 1820-1399      | 3      | 2   | IC FF ECL D-TYPE COM CLOCK HEX      | 04713    | MC10176P         |
| ASU12                 | 1820-0863      | 2      |     | IC GATE ECL OR-NOR TPL              | 04713    | MC10105P         |
| ASU13                 | 1820-0811      | 2      |     | IC GATE ECL OR-AND-INV DUAL 2-3-INP | 04713    | MC10117P         |
| ASU14                 | 1820-0811      | 2      |     | IC GATE ECL OR-AND-INV DUAL 2-3-INP | 04713    | MC10117P         |
| ASU15                 | 1820-0811      | 2      |     | IC GATE ECL OR-AND-INV DUAL 2-3-INP | 04713    | MC10117P         |
| ASU16                 | 1820-0811      | 2      |     | IC GATE ECL OR-AND-INV DUAL 2-3-INP | 04713    | MC10117P         |
| ASU17                 | 1820-1399      | 3      |     | IC FF ECL D-TYPE COM CLOCK HEX      | 04713    | MC10176P         |
| ASU18                 | 1820-0801      | 9      | 3   | IC GATE ECL OR-NOR QUAD 2-INP       | 04713    | MC10101P         |
| ASU19                 | 1820-0801      | 9      |     | IC GATE ECL OR-NOR QUAD 2-INP       | 04713    | MC10101P         |
| ASU20                 | 1820-0801      | 9      |     | IC GATE ECL OR-NOR QUAD 2-INP       | 04713    | MC10101P         |
| A5 MISCELLANEOUS      |                |        |     |                                     |          |                  |
|                       | 05180-20085    | 6      | 1   | BD-BLANK, MULTLYR                   | 28480    | 05180-20085      |
|                       | 05180-63085    | 6      | 1   | SEQ PTS - AY 60085                  | 28480    | 05180-63085      |
|                       | 1480-0116      | 8      | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL   | 28480    | 1480-0116        |
|                       | 4040-0748      | 3      | 1   | EXTR-PC 8D BLK POLYC .062-BD-TRKNS  | 28480    | 4040-0748        |
|                       | 4040-0753      | 0      | 1   | EXTR-PC 8D GRN POLYC .062-BD-TRKNS  | 28480    | 4040-0753        |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                              | Mfr Code | Mfr Part Number  |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A7                    | 05180-60007    | 6   | 1   | MULTIPLEXER/COMPARATOR (SERIES 2616)     | 28480    | 05180-60007      |
| A7C1                  | 0160-3879      | 7   | 46  | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C2                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C3                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C4                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C5                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C6                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C7                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C8                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C9                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C10                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C11                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C12                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C13                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C14                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C15                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C16                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C17                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C18                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C19                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C20                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C21                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C22                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C23                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C24                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C25                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C26                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C27                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C28                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C29                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C30                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C31                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C32                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C33                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C34                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C35                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C36                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C37                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C38                 | 0180-0562      | 1   | 3   | CAPACITOR-FXB 33UF+-20% 10VDC TA         | 56289    | 196D336X010KA1   |
| A7C39                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C40                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C41                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C42                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C43                 | 0180-0562      | 1   |     | CAPACITOR-FXB 33UF+-20% 10VDC TA         | 56289    | 196D336X010KA1   |
| A7C44                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C45                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C46                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C47                 | 0180-0562      | 1   |     | CAPACITOR-FXB 33UF+-20% 10VDC TA         | 56289    | 196D336X010KA1   |
| A7C48                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7C49                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A7CR1                 | 1901-0050      | 3   | 2   | DIODE-SWITCHING 80V 200MA 2NS DO-35      | 28480    | 1901-0050        |
| A7CR2                 | 1901-0535      | 9   | 2   | DIODE-SM SIG SCHOTTKY                    | 28480    | 1901-0535        |
| A7CR3                 | 1901-0535      | 9   |     | DIODE-SM SIG SCHOTTKY                    | 28480    | 1901-0535        |
| A7CR4                 | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35      | 28480    | 1901-0050        |
| A7CR5                 | 1902-3002      | 3   | 2   | DIODE-ZNR 2.37V 5% DO-7 PD=.4W TC=-.074% | 28480    | 1902-3002        |
| A7CR6                 | 1902-3002      | 3   |     | DIODE-ZNR 2.37V 5% DO-7 PD=.4W TC=-.074% | 28480    | 1902-3002        |
| A7F1                  | 2110-0510      | 4   | 1   | FUSE .015A 125V NTD .348X.25             | 75915    | 273.015          |
| A7J1                  | 1200-0548      | 8   | 1   | SOCKET-IC 14-CDNT DIP DIP-SLDR           | 28480    | 1200-0548        |
| A7J2                  |                |     |     | NOT ASSIGNED                             |          |                  |
| A7J3                  |                |     |     | NOT ASSIGNED                             |          |                  |
| A7J4                  | 1250-1368      | 7   | 1   | CONNECTOR-RF SMA M PC 50-OHM             | 28480    | 1250-1368        |
| A7L1                  | 9100-1788      | 6   | 3   | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600   | 28480    | 9100-1788        |
| A7L2                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600   | 28480    | 9100-1788        |
| A7L3                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600   | 28480    | 9100-1788        |
| A7R1                  | 0698-3444      | 5   | 1   | RESISTOR 4K 1% .125W F TC=0+-100         | 24546    | C4-1/8-T0-4001-F |
| A7R2                  | 0698-3444      | 1   | 10  | RESISTOR 316 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-316R-F |
| A7R3                  | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-316R-F |
| A7R4                  | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-316R-F |
| A7R5                  | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-316R-F |

See introduction to this section for ordering information  
\*Indicates factory selected value



Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                            | Mfr Code | Mfr Part Number  |
|-----------------------|----------------|-----|-----|----------------------------------------|----------|------------------|
| A7R6                  | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-316R-F |
| A7R7                  | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-316R-F |
| A7R8                  | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-316R-F |
| A7R9                  | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-316R-F |
| A7R10                 | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-316R-F |
| A7R11                 | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-316R-F |
| A7R12                 | 0757-0401      | 0   | 2   | RESISTOR 100 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-101-F  |
| A7R13                 | 0757-0401      | 0   |     | RESISTOR 100 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-101-F  |
| A7R14                 | 0757-0283      | 6   | 1   | RESISTOR 2K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-2001-F |
| A7R15                 | 0757-0428      | 1   | 2   | RESISTOR 1.62K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-1621-F |
| A7R16                 | 0757-0428      | 1   |     | RESISTOR 1.62K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-1621-F |
| A7R17                 | 2100-3941      | 0   | 1   | RESISTOR-TRMR 10K 10% C SIDE-ADJ 4-TRN | 28480    | 2100-3941        |
| A7R18                 | 0698-3152      | 8   | 1   | RESISTOR 3.49K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-3481-F |
| A7R19                 | 0698-3150      | 8   | 1   | RESISTOR 31.6K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-3162-F |
| A7R20                 |                |     |     | NOT ASSIGNED                           |          |                  |
| A7R21                 | 1810-0318      | 3   | 13  | NETWORK-RES 6-SIP1.0K OHM X 5          | 01121    | 206A102          |
| A7R22                 | 1810-0318      | 3   |     | NETWORK-RES 6-SIP1.0K OHM X 5          | 01121    | 206A102          |
| A7R23                 | 1810-0318      | 3   |     | NETWORK-RES 6-SIP1.0K OHM X 5          | 01121    | 206A102          |
| A7R24                 | 1810-0365      | 0   | 2   | NETWORK-RES 6-SIP2.2K OHM X 5          | 01121    | 206A222          |
| A7R25                 | 2100-4112      | 9   | 1   | RESISTOR-TRMR 1K 10% C SIDE-ADJ 4-TRN  | 32997    | 3339W-1-162      |
| A7R26                 | 1810-0318      | 3   |     | NETWORK-RES 6-SIP1.0K OHM X 5          | 01121    | 206A102          |
| A7R27                 | 1810-0318      | 3   |     | NETWORK-RES 6-SIP1.0K OHM X 5          | 01121    | 206A102          |
| A7R28                 | 1810-0318      | 3   |     | NETWORK-RES 6-SIP1.0K OHM X 5          | 01121    | 206A102          |
| A7R29                 | 1810-0365      | 0   |     | NETWORK-RES 6-SIP2.2K OHM X 5          | 01121    | 206A222          |
| A7R30                 | 0757-0421      | 4   | 4   | RESISTOR 825 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-825R-F |
| A7R31                 | 0757-0421      | 4   |     | RESISTOR 825 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-825R-F |
| A7R32                 | 1810-0537      | 8   | 2   | NETWORK-RC 8 PIN SIP; 75 OHMS +-2% X7  | 28480    | 1810-0537        |
| A7R33                 | 1810-0318      | 3   |     | NETWORK-RES 6-SIP1.0K OHM X 5          | 01121    | 206A102          |
| A7R34                 | 1810-0318      | 3   |     | NETWORK-RES 6-SIP1.0K OHM X 5          | 01121    | 206A102          |
| A7R35                 | 0757-0421      | 4   |     | RESISTOR 825 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-825R-F |
| A7R36                 | 0757-0421      | 4   |     | RESISTOR 825 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-825R-F |
| A7R37                 | 1810-0318      | 3   |     | NETWORK-RES 6-SIP1.0K OHM X 5          | 01121    | 206A102          |
| A7R38                 | 1810-0537      | 8   |     | NETWORK-RC 8 PIN SIP; 75 OHMS +-2% X7  | 28480    | 1810-0537        |
| A7R39                 | 1810-0318      | 3   |     | NETWORK-RES 6-SIP1.0K OHM X 5          | 01121    | 206A102          |
| A7R40                 | 1810-0318      | 3   |     | NETWORK-RES 6-SIP1.0K OHM X 5          | 01121    | 206A102          |
| A7R41                 | 1810-0318      | 3   |     | NETWORK-RES 6-SIP1.0K OHM X 5          | 01121    | 206A102          |
| A7R42                 | 1810-0318      | 3   |     | NETWORK-RES 6-SIP1.0K OHM X 5          | 01121    | 206A102          |
| A7R43                 | 1810-0433      | 3   | 1   | NETWORK-RES 8-SIP MULTI-VALUE          | 28480    | 1810-0433        |
| A7R44                 | 0757-0260      | 3   | 3   | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F |
| A7R45                 | 0757-0461      | 2   | 2   | RESISTOR 68.1K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-6812-F |
| A7R46                 | 0757-0467      | 6   | 1   | RESISTOR 200 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-201-F  |
| A7R47                 |                |     |     | NOT ASSIGNED                           |          |                  |
| A7R48                 |                |     |     | NOT ASSIGNED                           |          |                  |
| A7R49                 | 0757-0461      | 2   |     | RESISTOR 68.1K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-6812-F |
| A7R50                 | 0757-0444      | 1   | 1   | RESISTOR 12.1K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-1212-F |
| A7R51                 | 0813-0801      | 6   | 1   | RESISTOR 1K 5% 3W PW TC=0+-20          | 28480    | 0813-0801        |
| A7R52                 | 0757-0200      | 3   |     | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F |
| A7R53                 | 0757-0200      | 3   |     | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F |
| A7R54                 | 0757-0419      | 0   | 2   | RESISTOR 681 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-681R-F |
| A7R55                 | 0757-0419      | 0   |     | RESISTOR 681 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-681R-F |
| A7R56                 | 0698-7227      | 6   | 1   | RESISTOR 422 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-422R-F |
| A7TP1                 | 0360-1682      | 0   | 5   | TERMINAL-STUD SCL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A7TP2                 | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A7TP3                 | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A7TP4                 | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A7TP5                 | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG        | 28480    | 0360-1682        |
| A7U1                  | 1820-1052      | 5   | 3   | IC XLTR ECL ECL-T0-TTL QUAD 2-INP      | 04713    | MC10125L         |
| A7U2                  | 1820-0198      | 6   | 1   | IC CONV 8-B-D/A 16-DIP-C PKG           | 04713    | MC1498L-B        |
| A7U3                  | 1820-1790      | 6   | 1   | IC FF TTL LS D-TYPE PDS-EDGE-TRIG COM  | 01295    | SN74LS273N       |
| A7U4                  | 1820-0817      | 8   | 1   | IC FF ECL D-N/S DUAL                   | 04713    | MC10131P         |
| A7U5                  | 1820-1264      | 9   | 1   | IC GATE TTL LS NAND DUAL 4-INP         | 01295    | SN74LS28N        |
| A7U6                  | 1820-1052      | 5   |     | IC XLTR ECL ECL-T0-TTL QUAD 2-INP      | 04713    | MC10125L         |
| A7U7                  | 1820-1052      | 5   |     | IC XLTR ECL ECL-T0-TTL QUAD 2-INP      | 04713    | MC10125L         |
| A7U8                  | 1820-2348      | 4   | 2   | IC-ECL 10805                           | 28480    | 1820-2348        |
| A7U9                  | 1820-0493      | 6   | 1   | IC OP AMP GP 8-DIP-P PKG               | 27814    | LM307N           |
| A7U10                 | 1820-0829      | 3   | 1   | IC FF ECL J-BAR K-BAR COM CLOCK DUAL   | 04713    | MC10135L         |
| A7U11                 | 1820-0802      | 1   | 2   | IC GATE ECL NOR QUAD 2-INP             | 04713    | MC10102P         |
| A7U12                 | 1820-1173      | 1   | 2   | IC XLTR ECL TTL-T0-ECL QUAD 2-INP      | 04713    | MC10124L         |
| A7U13                 | 1820-2323      | 5   | 4   | IC COMPT ECL MAGTD 5-BIT               | 04713    | MC10166L         |
| A7U14                 | 1820-1399      | 3   | 4   | IC FF ECL D-TYPE COM CLOCK HEX         | 04713    | MC10176P         |
| A7U15                 | 1820-1193      | 7   | 1   | IC FF TTL LS D-TYPE PDS-EDGE-TRIG COM  | 01295    | SN74LS175N       |
| A7U16                 | 1820-2348      | 4   |     | IC-ECL 10805                           | 28480    | 1820-2348        |
| A7U17                 | 1820-2323      | 5   |     | IC COMPT ECL MAGTD 5-BIT               | 04713    | MC10166L         |
| A7U18                 | 1820-1399      | 3   |     | IC FF ECL D-TYPE COM CLOCK HEX         | 04713    | MC10176P         |
| A7U19                 | 1820-0891      | 8   | 3   | IC GATE ECL OR-HCR QUAD 2-INP          | 04713    | MC10101P         |
| A7U20                 | 1820-2347      | 3   | 3   | IC MUXR/DATA-SEL ECL 2-T0-1-LINE QUAD  | 04713    | MC10159L         |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C<br>D | Qty | Description                           | Mfr Code | Mfr Part Number |
|-----------------------|----------------|--------|-----|---------------------------------------|----------|-----------------|
| A7U21                 | 1820-2323      | 5      |     | IC CMPTR ECL MAGTD 5-BIT              | 04713    | MC10166L        |
| A7U22                 | 1820-1399      | 3      |     | IC FF ECL D-TYPE COM CLOCK HEX        | 04713    | MC10176P        |
| A7U23                 | 1820-0801      | 0      |     | IC GATE ECL GR-NGR QUAD 2-INP         | 04713    | MC10101P        |
| A7U24                 | 1820-2347      | 3      |     | IC MUXR/DATA-SEL ECL 2-TO-1-LINE QUAD | 04713    | MC10159L        |
| A7U25                 | 1820-2323      | 5      |     | IC CMPTR ECL MAGTD 5-BIT              | 04713    | MC10166L        |
| A7U26                 | 1820-1399      | 3      |     | IC FF ECL D-TYPE COM CLOCK HEX        | 04713    | MC10176P        |
| A7U27                 | 1820-0801      | 0      |     | IC GATE ECL GR-NGR QUAD 2-INP         | 04713    | MC10101P        |
| A7U28                 | 1820-2347      | 3      |     | IC MUXR/DATA-SEL ECL 2-TO-1-LINE QUAD | 04713    | MC10159L        |
| A7U29                 | 1820-1173      | 1      |     | IC XLTR ECL TTL-TO-ECL QUAD 2-INP     | 04713    | MC10124L        |
| A7U30                 | 1820-6919      | 1      | 1   | IC CMPTR ECL A/D DUAL                 | 04713    | MC1050L         |
| A7U31                 |                |        |     | NOT ASSIGNED                          |          |                 |
| A7U32                 |                |        |     | NOT ASSIGNED                          |          |                 |
| A7U33                 | 1820-0802      | 1      |     | IC GATE ECL NGR QUAD 2-INP            | 04713    | MC10102P        |
| A7XU27                | 1200-0519      | 3      | 1   | SOCKET-IC 16-CONT DIP-SLDR            | 28480    | 1200-0519       |
|                       |                |        |     | A7 MISCELLANEOUS                      |          |                 |
|                       | 1490-0116      | 0      | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL     | 28480    | 1490-0116       |
|                       | 4040-0748      | 3      | 1   | EXTR-PC BD BLK POLYC .062-80-TRKNS    | 28480    | 4040-0748       |
|                       | 4040-0755      | 2      | 1   | EXTR-PC BD VIO POLYC .062-80-TRKNS    | 28480    | 4040-0755       |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                           | Mfr Code | Mfr Part Number  |
|-----------------------|----------------|-----|-----|---------------------------------------|----------|------------------|
| AB                    | 05180-60389    | 1   | 2   | MEMORY SERIES (2448)                  | 28480    | 05180-60309      |
| ABC1                  | 0160-3879      | 7   | 29  | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC2                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC3                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC4                  | 0180-8562      | 1   | 4   | CAPACITOR-FXD 33UF+-20% 100VDC TA     | 56289    | 196D336X0010KA1  |
| ABC5                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC6                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC7                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC8                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC9                  | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC10                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC11                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC12                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC13                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC14                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC15                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC16                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC17                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC18                 |                |     |     | NOT ASSIGNED                          |          |                  |
| ABC19                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC20                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC21                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC22                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC23                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC24                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC25                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC26                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC27                 | 0180-8562      | 1   |     | CAPACITOR-FXD 33UF+-20% 10VDC TA      | 56289    | 196D336X0010KA1  |
| ABC28                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC29                 | 0180-8562      | 1   |     | CAPACITOR-FXD 33UF+-20% 10VDC TA      | 56289    | 196D336X0010KA1  |
| ABC30                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABC31                 | 0180-8562      | 1   |     | CAPACITOR-FXD 33UF+-20% 10VDC TA      | 56289    | 196D336X0010KA1  |
| ABC32                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER  | 28480    | 0160-3879        |
| ABCR1                 | 1901-8050      | 3   | 2   | DIODE-SWITCHING 80V 200MA 2HS DO-35   | 28480    | 1901-8050        |
| ABCR2                 |                |     |     | NOT ASSIGNED                          |          |                  |
| ABCR3                 | 1901-8050      | 3   |     | DIODE-SWITCHING 80V 200MA 2HS DO-35   | 28480    | 1901-8050        |
| ABL1                  | 9100-1788      | 6   | 2   | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788        |
| ABL2                  | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1680 | 28480    | 9100-1788        |
| ABR1                  | 1810-0365      | 0   | 6   | NETWORK-RES 6-SIP2.2K OHM X 5         | 01121    | 206A222          |
| ABR2                  | 1810-0365      | 0   |     | NETWORK-RES 6-SIP2.2K OHM X 5         | 01121    | 206A222          |
| ABR3                  | 1810-0365      | 0   |     | NETWORK-RES 6-SIP2.2K OHM X 5         | 01121    | 206A222          |
| ABR4                  | 1810-0365      | 0   |     | NETWORK-RES 6-SIP2.2K OHM X 5         | 01121    | 206A222          |
| ABR5                  | 1810-0364      | 9   | 1   | NETWORK-RES 6-SIP470.0 OHM X 5        | 01121    | 206A471          |
| ABR6                  | 1810-0136      | 3   | 2   | NETWORK-RES 10-SIP MULTI-VALUE        | 28480    | 1810-0136        |
| ABR7                  |                |     |     | NOT ASSIGNED                          |          |                  |
| ABR8                  | 1810-0136      | 3   |     | NETWORK-RES 10-SIP MULTI-VALUE        | 28480    | 1810-0136        |
| ABR9                  | 0757-0401      | 8   | 2   | RESISTOR 100 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-101-F  |
| ABR10                 | 1810-0365      | 0   |     | NETWORK-RES 6-SIP2.2K OHM X 5         | 01121    | 206A222          |
| ABR11                 | 0757-0401      | 8   |     | RESISTOR 100 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-101-F  |
| ABR12                 | 1810-0365      | 0   |     | NETWORK-RES 6-SIP2.2K OHM X 5         | 01121    | 206A222          |
| ABR13                 | 0757-0398      | 4   | 1   | RESISTOR 75 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-75R0-F |
| ABR14                 | 0698-3440      | 7   | 4   | RESISTOR 196 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-196R-F |
| ABR15                 | 0757-0403      | 2   | 4   | RESISTOR 121 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-121R-F |
| ABR16                 | 0698-3440      | 7   |     | RESISTOR 196 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-196R-F |
| ABR17                 | 0698-3440      | 7   |     | RESISTOR 196 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-196R-F |
| ABR18                 | 0698-3440      | 7   |     | RESISTOR 196 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-196R-F |
| ABR19                 | 0757-0403      | 2   |     | RESISTOR 121 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-121R-F |
| ABR20                 | 0757-0403      | 2   |     | RESISTOR 121 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-121R-F |
| ABR21                 | 0757-0403      | 2   |     | RESISTOR 121 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-121R-F |
| ASTP1                 | 0360-1682      | 0   | 14  | TERMINAL-STUD SGL-TUR PRESS-MTG       | 28480    | 0360-1682        |
| ASTP2                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG       | 28480    | 0360-1682        |
| ASTP3                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG       | 28480    | 0360-1682        |
| ASTP4                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG       | 28480    | 0360-1682        |
| ASTP5                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG       | 28480    | 0360-1682        |
| ASTP6                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG       | 28480    | 0360-1682        |
| ASTP7                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG       | 28480    | 0360-1682        |
| ASTP8                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG       | 28480    | 0360-1682        |
| ASTP9                 | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG       | 28480    | 0360-1682        |
| ASTP10                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG       | 28480    | 0360-1682        |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                                                                       | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|-----------------------------------------------------------------------------------|----------|-----------------|
| ABTP11                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-RTG                                                   | 28480    | 0360-1682       |
| ABTP12                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-RTG                                                   | 28480    | 0360-1682       |
| ABTP13                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-RTG                                                   | 28480    | 0360-1682       |
| ABTP14                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-RTG                                                   | 28480    | 0360-1682       |
| ABU0                  | 1818-1027      | 9   | 20  | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU1                  | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU2                  | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU3                  | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU4                  | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU5                  | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU6                  | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU7                  | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU8                  | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU9                  | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU10                 | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU11                 | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU12                 | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU13                 | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU14                 | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU15                 | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU16                 | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU17                 | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU18                 | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU19                 | 1818-1027      | 9   |     | IC NMOS 4096 (4K) STAT RAM 55-NS 3-S                                              | 34649    | D2147H-3        |
| ABU20                 | 1820-2348      | 4   | 8   | IC-ECL 10805                                                                      | 28480    | 1820-2348       |
| ABU21                 | 1820-2348      | 4   |     | IC-ECL 10805                                                                      | 28480    | 1820-2348       |
| ABU22                 | 1820-1876      | 3   | 2   | IC FF TTL S D-TYPE POS-EDGE-TRIG CLEAR                                            | 01295    | SN748174N       |
| ABU23                 | 1820-2348      | 4   |     | IC-ECL 10805                                                                      | 28480    | 1820-2348       |
| ABU24                 | 1820-2348      | 4   |     | IC-ECL 10805                                                                      | 28480    | 1820-2348       |
| ABU25                 | 1820-1876      | 3   |     | IC FF TTL S D-TYPE POS-EDGE-TRIG CLEAR                                            | 01295    | SN748174N       |
| ABU26                 | 1820-0810      | 1   | 1   | IC RCVR ECL LINE RCVR TPL 2-INP                                                   | 04713    | MC10116P        |
| ABU27                 | 1820-2348      | 4   |     | IC-ECL 10805                                                                      | 28480    | 1820-2348       |
| ABU28                 | 1820-2348      | 4   |     | IC-ECL 10805                                                                      | 28480    | 1820-2348       |
| ABU29                 | 1820-2348      | 4   |     | IC-ECL 10805                                                                      | 28480    | 1820-2348       |
| ABU30                 | 1820-2348      | 4   |     | IC-ECL 10805                                                                      | 28480    | 1820-2348       |
| ABU31                 | 1820-0802      | 1   | 1   | IC GATE ECL NOR QUAD 2-INP                                                        | 04713    | MC16102P        |
| ABXU21                | 1200-0639      | 8   | 3   | SOCKET-IC 20-CONT DIP DIP-SLDR                                                    | 28480    | 1200-0639       |
| ABXU29                | 1200-0639      | 8   |     | SOCKET-IC 20-CONT DIP DIP-SLDR                                                    | 28480    | 1200-0639       |
| ABXU30                | 1200-0639      | 8   |     | SOCKET-IC 20-CONT DIP DIP-SLDR                                                    | 28480    | 1200-0639       |
| ABXU31                | 1200-0607      | 0   | 1   | SOCKET-IC 16-CONT DIP DIP-SLDR                                                    | 28480    | 1200-0607       |
|                       |                |     |     | AB MISCELLANEOUS                                                                  |          |                 |
|                       | 1480-0116      | 8   | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL                                                 | 28480    | 1480-0116       |
|                       | 4040-0748      | 3   | 1   | EXTR-PC 8D BLK POLYC .062-8D-THKNS                                                | 28480    | 4040-0748       |
|                       | 4040-0756      | 3   | 1   | EXTR-PC 8D WHT POLYC .062-8D-THKNS                                                | 28480    | 4040-0756       |
| A9                    | 05180-60309    | 1   |     | MEMORY SERIES (2448)                                                              | 28480    | 05180-60309     |
|                       |                |     |     | (SAME AS AB) REFER TO AB PARTS FOR REFERENCE DESIGNATORS AND PART NUMBERS FOR A9. |          |                 |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                             | Mfr Code | Mfr Part Number  |
|-----------------------|----------------|-----|-----|-----------------------------------------|----------|------------------|
| A10                   | 05180-60080    | 5   | 1   | A10 MEMORY CONTROLLER (SERIES 2434)     | 28480    | 05180-60080      |
| A10C1                 | 0160-3879      | 7   | 12  | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A10C2                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A10C3                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A10C4                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A10C5                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A10C6                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A10C7                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A10C8                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A10C9                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A10C10                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A10C11                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A10C12                | 0180-2815      | 1   | 2   | CAPACITOR-FXD 1000UF+-20% 10VDC TA      | 28480    | 0180-2815        |
| A10C13                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A10C14                | 0180-2815      | 1   |     | CAPACITOR-FXD 1000UF+-20% 10VDC TA      | 28480    | 0180-2815        |
| A10J1                 | 1250-1368      | 7   | 1   | CONNECTOR-RF SMD M PC 50-DMM            | 28480    | 1250-1368        |
| A10L1                 | 9100-1788      | 6   | 2   | CORE-FERRITE CHOKE-WIDEBAND; IMP:1600   | 28480    | 9100-1788        |
| A10L2                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP:1600   | 28480    | 9100-1788        |
| A10Q1                 | 1854-0345      | 8   | 2   | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713    | 2N5179           |
| A10Q2                 | 1854-0345      | 8   |     | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713    | 2N5179           |
| A10Q3                 | 1854-0246      | 8   | 1   | TRANSISTOR NPN SI PD=350MW FT=250MHZ    | 04713    | SPS 233          |
| A10R1                 | 1810-0275      | 1   | 4   | NETWORK-RES 10-SIP1.0K OHM X 9          | 01121    | 210A102          |
| A10R2                 | 1810-0275      | 1   |     | NETWORK-RES 10-SIP1.0K OHM X 9          | 01121    | 210A102          |
| A10R3                 | 0757-0263      | 6   | 1   | RESISTOR 2K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-2001-F |
| A10R4                 | 0757-0394      | 0   | 1   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-S1R1-F |
| A10R5                 | 1810-0273      | 9   | 4   | NETWORK-RES 10-SIP470.0 OHM X 9         | 01121    | 210A471          |
| A10R6                 | 0698-3445      | 2   | 1   | RESISTOR 348 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-348R-F |
| A10R7                 | 0698-3437      | 2   | 3   | RESISTOR 133 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-133R-F |
| A10R8                 | 0757-0399      | 5   | 2   | RESISTOR 82.5 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-82R5-F |
| A10R9                 | 0757-0280      | 3   | 4   | RESISTOR 1K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1001-F |
| A10R10                | 0757-0442      | 9   | 1   | RESISTOR 10K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1002-F |
| A10R11                | 1810-0365      | 8   | 1   | NETWORK-RES 6-SIP2.2K OHM X 5           | 01121    | 208A222          |
| A10R12                | 0757-0280      | 3   |     | RESISTOR 1K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1001-F |
| A10R13                | 1810-0364      | 9   | 1   | NETWORK-RES 6-SIP470.0 OHM X 5          | 01121    | 208A471          |
| A10R14                | 1810-0451      | 5   | 3   | NETWORK-RES 8-SIP820.0 OHM              | 01121    | 210B821          |
| A10R15                | 0757-0399      | 5   |     | RESISTOR 82.5 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-82R5-F |
| A10R16                | 0698-3437      | 2   |     | RESISTOR 133 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-133R-F |
| A10R17                | 1810-0275      | 1   |     | NETWORK-RES 10-SIP1.0K OHM X 9          | 01121    | 210A102          |
| A10R18                | 1810-0273      | 9   |     | NETWORK-RES 10-SIP470.0 OHM X 9         | 01121    | 210A471          |
| A10R19                | 1810-0273      | 9   |     | NETWORK-RES 10-SIP470.0 OHM X 9         | 01121    | 210A471          |
| A10R20                | 1810-0451      | 5   |     | NETWORK-RES 8-SIP820.0 OHM              | 01121    | 210B821          |
| A10R21                | 1810-0451      | 5   |     | NETWORK-RES 8-SIP820.0 OHM              | 01121    | 210B821          |
| A10R22                | 1810-0275      | 1   |     | NETWORK-RES 10-SIP1.0K OHM X 9          | 01121    | 210A102          |
| A10R23                | 1810-0203      | 5   | 4   | NETWORK-RES 9-SIP470.0 OHM X 7          | 01121    | 208A471          |
| A10R24                | 0698-6264      | 9   | 1   | RESISTOR 400 .5% .125W F TC=0+-100      | 24546    | C4-1/8-T0-400R-D |
| A10R25                | 0698-3437      | 2   |     | RESISTOR 133 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-133R-F |
| A10R26                | 0757-0284      | 7   | 1   | RESISTOR 150 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-151-F  |
| A10R27                | 0757-0401      | 0   | 1   | RESISTOR 100 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-101-F  |
| A10R28                | 0698-7280      | 5   | 1   | RESISTOR 31.6 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-31R6-F |
| A10R29                | 1810-0203      | 5   |     | NETWORK-RES 9-SIP470.0 OHM X 7          | 01121    | 208A471          |
| A10R30                | 1810-0273      | 9   |     | NETWORK-RES 10-SIP470.0 OHM X 9         | 01121    | 210A471          |
| A10R31                | 1810-0203      | 5   |     | NETWORK-RES 9-SIP470.0 OHM X 7          | 01121    | 208A471          |
| A10R32                | 0757-0280      | 3   |     | RESISTOR 1K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1001-F |
| A10R33                | 0757-0421      | 4   | 6   | RESISTOR 825 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-825R-F |
| A10R34                | 0757-0280      | 3   |     | RESISTOR 1K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1001-F |
| A10R35                | 0757-0421      | 4   |     | RESISTOR 825 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-825R-F |
| A10R36                | 0757-0421      | 4   |     | RESISTOR 825 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-825R-F |
| A10R37                | 0757-0421      | 4   |     | RESISTOR 825 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-825R-F |
| A10R38                | 0757-0421      | 4   |     | RESISTOR 825 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-825R-F |
| A10R39                | 0757-0421      | 4   |     | RESISTOR 825 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-825R-F |
| A10R40                | 1810-0204      | 6   | 1   | NETWORK-RES 8-SIP1.0K OHM X 7           | 01121    | 208A102          |
| A10R41                | 1810-0203      | 5   |     | NETWORK-RES 9-SIP470.0 OHM X 7          | 01121    | 208A471          |
| A10TP1                | 0360-1682      | 0   | 5   | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682        |
| A10TP2                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682        |
| A10TP3                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682        |
| A10TP4                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682        |
| A10TP5                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682        |
| A10U1                 | 05180-80012    | 5   | 1   | PROM 74S108                             | 28480    | 05180-80012      |
| A10U2                 | 05180-80011    | 4   | 1   | PROM 74S108                             | 28480    | 05180-80011      |
| A10U3                 | 1820-1216      | 3   | 1   | IC DCDR TTL LS 3-TO-8-LINE 3-INP        | 01295    | SN74LS138N       |
| A10U4                 | 1820-1173      | 1   | 2   | IC XLIR ECL TTL-TO-ECL QUAD 2-INP       | 04713    | MC10124L         |
| A10U5                 | 1820-0691      | 6   | 1   | IC GATE TTL 5 AND-GR-INV                | 01295    | SN74S64N         |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                             | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|-----------------------------------------|----------|-----------------|
| A10U6                 | 1820-0068      | 1   | 1   | IC GATE TTL NAND TPL 3-INP              | 01295    | SN7410N         |
| A10U7                 | 1820-1416      | 5   | 1   | IC SCHMITT-TRIG TTL LS INV HEX 1-INP    | 01295    | SN74LS14N       |
| A10U8                 | 1820-0802      | 1   | 4   | IC GATE ECL NOR QUAD 2-INP              | 04713    | MC10102P        |
| A10U9                 | 1820-1207      | 2   | 1   | IC GATE TTL LS NAND 8-INP               | 01295    | SN74LS30N       |
| A10U10                | 1820-1173      | 1   |     | IC XLTR ECL TTL-TO-ECL QUAD 2-INP       | 04713    | MC10124L        |
| A10U11                | 1820-1198      | 0   | 1   | IC GATE TTL LS NAND QUAD 2-INP          | 01295    | SN74LS03N       |
| A10U12                | 1820-1917      | 1   | 3   | IC DRVR TTL LS LINE OCTL                | 01295    | SN74LS240N      |
| A10U13                | 1820-1112      | 0   | 1   | IC FF TTL LS D-TYPE POS-EDGE-TRIG       | 01295    | SN74LS74AN      |
| A10U14                | 1820-1730      | 6   | 4   | IC FF TTL LS D-TYPE POS-EDGE-TRIG CDM   | 01295    | SN74LS273N      |
| A10U15                | 1820-1052      | 5   | 3   | IC XLTR ECL ECL-TO-TTL QUAD 2-INP       | 04713    | MC10125L        |
| A10U16                | 1820-0817      | 8   | 5   | IC FF ECL D-M/S DUAL                    | 04713    | MC10131P        |
| A10U17                | 1820-0865      | 4   | 1   | IC GATE ECL EXCL-OR/NOR TPL 2-INP       | 04713    | MC10187P        |
| A10U18                | 1820-0819      | 0   | 1   | IC MUXR/DATA-SEL ECL 2-TO-1-LINE DUAL   | 04713    | MC10134L        |
| A10U19                | 1820-1730      | 8   |     | IC FF TTL LS D-TYPE POS-EDGE-TRIG CDM   | 01295    | SN74LS273N      |
| A10U20                | 1820-0817      | 0   |     | IC FF ECL D-M/S DUAL                    | 04713    | MC10131P        |
| A10U21                | 1820-2206      | 3   | 1   | IC TRANSCEIVER TTL LS BUS OCTL          | 01295    | SN74LS640N      |
| A10U22                | 1820-0821      | 4   | 2   | IC CNTR ECL BIN UP/DOWN SYNCHRO         | 04713    | MC10126L        |
| A10U23                | 1820-2005      | 0   | 1   | IC TIMER NMOS                           | 00545    | UPD0053D        |
| A10U24                | 1820-0821      | 4   |     | IC CNTR ECL BIN UP/DOWN SYNCHRO         | 04713    | MC10126L        |
| A10U25                |                |     |     | NOT ASSIGNED                            |          |                 |
| A10U26                | 1820-0802      | 1   |     | IC GATE ECL NOR QUAD 2-INP              | 04713    | MC10102P        |
| A10U27                | 1820-1917      | 1   |     | IC DRVR TTL LS LINE OCTL                | 01295    | SN74LS240N      |
| A10U28                | 1820-1917      | 1   |     | IC DRVR TTL LS LINE OCTL                | 01295    | SN74LS240N      |
| A10U29                | 1820-0683      | 6   | 3   | IC INV TTL S HEX 1-INP                  | 01295    | SN74S04N        |
| A10U30                | 1820-1453      | 0   | 3   | IC CNTR TTL S BIN SYNCHRO POS-EDGE-TRIG | 01295    | SN74S163N       |
| A10U31                | 1820-0802      | 1   |     | IC GATE ECL NOR QUAD 2-INP              | 04713    | MC10102P        |
| A10U32                | 1820-0683      | 6   |     | IC INV TTL S HEX 1-INP                  | 01295    | SN74S04N        |
| A10U33                | 1820-1453      | 0   |     | IC CNTR TTL S BIN SYNCHRO POS-EDGE-TRIG | 01295    | SN74S163N       |
| A10U34                | 1820-0817      | 8   |     | IC FF ECL D-M/S DUAL                    | 04713    | MC10131P        |
| A10U35                | 1820-0683      | 6   |     | IC INV TTL S HEX 1-INP                  | 01295    | SN74S04N        |
| A10U36                | 1820-1453      | 0   |     | IC CNTR TTL S BIN SYNCHRO POS-EDGE-TRIG | 01295    | SN74S163N       |
| A10U37                | 1820-0688      | 1   | 1   | IC GATE TTL S NAND DUAL 4-INP           | 01295    | SN74S20N        |
| A10U38                | 1820-2311      | 1   | 1   | IC COMPTR TTL LS MASTD 8-BIT            | 34335    | AM25LS2521PC    |
| A10U39                | 1820-1052      | 5   |     | IC XLTR ECL ECL-TO-TTL QUAD 2-INP       | 04713    | MC10125L        |
| A10U40                | 1820-0681      | 4   | 1   | IC GATE TTL S NAND QUAD 2-INP           | 01295    | SN74S00N        |
| A10U41                | 1820-1730      | 6   |     | IC FF TTL LS D-TYPE POS-EDGE-TRIG CDM   | 01295    | SN74LS273N      |
| A10U42                | 1820-0693      | 8   | 1   | IC FF TTL S D-TYPE POS-EDGE-TRIG        | 01295    | SN74S74N        |
| A10U43                | 1820-1052      | 5   |     | IC XLTR ECL ECL-TO-TTL QUAD 2-INP       | 04713    | MC10125L        |
| A10U44                | 1820-1196      | 8   | 2   | IC FF TTL LS D-TYPE POS-EDGE-TRIG CDM   | 01295    | SN74LS174N      |
| A10U45                | 1820-0802      | 1   |     | IC GATE ECL NOR QUAD 2-INP              | 04713    | MC10102P        |
| A10U46                | 1820-1196      | 8   |     | IC FF TTL LS D-TYPE POS-EDGE-TRIG CDM   | 01295    | SN74LS174N      |
| A10U47                | 1820-0817      | 8   |     | IC FF ECL D-M/S DUAL                    | 04713    | MC10131P        |
| A10U48                | 1820-1730      | 6   |     | IC FF TTL LS D-TYPE POS-EDGE-TRIG CDM   | 01295    | SN74LS273N      |
| A10U49                | 1820-0817      | 8   |     | IC FF ECL D-M/S DUAL                    | 04713    | MC10131P        |
| A10U50                | 1820-0689      | 2   | 1   | IC GATE TTL S NAND DUAL 4-INP           | 01295    | SN74S22N        |
| A10 MISCELLANEOUS     |                |     |     |                                         |          |                 |
|                       | 1480-0116      | 8   | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL       | 28480    | 1480-0116       |
|                       | 4040-0748      | 3   | 1   | EXTR-PC BD BLK POLYC .062-BD-THKNS      | 28480    | 4040-0748       |
|                       | 4040-0749      | 4   | 1   | EXTR-PC BD BRN POLYC .062-BD-THKNS      | 28480    | 4040-0749       |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                              | Mfr Code | Mfr Part Number  |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A11                   | 05180-60081    | 6   | 1   | TIMEBASE (SERIES 2436)                   | 28480    | 05180-60081      |
| A11C1                 | 0160-3879      | 7   | 15  | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C2                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C3                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C4                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C5                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C6                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C7                 | 0100-2815      | 1   | 2   | CAPACITOR-FXD 100UF+-20% 10VDC TA        | 28480    | 0100-2815        |
| A11C8                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C9                 | 0160-4787      | 8   | 1   | CAPACITOR-FXD 22PF +-5% 100VDC CER 0+-30 | 28480    | 0160-4787        |
| A11C10                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C11                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C12                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C13                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C14                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C15                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C16                | 0100-2815      | 1   |     | CAPACITOR-FXD 100UF+-20% 10VDC TA        | 28480    | 0100-2815        |
| A11C17                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11C18                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A11CR1                | 1901-0050      | 3   | 1   | DIODE-SWITCHING 80V 200MA 2NS DQ-3S      | 28480    | 1901-0050        |
| A11L1                 | 9100-3139      | 5   | 2   | INDUCTOR 75UH 15% .5DX.875L6             | 28480    | 9100-3139        |
| A11L2                 | 9100-3139      | 5   |     | INDUCTOR 75UH 15% .5DX.875L6             | 28480    | 9100-3139        |
| A11R1                 | 0757-0394      | 0   | 2   | RESISTOR 51.1 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-51R1-F |
| A11R2                 | 1810-0205      | 2   | 1   | NETWORK-RES 8-SIP4.7K OHM X 7            | 01121    | 208A472          |
| A11R3                 | 1810-0367      | 2   | 1   | NETWORK-RES 8-SIP4.7K OHM X 5            | 01121    | 208A472          |
| A11R4                 | 1810-0263      | 5   | 6   | NETWORK-RES 8-SIP470.0 OHM X 7           | 01121    | 208A471          |
| A11R5                 | 2100-3352      | 7   | 1   | RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRN    | 28480    | 2100-3352        |
| A11R6                 | 0757-0283      | 6   | 3   | RESISTOR 2K 1% .125W F TC=0+-100         | 24546    | C4-1/8-T0-2001-F |
| A11R7                 | 0698-3437      | 2   | 4   | RESISTOR 133 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-133R-F |
| A11R8                 | 0757-0399      | 5   | 4   | RESISTOR 82.5 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-82R5-F |
| A11R9                 | 0757-0399      | 5   |     | RESISTOR 82.5 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-82R5-F |
| A11R10                | 0698-3437      | 2   |     | RESISTOR 133 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-133R-F |
| A11R11                | 0698-3437      | 2   |     | RESISTOR 133 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-133R-F |
| A11R12                | 0757-0399      | 5   |     | RESISTOR 82.5 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-82R5-F |
| A11R13                | 1810-0203      | 5   |     | NETWORK-RES 8-SIP470.0 OHM X 7           | 01121    | 208A471          |
| A11R14                | 1810-0203      | 5   |     | NETWORK-RES 8-SIP470.0 OHM X 7           | 01121    | 208A471          |
| A11R15                | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-51R1-F |
| A11R16                | 0757-0283      | 6   |     | RESISTOR 2K 1% .125W F TC=0+-100         | 24546    | C4-1/8-T0-2001-F |
| A11R17                | 0757-0283      | 6   |     | RESISTOR 2K 1% .125W F TC=0+-100         | 24546    | C4-1/8-T0-2001-F |
| A11R18                | 0698-0082      | 7   | 2   | RESISTOR 464 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-4640-F |
| A11R19                | 1810-0203      | 5   |     | NETWORK-RES 8-SIP470.0 OHM X 7           | 01121    | 208A471          |
| A11R20                | 0757-0399      | 5   |     | RESISTOR 82.5 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-82R5-F |
| A11R21                | 0698-3437      | 2   |     | RESISTOR 133 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-133R-F |
| A11R22                | 1810-0203      | 5   |     | NETWORK-RES 8-SIP470.0 OHM X 7           | 01121    | 208A471          |
| A11R23                | 1810-0203      | 5   |     | NETWORK-RES 8-SIP470.0 OHM X 7           | 01121    | 208A471          |
| A11R24                | 1810-0273      | 9   | 1   | NETWORK-RES 10-SIP470.0 OHM X 9          | 01121    | 210A471          |
| A11R25                | 0698-0082      | 7   |     | RESISTOR 464 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-4640-F |
| A11R26                | 0698-3132      | 4   | 1   | RESISTOR 261 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-2610-F |
| A11TP1                | 0360-1682      | 0   | 12  | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A11TP2                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A11TP3                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A11TP4                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A11TP5                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A11TP6                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A11TP7                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A11TP8                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A11TP9                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A11TP10               | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A11TP11               | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A11TP12               | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A11U1                 | 1820-1917      | 1   | 2   | IC DRV R TTL LS LINE OCTL                | 01295    | SN74LS240N       |
| A11U2                 | 1820-1997      | 7   | 2   | IC FF TTL LS D-TYPE POS-EDGE-TRIG PRL-IN | 34335    | AM74LS374AP      |
| A11U3                 | 1820-1917      | 1   |     | IC DRV R TTL LS LINE OCTL                | 01295    | SN74LS240N       |
| A11U4                 | 1820-1997      | 7   |     | IC FF TTL LS D-TYPE POS-EDGE-TRIG PRL-IN | 34335    | AM74LS374AP      |
| A11U5                 | 1820-1216      | 3   | 2   | IC DCDR TTL LS 3-TO-0-LINE 3-INP         | 01295    | SN74LS138N       |
| A11U6                 | 1820-1730      | 6   | 1   | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM    | 01295    | SN74LS273N       |
| A11U7                 | 1820-1216      | 3   |     | IC DCDR TTL LS 3-TO-0-LINE 3-INP         | 01295    | SN74LS138N       |
| A11U8                 | 1820-0068      | 1   | 1   | IC GATE TTL NAND TPL 3-INP               | 01295    | SN7415N          |
| A11U9                 | 1820-1173      | 1   | 2   | IC XLTR ECL TTL-TO-ECL QUAD 2-INP        | 34713    | MC10124L         |
| A11U10                | 1820-1207      | 2   | 1   | IC GATE TTL LS NAND 8-INP                | 01295    | SN74LS30N        |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                           | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|---------------------------------------|----------|-----------------|
| A11U11                | 1820-0802      | 1   | 1   | IC GATE ECL NOR QUAD 2-INP            | 04713    | KC10102P        |
| A11U12                | 1820-1492      | 7   | 1   | IC DFR TTL LS INV HEX 1-INP           | 01295    | SN74LS368AN     |
| A11U13                | 1820-0817      | 8   | 4   | IC FF ECL D-H/S DUAL                  | 04713    | KC10131P        |
| A11U14                | 1820-0817      | 8   |     | IC FF ECL D-H/S DUAL                  | 04713    | KC10131P        |
| A11U15                | 1820-0805      | 4   | 1   | IC GATE ECL EXCL-OR/NOR TPL 2-INP     | 04713    | KC10132P        |
| A11U16                | 1820-0825      | 8   | 2   | IC SHF-RCTR ECL D-TYPE PRL-IN PRL-OUT | 04713    | KC10141L        |
| A11U17                | 1820-0825      | 8   |     | IC SHF-RCTR ECL D-TYPE PRL-IN PRL-OUT | 04713    | KC10141L        |
| A11U18                | 1820-0817      | 8   |     | IC FF ECL D-H/S DUAL                  | 04713    | KC10131P        |
| A11U19                | 1820-1352      | 5   | 1   | IC XLTR ECL ECL-TO-TTL QUAD 2-INP     | 04713    | KC10125L        |
| A11U20                | 1820-0822      | 5   | 5   | IC CNTR ECL DECD UP/DOWN SYNCHRO      | 04713    | KC10137L        |
| A11U21                | 1820-1686      | 1   | 1   | IC GATE ECL OR QUAD 2-INP             | 04713    | KC10103P        |
| A11U22                | 1820-0815      | 6   | 1   | IC GATE ECL AND-OR                    | 04713    | KC10121P        |
| A11U23                | 1820-0822      | 5   |     | IC CNTR ECL DECD UP/DOWN SYNCHRO      | 04713    | KC10137L        |
| A11U24                | 1820-0817      | 8   |     | IC FF ECL D-H/S DUAL                  | 04713    | KC10131P        |
| A11U25                | 1820-0822      | 5   |     | IC CNTR ECL DECD UP/DOWN SYNCHRO      | 04713    | KC10137L        |
| A11U26                | 1820-0821      | 4   | 1   | IC CNTR ECL BIN UP/DOWN SYNCHRO       | 04713    | KC10136L        |
| A11U27                | 1820-0822      | 5   |     | IC CNTR ECL DECD UP/DOWN SYNCHRO      | 04713    | KC10137L        |
| A11U28                |                |     |     | NOT ASSIGNED                          |          |                 |
| A11U29                | 1820-1400      | 7   | 2   | IC GATE ECL AND QUAD 2-INP            | 04713    | KC10104P        |
| A11U30                | 1820-0822      | 5   |     | IC CNTR ECL DECD UP/DOWN SYNCHRO      | 04713    | KC10137L        |
| A11U31                | 1820-1400      | 7   |     | IC GATE ECL AND QUAD 2-INP            | 04713    | KC10104P        |
| A11U32                | 1820-1173      | 1   |     | IC XLTR ECL TTL-TO-ECL QUAD 2-INP     | 04713    | KC10124L        |
| A11X52                | 1200-0487      | 4   | 1   | SOCKET-IC 16-CONT DIP DIP-SLDR        | 28480    | 1200-0487       |
| A11XU9                | 1200-0519      | 3   | 3   | SOCKET-IC 16-CONT DIP-SLDR            | 28480    | 1200-0519       |
| A11XU31               | 1200-0519      | 3   |     | SOCKET-IC 16-CONT DIP-SLDR            | 28480    | 1200-0519       |
| A11XU32               | 1200-0519      | 3   |     | SOCKET-IC 16-CONT DIP-SLDR            | 28480    | 1200-0519       |
| A11 MISCELLANEOUS     |                |     |     |                                       |          |                 |
|                       | 1400-0249      | 0   | 2   | CABLE TIE .062-.625-DIA .091-WD NYL   | 28480    | 1400-0249       |
|                       | 1400-0116      | 0   | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL     | 28480    | 1400-0116       |
|                       | 4040-0749      | 4   | 2   | EXTR-PC BD BRN POLYC .062-BD-THKNS    | 28480    | 4040-0749       |
|                       | 8159-0005      | 0   | 1   | RESISTOR-ZERO OHMS 22 SWG LEAD DIA    | 28480    | 8159-0005       |

See introduction to this section for ordering information  
\*Indicates factory selected value



Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C | D | Qty | Description                             | Mfr Code | Mfr Part Number     |
|-----------------------|----------------|---|---|-----|-----------------------------------------|----------|---------------------|
| A12                   | 05180-60012    | 3 |   | 1   | OSCILLATOR (SERIES 2044)                | 28480    | 05180-60012         |
| A12C1                 | 0121-0036      | 6 |   | 1   | CAPACITOR-V TRMK-CER 5.5-18PF 350V      | 52763    | 304324 5.5/18PF NPD |
| A12C2                 | 0140-0190      | 7 |   | 1   | CAPACITOR-FXD 39PF +-5% 300VDC MICA     | 72136    | DM15E390J0300MV1CR  |
| A12C3                 | 0140-0217      | 9 |   | 2   | CAPACITOR-FXD 140PF +-2% 300VDC MICA    | 72136    | DM15F141G0300MV1CR  |
| A12C4                 | 0140-0217      | 5 |   | 5   | CAPACITOR-FXD 140PF +-2% 300VDC MICA    | 72136    | DM15F141G0300MV1CR  |
| A12C5                 | 0160-3879      | 7 |   | 6   | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879           |
| A12C6                 | 0160-3879      | 7 |   | 7   | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879           |
| A12C7                 | 0160-3879      | 7 |   | 7   | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879           |
| A12C8                 | 0160-0576      | 5 |   | 2   | CAPACITOR-FXD .1UF +-20% 50VDC CER      | 28480    | 0160-0576           |
| A12C9                 | 0160-0576      | 5 |   | 5   | CAPACITOR-FXD .1UF +-20% 50VDC CER      | 28480    | 0160-0576           |
| A12C10                | 0160-3879      | 7 |   | 7   | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879           |
| A12C11                | 0160-3879      | 7 |   | 7   | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879           |
| A12C12                | 0180-2814      | 0 |   | 4   | CAPACITOR-FXD 22UF+-20% 10VDC TA        | 28480    | 0180-2814           |
| A12C13                | 0160-3879      | 7 |   | 7   | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879           |
| A12C14                | 0180-2814      | 0 |   | 0   | CAPACITOR-FXD 22UF+-20% 10VDC TA        | 28480    | 0180-2814           |
| A12C15                | 0180-2814      | 0 |   | 0   | CAPACITOR-FXD 22UF+-20% 10VDC TA        | 28480    | 0180-2814           |
| A12C16                | 0180-2814      | 0 |   | 0   | CAPACITOR-FXD 22UF+-20% 10VDC TA        | 28480    | 0180-2814           |
| A12CR1                | 1901-0376      | 6 |   | 2   | DIODE-GEN PRP 35V 50MA DO-35            | 28480    | 1901-0376           |
| A12CR2                | 1901-0376      | 6 |   | 2   | DIODE-GEN PRP 35V 50MA DO-35            | 28480    | 1901-0376           |
| A12J1                 | 1250-1368      | 7 |   | 3   | CONNECTOR-RF SMB M PC 50-OHM            | 28480    | 1250-1368           |
| A12J2                 | 1250-1368      | 7 |   | 7   | CONNECTOR-RF SMB M PC 50-OHM            | 28480    | 1250-1368           |
| A12J3                 | 1250-1368      | 7 |   | 7   | CONNECTOR-RF SMB M PC 50-OHM            | 28480    | 1250-1368           |
| A12L1                 | 9100-1788      | 7 |   | 1   | INDUCTOR RF-CH-MLD 220UH 10X            | 28480    | 9100-1788           |
| A12L2                 | 9100-1788      | 6 |   | 4   | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600  | 28480    | 9100-1788           |
| A12L3                 | 9100-1788      | 6 |   | 6   | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600  | 28480    | 9100-1788           |
| A12L4                 | 9100-1788      | 6 |   | 6   | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600  | 28480    | 9100-1788           |
| A12L5                 | 9100-1788      | 6 |   | 6   | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600  | 28480    | 9100-1788           |
| A12HP1                | 05180-00019    | 4 |   | 1   | COVER-TB OSCILLATOR                     | 28480    | 05180-00019         |
| A12Q1                 | 1854-0345      | 8 |   | 4   | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713    | 2N5179              |
| A12Q2                 | 1854-0345      | 8 |   | 8   | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713    | 2N5179              |
| A12Q3                 | 1854-0345      | 8 |   | 8   | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713    | 2N5179              |
| A12Q4                 | 1854-0345      | 8 |   | 8   | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713    | 2N5179              |
| A12R1                 | 0757-0394      | 0 |   | 13  | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F    |
| A12R2                 | 0757-0407      | 6 |   | 2   | RESISTOR 200 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-201-F     |
| A12R3                 | 0757-0394      | 0 |   | 0   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F    |
| A12R4                 | 0757-0421      | 4 |   | 3   | RESISTOR 825 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-825R-F    |
| A12R5                 | 0757-0394      | 0 |   | 0   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F    |
| A12R6                 | 0757-0394      | 0 |   | 0   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F    |
| A12R7                 | 0757-0399      | 5 |   | 1   | RESISTOR 82.5 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-82R5-F    |
| A12R8                 | 0757-0419      | 0 |   | 3   | RESISTOR 681 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-681R-F    |
| A12R9                 | 0757-0394      | 0 |   | 0   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F    |
| A12R10                | 0757-0419      | 0 |   | 0   | RESISTOR 681 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-681R-F    |
| A12R11                | 0757-0401      | 0 |   | 5   | RESISTOR 100 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-101-F     |
| A12R12                | 0698-3444      | 1 |   | 2   | RESISTOR 316 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-316R-F    |
| A12R13                | 0110-0203      | 5 |   | 1   | NETWORK-RES 8-SIP470.0 OHM X 7          | 01121    | 298A471             |
| A12R14                | 0757-0401      | 0 |   | 0   | RESISTOR 100 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-101-F     |
| A12R15                | 0757-0401      | 0 |   | 0   | RESISTOR 100 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-101-F     |
| A12R16                | 0757-0180      | 2 |   | 4   | RESISTOR 31.6 1% .125W F TC=0+-100      | 28480    | 0757-0180           |
| A12R17                | 0757-0442      | 9 |   | 2   | RESISTOR 10K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1002-F    |
| A12R18                | 0757-0442      | 9 |   | 9   | RESISTOR 10K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1002-F    |
| A12R19                | 0698-0082      | 7 |   | 3   | RESISTOR 464 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-4640-F    |
| A12R20                | 0757-0401      | 0 |   | 0   | RESISTOR 100 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-101-F     |
| A12R21                | 0698-3132      | 4 |   | 1   | RESISTOR 261 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-2610-F    |
| A12R22                | 0757-0180      | 2 |   | 2   | RESISTOR 31.6 1% .125W F TC=0+-100      | 28480    | 0757-0180           |
| A12R23                | 0698-3444      | 1 |   | 1   | RESISTOR 316 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-316R-F    |
| A12R24                | 0698-0082      | 7 |   | 7   | RESISTOR 464 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-4640-F    |
| A12R25                | 0757-0419      | 0 |   | 0   | RESISTOR 681 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-681R-F    |
| A12R26                | 0757-0394      | 0 |   | 0   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F    |
| A12R27                | 0757-0394      | 0 |   | 0   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F    |
| A12R28                | 0757-0280      | 3 |   | 1   | RESISTOR 1K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1001-F    |
| A12R29                | 0757-0394      | 0 |   | 0   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F    |
| A12R30                | 0757-0276      | 7 |   | 1   | RESISTOR 61.9 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-6192-F    |
| A12R31                | 0757-0283      | 6 |   | 1   | RESISTOR 2K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-2001-F    |
| A12R32                | 0757-0284      | 7 |   | 1   | RESISTOR 150 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-151-F     |
| A12R33                | 0757-0394      | 0 |   | 0   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F    |
| A12R34                | 0757-0407      | 6 |   | 6   | RESISTOR 200 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-201-F     |
| A12R35                | 0757-0394      | 0 |   | 0   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F    |
| A12R36                | 0757-0180      | 2 |   | 2   | RESISTOR 31.6 1% .125W F TC=0+-100      | 28480    | 0757-0180           |
| A12R37                | 0757-0180      | 2 |   | 2   | RESISTOR 31.6 1% .125W F TC=0+-100      | 28480    | 0757-0180           |
| A12R38                | 0757-0394      | 0 |   | 0   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F    |
| A12R39                | 0698-3437      | 2 |   | 1   | RESISTOR 133 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-133R-F    |
| A12R40                | 0698-0082      | 7 |   | 7   | RESISTOR 464 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-4640-F    |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C<br>D | Qty | Description                             | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|--------|-----|-----------------------------------------|----------|----------------------|
| A12R41                | 0757-0421      | 4      |     | RESISTOR 825 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-825R-F     |
| A12R42                | 0698-6264      | 9      | 1   | RESISTOR 400 .5% .125W F TC=0+-100      | 24546    | C4-1/8-T0-400R-D     |
| A12R43                | 0757-0401      | 0      |     | RESISTOR 100 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-100-F      |
| A12R44                | 0757-0394      | 6      |     | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F     |
| A12R45                | 0757-0394      | 6      |     | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-51R1-F     |
| A12R46                | 0757-0421      | 4      |     | RESISTOR 825 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-825R-F     |
| A12TP1                | 0360-1682      | 0      | 4   | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682            |
| A12TP2                | 0360-1682      | 0      | *   | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682            |
| A12TP3                | 0360-1682      | 0      |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682            |
| A12TP4                | 0360-1682      | 0      |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682            |
| A12U1                 | 1820-1492      | 7      | 1   | IC BFR TTL LS INV HEX 1-INP             | 01295    | SN74LS368AN          |
| A12U2                 | 1820-2149      | 3      | 1   | IC GATE ECL DUAL 3-INP                  | 28480    | B234B-0100           |
| A12U3                 | 1820-1453      | 0      | 1   | IC CNTR TTL S RIN SYNCHRO POS-EDGE-TRIG | 01295    | SN74S153N            |
| A12U4                 | 1820-1052      | 5      | 1   | IC XLTR ECL ECL-T0-TTL QUAD 2-INP       | 04713    | MC10125L             |
| A12U5                 | 1826-0138      | 8      | 1   | IC COMPARATOR CP QUAD 14-DIP-P PKG      | 01295    | LM339N               |
| A12U6                 | 1820-0624      | 5      | 1   | IC COMPTN ECL A/D DUAL                  | 04713    | MC1651L              |
| A12U7                 | 1820-1999      | 9      | 1   | IC MUXR/DATA-SEL ECL 3-T0-1-LINE        | 28480    | 5084-0234            |
| A12U8                 | 1820-2324      | 6      | 1   | IC RCVR ECL DIFF LINE TPL               | 04713    | MC10114P             |
| A12Y1                 | 0410-1293      | 6      | 1   | CRYSTAL-QUARTZ 20 MHZ T0-5-HLDR         | 28480    | 0410-1293            |
|                       |                |        |     | A12 MISCELLANEOUS                       |          |                      |
|                       | 0300-0311      | 2      | 2   | STANDOFF-RVT-GN .5-IN-LG 4-32THD        | 00000    | ORDER BY DESCRIPTION |
|                       | 1480-0116      | 6      | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL       | 28480    | 1480-0116            |
|                       | 4040-0749      | 4      | 1   | EXTR-PC BD BRN POLYC .062-BD-THKNS      | 28480    | 4040-0749            |
|                       | 4040-0750      | 7      | 1   | EXTR-PC BD RED POLYC .062-BD-THKNS      | 28480    | 4040-0750            |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                              | Mfr Code | Mfr Part Number  |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A13                   | 05180-60013    | 4   | 1   | PROCESSOR (SERIES 2434)                  | 28480    | 05180-60013      |
| A13C1                 | 0160-3879      | 7   | 14  | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C2                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C3                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C4                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C5                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C6                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C7                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C8                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C9                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C10                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C11                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C12                | 0180-2929      | 8   | 2   | CAPACITOR-FXD 68UF+-10% 10VDC TA         | 28480    | 0180-2929        |
| A13C13                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C14                | 0160-3651      | 3   | 2   | CAPACITOR-FXD 68PF +-10% 200VDC CER      | 28480    | 0160-3651        |
| A13C15                | 0180-2929      | 8   |     | CAPACITOR-FXD 68UF+-10% 10VDC TA         | 28480    | 0180-2929        |
| A13C16                | 0160-2743      | 2   | 2   | CAPACITOR-FXD 33PF +-10% 200VDC CER      | 28480    | 0160-2743        |
| A13C17                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C18                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A13C19                | 0160-3651      | 3   |     | CAPACITOR-FXD 68PF +-10% 200VDC CER      | 28480    | 0160-3651        |
| A13C20                | 0160-2743      | 2   |     | CAPACITOR-FXD 33PF +-10% 200VDC CER      | 28480    | 0160-2743        |
| A13CR1                | 1901-0050      | 3   | 1   | DIODE-SWITCHING 80V 200MA 2NS D0-35      | 28480    | 1901-0050        |
| A13L1                 | 9100-1788      | 6   | 1   | CORE-FERRITE CHOKE-WIDEBAND; IMP:1600    | 28480    | 9100-1788        |
| A13Q1                 | 1854-0560      | 9   | 1   | TRANSISTOR NPN SI DARL PD=310MW          | 04713    | MPS A12          |
| A13R1                 | 1810-0279      | 5   | 3   | NETWORK-RES 10-S1P4.7K OHM X 9           | 01121    | 210A472          |
| A13R2                 | 1810-0279      | 5   |     | NETWORK-RES 10-S1P4.7K OHM X 9           | 01121    | 210A472          |
| A13R3                 | 1810-0279      | 5   |     | NETWORK-RES 10-S1P4.7K OHM X 9           | 01121    | 210A472          |
| A13R4                 | 0698-7205      | 0   | 1   | RESISTOR 51.1 1% .05W F TC=0+-100        | 24546    | C3-1/8-T0-51R1-F |
| A13R5                 | 0698-7252      | 7   | 4   | RESISTOR 4.64K 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-4641-F |
| A13R6                 | 1810-0277      | 3   | 1   | NETWORK-RES 10-S1P2.2K OHM X 9           | 01121    | 210A222          |
| A13R7                 | 0698-7246      | 9   | 1   | RESISTOR 2.61K 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-2611-F |
| A13R8                 |                |     |     | NOT ASSIGNED                             |          |                  |
| A13R9                 | 0698-7268      | 5   | 1   | RESISTOR 21.5K 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-2152-F |
| A13R10                | 0698-7236      | 7   | 8   | RESISTOR 1K 1% .05W F TC=0+-100          | 24546    | C3-1/8-T0-1001-F |
| A13R11                | 0698-7236      | 7   |     | RESISTOR 1K 1% .05W F TC=0+-100          | 24546    | C3-1/8-T0-1001-F |
| A13R12                | 0698-7248      | 1   | 2   | RESISTOR 3.16K 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-3161-F |
| A13R13                | 0698-7248      | 1   |     | RESISTOR 3.16K 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-3161-F |
| A13R14                | 0757-0465      | 6   | 1   | RESISTOR 100K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1003-F |
| A13R15                | 0698-7252      | 7   |     | RESISTOR 4.64K 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-4641-F |
| A13R16                | 0698-7260      | 7   | 3   | RESISTOR 10K 1% .05W F TC=0+-100         | 24546    | C3-1/8-T0-1002-F |
| A13R17                | 0698-7236      | 7   |     | RESISTOR 1K 1% .05W F TC=0+-100          | 24546    | C3-1/8-T0-1001-F |
| A13R18                | 0698-7260      | 7   |     | RESISTOR 10K 1% .05W F TC=0+-100         | 24546    | C3-1/8-T0-1002-F |
| A13R19                | 0698-7236      | 7   |     | RESISTOR 1K 1% .05W F TC=0+-100          | 24546    | C3-1/8-T0-1001-F |
| A13R20                | 0698-7252      | 7   |     | RESISTOR 4.64K 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-4641-F |
| A13R21                | 0698-7168      | 8   | 2   | RESISTOR 10 1% .05W F TC=0+-100          | 24546    | C3-1/8-T0-10R-F  |
| A13R22                | 0698-7196      | 8   | 2   | RESISTOR 21.5 1% .05W F TC=0+-100        | 24546    | C3-1/8-T0-21R5-F |
| A13R23                | 0698-7196      | 8   |     | RESISTOR 21.5 1% .05W F TC=0+-100        | 24546    | C3-1/8-T0-21R5-F |
| A13R24                | 0698-7236      | 7   |     | RESISTOR 1K 1% .05W F TC=0+-100          | 24546    | C3-1/8-T0-1001-F |
| A13R25                | 0698-7168      | 8   |     | RESISTOR 10 1% .05W F TC=0+-100          | 24546    | C3-1/8-T0-10R-F  |
| A13R26                | 0698-7236      | 7   |     | RESISTOR 1K 1% .05W F TC=0+-100          | 24546    | C3-1/8-T0-1001-F |
| A13R27                | 0698-7252      | 7   |     | RESISTOR 4.64K 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-4641-F |
| A13R28                | 0698-7236      | 7   |     | RESISTOR 1K 1% .05W F TC=0+-100          | 24546    | C3-1/8-T0-1001-F |
| A13R29                | 0698-7236      | 7   |     | RESISTOR 1K 1% .05W F TC=0+-100          | 24546    | C3-1/8-T0-1001-F |
| A13R30                | 0698-7260      | 7   |     | RESISTOR 10K 1% .05W F TC=0+-100         | 24546    | C3-1/8-T0-1002-F |
| A13S1                 | 3101-1989      | 5   | 1   | SWITCH-SL 10-1A DIP-SLIDE-ASSY .1A 50VDC | 28480    | 3101-1989        |
| A13TP1                | 0360-1682      | 0   | 4   | TERMINAL-STUD SCL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A13TP2                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A13TP3                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A13TP4                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A13U1                 | 1820-1081      | 0   | 2   | IC DRVR TTL 5 BUS QUAD                   | 18324    | 8T26AN           |
| A13U2                 | 1820-1081      | 0   |     | IC DRVR TTL 5 BUS QUAD                   | 18324    | 8T26AN           |
| A13U3                 | 1818-3348      | 5   | 1   | IC NMOS 65536 (64K) ROM 450-NS 3-S       | 31471    | S2364-P MASKED   |
| A13U4                 | 1820-1202      | 7   | 1   | IC GATE TTL LS NAND TPL 3-INP            | 01295    | SN74LS10N        |
| A13U5                 | 1818-0135      | 8   | 3   | IC NMOS 1024 (1K) STAT RAM 360-NS 3-S    | 04713    | MCN68A10L        |
| A13U6                 | 1820-1199      | 1   | 1   | IC INV TTL LS HEX 1-INP                  | 01295    | SN74LS04N        |
| A13U7                 | 1820-1197      | 9   | 2   | IC GATE TTL LS NAND QUAD 2-INP           | 01295    | SN74LS00N        |
| A13U8                 | 1818-0135      | 8   |     | IC NMOS 1024 (1K) STAT RAM 360-NS 3-S    | 04713    | MCN68A10L        |
| A13U9                 | 1820-1204      | 9   | 1   | IC GATE TTL LS NAND DUAL 4-INP           | 01295    | SN74LS20N        |
| A13U10                | 1818-0135      | 8   |     | IC NMOS 1024 (1K) STAT RAM 360-NS 3-S    | 04713    | MCN68A10L        |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C<br>D | Qty | Description                           | Mfr Code | Mfr Part Number |
|-----------------------|----------------|--------|-----|---------------------------------------|----------|-----------------|
| A13U11                | 1820-1196      | 8      | 1   | IC FF TTL LS D-TYPE POS-EDGE-TRIG CKM | 01295    | SN74LS174N      |
| A13U12                | 1820-1368      | 6      | 3   | IC DRVR TTL BUS HEX 1-INP             | 27014    | DM9096N         |
| A13U13                | 05370-80003    | 4      | 1   | ROM-PROGRAMMED                        | 28480    | 05370-80003     |
| A13U14                | 1820-1368      | 6      | 1   | IC DRVR TTL BUS HEX 1-INP             | 27014    | DM9096N         |
| A13U15                | 1820-1209      | 4      | 1   | IC BFR TTL LS NAND QUAD 2-INP         | 01295    | SN74LS38N       |
| A13U16                | 1820-1368      | 6      | 1   | IC DRVR TTL BUS HEX 1-INP             | 27014    | DM9096N         |
| A13U17                | 1820-1416      | 5      | 1   | IC SCHMITT-TRIG TTL LS INV HEX 1-INP  | 01295    | SN74LS14N       |
| A13U18                | 1820-2137      | 9      | 1   | IC MICPROC NMOS 8-BIT                 | 04713    | MC6800P         |
| A13U19                | 1820-1804      | 5      | 1   | IC BFR NMOS CLOCK DRVR                | 04713    | MP6804C         |
| A13U20                | 1820-1197      | 9      | 1   | IC GATE TTL LS NAND QUAD 2-INP        | 01295    | SN74LS00N       |
|                       |                |        |     | A13 MISCELLANEOUS                     |          |                 |
|                       | 05180-20013    | 0      | 1   | BD-BLANK MULTLYR                      | 28480    | 05180-20013     |
|                       | 1200-0607      | 0      | 1   | SOCKET-IC 16-CONT DIP DIP-SLDR        | 28480    | 1200-0607       |
|                       | 1480-0116      | 8      | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL     | 28480    | 1480-0116       |
|                       | 4040-0749      | 4      | 1   | EXTR-PC BD BRN POLYC .062-BD-THKNS    | 28480    | 4040-0749       |
|                       | 4040-0751      | 8      | 1   | EXTR-PC BD DRN POLYC .062-BD-THKNS    | 28480    | 4040-0751       |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                                                                                                                                                                          | Mfr Code | Mfr Part Number  |
|-----------------------|----------------|-----|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------|
| A14                   | 95180-60014    | 3   | 1   | ROM/RAM/CMOS RAM (SERIES 2434)<br><br>NOTE:<br>EPROMS U2 & U3 ARE NOT SUPPLIED AS PART OF THIS BOARD. REFER TO CHASSIS PARTS AT THE END OF PARTS LIST FOR NUMBER, TO ORDER U2 OR U3. | 28480    | 95180-60014      |
| A14B1                 | 1420-0268      | 5   | 1   | BATTERY 3.6V .065A-HR NI-CD                                                                                                                                                          | 28480    | 1420-0268        |
| A14C1                 | 0160-3879      | 7   | 11  | CAPACITOR-FXD .01UF +-20% 100VDC CER                                                                                                                                                 | 28480    | 0160-3879        |
| A14C2                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER                                                                                                                                                 | 28480    | 0160-3879        |
| A14C3                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER                                                                                                                                                 | 28480    | 0160-3879        |
| A14C4                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER                                                                                                                                                 | 28480    | 0160-3879        |
| A14C5                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER                                                                                                                                                 | 28480    | 0160-3879        |
| A14C6                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER                                                                                                                                                 | 28480    | 0160-3879        |
| A14C7                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER                                                                                                                                                 | 28480    | 0160-3879        |
| A14C8                 | 0180-1746      | 5   | 1   | CAPACITOR-FXD 15UF+-10% 20VDC TA                                                                                                                                                     | 56289    | 150D156X9020B2   |
| A14C9                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER                                                                                                                                                 | 28480    | 0160-3879        |
| A14C10                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER                                                                                                                                                 | 28480    | 0160-3879        |
| A14C11                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER                                                                                                                                                 | 28480    | 0160-3879        |
| A14C12                | 0180-0195      | 6   | 1   | CAPACITOR-FXD .33UF+-20% 35VDC TA                                                                                                                                                    | 56289    | 150D334X0035A2   |
| A14C13                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER                                                                                                                                                 | 28480    | 0160-3879        |
| A14CR1                | 1901-0050      | 3   | 4   | DIODE-SWITCHING 80V 200MA 2NS DO-35                                                                                                                                                  | 28480    | 1901-0050        |
| A14CR2                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35                                                                                                                                                  | 28480    | 1901-0050        |
| A14CR3                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35                                                                                                                                                  | 28480    | 1901-0050        |
| A14CR4                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35                                                                                                                                                  | 28480    | 1901-0050        |
| A14L1                 | 9100-1788      | 6   | 1   | CORE-FERRITE CHOKE-WIDEBAND; IMP:0680                                                                                                                                                | 28480    | 9100-1788        |
| A14R1                 | 1810-0279      | 5   | 1   | NETWORK-RES 16-SIP4.7K OHM X 9                                                                                                                                                       | 01121    | 210A472          |
| A14R2                 | 0757-0394      | 0   | 1   | RESISTOR 51.1 1% .125W F TC=0+-100                                                                                                                                                   | 24546    | C4-1/8-T0-51R1-F |
| A14R3                 | 1810-0205      | 7   | 2   | NETWORK-RES 8-SIP4.7K OHM X 7                                                                                                                                                        | 01121    | 208A472          |
| A14R4                 | 0757-0442      | 9   | 1   | RESISTOR 10K 1% .125W F TC=0+-100                                                                                                                                                    | 24546    | C4-1/8-T0-1002-F |
| A14R5                 | 1810-0205      | 7   |     | NETWORK-RES 8-SIP4.7K OHM X 7                                                                                                                                                        | 01121    | 208A472          |
| A14R6                 | 0757-0283      | 6   | 2   | RESISTOR 2K 1% .125W F TC=0+-100                                                                                                                                                     | 24546    | C4-1/8-T9-2001-F |
| A14R7                 | 0757-0283      | 6   |     | RESISTOR 2K 1% .125W F TC=0+-100                                                                                                                                                     | 24546    | C4-1/8-T0-2001-F |
| A14TP1                | 0360-1682      | 0   | 13  | TERMINAL-STUD SGL-TUR PRESS-MTC                                                                                                                                                      | 28480    | 0360-1682        |
| A14TP2                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTC                                                                                                                                                      | 28480    | 0360-1682        |
| A14TP3                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTC                                                                                                                                                      | 28480    | 0360-1682        |
| A14TP4                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTC                                                                                                                                                      | 28480    | 0360-1682        |
| A14TP5                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTC                                                                                                                                                      | 28480    | 0360-1682        |
| A14TP6                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTC                                                                                                                                                      | 28480    | 0360-1682        |
| A14TP7                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTC                                                                                                                                                      | 28480    | 0360-1682        |
| A14TP8                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTC                                                                                                                                                      | 28480    | 0360-1682        |
| A14TP9                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTC                                                                                                                                                      | 28480    | 0360-1682        |
| A14TP10               | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTC                                                                                                                                                      | 28480    | 0360-1682        |
| A14TP11               | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTC                                                                                                                                                      | 28480    | 0360-1682        |
| A14TP12               | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTC                                                                                                                                                      | 28480    | 0360-1682        |
| A14TP13               | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTC                                                                                                                                                      | 28480    | 0360-1682        |
| A14U1                 |                |     |     | NOT ASSIGNED                                                                                                                                                                         |          |                  |
| A14U2                 | 1810-3369      | 6   | 1   | IC NMOS 65536 (64K) ROM 450-NS 3-5                                                                                                                                                   | 31471    | S2364-P MASKED   |
| A14U3                 | 1810-3370      | 9   | 1   | IC NMOS 65536 (64K) ROM 450-NS 3-5                                                                                                                                                   | 31471    | S2364-P MASKED   |
| A14U4                 | 1810-0438      | 4   | 2   | IC NMOS 4096 (4K) STAT RAM 450-NS 3-5                                                                                                                                                | 01295    | TMS2114-45NL     |
| A14U5                 | 1810-0438      | 4   |     | IC NMOS 4096 (4K) STAT RAM 450-NS 3-5                                                                                                                                                | 01295    | TMS2114-45NL     |
| A14U6                 | 1810-0708      | 1   | 4   | IC CMOS 1024 (1K) STAT RAM 650-NS 3-5                                                                                                                                                | 80545    | UPD5101LC        |
| A14U7                 | 1810-0708      | 1   |     | IC CMOS 1024 (1K) STAT RAM 650-NS 3-5                                                                                                                                                | 80545    | UPD5101LC        |
| A14U8                 | 1810-0708      | 1   |     | IC CMOS 1024 (1K) STAT RAM 650-NS 3-5                                                                                                                                                | 80545    | UPD5101LC        |
| A14U9                 | 1810-0708      | 1   |     | IC CMOS 1024 (1K) STAT RAM 650-NS 3-5                                                                                                                                                | 80545    | UPD5101LC        |
| A14U10                | 1820-2206      | 3   | 1   | IC TRANSCEIVER TTL LS BUS OCTL                                                                                                                                                       | 01295    | SN74LS640N       |
| A14U11                | 1820-2024      | 3   | 1   | IC DRVR TTL LS LINE DRVR OCTL                                                                                                                                                        | 01295    | SN74LS244N       |
| A14U12                | 05180-80014    | 7   | 1   | PROM 74S188                                                                                                                                                                          | 28480    | 05180-80014      |
| A14U13                | 1820-1491      | 6   | 1   | IC BFR TTL LS NON-INV HEX 1-INP                                                                                                                                                      | 01295    | SN74LS367AN      |
| A14U14                | 1820-1199      | 1   | 1   | IC INV TTL LS HEX 1-INP                                                                                                                                                              | 01295    | SN74LS04N        |
| A14U15                | 1820-1204      | 9   | 1   | IC GATE TTL LS NAND DUAL 4-INP                                                                                                                                                       | 01295    | SN74LS20N        |
| A14U16                | 1820-1216      | 3   | 1   | IC DCDR TTL LS 3-T0-8-LINE 3-INP                                                                                                                                                     | 01295    | SN74LS138N       |
| A14U17                | 1820-1197      | 9   | 1   | IC GATE TTL LS NAND QUAD 2-INP                                                                                                                                                       | 01295    | SN74LS00N        |
| A14U18                | 1820-1200      | 5   | 1   | IC INV TTL LS HEX                                                                                                                                                                    | 01295    | SN74LS05N        |
| A14U19                | 1820-1112      | 8   | 1   | IC FF TTL LS D-TYPE POS-EDGE-TRIG                                                                                                                                                    | 01295    | SN74LS74AN       |
| A14U20                | 1820-2279      | 0   | 1   | IC FF CMOS D-TYPE POS-EDGE-TRIG COM                                                                                                                                                  | 04713    | MC14175BCP       |
| A14U21                | 1820-1429      | 0   | 1   | IC CNTR TTL LS DECD SYNCHRD                                                                                                                                                          | 01295    | SN74LS160AN      |
| A14U22                | 1820-0068      | 1   | 1   | IC GATE TTL NAND TPL 3-INP                                                                                                                                                           | 01295    | SN7410N          |
| A14U23                | 1826-0122      | 0   | 1   | IC 7885 V RGLTR TO-220                                                                                                                                                               | 07263    | 7805UC           |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C<br>D | Qty | Description                            | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|--------|-----|----------------------------------------|----------|----------------------|
| A14W1                 | 8159-0005      | 0      | 2   | RESISTOR-ZERO OHMS 22 AWG LEAD DIA     | 28480    | 8159-0005            |
| A14W3                 | 8159-0005      | 0      |     | RESISTOR-ZERO OHMS 22 AWG LEAD DIA     | 28480    | 8159-0005            |
|                       |                |        |     | A14 MISCELLANEOUS                      |          |                      |
|                       | 1480-0116      | 8      | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL      | 28480    | 1480-0116            |
|                       | 2190-0004      | 9      | 1   | WASHER-LK INTL T NO. 4 .115-IN-ID      | 28480    | 2190-0004            |
|                       | 2260-0105      | 4      | 1   | SCREW-MACH 4-40 .312-IN-LG PAN-HD-POZI | 90000    | ORDER BY DESCRIPTION |
|                       | 2260-0001      | 5      | 1   | NUT-HEX-EDL-CHAM 4-40-THD .094-IN-THK  | 28480    | 2260-0001            |
|                       | 4040-0749      | 4      | 1   | EXTR-PC BD BRN POLYC .062-BD-THKNS     | 28480    | 4040-0749            |
|                       | 4040-0752      | 9      | 1   | EXTR-PC BD YEL POLYC .062-BD-THKNS     | 28480    | 4040-0752            |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                              | Mfr Code | Mfr Part Number  |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A1S                   | 95100-60015    | 6   | 1   | HP-IB/DRA (SERIES 2408)                  | 28480    | 05100-60015      |
| A15C1                 | 0160-3879      | 7   | 10  | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A15C2                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A15C3                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A15C4                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A15C5                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A15C6                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A15C7                 | 0180-2929      | 8   | 1   | CAPACITOR-FXD 68UF+-10% 10VDC TA         | 28480    | 0180-2929        |
| A15C8                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A15C9                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A15C10                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A15C11                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879        |
| A15L1                 | 9100-1788      | 6   | 1   | CORE-FERRITE CHOKE-WIDEBAND; IMP: >680   | 28480    | 9100-1788        |
| A15R1                 | 1854-0218      | 1   | 1   | TRANSISTOR NPN SI PD=350MW FT=300MHZ     | 04713    | 2N3904           |
| A15R1                 | 0757-0394      | 0   | 1   | RESISTOR 51.1 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-51R1-F |
| A15R2                 | 0757-0280      | 3   | 1   | RESISTOR 1K 1% .125W F TC=0+-100         | 24546    | C4-1/8-T0-1001-F |
| A15R3                 |                |     |     | NOT ASSIGNED                             |          |                  |
| A15R4                 | 0757-0442      | 9   | 2   | RESISTOR 10K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1002-F |
| A15R5                 | 0698-3444      | 1   | 1   | RESISTOR 316 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-316R-F |
| A15R6                 | 1810-0275      | 1   | 1   | NETWORK-RES 10-SIP1.0K OHM X 9           | 01121    | 210A102          |
| A15R7                 | 1810-0279      | 5   | 3   | NETWORK-RES 10-SIP4.7K OHM X 9           | 01121    | 210A472          |
| A15R8                 | 1810-0279      | 5   |     | NETWORK-RES 10-SIP4.7K OHM X 9           | 01121    | 210A472          |
| A15R9                 | 1810-0279      | 5   |     | NETWORK-RES 10-SIP4.7K OHM X 9           | 01121    | 210A472          |
| A15R10                | 0757-0442      | 9   |     | RESISTOR 10K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1002-F |
| A15S1                 | 3101-1973      | 7   | 1   | SWITCH-SL 7-1A DIP-SLIDE-ASSY .1A 50VDC  | 28480    | 3101-1973        |
| A15TP1                | 0360-1682      | 0   | 5   | TERMINAL-STUD SCL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A15TP2                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A15TP3                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A15TP4                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A15TP5                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A15U1                 | 1820-1195      | 7   | 1   | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM    | 01295    | SN74LS175N       |
| A15U2                 | 1820-1112      | 6   | 1   | IC FF TTL LS D-TYPE POS-EDGE-TRIG        | 01295    | SN74LS74AN       |
| A15U3                 | 1820-1216      | 3   | 1   | IC DCDR TTL LS 3-TO-8-LINE 3-INP         | 01295    | SN74LS138N       |
| A15U4                 | 1820-0693      | 8   | 1   | IC FF TTL S D-TYPE POS-EDGE-TRIG         | 01295    | SN74S74N         |
| A15U5                 | 1820-1144      | 6   | 1   | IC GATE TTL LS NOR QUAD 2-INP            | 01295    | SN74LS02N        |
| A15U6                 | 1820-1207      | 2   | 2   | IC GATE TTL LS NAND 8-INP                | 01295    | SN74LS30N        |
| A15U7                 | 1820-1281      | 2   | 1   | IC DCDR TTL LS 2-TO-4-LINE DUAL          | 01295    | SN74LS139AN      |
| A15U8                 | 1820-2206      | 3   | 1   | IC TRANSCEIVER TTL LS BUS OCTL           | 01295    | SN74LS640N       |
| A15U9                 | 1820-1492      | 7   | 3   | IC BFR TTL LS INV HEX 1-INP              | 01295    | SN74LS368AN      |
| A15U10                | 1820-1430      | 3   | 1   | IC CNTR TTL LS BIN SYNCHRO POS-EDGE-TRIG | 01295    | SN74LS161AN      |
| A15U11                | 1820-1049      | 0   | 2   | IC BFR TTL NON-INV HEX                   | 27014    | DM8097N          |
| A15U12                | 1820-1049      | 0   |     | IC BFR TTL NON-INV HEX                   | 27014    | DM8097N          |
| A15U13                | 1820-1492      | 7   |     | IC BFR TTL LS INV HEX 1-INP              | 01295    | SN74LS368AN      |
| A15U14                | 1820-1217      | 4   | 1   | IC MUXR/DATA-SEL TTL LS 9-TO-1-LINE      | 01295    | SN74LS151N       |
| A15U15                | 1820-2641      | 0   | 2   | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM    | 01295    | SN74LS274N       |
| A15U16                | 1820-1197      | 9   | 1   | IC GATE TTL LS NAND QUAD 2-INP           | 01295    | SN74LS00N        |
| A15U17                | 1820-2641      | 0   |     | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM    | 01295    | SN74LS374N       |
| A15U18                | 1820-1240      | 3   | 1   | IC DCDR TTL S 3-TO-8-LINE 3-INP          | 01295    | SN74S138N        |
| A15U19                | 1820-1492      | 7   |     | IC BFR TTL LS INV HEX 1-INP              | 01295    | SN74LS368AN      |
| A15U20                | 1820-0688      | 1   | 1   | IC GATE TTL S NAND DUAL 4-INP            | 01295    | SN74S20N         |
| A15U21                | 1820-1198      | 0   | 1   | IC GATE TTL LS NAND QUAD 2-INP           | 01295    | SN74LS03N        |
| A15U22                | 1820-0282      | 1   | 1   | IC GATE TTL EXCL-OR QUAD 2-INP           | 01295    | SN7486N          |
| A15U23                | 1820-1416      | 5   | 1   | IC SCHMITT-TRIG TTL LS INV HEX 1-INP     | 01295    | SN74LS14N        |
| A15U24                | 1820-2549      | 7   | 1   | IC-8291A P HP1B                          | 28480    | 1820-2549        |
| A15U25                | 1820-2058      | 3   | 4   | IC TRANSCEIVER TTL S INSTR-BUS IEEE-488  | 04713    | MC3448AL         |
| A15U26                | 1820-2058      | 3   |     | IC TRANSCEIVER TTL S INSTR-BUS IEEE-488  | 04713    | MC3448AL         |
| A15U27                | 1820-1199      | 1   | 1   | IC INV TTL LS HEX 1-INP                  | 01295    | SN74LS04N        |
| A15U28                | 1820-2058      | 3   |     | IC TRANSCEIVER TTL S INSTR-BUS IEEE-488  | 04713    | MC3448AL         |
| A15U29                | 1820-1207      | 2   |     | IC GATE TTL LS NAND 8-INP                | 01295    | SN74LS30N        |
| A15U30                | 1820-2058      | 3   |     | IC TRANSCEIVER TTL S INSTR-BUS IEEE-488  | 04713    | MC3448AL         |
| A15U31                | 1820-0054      | 5   | 1   | IC GATE TTL NAND QUAD 2-INP              | 01295    | SN7400N          |
| A15XS1                | 1260-0485      | 2   | 1   | SOCKET-IC 14-CONT DIP DIP-SLDR           | 28480    | 1260-0485        |
| A1S MISCELLANEOUS     |                |     |     |                                          |          |                  |
|                       | 1480-0116      | 0   | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL        | 28480    | 1480-0116        |
|                       | 4040-0749      | 4   | 1   | EXTR-PC BD BRN POLYC .062-BD-THKNS       | 28480    | 4040-0749        |
|                       | 4640-0753      | 0   | 1   | EXTR-PC BD GRN POLYC .062-BD-THKNS       | 28480    | 4640-0753        |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                               | Mfr Code | Mfr Part Number   |
|-----------------------|----------------|-----|-----|-------------------------------------------|----------|-------------------|
| A16                   | 05180-60016    | 7   | 1   | XYZ DRIVER (SERIES 2414)                  | 28480    | 05180-60016       |
| A16C1                 | 0160-3879      | 7   | 28  | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C2                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C3                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C4                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C5                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C6                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C7                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C8                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C9                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C10                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C11                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C12                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C13                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C14                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C15                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C16                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C17                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C18                | 0140-0234      | 0   | 6   | CAPACITOR-FXD 500PF +-1% 300VDC MICA      | 72136    | DH15F501F0300WV1C |
| A16C19                | 0180-0562      | 1   | 3   | CAPACITOR-FXD 33UF+-20% 10VDC TA          | 56289    | 196D336X0010KA1   |
| A16C20                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C21                | 0160-0340      | 1   | 6   | CAPACITOR-FXD 600PF +-1% 300VDC MICA      | 28480    | 0160-0340         |
| A16C22                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C23                | 0160-2810      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-2810         |
| A16C24                | 0180-2810      | 4   | 1   | CAPACITOR-FXD 2.2UF+-20% 35VDC TA         | 28480    | 0180-2810         |
| A16C25                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C26                | 0140-0234      | 0   |     | CAPACITOR-FXD 500PF +-1% 300VDC MICA      | 72136    | DH15F501F0300WV1C |
| A16C27                | 0180-0562      | 1   |     | CAPACITOR-FXD 33UF+-20% 10VDC TA          | 56289    | 196D336X0010KA1   |
| A16C28                | 0160-0570      | 9   | 2   | CAPACITOR-FXD 220PF +-20% 100VDC CER      | 28932    | 5024EM100RD221M   |
| A16C29                | 0160-0340      | 1   |     | CAPACITOR-FXD 600PF +-1% 300VDC MICA      | 28480    | 0160-0340         |
| A16C30                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C31                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C32                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C33                | 0160-0570      | 9   |     | CAPACITOR-FXD 220PF +-20% 100VDC CER      | 28932    | 5024EM100RD221M   |
| A16C34                | 0180-0562      | 1   |     | CAPACITOR-FXD 33UF+-20% 10VDC TA          | 56289    | 196D336X0010KA1   |
| A16C35                | 0140-0234      | 0   |     | CAPACITOR-FXD 500PF +-1% 300VDC MICA      | 72136    | DH15F501F0300WV1C |
| A16C36                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C37                | 0160-0340      | 1   |     | CAPACITOR-FXD 600PF +-1% 300VDC MICA      | 28480    | 0160-0340         |
| A16C38                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C39                | 0160-0340      | 1   |     | CAPACITOR-FXD 600PF +-1% 300VDC MICA      | 28480    | 0160-0340         |
| A16C40                | 0160-0340      | 1   |     | CAPACITOR-FXD 600PF +-1% 300VDC MICA      | 28480    | 0160-0340         |
| A16C41                | 0160-0340      | 1   |     | CAPACITOR-FXD 600PF +-1% 300VDC MICA      | 28480    | 0160-0340         |
| A16C42                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C43                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER      | 28480    | 0160-3879         |
| A16C44                | 0140-0234      | 0   |     | CAPACITOR-FXD 500PF +-1% 300VDC MICA      | 72136    | DH15F501F0300WV1C |
| A16C45                | 0140-0234      | 0   |     | CAPACITOR-FXD 500PF +-1% 300VDC MICA      | 72136    | DH15F501F0300WV1C |
| A16C46                | 0140-0234      | 0   |     | CAPACITOR-FXD 500PF +-1% 300VDC MICA      | 72136    | DH15F501F0300WV1C |
| A16CR1                | 1901-0539      | 3   | 1   | DIODE-5M SIG SCHOTTKY                     | 28480    | 1901-0539         |
| A16CR2                | 1902-3002      | 3   | 1   | DIODE-ZNR 2.37V 5% DG-7 PD=1.4W TC=-.074% | 28480    | 1902-3002         |
| A16J1                 | 1250-1615      | 7   | 2   | CONNECTOR-RF SUBMINIATURE COAXICON        | 28480    | 1250-1615         |
| A16J2                 | 1250-1615      | 7   |     | CONNECTOR-RF SUBMINIATURE COAXICON        | 28480    | 1250-1615         |
| A16L1                 | 9100-3139      | 5   | 1   | INDUCTOR 75UH 15% .5DX.075LG              | 28480    | 9100-3139         |
| A16L2                 | 9140-0249      | 6   | 3   | INDUCTOR 30UH .4DX.075LG Q=25             | 28480    | 9140-0249         |
| A16L3                 | 9140-0249      | 6   |     | INDUCTOR 30UH .4DX.075LG Q=25             | 28480    | 9140-0249         |
| A16L4                 | 9140-0249      | 6   |     | INDUCTOR 30UH .4DX.075LG Q=25             | 28480    | 9140-0249         |
| A16R1                 | 0757-0394      | 0   | 3   | RESISTOR 51.1 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-51R1-F  |
| A16R2                 | 2100-3353      | 0   | 1   | RESISTOR-TRMR 20K 10% C SIDE-ADJ 1-TRN    | 28480    | 2100-3353         |
| A16R3                 | 2100-3352      | 7   | 1   | RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRN     | 28480    | 2100-3352         |
| A16R4                 | 0180-0277      | 3   | 1   | NETWORK-RES 10-SIP2.2K OHM X 9            | 01121    | 210A222           |
| A16R5                 | 0757-0274      | 5   | 3   | RESISTOR 1.21K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1211-F  |
| A16R6                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-51R1-F  |
| A16R7                 | 0698-0084      | 9   | 2   | RESISTOR 2.15K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-2151-F  |
| A16R8                 | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-51R1-F  |
| A16R9                 | 0757-0200      | 7   | 4   | RESISTOR 5.62K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-5621-F  |
| A16R10                | 0757-0200      | 7   |     | RESISTOR 5.62K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-5621-F  |
| A16R11                | 0757-0424      | 7   | 1   | RESISTOR 1.1K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1101-F  |
| A16R12                | 0698-0084      | 9   |     | RESISTOR 2.15K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-2151-F  |
| A16R13                | 0698-3458      | 7   | 2   | RESISTOR 349K 1% .125W F TC=0+-100        | 28480    | 0698-3458         |
| A16R14                | 0757-0274      | 5   |     | RESISTOR 1.21K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1211-F  |
| A16R15                | 0698-3458      | 7   |     | RESISTOR 349K 1% .125W F TC=0+-100        | 28480    | 0698-3458         |

See introduction to this section for ordering information  
\*Indicates factory selected value



Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                              | Mfr Code | Mfr Part Number  |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A16R16                | 0698-3150      | 6   | 4   | RESISTOR 2.37K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-2371-F |
| A16R17                | 0757-0280      | 3   | 1   | RESISTOR 1K 1% .125W F TC=0+-100         | 24546    | C4-1/8-T0-1001-F |
| A16R18                | 0757-0461      | 2   | 1   | RESISTOR 68.1K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-6812-F |
| A16R19                | 0757-0407      | 6   | 2   | RESISTOR 200 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-201-F  |
| A16R20                | 0698-3150      | 6   |     | RESISTOR 2.37K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-2371-F |
| A16R21                | 0757-0239      | 7   |     | RESISTOR 5.62K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-5621-F |
| A16R22                | 0698-3150      | 6   |     | RESISTOR 2.37K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-2371-F |
| A16R23                | 0757-0208      | 7   |     | RESISTOR 5.62K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-5621-F |
| A16R24                | 0757-0407      | 6   | 2   | RESISTOR 200 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-201-F  |
| A16R25                | 0757-0271      | 3   | 5   | RESISTOR 1.21K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-1211-F |
| A16R26                | 0698-3150      | 6   |     | RESISTOR 2.37K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-2371-F |
| A16R27                | 2100-3274      | 0   | 2   | RESISTOR-TRMK 10K 10% C SIDE-ADJ 1-TRN   | 28480    | 2100-3274        |
| A16R28                | 0757-0417      | 2   | 2   | RESISTOR 562 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-562R-F |
| A16R29                | 0698-3454      | 3   | 2   | RESISTOR 215K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-2153-F |
| A16R30                | 0698-3151      | 7   | 8   | RESISTOR 2.87K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-2871-F |
| A16R31                | 0698-3162      | 0   | 1   | RESISTOR 46.4K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-4642-F |
| A16R32                | 0698-3454      | 3   |     | RESISTOR 215K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-2153-F |
| A16R33                | 0698-3151      | 7   |     | RESISTOR 2.87K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-2871-F |
| A16R34                | 2100-3274      | 0   | 2   | RESISTOR-TRMK 10K 10% C SIDE-ADJ 1-TRN   | 28480    | 2100-3274        |
| A16R35                | 0757-0417      | 2   | 8   | RESISTOR 562 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-562R-F |
| A16R36                | 0757-0442      | 9   | 2   | RESISTOR 10K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1002-F |
| A16R37                | 0698-3151      | 7   |     | RESISTOR 2.87K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-2871-F |
| A16R38                | 0698-3151      | 7   |     | RESISTOR 2.87K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-2871-F |
| A16R39                | 0698-3151      | 7   |     | RESISTOR 2.87K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-2871-F |
| A16R40                | 0757-0427      | 0   | 1   | RESISTOR 1.5K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1501-F |
| A16R41                | 0698-3152      | 8   | 1   | RESISTOR 3.48K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-3481-F |
| A16R42                | 0698-3151      | 7   |     | RESISTOR 2.87K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-2871-F |
| A16R43                | 0698-3151      | 7   |     | RESISTOR 2.87K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-2871-F |
| A16R44                | 0698-3151      | 7   |     | RESISTOR 2.87K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-2871-F |
| A16R45                | 0757-0442      | 9   |     | RESISTOR 10K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1002-F |
| A16TP1                | 0360-1682      | 0   | 7   | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A16TP2                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A16TP3                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A16TP4                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A16TP5                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A16TP6                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A16TP7                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682        |
| A16U1                 | 1820-1430      | 3   | 4   | IC CNTR TTL LS BIN SYNCHRO POS-EDGE-TRIG | 01295    | SN74LS161AN      |
| A16U2                 | 1818-0438      | 4   | 3   | IC NMOS 4096 (4K) STAT RAM 450-NS 3-S    | 01295    | TMS2114-45NL     |
| A16U3                 | 1820-1428      | 9   | 2   | IC MUXR/DATA-SEL TTL LS 2-T0-1-LINE QUAD | 01295    | SN74LS158N       |
| A16U4                 | 1820-1430      | 3   |     | IC CNTR TTL LS BIN SYNCHRO POS-EDGE-TRIG | 01295    | SN74LS161AN      |
| A16U5                 | 1818-0438      | 4   |     | IC NMOS 4096 (4K) STAT RAM 450-NS 3-S    | 01295    | TMS2114-45NL     |
| A16U6                 | 1820-1428      | 9   |     | IC MUXR/DATA-SEL TTL LS 2-T0-1-LINE QUAD | 01295    | SN74LS158N       |
| A16U7                 | 1820-1430      | 3   |     | IC CNTR TTL LS BIN SYNCHRO POS-EDGE-TRIG | 01295    | SN74LS161AN      |
| A16U8                 | 1818-0438      | 4   |     | IC NMOS 4096 (4K) STAT RAM 450-NS 3-S    | 01295    | TMS2114-45NL     |
| A16U9                 | 1820-1210      | 7   | 1   | IC GATE TTL LS AND-OR-INV DUAL 2-IMP     | 01295    | SN74LS51N        |
| A16U10                | 1820-1197      | 9   | 3   | IC GATE TTL LS NAND QUAD 2-IMP           | 01295    | SN74LS00N        |
| A16U11                | 1820-1081      | 0   | 1   | IC DRVR TTL S BUS QUAD                   | 18324    | 8T26AN           |
| A16U12                | 1820-2673      | 4   | 1   | IC TRANSCIEVER TTL LS BUS DCTL           | 01295    | SN74LS245N       |
| A16U13                | 1820-1208      | 3   | 1   | IC GATE TTL LS OR QUAD 2-IMP             | 01295    | SN74LS32N        |
| A16U14                | 1820-2861      | 6   | 1   | IC DCDR TTL F 3-T0-B-LINE                | 07263    | 74F138PC         |
| A16U15                | 1820-1730      | 6   | 4   | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM    | 01295    | SN74LS273N       |
| A16U16                | 1820-1430      | 3   |     | IC CNTR TTL LS BIN SYNCHRO POS-EDGE-TRIG | 01295    | SN74LS161AN      |
| A16U17                | 1820-1197      | 9   |     | IC GATE TTL LS NAND QUAD 2-IMP           | 01295    | SN74LS00N        |
| A16U18                | 1820-1204      | 9   | 1   | IC GATE TTL LS NAND DUAL 4-IMP           | 01295    | SN74LS20N        |
| A16U19                | 1820-1112      | 8   | 2   | IC FF TTL LS D-TYPE POS-EDGE-TRIG        | 01295    | SN74LS74AN       |
| A16U20                | 1820-1197      | 9   |     | IC GATE TTL LS NAND QUAD 2-IMP           | 01295    | SN74LS00N        |
| A16U21                | 1820-1144      | 6   | 1   | IC GATE TTL LS NOR QUAD 2-IMP            | 01295    | SN74LS02N        |
| A16U22                | 1820-1416      | 5   | 1   | IC SCHMITT-TRIG TTL LS INV HEX 1-IMP     | 01295    | SN74LS14N        |
| A16U23                | 1820-1433      | 6   | 1   | IC SWP-RSTR TTL LS R-S SERIAL-IN PRL-DUT | 01295    | SN74LS164N       |
| A16U24                | 1820-1211      | 8   | 1   | IC GATE TTL LS EXCL-OR QUAD 2-IMP        | 01295    | SN74LS86AN       |
| A16U25                | 1820-1730      | 6   |     | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM    | 01295    | SN74LS273N       |
| A16U26                | 1820-1730      | 6   |     | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM    | 01295    | SN74LS273N       |
| A16U27                | 1820-1112      | 8   |     | IC FF TTL LS D-TYPE POS-EDGE-TRIG        | 01295    | SN74LS74AN       |
| A16U28*               | 05180-80013    | 6   | 1   | PRM 74S188                               | 28480    | 05180-80013      |
| A16U29                | 1826-0462      | 1   | 2   | IC CONV 10-B-D/A 16-DIP-C PKG            | 04713    | MC3410CL         |
| A16U30                | 1820-1730      | 6   |     | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM    | 01295    | SN74LS273N       |
| A16U31                | 1826-0462      | 1   |     | IC CONV 10-B-D/A 16-DIP-C PKG            | 04713    | MC3410CL         |
| A16U32                | 1826-0348      | 2   | 1   | IC AUDIO AMPL DUAL 14-DIP-P PKG          | 27814    | LM377N           |
| A16U33                | 1826-0522      | 4   | 2   | IC OP AMP LOW-BIAS-H-IMP QUAD 14-DIP-P   | 31295    | LM374CN          |
| A16U34                | 1820-1313      | 1   | 1   | IC MULTIPLXN 2-CHAN-ANLG TRIPLE 16-DIP-P | 31585    | CD4053BE         |
| A16U35                | 1826-0522      | 4   |     | IC OP AMP LOW-BIAS-H-IMP QUAD 14-DIP-P   | 01295    | LM374CN          |
| A16U36                | 1826-0412      | 1   | 1   | IC COMPARATOR PRCN DUAL 8-DIP-P PKG      | 27014    | LM393N           |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                         | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|-------------------------------------|----------|-----------------|
|                       |                |     |     | A16 MISCELLANEOUS                   |          |                 |
|                       | 1400-0249      | 0   | 4   | CABLE TIE .062-.625-DIA .091-WD NYL | 28480    | 1400-0249       |
|                       | 1480-0116      | 8   | 2   | PIN-GRV .662-IN-DIA .25-IN-LG STL   | 28480    | 1480-0116       |
|                       | 4040-0749      | 4   | 1   | EXTR-PC BD BRN POLYC .062-BD-THKNS  | 28480    | 4040-0749       |
|                       | 4040-0754      | 1   | 1   | EXTR-PC BD BLU POLYC .062-BD-THKNS  | 28480    | 4040-0754       |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                             | Mfr Code | Mfr Part Number  |
|-----------------------|----------------|-----|-----|-----------------------------------------|----------|------------------|
| A17                   | 05180-60017    | 8   | 1   | ROM/XYZ CLOCK (SERIES 2434)             | 28480    | 05180-60017      |
| A17C1                 | 0160-3879      | 7   | 12  | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A17C2                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A17C3                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A17C4                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A17C5                 |                |     |     | NOT ASSIGNED                            |          |                  |
| A17C6                 |                |     |     | NOT ASSIGNED                            |          |                  |
| A17C7                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A17C8                 | 0160-3874      | 2   | 2   | CAPACITOR-FXD 10PF +-5PF 200VDC CER     | 28480    | 0160-3874        |
| A17C9                 | 0160-3874      | 2   |     | CAPACITOR-FXD 10PF +-5PF 200VDC CER     | 28480    | 0160-3874        |
| A17C10                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A17C11                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A17C12                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A17C13                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A17C14                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A17C15                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A17C16                | 0180-1746      | 5   | 1   | CAPACITOR-FXD 15UF+-10% 20VDC TA        | 56289    | 150D156X9020B2   |
| A17C17                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER    | 28480    | 0160-3879        |
| A17L1                 | 9100-1788      | 6   | 1   | CORE-FERRITE CHOKE-WIDEBAND; IMP: >680  | 28480    | 9100-1788        |
| A17R1                 | 0757-0444      | 1   | 2   | RESISTOR 12.1K 1% .125W F TC=0+-100     | 24546    | C4-1/B-T0-1212-F |
| A17R2                 | 0757-0444      | 1   |     | RESISTOR 12.1K 1% .125W F TC=0+-100     | 24546    | C4-1/B-T0-1212-F |
| A17R3                 | 2100-3274      | 2   | 1   | RESISTOR-TRMR 10K 10% C SIDE-ADJ 1-TRN  | 28480    | 2100-3274        |
| A17R4                 | 0757-0394      | 0   | 1   | RESISTOR 51.1 1% .125W F TC=0+-100      | 24546    | C4-1/B-T0-51R1-F |
| A17R5                 | 1816-0279      | 5   | 1   | NETWORK-RES 10-SIP4.7K OHM X 9          | 61121    | 210A472          |
| A17R6                 | 3698-2155      | 1   | 1   | RESISTOR 4.64K 1% .125W F TC=0+-100     | 24546    | C4-1/B-T0-4641-F |
| A17TP1                | 0360-1682      | 0   | 7   | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682        |
| A17TP2                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682        |
| A17TP3                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682        |
| A17TP4                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682        |
| A17TP5                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682        |
| A17TP6                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682        |
| A17TP7                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG         | 28480    | 0360-1682        |
| A17U1                 | 1810-3371      | 0   | 1   | IC NMOS 65536 (64K) ROM 450-NS 3-S      | 31471    | 52364-P MASKED   |
| A17U2                 |                |     |     | NOT ASSIGNED                            |          |                  |
| A17U3                 | 1810-3372      | 1   | 1   | IC NMOS 65536 (64K) ROM 450-NS 3-S      | 31471    | 52364-P MASKED   |
| A17U4                 |                |     |     | NOT ASSIGNED                            |          |                  |
| A17U9                 |                |     |     | NOT ASSIGNED                            |          |                  |
| A17U10                | 1820-1423      | 4   | 1   | IC MV TTL LS MONOSTBL RETRIG DUAL       | 01295    | SN74LS123N       |
| A17U11                | 1820-2206      | 3   | 1   | IC TRANSCEIVER TTL LS BUS OCTL          | 01295    | SN74LS640N       |
| A17U12                | 1820-2024      | 3   | 2   | IC DRVR TTL LS LINE DRVR OCTL           | 01295    | SN74LS244N       |
| A17U13                | 1820-2024      | 3   |     | IC DRVR TTL LS LINE DRVR OCTL           | 01295    | SN74LS244N       |
| A17U14                | 1820-0661      | 0   | 1   | IC GATE TTL GR QUAD 2-INP               | 01295    | SN7432N          |
| A17U15                | 1820-0282      | 1   | 1   | IC GATE TTL EXCL-OR QUAD 2-INP          | 01295    | SN7486N          |
| A17U16                | 1820-1216      | 3   | 2   | IC DCDR TTL LS 3-TO-8-LINE 3-INP        | 01295    | SN74LS138N       |
| A17U17                | 1820-1204      | 9   | 1   | IC GATE TTL LS NAND DUAL 4-INP          | 01295    | SN74LS20N        |
| A17U18                | 1820-1416      | 5   | 1   | IC SCHMITT-TRIG TTL LS INV HEX 1-INP    | 01295    | SN74LS14N        |
| A17U19                | 1820-1414      | 3   | 1   | IC GATE TTL LS NAND TPL 3-INP           | 01295    | SN74LS12N        |
| A17U20                | 1820-1216      | 3   |     | IC DCDR TTL LS 3-TO-8-LINE 3-INP        | 01295    | SN74LS138N       |
| A17U21                | 1820-1917      | 1   | 1   | IC DRVR TTL LS LINE OCTL                | 01295    | SN74LS240N       |
| A17U22                | 1820-1430      | 3   | 1   | IC CNTR TTL LS BIN SYNCRG POS-EDGE-TRIG | 01295    | SN74LS161AN      |
| A17U23                | 1820-1112      | 8   | 1   | IC FF TTL LS D-TYPE POS-EDGE-TRIG       | 01295    | SN74LS74AN       |
| A17U24                | 1820-1197      | 9   | 1   | IC GATE TTL LS NAND QUAD 2-INP          | 01295    | SN74LS60N        |
| A17W1                 |                |     |     | NOT ASSIGNED                            |          |                  |
| A17W2                 | 8159-0005      | 0   | 3   | RESISTOR-ZERO OHMS 22 AWG LEAD DIA      | 28480    | 8159-0005        |
| A17W3                 |                |     |     | NOT ASSIGNED                            |          |                  |
| A17W4                 | 8159-0005      | 0   |     | RESISTOR-ZERO OHMS 22 AWG LEAD DIA      | 28480    | 8159-0005        |
| A17W5                 | 8159-0005      | 0   |     | RESISTOR-ZERO OHMS 22 AWG LEAD DIA      | 28480    | 8159-0005        |
| A17W6                 |                |     |     | NOT ASSIGNED                            |          |                  |
|                       |                |     |     | A17 MISCELLANEOUS                       |          |                  |
|                       | 1480-0116      | 8   | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL       | 28480    | 1480-0116        |
|                       | 4040-0749      | 4   | 1   | EXTR-PC BD BRH POLYC .062-BD-THKNS      | 28480    | 4040-0749        |
|                       | 4040-0755      | 2   | 1   | EXTR-PC BD VIO POLYC .062-BD-THKNS      | 28480    | 4040-0755        |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                                    | Mfr Code | Mfr Part Number  |
|-----------------------|----------------|-----|-----|------------------------------------------------|----------|------------------|
| A18                   | 05180-60018    | 9   | 1   | FRONT PANEL/DISPLAY INTERFACE<br>(SERIES 2400) | 20480    | 05180-60018      |
| A18C1                 | 0160-3879      | 7   | 12  | CAPACITOR-FXD .01UF +-20% 100VDC CER           | 20480    | 0160-3879        |
| A18C2                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER           | 20480    | 0160-3879        |
| A18C3                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER           | 20480    | 0160-3879        |
| A18C4                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER           | 20480    | 0160-3879        |
| A18C5                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER           | 20480    | 0160-3879        |
| A18C6                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER           | 20480    | 0160-3879        |
| A18C7                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER           | 20480    | 0160-3879        |
| A18C8                 | 0180-2815      | 1   | 3   | CAPACITOR-FXD 100UF+-20% 10VDC TA              | 20480    | 0180-2815        |
| A18C9                 | 0180-2815      | 1   |     | CAPACITOR-FXD 100UF+-20% 10VDC TA              | 20480    | 0180-2815        |
| A18C10                | 0180-2815      | 1   |     | CAPACITOR-FXD 100UF+-20% 10VDC TA              | 20480    | 0180-2815        |
| A18C11                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER           | 20480    | 0160-3879        |
| A18C12                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER           | 20480    | 0160-3879        |
| A18C13                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER           | 20480    | 0160-3879        |
| A18C14                | 0160-3878      | 6   | 1   | CAPACITOR-FXD 1000PF +-20% 100VDC CER          | 20480    | 0160-3878        |
| A18C15                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER           | 20480    | 0160-3879        |
| A18C16                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER           | 20480    | 0160-3879        |
| A18L1                 | 9100-3139      | 5   | 2   | INDUCTOR 75UH 15% .5DX.075LG                   | 20480    | 9100-3139        |
| A18L2                 | 9100-3139      | 5   |     | INDUCTOR 75UH 15% .5DX.075LG                   | 20480    | 9100-3139        |
| A18Q1                 | 1854-0215      | 1   | 1   | TRANSISTOR NPN SI PD=350MW FT=300MHZ           | 04713    | 2N3904           |
| A18R1                 | 0698-0084      | 9   | 10  | RESISTOR 2.15K 1% .125W F TC=0+-100            | 24546    | C4-1/8-T0-2151-F |
| A18R2                 | 0757-0394      | 0   | 1   | RESISTOR 31.1 1% .125W F TC=0+-100             | 24546    | C4-1/8-T0-31R1-F |
| A18R3                 | 0698-0084      | 9   |     | RESISTOR 2.15K 1% .125W F TC=0+-100            | 24546    | C4-1/8-T0-2151-F |
| A18R4                 | 0698-0084      | 9   |     | RESISTOR 2.15K 1% .125W F TC=0+-100            | 24546    | C4-1/8-T0-2151-F |
| A18R5                 | 0698-0084      | 9   |     | RESISTOR 2.15K 1% .125W F TC=0+-100            | 24546    | C4-1/8-T0-2151-F |
| A18R6                 | 0698-0084      | 9   |     | RESISTOR 2.15K 1% .125W F TC=0+-100            | 24546    | C4-1/8-T0-2151-F |
| A18R7                 | 0698-0084      | 9   |     | RESISTOR 2.15K 1% .125W F TC=0+-100            | 24546    | C4-1/8-T0-2151-F |
| A18R8                 | 0698-0084      | 9   |     | RESISTOR 2.15K 1% .125W F TC=0+-100            | 24546    | C4-1/8-T0-2151-F |
| A18R9                 | 0698-0084      | 9   |     | RESISTOR 2.15K 1% .125W F TC=0+-100            | 24546    | C4-1/8-T0-2151-F |
| A18R10                | 0698-0084      | 9   |     | RESISTOR 2.15K 1% .125W F TC=0+-100            | 24546    | C4-1/8-T0-2151-F |
| A18R11                | 1810-0275      | 1   | 1   | NETWORK-RES 10-SIP1.0K OHM X 9                 | 01121    | 210A02           |
| A18R12                | 0698-0084      | 9   |     | RESISTOR 2.15K 1% .125W F TC=0+-100            | 24546    | C4-1/8-T0-2151-F |
| A18R13                | 0698-3444      | 1   | 8   | RESISTOR 316 1% .125W F TC=0+-100              | 24546    | C4-1/8-T0-316R-F |
| A18R14                | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100              | 24546    | C4-1/8-T0-316R-F |
| A18R15                | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100              | 24546    | C4-1/8-T0-316R-F |
| A18R16                | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100              | 24546    | C4-1/8-T0-316R-F |
| A18R17                | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100              | 24546    | C4-1/8-T0-316R-F |
| A18R18                | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100              | 24546    | C4-1/8-T0-316R-F |
| A18R19                | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100              | 24546    | C4-1/8-T0-316R-F |
| A18R20                | 0698-3444      | 1   |     | RESISTOR 316 1% .125W F TC=0+-100              | 24546    | C4-1/8-T0-316R-F |
| A18R21                | 1810-0277      | 3   | 2   | NETWORK-RES 10-SIP2.2K OHM X 9                 | 01121    | 210A22           |
| A18R22                | 0698-3155      | 1   | 1   | RESISTOR 4.64K 1% .125W F TC=0+-100            | 24546    | C4-1/8-T0-4641-F |
| A18R25                | 1810-0277      | 3   |     | NETWORK-RES 10-SIP2.2K OHM X 9                 | 01121    | 210A22           |
| A18TP1                | 0360-1682      | 0   | 4   | TERMINAL-STUD SCL-TUR PRESS-MTG                | 20480    | 0360-1682        |
| A18TP2                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG                | 20480    | 0360-1682        |
| A18TP3                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG                | 20480    | 0360-1682        |
| A18TP4                | 0360-1682      | 0   |     | TERMINAL-STUD SCL-TUR PRESS-MTG                | 20480    | 0360-1682        |
| A18U1                 | 1820-1197      | 9   | 2   | IC GATE TTL LS NAND QUAD 2-INP                 | 01295    | SN74LS00N        |
| A18U2                 | 1820-1858      | 9   | 2   | IC FF TTL LS D-TYPE OCTL                       | 01295    | SN74LS377N       |
| A18U3                 | 1820-1211      | 8   | 1   | IC GATE TTL LS EXCL-OR QUAD 2-INP              | 01295    | SN74LS66N        |
| A18U4                 | 1820-2024      | 3   | 1   | IC DRVR TTL LS LINE DRVR OCTL                  | 01295    | SN74LS244N       |
| A18U5                 | 1820-2206      | 3   | 1   | IC TRANSCEIVER TTL LS BUS OCTL                 | 01295    | SN74LS640N       |
| A18U6                 | 1820-2158      | 6   | 1   | IC MICPROC-ACCESS NMOS                         | 34649    | 08279-0          |
| A18U7                 | 1820-1858      | 9   |     | IC FF TTL LS D-TYPE OCTL                       | 01295    | SN74LS377N       |
| A18U8                 | 1820-1216      | 3   | 1   | IC DCOR TTL LS 3-TO-0-LINE 3-INP               | 01295    | SN74LS130N       |
| A18U9                 | 1820-1199      | 1   | 2   | IC INV TTL LS HEX 1-INP                        | 01295    | SN74LS64N        |
| A18U10                | 1820-1267      | 2   | 1   | IC GATE TTL LS NAND 8-INP                      | 01295    | SN74LS30N        |
| A18U11                | 1858-0010      | 2   | 2   | TRANSISTOR ARRAY 14-PIN PLSTC DIP              | 04713    | HP02906          |
| A18U12                | 1858-0010      | 2   |     | TRANSISTOR ARRAY 14-PIN PLSTC DIP              | 04713    | HP02906          |
| A18U13                | 1820-0068      | 1   | 2   | IC GATE TTL NAND TPL 3-INP                     | 01295    | SN7410N          |
| A18U14                | 1820-0068      | 1   |     | IC GATE TTL NAND TPL 3-INP                     | 01295    | SN7410N          |
| A18U15                | 1820-1274      | 3   | 1   | IC GATE TTL LS NAND DUAL 4-INP                 | 01295    | SN74LS22N        |
| A18U16                | 1820-1112      | 8   | 2   | IC FF TTL LS D-TYPE POS-EDGE-TRIG              | 01295    | SN74LS74AN       |
| A18U17                | 1820-1112      | 8   |     | IC FF TTL LS D-TYPE POS-EDGE-TRIG              | 01295    | SN74LS74AN       |
| A18U18                | 1820-1197      | 9   |     | IC GATE TTL LS NAND QUAD 2-INP                 | 01295    | SN74LS00N        |
| A18U19                | 1820-1199      | 1   |     | IC INV TTL LS HEX 1-INP                        | 01295    | SN74LS64N        |
| A18U20                | 1820-1423      | 4   | 1   | IC MV TTL LS MONOSTBL RETRIG DUAL              | 01295    | SN74LS123N       |
| A18U21                | 1820-1427      | 8   | 1   | IC DCOR TTL LS 2-TO-4-LINE DUAL 2-INP          | 01295    | SN74LS156N       |
| A18U22                | 1820-1470      | 1   | 1   | IC MUXR/DATA-SEL TTL LS 2-TO-1-LINE QUAD       | 01295    | SN74LS157N       |
| A18U23                | 1820-0174      | 0   | 1   | IC INV TTL HEX                                 | 01295    | SN7404N          |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C<br>D | Qty | Description                         | Mfr Code | Mfr Part Number |
|-----------------------|----------------|--------|-----|-------------------------------------|----------|-----------------|
|                       |                |        |     | A18 MISCELLANEOUS                   |          |                 |
|                       | 1400-0249      | 0      | 2   | CABLE TIE .062-.625-DIA .891-WD NYL | 28480    | 1400-0249       |
|                       | 1400-0116      | 0      | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL   | 28480    | 1400-0116       |
|                       | 4840-0747      | 2      | 1   | EXTR-PC BD CRA POLYC .062-BD-THKNS  | 28480    | 4840-0747       |
|                       | 4848-0749      | 4      | 1   | EXTR-PC BD ERN POLYC .062-BD-THKNS  | 28480    | 4848-0749       |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                          | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|--------------------------------------|----------|-----------------|
| A19                   | 05100-60319    | 3   | 1   | MOTHERBOARD (SERIES 2328)            | 28480    | 05100-60319     |
| A19J1                 | 1200-0519      | 3   | 2   | SOCKET-IC 16-CONT DIP-SLDR           | 28480    | 1200-0519       |
| A19J2                 | 1251-7295      | 3   | 2   | CONN-RECT MICRODIN 36-CKT 36-CONT    | 28480    | 1251-7295       |
| A19J3                 | 1251-7295      | 3   |     | CONN-RECT MICRODIN 36-CKT 36-CONT    | 28480    | 1251-7295       |
| A19J4                 | 1200-0519      | 3   |     | SOCKET-IC 16-CONT DIP-SLDR           | 28480    | 1200-0519       |
| A19R1                 | 1810-0668      | 6   | 4   | NETWORK-RES 8-SIP MULTI-VALUE        | 28480    | 1810-0668       |
| A19R2                 | 1810-0668      | 6   |     | NETWORK-RES 8-SIP MULTI-VALUE        | 28480    | 1810-0668       |
| A19R3                 | 1810-0668      | 6   |     | NETWORK-RES 8-SIP MULTI-VALUE        | 28480    | 1810-0668       |
| A19R4                 | 1810-0668      | 6   |     | NETWORK-RES 8-SIP MULTI-VALUE        | 28480    | 1810-0668       |
| A19W1                 |                |     |     | NOT ASSIGNED                         |          |                 |
| A19W2                 | 8159-0005      | 0   | 2   | RESISTOR-ZERO OHMS 22 AWG LEAD DIA   | 28480    | 8159-0005       |
| A19W3                 | 05180-60118    | 8   | 1   | CBL AY-5106 PWR                      | 28480    | 05180-60118     |
| A19W4                 | 8159-0005      | 0   |     | RESISTOR-ZERO OHMS 22 AWG LEAD DIA   | 28480    | 8159-0005       |
| A19XA1A               | 1251-2026      | 8   | 22  | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA1B               | 1251-1365      | 6   |     | CONNECTOR-PC EDGE 22-CONT/ROW 2-ROWS | 28480    | 1251-1365       |
| A19XA2A               | 1251-2026      | 8   | 8   | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA2B               | 1251-1365      | 6   |     | CONNECTOR-PC EDGE 22-CONT/ROW 2-ROWS | 28480    | 1251-1365       |
| A19XA3A               | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA3B               | 1251-1365      | 6   |     | CONNECTOR-PC EDGE 22-CONT/ROW 2-ROWS | 28480    | 1251-1365       |
| A19XA4A               | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA4B               | 1251-1365      | 6   |     | CONNECTOR-PC EDGE 22-CONT/ROW 2-ROWS | 28480    | 1251-1365       |
| A19XA5A               | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA5B               | 1251-1365      | 6   |     | CONNECTOR-PC EDGE 22-CONT/ROW 2-ROWS | 28480    | 1251-1365       |
| A19XA6A               | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA6B               | 1251-1365      | 6   |     | CONNECTOR-PC EDGE 22-CONT/ROW 2-ROWS | 28480    | 1251-1365       |
| A19XA7A               | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA7B               | 1251-2582      | 1   | 4   | CONNECTOR-PC EDGE 24-CONT/ROW 2-ROWS | 28480    | 1251-2582       |
| A19XA8A               | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA8B               | 1251-2582      | 1   |     | CONNECTOR-PC EDGE 24-CONT/ROW 2-ROWS | 28480    | 1251-2582       |
| A19XA9A               | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA9B               | 1251-2582      | 1   |     | CONNECTOR-PC EDGE 24-CONT/ROW 2-ROWS | 28480    | 1251-2582       |
| A19XA10A              | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA10B              | 1251-2582      | 1   |     | CONNECTOR-PC EDGE 24-CONT/ROW 2-ROWS | 28480    | 1251-2582       |
| A19XA11A              | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA11B              | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA12A              | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA12B              | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA13A              | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA13B              | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA14A              | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA14B              | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA15A              | 1251-1365      | 6   |     | CONNECTOR-PC EDGE 22-CONT/ROW 2-ROWS | 28480    | 1251-1365       |
| A19XA16A              | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA16B              | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA17A              | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA17B              | 1251-2026      | 8   |     | CONNECTOR-PC EDGE 18-CONT/ROW 2-ROWS | 28480    | 1251-2026       |
| A19XA18A              | 1251-1365      | 6   |     | CONNECTOR-PC EDGE 22-CONT/ROW 2-ROWS | 28480    | 1251-1365       |
|                       | 05180-68319    | 9   | 1   | BD AY-PCL 68319                      | 28480    | 05180-68319     |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                                                                                                                                                                        | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|
| A20                   | 05180-60020    | 3   | 1   | INPUT AMPLIFIER (SERIES 2420)<br><br>NOTE:<br><br>HYBRID U16 IS NOT SUPPLIED AS PART OF THIS BOARD. REFER TO CHASSIS PARTS AT END OF PARTS LIST FOR THE PART NUMBER, TO ORDER U16. | 28489    | 05180-60020     |
| A20C1                 | 0160-3455      | 5   | 61  | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C2                 | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C3                 | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C4                 | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C5                 | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C6                 | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C7                 | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C8                 | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C9                 | 0160-3453      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C10                | 0160-0207      | 9   | 1   | CAPACITOR-FXD .01UF +-5% 200VDC POLYE                                                                                                                                              | 28480    | 0160-0207       |
| A20C11                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C12                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C13                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C14                | 0160-0576      | 5   | 13  | CAPACITOR-FXD .1UF +-20% 50VDC CER                                                                                                                                                 | 28480    | 0160-0576       |
| A20C15                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C16                | 0180-2818      | 4   | 17  | CAPACITOR-FXD 2.2UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2818       |
| A20C17                | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER                                                                                                                                                 | 28480    | 0160-0576       |
| A20C18                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C19                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C20                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C21                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C22                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C23                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C24                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C25                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2818       |
| A20C26                |                |     |     | NOT ASSIGNED                                                                                                                                                                       |          |                 |
| A20C27                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C28                |                |     |     | NOT ASSIGNED                                                                                                                                                                       |          |                 |
| A20C29                | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER                                                                                                                                                 | 28480    | 0160-0576       |
| A20C30                | 0180-2820      | 8   | 5   | CAPACITOR-FXD .22UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2820       |
| A20C31                | 0180-2821      | 9   | 6   | CAPACITOR-FXD .22UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2821       |
| A20C32                | 0180-2821      | 9   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2821       |
| A20C33                | 0180-2820      | 8   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2820       |
| A20C34                | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER                                                                                                                                                 | 28480    | 0160-0576       |
| A20C35                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2818       |
| A20C36                | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER                                                                                                                                                 | 28480    | 0160-0576       |
| A20C37                | 0180-2821      | 9   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2821       |
| A20C38                | 0180-2820      | 8   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2820       |
| A20C39                | 0180-2821      | 9   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2821       |
| A20C40                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C41                | 0180-2820      | 8   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2820       |
| A20C42                | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER                                                                                                                                                 | 28480    | 0160-0576       |
| A20C43                | 0180-2821      | 9   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2821       |
| A20C44                | 0180-2821      | 9   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2821       |
| A20C45                | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER                                                                                                                                                 | 28480    | 0160-0576       |
| A20C46                | 0180-2820      | 8   |     | CAPACITOR-FXD .22UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2820       |
| A20C47                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C48                | 0180-0418      | 6   | 4   | CAPACITOR-FXD 1UF+-20% 35VDC TA                                                                                                                                                    | 28480    | 0180-0418       |
| A20C49                | 0180-0418      | 6   |     | CAPACITOR-FXD 1UF+-20% 35VDC TA                                                                                                                                                    | 28480    | 0180-0418       |
| A20C50                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C51                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C52                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C53                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C54                | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER                                                                                                                                                 | 28480    | 0160-0576       |
| A20C55                | 0121-0535      | 4   | 2   | CAPACITOR-V TRMR-PTN .25-1.5PF 1500V                                                                                                                                               | 28480    | 0121-0535       |
| A20C56                |                |     |     | NOT ASSIGNED                                                                                                                                                                       |          |                 |
| A20C57                |                |     |     | NOT ASSIGNED                                                                                                                                                                       |          |                 |
| A20C58                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C59                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2818       |
| A20C60                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C61                | 0180-2811      | 7   | 2   | CAPACITOR-FXD .10UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2811       |
| A20C62                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C63                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER                                                                                                                                                | 28480    | 0160-3455       |
| A20C64                | 0160-0576      | 5   |     | CAPACITOR-FXD .1UF +-20% 50VDC CER                                                                                                                                                 | 28480    | 0160-0576       |
| A20C65                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA                                                                                                                                                  | 28480    | 0180-2818       |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                           | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|---------------------------------------|----------|-----------------|
| A20C66                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C67                | 0160-0418      | 6   |     | CAPACITOR-FXD 10UF+-20% 35VDC TA      | 28480    | 0160-0418       |
| A20C68                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C69                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C70                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C71                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C72                | 0160-0576      | 5   |     | CAPACITOR-FXD .10UF +-20% 50VDC CER   | 28480    | 0160-0576       |
| A20C73                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C74                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C75                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C76                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA     | 28480    | 0180-2818       |
| A20C77                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C78                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA     | 28480    | 0180-2818       |
| A20C79                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA     | 28480    | 0180-2818       |
| A20C80                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA     | 28480    | 0180-2818       |
| A20C81                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C82                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C83                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C84                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA     | 28480    | 0180-2818       |
| A20C85                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C86                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C87                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C88                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA     | 28480    | 0180-2818       |
| A20C89                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C90                |                |     |     | NOT ASSIGNED                          |          |                 |
| A20C91                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA     | 28480    | 0180-2818       |
| A20C92                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C93                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA     | 28480    | 0180-2818       |
| A20C94                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA     | 28480    | 0180-2818       |
| A20C95                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C96                | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA     | 28480    | 0180-2818       |
| A20C97                | 0160-0576      | 5   |     | CAPACITOR-FXD .10UF +-20% 50VDC CER   | 28480    | 0160-0576       |
| A20C98                | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C99                | 0160-0576      | 5   |     | CAPACITOR-FXD .10UF +-20% 50VDC CER   | 28480    | 0160-0576       |
| A20C100               | 0160-0576      | 5   |     | CAPACITOR-FXD .10UF +-20% 50VDC CER   | 28480    | 0160-0576       |
| A20C101               | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA     | 28480    | 0180-2818       |
| A20C102               | 0180-0418      | 6   |     | CAPACITOR-FXD 10UF+-20% 35VDC TA      | 28480    | 0180-0418       |
| A20C103               | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C104               | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C105               | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C106               | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C107               | 0180-2818      | 4   |     | CAPACITOR-FXD 2.2UF+-20% 35VDC TA     | 28480    | 0180-2818       |
| A20C108               | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C109               | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C110               |                |     |     | NOT ASSIGNED                          |          |                 |
| A20C111               | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C112               | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C113               |                |     |     | NOT ASSIGNED                          |          |                 |
| A20C114               | 0180-2811      | 7   |     | CAPACITOR-FXD 10UF+-20% 35VDC TA      | 28480    | 0180-2811       |
| A20C115               | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C116               | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20C117               | 0121-0535      | 4   |     | CAPACITOR-V TRMR-PSTN .25-1.5PF 1000V | 28480    | 0121-0535       |
| A20C118               |                |     |     | NOT ASSIGNED                          |          |                 |
| A20C119               |                |     |     | NOT ASSIGNED                          |          |                 |
| A20C120               | 0160-3455      | 5   |     | CAPACITOR-FXD 470PF +-10% 1KVDC CER   | 28480    | 0160-3455       |
| A20CR1                | 1901-1080      | 1   | 2   | DIODE-SCHOTTKY 1N5817 20V 1A          | 28480    | 1901-1080       |
| A20CR2                | 1901-1080      | 1   |     | DIODE-SCHOTTKY 1N5817 20V 1A          | 28480    | 1901-1080       |
| A20CR3                | 1901-0734      | 0   | 1   | DIODE-PWR RECT 1N5818 30V 1A          | 04713    | 1N5818          |
| A20CR4                | 1901-0050      | 3   | 9   | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A20CR5                | 1901-0376      | 6   | 6   | DIODE-GEN PRP 35V 50MA DO-35          | 28480    | 1901-0376       |
| A20CR6                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A20CR7                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A20CR8                | 1901-0376      | 6   |     | DIODE-GEN PRP 35V 50MA DO-35          | 28480    | 1901-0376       |
| A20CR9                | 1901-0376      | 6   |     | DIODE-GEN PRP 35V 50MA DO-35          | 28480    | 1901-0376       |
| A20CR10               | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A20CR11               | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A20CR12               | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A20CR13               | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A20CR14               | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A20CR15               | 1901-0376      | 6   |     | DIODE-GEN PRP 35V 50MA DO-35          | 28480    | 1901-0376       |
| A20CR16               | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35   | 28480    | 1901-0050       |
| A20CR17               | 1901-0376      | 6   |     | DIODE-GEN PRP 35V 50MA DO-35          | 28480    | 1901-0376       |
| A20CR18               | 1901-0376      | 6   |     | DIODE-GEN PRP 35V 50MA DO-35          | 28480    | 1901-0376       |
| A20CR19               | 1901-0179      | 7   | 6   | DIODE-SWITCHING 15V 50MA 750PS DO-7   | 28480    | 1901-0179       |
| A20CR20               | 1901-0179      | 7   |     | DIODE-SWITCHING 15V 50MA 750PS DO-7   | 28480    | 1901-0179       |

See introduction to this section for ordering information  
\*Indicates factory selected value



Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                              | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A20R21                | 1901-0179      | 7   |     | DIODE-SWITCHING 15V 50MA 750PS DO-7      | 28480    | 1901-0179       |
| A20CR22-CR24          | 1901-0179      | 7   |     | DIODE-SWITCHING 15V 50MA 750PS DO-7      | 28480    | 1901-0179       |
| A20K1                 | 0490-1317      | 3   | 6   | RELAY-REED 1C 250MA 200VDC 5VDC-COIL 3VA | 28480    | 0490-1317       |
| A20K2                 | 0490-1317      | 3   |     | RELAY-REED 1C 250MA 200VDC 5VDC-COIL 3VA | 28480    | 0490-1317       |
| A20K3                 | 0490-1317      | 3   |     | RELAY-REED 1C 250MA 200VDC 5VDC-COIL 3VA | 28480    | 0490-1317       |
| A20K4                 | 0490-1360      | 6   | 2   | RELAY-REED 1B 250MA 100VDC 5VDC-COIL     | 28480    | 0490-1360       |
| A20K5                 | 0490-0670      | 9   | 1   | RELAY 2C 5VDC-COIL 1A 20VDC              | 28480    | 0490-0670       |
| A20K6                 | 0490-1317      | 3   |     | RELAY-REED 1C 250MA 200VDC 5VDC-COIL 3VA | 28480    | 0490-1317       |
| A20K7                 | 0490-1317      | 3   |     | RELAY-REED 1C 250MA 200VDC 5VDC-COIL 3VA | 28480    | 0490-1317       |
| A20K8                 | 0490-1360      | 4   |     | RELAY-REED 1B 250MA 100VDC 5VDC-COIL     | 28480    | 0490-1360       |
| A20K9                 | 0490-1317      | 3   |     | RELAY-REED 1C 250MA 200VDC 5VDC-COIL 3VA | 28480    | 0490-1317       |
| A20L1                 | 9100-1788      | 6   | 9   | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600   | 28480    | 9100-1788       |
| A20L2                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600   | 28480    | 9100-1788       |
| A20L3                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600   | 28480    | 9100-1788       |
| A20L4                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600   | 28480    | 9100-1788       |
| A20L5                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600   | 28480    | 9100-1788       |
| A20L6                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600   | 28480    | 9100-1788       |
| A20L7                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600   | 28480    | 9100-1788       |
| A20L8                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600   | 28480    | 9100-1788       |
| A20L9                 | 9100-1788      | 6   |     | CORE-FERRITE CHOKE-WIDEBAND; IMP: >600   | 28480    | 9100-1788       |
| A20L10                | 9100-2265      | 6   | 2   | INDUCTOR RF-CH-MLD 10UH 10% .105DX.26LG  | 28480    | 9100-2265       |
| A20L11                | 9100-2265      | 6   |     | INDUCTOR RF-CH-MLD 10UH 10% .105DX.26LG  | 28480    | 9100-2265       |
| A20MP2                | 05100-00050    | 1   | 1   | HEAT SINK-FRONT                          | 28480    | 05100-00050     |
| A20P1A                | 1251-7294      | 2   | 2   | CONN-RECT MICROBEN 36-CKT 36-CONT        | 28480    | 1251-7294       |
| A20P1B                | 1251-7294      | 2   |     | CONN-RECT MICROBEN 36-CKT 36-CONT        | 28480    | 1251-7294       |
| A20Q1                 | 1854-0087      | 5   | 3   | TRANSISTOR NPN SI PD=360MW FT=75MHZ      | 28480    | 1854-0087       |
| A20Q2                 | 1854-0087      | 5   |     | TRANSISTOR NPN SI PD=360MW FT=75MHZ      | 28480    | 1854-0087       |
| A20Q3                 | 1854-0087      | 5   |     | TRANSISTOR NPN SI PD=360MW FT=75MHZ      | 28480    | 1854-0087       |
| A20Q4                 | 1853-0015      | 7   | 1   | TRANSISTOR PNP SI PD=200MW FT=500MHZ     | 28480    | 1853-0015       |
| A20Q5                 | 1853-0316      | 1   | 8   | TRANSISTOR-DUAL PNP PD=500MW             | 28480    | 1853-0316       |
| A20Q6                 | 1853-0316      | 1   |     | TRANSISTOR-DUAL PNP PD=500MW             | 28480    | 1853-0316       |
| A20Q7                 | 1854-0221      | 9   | 4   | TRANSISTOR-DUAL NPN PD=750MW             | 28480    | 1854-0221       |
| A20Q8                 | 1854-0221      | 9   |     | TRANSISTOR-DUAL NPN PD=750MW             | 28480    | 1854-0221       |
| A20Q9                 | 1854-0365      | 2   | 16  | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q10                | 1853-0066      | 8   | 4   | TRANSISTOR PNP SI TO-92 PD=625MW         | 28480    | 1853-0066       |
| A20Q11                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q12                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q13                | 1854-0457      | 3   | 2   | TRANSISTOR-DUAL NPN PD=400MW             | 28480    | 1854-0457       |
| A20Q14                | 1854-0457      | 3   |     | TRANSISTOR-DUAL NPN PD=400MW             | 28480    | 1854-0457       |
| A20Q15                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q16                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q17                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q18                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q19                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q20                | 1853-0066      | 8   |     | TRANSISTOR PNP SI TO-92 PD=625MW         | 28480    | 1853-0066       |
| A20Q21                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q22                | 1853-0405      | 9   | 6   | TRANSISTOR PNP SI PD=300MW FT=850MHZ     | 04713    | 2N4209          |
| A20Q23                | 1853-0405      | 9   |     | TRANSISTOR PNP SI PD=300MW FT=850MHZ     | 04713    | 2N4209          |
| A20Q24                | 1853-0405      | 9   |     | TRANSISTOR PNP SI PD=300MW FT=850MHZ     | 04713    | 2N4209          |
| A20Q25                | 1853-0405      | 9   |     | TRANSISTOR PNP SI PD=300MW FT=850MHZ     | 04713    | 2N4209          |
| A20Q26                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q27                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q28                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q29                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q30                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q31                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q32                | 1853-0066      | 8   |     | TRANSISTOR PNP SI TO-92 PD=625MW         | 28480    | 1853-0066       |
| A20Q33                | 1853-0066      | 8   |     | TRANSISTOR PNP SI TO-92 PD=625MW         | 28480    | 1853-0066       |
| A20Q34                | 1853-0405      | 9   |     | TRANSISTOR PNP SI PD=300MW FT=850MHZ     | 04713    | 2N4209          |
| A20Q35                | 1853-0405      | 9   |     | TRANSISTOR PNP SI PD=300MW FT=850MHZ     | 04713    | 2N4209          |
| A20Q36                | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ      | 04713    | 2N4410          |
| A20Q37                | 1855-0266      | 4   | 2   | TRANSISTOR-JFET DUAL N-CHAN D-MODE SI    | 28480    | 1855-0266       |
| A20Q38                | 1853-0316      | 1   |     | TRANSISTOR-DUAL PNP PD=500MW             | 28480    | 1853-0316       |
| A20Q39                | 1854-0221      | 1   |     | TRANSISTOR-DUAL NPN PD=750MW             | 28480    | 1854-0221       |
| A20Q40                | 1853-0316      | 1   |     | TRANSISTOR-DUAL PNP PD=500MW             | 28480    | 1853-0316       |
| A20Q41                | 1853-0316      | 1   |     | TRANSISTOR-DUAL PNP PD=500MW             | 28480    | 1853-0316       |
| A20Q42                | 1853-0316      | 1   |     | TRANSISTOR-DUAL PNP PD=500MW             | 28480    | 1853-0316       |
| A20Q43                | 1853-0316      | 1   |     | TRANSISTOR-DUAL PNP PD=500MW             | 28480    | 1853-0316       |
| A20Q44                | 1853-0316      | 1   |     | TRANSISTOR-DUAL PNP PD=500MW             | 28480    | 1853-0316       |
| A20Q45                | 1854-0221      | 9   |     | TRANSISTOR-DUAL NPN PD=750MW             | 28480    | 1854-0221       |
| A20Q46                | 1855-0266      | 4   |     | TRANSISTOR-JFET DUAL N-CHAN D-MODE SI    | 28480    | 1855-0266       |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                            | Mfr Code | Mfr Part Number     |
|-----------------------|----------------|-----|-----|----------------------------------------|----------|---------------------|
| A20R1                 | 0757-0299      | 3   | 9   | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F    |
| A20R2                 | 0757-0290      | 3   |     | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F    |
| A20R3                 | 0698-0002      | 7   | 3   | RESISTOR 464 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-4640-F    |
| A20R4                 | 0757-0441      | 8   | 3   | RESISTOR 8.25K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-8251-F    |
| A20R5                 | 0757-0461      | 0   | 6   | RESISTOR 100 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-101-F     |
| A20R6                 | 0698-0082      | 7   |     | RESISTOR 464 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-4646-F    |
| A20R7                 | 0698-0082      | 7   |     | RESISTOR 464 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-4649-F    |
| A20R8                 | 0757-0403      | 2   | 3   | RESISTOR 121 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-121R-F    |
| A20R9                 | 0698-3440      | 7   | 3   | RESISTOR 196 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-196R-F    |
| A20R10                | 0757-0442      | 9   | 5   | RESISTOR 10K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-1002-F    |
| A20R11                | 0757-0403      | 2   |     | RESISTOR 121 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-121R-F    |
| A20R12                | 0698-3440      | 7   |     | RESISTOR 196 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-196R-F    |
| A20R13                | 0698-3440      | 7   |     | RESISTOR 196 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-196R-F    |
| A20R14                | 0757-0403      | 2   |     | RESISTOR 121 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-121R-F    |
| A20R15                | 0698-3156      | 2   | 1   | RESISTOR 14.7K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-1472-F    |
| A20R16                | 0698-3449      | 6   | 1   | RESISTOR 20.7K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2072-F    |
| A20R17                | 2100-3352      | 7   | 4   | RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRM  | 20400    | 2100-3352           |
| A20R18                | 2100-3352      | 7   |     | RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRM  | 20400    | 2100-3352           |
| A20R19                | 0698-3150      | 1   | 2   | RESISTOR 4.64K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-4641-F    |
| A20R20                | 0698-3150      | 1   |     | RESISTOR 4.64K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-4641-F    |
| A20R21                | 0698-4002      | 9   | 3   | RESISTOR 5K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-5001-F    |
| A20R22                | 0698-4002      | 9   |     | RESISTOR 5K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-5001-F    |
| A20R23                | 0757-0441      | 8   |     | RESISTOR 8.25K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-8251-F    |
| A20R24                | 0757-0441      | 8   |     | RESISTOR 8.25K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-8251-F    |
| A20R25                | 2100-3351      | 6   | 5   | RESISTOR-TRMR 500 10% C SIDE-ADJ 1-TRM | 20400    | 2100-3351           |
| A20R26                | 0698-4002      | 9   |     | RESISTOR 5K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-5001-F    |
| A20R27                | 0757-0274      | 5   | 2   | RESISTOR 1.21K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-1211-F    |
| A20R28                | 0698-0017      | 2   | 3   | RESISTOR 2.61 1% .125W F TC=0+-100     | 20400    | 0698-0017           |
| A20R29                | 0757-0200      | 3   |     | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F    |
| A20R30                | 0757-0274      | 5   |     | RESISTOR 1.21K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-1211-F    |
| A20R31                | 0757-0200      | 3   |     | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F    |
| A20R33                | 0698-3446      | 3   | 2   | RESISTOR 303 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-303R-F    |
| A20R34                | 0698-3446      | 3   |     | RESISTOR 303 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-303R-F    |
| A20R34                | 0757-0200      | 3   |     | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F    |
| A20R35                | 1010-0364      | 9   | 1   | NETWORK-RES 6-SIP470.0 OHM X 5         | 01121    | 2046471             |
| A20R36                | 0698-3160      | 8   | 4   | RESISTOR 31.6K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-3162-F    |
| A20R37                | 1010-0400      | 0   | 10  | NETWORK-RES 8-SIP10.0K OHM X 4         | 01121    | 2088103             |
| A20R38                | 0757-0442      | 9   |     | RESISTOR 10K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-1002-F    |
| A20R39                | 0757-0401      | 0   |     | RESISTOR 100 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-101-F     |
| A20R40                | 0698-4037      | 0   | 2   | RESISTOR 46.4 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-46R4-F    |
| A20R41                | 0698-4037      | 0   |     | RESISTOR 46.4 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-46R4-F    |
| A20R42                | 0757-0379      | 1   | 1   | RESISTOR 12.1 1% .125W F TC=0+-100     | 19701    | MF4C1/8-T0-12R1-F   |
| A20R43                | 0757-0442      | 9   |     | RESISTOR 10K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-1002-F    |
| A20R44                | 0698-3441      | 8   | 1   | RESISTOR 215 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-215R-F    |
| A20R45                | 2100-3352      | 7   |     | RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRM  | 20400    | 2100-3352           |
| A20R46                | 1010-0400      | 0   |     | NETWORK-RES 8-SIP10.0K OHM X 4         | 01121    | 2088103             |
| A20R47                | 1010-0400      | 0   |     | NETWORK-RES 8-SIP10.0K OHM X 4         | 01121    | 2088103             |
| A20R48                | 1010-0400      | 0   |     | NETWORK-RES 8-SIP10.0K OHM X 4         | 01121    | 2088103             |
| A20R49                | 1010-0400      | 0   |     | NETWORK-RES 8-SIP10.0K OHM X 4         | 01121    | 2088103             |
| A20R50                | 1010-0400      | 0   |     | NETWORK-RES 8-SIP10.0K OHM X 4         | 01121    | 2088103             |
| A20R51                | 2100-3351      | 6   |     | RESISTOR-TRMR 500 10% C SIDE-ADJ 1-TRM | 20400    | 2100-3351           |
| A20R52                | 0698-3160      | 8   |     | RESISTOR 31.6K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-3162-F    |
| A20R53                | 0757-0442      | 9   |     | RESISTOR 10K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-1002-F    |
| A20R54                | 0757-0442      | 9   |     | RESISTOR 10K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-1002-F    |
| A20R55                | 0698-6321      | 9   | 2   | RESISTOR 9.9K 1% .125W F TC=0+-25      | 03668    | PME55-1/8-T9-9901-B |
| A20R56                | 0698-6323      | 1   | 2   | RESISTOR 100 1% .125W F TC=0+-25       | 20400    | 0698-6323           |
| A20R57                | 0757-0401      | 0   |     | RESISTOR 100 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-101-F     |
| A20R58                | 1010-0400      | 0   |     | NETWORK-RES 8-SIP10.0K OHM X 4         | 01121    | 2088103             |
| A20R59                | 1010-0400      | 0   |     | NETWORK-RES 8-SIP10.0K OHM X 4         | 01121    | 2088103             |
| A20R60                | 1010-0400      | 0   |     | NETWORK-RES 8-SIP10.0K OHM X 4         | 01121    | 2088103             |
| A20R61                | 1010-0400      | 0   |     | NETWORK-RES 8-SIP10.0K OHM X 4         | 01121    | 2088103             |
| A20R62                | 0698-3160      | 8   |     | RESISTOR 31.6K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-3162-F    |
| A20R63                | 0757-0290      | 5   | 2   | RESISTOR 6.19K 1% .125W F TC=0+-100    | 19701    | MF4C1/8-T0-6191-F   |
| A20R64                | 2100-3352      | 7   |     | RESISTOR-TRMR 1K 10% C SIDE-ADJ 1-TRM  | 20400    | 2100-3352           |
| A20R65                | 0757-0204      | 7   | 2   | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F     |
| A20R66                | 0698-3160      | 8   |     | RESISTOR 31.6K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-3162-F    |
| A20R67                | 2100-3351      | 6   |     | RESISTOR-TRMR 500 10% C SIDE-ADJ 1-TRM | 20400    | 2100-3351           |
| A20R68                | 0757-0398      | 4   | 2   | RESISTOR 75 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-75R0-F    |
| A20R69                | 2100-3351      | 6   |     | RESISTOR-TRMR 500 10% C SIDE-ADJ 1-TRM | 20400    | 2100-3351           |
| A20R70                | 0698-3190      | 4   | 2   | RESISTOR 100K .25% .125W F TC=0+-50    | 20400    | 0698-3190           |
| A20R71                | 0698-4341      | 9   | 2   | RESISTOR 900K 1% .125W F TC=0+-50      | 20400    | 0698-4341           |
| A20R72                | 0757-0290      | 5   |     | RESISTOR 6.19K 1% .125W F TC=0+-100    | 19701    | MF4C1/8-T0-6191-F   |
| A20R73                | 0757-0204      | 7   |     | RESISTOR 150 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-151-F     |
| A20R74                | 2100-3351      | 6   |     | RESISTOR-TRMR 500 10% C SIDE-ADJ 1-TRM | 20400    | 2100-3351           |
| A20R75                |                |     |     | NOT ASSIGNED                           |          |                     |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                            | Mfr Code | Mfr Part Number     |
|-----------------------|----------------|-----|-----|----------------------------------------|----------|---------------------|
| A20R76                | 0698-3454      | 3   | 2   | RESISTOR 215K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-2153-F    |
| A20R77                | 0757-0394      | 0   | 6   | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F    |
| A20R78                | 0698-8821      | 0   | 2   | RESISTOR 5.62 1% .125W F TC=0+-100     | 28488    | 0698-8821           |
| A20R79                | 0757-0481      | 0   | 8   | RESISTOR 100 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-101-F     |
| A20R80                |                |     |     | NOT ASSIGNED                           |          |                     |
| A20R81                | 0698-8817      | 2   |     | RESISTOR 2.61 1% .125W F TC=0+-100     | 28488    | 0698-8817           |
| A20R82                | 0698-3157      | 3   | 4   | RESISTOR 19.6K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-1962-F    |
| A20R83                | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F    |
| A20R84                | 0757-0394      | 4   |     | RESISTOR 75 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-75R0-F    |
| A20R85                |                |     |     | NOT ASSIGNED                           |          |                     |
| A20R86                | 0698-3157      | 3   |     | RESISTOR 19.6K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-1962-F    |
| A20R87                | 2100-3350      | 5   | 4   | RESISTOR-TRMR 200 10% C SIDE-ADJ 1-TRN | 28488    | 2100-3350           |
| A20R88                | 0757-0228      | 7   | 2   | RESISTOR 1.78K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-1781-F    |
| A20R89                | 0698-7228      | 7   | 4   | RESISTOR 464 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-464R-F    |
| A20R90                | 0698-7228      | 7   | 4   | RESISTOR 464 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-464R-F    |
| A20R91                | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F    |
| A20R92                | 0757-0228      | 0   |     | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F    |
| A20R93                | 2100-3350      | 5   | 3   | RESISTOR-TRMR 200 10% C SIDE-ADJ 1-TRN | 28488    | 2100-3350           |
| A20R94                | 0757-0228      | 0   | 3   | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F    |
| A20R95                | 0757-0422      | 5   | 2   | RESISTOR 909 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-909R-F    |
| A20R96                | 1010-0203      | 5   | 2   | NETWORK-RES 8-SIP470.0 OHM X 7         | 01121    | 208A471             |
| A20R97                | 0698-3151      | 7   | 2   | RESISTOR 2.87K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2871-F    |
| A20R98                | 0698-3151      | 7   | 2   | RESISTOR 2.87K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2871-F    |
| A20R99                | 1010-0203      | 5   |     | NETWORK-RES 8-SIP470.0 OHM X 7         | 01121    | 208A471             |
| A20R100               | 0757-0401      | 0   |     | RESISTOR 100 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-101-F     |
| A20R101               | 0757-0278      | 9   |     | RESISTOR 1.78K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-1781-F    |
| A20R102               | 0757-0280      | 3   |     | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F    |
| A20R103               | 0698-7228      | 7   |     | RESISTOR 464 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-464R-F    |
| A20R104               | 0698-7228      | 7   |     | RESISTOR 464 1% .05W F TC=0+-100       | 24546    | C3-1/8-T0-464R-F    |
| A20R105               | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F    |
| A20R106               |                |     |     | NOT ASSIGNED                           |          |                     |
| A20R107               | 2100-3350      | 5   |     | RESISTOR-TRMR 200 10% C SIDE-ADJ 1-TRN | 28488    | 2100-3350           |
| A20R108               | 0757-0422      | 5   |     | RESISTOR 909 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-909R-F    |
| A20R109               | 0757-0280      | 3   |     | RESISTOR 1K 1% .125W F TC=0+-100       | 24546    | C4-1/8-T0-1001-F    |
| A20R110               |                |     |     | NOT ASSIGNED                           |          |                     |
| A20R111               | 0757-0401      | 0   |     | RESISTOR 100 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-101-F     |
| A20R112               | 2100-3350      | 5   |     | RESISTOR-TRMR 200 10% C SIDE-ADJ 1-TRN | 28488    | 2100-3350           |
| A20R113               | 0698-3190      | 4   |     | RESISTOR 100K .25% .125W F TC=0+-50    | 28488    | 0698-3190           |
| A20R114               | 0698-8817      | 2   |     | RESISTOR 2.61 1% .125W F TC=0+-100     | 28488    | 0698-8817           |
| A20R115               | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F    |
| A20R116               | 0698-3157      | 3   |     | RESISTOR 19.6K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-1962-F    |
| A20R117               | 0698-3157      | 3   |     | RESISTOR 19.6K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-1962-F    |
| A20R118               | 0698-3454      | 3   |     | RESISTOR 215K 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-2153-F    |
| A20R120               | 0698-4341      | 9   |     | RESISTOR 909K .1% .125W F TC=0+-50     | 28488    | 0698-4341           |
| A20R121               | 0698-6321      | 9   |     | RESISTOR 9.9K .1% .125W F TC=0+-25     | 03888    | PRE55-1/8-T9-9901-B |
| A20R122               | 0698-8821      | 0   |     | RESISTOR 5.62 1% .125W F TC=0+-100     | 28488    | 0698-8821           |
| A20R123               | 0698-6323      | 1   |     | RESISTOR 100 .1% .125W F TC=0+-25      | 28488    | 0698-6323           |
| A20R124               | 0757-0394      | 0   |     | RESISTOR 51.1 1% .125W F TC=0+-100     | 24546    | C4-1/8-T0-51R1-F    |
| A20R125               |                |     |     | NOT ASSIGNED                           |          |                     |
| A20R126               |                |     |     | NOT ASSIGNED                           |          |                     |
| A20R127               | 0698-8816      | 1   | 1   | RESISTOR 2.15 1% .125W F TC=0+-100     | 28488    | 0698-8816           |
| A20R128               | 0698-7248      | 1   | 2   | RESISTOR 3.16K 1% .05W F TC=0+-100     | 24546    | C3-1/8-T0-3161-F    |
| A20R129               | 0698-7248      | 1   | 1   | RESISTOR 3.16K 1% .05W F TC=0+-100     | 24546    | C3-1/8-T0-3161-F    |
| A20T1                 | 0837-0035      | 6   | 2   | THERMISTOR DISC 5K-OHM TC=-4.42/C-DEG  | 28488    | 0837-0035           |
| A20T2                 | 0837-0035      | 6   | 2   | THERMISTOR DISC 5K-OHM TC=-4.42/C-DEG  | 28488    | 0837-0035           |
| A20U1                 | 1020-1730      | 6   | 5   | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM  | 01295    | SN74LS273N          |
| A20U2                 | 1020-1173      | 1   | 1   | IC XLTR ECL TTL-TO-ECL QUAD 2-IMP      | 04713    | MC10124L            |
| A20U3                 | 1020-1225      | 4   | 1   | IC FF ECL D-M/B DUAL                   | 04713    | MC10231P            |
| A20U4                 | 1020-1730      | 6   | 6   | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM  | 01295    | SN74LS273N          |
| A20U5                 | 1020-1730      | 6   | 6   | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM  | 01295    | SN74LS273N          |
| A20U6                 | 1020-1730      | 6   |     | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM  | 01295    | SN74LS273N          |
| A20U7                 | 1020-1730      | 6   |     | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM  | 01295    | SN74LS273N          |
| A20U8                 | 1026-0100      | 0   | 1   | IC TIMER TTL MONO/ASTBL                | 10324    | NE555N              |
| A20U9                 | 1020-1112      | 0   | 1   | IC FF TTL LS D-TYPE POS-EDGE-TRIG      | 01295    | SN74LS74AN          |
| A20U10                | 1026-0168      | 0   | 2   | IC CONV 8-B-D/A 16-DIP-C PKG           | 04713    | MC1486L-8           |
| A20U11                | 1026-0189      | 0   |     | IC CONV 8-B-D/A 16-DIP-C PKG           | 04713    | MC1486L-8           |
| A20U12                | 1020-0471      | 0   | 1   | IC INV TTL HEX 1-IMP                   | 01295    | SN7486N             |
| A20U13                | 1026-0316      | 4   | 3   | V REF TO-5                             | 27014    | LH0076-1H           |
| A20U14                | 1026-0316      | 4   |     | V REF TO-5                             | 27014    | LH0076-1H           |
| A20U15                | 1026-0316      | 4   |     | V REF TO-5                             | 27014    | LH0076-1H           |
| A20VR1                | 1026-0147      | 9   | 1   | IC 7812 V RGLTR TO-220                 | 04713    | KC7812CP            |
| A20VR2                | 1026-0122      | 0   | 1   | IC 7805 V RGLTR TO-220                 | 07263    | 7805UC              |
| A20VR3                | 1026-0221      | 0   | 1   | IC V RGLTR TO-220                      | 04713    | MC7912CT            |
| A20VR4                | 1026-0215      | 2   | 1   | IC V RGLTR-FXD-NEG 5/5.4V TO-220 PKG   | 28488    | 1026-0215           |
| A20VR5                | 1026-0274      | 3   | 1   | IC 78L15A V RGLTR TO-92                | 04713    | MC78L15ACP          |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C<br>D | Qty | Description                            | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|--------|-----|----------------------------------------|----------|----------------------|
|                       |                |        |     | A20 MISCELLANEOUS                      |          |                      |
|                       | 0340-0060      | 4      | 2   | TERMINAL-STUD SPCL-FDTHRU PRESS-MTG    | 98291    | 011-6809 000 209     |
|                       | 0340-0864      | 6      | 4   | INSULATOR-XSTR THRM-CONDCT             | 28480    | 1340-0864            |
|                       | 0380-0906      | 1      | 4   | STANDOFF-RVT-ON .1-IN-LG 6-32THD       | 00000    | ORDER BY DESCRIPTION |
|                       | 0380-0932      | 3      | 7   | SPACER-RVT-ON .688-IN-LG .152-IN-ID    | 00000    | ORDER BY DESCRIPTION |
|                       | 0520-0136      | 7      | 4   | SCREW-MACH 2-56 .625-IN-LG PAN-HD-POZI | 00000    | ORDER BY DESCRIPTION |
|                       | 0570-0111      | 3      | 4   | SCREW-MACH 6-32 .375-IN-LG RD-HD-SLT   | 00000    | ORDER BY DESCRIPTION |
|                       | 0590-0533      | 5      | 4   | THREADED INSERT-NUT 2-56 .06-IN-LG SST | 28480    | 0590-0533            |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                             | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|-----|-----|-----------------------------------------|----------|----------------------|
| A22U1                 | 1826-0420      | 9   | 1   | IC 3524 MODULATOR 16-DIP-C              | 01295    | 5C3524J              |
| A22U2                 | 1826-0412      | 1   | 1   | IC COMPARATOR PRCN DUAL 8-DIP-P PKG     | 27614    | LM393N               |
|                       |                |     |     | A22 MISCELLANEOUS                       |          |                      |
|                       | 1200-0043      | 0   | 1   | INSULATOR-XSTR ALUMINUM                 | 28480    | 1200-0043            |
|                       | 1200-0088      | 1   | 1   | INSULATOR-DIO ALUMINUM HD-ANDZ          | 28480    | 1200-0088            |
|                       | 1400-0482      | 3   | 4   | CABLE TIE .062-3-DIA .14-WD NYL         | 28480    | 1400-0482            |
|                       | 1400-0493      | 6   | 1   | CABLE TIE .062-1.25-DIA .14-WD NYL      | 28480    | 1400-0493            |
|                       | 1480-0116      | 8   | 2   | PIN-CRV .062-IN-DIA .25-IN-LG STL       | 28480    | 1480-0116            |
|                       | 2190-0027      | 4   | 1   | WASHER-LK INTL T 1/4 IN .256-IN-ID      | 28480    | 2190-0027            |
|                       | 2360-0121      | 2   | 2   | SCREW-MACH 6-32 .5-IN-LG PAN-HD-POZI    | 00000    | ORDER BY DESCRIPTION |
|                       | 2420-0381      | 5   | 2   | NUT-HEX-W/LKWR 6-32-THD .109-IN-YHK     | 00000    | ORDER BY DESCRIPTION |
|                       | 2950-0185      | 3   | 1   | NUT-HEX-DBL-CHAN 1/4-20-THD .156-IN-THK | 00000    | ORDER BY DESCRIPTION |
|                       | 4840-0750      | 7   | 2   | EXTR-PC 8D RED POLYC .062-20-THKNS      | 28480    | 4840-0750            |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                              | Mfr Code | Mfr Part Number   |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|-------------------|
| A21                   | 05100-60021    | 4   | 1   | FRONT PANEL/DISPLAY (SERIES 2044)        | 20480    | 05100-60021       |
| A21C1                 | 0160-3879      | 7   | 7   | CAPACITOR-FXD .01UF +-20% 160VDC CER     | 20480    | 0160-3879         |
| A21C2                 | 0180-2662      | 6   | 3   | CAPACITOR-FXD 10UF+-10% 10VDC TA         | 25093    | D4R7G51A10K       |
| A21C3                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 160VDC CER     | 20480    | 0160-3879         |
| A21C4                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 160VDC CER     | 20480    | 0160-3879         |
| A21C5                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 160VDC CER     | 20480    | 0160-3879         |
| A21C6                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 20480    | 0160-3879         |
| A21C7                 | 0180-2662      | 6   |     | CAPACITOR-FXD 10UF+-10% 10VDC TA         | 25093    | D4R7G51A10K       |
| A21C8                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 20480    | 0160-3879         |
| A21C9                 | 0180-2662      | 6   |     | CAPACITOR-FXD 10UF+-10% 10VDC TA         | 25093    | D4R7G51A10K       |
| A21C10                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 20480    | 0160-3879         |
| A21CR1                | 1901-0050      | 3   | 2   | DIODE-SWITCHING 80V 200MA 2NS DO-35      | 20480    | 1901-0050         |
| A21CR2                | 1902-3079      | 4   | 1   | DIODE-ZNR 4.53V 3% DO-35 PD=.4W          | 20480    | 1902-3079         |
| A21CR3                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35      | 20480    | 1901-0050         |
| A21DS1                | 1990-0547      | 0   | 33  | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS2                | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS3                | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS4                | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS5                | 1990-0774      | 5   | 20  | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS6                | 1990-0726      | 7   | 4   | DISPLAY-NUM-SEG 3-CHAR .11-H RED         | 20480    | 5082-7412(R,S,T)  |
| A21DS7                | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS8                | 1990-0547      | 6   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS9                | 1990-0547      | 6   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS9                | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS10               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS10               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS11               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS11               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS12               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS12               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS13               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS13               | 1990-0726      | 7   |     | DISPLAY-NUM-SEG 3-CHAR .11-H RED         | 20480    | 5082-7412(R,S,T)  |
| A21DS14               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS14               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS15               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS15               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS16               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS16               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS17               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS18               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS19               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS20               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS21               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS22               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS23               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS24               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS25               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS25               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS26               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS26               | 1990-0773      | 4   | 1   | DISPLAY-NUM-SEG 4-CHAR .11-H RED         | 20480    | 5082-7414(R,S,T)  |
| A21DS27               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS27               | 1990-0726      | 7   |     | DISPLAY-NUM-SEG 3-CHAR .11-H RED         | 20480    | 5082-7412(R,S,T)  |
| A21DS28               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS28               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS29               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS29               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS30               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS30               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS31               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS31               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS32               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS32               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS33               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS33               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS34               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS34               | 1990-0726      | 7   |     | DISPLAY-NUM-SEG 3-CHAR .11-H RED         | 20480    | 5082-7412(R,S,T)  |
| A21DS35               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS36               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS38               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS39               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |
| A21DS40               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS41               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS42               | 1990-0547      | 0   |     | LED-LAMP LUM-INT=2MCD IF=20MA-MAX BVR=5V | 20480    | 5082-4684, SEL IV |
| A21DS43               | 1990-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD      | 20480    | HLMP-2600(C,D,E)  |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                         | Mfr Code | Mfr Part Number    |
|-----------------------|----------------|-----|-----|-------------------------------------|----------|--------------------|
| A21D544               | 1998-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD | 28480    | HLMP-2680(C,D,E)   |
| A21D545               | 1998-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD | 28480    | HLMP-2680(C,D,E)   |
| A21D546               | 1998-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD | 28480    | HLMP-2680(C,D,E)   |
| A21D547               | 1998-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD | 28480    | HLMP-2680(C,D,E)   |
| A21D549               | 1998-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD | 28480    | HLMP-2680(C,D,E)   |
| A21D550               | 1998-0452      | 6   | 6   | DISPLAY-NUM-SEG 1-CHAR .3-H         | 28486    | 5082-7731, CAT C-E |
| A21D551               | 1998-0452      | 6   |     | DISPLAY-NUM-SEG 1-CHAR .3-H         | 28486    | 5082-7731, CAT C-E |
| A21D552               | 1998-0452      | 6   |     | DISPLAY-NUM-SEG 1-CHAR .3-H         | 28486    | 5082-7731, CAT C-E |
| A21D553               | 1998-0452      | 6   |     | DISPLAY-NUM-SEG 1-CHAR .3-H         | 28486    | 5082-7731, CAT C-E |
| A21D554               | 1998-0452      | 6   |     | DISPLAY-NUM-SEG 1-CHAR .3-H         | 28486    | 5082-7731, CAT C-E |
| A21D555               | 1998-0452      | 6   |     | DISPLAY-NUM-SEG 1-CHAR .3-H         | 28480    | 5082-7731, CAT C-E |
| A21D556               | 1998-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD | 28480    | HLMP-2680(C,D,E)   |
| A21D557               | 1998-0774      | 5   |     | LED-LIGHT BAR MODULE LUM-INT=6.8MCD | 28480    | HLMP-2680(C,D,E)   |
| A21J1                 | 1260-0473      | 8   | 1   | SOCKET-IC 14-COMT DIP-SLDR          | 28480    | 1260-0473          |
| A21J2                 | 1261-4458      | 4   | 1   | CONNECTOR 59-PIN M RECTANGULAR      | 28480    | 1261-4458          |
| A21J3                 | 1260-0473      | 8   | 1   | SOCKET-IC 16-COMT DIP DIP-SLDR      | 28480    | 1260-0473          |
| A21Q1                 | 1854-0365      | 2   | 3   | TRANSISTOR NPN SI PD=310MW FT=60MHZ | 04713    | 2N4410             |
| A21Q2                 | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ | 04713    | 2N4410             |
| A21Q3                 | 1854-0365      | 2   |     | TRANSISTOR NPN SI PD=310MW FT=60MHZ | 04713    | 2N4410             |
| A21R1                 | 0698-0684      | 9   | 2   | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546    | C4-1/8-T0-2151-F   |
| A21R2                 | 0757-0283      | 8   | 1   | RESISTOR 3.16K 1% .125W F TC=0+-100 | 24546    | C4-1/8-T0-3161-F   |
| A21R3                 | 0757-0283      | 6   | 3   | RESISTOR 2K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2001-F   |
| A21R4                 | 0698-3434      | 9   | 4   | RESISTOR 34.8 1% .125W F TC=0+-100  | 24546    | C4-1/8-T0-3488-F   |
| A21R5                 | 0698-3434      | 9   |     | RESISTOR 34.8 1% .125W F TC=0+-100  | 24546    | C4-1/8-T0-3488-F   |
| A21R6                 | 1810-0372      | 9   | 2   | NETWORK-RES 10-SIP220.0 OHM X 7     | 01121    | 218A221            |
| A21R7                 | 0698-0884      | 9   |     | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546    | C4-1/8-T0-2151-F   |
| A21R8                 | 0698-3488      | 7   | 1   | RESISTOR 2.15K 1% .5W F TC=0+-100   | 28480    | 0698-3488          |
| A21R9                 | 0698-3434      | 9   |     | RESISTOR 34.8 1% .125W F TC=0+-100  | 24546    | C4-1/8-T0-3488-F   |
| A21R10                | 0698-3434      | 9   |     | RESISTOR 34.8 1% .125W F TC=0+-100  | 24546    | C4-1/8-T0-3488-F   |
| A21R11                | 0159-0005      | 8   | 5   | RESISTOR-ZERO OHMS 22 AWG LEAD DIA  | 28480    | 0159-0005          |
| A21R12                | 0698-3158      | 4   | 1   | RESISTOR 23.7K 1% .125W F TC=0+-100 | 24546    | C3-1/8-T0-2372-F   |
| A21R13                | 0159-0005      | 0   |     | RESISTOR-ZERO OHMS 22 AWG LEAD DIA  | 28480    | 0159-0005          |
| A21R14                | 1810-0372      | 9   |     | NETWORK-RES 10-SIP220.0 OHM X 7     | 01121    | 218A221            |
| A21R15                | 0698-7226      | 5   | 12  | RESISTOR 383 1% .05W F TC=0+-100    | 24546    | C3-1/8-T0-383R-F   |
| A21R16                | 0698-7226      | 3   |     | RESISTOR 383 1% .05W F TC=0+-100    | 24546    | C3-1/8-T0-383R-F   |
| A21R17                | 0159-0005      | 0   |     | RESISTOR-ZERO OHMS 22 AWG LEAD DIA  | 28480    | 0159-0005          |
| A21R18                | 0698-3441      | 8   | 3   | RESISTOR 215 1% .125W F TC=0+-100   | 24546    | C4-1/8-T0-215R-F   |
| A21R19                | 0698-3441      | 8   |     | RESISTOR 215 1% .125W F TC=0+-100   | 24546    | C4-1/8-T0-215R-F   |
| A21R20                | 0698-3441      | 8   |     | RESISTOR 215 1% .125W F TC=0+-100   | 24546    | C4-1/8-T0-215R-F   |
| A21R21                | 0698-7226      | 5   |     | RESISTOR 383 1% .05W F TC=0+-100    | 24546    | C3-1/8-T0-383R-F   |
| A21R22                | 0698-7226      | 5   |     | RESISTOR 383 1% .05W F TC=0+-100    | 24546    | C3-1/8-T0-383R-F   |
| A21R23                | 0698-7226      | 5   |     | RESISTOR 383 1% .05W F TC=0+-100    | 24546    | C3-1/8-T0-383R-F   |
| A21R24                | 0698-7226      | 5   |     | RESISTOR 383 1% .05W F TC=0+-100    | 24546    | C3-1/8-T0-383R-F   |
| A21R25                | 0698-7226      | 5   |     | RESISTOR 383 1% .05W F TC=0+-100    | 24546    | C3-1/8-T0-383R-F   |
| A21R26                | 0698-7226      | 5   |     | RESISTOR 383 1% .05W F TC=0+-100    | 24546    | C3-1/8-T0-383R-F   |
| A21R27                | 0698-7226      | 5   |     | RESISTOR 383 1% .05W F TC=0+-100    | 24546    | C3-1/8-T0-383R-F   |
| A21R28                | 0698-7226      | 5   |     | RESISTOR 383 1% .05W F TC=0+-100    | 24546    | C3-1/8-T0-383R-F   |
| A21R29                | 0698-7226      | 5   |     | RESISTOR 383 1% .05W F TC=0+-100    | 24546    | C3-1/8-T0-383R-F   |
| A21R30                | 0698-7226      | 5   |     | RESISTOR 383 1% .05W F TC=0+-100    | 24546    | C3-1/8-T0-383R-F   |
| A21R31                | 0757-0283      | 6   |     | RESISTOR 2K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2001-F   |
| A21R32                | 0757-0283      | 6   |     | RESISTOR 2K 1% .125W F TC=0+-100    | 24546    | C4-1/8-T0-2001-F   |
| A21R33                | 0159-0005      | 0   |     | RESISTOR-ZERO OHMS 22 AWG LEAD DIA  | 28480    | 0159-0005          |
| A21R34                | 0159-0005      | 0   |     | RESISTOR-ZERO OHMS 22 AWG LEAD DIA  | 28480    | 0159-0005          |
| A21R35                | 1810-0231      | 9   | 1   | NETWORK-RES 8-SIP2.2K OHM X 7       | 01121    | 268A222            |
| A21S1                 | 3101-0454      | 7   | 49  | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S2                 | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S3                 | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S4                 | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S5                 | 3101-2271      | 0   | 1   | SWITCH-PB SPDT ALTNG .25A 115VAC    | 28480    | 3101-2271          |
| A21S6                 | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S7                 | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S8                 | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S9                 | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S10                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S11                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S12                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S13                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S14                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S15                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S16                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S17                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S18                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S19                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |
| A21S20                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC   | 28480    | 3101-0454          |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                            | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|-----|-----|----------------------------------------|----------|----------------------|
| A21521                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21522                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21523                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21524                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21525                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21526                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21527                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21528                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21529                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21530                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21531                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21532                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21533                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21534                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21535                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21536                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21537                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21538                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21539                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21540                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21541                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21542                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21543                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21544                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21545                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21546                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21547                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21548                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21549                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21550                | 3101-0454      | 7   |     | SWITCH-PB SPST-NO MOM .25A 125VAC      | 28480    | 3101-0454            |
| A21TP1                | 0360-1682      | 0   | 2   | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682            |
| A21TP2                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG        | 28480    | 0360-1682            |
| A21U1                 | 1820-1016      | 1   | 8   | IC DRVR TTL OR DUAL 2-IMP              | 01295    | SN75453BP            |
| A21U2                 | 1820-1016      | 1   |     | IC DRVR TTL OR DUAL 2-IMP              | 01295    | SN75453BP            |
| A21U3                 | 1820-1016      | 1   |     | IC DRVR TTL OR DUAL 2-IMP              | 01295    | SN75453BP            |
| A21U4                 | 1820-1112      | 0   | 1   | IC FF TTL LS D-TYPE POS-EDGE-TRIG      | 01295    | SN74LS24AN           |
| A21U5                 | 1820-1016      | 1   |     | IC DRVR TTL OR DUAL 2-IMP              | 01295    | SN75453BP            |
| A21U6                 | 1820-1016      | 1   |     | IC DRVR TTL OR DUAL 2-IMP              | 01295    | SN75453BP            |
| A21U7                 | 1820-1016      | 1   |     | IC DRVR TTL OR DUAL 2-IMP              | 01295    | SN75453BP            |
| A21U8                 | 1820-1016      | 1   |     | IC DRVR TTL OR DUAL 2-IMP              | 01295    | SN75453BP            |
| A21U9                 | 1820-1016      | 1   |     | IC DRVR TTL OR DUAL 2-IMP              | 01295    | SN75453BP            |
| A21U10                | 1820-2132      | 4   | 2   | IC DRVR CMOS DSPL LED                  | 32293    | ICM7218A             |
| A21U11                | 1820-2641      | 0   | 1   | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM  | 01295    | SN74LS274N           |
| A21U12                | 1820-2132      | 4   |     | IC DRVR CMOS DSPL LED                  | 32293    | ICM7218A             |
| A21XU10               | 1200-0553      | 5   | 2   | SOCKET-IC 28-CONT DIP-SLDR             | 28480    | 1200-0553            |
| A21XU12               | 1200-0553      | 5   |     | SOCKET-IC 28-CONT DIP-SLDR             | 28480    | 1200-0553            |
| A21 MISCELLANEOUS     |                |     |     |                                        |          |                      |
|                       | 0370-2630      | 1   | 1   | PUSHBUTTON 0.230 IN SQ; 0.425 IN HGT   | 28480    | 0370-2630            |
|                       | 0370-2862      | 1   | 1   | PUSHBUTTON 0.230 IN SQ; 0.425 IN HGT   | 28480    | 0370-2862            |
|                       | 0386-0161      | 0   | 14  | STANDOFF-RVT-ON .625-IN-LG 6-32THD     | 00000    | ORDER BY DESCRIPTION |
|                       | 1200-0580      | 8   | 20  | SOCKET-IC 8-CONT W-WRAP                | 28480    | 1200-0580            |
|                       | 1200-0805      | 0   | 6   | SOCKET-DSPL 14-CONT DIP DIP-SLDR       | 28480    | 1200-0805            |
|                       | 1200-0993      | 9   | 5   | SOCKET-DSPL 14-CONT DIP DIP-SLDR       | 28480    | 1200-0993            |
|                       | 4040-1719      | 0   | 24  | INSULATOR .161-IN-WD .161-IN-LG BLK    | 28480    | 4040-1719            |
|                       | 4040-1720      | 3   | 32  | INSULATOR .224-IN-WD .224-IN-LG BLK    | 28480    | 4040-1720            |
|                       | 4040-1721      | 4   | 18  | STANDOFF-LED .196-IN-WD .196-IN-LG BLK | 28480    | 4040-1721            |
|                       | 5040-8816      | 3   | 21  | SWITCH CAP-IVCRY                       | 28480    | 5040-8816            |
|                       | 5040-8819      | 5   | 1   | SW CAP-BLU                             | 28480    | 5040-8819            |
|                       | 5040-8821      | 0   | 28  | SW CAP-OLIVE                           | 28480    | 5040-8821            |

See introduction to this section for ordering information  
\*Indicates factory selected value



Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                              | Mfr Code | Mfr Part Number     |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|---------------------|
| A22                   | 05180-60022    | 5   | 1   | -5.2V REGULATOR (SERIES 2044)            | 28480    | 05180-60022         |
| A22C1                 | 0160-0576      | 5   | 5   | CAPACITOR-FXD .10F +-20% 50VDC CER       | 28480    | 0160-0576           |
| A22C2                 | 0160-0576      | 5   |     | CAPACITOR-FXD .10F +-20% 50VDC CER       | 28480    | 0160-0576           |
| A22C3                 | 0160-0576      | 5   |     | CAPACITOR-FXD .10F +-20% 50VDC CER       | 28480    | 0160-0576           |
| A22C4                 | 0160-0576      | 5   |     | CAPACITOR-FXD .10F +-20% 50VDC CER       | 28480    | 0160-0576           |
| A22C5                 | 0160-0576      | 5   |     | CAPACITOR-FXD .10F +-20% 50VDC CER       | 28480    | 0160-0576           |
| A22C6                 | 0160-0573      | 2   | 1   | CAPACITOR-FXD 4700PF +-20% 100VDC CER    | 28480    | 0160-0573           |
| A22C7                 | 0180-0373      | 2   | 1   | CAPACITOR-FXD .68UF+-10% 35VDC TA        | 56289    | 150D604X9035A2      |
| A22C8                 | 0160-3879      | 7   | 3   | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879           |
| A22C9                 | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879           |
| A22C10                | 0160-3879      | 7   |     | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879           |
| A22C11                | 0180-0116      | 1   | 1   | CAPACITOR-FXD 6.8UF+-10% 35VDC TA        | 56289    | 150D605X9035B2      |
| A22C12                | 0180-0216      | 2   | 1   | CAPACITOR-FXD 12UF+-10% 35VDC TA         | 56289    | 150D126X9035B2      |
| A22C13                | 0180-2829      | 7   | 1   | CAPACITOR-FXD 5000UF+-25-10% 7.5VDC AL   | 56289    | 604D50267R5HP       |
| A22C14                | 0180-2819      | 5   | 1   | CAPACITOR-FXD .47UF+-20% 35VDC TA        | 28480    | 0180-2819           |
| A22C15                | 0180-0648      | 4   | 1   | CAPACITOR-FXD .10F+-10% 35VDC TA         | 90761    | TBC104033NSE        |
| A22CR1                | 1901-0518      | 8   | 1   | DIODE-5M STD SCHOTTKY                    | 28480    | 1901-0518           |
| A22CR2                | 1902-0554      | 4   | 1   | DIODE-ZNR 10V 5% PD=1W IR=100A           | 28480    | 1902-0554           |
| A22CR3                | 1901-0050      | 3   | 2   | DIODE-SWITCHING 80V 200MA 2NS DO-35      | 28480    | 1901-0050           |
| A22CR4                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35      | 28480    | 1901-0050           |
| A22CR5                | 1902-3311      | 7   | 1   | DIODE-ZNR 38.3V 5% DO-35 PD=.4W          | 28480    | 1902-3311           |
| A22CR6                | 1902-0939      | 9   | 1   | DIODE-ZNR 5V PD=5W TC=+.06% IR=3000A     | 11961    | 1N5908              |
| A22CR7                | 1901-0731      | 7   | 1   | DIODE-PWR RECT 400V 1A                   | 28480    | 1901-0731           |
| A22CR8                | 1901-0901      | 3   | 1   | DIODE-PWR RECT 40V 40A DO-5              | 28480    | 1901-0901           |
| A22CR9                | 1902-3070      | 5   | 1   | DIODE-ZNR 4.22V 5% DO-35 PD=.4W          | 28480    | 1902-3070           |
| A22DS1                | 1990-0486      | 6   | 1   | LED-LAMP LUM-INT=1MCD IF=20MA-MAX SVR=5V | 28480    | 5082-4684           |
| A22DS2                | 1990-0487      | 7   | 1   | LED-LAMP LUM-INT=1MCD IF=20MA-MAX SVR=5V | 28480    | 5082-4584           |
| A22F1                 | 2110-0456      | 7   | 1   | FUSE 10A 125V .281X.093                  | 28480    | 2110-0456           |
| A22L1                 | 9140-0416      | 9   | 1   | INDUCTOR-FIXED INQ; 75 OHM MIN AT 15 AOD | 28480    | 9140-0416           |
| A22Q1                 | 1804-0201      | 8   | 1   | THYRISTOR-SCR TO-92 URHM=60              | 04713    | 2N5061              |
| A22Q2                 | 1853-0036      | 2   | 1   | TRANSISTOR PNP SI PD=310MW FT=250MHZ     | 04713    | 1853-0036           |
| A22Q3                 | 1854-0215      | 1   | 1   | TRANSISTOR NPN SI PD=350MW FT=300MHZ     | 04713    | 2N3904              |
| A22Q4                 | 1854-0013      | 7   | 1   | TRANSISTOR NPN 2N2219A SI TO-95 PD=800MW | 04713    | 2N2219A             |
| A22Q5                 | 1853-0012      | 4   | 1   | TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW | 01290    | 2N2904A             |
| A22Q6                 | 1854-0746      | 3   | 1   | TRANSISTOR NPN 2N6339 SI TO-3 PD=200W    | 04713    | 2N6339              |
| A22R1                 | 0698-3155      | 1   | 3   | RESISTOR 4.64K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-4641-F    |
| A22R2                 | 0757-0442      | 9   | 1   | RESISTOR 10K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1002-F    |
| A22R3                 | 0698-3155      | 1   |     | RESISTOR 4.64K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-4641-F    |
| A22R4                 | 0757-0200      | 7   | 1   | RESISTOR 5.62K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-5621-F    |
| A22R5                 |                |     |     | NOT ASSIGNED                             |          |                     |
| A22R6                 | 0698-3160      | 8   | 1   | RESISTOR 31.6K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-3162-F    |
| A22R7                 |                |     |     | NOT ASSIGNED                             |          |                     |
| A22R8                 | 0757-0288      | 1   | 2   | RESISTOR 9.09K 1% .125W F TC=0+-100      | 19781    | MFAC1/8-T0-9091-F   |
| A22R9                 | 0757-0446      | 3   | 1   | RESISTOR 15K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1502-F    |
| A22R10                | 0698-6328      | 8   | 4   | RESISTOR 5K .1% .125W F TC=0+-25         | 03888    | PME55-1/8-T9-5001-B |
| A22R11                | 0698-6320      | 8   |     | RESISTOR 5K .1% .125W F TC=0+-25         | 03888    | PME55-1/8-T9-5001-B |
| A22R12                | 0698-3132      | 4   | 1   | RESISTOR 261 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-2613-F    |
| A22R13                | 0698-3437      | 2   | 1   | RESISTOR 133 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1333-F    |
| A22R14                | 0698-6320      | 8   |     | RESISTOR 5K .1% .125W F TC=0+-25         | 03888    | PME55-1/8-T9-5001-B |
| A22R15                | 0698-6320      | 8   |     | RESISTOR 5K .1% .125W F TC=0+-25         | 03888    | PME55-1/8-T9-5001-B |
| A22R16                | 2100-2574      | 3   | 1   | RESISTOR-TRMR 500 10% C SIDE-ADJ 1-TRN   | 33983    | ETS0X501            |
| A22R17                |                |     |     | NOT ASSIGNED                             |          |                     |
| A22R18                | 0698-3445      | 2   | 1   | RESISTOR 348 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-348R-F    |
| A22R19                | 0757-1893      | 8   | 1   | RESISTOR 3K 1% .125W F TC=0+-100         | 24546    | C4-1/8-T0-3001-F    |
| A22R20                | 0698-0827      | 4   | 1   | RESISTOR 1N 1% .125W F TC=0+-100         | 28480    | 0698-0827           |
| A22R21                | 0698-3155      | 1   |     | RESISTOR 4.64K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-4641-F    |
| A22R22                | 0757-0288      | 1   |     | RESISTOR 9.09K 1% .125W F TC=0+-100      | 19781    | MFAC1/8-T0-9091-F   |
| A22R23                | 0757-0416      | 7   | 1   | RESISTOR 511 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-511R-F    |
| A22R24                | 0757-1094      | 9   | 2   | RESISTOR 1.47K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-1471-F    |
| A22R25                | 0757-1094      | 9   |     | RESISTOR 1.47K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-1471-F    |
| A22R26                | 0811-3511      | 5   | 1   | RESISTOR .81 1% 2W PWM TC=0+-150         | 28480    | 0811-3511           |
| A22R27                | 0757-0288      | 3   | 1   | RESISTOR 1K 1% .125W F TC=0+-100         | 24546    | C4-1/8-T0-1001-F    |
| A22R28                |                |     |     | NOT ASSIGNED                             |          |                     |
| A22R29                | 0757-0422      | 5   | 1   | RESISTOR 909 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-909R-F    |
| A22R30                | 0811-1831      | 8   | 1   | RESISTOR 2 5% 3W PW TC=0+-50             | 28480    | 0811-1831           |
| A22T1                 | 9100-3066      | 7   | 1   | TRANSFORMER-POWER TURN RATIO 4:1; 15 MH  | 28480    | 9100-3066           |
| A22TP1                | 0360-1682      | 0   | 5   | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682           |
| A22TP2                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682           |
| A22TP3                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682           |
| A22TP4                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682           |
| A22TP5                | 0360-1682      | 0   |     | TERMINAL-STUD SGL-TUR PRESS-MTG          | 28480    | 0360-1682           |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                              | Mfr Code | Mfr Part Number     |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|---------------------|
| A23                   | 95180-60023    | 6   | 1   | +5V REGULATOR (SERIES 2644)              | 28480    | 95180-60023         |
| A23C1                 | 0160-0576      | 5   | 3   | CAPACITOR-FXD .10UF +-26% 50VDC CER      | 28480    | 0160-0576           |
| A23C2                 | 0160-0576      | 5   | 3   | CAPACITOR-FXD .10UF +-26% 50VDC CER      | 28480    | 0160-0576           |
| A23C3                 | 0160-0576      | 5   | 3   | CAPACITOR-FXD .10UF +-26% 50VDC CER      | 28480    | 0160-0576           |
| A23C4                 | 0160-3879      | 7   | 3   | CAPACITOR-FXD .01UF +-20% 100VDC CER     | 28480    | 0160-3879           |
| A23C5                 | 0160-3879      | 7   | 3   | CAPACITOR-FXD .01UF +-26% 100VDC CER     | 28480    | 0160-3879           |
| A23C6                 | 0160-3879      | 7   | 3   | CAPACITOR-FXD .01UF +-26% 100VDC CER     | 28480    | 0160-3879           |
| A23C7                 | 0160-3878      | 6   | 1   | CAPACITOR-FXD 1000PF +-24% 100VDC CER    | 28480    | 0160-3878           |
| A23C8                 | 0180-2829      | 7   | 1   | CAPACITOR-FXD 5800UF+75-10% 7.5VDC AL    | 56289    | 6940-02C7R5HP       |
| A23C9                 | 0180-0116      | 1   | 1   | CAPACITOR-FXD 6.80UF+-10% 35VDC 1A       | 56289    | 1500685X9035B2      |
| A23C10                | 0180-0373      | 2   | 1   | CAPACITOR-FXD .68UF+-10% 35VDC 1A        | 56289    | 1500684X9035A2      |
| A23C11                | 0160-3877      | 5   | 1   | CAPACITOR-FXD 100PF +-26% 200VDC CER     | 28480    | 0160-3877           |
| A23C12                | 0180-0216      | 2   | 1   | CAPACITOR-FXD 120UF+-10% 35VDC 1A        | 56289    | 1500126X9035R2      |
| A23C13                | 0180-2819      | 5   | 1   | CAPACITOR-FXD .47UF+-20% 35VDC 1A        | 28480    | 0180-2819           |
| A23C14                | 0180-0648      | 4   | 1   | CAPACITOR-FXD .10UF+-10% 35VDC 1A        | 93201    | TDC104K035NSE       |
| A23CR1                | 1901-0518      | 8   | 1   | DIODE-5M S1G SCHOTTKY                    | 28480    | 1901-0518           |
| A23CR2                | 1902-0939      | 9   | 1   | DIODE-ZNR 5V PD=5W TC=+.06% IR=3000HA    | 11961    | 1N5908              |
| A23CR3                | 1901-0050      | 3   | 2   | DIODE-SWITCHING 80V 200MA 2NS DO-35      | 28480    | 1901-0050           |
| A23CR4                | 1901-0050      | 3   | 2   | DIODE-SWITCHING 80V 200MA 2NS DO-35      | 28480    | 1901-0050           |
| A23CR5                | 1902-3070      | 5   | 1   | DIODE-ZNR 4.22V 5% DO-35 PD=.4W          | 28480    | 1902-3070           |
| A23CR6                | 1902-3311      | 7   | 1   | DIODE-ZNR 38.3V 5% DO-35 PD=.4W          | 28480    | 1902-3311           |
| A23CR7                | 1901-0731      | 7   | 1   | DIODE-PWR RECT 400V 1A                   | 28480    | 1901-0731           |
| A23CR8                | 1901-0672      | 5   | 1   | DIODE-PWR RECT 100V 12A 200NS DO-4       | 94713    | 1N3890              |
| A23DS1                | 1990-0486      | 6   | 1   | LED-LAMP LUM-INT=1MCD IF=20MA-MAX BUR=5V | 28480    | 5082-4684           |
| A23DS2                | 1990-0487      | 7   | 1   | LED-LAMP LUM-INT=1MCD IF=20MA-MAX BUR=5V | 28480    | 5082-4584           |
| A23F1                 | 2110-0456      | 7   | 1   | FUSE 10A 125V .281X.893                  | 28480    | 2110-0456           |
| A23L1                 | 9140-0416      | 9   | 1   | INDUCTOR-FIXED IND: 75 UH MIN AT 15 ADC  | 28480    | 9140-0416           |
| A23MP1                | 1205-0021      | 2   | 1   | HEAT SINK TO-3-CS                        | 28480    | 1205-0021           |
| A23MP2                | 1205-0369      | 1   | 1   | HEAT SINK SCL DO-5-CS                    | 28480    | 1205-0369           |
| A23Q1                 | 1854-0201      | 8   | 1   | THYRISTOR-SCR TO-92 VRRM=66              | 04713    | 2N5061              |
| A23Q2                 | 1653-0036      | 2   | 1   | TRANSISTOR PNP SI PD=310MW FT=250MHZ     | 28480    | 1653-0036           |
| A23Q3                 | 1854-0215      | 1   | 1   | TRANSISTOR NPN SI PD=350MW FT=300MHZ     | 04713    | 2N3964              |
| A23Q4                 | 1654-0013      | 7   | 1   | TRANSISTOR NPN 2N2218A SI TO-9 PD=800MW  | 04713    | 2N2218A             |
| A23Q5                 | 1853-0012      | 4   | 1   | TRANSISTOR PNP 2N2904A SI TO-39 PD=600MW | 01295    | 2N2904A             |
| A23Q6                 | 1854-0746      | 3   | 1   | TRANSISTOR NPN 2N6339 SI TO-3 PD=200W    | 04713    | 2N6339              |
| A23R1                 | 0811-3511      | 5   | 1   | RESISTOR .01 1% 2W PWM TC=0+-150         | 28480    | 0811-3511           |
| A23R2                 | 0698-3455      | 1   | 3   | RESISTOR 4.64K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-4641-F    |
| A23R3                 | 0698-5888      | 5   | 3   | RESISTOR 4K 1% .125W F TC=0+-100         | 24546    | C4-1/8-T0-4001-F    |
| A23R4                 | 0757-0442      | 9   | 2   | RESISTOR 10K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1002-F    |
| A23R5                 | 0757-0442      | 9   | 2   | RESISTOR 10K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1002-F    |
| A23R6                 | 0757-0416      | 7   | 1   | RESISTOR 511 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-511R-F    |
| A23R7                 | 0757-1094      | 9   | 2   | RESISTOR 1.47K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-1471-F    |
| A23R8                 | 0757-1094      | 9   | 2   | RESISTOR 1.47K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-1471-F    |
| A23R9                 | 0757-0446      | 3   | 1   | RESISTOR 15K 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-1502-F    |
| A23R10                | 0698-6320      | 8   | 4   | RESISTOR 5K .1% .125W F TC=0+-25         | 03688    | PME55-1/8-T9-5001-B |
| A23R11                | 0698-6320      | 8   | 4   | RESISTOR 5K .1% .125W F TC=0+-25         | 03688    | PME55-1/8-T9-5001-B |
| A23R12                | 0698-3443      | 0   | 2   | RESISTOR 287 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-287R-F    |
| A23R13                | 0698-0069      | 2   | 1   | RESISTOR 2.15M 1% .125W F TC=0+-100      | 28480    | 0697-0069           |
| A23R14                | 2100-2521      | 0   | 1   | RESISTOR-TRMR 2K 10% C SIDE-ADJ 1-TRM    | 30983    | ET50X232            |
| A23R15                | 0698-3455      | 1   | 1   | RESISTOR 4.64K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-4641-F    |
| A23R16                | 0698-3457      | 6   | 1   | RESISTOR 316K 1% .125W F TC=0+-100       | 28480    | 0698-3457           |
| A23R17                | 0698-3455      | 1   | 1   | RESISTOR 4.64K 1% .125W F TC=0+-100      | 24546    | C4-1/8-T0-4641-F    |
| A23R18                | 0698-5218      | 1   | 1   | RESISTOR 30K .5% .125W F TC=0+-100       | 24546    | C4-1/8-T0-3002-D    |
| A23R19                | 0698-6320      | 8   | 4   | RESISTOR 5K .1% .125W F TC=0+-25         | 03688    | PME55-1/8-T9-5001-B |
| A23R20                | 0698-6320      | 8   | 4   | RESISTOR 5K .1% .125W F TC=0+-25         | 03688    | PME55-1/8-T9-5001-B |
| A23R21                | 0757-0422      | 5   | 1   | RESISTOR 989 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-909R-F    |
| A23R22                | 0698-5888      | 5   | 3   | RESISTOR 4K 1% .125W F TC=0+-100         | 24546    | C4-1/8-T0-4001-F    |
| A23R23                | 0698-3443      | 0   | 2   | RESISTOR 287 1% .125W F TC=0+-100        | 24546    | C4-1/8-T0-287R-F    |
| A23R24                | 0698-5888      | 5   | 3   | RESISTOR 4K 1% .125W F TC=0+-100         | 24546    | C4-1/8-T0-4001-F    |
| A23R25                | 0812-0084      | 5   | 1   | RESISTOR 5 5% 3W PW TC=0+-50             | 91637    | EW281-3W-T2-5R0-J   |
| A23T1                 | 9100-3066      | 7   | 1   | TRANSFORMER-POWER TURN RATIO 4:1; 15 MH  | 28480    | 9100-3066           |
| A23TP1                | 0360-1682      | 0   | 5   | TERMINAL-STUD SCL-TUR PRESS-MTC          | 28480    | 0360-1682           |
| A23TP2                | 0360-1682      | 0   | 5   | TERMINAL-STUD SCL-TUR PRESS-MTC          | 28480    | 0360-1682           |
| A23TP3                | 0360-1682      | 0   | 5   | TERMINAL-STUD SCL-TUR PRESS-MTC          | 28480    | 0360-1682           |
| A23TP4                | 0360-1682      | 0   | 5   | TERMINAL-STUD SCL-TUR PRESS-MTC          | 28480    | 0360-1682           |
| A23TP5                | 0360-1682      | 0   | 5   | TERMINAL-STUD SCL-TUR PRESS-MTC          | 28480    | 0360-1682           |
| A23U1                 | 1826-0428      | 9   | 1   | IC 3524 MODULATOR 16-DIP-C               | 01295    | SG3524J             |
| A23U2                 | 1826-0412      | 1   | 1   | IC COMPARATOR PRCN DUAL 8-DIP-P PKG      | 27614    | LM395N              |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                             | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|-----|-----|-----------------------------------------|----------|----------------------|
|                       |                |     |     | A23 MISCELLANEOUS                       |          |                      |
|                       | 1200-0043      | 8   | 1   | INSULATOR-XSTR ALUMINUM                 | 28480    | 1200-0043            |
|                       | 1200-0080      | 3   | 1   | INSULATOR-DIO ALUMINUM HD-ANDZ          | 28480    | 1200-0080            |
|                       | 1400-0482      | 3   | 1   | CABLE TIE .062-3-DIA .14-WD NYL         | 28480    | 1400-0482            |
|                       | 1400-0493      | 6   | 1   | CABLE TIE .062-1.25-DIA .14-WD NYL      | 28480    | 1400-0493            |
|                       | 1400-0116      | 8   | 2   | PIN-GRV .062-IN-DIA .25-IN-LG STL       | 28480    | 1400-0116            |
|                       | 2190-0011      | 0   | 1   | WASHER-LK INTL T NO. 10 .195-IN-ID      | 28480    | 2190-0011            |
|                       | 2190-0027      | 6   | 1   | WASHER-LK INTL T 1/4 IN .256-IN-ID      | 28480    | 2190-0027            |
|                       | 2360-0121      | 2   | 2   | SCREW-MACH 6-32 .5-IN-LG PAN-HD-POZI    | 00000    | ORDER BY DESCRIPTION |
|                       | 2420-0001      | 5   | 2   | NUT-HEX-W/LKWR 6-32-THD .189-IN-THK     | 00000    | ORDER BY DESCRIPTION |
|                       | 2740-0003      | 5   | 1   | NUT-HEX-W/LKWR 10-32-THD .125-IN-THK    | 00000    | ORDER BY DESCRIPTION |
|                       | 2950-0105      | 3   | 1   | NUT-HEX-DBL-CHAM 1/4-28-THD .156-IN-THK | 00000    | ORDER BY DESCRIPTION |
|                       | 4040-0750      | 7   | 1   | EXTR-PC BD RES POLYC .062-BD-THKNS      | 28480    | 4040-0750            |
|                       | 4040-0751      | 8   | 1   | EXTR-PC BD GRN POLYC .062-BD-THKNS      | 28480    | 4040-0751            |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                                                  | Mfr Code | Mfr Part Number   |
|-----------------------|----------------|-----|-----|--------------------------------------------------------------|----------|-------------------|
| A24                   | 05180-69024    | 7   | 1   | POWER SUPPLY MOTHERBOARD (SERIES 2614)                       | 28480    | 05180-69024       |
| A24C1                 | 0180-2818      | 4   | 4   | CAPACITOR-FXD 2.2UF+-20% 35VDC TA                            | 28480    | 0180-2818         |
| A24C2                 | 0180-2818      | 4   | 4   | CAPACITOR-FXD 2.2UF+-20% 35VDC TA                            | 28480    | 0180-2818         |
| A24C3                 | 0180-2818      | 4   | 4   | CAPACITOR-FXD 2.2UF+-20% 35VDC TA                            | 28480    | 0180-2818         |
| A24C4                 | 0180-2818      | 4   | 4   | CAPACITOR-FXD 2.2UF+-20% 35VDC TA                            | 28480    | 0180-2818         |
| A24C5                 | 0180-0116      | 1   | 1   | CAPACITOR-FXD 6.8UF+-10% 35VDC TA                            | 56289    | 1500334X003502    |
| A24C6                 | 0180-0195      | 6   | 2   | CAPACITOR-FXD .33UF+-20% 35VDC TA                            | 56289    | 1500334X003502    |
| A24C7                 | 0180-2987      | 8   | 2   | CAPACITOR-FXD .034F+75-16% 28VDC AL                          | 28480    | 0180-2987         |
| A24C8                 | 0180-2987      | 8   | 2   | CAPACITOR-FXD .034F+75-16% 28VDC AL                          | 28480    | 0180-2987         |
| A24C9                 | 0180-2807      | 1   | 1   | CAPACITOR-FXD .014F+75-10% 40VDC AL                          | 28480    | 0180-2807         |
| A24C10                | 0180-0677      | 9   | 2   | CAPACITOR-FXD 5800UF+75-10% 48VDC AL                         | 28480    | 0180-0677         |
| A24C11                | 0180-0677      | 9   | 2   | CAPACITOR-FXD 5800UF+75-10% 48VDC AL                         | 28480    | 0180-0677         |
| A24C12                | 0180-0195      | 4   | 4   | CAPACITOR-FXD .33UF+-20% 35VDC TA                            | 56289    | 1500334X003502    |
| A24C13                | 0180-1790      | 7   | 1   | CAPACITOR-FXD 5800UF+75-10% 10VDC AL                         | 28480    | 0180-1790         |
| A24C14                | 0180-2617      | 1   | 1   | CAPACITOR-FXD 6.8UF+-10% 35VDC TA                            | 28480    | D6REGS1635K       |
| A24C15                | 0160-4355      | 6   | 1   | CAPACITOR-FXD .01UF +-10% 250VAC(RMS)                        | 28480    | 0160-4355         |
| A24CR1                | 1901-0050      | 3   | 4   | DIODE-SWITCHING 80V 200MA 2NS DO-35                          | 28480    | 1901-0050         |
| A24CR2                | 1902-3311      | 7   | 1   | DIODE-ZNR 30.3V 5% DO-35 PD=.4W                              | 28480    | 1902-3311         |
| A24CR3                | 1906-0201      | 6   | 1   | DIODE-FW BRDG 400V 4A                                        | 28480    | 1906-0201         |
| A24CR4                | 1906-0096      | 7   | 1   | DIODE-FW BRDG 200V 2A                                        | 64713    | MDA262            |
| A24CR5                | 1906-0216      | 3   | 1   | DIODE-FW BRDG 400V 15A                                       | 18546    | VL447             |
| A24CR6                | 1901-0050      | 3   | 4   | DIODE-SWITCHING 80V 200MA 2NS DO-35                          | 28480    | 1901-0050         |
| A24CR7                | 1901-0050      | 3   | 4   | DIODE-SWITCHING 80V 200MA 2NS DO-35                          | 28480    | 1901-0050         |
| A24CR8                | 1901-0050      | 3   | 4   | DIODE-SWITCHING 80V 200MA 2NS DO-35                          | 28480    | 1901-0050         |
| A24CR9                | 1902-0783      | 1   | 3   | DIODE-ZNR 16V 5% PD=1W IR=50A                                | 28480    | 1902-0783         |
| A24CR10               | 1902-0783      | 1   | 3   | DIODE-ZNR 16V 5% PD=1W IR=50A                                | 28480    | 1902-0783         |
| A24CR11               | 1901-1080      | 1   | 3   | DIODE-SCHOTTKY 1NSB17 20V 1A                                 | 28480    | 1901-1080         |
| A24CR12               | 1902-0783      | 1   | 3   | DIODE-ZNR 16V 5% PD=1W IR=50A                                | 28480    | 1902-0783         |
| A24CR13               | 1901-1080      | 1   | 3   | DIODE-SCHOTTKY 1NSB17 20V 1A                                 | 28480    | 1901-1080         |
| A24CR14               | 1901-1080      | 1   | 3   | DIODE-SCHOTTKY 1NSB17 20V 1A                                 | 28480    | 1901-1080         |
| A24DS1                | 1990-0487      | 7   | 4   | LED-LAMP LUM-INT=1MCD IF=20MA-MAX VR=5V                      | 28480    | 5082-4584         |
| A24DS2                | 1990-0487      | 7   | 4   | LED-LAMP LUM-INT=1MCD IF=20MA-MAX VR=5V                      | 28480    | 5082-4584         |
| A24DS3                | 1990-0487      | 7   | 4   | LED-LAMP LUM-INT=1MCD IF=20MA-MAX VR=5V                      | 28480    | 5082-4584         |
| A24DS4                | 1990-0487      | 7   | 4   | LED-LAMP LUM-INT=1MCD IF=20MA-MAX VR=5V                      | 28480    | 5082-4584         |
| A24F1                 | 2110-0662      | 7   | 2   | FUSE NTD .281X.093                                           | 28480    | 2110-0662         |
| A24F2                 | 2110-0662      | 7   | 2   | FUSE NTD .281X.093                                           | 28480    | 2110-0662         |
| A24F3                 | 2110-0456      | 7   | 2   | FUSE 10A 125V .281X.093                                      | 28480    | 2110-0456         |
| A24F4                 | 2110-0456      | 7   | 2   | FUSE 10A 125V .281X.093                                      | 28480    | 2110-0456         |
| A24GD1                | 1970-0077      | 9   | 1   | TUBE-ELECTRON SURGE V PICTR<br>(1970-0078 IS ALTERNATE PART) | 28480    | 1970-0077         |
| A24L1                 | 9140-0416      | 9   | 2   | INDUCTOR-FIXED IND: 75 OHM IN AT 15 ADC                      | 28480    | 9140-0416         |
| A24MP1                | 1205-0349      | 7   | 2   | HEAT SINK SGL PLSTC-PWR-CS                                   | 13103    | 6025B-TT          |
| A24MP2                | 1205-0349      | 7   | 2   | HEAT SINK SGL PLSTC-PWR-CS                                   | 13103    | 6025B-TT          |
| A24MP3                | 05180-00014    | 9   | 1   | BRACKET THERMAL                                              | 28480    | 05180-00014       |
| A24MP4                | 05180-00026    | 3   | 1   | HEAT-SINK-BRIDGE                                             | 28480    | 05180-00026       |
| A24MP5-<br>A24MP7     |                |     |     | NOT ASSIGNED                                                 |          |                   |
| A24MP8                | 1400-0776      | 8   |     | CABLE TIE .01-4-DIA .19-WD NYL                               | 28480    | 1400-0776         |
| A24Q1                 | 1884-0215      | 1   | 1   | TRANSISTOR NPN SI PD=350MW FT=300MHZ<br>NOT ASSIGNED         | 04713    | 2N3904            |
| A24Q2                 |                |     |     | NOT ASSIGNED                                                 |          |                   |
| A24Q3                 | 1884-0319      | 9   | 1   | THYRISTOR-TRIAC TO-220AB                                     | 3L680    | T2500D            |
| A24R1                 | 0698-3132      | 4   | 1   | RESISTOR 261 1% .125W F TC=0+-100                            | 24546    | C4-1/8-T0-2610-F  |
| A24R2                 | 0698-3150      | 5   | 4   | RESISTOR 2.37K 1% .125W F TC=0+-100                          | 24546    | C4-1/8-T0-2371-F  |
| A24R3                 | 0698-3150      | 6   | 4   | RESISTOR 2.37K 1% .125W F TC=0+-100                          | 24546    | C4-1/8-T0-2371-F  |
| A24R4                 | 0698-3150      | 1   | 3   | RESISTOR 4.64K 1% .125W F TC=0+-100                          | 24546    | C4-1/8-T0-4641-F  |
| A24R5                 | 0757-0288      | 1   | 3   | RESISTOR 9.09K 1% .125W F TC=0+-100                          | 19701    | MF4C1/8-T0-9091-F |
| A24R6                 | 0757-0288      | 1   | 3   | RESISTOR 9.09K 1% .125W F TC=0+-100                          | 19701    | MF4C1/8-T0-9091-F |
| A24R7                 | 0757-0288      | 3   | 3   | RESISTOR 1K 1% .125W F TC=0+-100                             | 24546    | C4-1/8-T0-1001-F  |
| A24R8                 | 0757-0199      | 3   | 1   | RESISTOR 21.5K 1% .125W F TC=0+-100                          | 24546    | C4-1/8-T0-2152-F  |
| A24R9                 | 0698-3150      | 1   | 1   | RESISTOR 4.64K 1% .125W F TC=0+-100                          | 24546    | C4-1/8-T0-4641-F  |
| A24R10                | 0698-3150      | 1   | 1   | RESISTOR 4.64K 1% .125W F TC=0+-100                          | 24546    | C4-1/8-T0-4641-F  |
| A24R11                | 0757-0288      | 1   | 1   | RESISTOR 9.09K 1% .125W F TC=0+-100                          | 19701    | MF4C1/8-T0-9091-F |
| A24R12                | 0757-0461      | 2   | 1   | RESISTOR 68.1K 1% .125W F TC=0+-100                          | 24546    | C4-1/8-T0-6812-F  |
| A24R13                | 0698-3150      | 6   | 1   | RESISTOR 2.37K 1% .125W F TC=0+-100                          | 24546    | C4-1/8-T0-2371-F  |
| A24R14                | 0698-3150      | 6   | 1   | RESISTOR 2.37K 1% .125W F TC=0+-100                          | 24546    | C4-1/8-T0-2371-F  |
| A24R15                | 0757-0288      | 3   | 1   | RESISTOR 1K 1% .125W F TC=0+-100                             | 24546    | C4-1/8-T0-1001-F  |
| A24R16                | 0757-0288      | 3   | 1   | RESISTOR 1K 1% .125W F TC=0+-100                             | 24546    | C4-1/8-T0-1001-F  |
| A24R17                | 0757-0733      | 1   | 1   | RESISTOR 1.1K 1% .25W F TC=0+-100                            | 28480    | 0757-0733         |
| A24R18                | 0698-3439      | 4   | 1   | RESISTOR 178 1% .125W F TC=0+-100                            | 24546    | C4-1/8-T0-1780-F  |
| A24R19                | 0698-3441      | 8   | 1   | RESISTOR 215 1% .125W F TC=0+-100                            | 24546    | C4-1/8-T0-2150-F  |
| A24R20                | 0159-0005      | 1   | 1   | ZERO OHM LEAD ELECT                                          | 28480    | 0159-0005         |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C<br>D | Qty | Description                              | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|--------|-----|------------------------------------------|----------|----------------------|
| A24S1                 | 3131-0408      | 1      | 1   | SWITCH-SL DPST DIP-SLIDE-ASSY .1A 50VDC  | 28480    | 3131-0408            |
| A24S2                 | 3163-0032      | 1      | 1   | SWITCH-THRM FXD +194F 3A DPN-ON-RISE     | 28480    | 3163-0032            |
| A24U1                 | 1826-0106      | 0      | 2   | IC 7815 V RGLTR TO-220                   | 04713    | MC7815CP             |
| A24U2                 | 1826-0214      | 1      | 1   | IC V RGLTR TO-220                        | 04713    | MC7915CT             |
| A24U3                 | 1826-0412      | 1      | 1   | IC COMPARATOR PRCN DUAL 8-DIP-P PKG      | 27314    | LM393N               |
| A24U4                 | 1826-0106      | 0      | 1   | IC 7815 V RGLTR TO-220                   | 04713    | MC7815CP             |
| A24U5                 | 1990-0845      | 1      | 1   | OPTO-ISOLATOR IF-50MA-MAX VAX-250V       | 28480    | 1990-0845            |
| A24W1                 | 05180-60119    | 1      | 1   | CABLE AY-POWER 2 (A24 TO A19W3)          | 28480    | 05180-60119          |
| A24W2                 | 05180-60120    | 4      | 1   | CABLE-ASSY-POWER (A26 PWR MOD TO A24)    | 28480    | 05180-60120          |
| A24W3                 | 05180-60121    | 5      | 1   | CABLE-ASSY-PW H/R/Y (A26 PWR MOD TO A24) | 28480    | 05180-60121          |
| A24W4                 | 05180-60130    | 6      | 1   | CABLE-ASSY-PW ROD (A24 TO A25 STBY VOLT) | 28480    | 05180-60130          |
| A24W5                 | 0159-0005      | 0      | 2   | RESISTOR-ZERO OHMS 22 AWG LEAD DIA       | 28480    | 0159-0005            |
| A24W6                 | 0159-0005      | 0      | 1   | RESISTOR-ZERO OHMS 22 AWG LEAD DIA       | 28480    | 0159-0005            |
| A24XA1                | 1251-1365      | 6      | 2   | CONNECTOR-PC EDGE 22-CNT/ROW 2-ROWS      | 28480    | 1251-1365            |
| A24XA2                | 1231-1365      | 6      | 1   | CONNECTOR-PC EDGE 22-CNT/ROW 2-ROWS      | 28480    | 1251-1365            |
| A24 MISCELLANEOUS     |                |        |     |                                          |          |                      |
|                       | 0380-0600      | 2      | 1   | STANDOFF-RVT-CN .219-IN-LG 6-32THD       | 00000    | ORDER BY DESCRIPTION |
|                       | 0570-0111      | 3      | 2   | SCREW-MACH 6-32 .375-IN-LG RD-HD-SLT     | 00000    | ORDER BY DESCRIPTION |
|                       | 1400-0482      | 3      | 2   | CABLE TIE .062-3-DIA .14-WD NYL          | 28480    | 1400-0482            |
|                       | 1400-0493      | 6      | 1   | CABLE TIE .062-1.25-DIA .14-WD NYL       | 28480    | 1400-0493            |
|                       | 1400-0776      | 8      | 3   | CABLE TIE .031-4-DIA .19-WD NYL          | 28480    | 1400-0776            |
|                       | 2260-0101      | 0      | 2   | SCREW-MACH 4-40 .188-IN-LG PAN-HD-POZI   | 00000    | ORDER BY DESCRIPTION |
|                       | 2260-0099      | 3      | 1   | NUT-HEX-M/LKNR 4-40-THD .094-IN-THK      | 00000    | ORDER BY DESCRIPTION |
|                       | 2680-0099      | 1      | 10  | SCREW-MACH 10-32 .375-IN-LG PAN-HD-POZI  | 00556    | ORDER BY DESCRIPTION |
|                       | 3050-0105      | 6      | 1   | WASHER-FL NTLG NO. 4 .125-IN-ID          | 28480    | 3050-0105            |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                                  | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|-----|-----|----------------------------------------------|----------|----------------------|
| A25                   | 95180-60026    | 9   | 1   | REAR PANEL (SERIES 2329)                     | 28480    | 95180-60026          |
| A25C1                 |                |     |     | NOT ASSIGNED                                 |          |                      |
| A25C2                 | 8180-0374      | 3   | 1   | CAPACITOR-FXD 10UF+-13% 28VDC TA             | 56269    | 133D104X9020B2       |
| A25C3                 | 8160-3879      | 7   | 1   | CAPACITOR-FXD .81UF +-28% 168VDC CER         | 28480    | 8160-3879            |
| A25C4                 | 8160-3878      | 6   | 1   | CAPACITOR-FXD 100PF +-20% 100VDC CER         | 28480    | 8160-3878            |
| A25CR1                | 1902-3224      | 1   | 2   | DIODE-ZNR 17.8V 5% DO-35 P <sub>5</sub> =.4W | 28480    | 1902-3224            |
| A25CR2                | 1902-3224      | 1   |     | DIODE-ZNR 17.8V 5% DO-35 P <sub>5</sub> =.4W | 28480    | 1902-3224            |
| A25CR3                | 1901-0050      | 3   | 10  | DIODE-SWITCHING 80V 200MA 2NS DO-35          | 28480    | 1901-0050            |
| A25CR4                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35          | 28480    | 1901-0050            |
| A25CR5                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35          | 28480    | 1901-0050            |
| A25CR6                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35          | 28480    | 1901-0050            |
| A25CR7                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35          | 28480    | 1901-0050            |
| A25CR8                | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35          | 28480    | 1901-0050            |
| A25CR9                | 1906-0229      | 8   | 3   | DIODE-ARRAY 50V 400MA                        | 01295    | T1D133               |
| A25CR10               | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35          | 28480    | 1901-0050            |
| A25CR11               | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35          | 28480    | 1901-0050            |
| A25CR12               | 1906-0229      | 8   |     | DIODE-ARRAY 50V 400MA                        | 01295    | T1D133               |
| A25CR13               | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35          | 28480    | 1901-0050            |
| A25CR14               | 1901-0050      | 3   |     | DIODE-SWITCHING 80V 200MA 2NS DO-35          | 28480    | 1901-0050            |
| A25CR15               | 1906-0229      | 8   |     | DIODE-ARRAY 50V 400MA                        | 01295    | T1D133               |
| A25F1                 | 2110-0301      | 1   | 1   | FUSE .125A 125V .281X.093                    | 28480    | 2110-0301            |
| A25J1                 |                |     |     | NOT A REPLACEABLE PART                       |          |                      |
| A25J2                 |                |     |     | NOT A REPLACEABLE PART                       |          |                      |
| A25J3                 | 1250-1687      | 3   | 7   | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM      | 28480    | 1250-1687            |
| A25J4                 | 1250-1687      | 3   |     | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM      | 28480    | 1250-1687            |
| A25J5                 | 1250-1687      | 3   |     | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM      | 28480    | 1250-1687            |
| A25J6                 | 1250-1687      | 3   |     | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM      | 28480    | 1250-1687            |
| A25J7                 | 1250-1687      | 3   |     | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM      | 28480    | 1250-1687            |
| A25J8                 | 1251-4111      | 6   | 1   | CONNECTOR 24-PIN F MICRO-RIBBON              | 28480    | 1251-4111            |
| A25J9                 |                |     |     | NOT ASSIGNED                                 |          |                      |
| A25J10                | 1250-1687      | 3   |     | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM      | 28480    | 1250-1687            |
| A25J11                | 1250-1687      | 3   |     | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM      | 28480    | 1250-1687            |
| A25J12                | 1251-4040      | 8   | 1   | CONNECTOR 24-PIN F MICRO RIBBON              | 28480    | 1251-4040            |
| A25L1                 | 9100-1788      | 6   | 1   | CDRE-FERRITE CHOKE-WIDEBAND; IMP:1680        | 28480    | 9100-1788            |
| A25MP1                | 2360-0115      | 4   | 1   | SCREW-MACH 6-32 .312-IN-LG PAN-RD-POZI       | 00000    | ORDER BY DESCRIPTION |
| A25MP2                | 2420-0081      | 5   |     | NUT-HEX-W/LKWR 6-32-THD .109-IN-THK          | 00000    | ORDER BY DESCRIPTION |
| A25MP3                | 9380-1573      | 8   | 2   | STANDOFF-RVT-ON .156-IN-LG 6-32-THD          | 95791    | BR6918C-0.156-43     |
| A25MP4                | 9380-1573      | 8   |     | STANDOFF-RVT-ON .156-IN-LG 6-32-THD          | 95791    | BR6918C-0.156-43     |
| A25P1                 | 1251-4425      | 5   | 1   | CONNECTOR-SGL CONT PIN .04-IN-SSC-SZ RND     | 28480    | 1251-4425            |
| A25Q1                 | 1854-0210      | 1   | 2   | TRANSISTOR NPN SI PD=350MW FT=300MHZ         | 04713    | 2N3904               |
| A25Q2                 | 1854-0210      | 1   |     | TRANSISTOR NPN SI PD=350MW FT=300MHZ         | 04713    | 2N3904               |
| A25Q3                 | 1854-0345      | 8   | 2   | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW      | 04713    | 2N5179               |
| A25Q4                 | 1854-0345      | 8   |     | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW      | 04713    | 2N5179               |
| A25Q5                 | 1854-0072      | 8   | 1   | TRANSISTOR NPN 2N3054 SI TO-66 PD=25W        | 3L585    | 2N3054               |
| A25Q6                 | 1853-0036      | 2   | 1   | TRANSISTOR PNP SI PD=310MW FT=250MHZ         | 28480    | 1853-0036            |
| A25R1                 | 8811-1202      | 7   | 1   | RESISTOR 50 5% 3W PW TC=0+-20                | 28480    | 8811-1202            |
| A25R2                 | 8698-7236      | 1   | 1   | RESISTOR 4.81K 1% .05W F TC=0+-100           | 24546    | C3-1/8-T0-6811-F     |
| A25R3                 | 8698-3153      | 1   | 1   | RESISTOR 4.64K 1% .125W F TC=0+-100          | 24546    | C4-1/8-T0-4641-F     |
| A25R4                 | 8698-3402      | 1   | 1   | RESISTOR 31.6 1% .05W F TC=0+-100            | 28480    | 8698-3402            |
| A25R5                 | 8698-7268      | 5   | 1   | RESISTOR 21.5K 1% .05W F TC=0+-100           | 24546    | C3-1/8-T0-2152-F     |
| A25R6                 | 8698-7200      | 5   | 2   | RESISTOR 31.6 1% .05W F TC=0+-100            | 24546    | C3-1/8-T0-316-F      |
| A25R7                 | 8698-7215      | 2   | 2   | RESISTOR 133 1% .05W F TC=0+-100             | 24546    | C2-1/8-T0-133R-F     |
| A25R8                 | 8698-7225      | 4   | 1   | RESISTOR 348 1% .05W F TC=0+-100             | 24546    | C3-1/8-T0-348R-F     |
| A25R9                 | 8698-7212      | 9   | 1   | RESISTOR 100 1% .05W F TC=0+-100             | 24546    | C3-1/8-T0-100R-F     |
| A25R10                | 8698-7194      | 6   | 1   | RESISTOR 17.8 1% .05W F TC=0+-100            | 24546    | C3-1/8-T0-178R-F     |
| A25R11                | 8698-7200      | 5   |     | RESISTOR 31.6 1% .05W F TC=0+-100            | 24546    | C3-1/8-T0-316-F      |
| A25R12                | 8699-1002      | 5   | 2   | RESISTOR 1.5K 1% .05W F TC=0+-100            | 28480    | 8699-1002            |
| A25R13                | 8698-7216      | 3   | 1   | RESISTOR 147 1% .05W F TC=0+-100             | 24546    | C3-1/8-T0-147R-F     |
| A25R14                | 8698-7205      | 8   | 4   | RESISTOR 51.1 1% .05W F TC=0+-100            | 24546    | C3-1/8-T0-51R1-F     |
| A25R15                | 8698-7234      | 5   | 1   | RESISTOR 825 1% .05W F TC=0+-100             | 24546    | C3-1/8-T0-825R-F     |
| A25R16                | 8698-7205      | 8   |     | RESISTOR 51.1 1% .05W F TC=0+-100            | 24546    | C3-1/8-T0-51R1-F     |
| A25R17                | 8698-7195      | 7   | 1   | RESISTOR 19.6 1% .05W F TC=0+-100            | 24546    | C3-1/8-T0-19R6-F     |
| A25R18                | 8699-1002      | 5   |     | RESISTOR 1.5K 1% .05W F TC=0+-100            | 28480    | 8699-1002            |
| A25R19                | 8698-7205      | 8   |     | RESISTOR 51.1 1% .05W F TC=0+-100            | 24546    | C3-1/8-T0-51R1-F     |
| A25R20                | 8698-7205      | 8   |     | RESISTOR 51.1 1% .05W F TC=0+-100            | 24546    | C3-1/8-T0-51R1-F     |
| A25R21                | 8698-7228      | 7   | 1   | RESISTOR 464 1% .05W F TC=0+-100             | 24546    | C3-1/8-T0-464R-F     |
| A25R22                | 8698-7215      | 2   |     | RESISTOR 133 1% .05W F TC=0+-100             | 24546    | C3-1/8-T0-133R-F     |
| A25R23                | 8698-7236      | 7   | 2   | RESISTOR 1K 1% .05W F TC=0+-100              | 24546    | C3-1/8-T0-1001-F     |
| A25R24                | 8698-7236      | 7   |     | RESISTOR 1K 1% .05W F TC=0+-100              | 24546    | C3-1/8-T0-1001-F     |
| A25R25                | 8698-3437      | 2   | 1   | RESISTOR 133 1% .125W F TC=0+-100            | 24546    | C4-1/8-T0-133R-F     |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                              | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|----------------------|
| A25R26                | 0797-0399      | 5   | 1   | RESISTOR 02.5 1% .125W F TC=0+-100       | 24346    | C1-1/8-T0-02R5-F     |
| A25S1                 | 3101-2263      | 0   | 1   | SWITCH-SL 2-DPST DIP-SLIDE-ASSY .1A      | 28489    | 3101-2263            |
| A25S2                 | 3101-0400      | 1   | 1   | SWITCH-SL DPST DIP-SLIDE-ASSY .1A 50VDC  | 28480    | 3101-0400            |
| A25S3                 | 3100-1642      | 5   | 1   | SWITCH-ROTARY 10-POSITION DIP; 0-4       | 28480    | 3100-1642            |
| A25S4                 | 3100-1641      | 4   | 2   | SWITCH-ROTARY BCD CODED; 1-POLE 10 POS   | 28480    | 3100-1641            |
| A25S5                 | 3100-1641      | 4   | 4   | SWITCH-ROTARY BCD CODED; 1-POLE 10 POS   | 28480    | 3100-1641            |
| A25TP1                | 1251-0600      | 0   | 1   | CONNECTOR-SGL CONT PIN 1.14-MM-BGC-SZ SQ | 28480    | 1251-0600            |
| A25U1                 | 1826-0106      | 0   | 1   | IC 7815 V RGLTR T0-229                   | 34713    | MC7815CP             |
| A25U2                 | 1820-0697      | 2   | 1   | IC DRVR TTL S NAND LINE DUAL 4-INP       | 01295    | SN74S140N            |
| A25U3                 | 1820-1491      | 6   | 1   | IC RFR TTL LS NON-INV HEX 1-INP          | 31295    | SN74LS67AN           |
| A25W1                 | 05100-60112    | 4   | 1   | CABLE ASSY-XYZ (A16J) TO A25J1)          | 28480    | 05100-60112          |
| A25W2                 | 05100-60113    | 5   | 1   | CABLE ASSY-XYZ (A16J2 TO A25J2)          | 28480    | 05100-60113          |
|                       |                |     |     | A25 MISCELLANEOUS                        |          |                      |
|                       | 0300-1034      | 0   | 2   | STANDOFF-RVT-ON .156-IN-LG 2-56THD       | 00000    | ORDER BY DESCRIPTION |
|                       | 0520-0127      | 6   | 2   | SCREW-MACH 2-56 .188-IN-LG PAN-HD-POZI   | 00000    | ORDER BY DESCRIPTION |
|                       | 2200-0105      | 4   | 2   | SCREW-MACH 4-40 .312-IN-LG PAN-HD-POZI   | 00000    | ORDER BY DESCRIPTION |
|                       | 2420-0001      | 5   | 2   | NUT-HEX-W/LKWR 6-32-THD .109-IN-THK      | 00000    | ORDER BY DESCRIPTION |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C<br>D | Qty | Description                   | Mfr Code | Mfr Part Number |
|-----------------------|----------------|--------|-----|-------------------------------|----------|-----------------|
| A26                   | 0960-0444      | 2      | 1   | POWER MODULE UNFILTERED       | 28480    | 0960-0444       |
| A26F1A                | 2110-0015      | 4      | 1   | FUSE 2.5A 250V TD 1.25X.25 UL | 77460    | MDX 2-1/2       |
| A26F1B                | 2110-0030      | 3      | 1   | FUSE 5A 250V TD 1.25X.25 UL   | 28480    | 2110-0030       |

See introduction to this section for ordering information  
\*Indicates factory selected value



Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                        | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------|----------|-----------------|
| CHASSIS PARTS LIST    |                |     |     |                                    |          |                 |
| B1                    | 3160-0378      | 8   | 2   | FAN-TRAX 120-CFM 115V 50/60-HZ     | 28480    | 3160-0378       |
| B2                    | 3160-0378      | 8   |     | FAN-TRAX 120-CFM 115V 50/60-HZ     | 28480    | 3160-0378       |
| B1W1                  | 8120-2272      | 6   | 2   | CABLE-SHLD 22AWG 2-CNDCT GRA-JKT   | 28480    | 8120-2272       |
| B2W1                  | 8120-2272      | 6   |     | CABLE-SHLD 22AWG 2-CNDCT GRA-JKT   | 28480    | 8120-2272       |
| FL1                   | 9135-0221      | 3   | 1   | FILTER-LINE WIRE LEAD-TERMS        | 28480    | 9135-0221       |
| H1                    | 10013A         | 4   | 2   | DIVIDER PROBE                      | 28480    | 10013A          |
| H2                    | 10013A         | 4   |     | DIVIDER PROBE                      | 28480    | 10013A          |
| J1                    | 05305-66205    | 7   | 1   | CONN AY-BNC                        | 28480    | 05305-66205     |
| MP1                   | 05180-00001    | 4   | 1   | PANEL-FRONT                        | 28480    | 05180-00001     |
| MP2                   | 05180-00002    | 5   | 1   | PANEL-FRONT SUP                    | 28480    | 05180-00002     |
| MP3                   | 05180-00003    | 6   | 1   | PANEL-REAR                         | 28480    | 05180-00003     |
| MP4                   | 05180-00004    | 7   | 1   | GUIDE-FRONT CARD                   | 28480    | 05180-00004     |
| MP5                   | 05180-00005    | 8   | 1   | GUIDE-REAR CARD                    | 28480    | 05180-00005     |
| MP6                   | 05180-00006    | 9   | 1   | BKT-FAN                            | 28480    | 05180-00006     |
| MP7                   | 05180-00007    | 6   | 2   | HOLDER-FAN                         | 28480    | 05180-00007     |
| MP8                   | 05180-00008    | 1   | 1   | SUPPGR-T-M BD FR                   | 28480    | 05180-00008     |
| MP9                   | 05180-00009    | 2   | 1   | SUPPGR-T-M BD R                    | 28480    | 05180-00009     |
| MP10                  | 05180-00010    | 5   | 2   | SUPPGR-T-M BD EH                   | 28480    | 05180-00010     |
| MP11                  | 05180-00011    | 6   | 1   | PS BD GUIDE-REAR                   | 28480    | 05180-00011     |
| MP12                  | 05180-00012    | 7   | 1   | RETAINER-PWR SUP                   | 28480    | 05180-00012     |
| MP13                  | 05180-00013    | 8   | 1   | BRACKET-FILTER                     | 28480    | 05180-00013     |
| MP14                  | 05180-00020    | 7   | 1   | COVER-BD RETAIN                    | 28480    | 05180-00020     |
| MP15                  | 05180-00021    | 8   | 1   | COVER PLATE-RPNL                   | 28480    | 05180-00021     |
| MP16                  | 05180-00022    | 9   | 1   | TRAY-INFORMATION                   | 28480    | 05180-00022     |
| MP17                  | 05180-00023    | 0   | 1   | RETAINER-CABLE                     | 28480    | 05180-00023     |
| MP18                  | 05180-00024    | 1   | 1   | SHIELD-FE HYBRID                   | 28480    | 05180-00024     |
| MP19                  | 05180-00025    | 2   | 1   | SHIELD-FE CIR                      | 28480    | 05180-00025     |
| MP20                  | 05180-20202    | 2   | 1   | WINDOW-FRONT                       | 28480    | 05180-20202     |
| MP21                  | 05180-20204    | 1   | 1   | WINDOW-76 MM                       | 28480    | 05180-20204     |
| MP22                  | 05180-20206    | 5   | 1   | WINDOW-POSITION                    | 28480    | 05180-20206     |
| MP23                  | 05180-20209    | 6   | 1   | WINDOW-LVL/HYS                     | 28480    | 05180-20209     |
| MP24                  | 05180-20210    | 9   | 1   | WINDOW-TIME                        | 28480    | 05180-20210     |
| MP25                  | 0370-3633      | 0   | 1   | KNOB-BASE 1-1/2 JCK .25-1N-ID      | 28480    | 0370-3633       |
| MP26                  | 5021-5803      | 2   | 1   | FRAME-FRONT                        | 28480    | 5021-5803       |
| MP27                  | 5021-5804      | 3   | 1   | FRAME-REAR                         | 28480    | 5021-5804       |
| MP28                  | 5021-5838      | 3   | 4   | CORNER STRUT                       | 28480    | 5021-5838       |
| MP29                  | 5021-5838      | 3   |     | CORNER STRUT                       | 28480    | 5021-5838       |
| MP30                  | 5021-5838      | 3   |     | CORNER STRUT                       | 28480    | 5021-5838       |
| MP31                  | 5021-5838      | 3   |     | CORNER STRUT                       | 28480    | 5021-5838       |
| MP32                  | 5020-8896      | 7   | 2   | TRIM-FRONT HDL                     | 28480    | 5020-8896       |
| MP33                  | 5020-8896      | 7   |     | TRIM-FRONT HDL                     | 28480    | 5020-8896       |
| MP34                  | 5040-7201      | 8   | 4   | FOOT                               | 28480    | 5040-7201       |
| MP35                  | 5040-7201      | 8   |     | FOOT                               | 28480    | 5040-7201       |
| MP36                  | 5040-7201      | 8   |     | FOOT                               | 28480    | 5040-7201       |
| MP37                  | 5040-7201      | 8   |     | FOOT                               | 28480    | 5040-7201       |
| MP38                  | 5040-7202      | 9   | 1   | TOP TRIM                           | 28480    | 5040-7202       |
| MP39                  | 5041-6819      | 4   | 2   | STRP-HDLE CAP FR                   | 28480    | 5041-6819       |
| MP40                  | 5041-6819      | 4   |     | STRP-HDLE CAP FR                   | 28480    | 5041-6819       |
| MP41                  | 5041-6820      | 7   | 2   | STRP-HDLE CAP R                    | 28480    | 5041-6820       |
| MP42                  | 5041-6820      | 7   |     | STRP-HDLE CAP R                    | 28480    | 5041-6820       |
| MP43                  | 5040-7221      | 2   | 4   | STANDOFF-REAR                      | 28480    | 5040-7221       |
| MP44                  | 5040-7221      | 2   |     | STANDOFF-REAR                      | 28480    | 5040-7221       |
| MP45                  | 5040-7221      | 2   |     | STANDOFF-REAR                      | 28480    | 5040-7221       |
| MP46                  | 5040-7221      | 2   |     | STANDOFF-REAR                      | 28480    | 5040-7221       |
| MP47                  | 5060-9805      | 4   | 2   | STRAP HANDLE AY                    | 28480    | 5060-9805       |
| MP48                  | 5060-9805      | 4   |     | STRAP HANDLE AY                    | 28480    | 5060-9805       |
| MP49                  | 5060-9801      | 6   | 2   | COVER-SIDE                         | 28480    | 5060-9801       |
| MP50                  | 5060-9801      | 6   |     | COVER-SIDE                         | 28480    | 5060-9801       |
| MP51                  | 5061-9499      | 4   | 2   | SYS II HANDLES                     | 28480    | 5061-9499       |
| MP52                  | 5061-9499      | 4   |     | SYS II HANDLES                     | 28480    | 5061-9499       |
| MP53                  | 05180-60082    | 7   | 1   | COVER-TOP                          | 28480    | 05180-60082     |
| MP54                  | 05180-60083    | 8   | 1   | COVER-BOTTOM                       | 28480    | 05180-60083     |
| MP55                  | 1460-1345      | 5   | 2   | TILT STAND SST                     | 28480    | 1460-1345       |
| MP56                  | 1460-1345      | 5   |     | TILT STAND SST                     | 28480    | 1460-1345       |
| T1                    | 9100-4173      | 9   | 1   | TRANSFORMER-POWER 100/120/220/240V | 28480    | 9100-4173       |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-3. Replaceable Parts List (Continued)

| Reference Designation | HP Part Number | C D | Qty | Description                              | Mfr Code | Mfr Part Number      |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|----------------------|
| W1                    | 05180-60101    | 1   | 1   | CBL AY-5180 ADC                          | 28480    | 05180-60101          |
| W2                    | 05180-60102    | 2   | 1   | CBL AY-5180 ADC                          | 28480    | 05180-60102          |
| W3                    | 05180-60103    | 3   | 1   | CBL AY-5180 ADC                          | 28480    | 05180-60103          |
| W4                    | 05180-60104    | 4   | 1   | CBL AY-5180 ADC                          | 28480    | 05180-60104          |
| W5                    | 05180-60105    | 5   | 1   | CBL AY-ADC 5                             | 28480    | 05180-60105          |
| W6                    | 05180-60106    | 6   | 1   | CBL AY-5180 ADC                          | 28480    | 05180-60106          |
| W7                    | 05180-60109    | 9   | 1   | CBL AY-5180                              | 28480    | 05180-60109          |
| W8                    | 05180-60110    | 2   | 1   | CBL AY-5180                              | 28480    | 05180-60110          |
| W9                    | 05180-60114    | 6   | 1   | CBL AY-5180                              | 28480    | 05180-60114          |
| W10                   | 05180-60116    | 8   | 1   | CBL AY-5180 R PL                         | 28480    | 05180-60116          |
| W11                   | 05180-60117    | 9   | 1   | CBL AY-5180 F PN                         | 28480    | 05180-60117          |
| W12                   | 05180-60122    | 6   | 1   | CBL AY-5180 AUX                          | 28480    | 05180-60122          |
| W13                   | 05180-60123    | 7   | 1   | CBL AY-5180 ADC                          | 28480    | 05180-60123          |
| W14                   | 05180-60124    | 8   | 1   | CBL AY-5180 PRB                          | 28480    | 05180-60124          |
| W15                   | 8120-2701      | 6   | 1   | CABLE ASSY 26AWG 14-CNDCT                | 28480    | 8120-2701            |
| W16                   | 8120-2775      | 4   | 1   | FLAT RIBBON ASSY 28-AWG 16-COND 7-IN-LG  | 28480    | 8120-2775            |
| W17                   | 8120-3134      | 1   | 1   | FLAT RIBBON ASSY 28-AWG 16-COND 18-IN-LG | 28480    | 8120-3134            |
| W18                   | 8120-1378      | 1   | 1   | CABLE ASSY 18AWG 3-CNDCT JCK-JKT         | 28480    | 8120-1378            |
| A14/A17               | 05180-60531    | 1   | 1   | EPROMS KIT                               | 28480    | 05180-60531          |
| A20MP1                | 5061-1252      | 1   | 1   | HEAT SINK ASSEMBLY                       | 28480    | 5061-1252            |
| A20U16                | 5088-7043      | 6   | 1   | AMPLIFIER                                | 28480    | 5088-7043            |
| MISCELLANEOUS         |                |     |     |                                          |          |                      |
|                       | 0380-0993      | 6   | 1   | SPACER-RVT-ON .108-IN-LG .152-IN-ID      | 30000    | ORDER BY DESCRIPTION |
|                       | 0370-0606      | 7   | 50  | BEZEL-PUSHBUTTON 0.330-IN SQ; JADE GRAY  | 28480    | 0370-0606            |
|                       | 0510-0718      | 0   | 1   | THREADED INSERT-NUT 2-56 .062-IN-LG STL  | 28480    | 0510-0718            |
|                       | 0380-0644      | 4   | 2   | STANDOFF-HEX .327-IN-LG 6-32THD          | 00000    | ORDER BY DESCRIPTION |
|                       | 0510-0592      | 8   | 4   | RETAINER-PUSH ON TUB EXT .14-IN-DIA      | 28480    | 0510-0592            |
|                       | 0515-0896      | 5   | 6   | SCREW-MACH M4 X 0.7 10MM-LG              | 28480    | 0515-0896            |
|                       | 0515-1132      | 4   | 2   | SCREW-MACH M5 X 0.8 10MM-LG              | 28480    | 0515-1132            |
|                       | 0515-1232      | 5   | 4   | SCREW-MACH M3.5 X 0.6 8MM-LG PAN-HD      | 28480    | 0515-1232            |
|                       | 0515-1331      | 5   | 8   | SCREW-METRIC SPECIALTY M4 X 0.7 THD; 6   | 28480    | 0515-1331            |
|                       | 0520-0136      | 7   | 4   | SCREW-MACH 2-56 .625-IN-LG PAN-HD-POZI   | 00000    | ORDER BY DESCRIPTION |
|                       | 1250-1493      | 9   | 1   | TERMINATION-COAX CA EXT-GRP-COAX-CA PC   | 28480    | 1250-1493            |
|                       | 0520-0155      | 0   | 2   | SCREW-MACH 2-56 .125-IN-LG PAN-HD-POZI   | 28480    | 0520-0155            |
|                       | 0590-0938      | 5   | 1   | NUT-HEX-DBL-CHAM 1/2-32-THD .094-IN-THK  | 00000    | ORDER BY DESCRIPTION |
|                       | 0590-1251      | 6   | 2   | NUT-SPCLY 15/32-32-THD .1-IN-THK .562-WD | 00000    | ORDER BY DESCRIPTION |
|                       | 0590-1310      | 8   | 1   | NUT-SPCLY 1/2-28-THD .11-IN-THK .665-WD  | 00000    | ORDER BY DESCRIPTION |
|                       | 1200-0523      | 9   | 2   | LOCK-DUAL INLINE PKG INLINE PACKAGE      | 28480    | 1200-0523            |
|                       | 1200-0547      | 7   | 2   | LOCK-DUAL INLINE PKG IC FOR 14 PIN       | 28480    | 1200-0547            |
|                       | 1400-0031      | 0   | 1   | CLMP-CA .375-DIA .5-WD NYL               | 28480    | 1400-0031            |
|                       | 1400-0249      | 0   | 7   | CABLE TIE .062-.625-DIA .091-WD NYL      | 28480    | 1400-0249            |
|                       | 1400-1102      | 6   | 3   | CLAMP-FL-CA 1-WD NYL                     | 16956    | 08-486               |
|                       | 1400-1175      | 3   | 1   | CLAMP-CABLE 1-WD NYL                     | 28480    | 1400-1175            |
|                       | 2190-0034      | 5   | 2   | WASHER-LK HLCL NO. 10 .194-IN-ID         | 28480    | 2190-0034            |
|                       | 2190-0102      | 8   | 7   | WASHER-LK INTL T 15/32 IN .472-IN-ID     | 28480    | 2190-0102            |
|                       | 2360-0113      | 2   | 7   | SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI    | 00000    | ORDER BY DESCRIPTION |
|                       | 2360-0123      | 4   | 4   | SCREW-MACH 6-32 .625-IN-LG PAN-HD-POZI   | 00000    | ORDER BY DESCRIPTION |
|                       | 2510-0193      | 7   | 6   | SCREW-MACH 8-32 .375-IN-LG PAN-HD-POZI   | 28480    | 2510-0193            |
|                       | 2580-0003      | 5   | 4   | NUT-HEX-W/LKWR 8-32-THD .125-IN-THK      | 00000    | ORDER BY DESCRIPTION |
|                       | 2950-0001      | 6   | 1   | NUT-HEX-DBL-CHAM 3/8-32-THD .094-IN-THK  | 00000    | ORDER BY DESCRIPTION |
|                       | 2950-0935      | 6   | 7   | NUT-HEX-DBL-CHAM 15/32-32-THD            | 00000    | ORDER BY DESCRIPTION |
|                       | 5040-6937      | 5   | 3   | CLIP-WINDOW                              | 28480    | 5040-6937            |
|                       | 9320-4886      | 7   | 1   | OPERATING INSTRUCTION INSTR CARD         | 28480    | 9320-4886            |
|                       | 9320-4887      | 8   | 1   | OPERATING INSTRUCTION INSTR CARD         | 28480    | 9320-4887            |
|                       | 05180-20215    | 4   | 1   | HOLDER FUSE                              | 28480    | 05180-20215          |
|                       | 05182-20202    | 1   | 1   | CLAMP-PROBE COMP                         | 28480    | 05182-20202          |

See introduction to this section for ordering information  
\*Indicates factory selected value

Table 6-4. Manufacturer's Code List

| MFG. NO. | MANUFACTURER NAME AND ADDRESS                                  | ZIP CODE |
|----------|----------------------------------------------------------------|----------|
| S0545    | NEC Electronics, Ltd., Mountain View, CA                       | 94043    |
| 00000    | Any Satisfactory Supplier                                      |          |
| 01121    | Allen-Bradley Company, Inc., El Paso, TX                       | 79935    |
| 01295    | Texas Instruments, Inc., Dallas, TX                            | 75265    |
| 02111    | Spectrol Electronics Corporation, City of Industry, CA         | 91745    |
| 03888    | KDI Pyrofilm Corporation, Whippany, NJ                         | 07981    |
| 04713    | Motorola, Incorporated, Semiconductor Products, Phoenix, AZ    | 85008    |
| 05791    | Lyn-Tron, Inc., Burbank, CA                                    | 91505    |
| 07263    | Fairchild, Corporation, Mountain View, CA                      | 94042    |
| 1B546    | Varo Semiconductor, Incorporated, Garland, TX                  | 75046    |
| 11961    | Semiconductor, Incorporated, Burlington, MA                    | 01803    |
| 13103    | Thermalloy, Incorporated, Dallas, TX                           | 75234    |
| 16956    | Dennison Manufacturing Company, Framingham, MA                 | 01701    |
| 18324    | Signetics, Corporation, Sunnyvale, CA                          | 94086    |
| 19701    | MEPCO/Electra Incorporated, Mineral Wells, TX                  | 76067    |
| 20932    | EMCON Division, ITW, San Diego, CA                             | 92129    |
| 24546    | Corning Electronics, Santa Clara, CA                           | 95050    |
| 25088    | Siemens, Corporation, Iselin, NJ                               | 08830    |
| 27014    | National Semiconductor Corporation, Santa Clara, CA            | 95052    |
| 28480    | Hewlett-Packard Company, Corporate Headquarters, Palo Alto, CA | 94304    |
| 3L585    | RCA Corporation, Solid State Division, Somerville, NJ          | 08876    |
| 3L680    | Beman Manufacturing Incorporated, Etters, PA                   | 17319    |
| 30983    | MEPCO/Electra Corporation, San Diego, CA                       | 92121    |
| 31471    | American Micro Systems, Incorporated, Santa Clara, CA          | 95051    |
| 32293    | Intersil Incorporated, Cupertino, CA                           | 95014    |
| 32997    | Bourns, Incorporated, Riverside, CA                            | 92507    |
| 34335    | Advanced Micro Devices, Incorporated, Sunnyvale, CA            | 94086    |
| 34649    | Intel Corporation, Santa Clara, CA                             | 95054    |
| 52763    | Stettner Electronics, Incorporated, Chattanooga, TN            | 37421    |
| 56289    | Sprague Electric Company, North Adams, MA                      | 01247    |
| 71400    | Cooper Industries/Bussmann, Ellisville, MO                     | 63021    |
| 72136    | Electro Motive Corporation, Florence, SC                       | 06226    |
| 75915    | Littelfuse, Incorporated, Des Plaines, IL                      | 60016    |
| 90201    | Emhart Corporation/Mallory Capacitor, East Greencastle, IN     | 46135    |
| 91637    | Dale Electronics, Incorporated, El Paso, TX                    | 79936    |
| 98291    | Sealectro Corporation, Mamaroneck, NY                          | 10544    |

## SECTION VII MANUAL CHANGES

### 7-1. INTRODUCTION

7-2. This section contains information necessary to adapt this manual to apply to newer instruments.

### 7-3. MANUAL CHANGES

7-4. This manual applies directly to HP Model 5180A Waveform Recorder with serial numbers 2630A and above.

7-5. As engineering changes are made, newer instruments may have serial prefix numbers higher than those listed on the title page of this manual. The manuals for these instruments will be supplied with MANUAL CHANGES sheets containing the required information. Replace affected pages or modify existing manual information as directed in the MANUAL CHANGES pages. Contact the nearest Hewlett-Packard Sales and Support Office (listed at the back of this manual), if the change information is missing.

### 7-6. OLDER INSTRUMENTS

7-7. To adapt this manual to older instruments having a serial number lower than 2630A, perform the backdating that applies to your instrument's serial number, as listed in *Table 7-1*.

*Table 7-1. Manual Backdating*

| IF YOUR INSTRUMENT HAS<br>SERIAL PREFIX | MAKE THE FOLLOWING CHANGES<br>TO YOUR MANUAL |
|-----------------------------------------|----------------------------------------------|
| 2616A                                   | 1                                            |
| 2510A                                   | 1,2                                          |
| 2449A                                   | 1,2,3                                        |
| 2448A                                   | 1,2,3,4                                      |
| 2442A                                   | 1 thru 5                                     |
| 2436A                                   | 1 thru 5                                     |
| 2434A                                   | 1 thru 6                                     |
| 2426A                                   | 1 thru 7                                     |
| 2420A                                   | 1 thru 7                                     |
| 2414A                                   | 1 thru 8                                     |
| 2408A                                   | 1 thru 9                                     |
| 2404A                                   | 1 thru 9                                     |
| 2329A                                   | 1 thru 10                                    |
| 2327A                                   | 1 thru 11                                    |
| 2324A                                   | 1 thru 12                                    |
| 2318A                                   | 1 thru 13                                    |
| 2311A00541 & above                      | 1 thru 14                                    |
| 2250A00531 & above                      | 1 thru 15                                    |
| 2250A00521 & above                      | 1 thru 16                                    |
| 2250A00491 & above                      | 1 thru 17                                    |
| 2240A00541 & above                      | 1 thru 18                                    |
| 2238A                                   | 1 thru 18                                    |
| 2232A00401 & above                      | 1 thru 19                                    |
| 2232A                                   | 1 thru 20                                    |

Table 7-1. Manual Backdating (Continued)

| IF YOUR INSTRUMENT HAS SERIAL PREFIX | MAKE THE FOLLOWING CHANGES TO YOUR MANUAL |
|--------------------------------------|-------------------------------------------|
| 2230A00361 & above                   | 1 thru 20                                 |
| 2224A00331 & above                   | 1 thru 20                                 |
| 2224A                                | 1 thru 21                                 |
| 2222A                                | 1 thru 21                                 |
| 2220A                                | 1 thru 22                                 |
| 2210A                                | 1 thru 23                                 |
| 2204A                                | 1 thru 24                                 |
| 2150A00161 & above                   | 1 thru 25                                 |
| 2044A                                | 1 thru 25                                 |

**CHANGE 1 (Serial Prefix 2616A)**

The following Series 2616A instruments also have the changes indicated for Series 2630:

2616A01166 thru 2616A01190

Paragraph 5-22. ADC Tracking Loop Adjustment:

Change step "b" to "d" and step "c" to "e", and etc.

Add the following text and figure under the procedure in paragraph 5-23:

- b. Turn on the HP 3455A and set it up as follows:

Function ..... K ohms  
Range ..... AUTO

- c. Using the HP 3455A, measure the resistance of potentiometer 3 on the A3 board at points C and D in Figure 5-6. Adjust the potentiometer for a 3455A indication of 25 ( $\pm 1$ ) ohms.

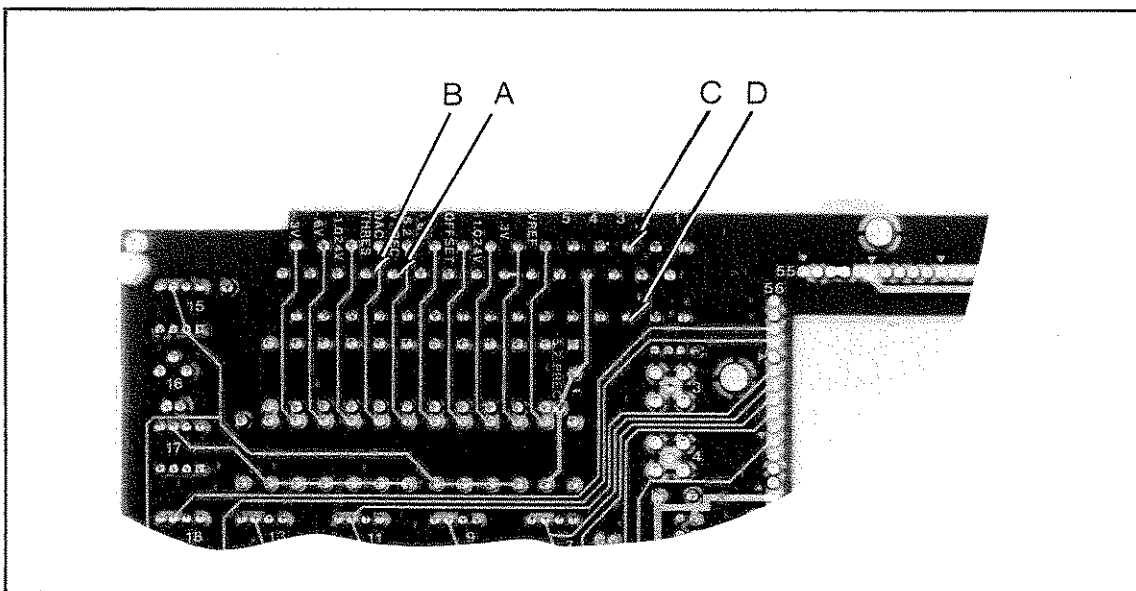


Figure 5-2. Test Points on Back of A3 Board

Table 6-3. A3 20 MHz Converter Assembly Replaceable Parts:

Change A3 (05180-60003) SERIES from 2240 to 2044.

Change A3R21 from 0698-3432; RESISTOR-FXD 26.1 1% .12W F to 2100-3052; RESISTOR-TRMR 50 10% C SIDE-ADJ 17-TRN.

Figure 8-17, A3 20 MHz Converter Schematic Diagram:

Change A3 (05180-60003) SERIES from 2240 to 2044.

Change A3R21 from a fixed resistor (26.1 ohms) to a variable resistor (50 ohms).

**CHANGE 2 (Serial Prefix 2510A)**

The following Series 2510A instruments also have the addition of diode CR14 to the A24 Power Supply Motherboard:

2510A01156 thru 2510A01161

The following Series 2510A instruments also have the changes indicated for Series 2630:

2510A01156 thru 2510A01161

Table 6-3. CHASSIS PARTS Replaceable Parts:

**NOTE**

The following changes will change the HP 5180A cabinet parts and hardware from "inch" to "metric".

Change MP26 HP Part Number from 5021-5803 to 5020-8803.

Change MP27 HP Part Number from 5021-5804 to 5020-8804.

Change MP28-MP31 HP Part Number from 5021-5838 to 5020-8838.

Change MP39, MP40 HP Part Number from 5041-6819 to 5040-7219.

Change MP51, MP52 HP Part Number from 5061-9499 to 5060-9899.

Change MP53 HP Part Number from 05180-60082 to 5061-1980.

Change MP54 HP Part Number from 05180-60083 to 5061-1981.

Under MISCELLANEOUS PARTS:

Change HP Part Number from 0515-1331 to 2510-0192.

Delete 0515-0896; Qty. 6; SCREW-MACH M3.5 X 0.7, 1 MM LG.

Delete 0515-1132; Qty. 2, SCREW-MACH M5 X 0.8 (for Handle Cap).

Delete 0515-1232; Qty. 4, SCREW-MACH M3.5 X0.6, 8MM LG (for rear feet).

**CHANGE 3 (Serial Prefix 2449A)**

The following Series 2449A instruments do not have changes indicated for Series 2449:

2449A01032 2449A01035 2449A01037

2449A01033 2449A01036

Table 6-3. A7 Multiplexer/Comparator Replaceable Parts:

Change A7 (05180-60007) SERIES from 2616 to 2449.

Delete A7F1;2110-0510; FUSE .015 BI-PN.

Change R17 from 2100-3941; RESISTOR-TRMR 10K 10% C SIDE-ADJ 4-TRN to 2100-3274;  
RESISTOR-TRMR 10K

10% C SIDE-ADJ 1-TRN.

Change R25 from 2100-4112 RESISTOR-TRMR 1K 10% C SIDE-ADJ 4-TRN to 2100-3352;  
RESISTOR-TRMR 1K

10% C SIDE ADJ 1-TRN.

Table 6-3. A8/A9 Memory Replaceable Parts:

Change A8/A9 HP Part Number from 05180-60309 to 05180-60809.

Change R2, R4 HP Part Number from 1810-0365 to 1810-0362.

Add XU21, 29, 30, 31 IC-SOCKET.

Table 6-3. A19 Motherboard Replaceable Parts:

Change A19 HP Part Number from 05180-60319 to 05180-60819.

Change A19 SERIES from 2328 to 2044.  
Delete R1-R4; 1810-0668; NETWORK RESISTOR 8-SIP MULTI-VALUE.

Figure 8-25. A8 or A9 Memory Board Schematic Diagram:

Change A8/A9 HP Part Number from 05180-60309 to 05180-60809. A8/A9 SERIES, at top of the schematic, remains the same.

Figure 8-55. A19 Interconnections Diagram:

Change A19 HP Part Number from 05180-60319 to 05180-60819.  
Change A19 SERIES, at top of the schematic, from 2328 to 2044.  
Delete NETWORK RESISTORS R3,R4.  
Delete the values 348 ohms and 243 ohms marked in R1, R2.

Table 6-3. A24 Power Supply Motherboard Replaceable Parts:

Change A24 (05180-60024) SERIES from 2616 to 2318.  
Delete CR14; 1901-1080; DIODE-SCHOTTKY 1N5817 20V 1A

Figure 8-53. A24 Power Supply Motherboard Schematic Diagram:

Change A24 SERIES, at the top of the schematic, from 2616 to 2318.  
Delete diode CR14.

#### **CHANGE 4 (Serial Prefix 2448)**

The following Series 2448A instruments also have changes indicated for A7 (05180-60007, SERIES 2449):

2448A01011 thru 2448A01020

Table 6-3. A8/A9 Memory Board Replaceable Parts:

Change A8/A9 (05180-60809) SERIES from 2448 to 2250.  
Delete R16, 17, 18; 0698-3440; RESISTOR-FXD 196 1% .12WF.  
Delete R19, 20, 21; 0757-0403; RESISTOR-FXD 121 1% .12WF.  
Delete XU21, 29, 30; 1200-0639; IC-SOCKET 20-PIN.

Figure 8-25. A8 or A9 Memory Board Schematic Diagram:

Change A8/A9 SERIES, at the top of the schematic, from 2448 to 2250.  
Delete R16, R17, and R18 (196-ohm resistors) from pin 7 (input) to pin 10 (-5.2V) of U21, U29, and U30.  
Delete R19, 20, 21 (121-ohm resistors) from pin 1 (ground) to pin 7 (input) of U21, U29, and U30.  
Change R1-R21 to R1-R15 in REFERENCE DESIGNATORS table.

#### **CHANGE 5 (Serial Prefix 2442A, 2436A)**

The following Series 2436A instruments also have changes indicated for Series 2442:

2436A00981 thru 2436A01000

The following Series 2436A instruments also have changes indicated for A7 (05180-60007, Series 2449):

2436A00991 thru 2436A01000

Table 6-3. A7 Multiplexer/Comparator Replaceable Parts:

Change A7 (5180-60007) SERIES from 2442 to 2434.  
Add A7F1; 2110-0510; FUSE .015 BI-PN.

Figure 8-23. A7 Multiplexer/Comparator Schematic Diagram:

Change A7 SERIES, at the top of the schematic, from 2442 to 2434.  
Add F1 (.015A fuse) — replaces 20-gauge wire.

**CHANGE 6 (Serial Prefix 2434A)**

The following Series 2434 instruments also have changes indicated for Series 2436:

2434A00971 thru 2434A00980

Instrument 2434A00971 also has changes indicated for Series 2442.

Instrument 2434A00975 also has changes indicated for Series 2449.

Table 6-3. A11 Timebase Replaceable Parts:

Change A11 (05180-60081) SERIES from 2436 to 2404.

Delete XU9; 1200-0607; SOCKET-IC 16-CONT DIP-SLDR.

Figure 8-31. A11 Timebase Schematic Diagram:

Change A11 SERIES, at the top of the schematic, from 2436 to 2404.

**CHANGE 7 (Serial Prefix 2426A, 2426A)**

The following Series 2426A instruments also have changes indicated for Series 2436:

2426A00941 thru 2426A00950

The following Series 2426A instruments also have changes indicated for Series 2442:

2426A00936 2426A00951 2426A00957

2426A00947 2426A00955 2426A00961 thru 2426A00970

Instrument 2426A00957 also has changes indicated for Series 2449.

Table 6-3. A20 Input Amplifier Replaceable Parts:

Change A20 (05180-60020) SERIES from 2420 to 2414.

Delete CR23, CR24; 1901-0179; DIODE-SWITCHING 15V 50MA 750 PS D07.

Figure 8-50. A20 Input Amplifier Schematic Diagram:

Delete CR23 and CR24.

**CHANGE 8 (Serial Prefix 2414A)**

The following Series 2414A instruments also have changes indicated for Series 2442:

2414A00909 and 2414A00911

Instrument 2414A00911 also has changes indicated for Series 2449.

Table 6-3. A4 Timing Assembly Replaceable Parts:

Change U1 HP Part Number from 1DD8-0502 to 1820-0982. Part number 1820-0982 is no longer being manufactured.

Part number 1DD8-0502 is a compatible replacement. These parts are directly interchangeable with 1DD8-0502 being the preferred part.

Table 6-3. A20 Input Amplifier Replaceable Parts:

Change A20 (05180-60020) SERIES from 2414 to 2324.

Change L10, L11 from 9100-2265; INDUCTOR RF-CH-MLD 10 UH 10% .105DX.26LG to 9100-2265; INDUCTOR RF-CH-MLD

6.8UH 10% .105DX.26LG.

Change R92, R102 from 0757-0280; RESISTOR 1K 1% .125W F TC=0+-100 to 0698-0082; RESISTOR 464 1% .125W F TC=0+-100.



Figure 8-19. A4 Timing Schematic Diagram:

In TABLE OF ACTIVE ELEMENTS:

Change U1 HP Part Number from 1820-0982 to 1DD8-0502.

Figure 8-50. A20 Input Amplifier Schematic Diagram:

Change A20 SERIES, at the top of the schematic, from 2414 to 2324.

Change the values of L10 and L11 from 10UH to 6.8UH.

Change the values of R92 and R102 from 1K to 464.

#### **CHANGE 9 (Serial Prefix 2408A, 2404A)**

The following Series 2408A instruments also have changes indicated for Series 2442:

|            |            |            |
|------------|------------|------------|
| 2408A00883 | 2408A00887 | 2408A00891 |
| 2408A00884 | 2408A00888 | 2408A00895 |

The following Series 2404A instruments also have changes indicated for Series 2442:

|            |            |            |            |            |
|------------|------------|------------|------------|------------|
| 2404A00824 | 2404A00860 | 2404A00865 | 2404A00874 | 2404A00885 |
| 2404A00855 | 2404A00861 | 2404A00868 | 2404A00875 |            |
| 2404A00857 | 2404A00862 | 2404A00872 | 2404A00877 |            |
| 2404A00858 | 2404A00863 | 2404A00873 | 2404A00878 |            |

The following Series 2404A instruments also have changes indicated for Series 2449:

|            |            |            |
|------------|------------|------------|
| 2404A00860 | 2404A00875 | 2404A00878 |
| 2404A00861 | 2404A00877 |            |

The following Series 2404A instruments also have changes indicated for A7 (05180-60007, Series 2449):

|            |            |            |
|------------|------------|------------|
| 2404A00860 | 2404A00877 | 2404A00957 |
| 2404A00861 | 2404A00878 | 2404A00975 |
| 2404A00865 | 2404A00911 |            |

Table 6-3. A16 XYZ Driver Replaceable Parts:

Change A16 (05180-60016) SERIES from 2414 to 2404.

Change U14 from 1820-2861; IC DCDR TTL LS 3-TO-8 LINE 3-INP; 74LS138N to 1820-1216; IC DCDR TTL LS 3-TO-8 LINE 3 INP; 74F138.

Figure 8-43. A166 XYZ Driver Schematic Diagram:

Change A16 SERIES, at the top of the schematic, from 2414 to 2404.

In TABLE OF ACTIVE ELEMENTS:

Change U14 from 1820-2861; 74LS138N to 1820-1216; 74F138.

#### **CHANGE 10 (Serial Prefix 2329A)**

Instrument 2329A00721 also has changes indicated for Series 2442.

Table 6-3. A15 HP-IB/DMA Replaceable Parts:

Change A15 (05180-60015) SERIES from 2404 to 2044.

Change U15 and U17 HP Part Number from 1820-2641 to 1820-1997.

Table 6-3. A25 Rear Panel Replaceable Parts:

Change A25 (05180-60026) SERIES from 2329 to 2232.

Change CR9 and CR12; from 1906-0229; DIODE-ARRAY 50V 400MA to 1906-0202; DIODE-ARRAY 40V 400MA.

Delete CR15; 1906-0229; DIODE-ARRAY 50V 400MA.

Figure 8-40. A15 HP-IB/DMA Schematic Diagram:

Change A15 SERIES, at the top of the schematic, from 2404 to 2044.

In TABLE OF ACTIVE ELEMENTS:

Change U15,U17 HP Part Number from 1820-2641 to 1820-1997.

Figure 8-54. A25 Rear Panel Board Schematic Diagram:

Change A25 SERIES, at the top of the schematic, from 2329 to 2232.

Delete CR15.

**CHANGE 11 (Serial Prefix 2327A)**

Instrument 2327A00706 also has changes indicated for Series 2442.

Table 6-3. A11 Timebase Replaceable Parts:

Change A11 (05180-60081) SERIES from 2204 to 2311.

Delete XU31, XU32; 1200-0607; SOCKET-IC 16-CONT DIP-SLDR.

Table 6-3. CHASSIS PARTS:

Change FL1 HP Part Number from 9135-0221 to 9135-0042.

Figure 8-31. A11 Timebase Schematic Diagram:

Change A11 SERIES, at the top of the schematic, from 2204 to 2311.

**CHANGE 12 (Serial Prefix 2324A)**

The following Series 2324A instruments also have changes indicated for Series 2442:

2324A00683, 2324A00700

Instrument 2324A00700 also has changes indicated for Series 2449.

Instrument 2324A00700 also has changes indicated for A7 (05180-60007), Series 2449.

Table 6-3. A17 ROM/XYZ Clock Replaceable Parts:

Change A17 (05180-60017) SERIES from 2327 to 2324.

Change R3 from 2100-3274; RESISTOR-TRMR 10K 10% C SIDE-ADJ 1-TRN to 2100-3207;  
RESISTOR 5K 10% C SIDE-ADJ 1-TRN.

Figure 8-45. A17 ROM/XYZ Clock Schematic Diagram:

Change A17 SERIES, at the top of the schematic, from 2327 to 2324.

Change the value of R3 from 10K to 5K.

**CHANGE 13 (Serial Prefix 2318A)**

The following Series 2318A instruments also have changes indicated for Series 2324:

2318A00261 thru 2318A00630

2318A00632 thru 2318A00635

2318A00637 thru 2318A00670

Table 6-3. A14 ROM/RAM/CMOS RAM Replaceable Parts:

Change A14 (05180-60014) SERIES from 2324 to 2044.

Add XU1; 1200-0565; SOCKET-IC 24-CON DIP-SLDR.

Add W2, W4, W5, and W6; 8195-0005; RESISTOR-ZERO OHMS 22 AWG LEAD DIA.

Table 6-3. A17 ROM/XYZ Clock Replaceable Parts:

Change A17 SERIES, at the top of the schematic, from 2324 to 2044.

Add U2; 05180-80007; EPROM.

Add U4; 05180-80009; EPROM.

Add XU2, XU4; 1200-0565; SOCKET-IC 24-CONT DIP-SLDR.

Table 6-3. A20 Input Amplifier Replaceable Parts:

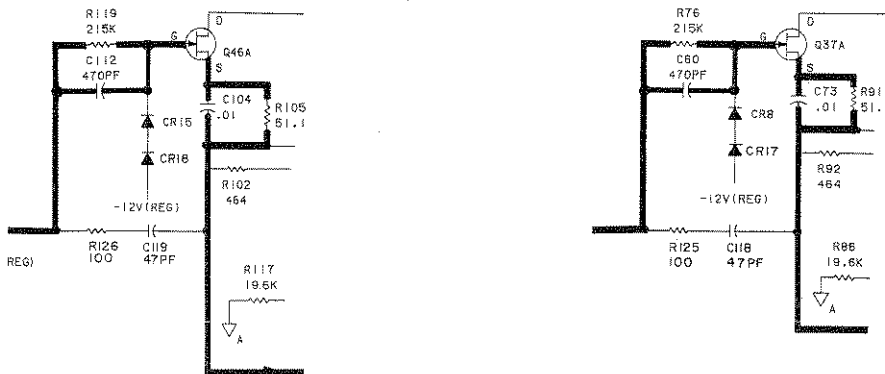
- Change A20 (05180-60020) SERIES from 2324 to 2222.
- Change C55 from 0121-0535; CAPACITOR-V TRMR-PSTN .25-1.5PF 1000V to 0121-0059; CAPACITOR-V TRMR-CER 2-8PF 350V PC-MTG.
- Delete C56; 0121-3872; CAPACITOR-FXD 2.2PF  $\pm$ .25PF 200VDC CER.
- Change C57 from 0121-3872; CAPACITOR-FXD 2.2PF  $\pm$ .25PF 200VDC CER to 0160-2249; CAPACITOR-FXD 4.7PF  $\pm$ .25PF 500VDC CER.
- Change C60 from 0160-3445; CAPACITOR-FXD 470PF  $\pm$ -10% 1KVDC to 0140-0149; CAPACITOR-FXD 470PF  $\pm$ -5% 300VDC MICA.
- Delete C110; 0160-3872; CAPACITOR-FXD 2.2PF  $\pm$ .25PF 200VDC CER.
- Change C112 from 0160-3455; CAPACITOR-FXD 470PF 1KVDC CER to 0140-0149; CAPACITOR-FXD 470PF  $\pm$ -5% 300VDC MICA.
- Change C113 from 0121-0535; CAPACITOR-VAR TRMR-PSTN .25-1.5PF 1000V to 0121-0060; CAPACITOR-V TRMR-CER 2-8PF 350V PC-MTG.
- Change C117 from 0121-3872; CAPACITOR-FXD 2.2PF  $\pm$ .25PF 200VDC CER to 0160-2249; CAPACITOR-FXD 4.7PF  $\pm$ .25PF 500VDC CER.
- Add C118, C119; 0160-4387; CAPACITOR-FXD 47PF  $\pm$ -5% 200VDC CER.
- Change K1-3,6,7, and K9 from 0490-1360; RELAY-REED 1C 250MA 200VDC COIL 3VA to 0490-0617; RELAY-REED 1C 250MA 28VDC 5VDC-COIL.
- Change K4 and K8 from 0490-1360; RELAY DIP 5V FRMIB to 0490-1183; RELAY REED 1B 500MA 100VDC 5VDC-COIL.
- Change R77 and R124 from 0757-0394; RESISTOR 51.5 1% .125W TC=0 $\pm$ -100 to 0757-0346; RESISTOR 10 1% .125W F TC= $\pm$ -100.
- Add R125, R126; 0757-0401; RESISTOR 100 1% .125W F TC= $\pm$ -100.
- Add R128, R129; 0698-7248; RESISTOR 3.16K 1% .125W F TC= $\pm$ -100.

Figure 8-45. A17 ROM/XYZ Clock Schematic Diagram:

- Change A17 SERIES, at the top of the schematic, from 2324 to 2044.
- Add U2 and U4 EPROMS to the schematic.

Figure 8-50. A20 Input Amplifier Schematic Diagram:

- Change A20 SERIES, at the top of the schematic, from 2324 to 2222.
- Change the value of C55 from .25-1.5PF to 2-8PF.
- Delete capacitors C56 and C110 (2.2PF).
- Change the value of C57 from 2.2PF to 4.7PF.
- Change the value of C113 from .25-1.5PF to 2-8PF.
- Change the value of C117 from 2.2PF to 4.7PF.
- Connect C118, C119 (47PF) capacitors and R125, R126 (100 ohms) resistors as shown in the figure below:



- Change the values of R77 and R124 from 51.5 ohms to 10 ohms.
- Delete resistors R128 and R129 (3.16K).

**CHANGE 14 (Instruments 2311A00541 & above)**

The following Series 2311A instruments also have changes indicated for Series 2324:

|            |            |                       |
|------------|------------|-----------------------|
| 2311A00545 | 2311A00565 | 2311A00578 thru 00585 |
| 2311A00548 | 2311A00567 | 2311A00587 thru 00591 |
| 2311A00554 | 2311A00571 | 2311A00593 thru 00596 |
| 2311A00559 | 2311A00572 | 2311A00598 thru 00608 |
| 2311A00560 | 2311A00573 | 2311A00610 thru 00620 |
| 2311A00563 | 2311A00574 |                       |

**Table 6-3. A24 Power Supply Motherboard Replaceable Parts:**

Change A24 (05180-60024) SERIES from 2616 to 2318.

Change C1-C4 from 0180-2828 ;CAPACITOR-FXD 2.2UF 35VDC TA to 0180-0117; CAPACITOR-FXD 2.7UF +-10% 35VDC TA.

Delete C15 0160-4355; CAPACITOR-FXD .01UF +-10% 250VAC (RMS).

Delete CR9, 10, 12; 1902-1080; DIODE ZNR 16V 5% PD=1W IR=5UA.

Delete CR11, 13; 1902-1080; DIODE-SCHOTTKY 1N5817 20V 1A.

**Under A24 MISCELLANEOUS:**

Delete 0380-0600; STANDOFF-RVT-ON .219-IN-LG 6-32THD.

Delete Q3; 1884-0250; THYRISTOR-TRIAC TO-220AB; T2500D.

Delete R17; 0757-0733; RESISTOR 1.1K 1% .25W F TC=0+-100.

Delete R18; 0698-3439; RESISTOR 178 1% .125W F TC=0+-100.

Delete R19; 0698-3441; RESISTOR 215 1% .125W F TC=0+-100.

Delete R20; 0159-0005; ZERO OHM LEAD ELECT.

Delete U5; 1990-0845; OPTO-ISOLATOR IF=50MA-MAX VAX=250V.

**Figure 8-53. A24 Power Supply Motherboard Schematic Diagram:**

Change A24 SERIES, at the top of the schematic from 2616 to 2318.

Delete C15, CR9, CR10, CR12, CR11, CR13, R17, and R18.

Delete R19, R20, and U5.

**CHANGE 15 (Instruments 2250A00531 & above)**

**Table 6-3. A5 Data Decoder Assembly Replaceable Parts:**

A5 (05180-60085) SERIES remains 2044.

Delete R25, R28; 1810-0370; NETWORK-RES 8-SIP 220.0 OHM X 7.

Add R24, R27; 1810-0433; NETWORK-RES 8-SIP MULTI-VALUE.

**Table 6-3. A10 Memory Controller Replaceable Parts:**

Change A10 HP Part Number from 05180-60080 to 05180-60010, Series 2044.

Change R23 from 1810-0203; NETWORK-RES 8 SIP470.0 OHM X 7. to 1810-0273; NETWORK-RES SIP470.0 OHM X 9.

**Table 6-3. A11 Timebase Replaceable Parts:**

Change A11 HP Part Number from 05180-60081 to 05180-60011, Series 2044.

Delete R26 0698-3132; RESISTOR 261 1% .125W F TC=0+-100.

Add A11S1; 3101-1841; SWITCH-SL.

Add A11XS1; 1200-0866; socket-ic 8-CONT DIP DIP-SLDR.

**Figure 8-21. A5 Data Decoder Schematic Diagram:**

Change all references to R28 to R27.

Change all references to R25 to R24.

**Figure 8-29. A10 Memory Controller Schematic Diagram:**

Replace A10 (05180-60010) Schematic Diagram with the new A10 (05180-60080, Series 2311) Sheet 1 of 2 Schematic Diagram supplied at the back of this section.

Figure 8-31. A11 Timebase Schematic Diagram:

Replace A11 (05180-60011) schematic diagram with the new A11 (05180-60081, Series 2311) schematic diagram supplied at the back of this section.

**CHANGE 16 (Instruments 2250A00521 & above)**

Table 6-3. A21 Front Panel/Display Replaceable Parts:

Change A21 (05180-60021) SERIES remains 2044.

Change DS1-4, DS8-17, DS20-24, DS25 and DS35 from 1990-0547; LED-LAMPLUM-INT=2MCD IF=20MA-MAX BVR=5V to 1990-0486; LED-LAMP LUM-INT=1MCD IF=20MA MAX BVR=5.

Figure 8-49. Front Panel/Display Schematic Diagram:

In TABLE OF ACTIVE ELEMENTS:

Change DS1-4, DS8-17, DS20-24, DS25 and DS35 from 1990-0547; to 1990-0486.

**CHANGE 17 (Instruments 2250A00491 & above)**

Instrument 2250A00518 also have changes indicated for Series 2442:

Table 6-3. A11 Timebase Replaceable Parts:

Add S1; 3101-1841; SWITCH-SL 4-1A DIP-SLIDE-ASSY .1A 50VDC.

Figure 8-31. A11 Timebase Schematic Diagram:

Connect S1 Option Switch to the inputs of U1A.

**CHANGE 18 (Serial Prefix 2240A00541 & above 2238A)**

Table 6-3. A1 Voltage Regulator Replaceable Parts:

A1 SERIES from remains 2240.

Change R23 from 0757-0424; RESISTOR 383 1% .125W to 0698-3152; RESISTOR 3.48K 1% .125W.

Figure 8-13. A1 Voltage Regulator Schematic Diagram:

Change the value of R23 from 383 ohms to 3.48K ohms.

Change the value of R27 from 1.1K ohms to 1k ohms.

**CHANGE 19 (Instruments 2232A00401 & above)**

Instruments with the Serial Numbers 2232A00401 & above also have changes indicated for Series 2240A.

Table 6-3. A13 Processor Replaceable Parts:

Change A13 (05180-60013) SERIES from 2238 to 2044.

Delete XU11; 1200-0607; SOCKET-IC 16-CONT.

Figure 8-35. A13 Processor Schematic Diagram:

Change A13 SERIES, at the top of the schematic, from 2238 to 2044.

**CHANGE 20 (Serial Prefix 2232A, 2230A00361 & above)**

The following Series 2232A instruments also have the changes indicated for Series 2324A:

2232A00394, 2232A00407

Table 6-3. A3 20 MHz Converter Assembly Replaceable Parts:

Change A3 (05180-60003) SERIES from 2240 to 2238.

Change R26 from 2100-3154; RESISTOR-TRMR 1K 10% C SIDE-ADJ 17-TRN to 2100-3109; RESISTOR-TRMR 2K 10% C SIDE-ADJ 17-TRN.

Change R27 from 0757-0283 RESISTOR 2K 1% .125W to 0698-3153; RESISTOR 3.83K 1% .125W.

Change R28 from 0757-0274; RESISTOR 1.21K 1% .125W to 0698-0083; RESISTOR 1.96K 1% .125W.

Change R36 from 0757-04422; RESISTOR .909K 1% .125W to 0757-0280; RESISTOR 1K 1% .125W.  
Change R37 from 0698-5808; RESISTOR 4K 1% .125W to 0698-3153; RESISTOR 3.83K 1% .125W.

Figure 8-17. A3 20 MHz Converter Schematic Diagram:

Change A3 SERIES, at the top of the schematic, from 2240 to 2238.  
Change the value of R26 from 1K to 2K.  
Change the value of R27 from 2K to 3.83K.  
Change the value of R28 from 1.21K to 1.96K.  
Change the value of R36 from .909K to 1K.  
Change the value of R37 from 4K to 3.83K.

**CHANGE 21 (Serial Prefix 2224A, 2222A)**

The following Series 2224A instruments also have changes indicated for Series 2230A00361 and above:

2224A00323 2224A00346 2224A00350 thru 00360  
2224A00329 2224A00347  
2224A00340 2224A00348  
2224A00341 2224A00349

The following Series 2224A instruments also have changes indicated for Series 2324A:

2224A00332 2224A00336

The following Series 2222A instruments also have changes indicated for Series 2224A:

2222A00304 2222A00310

Table 6-3. A13 Processor Replaceable Parts:

Change A13 (05180-60013) SERIES from 2224 to 2044.  
Add A13U1; 1818-0762; IC NMOS 323768 (32K) EPROM 450-NS 3-S.  
Delete U3; 1818-1785; IC-MCM 68764C.  
Change U17 from 1820-1416; IC-INV TTL; 74LS14N to 1820-1199; IC INV TTL LS HEX 1-INP.

Table 6-3. A25 Rear Panel Replaceable Parts:

Change A25 (05180-60026) SERIES from 2224 to 2232.  
Change C1 from 0180-2818; CAPACITOR-FXD 2.2UF 35V TA to 0180-2617; CAPACITOR-FXD 6.8UF +-10% 35VDC TA.  
Delete C5; 0180-2818 CAPACITOR-FXD 22.UF 35V TA.  
Delete R25; 0698-3437; RESISTOR-FXD 133 1% .125W F TC=+-100.  
Delete R26; 0757-0399; RESISTOR-FXD 82.5 1% .125W F TC=+-100.

Figure 8-35. Processor Schematic Diagram:

Change A13 SERIES, at the top of the schematic, from 2224 to 2044.  
Add U1.  
Delete U3.  
Change the switch position S1J from open to closed on the address line to pin 21, and change the switch position of S1H from closed to open.

In TABLE OF ACTIVE ELEMENTS:

Delete U3.  
Change U17 from 1820-1416; 74LS14N to 1820-1199; SN74LS04N.

Figure 8-54. Rear Panel Schematic Diagram:

Change A25 SERIES, at the top of the schematic, from 2224 to 2232.  
Change the value of C1 from 2.2UF to 6.8UF.  
Delete C5, R25, and R26.

**CHANGE 22 (Serial Prefix 2220A)**

The following Series 2220A instruments also have changes indicated for Series 2222A:

2220A00280 thru 2220A00289 2220A00297  
2220A00291 thru 2220A00295

The following Series 2220A instruments also have changes indicated for Series 2222, except for those changes to C118, C119, R125, & R126:

2220A00271 2220A00276 2220A00283  
2220A00274 2220A00278 2220A00290

The following Series 2220A instruments also have changes indicated for Series 2224A:

2220A00282 2220A00288 2220A00296  
2220A00287 2220A00294

Table 6-3. A2 Sample & Hold Replaceable Parts:

- Change A2 (05180-60002) SERIES from 2222 to 2044.
- Delete C34, C35, C36, C37; CAPACITOR-FXD .1UF +-20% 50 VDC CER.
- Change R6 from 0698-3428; RESISTOR 14.7 1% .125W F TC=+-100 to 0757-0394; RESISTOR 51.1 1% .125W F TC=+-100.

Figure 8-15. A2 Sample & Hold Schematic Diagram:

- Change A2 SERIES at the top of the schematic, from 2222 to 2044.
- Delete C34, C35, C36, and C37.
- Change the value of R6 from 14.7 ohms to 51.1 ohms.
- Change C1-C37 to C1-C33 in the Reference Designations Table.

**CHANGE 23 (Serial Prefix 2210A)**

The following Series 2210A instruments also have changes indicated for Series 2222:

2210A00266 2210A00270 2210A00277  
2210A00269 2210A00275 2210A00279

The following Series 2210A instruments also have changes indicated for Series 2222, except for those changes to C118, C119, R125 & R126:

2210A00234 2210A00249 2210A00258 2210A00262  
2210A00241 2210A00255 2210A00259 2210A00263  
2210A00246 2210A00257 2210A00261 2210A00264

Instrument 2210A00223 also has changes for Series 2324A:

Table 6-3. A20 Input Amplifier Replaceable Parts:

- Change A20 (05180-60020) SERIES from 2220 to 2044.
- Delete CR17, CR18; 1901-0376; DIODE-GEN PRP 35V 50MA DO-35.
- Delete CR19 thru CR24; 1901-0179; DIODE-SWITCHING 15V 50MA 750PS DO-7.
- Change R80, R85, R106, and R110 from NOT ASSIGNED to 0698-7188; RESISTOR 10 1% .05W F TC=+-100.
- Add R105; 0757-0391; RESISTOR 51.1 1% .05W.

Figure 8-50. A20 Input Amplifier Schematic Diagram:

- Change A20 SERIES, at the top of the schematic, from 2222 to 2044.
- Delete CR17 thru CR24.
- Connect one side of R85 to the positive polarity side of C70; and the other side of R85 to one side of R80. Connect the remaining side of R80 to the +12V (REG) line.

Connect C67 positive side to the junction point of R85 and R80.  
Connect one side of R110 to the positive polarity side of C109; and the other side of R110 to one side of R106. Connect the remaining side of R106 to the +12V (REG) line.  
Connect C102 positive side to the junction point of R110 and R106.

**CHANGE 24 (Serial Prefix 2204A)**

Table 6-3. MISCELLANEOUS PARTS:

Add 05180-00022; INFORMATION TRAY.  
Add 05180-00027; DRESS PANEL-BOTTOM.  
Add 0890-1460; RUBBER-BUMPER.

**CHANGE 25 (Instruments 2150A00161 & above and 2044A)**

The following Series 2044A instruments also have changes indicated for Series 2222A:

|            |            |            |
|------------|------------|------------|
| 2044A00102 | 2044A00119 | 2044A00253 |
| 2044A00116 | 2044A00251 | 2044A00265 |

The following Series instruments also have changes indicated for Series 2224A:

|            |            |            |
|------------|------------|------------|
| 2044A00102 | 2044A00106 | 2044A00119 |
| 2044A00103 | 2044A00116 | 2044A00122 |

Instrument 2044A00119 also has changes indicated for Series 2324:

Table 6-3. A3 20 MHz Converter Assembly Replaceable Parts:

Change A3 (05180-60003) SERIES from 2204 to 2044.  
Change R27 from 0698-3152; RESISTOR 3.48K 1% .125W F TC=+-100 to 0698-3153; RESISTOR 3.83K 1% .125W F TC=+-100.  
Change R28 from 0698-0083; RESISTOR 1.96K 1% .125W F TC=+-100 to 0757-0317; RESISTOR 1.33K 1% .125W F TC=+-100.

Figure 8-17. A3 20 MHz Converter Schematic Diagram:

Change A3 (05180-60003) SERIES, at the top of the schematic, from 2204 to 2044.  
Change the value of R27 from 3.48K to 3.83K.  
Change the value of R28 from 1.96K TO 1.33K.

Table 6-3. A4 Timing Assembly Replaceable Parts:

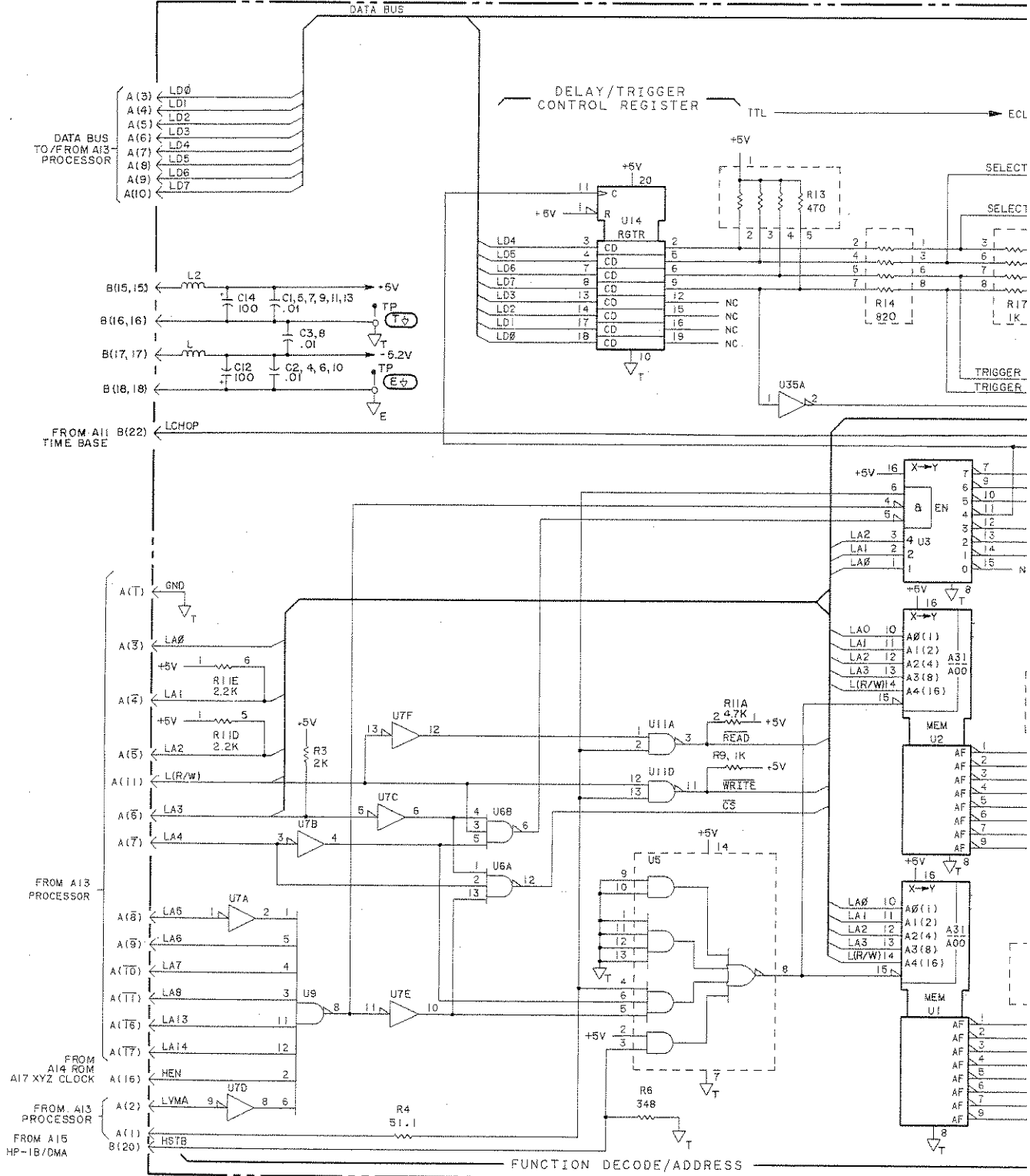
Change U1 HP Part Number from 1DD8-0502 to 1820-0982.

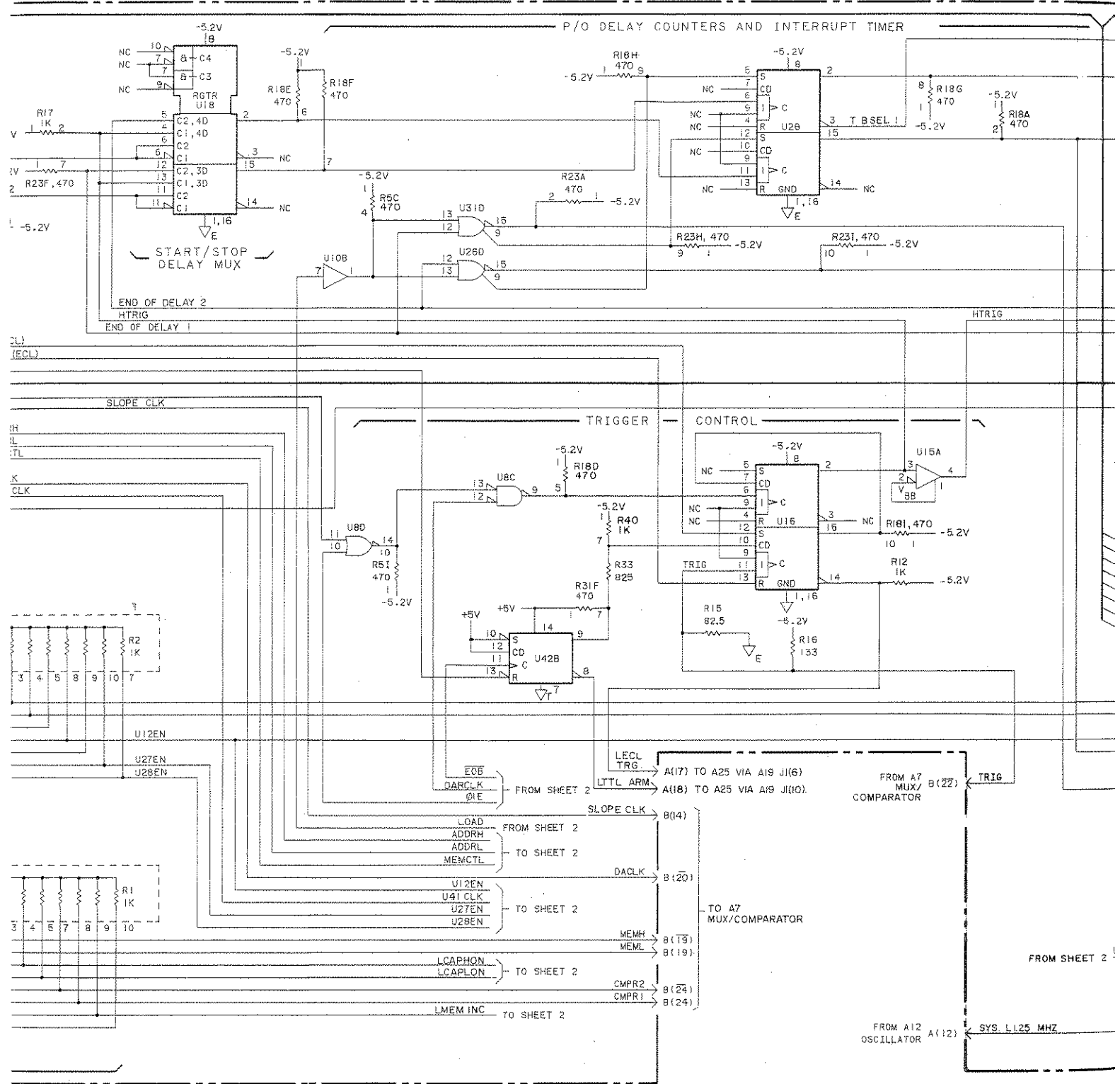
Figure 8-19. A4 Timing Assembly Schematic Diagram:

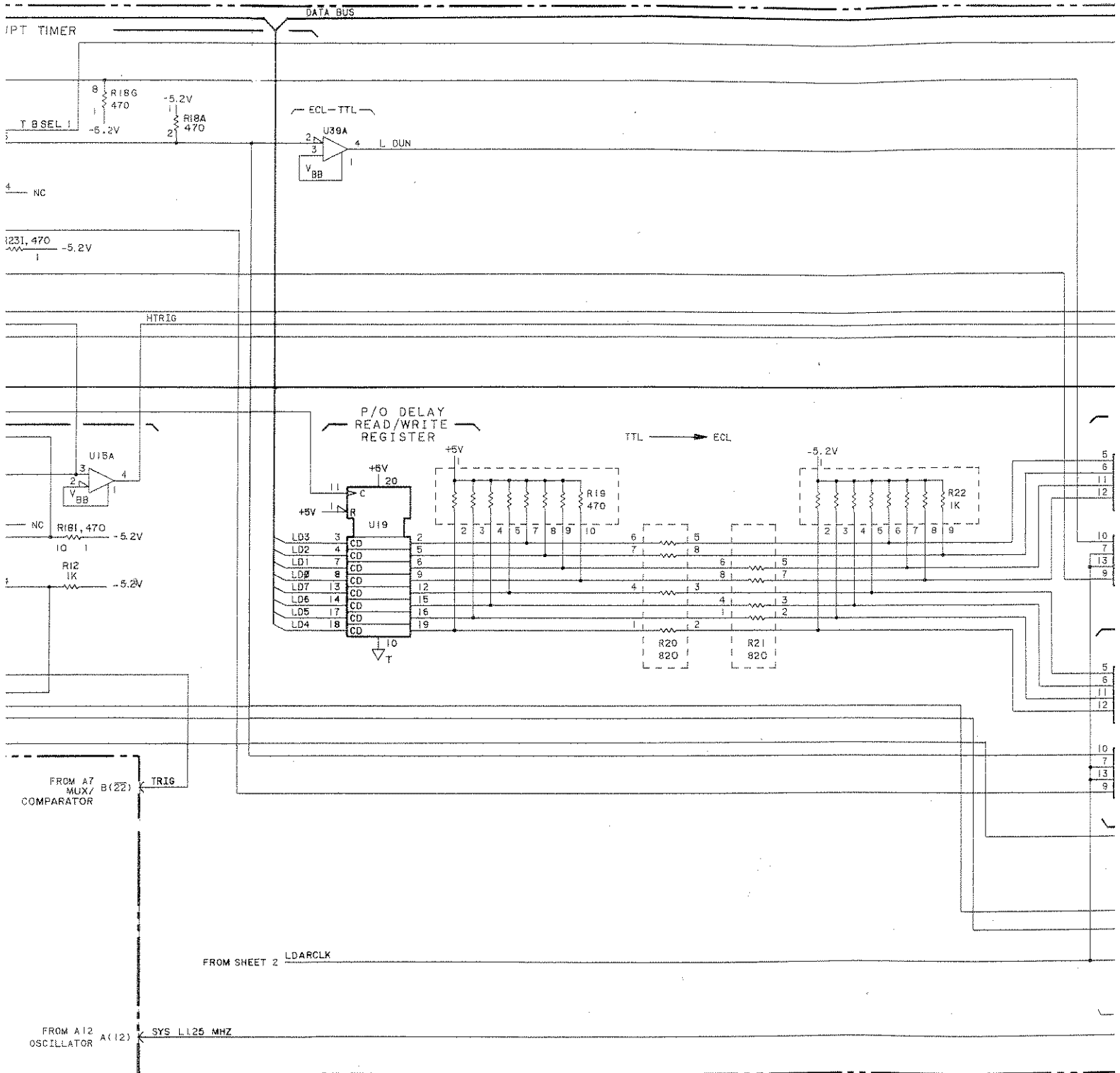
In TABLE OF ACTIVE ELEMENTS:

Change U1 from 1DD8-0502 to 1820-0982.









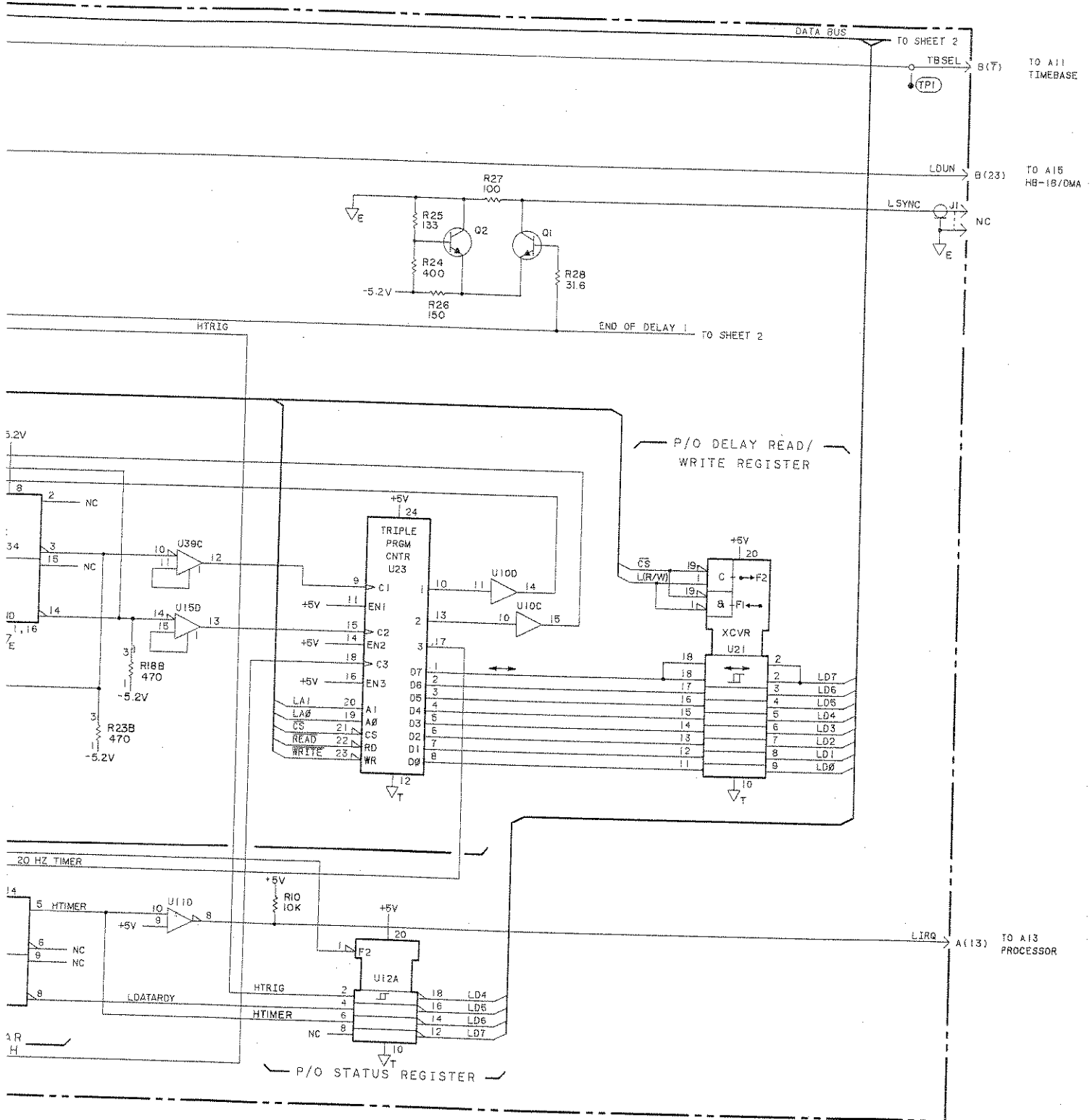


Figure 8-29. A10 Memory Controller Schematic Diagram (Sheet 1 of 2)

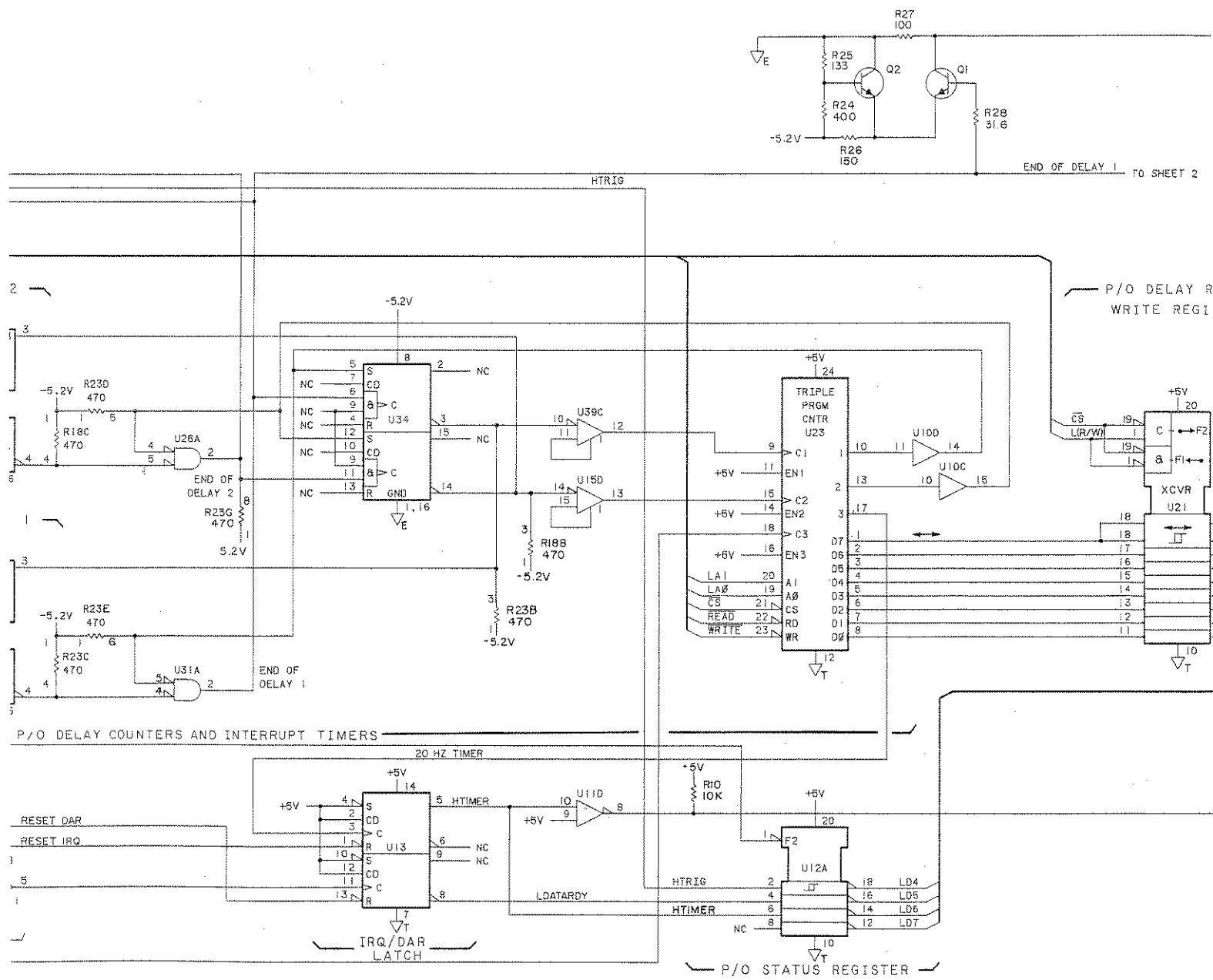
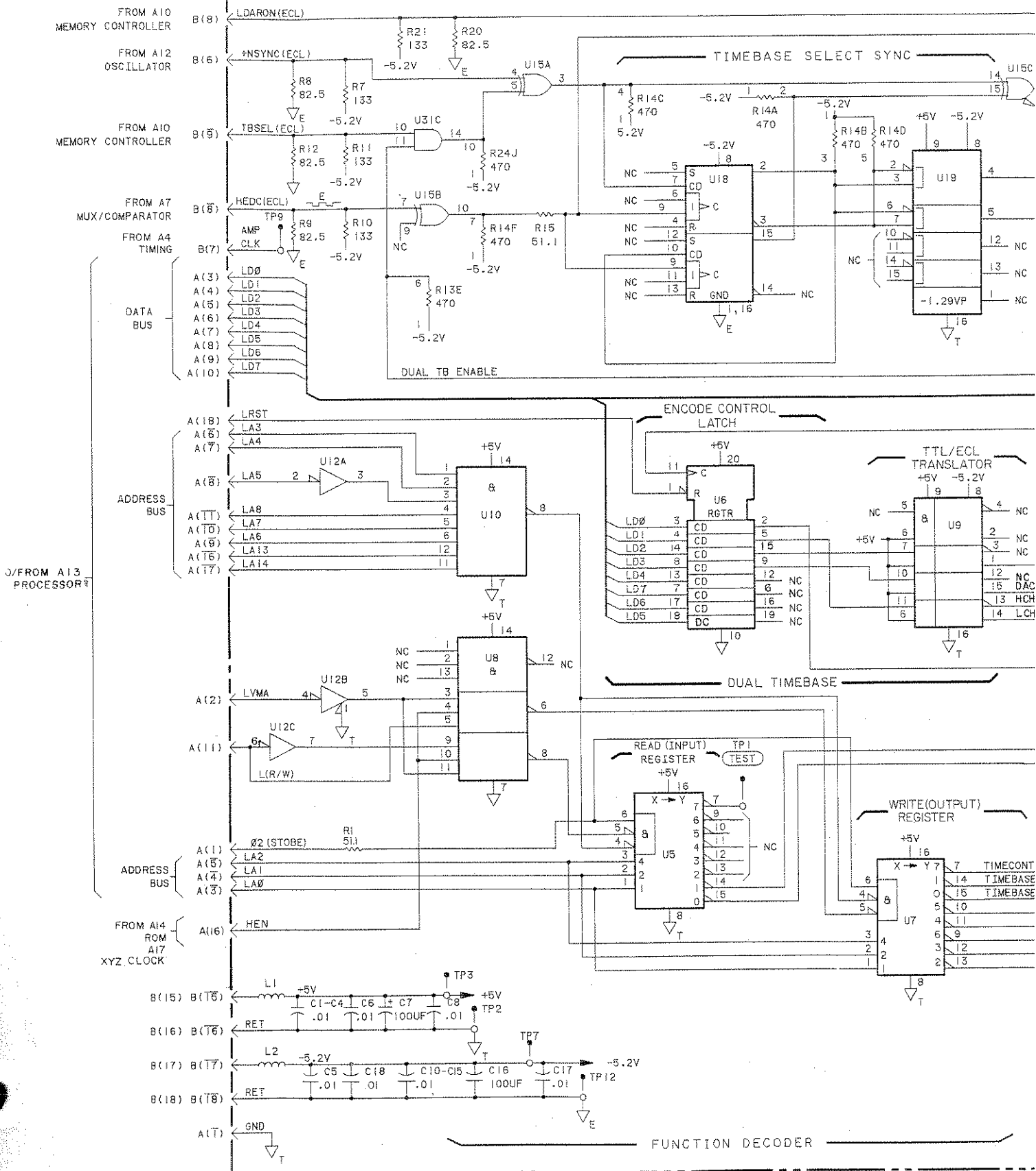
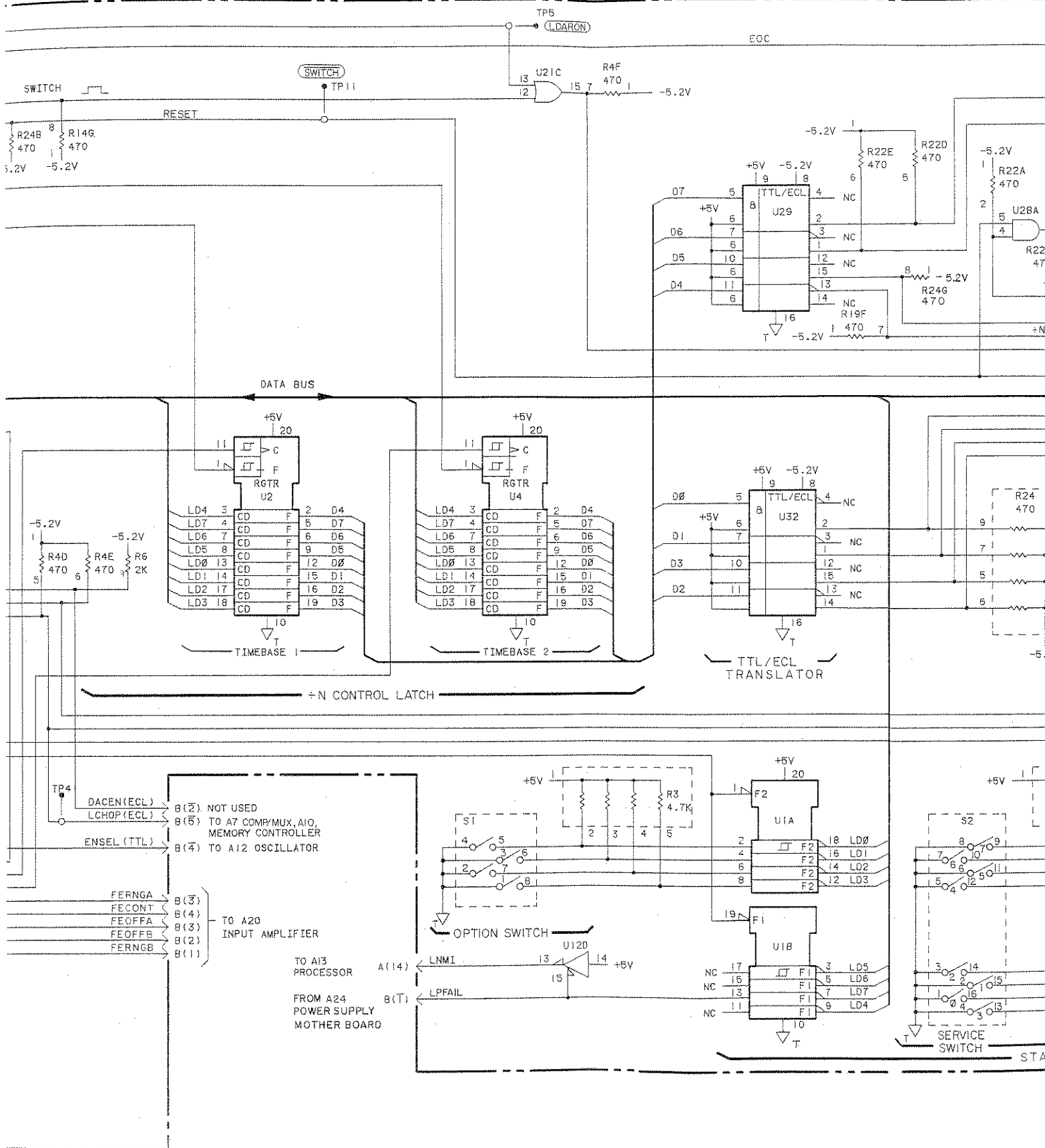
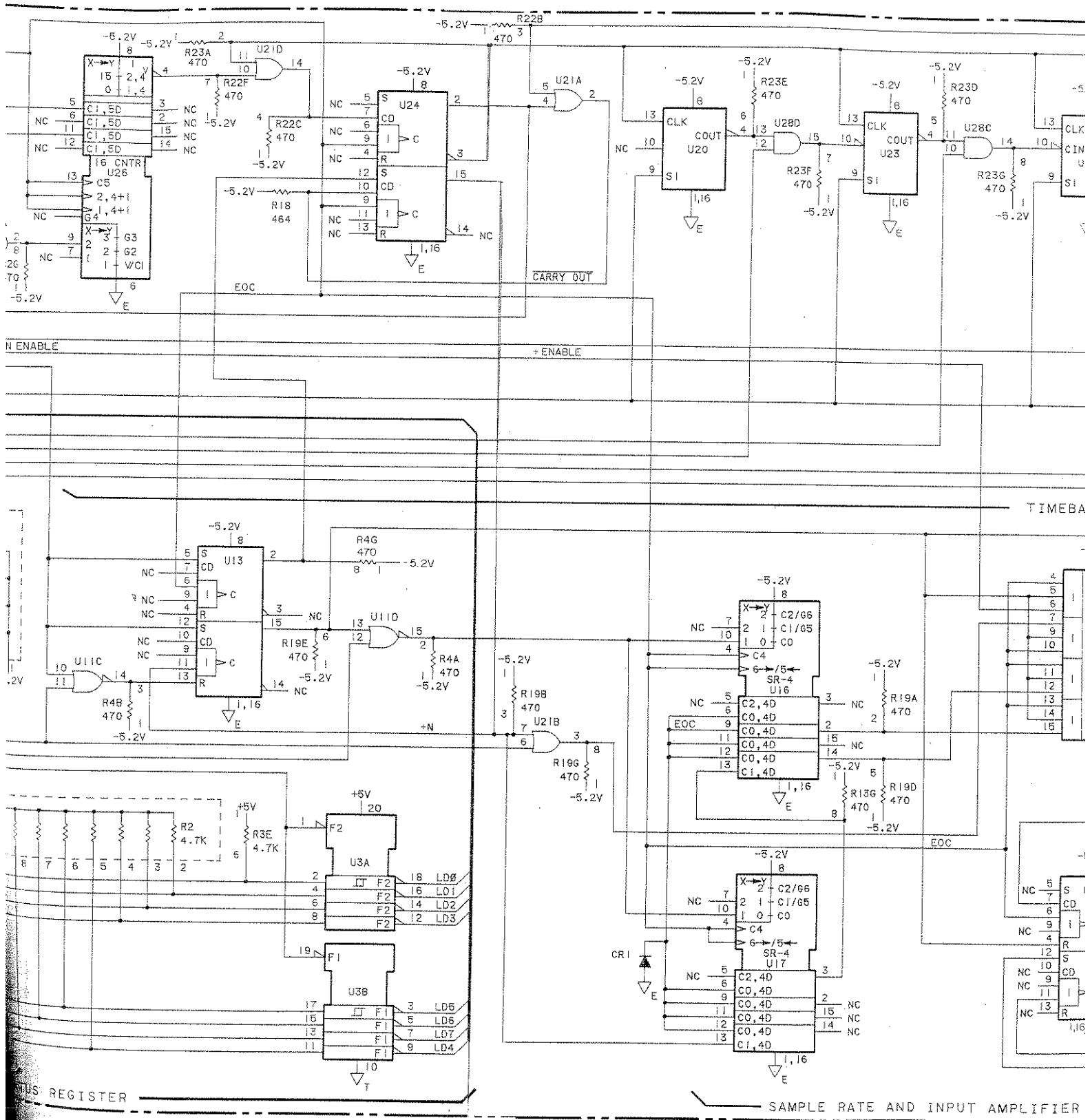


Figure 8-29. A10 Memory Controller

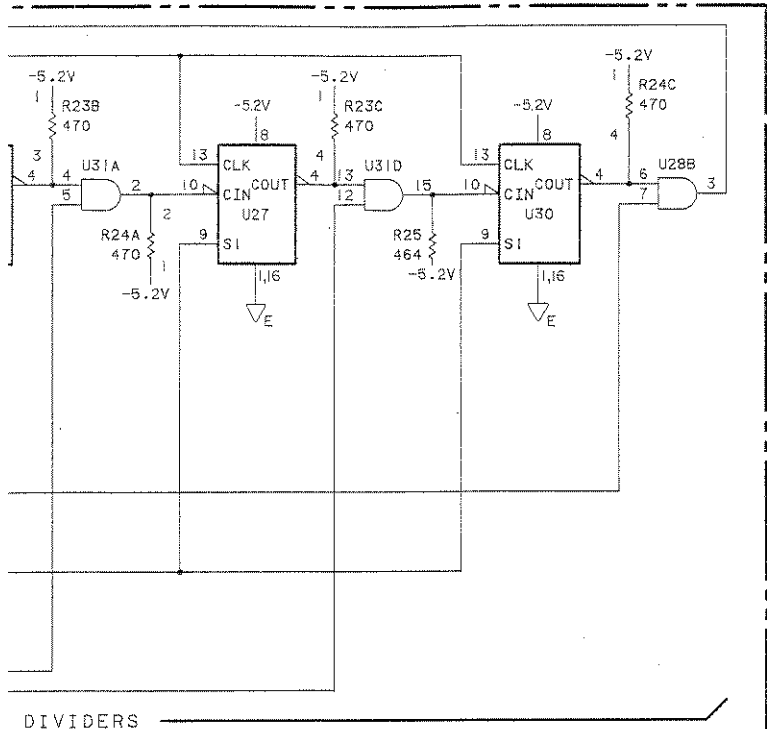
ALL TIMEBASE ASSEMBLY (05180-60011) SERIES 2044











NOTES:

1. REFERENCE DESIGNATIONS WITHIN THIS ASSEMBLY ARE ABBREVIATED. ADD ASSEMBLY NUMBER TO ABBREVIATION FOR COMPLETE DESCRIPTION.
2. UNLESS OTHERWISE INDICATED: RESISTANCE IN OHMS; CAPACITANCE IN MICROFARADS; INDUCTANCE IN HENRIES
3. S1 AND S2 POSITIONS SHOWN IN NORMAL OPERATION

REFERENCE DESIGNATORS

|        |
|--------|
| A11    |
| C1-C18 |
| L1-L2  |
| R1-R25 |
| S1-S2  |
| U1-U32 |
| CR1    |

TABLE OF ACTIVE ELEMENTS

| REFERENCE DESIGNATION | HP PART NUMBER | MFG OR INDUSTRY PART NUMBER |
|-----------------------|----------------|-----------------------------|
| U1,3                  | 1820-1917      | 74LS240                     |
| U2,4                  | 1820-1997      | 74LS374                     |
| U5-7                  | 1820-1216      | 74LS138                     |
| U6                    | 1820-1730      | 74LS273                     |
| U8                    | 1820-0068      | 7410                        |
| U9,29,32              | 1820-1173      | 10124                       |
| U10                   | 1820-1207      | 74LS30                      |
| U11                   | 1820-0802      | 10102                       |
| U12                   | 1820-1492      | 74LS368                     |
| U13,14,18,24          | 1820-0817      | 10131                       |
| U15                   | 1820-0805      | 10107                       |
| U16,17                | 1820-0825      | 10141                       |
| U19                   | 1820-1052      | 10125                       |
| U20,23,25,27, U30     | 1820-0822      | 10137                       |
| U21                   | 1820-1686      | 10103                       |
| U22                   | 1820-0815      | 10121                       |
| U26                   | 1820-0821      | 10136                       |
| U28,31                | 1820-1400      | 10104                       |

A11 MNEMONICS  
 DACEN = DAC ENABLE  
 EOC = END OF CONVERSION  
 ENSEL = ENABLE SELECT  
 FERNGA = FRONT END RANGE A  
 FECONT = FRONT END CONTROL  
 FEOFFA = FRONT END OFFSET A  
 FEOFFB = FRONT END OFFSET B  
 FERNGB = FRONT END RANGE B  
 LDARON = LOW DATA READY ON  
 LNMI = LOW NONMASKABLE INTERRUPT  
 LPFAIL = LOW POWER FAIL  
 LVMA = LOW VALID MEMORY ADDRESS  
 LA = LOW ADDRESS  
 LD = LOW DATA

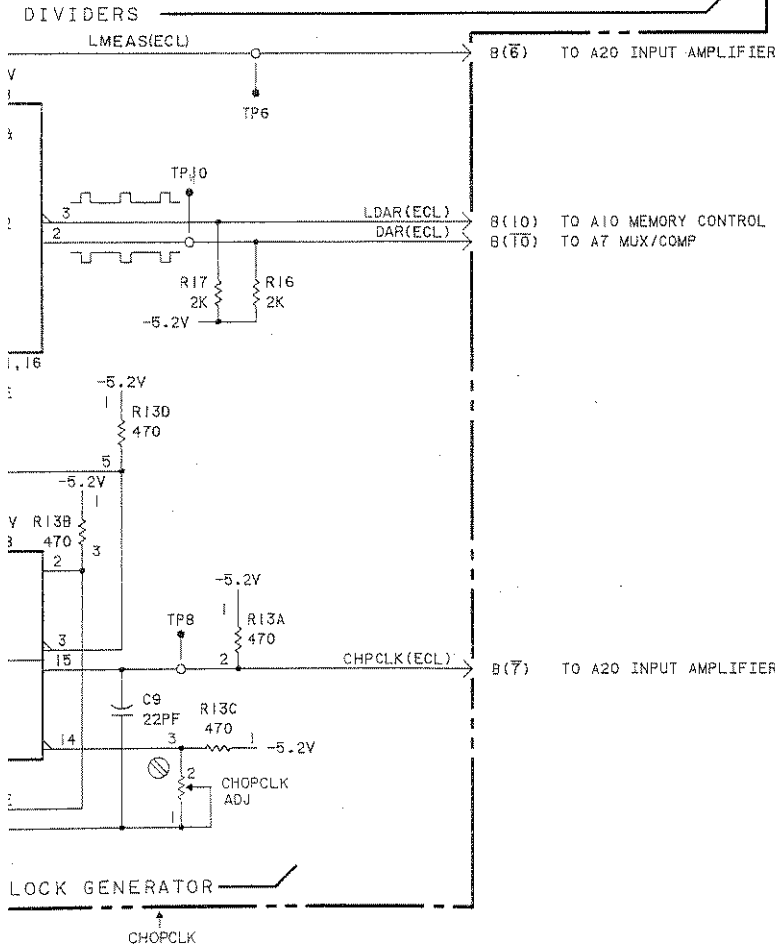


TABLE OF TIME BASE DIVIDE VALUES AND PROGRAM CODES

| DIVIDE RATIO PROGRAMMED | DIVIDE VALUES |     |     |     |     |      | PROGRAM CODE | SAMPLE FREQUENCY |
|-------------------------|---------------|-----|-----|-----|-----|------|--------------|------------------|
|                         | U26           | U20 | U23 | U25 | U27 | U30  |              |                  |
| 1                       | -             | -   | -   | -   | -   | -    | 00           | 20 MHz           |
| 2                       | 2             | -   | -   | -   | -   | -    | F8           | 10 MHz           |
| 4                       | 4             | -   | -   | -   | -   | -    | B8           | 5 MHz            |
| 10                      | 10            | -   | -   | -   | -   | -    | 78           | 2 MHz            |
| 20                      | 2             | -   | -   | -   | -   | 10   | D4           | 1 MHz            |
| 40                      | 4             | -   | -   | -   | -   | 10   | 94           | 500 kHz          |
| 100                     | 10            | -   | -   | -   | -   | 10   | 54           | 200 kHz          |
| 200                     | 2             | -   | -   | -   | 10  | 100  | D8           | 100 kHz          |
| 400                     | 4             | -   | -   | -   | 10  | 100  | 98           | 50 kHz           |
| 1K                      | 10            | -   | -   | -   | 10  | 100  | 58           | 20 kHz           |
| 2K                      | 2             | -   | -   | 10  | 100 | 1K   | D1           | 10 kHz           |
| 4K                      | 4             | -   | -   | 10  | 100 | 1K   | 91           | 5 kHz            |
| 10K                     | 10            | -   | -   | 10  | 100 | 1K   | 051          | 2 kHz            |
| 20K                     | 2             | -   | 10  | 100 | 1K  | 10K  | D2           | 1 kHz            |
| 40K                     | 4             | -   | 10  | 100 | 1K  | 10K  | 92           | 500 Hz           |
| 100K                    | 10            | -   | 10  | 100 | 1K  | 10K  | 52           | 200 Hz           |
| 200K                    | 2             | 10  | 100 | 1K  | 10K | 100K | D0           | 100 Hz           |
| 400K                    | 4             | 10  | 100 | 1K  | 10K | 100K | 90           | 50 Hz            |
| 1M                      | 10            | 10  | 100 | 1K  | 10K | 100K | 50           | 20 Hz            |

Figure 8-31. A11 Timebase Schematic Diagram

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