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TELEMETRY TRANSMITTER

78100A

TELEMETRY RECEIVER

78101A





**HEWLETT
PACKARD**

**TELEMETRY
TRANSMITTER
78100A**

**TELEMETRY
RECEIVER
78101A**

**TRANSMITTER SERIALS PREFIXED: 1549A
RECEIVER SERIALS PREFIXED: 2220A**

This manual applies directly to HP Model 78100A Telemetry Transmitters with serial numbers prefixed 1549A, and HP Model 78101A Telemetry Receivers with serial numbers prefixed 2220A.

OTHER PREFIXES:

For serial numbers prefixed lower than 1549A and 2220A, see Appendix I. For serial numbers prefixed higher than 1549A and 2220A, see Manual Changes insert included with this manual.

**SERVICE MANUAL
78101-91997**

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Hewlett-Packard
Medical Electronics Division
175 Wyman Street
Waltham, Massachusetts 02254

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**SECTIONS I, II, III
GENERAL INFORMATION
INSTALLATION
OPERATION**

INTRODUCTION

This manual contains a description of the principles of operation of the Hewlett-Packard Model 78100A-78101A Telemetry Transmitter and Receiver, instructions for testing and troubleshooting these units, and complete electrical schematics, parts lists, and parts location information. A functional description, system specifications, installation, licensing, and operating instructions are provided in Operating Manual 78101-91998, as Sections I, II and III of the combined manual.

SECTION IV PRINCIPLES OF OPERATION

4-1. INTRODUCTION.

4-2. The telemetry transmitter is carried by a patient. Electrodes on the patient pick up the ECG signal, which the transmitter uses to modulate the signal it sends to the receiver. The receiver translates the radio signal back into an ECG waveform, which appears at rear panel connectors as a 1 mV, 50 mV or 1V output. If the patient goes out of range, if one or more electrodes become detached, or if the battery needs replacement, an automatic signal lights a front panel indicator to show that the channel is inoperative.

4-3. TRANSMITTER.

4-4. The ECG signal from the patient is routed to the transmitter from the electrodes through shielded cables. A two-stage FM/FM modulation process then creates a modulated carrier: After buffering and amplification (Figure 4-1), the ECG signal frequency modulates the audio frequency subcarrier oscillator. The filtered subcarrier signal, in turn, varies the frequency of a radio-frequency oscillator. The RF oscillator operates at one-fourth of the transmitted frequency. Two frequency-doubling circuits in series quadruple the frequency and apply the broadcast signal to the right-leg (reference) electrode lead, which also serves as an antenna.

4-5. Auxiliary circuits in the transmitter reduce the subcarrier frequency to about half its normal value if an electrode comes off the patient. This condition can be detected in the receiver. A voltage sensing circuit shuts off the RF oscillator if the battery voltage falls below approximately 6.2 to 6.4 volts.

4-6. ECG Amplifier.

4-7. The input, Q7, consists of two emitter follower buffers (schematic, Figure 6-3). R44, R45, C2, C3, C43, C44 and two feed-through capacitors isolate Q7 from RF energy which may be picked up from the antenna. R8, R9, R10, R12, and R22 shift the voltage level out of the buffers to drive the next stage.

4-8. The voltage gain of the ECG amplifier is supplied by a feedback amplifier consisting of Q8, U1A, and U1B. U1A and U1B are identical transconductance amplifiers. In addition, U1 contains a third transconductance amplifier (UIC) and a pair of PNP transistors used in the regulator (U1D).

4-9. ECG Gain Stage.

4-10. Q8 is a differential amplifier with common emitter resistor R46 and collector resistors R47 and R48. The outputs connect to the inputs of U1A. R13 supplies bias

current for U1A. U1B is connected as an integrator of the U1A output. The input resistor is R49 and the feedback capacitor is C5. R16 conducts bias current to the amplifier. R15 and R17 bias its non-inverting input. R43 introduces a high frequency roll off. C41 reduces the effect of noise current pulses from the U1B non-inverting input. R14 furnishes feedback around the entire ECG gain stage. C4 and C42 provide frequency stability.

4-11. Slew Rate Limiter.

4-12. The slew rate of the ECG amplifier output is limited since the voltage into the integrator is limited by the power supply. The highest slew rate is determined by the maximum voltage out of U1A divided by R49 times C5.

4-13. Subcarrier Oscillator.

4-14. MULTIVIBRATOR CONTROL CIRCUIT. U1C, Q12, and Q13 are connected as a non-inverting feedback amplifier coupled to the ECG amplifier through C6, which determines the system low-frequency roll off. As far as this amplifier is concerned, Q12 and Q13 are emitter followers connected in parallel. R25 and R26 assure that equal currents will flow in Q12 and Q13. R18 and R19 bias both inputs through other resistors (R20 and R58 in series to the inverting input and R21 to the non-inverting input). R3 supplies bias current to the amplifier, R41 furnishes feedback around the amplifier, and C7 provides frequency stability. As the output voltage of this amplifier varies, the collector currents of Q12 and Q13 vary in proportion. The value of these currents is controlled by potentiometer R23 in series with R24.

4-15. VOLTAGE-CONTROLLED MULTIVIBRATOR.

The currents produced by Q12 and Q13 are used in the subcarrier oscillator (multivibrator Q14, Q15, Q16 and Q17) to charge C11 and C8. Only two of the above transistors are on during each quasi-stable state of the multivibrator (first Q14 and Q16, then Q15 and Q17). If Q15 suddenly turns on, then Q17 is turned on through R27 and C9. This charges C11 through Q17, R30, and the base of Q15 and also turns off Q16 through R29 and C10 and turns off Q14 through C8. The voltage on the base of Q14 drops to about -2 times the supply voltage. The voltage rises due to C8 being charged from Q13. When the voltage rises enough to turn on Q14, each transistor changes state to the inverse pattern of that described above. C8 is charged further by Q16 through the base of Q14 at a rapid rate limited by R30. The nominal 1000 Hz frequency of the

multivibrator (and the multivibrator frequency deviations) are thus controlled by the value of the currents passing through Q12 and Q13.

4-16. Electrode Inoperative Circuit.

4-17. If an electrode should become detached from the patient, at least one side of input transistor Q7 would be cut off. That emitter voltage would drop, saturating one or both sides of Q8 and increasing the voltage across R46. This would turn on Q11 which is normally held off by the turn on voltage of CR6. R62 stabilizes the voltage on the emitter of Q11. This current from Q11 pulls up and clamps the voltage on the output of U1C. This clamped voltage is level shifted by R61 and R59 so that the bases of Q12 and Q13 are pulled up, so they conduct about 4/10 of their normal average current. Therefore, the nominal frequency of the multi-vibrator is reduced to about 400 Hz.

4-18. Subcarrier Filter.

4-19. The output of the multivibrator is attenuated and shifted in level by R31 and R32. These resistors form one of the elements in a two-pole active filter employing C12, C13, R33, emitter follower Q18, and load resistor R34. Q19 and Q20 are used in a second two-pole filter. They are connected in a unity gain configuration with R39 fixing the current in Q19. R37 in series with R38 fixes the total bias current in Q19 and Q20. R35, R36, C14 and C15 fix the location of the poles. In cascade, these two active filters form a four-pole Butterworth low pass filter with a -3 db point at 1.7 kHz. Potentiometer R38 controls the amplitude of the output.

4-20. Carrier Oscillator.

4-21. Q21 is a common-base, voltage-controlled crystal oscillator which operates at one fourth of the carrier frequency. It is biased by R5, Q5, and R54. C22 grounds the base to ac voltage. The collector is loaded by R53 and tuned in parallel by L3, C23, C24, and C25. In addition, C23 and C24 step down the output impedance to drive the feedback network consisting of CR1, L1, C21, and Y1. The feedback is series resonant at the frequency of oscillation (for one particular frequency, the emitter of Q21 is connected to C23 and C24 through a low impedance). The frequency of series resonance is primarily dependent on Y1, but can be varied slightly by CR1 and C21. L2 cancels the shunt capacitance of Y1. Varactor diode CR1 acts as a voltage-variable capacitor which modulates the oscillator frequency. The dc voltage across CR1 is determined by R52, R57, and the power supply voltage through L11 and R50. The ac subcarrier signal is superimposed on the dc through C16. C21 is a trimmer capacitor for setting the oscillator on the exact frequency. L11 and C20 form an

inductive path to ground to cancel stray board capacitance which would otherwise shunt the feedback signal. CR8 is a hot carrier diode. Its turn-on voltage is lower than the base-collector saturation voltage of Q21, thereby assuring that Q21 will not saturate. Saturation of Q21 could result in "squegging," a low frequency amplitude modulation of the oscillator output which produces many undesirable sidebands on the transmitted signal, which could interfere with other telemetry channels, or other broadcasting.

4-22. Transistor Frequency Doubler.

4-23. Q22 is a times-two frequency multiplier, with its collector tuned (by L5 and C28) to twice the crystal oscillator frequency. The amount of second harmonic is increased by operating Q22 so it is biased off by L4 and turned on only at the peak of each oscillator cycle. C26 couples and, with C34, matches the two stages in impedance. The current pulses through Q22 are averaged by C27, causing a dc voltage across R55 that tends to turn off Q22 further. This negative dc feedback establishes a bias point for Q22 for a particular crystal oscillator output power. R55 adjusts the dc current drain.

4-24. Step-Recovery Diode Frequency Doubler.

4-25. Power from Q22 reaches the antenna via the non-linearity of step recovery diode CR7. This generates the second harmonic of the times two output and therefore drives the antenna at four times the frequency of the oscillator. L6, C29, and C30 couple and impedance match Q22 and CR7. R56 biases the cathode of CR7. The output is double tuned by tank circuit C31 and L7, and by tank circuit L8 and C33 in parallel with output feedthrough capacitor A2A2C3. The two tank circuits are coupled by C32.

4-26. Power Supply.

4-27. The battery negative supply is regulated with a simple comparator circuit. The two PNP transistors of U1D are closely matched, so the same collector current flows in each of them. Thus, if the output voltage of the regulator exceeds the breakdown voltage of VR1 plus one diode drop, the current in both sides of U1D increases. This increases the drop across R40 and decreases the base-emitter voltage of Q1, reducing its output current, and therefore the output current of Q2. The output voltage is reduced. By this negative feedback, the output voltage is maintained at the breakdown voltage of VR1 plus one diode drop.

4-28. C40 assures frequency stability. L9 and C17 filter any RF which may be picked up on the battery line. R2

provides regulator turn-on current. The supplies to the high frequency circuits and to the low frequency circuits are disconnected for high frequencies by L10. The supply is filtered by C18 and C19. The battery positive terminal is connected to ground via L14 and L8.

4-29. Oscillator Bias and Shut Down.

4-30. When battery voltage is insufficient to permit regulation, a sensing circuit shuts off the transmitter oscillator to prevent frequency drift due to an unregulated power supply. During normal regulator operation, Q6 is off since the drop across R1 is insufficient to turn it on. The oscillator bias is then fixed by emitter follower Q5 whose base voltage, in turn, is fixed by the resistive divider R42, R7 and R6. As the battery is discharged, the voltage drop across Q2 decreases. When Q2 begins to saturate, the feedback of the regulator generates increased base current for Q2. This increases the voltage across R1 and turns on Q6 through divider R60 and R4. This turns off Q21 and stops the radiation from the transmitter. C1 prevents Q6 from turning on due to transients, and CR5 prevents base current for Q2 from flowing through R4, R60 and R1.

4-31. Defibrillator Protection.

4-32. When the electrodes are driven to a high voltage, the current which flows is limited by R70 and R71 on electrode block assembly A1A2. Paths are provided on the transmitter circuit board for these currents to flow without damaging the components. If the RA or LA electrode is driven plus with respect to the RL electrode, current flows from the corresponding base of Q7 to the collector which is at transmitter ground, and thence through L8 and out the RL lead. If the RA or LA electrode is driven minus, current flows from RL through L8 to ground through UID and VR1 to the supply, and through L10 and CR2 or CR3 to the RA or LA lead.

4-33. RECEIVER.

4-34. The receiver contains a high frequency board and a low frequency board (Figure 4-2). The high frequency board is tuned to be sensitive to one RF signal from the antenna. It derives the subcarrier produced in the transmitter by producing a voltage proportional to the frequency variations of the received signal. The low frequency board processes the subcarrier to reproduce the ECG signal, and detects inoperative conditions from the frequency and amplitude of the subcarrier signal. The low frequency board also contains the receiver power supply, the automatic frequency control (AFC) amplifier that services the local oscillator, and a reference voltage circuit that is used in determining the patient's ECG size.

4-35. High Frequency Board.

4-36. Each receiver is sensitive to frequencies in a 10 kHz bandwidth at one particular channel frequency in the 460 MHz region. Such selectivity results from mixing the received signal with a local oscillator signal and sharply filtering the products. The frequency of the local oscillator is 21.82 MHz below the channel frequency. Therefore, selectivity is obtained by a 10 kHz wide filter at 21.82 MHz. An "image" signal 21.82 MHz below the local oscillator frequency (43.64 MHz below the channel frequency) will also mix down to 21.82 MHz. In addition, spectral impurity of the local oscillator and component nonlinearities make it possible for other spurious frequencies to mix with the local oscillator frequency to produce 21.82 MHz products. Filtering before the mixer rejects the image frequency and the spurious frequencies.

4-37. Automatic frequency control (AFC) is employed in this receiver to compensate for drift in the transmitter or local oscillator frequencies. The AFC keeps the average intermediate frequency (IF) constant by feeding back the averaged and amplified discriminator output to fine tune the local oscillator frequency. The AFC amplifier itself is on the low frequency board.

4-38. Radio Frequency Amplifier.

4-39. The RF amplifier amplifies signals from the antenna, as previously mentioned, and rejects all signals other than the carrier which may mix with the local oscillator output to produce 21.82 MHz.

4-40. Input resonator Z1 (schematic, Figure 6-9), consists of two coaxial transmission lines of unequal length, terminated in variable capacitors Z1C1 and Z1C2. From 400-500 MHz, each line can be thought of as an inductor in series with its terminating capacitor. This amounts to two series LC networks connected in parallel. In order to attenuate the image, Z1C2 is adjusted for series resonance with the longer of the two lines at the image frequency. At the channel frequency, this line looks inductive. To obtain a bandpass response, the shorter line is tuned by Z1C1 for parallel resonance with this inductance. Components C3, L1, C13, C4, and L2 provide impedance matching and additional filtering for spurious responses.

4-41. Q1 is biased by R1, R2 and R3 in a voltage feedback scheme. That is, the voltage on the collector of Q1 will assume a value such that the voltage divider consisting of R1 and R2 applies a voltage to the base of Q1 equal to its emitter base voltage. Note that connections to the collector and base of Q1 are made through inductors L3 and L2. L3 and C6 are series resonant at 21.82 MHz in order to

Figure 4-1. ➔

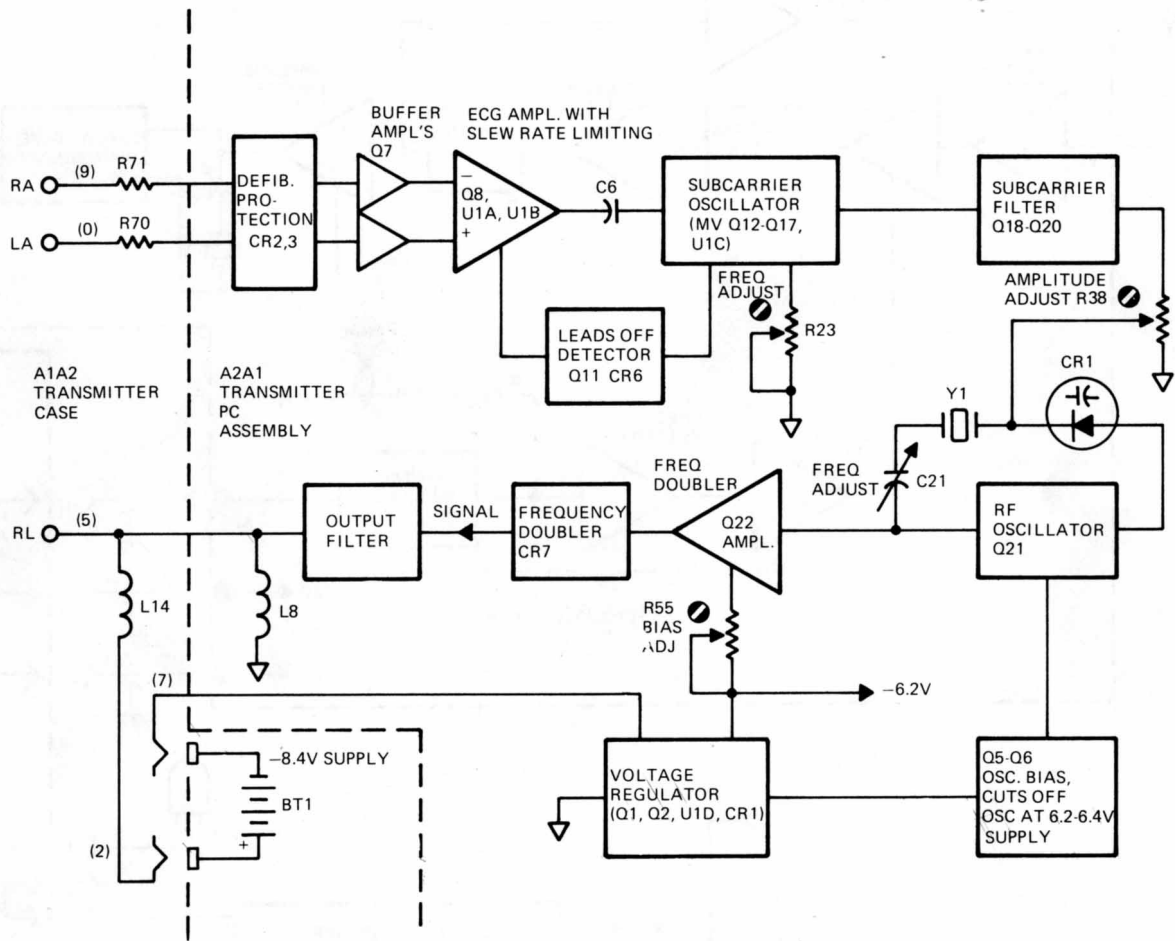
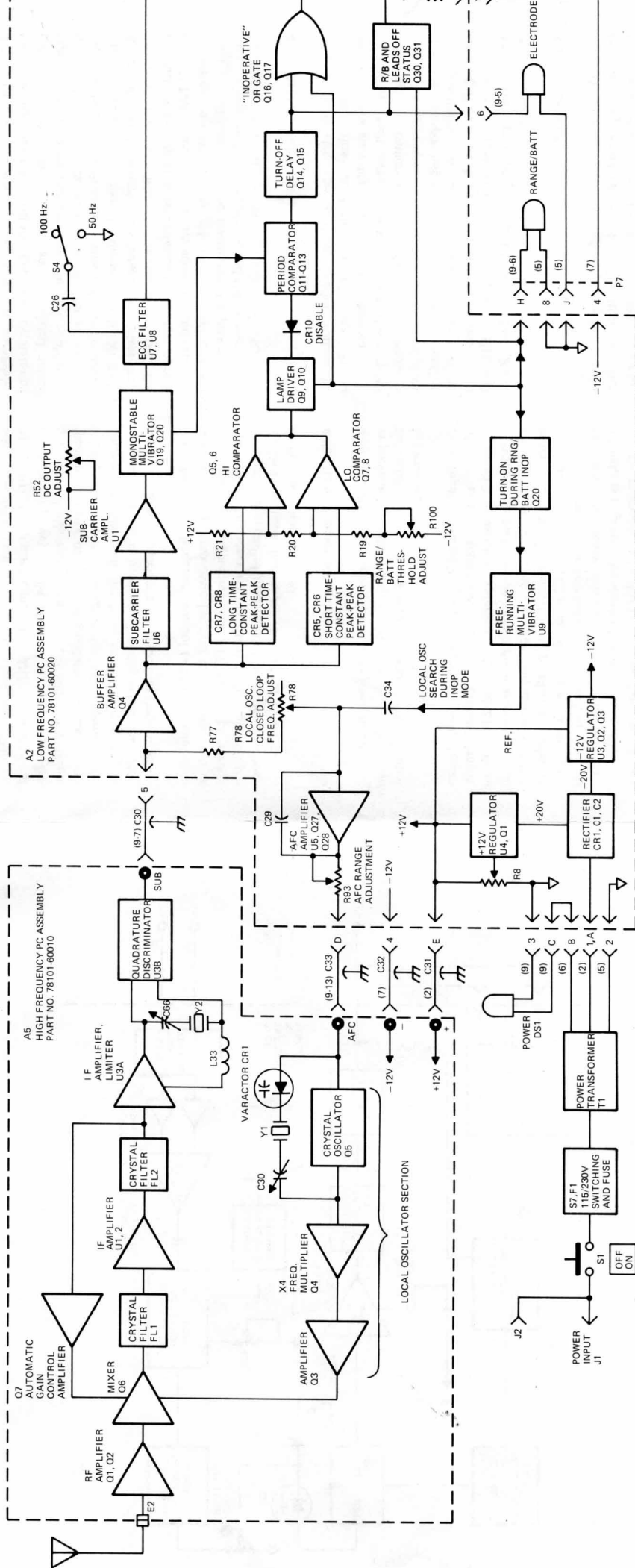
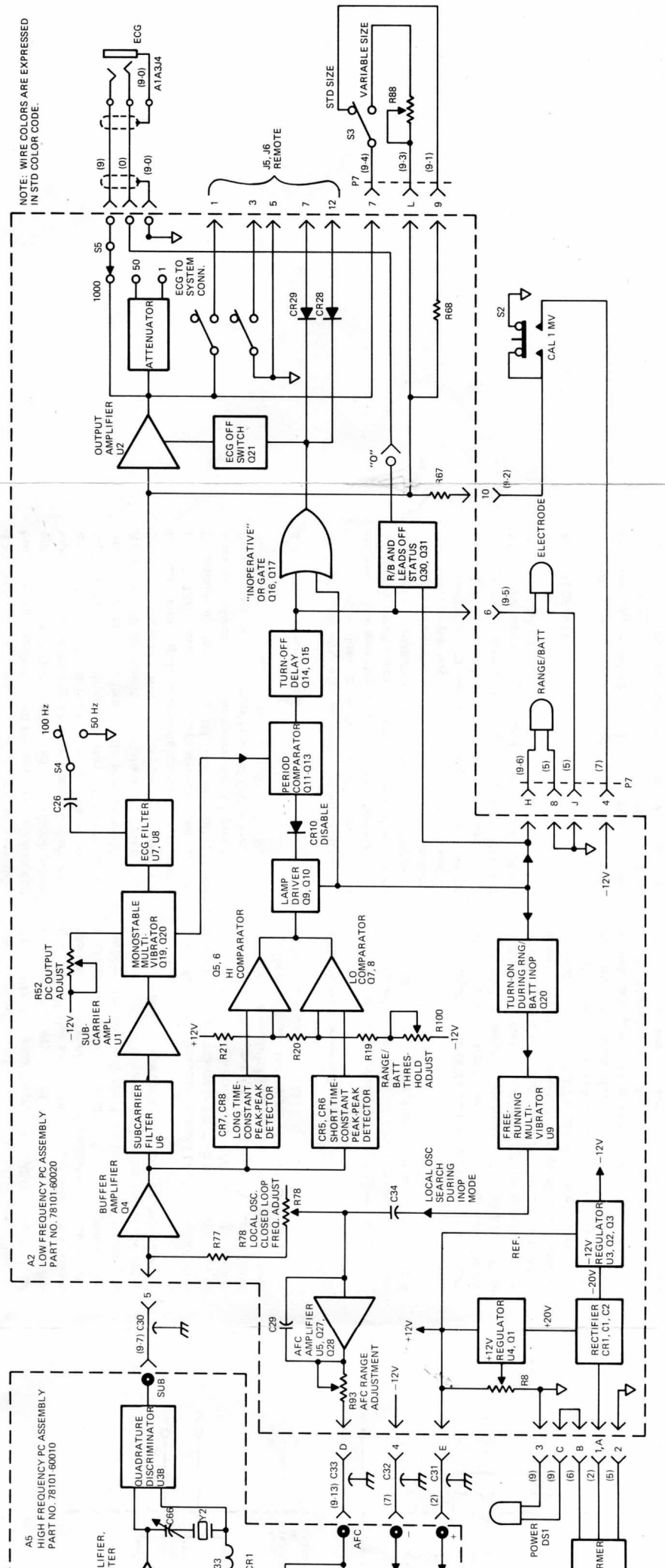


Figure 4-1. Block Diagram, Model 78100A Telemetry Transmitter



NOTE: WIRE COLORS ARE EXPRESSED IN STD COLOR CODE.



A5 HIGH FREQUENCY PC ASSEMBLY
PART NO. 78101-60010

A2 LOW FREQUENCY PC ASSEMBLY
PART NO. 78101-60020

NOTE: WIRE COLORS ARE EXPRESSED IN STD COLOR CODE.

attenuate that frequency. C5 and C6 assure that the dc feedback path is broken for ac. The collector of Q1 is parallel-tuned by C7, L4, and C8. L4 and C8 are a net inductance at the channel frequency. L5, C9 and L6 provide impedance matching and further filtering. CR4, CR5, and CR6 are hot-carrier diodes that keep Q1 and Q2 from saturating on high level inputs. C12 is a coupling capacitor and L8 attenuates low frequencies including 21.82 MHz.

4-42. The second RF stage is biased like the first stage. Its output is parallel-tuned by Z2 in the same manner as the input of the first stage is tuned by Z1.

4-43. Local Oscillator.

4-44. Q5 is the active element in a common-base crystal oscillator which operates at one fourth of the local oscillator frequency. It is biased by R11, R12, and R13. Capacitor C25 grounds the base for ac voltages. The collector of Q5 is loaded by R36 and parallel-tuned by L12, C26, C28 and C29. In addition, C28 and C29 reduce the output impedance to drive feedback network CR1, L14, C30, and Y1.

4-45. The feedback network is series resonant at the frequency of oscillation. In other words, for a particular frequency, the emitter of Q5 is connected through low impedance to C28 and C29. The frequency of series resonance is primarily dependent on Y1. It can be varied slightly, however, by C30 and CR1, a voltage variable capacitor (varactor diode). The voltage across CR1 is determined by R14, R34 and the AFC voltage. For a given AFC voltage C30 fine-tunes the local oscillator frequency. L13 cancels the parallel capacitance of Y1, and R15 and L40 prevent crystal oscillator power from being coupled to the AFC wiring. R16 biases the anode of varactor diode CR1 at zero volts when the high frequency board is being tested independently.

4-46. Q4 is a times-four frequency multiplier, with its collector tuned by L10 and C21 to four times the crystal oscillator frequency. The production of the fourth harmonic is enhanced by operating Q4 so it is biased off by L11 and turned on at the peak of each oscillator cycle. C23 impedance-matches and couples the two stages. The current pulses through Q4 are averaged by C22, causing a dc voltage across R10 that tends to turn off Q4. This negative dc feedback establishes a bias point for Q4 for a particular crystal oscillator output power. C20 couples and matches the collector of Q4 to the base of Q5.

4-47. Amplifier Q3 is biased by R7, R8, and R9. C18 grounds the Q3 emitter for ac voltage. The collector of Q3 is tuned by L9, C17, and C27 to form a high-Q parallel

tuned network that passes the local oscillator frequency and attenuates the other oscillator harmonics to reduce spurious responses. C16 couples and impedance-matches the local oscillator to the mixer.

4-48. Mixer Circuit.

4-49. The mixer combines the received rf signal with the local oscillator output to produce the 21.82 MHz intermediate frequency (IF). The mixer, which is field-effect transistor (FET) Q6, is biased by R21 and R20. Since the gate current is negligible, the gate voltage is -12 volts, the bias current is fixed by R20 and the FET characteristics. These bias conditions are altered by the automatic gain control (AGC) voltage, which is applied to the source through L25 and L23. In the absence of on-channel inputs, AGC does not affect the bias.

4-50. The local oscillator output is applied to the source connection of the mixer FET through C16 and the RF signal to the gate through C38. The two signals mix due to the square law characteristics of the FET. The mixer FET drain is parallel-tuned to 21.82 MHz by L24, C40, C41 and C42. Capacitors C41 and C42 step down the output impedance of the stage, and are tuned for a pure resistive output impedance of 385 ohms to match the requirements of the crystal filter. C40, along with the inductance of the foil attaching it to the drain, forms a series-resonant trap to short the local oscillator and RF frequencies to ground. The mixer FET source is grounded at 21.82 MHz through a trap formed by L23 and C39. Similarly, the FET gate is grounded at 21.82 MHz through C38 and L8 (which is part of the circuit board foil). When a mixing product occurs at 21.82 MHz, it passes through the 8-pole crystal filter, FL1, to the IF amplifier. This filter determines the selectivity of the receiver.

4-51. Intermediate Frequency Amplifier.

4-52. The intermediate frequency (IF) amplifier amplifies 21.82 MHz signals, and limits their amplitude so that a constant voltage is applied to the FM discriminator. The active elements which form the IF amplifier are U1, U2, and part of U3. U1 and U2 are cascode, or two-stage, amplifiers consisting of a common emitter stage followed by a common base stage. Note that pin 5 of each integrated circuit (IC) is grounded and therefore the transistor whose base ties through a resistor to pin 5 is cut off and is not used. VR1 drops the 12V supply to a nominal 6V to drive U1 and U2. L28, C48, L31 and C53 filter this supply and prevent feedback. Bias is achieved for both IC's because of the close match between the input transistor and a bias diode on IC pin 3. Note that in both cases the base of the input transistor is connected to the anode of the diode through an inductor.

4-53. The input to the IF amplifier is parallel-tuned by L26, C44, and C45. C44 and C45 are tuned to step down the input impedance to 385 ohms. The output collector is parallel-tuned by L27 and C51. C52 provides dc isolation between the stages. C46 bypasses the bias diode and C50 assures that the base of the second stage of the IC is at ac ground.

4-54. The second IF integrated circuit is identical to the first except that it is loaded by R26 to provide the proper source impedance to two-pole crystal filter FL2, which is placed between U2 and U3 in order to eliminate noise generated by U1 and U2. The bandwidths of the L-C tank circuits are large enough that, without FL2, the IF amplifier noise would be the limiting factor in receiver sensitivity.

4-55. The IF amplifier portion of U3 consists of 3 differential stages joined by emitter followers. A third emitter follower is the output stage. Bias is achieved by dc feedback from the output to the input differential stage. C64 and C65 assure that this path is broken for high frequencies. L32 dc-connects the other base of the input differential stage to the diode string. Differential stages are used to assure that they can be driven into limiting without transistor saturation (the limiting condition is cut-off of first one transistor and then the other). R30 lowers the input impedance of U3 so the proper load impedance is presented to FL2. C63 provides dc decoupling and L32 tunes out the input capacitance as well as other stray capacitance on the board. The output from the output emitter follower (pin 10) is limited to two diode drops peak to peak. An attenuated (20 db) output is on pin 9.

4-56. AGC Amplifier.

4-57. If Q7 conducts, increased current flows in R20 of the mixer circuit. This increases the source to gate back bias of Q6, reducing its bias current, and hence the mixer gain. By this feedback mechanism the signal amplitude at TP1 is limited, to prevent U1 or U2 from saturating. For low signals on TP1, Q7 is biased off by R27. However, if the ac voltage coupled through C61 exceeds 2 diode drops peak to peak, Q7 will conduct at the maximum point of the signal. The conducted current pulses are smoothed by C62. The dc voltage on the emitter of Q7 increases, raising the voltage on the source of Q6, through R28, L25, and L23. R28 and C47 filter low frequencies and prevent frequency instability of the loop.

4-58. FM Discriminator Circuit.

4-59. The quadrature discriminator produces a voltage that is proportional to frequency. It works by comparing the IF

output to a signal produced by a frequency-sensitive phase shifting of the IF output. This phase shifting is done by C66, L33, and Y2, which are connected in series. At the resonant frequency of crystal Y2, the IF output is phase shifted approximately $+90^\circ$ by C66 and L33.

4-60. C71 is an averaging capacitor that establishes the level of the discriminator output voltage. When the IF output and the phase-shifted signal are exactly 90° apart, as shown in the solid waveforms in Figure 4-3, the voltage on C71 is in the middle of the output range. It is being charged half of the time and discharged the other half. When the two signals differ in phase by more than 90° (dashed waveforms), the voltage on C71 becomes lower, to indicate a frequency decrease. C71 is *charged* through resistor R_L in U3 toward +12V, the charging current being proportional to +12V minus the voltage on C71. C71 is *discharged* by a circuit in U3 that consists of three differential pairs of transistors interconnected so that whenever the basic IF output and the phase shifted IF output differ in algebraic sign (Figure 4-3), one of the two transistor collectors connected to C71 discharges C71. For phase shifts equal to 90° , as previously stated, current is withdrawn from C71 half of the time. If a decrease in frequency causes Y2 to increase the phase shift, current is withdrawn from C71 *more* than half of the time. This causes the voltage on C71 to decrease, until the current through R_L increases enough to keep the average current into C71 equal to zero. The average current is zero since the average charging current through R_L equals the average discharging current through the differential transistor circuit. The output of the discriminator is buffered from C71 by an emitter follower in U3. Network R32, C20, and L36 filters the output, and R32 prevents damage to the discriminator if its output is shorted to ground or to either supply.

4-61. Low Frequency Board.

4-62. The low frequency board 78101-60740 (schematic, Figure 6-7) processes the subcarrier signal to reproduce the ECG signal, evaluates the subcarrier, and detects inoperative conditions based on its amplitude and frequency. The power supply and automatic frequency control amplifier are also contained on the low frequency board.

4-63. Buffer Amplifier.

4-64. Emitter follower Q4 prevents excessive loading of the discriminator. R14 is its load resistor and R13 prevents high frequency oscillation due to the inductance of the wire from feed-through capacitor C30.

4-65. Subcarrier Filter.

4-66. U6 is connected as a three pole low pass active filter.

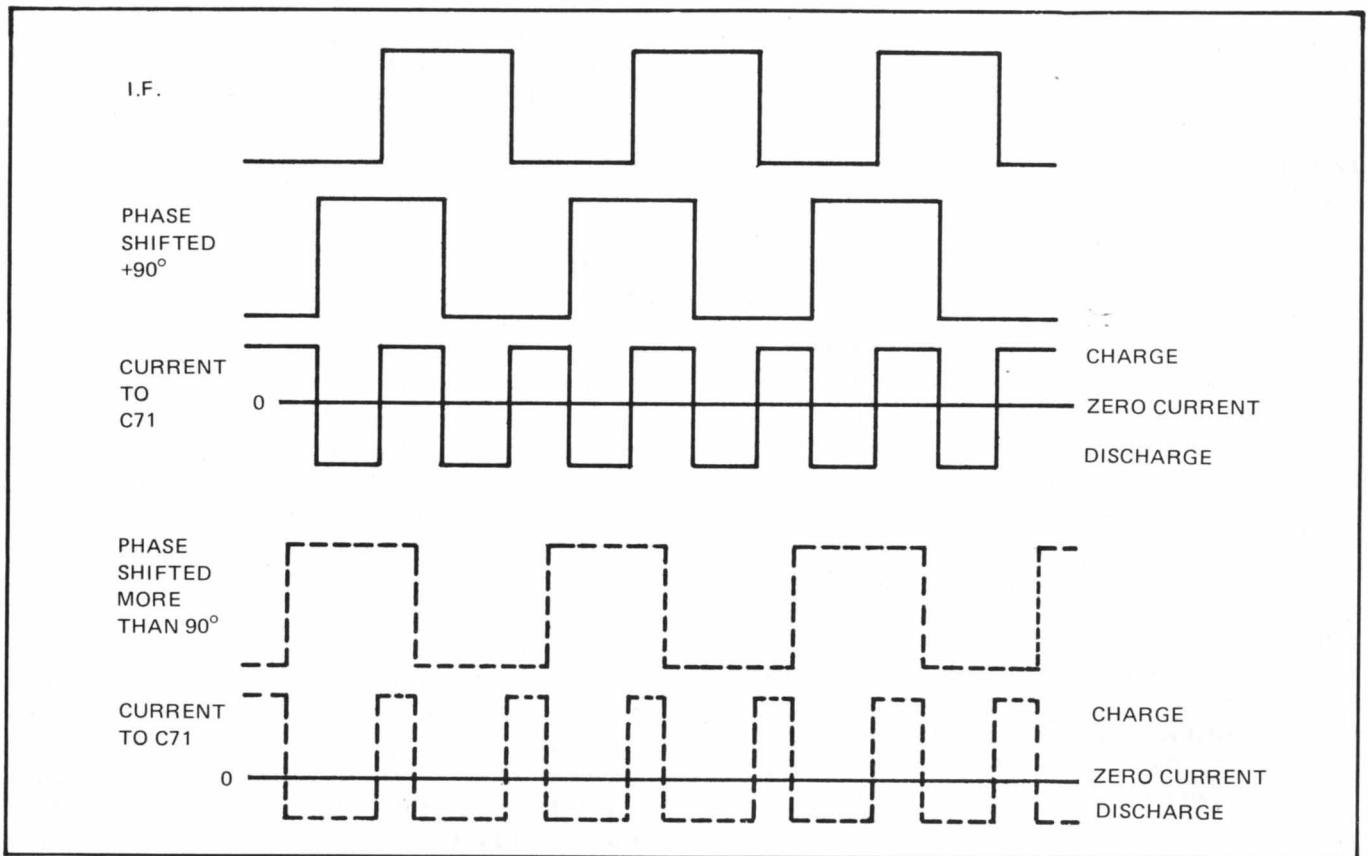


Figure 4-3. Discriminator Waveforms

Its poles are fixed by R58, R59, R62, C13, C27, and C31. The output is high pass filtered by C16 and R43.

4-67. Subcarrier Amplifier.

4-68. U1 is connected as a positive feedback trigger amplifier to produce a square wave output. Positive feedback is provided through R45, across R44 to ground.

4-69. Monostable Multivibrator.

4-70. Q19 and Q20 are connected as a monostable multivibrator that triggers on each state change of the output of U1. In the stable state of the multivibrator, Q20 is saturated by base current which flows through R51 and R52. Q19 is held off by R50 since no base current flows through R49. A positive-going step from U1 cuts off Q20 by driving its base positive through C25, CR17, and C14; Q19 saturates because base current is supplied through C15 and R49, thus changing the state of the multivibrator. This unstable state is also reached after a negative-going pulse which saturates Q19, directly, by drawing current through R75, C12, CR20, and the base of Q19. The saturated Q19 cuts off Q20 through C14. In either case, C14 is discharged by R51 and R52 until the turn-on voltage of Q20 is reached. The multivibrator returns to its stable state as Q20 turns on and Q19 is turned off through speed up capacitor

C15. R46 and R47 return the trigger capacitors C12 and C25 to the proper voltages after each pulse. CR18 and CR19 prevent emitter-base breakdown of Q19 and Q20; R48 and R54 are their collector loads. The resulting voltage output on the collector of Q20 is a train of inverted pulses whose width is determined by the discharge time of C14, and whose repetition rate is twice the subcarrier frequency.

4-71. ECG Output Filter.

4-72. The average voltage on the collector of Q20 varies in proportion to the subcarrier frequency. Since Q20 is in its stable (saturated) state for shorter periods of time for frequencies above 1 kHz than it is for frequencies below 1 kHz, the average collector voltage is lower for frequencies above 1 kHz. This voltage is averaged by the ECG filter which also fixes the high frequency rolloff of the ECG output.

4-73. U7 is connected as a two-pole active filter with its poles fixed by its equivalent input resistor (described below), R57, C17, and C18. Its equivalent input resistor consists of R55 in series with R53 when Q20 is on. When Q20 is off, CR15 bypasses R53 so the equivalent input resistor consists of R55 in series with R54. In this way, the input resistor is kept equal in value to R57 despite the varying output resistance of the multivibrator.

4-74. U8 is a second two-pole active filter, with its poles fixed by R60, R61, C20 and C21. When S4 is open, U7 and U8 form a four-pole active Butterworth filter with a 3 dB point at about 100 Hz. When S4 is closed, C26 is added in parallel with C18, and the poles of the U7 filter shift so that the 3 dB point moves to about 50 Hz.

4-75. Output Amplifier.

4-76. U2 is an inverting amplifier with a feedback resistance that can be switched by the STD/VARIABLE SIZE switch, S3, to either the fixed resistor, R68, or the variable resistor, R103. R76 fixes the minimum value to which the feedback resistance can be adjusted by R103. The "fixed" gain is adjusted by R65 to compensate for errors in the transmitter gain, and R66 limits the adjustment range. When S2, the front panel CAL pushbutton, is pressed, R67 is connected to -12V, causing a change (cal pulse) in the output voltage equal to 12V times the feedback resistor divided by R67. This pulse is equivalent to a 1 millivolt pulse at the input of the ECG amplifier in the transmitter. During inoperative conditions (explained below), the feedback resistor is shorted out by Q11 to reduce the output amplifier gain to zero.

4-77. Voltage divider R71, R72 divides the output by twenty; and R73, R74 divides it by one thousand. The output or an attenuated version of it is switched to output phone jack J4 by S5. S6 connects the output and ground to system (REMOTE) connectors J5 and J6.

4-78. Range/Battery Inoperative Circuit.

4-79. Q4 is followed by two peak-to-peak detectors with differing time constants. The longer time-constant detector consists of CR7, CR8, C6, C7 and R16, and the shorter time-constant detector consists of CR5, CR6, C8, C9, and R15. The detectors produce slowly varying voltages equal to the peak-to-peak ac voltage input. They feed a high and low threshold comparator composed of Q5, Q6, Q7, and Q8. When Q6 or Q7 is turned on, the Darlington switch transistors Q9 and Q10 are turned on, which light "inoperative range/battery" lamp DS3. Q6 is turned on whenever the longer time constant detector reaches a voltage higher than a set value. Q7 is turned on whenever the shorter time constant detector reaches a voltage lower than a set value. These values are set by R19, R20, R21, and R100. The reason for using two detectors rather than one is to prevent the range/battery light from blinking when the subcarrier amplitude changes abruptly from a high value to a low one. When this happens, one detector rapidly assumes its new output while the output of the other is substantially unchanged. This assures that Q7 will be turned on before

Q6 is turned off. A high amplitude is caused by noise due to a weak received signal and a low amplitude is caused by an unmodulated or an off channel interfering signal.

4-80. Electrode Inoperative Circuit.

4-81. The base of Q11 is connected through R25 to Q19 of the monostable multivibrator in such a way that Q11 is turned on whenever Q19 is on (unstable state). When Q11 is on, it discharges C10. When Q11 is off, C10 is charged through R26, unless it is prevented from doing so by the range/battery inoperative circuit through CR10. If the elapsed time between pulses from Q19 exceed a set limit, then the voltage on C10 will rise high enough to turn on regenerative circuit Q12-Q13 through CR11. CR25 prevents breakdown of Q11, R27 prevents leakage from turning on Q13, R28 limits the currents that can flow during turn on, and R29 biases the base of Q12.

4-82. The lamp driver circuit transistor Q14 is normally off since its emitter is biased at one junction diode drop above ground and its base is biased slightly more positive than that by R30, CR12, and R29. However, when the regenerative circuit turns on, Q14 is turned on through CR12, and C11 is discharged. This turns on Q15 and lights electrode inoperative light DS2 through R33 and CR13. The turn-off of Q14 is delayed by the charging of C11 through R30.

4-83. When either of the lights are on, Q16 and Q21 are turned on because of the "or" connection of R102 and Q9. Q16 turns on Q17, which conveys the inoperative information through CR28 and CR29 to the REMOTE connectors.

4-84. Power Supply.

4-85. CR1 is a bridge rectifier which supplies rectified current to C1 and C2 to create both a plus and minus unregulated power supply. U4 is an integrated circuit regulator using Q1 as a series regulating transistor. R7, R8, and R9 are a voltage divider used to sample the positive regulated voltage and feed it back to U4. R3, R4, and R5 are used in a current limiting circuit in U4. When the voltage drop across R4 exceeds the drop across R3 plus one diode drop, no more current will flow from Q1.

4-86. The negative voltage regulator is controlled by the positive regulator, since the feedback causes the voltage out of resistive divider R10 and R11 to be at ground potential. This can only happen when the minus voltage value equals the plus voltage value. The output power capability of U3 is increased by series regulating transistor Q2, an output emitter follower. Current limiting results when the voltage across R12 exceeds the turn-on voltage of Q3. Turning on Q3 pumps current into pin 8 of U3, raising toward ground

the output voltage of U3, thus causing Q2 to conduct less. The positive supply for U3 is derived from U4, Pin 9 via a breakdown diode in U4, between pin 9 and the plus supply, C5 and C28 assure frequency stability of U4 and U3. C3 and C4 assure low output impedance of the supplies at high frequencies.

4-87. AFC Amplifier.

4-88. During *normal operation* (not inoperative mode), the local oscillator frequency is automatically adjusted to keep the dc output voltage of the discriminator at a constant level. This voltage is sensed, amplified, and fed back to the local oscillator by the AFC amplifier, changing its frequency by means of varactor diode CR1. This adjustment compensates for drift in the crystal oscillators of both the transmitter and receiver, and keeps the intermediate frequency at a constant 21.82 MHz (paragraph 4-36).

4-89. During the *inoperative range/battery mode*, the local oscillator frequency is varied first to one side of its range and then to the other to give it a better chance to capture a weak transmitter signal. The automatic frequency control (AFC) amplifier sweeps the local oscillator to search for the signal.

4-90. At the amplifier input, integrated circuit U5 is connected as an integrator of the discriminator output. R77, R78, and R79 shift the level of the discriminator output to zero volts and also act as the input resistor of the integrator. C29 is the integrating capacitor, and R93, CR26, and R38 (along with AFC input resistor R16 on the high frequency board) form an attenuator of the AFC output. To compensate for the non-linearity of varactor diode CR1 at the local oscillator input, this attenuator reduces positive AFC output more than the negative output, due to action of CR26. Limiters Q27 and Q28 limit the voltage range of the integrator by adding a feedback path in parallel with C29 whenever the output voltage varies far enough to turn on either transistor. These limiting transistors are biased by resistors R86 through R91.

4-91. The sweeping of the local oscillator is accomplished by U9, a free-running multivibrator. When the range/battery inoperative light is on, Q29 is turned off and the multivibrator changes state every few seconds. If the output

of U9 is plus, it is held plus by the positive voltage fed to its non-inverting input (pin 3) by R82 and R83. It changes state when C35 is charged sufficiently through R81, so that the inverting input (pin 2) is driven more positive than the non-inverting input. The multivibrator functions in a complementary way in its negative state.

4-92. When U9 switches plus, it injects current through R85 and C34 into the summing junction of integrator U5. If U9 switches minus, it pulls current out of the summing junction. The output of U5 compensates for this minus switching by moving plus so an equal amount of current moves into the summing junction through C29 and Q27. The bias voltage on the base of Q27 is reduced simultaneously by current flowing from ground through CR23, R88, and C33 into U9. The output of U5 compensates for positive switching in an analogous way. Thus, the output of U5 does not travel all the way to its normal limits. When the transmitter is captured, the range/battery inoperative light turns off and AFC multivibrator U9 is prevented from switching again by Q29.

4-93. Status Line.

4-94. INOP is discriminated in this circuit to indicate RANGE/BATTERY INOP or LEADS OFF INOP or normal operation at jumper pin "O". Then when jumper pin "O" is connected to the ECG OUTPUT phone jack (J4), the ring carries STATUS information in tristate form regarding INOP. In normal operation, the voltage divider R109 and R110 supplies 3V dc to jumper pin "O" (and J4). If a leads-off condition occurs, transistor Q30 saturates and R107 pulls the output down to 1.5V dc. If the battery becomes discharged or an out-of-range condition occurs, transistor Q31 saturates and causes the output to jumper pin "O" to drop to 0V dc. Diodes CR30 and CR31 are voltage limiters which protect voltage sensitive circuits should panel lamps DS2 or DS3 (ELECTRODE or RANGE/BATTERY indicators) open or be removed while the Receiver is in operation. In addition, these diodes limit the reverse current that flows through resistors R104 and R105. Capacitor C37 and resistor R111 provide high frequency feedback to stabilize U2 when connection to a remotely located instrument is made.

NOTES

SECTION V MAINTENANCE

5-1. INTRODUCTION.

5-2. This section contains Performance Assurance Checks, calibration procedures, troubleshooting hints, and board removal and replacement instructions. Overall board isolation and troubleshooting procedures lead to a choice between board replacement and component repair. This section is intended for use with the parts identification information, schematics, and waveforms provided in Section VI for detailed circuit troubleshooting.

5-3. Preventive Maintenance.

5-4. To ensure continuous satisfactory performance of the telemetry system, follow an active preventive maintenance program. The recommended preventive schedule for the Model 78100A/78101A Telemetry product follows:

- a. Electrical Check — 6 months
- b. Mechanical Inspection — 6 months
- c. Lubrication — not required
- d. Cleaning — as required

5-5. **ELECTRICAL CHECKS.** Electrical checks required for the preventive maintenance program are listed in the Safety and Performance Assurance Log Book (P/N 5952-3581) and in paragraph 5-8 of this Service Manual.

5-6. **MECHANICAL INSPECTION.** Inspect all exposed screws for tightness. Check that all printed circuit boards are firmly seated in their connectors and that all jumper wires are secure on their pins. All rear panel connections must be tight. Check the condition of all external cables, especially for splits or cracks and signs of twisting. If damage is evident, replace the cable.

5-7. **CLEANING.** The units should be clean and free of dust and dirt. Clean as required with a lint-free cloth or sponge dampened with warm soapy water. Though the Transmitter circuit is sealed, it is not waterproof. If fluid should get to the inside, remove case cover and wipe immediately.

CAUTION

DO NOT ALLOW ANY LIQUID TO ENTER THE INSTRUMENT CASE. DO NOT POUR LIQUID ON THE INSTRUMENT WHILE CLEANING. NEVER USE ANY ABRASIVE MATERIAL SUCH AS STEEL WOOL OR SILVER POLISH, AND NEVER USE STRONG SOLVENTS SUCH AS ACETONE TO CLEAN THE INSTRUMENT.

5-8. Performance Assurance Checks.

5-9. **REQUIRED EQUIPMENT.** The equipment required for the performance assurance checks are listed below:

- ECG Simulator (ND 211A or equivalent).
- Any connector necessary to connect the simulator to 14121A Patient Electrode Connector.

5-10. Performance Checks.

a. Check that Transmitter battery contacts are clean and the spring tension to the battery is good.

b. Check that patient leads are in good condition, that patient lead compartment is free of corrosion and that the terminals are not bent or corroded.

c. Check that exterior of Transmitter is clean and in good condition.

d. Check that Receiver OFF-ON Power switch operates properly and does not stick and that power indicator lamp lights when instrument is powered. Check Receiver line fuse to verify that proper value is installed.

e. Turn on Receiver. Remove Transmitter battery. RANGE/BATTERY indicator on Receiver should light.

f. Install Transmitter battery. RANGE/BATTERY indicator on Receiver should go off and ELECTRODE indicator should light.

g. Place STD SIZE-VARIABLE SIZE switch on Receiver in STD SIZE position.

h. Connect ECG Simulator to Transmitter. Check that electrode indicator is off, and Receiver operates properly. Trace shown on related patient monitor oscilloscope should be steady and free of noise.

i. Press Receiver 1 MV CAL button. Calibration pulse should appear on related patient monitor oscilloscope. Note size of display.

j. Place STD SIZE-VARIABLE SIZE switch in the VARIABLE SIZE position.

k. Press Receiver 1 MV CAL button and adjust VARIABLE SIZE control over range. Patient monitor display should vary from one-half to two and one-half the size of STD display over range of control and trace should remain in screen field.

1. Clean the exterior of Receiver cabinet as required.

5-11. Purpose of Board Isolation Procedures.

5-12. The board isolation procedures, presented in tree form, are to be used to narrow the problem down to the PC board level. Unless the source of the problem is obvious, *always use the board isolation procedures to start a diagnosis.* If a board is replaced, it must be adjusted following the Test and Adjustment Procedures.

5-13. If board troubleshooting is desired instead, the trees are carried further in extension procedures. These procedures isolate to components when possible.

5-14. Purpose of Test and Adjustment Procedures.

5-15. The test and adjustment procedures are used when a board is replaced, and for compensatory adjustments after components are replaced on a board. The procedures should be performed every three years to assure continued system accuracy.

NOTE

In U.S.A., all tests requiring transmitter carrier frequency or modulation adjustments must be performed under the supervision of a holder of a second-class radiotelephone operator's license, per Federal Communications Commission regulations. Other countries may have similar regulations. Consult local regulatory agency (PTT, etc.).

5-16. The test and adjustment procedures cover the following general areas:

ADJUSTMENT	PARAGRAPH
Transmitter:	
Subcarrier Frequency	5-42
Carrier (radiated) Frequency and Power Output	5-44
Carrier Frequency Deviation	5-49
Receiver:	
Local Oscillator Tuning	5-56
Crystal Frequency Compensation, AFC Output	5-58
RF Amplifier Gain, Tuning	5-62
IF Alignment, AFC Loop Zero	5-67
Inoperative Threshold	5-69
ECG Amplifier Gain and Zero	5-71
System Gain and Noise	5-73
*Crystal Filter Impedance Match	5-75
*IF Gain, Centering IF in Discriminator	5-65

*After component replacement only.

5-17. Tools, Supplies, and Test Equipment.

5-18. The tools and supplies used in telemetry system maintenance are listed in Table 5-1. The test equipment listed in Table 5-2 is required for the board isolation, testing and adjustment procedures in this manual. The Hewlett-Packard model numbers provided in the table are for guidance regarding required specifications of the equipment; other test equipment with similar functions and characteristics may be used. Tools and supplies are listed in Table 5-1.

5-19. DISASSEMBLY AND ASSEMBLY PROCEDURES.

5-20. The printed circuit (PC) board assemblies in the telemetry equipment must be exposed for adjustments, and removed for repair. The following procedures outline the steps necessary to remove the three telemetry PC assemblies, and to restore them to service.

5-21. Transmitter Disassembly.

5-22. Refer to Figure 6-1 for an exploded view of the transmitter, and to Figure 5-1 for details of the internal construction of the case.

a. Remove the single screw that holds the sliding rear cover of the case.

b. Slide the cover off the case body, and remove the battery door with it.

c. Use a sharp-pointed utility knife to remove the silicone rubber sealant (RTV) that holds the outer cover on the transmitter capsule, in two operations. First, cut the sealant horizontally by pointing the knife tip toward the lip of the can; then cut the sealant vertically, pointing the knife downward. Lift out the sealant, pull the remaining sealant out of the space between the can and cover, and discard the old sealant. Then cut away the sealant from the access holes for three cap screws.

d. Pry up the capsule outer cover and, using a 3/16-inch nut driver, remove the cap screws from the inner tuning cover. Pry up the tuning cover to expose the PC board for adjustment, testing or replacement.

e. Inspect the desiccant paper at one side of the can and discard it if the blue indicator dye strip has turned pink.

f. Scrape all sealant off the metal parts of the capsule assembly, and rub away any slight residue that remains, holding the transmitter on its side so sealant does not fall into the PC board area. The metal surfaces must be absolutely clean before the unit is reassembled to assure sealant adhesion.

Table 5-1. Tools and Supplies

NAME	HP PART NO.	OTHER DESCRIPTION
Desiccant Paper	9223-0162	
Sealant, RTV	0470-0357	Gray color only, Dow Corning 3145
Channel Nut	0590-0767, or 0590-0079	For spring loading during transmitter capsule sealing (Figure 5-2)
Solder Puller	8690-6227	Metallized desolder tool
3/16 inch socket, or 3/16 inch nut driver	8720-0001	
Screwdriver, Pozidriv	8710-0899	Small
Screwdriver, Pozidriv	8710-0900	Medium
Screwdriver, Pocket	8730-0008	Slot, for adjustments
Contact cleaner, 16 oz.	8500-0882	Or equivalent commercial cleaner/primer

5-23. Transmitter Board Replacement.

5-24. Lift out the board, unsolder leads at can. Note that external lead connections are welded, and inner connections are soldered, to facilitate board replacement. This means that the can must be opened and the inner connection of the replaced lead inspected for continuity if a new lead is soldered on externally. If the capsule can is removed from the case, be sure to replace the rubber spacers when reinstalling the can.

5-25. Transmitter Reassembly.

5-26. The transmitter capsule must be provided with new desiccant paper if the blue indicator dye on the old piece is pink.

a. Install the inner cover with the three cap screws previously removed.

b. Just before sealing, open the envelope containing the desiccant paper (Table 5-1). Place the paper strip in the slot at the side of the capsule left by the inner cover.

c. Place the transmitter on a horizontal surface, rear side up (Figure 5-1) and put the outer cover on top of the inner cover. Cut the spout of the sealant tube so a small bead of sealant can be forced out. Seal each side of the capsule one

at a time, pushing the sealant ahead of the applicator so it flows between the edge of the cover and the can. Then turn the transmitter and seal the next side, overlapping the adjacent sealant at the corners. Seal the three cap screw holes.

d. As shown in Figure 5-2, spring load the cover with a channel nut or similar spring device and masking tape. Let the sealant set up for at least three hours before removing the spring. Do not move the transmitter for 24 hours to permit full sealant cure.

5-27. High Frequency Board Removal.

5-28. The High Frequency (HF) board is located in the Receiver as shown in Figure 6-5. The cover of the inner chassis, which shields the HF Board, must be removed to gain access to the board.

WARNING – EXERCISE EXTREME CAUTION WHEN REMOVING CHASSIS COVER BY DISCONNECTING POWER. 115/230 AC EXPOSED INSIDE MAY BE LETHAL.

a. Disconnect power from the receiver. Remove two screws holding the top cover, and slide the cover back and off the receiver. Leave the antenna cable attached.

b. Unfasten all screws that retain the chassis cover, and

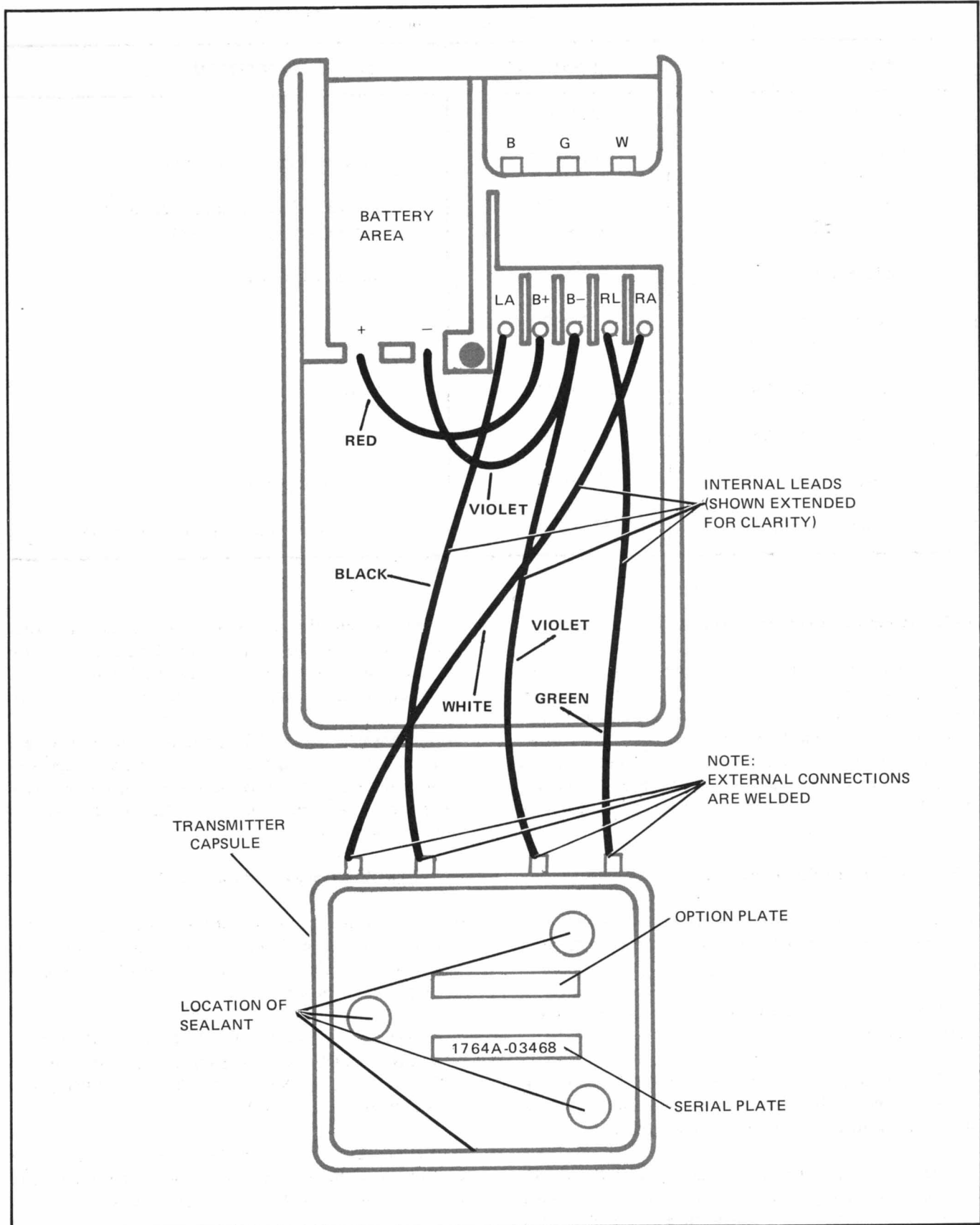


Figure 5-1. Transmitter Case Internal Details

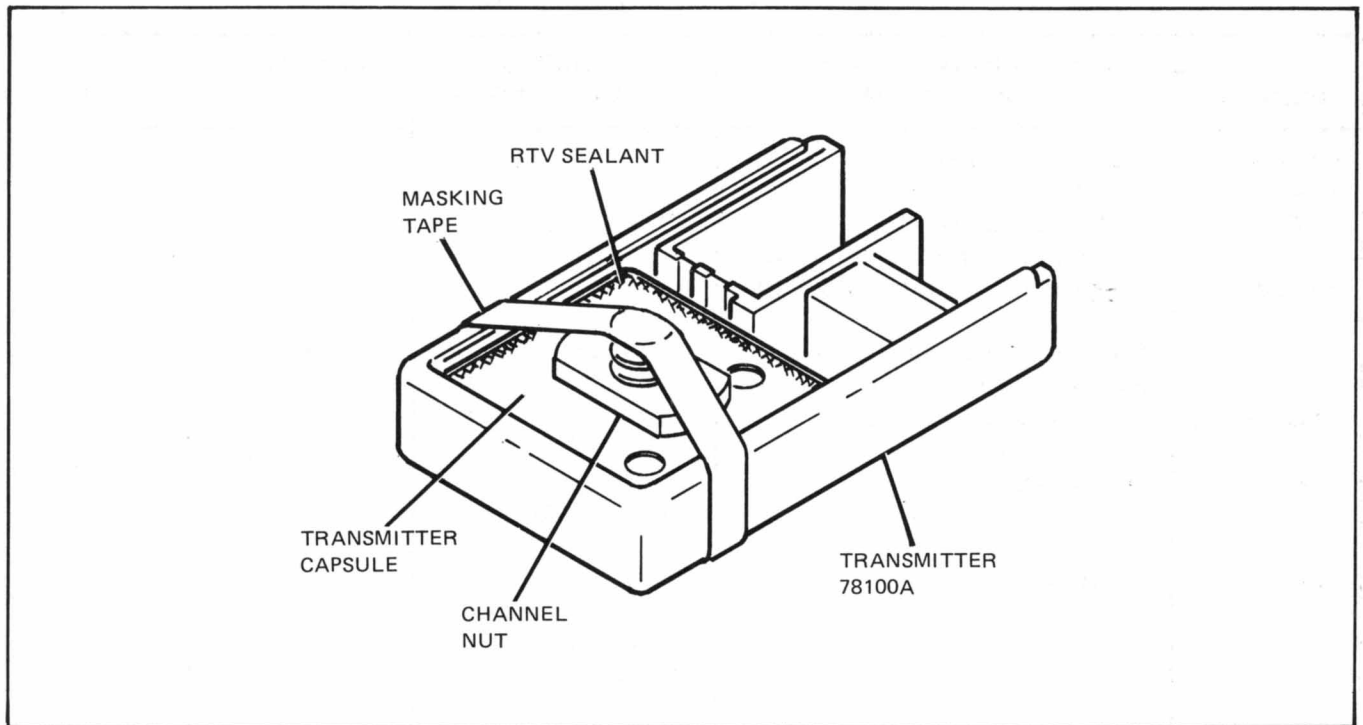


Figure 5-2. Sealing the Transmitter Capsule

slide the cover backward while lifting it out of the receiver. The HF Board is now exposed for tuning.

c. For troubleshooting, only the two shields on the right side of the board should be removed. They are identified in Figure 6-8. The other two aluminum-covered structures are RF resonators Z1 and Z2, which must not be removed.

d. The board itself may be removed by unfastening the four screws that hold it to the chassis. Replacement is in reverse order of removal except that the easy way to get the screws back into the holes of the chassis, which are down in a slot on either side, is to stand the receiver up on its back panel. Then place the screw on the end of the Pozidriv screwdriver and carry it to the hole in the chassis.

5-29. Low Frequency Board Removal.

5-30. The Low Frequency (LF) Board is located in the bottom of the receiver (Figure 6-5).

a. Disconnect power from the receiver. Remove two screws holding the bottom cover, and slide the cover back and off the receiver. The LF board is now exposed for troubleshooting and adjustment.

b. To remove the board, disconnect plug P7 and unfasten four screws that attach the board to the chassis.

c. While the board is removed, clean and lubricate the

front panel slide switches S1, S2 with a control cleaner and lubricant (Table 5-1).

d. Replacement is the reverse of removal.

5-31. BOARD ISOLATION PROCEDURES.

5-32. The board isolation procedures can be used to troubleshoot to the board level. If a board is to be replaced, order the new board under the following HP stock numbers, returning the defective board for exchange:

Transmitter PC Board (Standard), 450-470MHz	78100-60018
Transmitter PC Board (Diagnostic), 450-470MHz	78100-60811
Receiver High Frequency Board, 450-470MHz	78101-60018
Receiver Low Frequency Board	78101-68740
Transmitter PC Board (Standard), 430-450MHz	78100-68012
Transmitter PC Board (Diagnostic), 430-450MHz	78100-68013
Receiver High Frequency Board, 430-450MHz	78101-60811

If the board is to be repaired, troubleshoot the board for the problems indicated in the extension procedures that follow the isolation procedures, Figures 5-3 through 5-6.

Table 5-2. Test Equipment Required

RECOMMENDED HP INSTRUMENT		REQUIRED CHARACTERISTICS	TRANSMITTER TESTS	RECEIVER TESTS
NUMBER	DESCRIPTION			
00780-63030	Transmitter Test Box		X	X
10002C	50:1 Probe w/insulated tip			X
10020A	Resistive Divider Probe	250 ohm Tip		X
10502A	9-inch (22 cm) Shielded Cable, BNC			
10503A	48-inch (122 cm) Shielded Cable, BNC			
141T/141S with 8552A and 8554L	Spectrum Analyzer Display Section Spectrum Analyzer IF Section Spectrum Analyzer RF Section	100-1000 MHz	X	X
1740A	Oscilloscope	2-channel, DC to 10 kHz		
3312A	Function Generator	0.1 – 10 kHz Internal AM and FM Modulation 50 ohm output	X	X
3465A	Digital Multimeter	4-digit display 20 mV – 200V DC 0.5% accuracy	X	X
355C	Variable Coaxial Attenuator	0 – 10 db, 1 db increments		X
355D	Variable Coaxial Attenuator	0 – 120 db, 10 db increments		X
8656A	Signal Generator	Frequency Range 300 – 600 MHz Output Level –127 db to 16 db		X
432A with 478A	Power Meter Thermistor Mount	10 uW – 10 mW 1% accuracy	X	X
4815A	Vector Impedance Meter	Frequency: 500 kHz – 100 MHz Ohm: 1 – 1k ohm 4% accuracy Phase: 0 – 360 degree 3% accuracy		X

Table 5-2, cont'd.

RECOMMENDED HP INSTRUMENT NUMBER	DESCRIPTION	REQUIRED CHARACTERISTICS	TRANSMITTER TESTS	RECEIVER TESTS
8901A	Modulation Analyzer	Input: 400 kHz – 500 MHz Modulation: 150 kHz – 500 MHz Counter: 400 – 500 MHz Accuracy: ±2% – ±1 digit demodulation to 1 kHz signal	X	X
5300B with 5306A	8-Digit Mainframe Digital Multimeter/Counter Module	40 Hz – 10 kHz 50 Mv rms sens	X	X
6234A	DC Power Supply (dual output)	0.2 amps max. 0-10V	X	

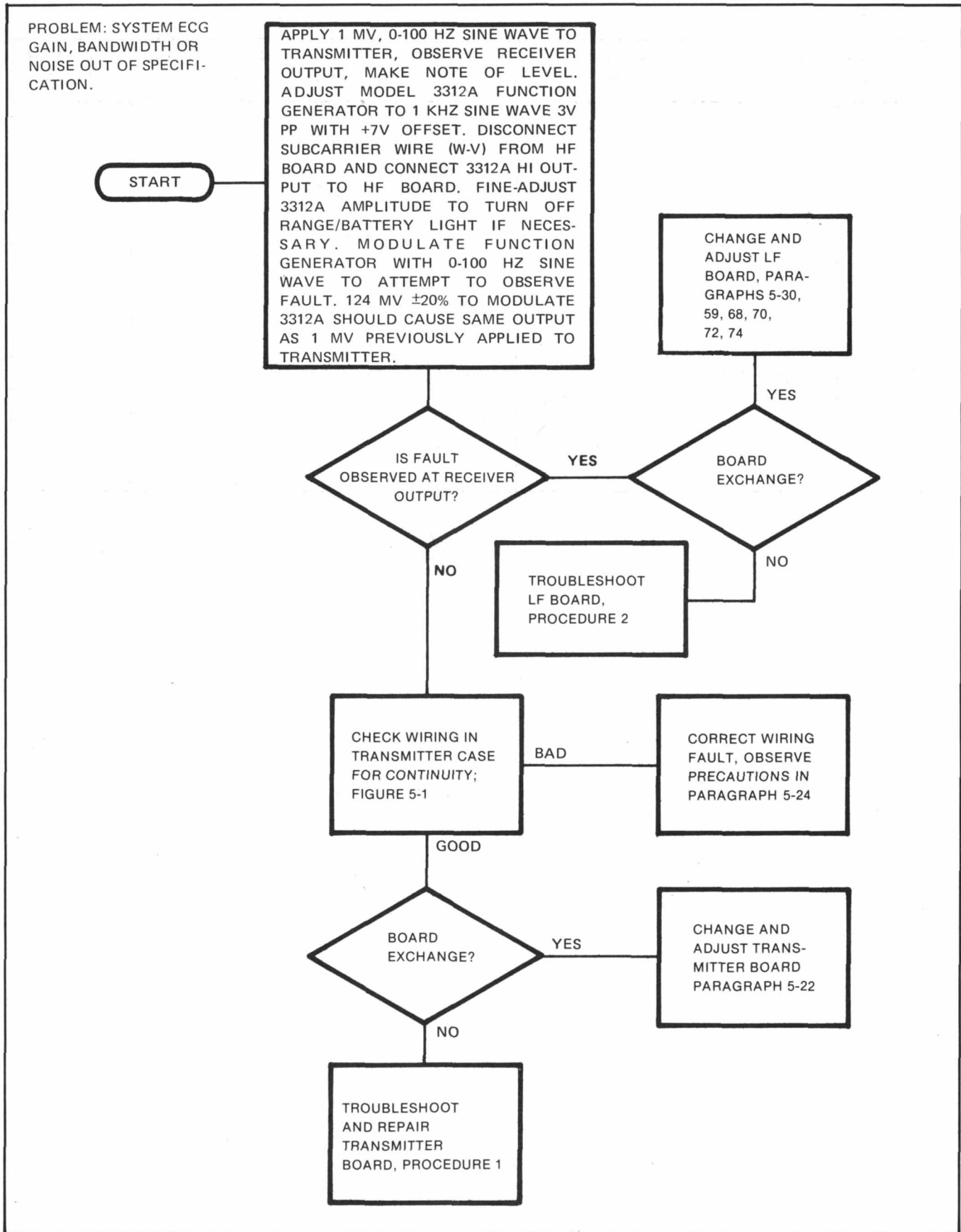


Figure 5-3. Board Isolation Procedure, ECG Signal Quality

PROBLEM: INADEQUATE TRANSMISSION RANGE

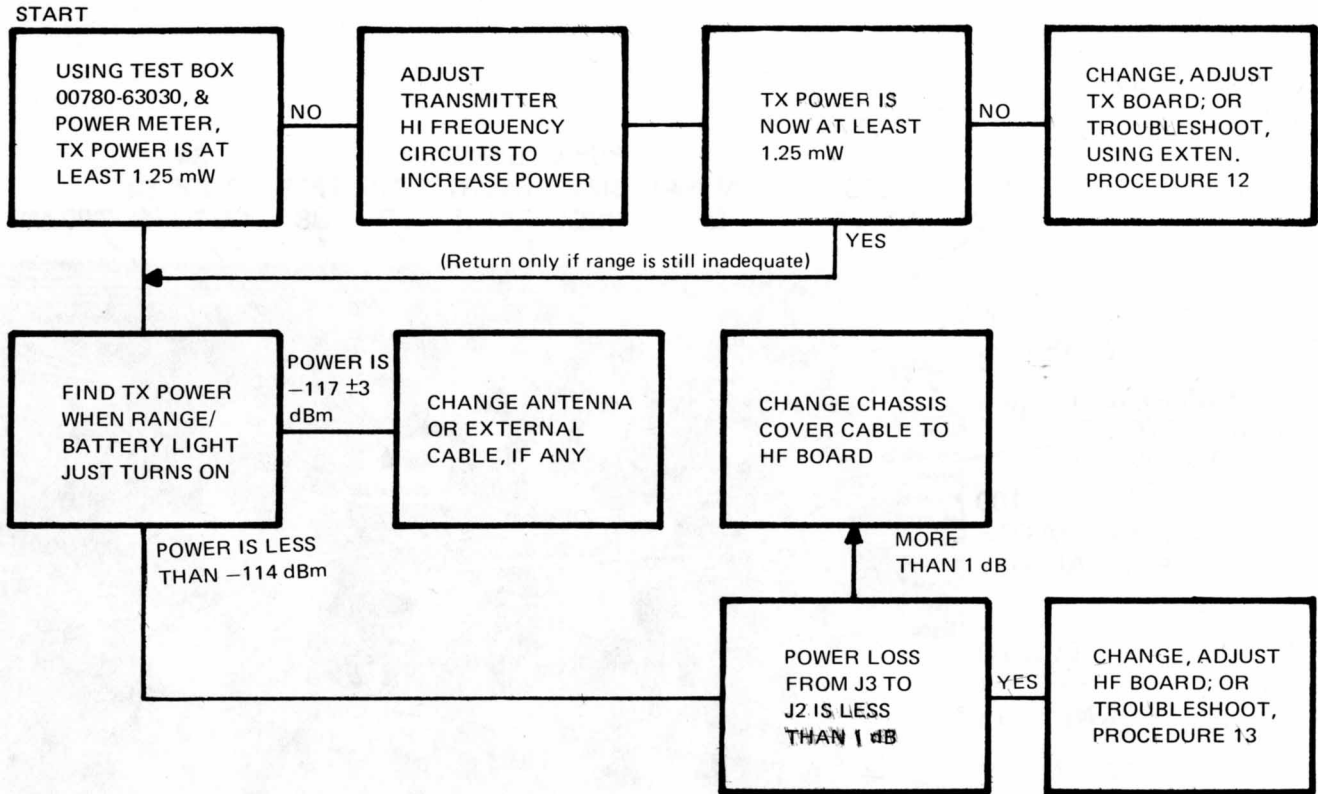


Figure 5-5. Board Isolation Procedure, Inadequate Transmission Range

PROBLEM: ELECTRODE LIGHT IS ON WHEN THE TRANSMITTER IS OFF, BUT NOT WHEN TRANSMITTER IS ON.

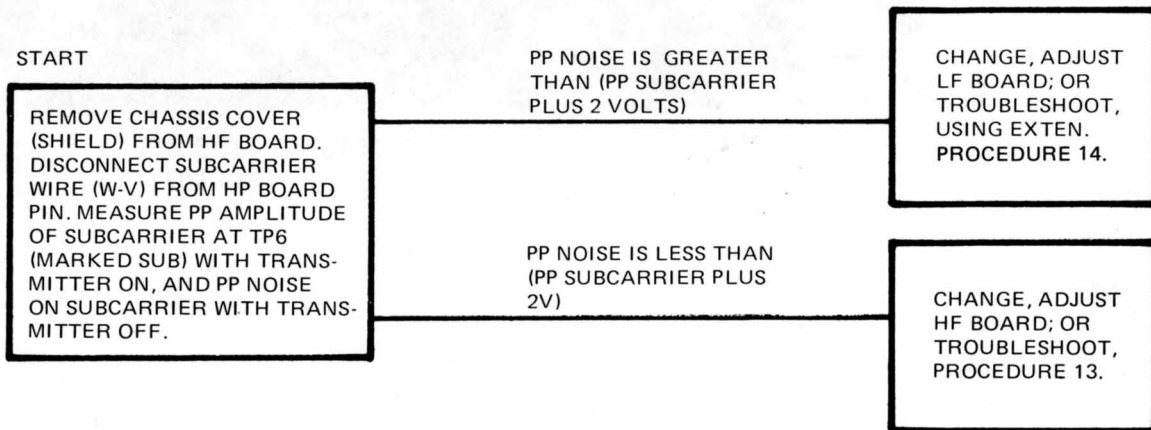
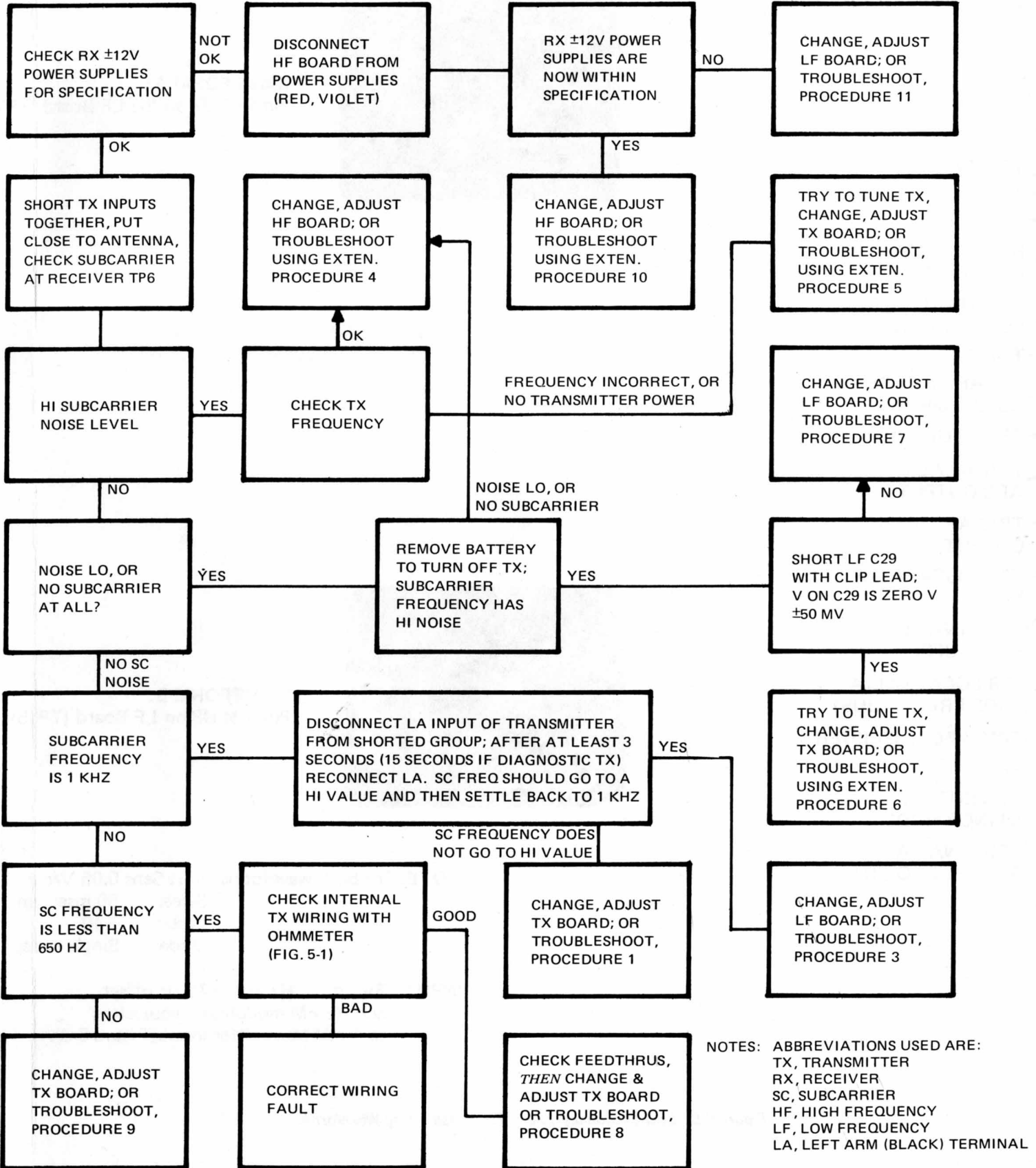


Figure 5-6. Board Isolation Procedure, Electrode Light Problem

PROBLEM: LACK OF ECG OUTPUT

START



NOTES: ABBREVIATIONS USED ARE:
 TX, TRANSMITTER
 RX, RECEIVER
 SC, SUBCARRIER
 HF, HIGH FREQUENCY
 LF, LOW FREQUENCY
 LA, LEFT ARM (BLACK) TERMINAL

Figure 5-4. Board Isolation Procedure, Lack of ECG Output

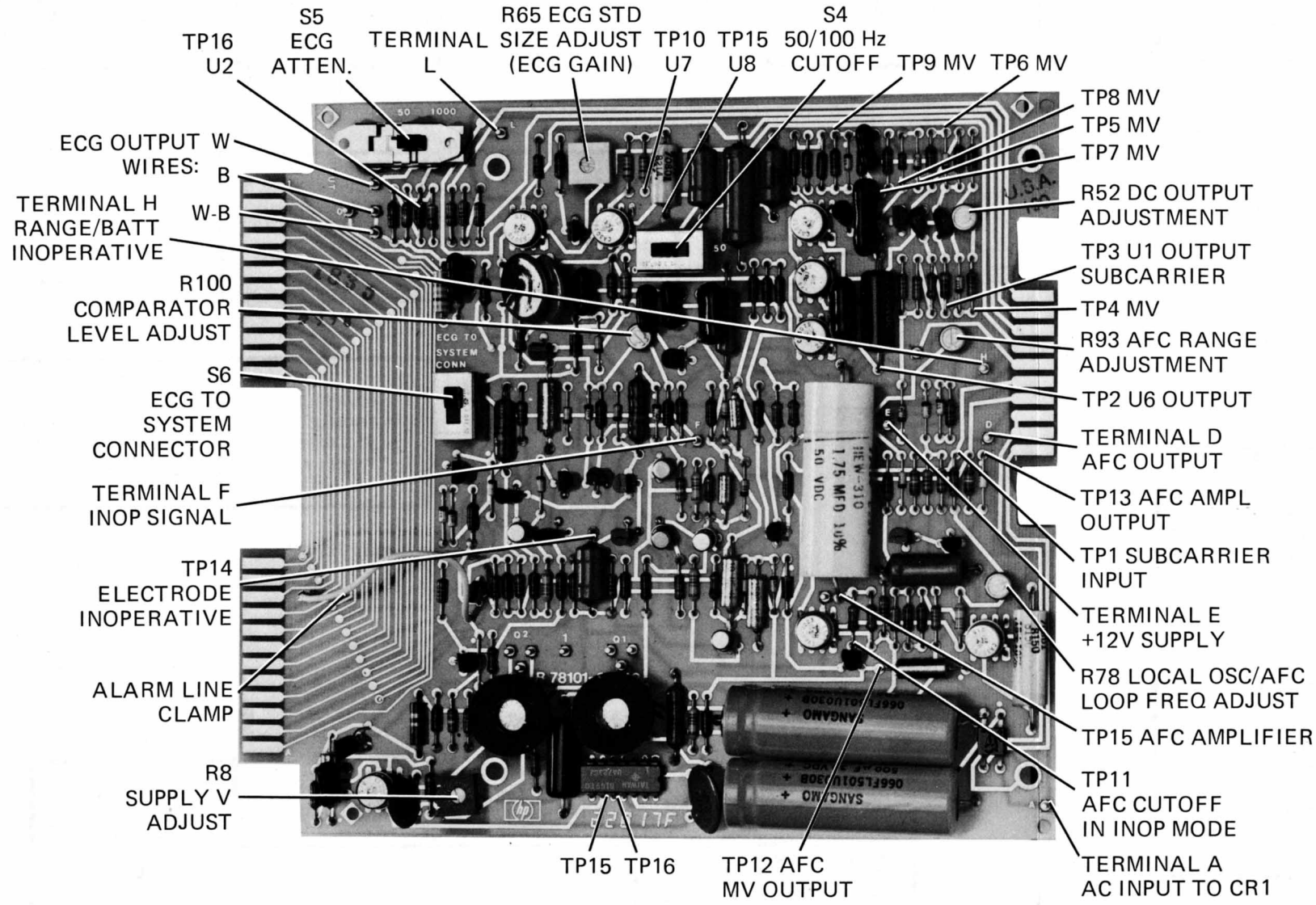
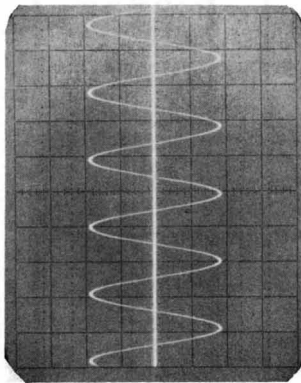
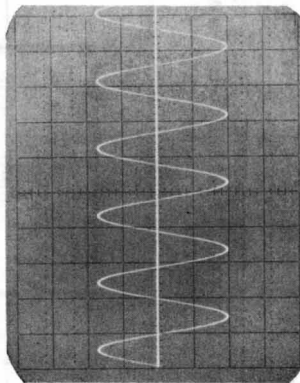


Figure 5-7. Low Frequency Board Test Points and Adjustments

WAVEFORM A:
Pin 6 of U7 on the LF Board (TP10).



WAVEFORM B:
Pin 6 of U8 on LF Board (TP15).



NOTE: For both waveforms, Vert Sens 0.05 V/cm
Sweep 50 msec/cm
Probe X10
Mode Single sweep

INPUT: 3V pp, 1 kHz with +7V dc offset
and Hz FM modulation equivalent
to 1 mV transmitter input (Figure 5-3).



Figure 5-7. Low Frequency Board Test Points and Adjustments
Figure 5-8. Low Frequency Board Troubleshooting Waveforms

5-33. Board-Level Troubleshooting Extensions.

5-34. The following procedures are used to continue diagnosis if the board fault is isolated using the appropriate troubleshooting tree. The procedure numbers are keyed to corresponding numbers at the end of some of the troubleshooting tree branches. If the board is replaced with a rebuilt assembly, check and adjust the replacement board using the Test and Adjustment Procedures, which start at Paragraph 5-37. After repairs have been completed, compensatory adjustments must be made to the circuit board. Refer to Table 5-3 for a list of Transmitter Board adjustments, to Table 5-4 for Receiver HF Board adjustments, and to Table 5-5 for Receiver LF board adjustments.

PROCEDURE 1: Transmitter ECG Gain, Bandwidth, Noise.

a. Unseal the transmitter capsule (see paragraph 5-19). Insert battery or use DC power supply to supply 8V at battery contacts.

b. Connect a 1 mV rms 10 Hz sine wave or other signal that simulates the primary fault from the 3312A Function Generator into the LA lead. With the 3465A Multi-function Meter, inspect for approximately 15 mV rms sine wave on U1 (9), and with scope, check for an approximately 200 mV rms sine wave on U1 (16). If the output on pin 9 is faulty, inspect Q7, Q8, U1A or U1B. If the output on pin 16 is faulty, inspect U1C. If neither output is faulty, connect the test input from the Function Generator to the RA lead and repeat this procedure.

c. For bandwidth problems, check high and low frequency response at U1 (16) with a 10:1 probe.

1. High frequency response. Check amplitude at 100 Hz. Look for greater than or equal to 70% (-3 db) of the amplitude at 50 Hz.

2. Low frequency response. For standard units, check at 0.5 Hz for greater than or equal to 70% (-3 db) of the amplitude at 1.2 Hz. For diagnostic units, check the low frequency roll-off at 0.05 Hz. Look for greater than or equal to 70% (-3 db) of the amplitude at 0.14 Hz. If amplitudes not at least 70% check voltage, current drain, and U1. Also check R15, R17, R49 and C6.

d. Noise. Possible causes of noise are numerous and many are beyond reasonable test. Some, however are more obvious and more probable. The following are general tests:

1. Assure the board is bolted down tightly.

2. Check that C6 is not open or leaky. Check Q7, then Q8 for noise or leakage current imbalance.

3. Look at VR1 for noise.

4. Remove C6. If noise is gone, check the amplifier circuitry. If the noise still persists, check C6, Q12, Q13, C7 by substitution, and check VR1 for noise.

5. Other components to check are: R10, R8, CR2, CR3, R47, R48, and R46.

PROCEDURE 2: Receiver Low Frequency Board ECG Gain, Bandwidth, Noise.

a. 3312A Function Generator should be set up as described in the troubleshooting tree to provide a simulated subcarrier to the LF board.

b. Observe TP10 (Figure 5-7) for fault by comparing scope signal with Waveform A of Figure 5-8. Observe TP15 for fault by comparing signal with Waveform B. Observe TP16 for fault; signal should be 2.83Vpp \pm 30% (a range of 1.98Vpp to 3.68Vpp) at the output.

Note: The 10 Hz modulating frequency may be varied to measure frequency response or the amplitude may be varied to measure distortion or linearity. The signal will have no low frequency roll-off. High frequency roll-off is controlled by networks C17, R55, R57, C18, C26 in 50 Hz position of S4 and C20, R60, R61, C21.

PROCEDURE 3: Receiver LF board with No ECG Output.

Turn on Transmitter and short all input leads together. Then check Receiver front panel lamps and perform sub-procedure a, b, or c.

a. If Range/Battery Lamp is ON:

1. Check emitter follower Q4 to ascertain whether signal is reaching R58.

2. Check voltage on + end of C9, which should be sub-carrier signal pp value less 1 volt. If not, check short time-constant pp detector Q7-Q8.

3. Check voltage on + end of C7, which should be the same. If not, check long time-constant pp detector Q5-Q6.

4. If voltages checked in steps 1 and 3 are OK, check that the voltage on the base of Q6 is greater than the voltage found in steps 2 and 3. If not, try adjusting R100, then check Q6, R21, R20, R19, and R100.

5. If all of the components just checked are OK, then check that the voltage on the base of Q8 is less than the voltage found in steps 2 and 3. If not, check Q8. Then adjust R100 again.

6. If Q8 is OK, then check Q9, Q10 and CR10.

b. If Neither Lamp is On:

1. Check lamps.

2. Check for the subcarrier signal at TP2. If bad, check subcarrier filter.

3. Check for the subcarrier signal at TP3. If bad, check subcarrier amplifier.

4. Check waveform at TP9, waveform TP9A. If a symmetrical square-wave is not observed, check monostable multivibrator Q19-Q20.

5. With the 3465A Multifunction meter, check dc voltage at TP10, which should be 0V dc \pm 1V. Unshort any transmitter lead. The voltage should jump to +6V dc \pm 2V. If not, check U7 and associated components of the first output filter.

6. Repeat step 4 for TP15, the second output filter.

7. Check output amplifier U2 and associated components, or Q21.

c. If Electrode Lamp is On:

1. Perform steps 1, 2, and 3 of Check B, transmitter leads shorted.

2. Check waveform at TP14 (A). If not an intermittent sawtooth, check Q11, Q12, Q13, and associated components.

3. Check dc voltage on the + end of C11, which should be 1V dc \pm 0.5V. If not, check Q14.

4. Check Q15.

PROCEDURE 4: Receiver High Frequency Board.

This problem can be caused by local oscillator malfunction. (For further information, see Procedure 13.)

a. Check local oscillator circuit for large frequency shift or no output.

b. If a frequency shift is detected, tune C30 (Figure 5-9) while monitoring local oscillator output at TP1.

PROCEDURE 5: This problem can be caused by transmitter oscillator malfunction, or battery/regulator failure.

a. Check regulator output.

1. If not -6.2 ± 0.3 V dc, repair regulator. Check especially VR1. If the voltage is OK, but unregulated, check (even touch) CR5-R60.

2. If voltage is low and current drain normal, repair regulator circuit.

3. If the voltage is low and if the current drain is high and not adjustable, disconnect the RF circuit by opening Q21. If the current drops, replace Q21 and/or look for shorts. Check Q21 short by checking for full 6.2V across R54. If current does not drop, check L10 for excessive current drain. Check Q22 short by checking for full 6.2V across L4 or R55. Check subcarrier oscillator.

4. If the voltage is 0V, check L9. If Q2E is -8.3 V, check U1 and check board for shorts.

b. Check crystal oscillator, and oscillator bias/shutdown transistor Q5, Q6, using voltages provided on schematic diagram, test points TP10, TP11.

If oscillator does not turn on, check CR1 and short R52 to L2. If oscillator turns on now, check RF feedback (C21, L1, L11, C20, R50, R57, R52, and CR1). If oscillator does not turn on, check circuitry about Q21 and Q22 (including C26, C34, C22 and C27) and check oscillator bias/shutdown transistors Q5 and Q6 using TP10, TP11 voltages.

PROCEDURE 6: No Transmitter Subcarrier.

If tuning the transmitter does not work.

a. Check transmitter power supply for -6.2 ± 0.3 V dc output.

b. Check transmitter output frequency and adjust C21 or repair oscillator.

c. With leads shorted together, check TP1 waveform. If 1 kHz square-wave is not present, check TP1 with R31 open. If square-wave is present, check active filter. If square-wave is still not present, check voltage on U1 (16).

1. U1 (16) voltage is correct, check subcarrier oscillator Q12-Q17.

2. U1 (16) voltage is incorrect, open R41 and R61. Check for 1 kHz square-wave at TP1. Note: With R41 and R61 removed, the oscillator runs at 1.4 – 2 kHz depending on R23 adjustment.

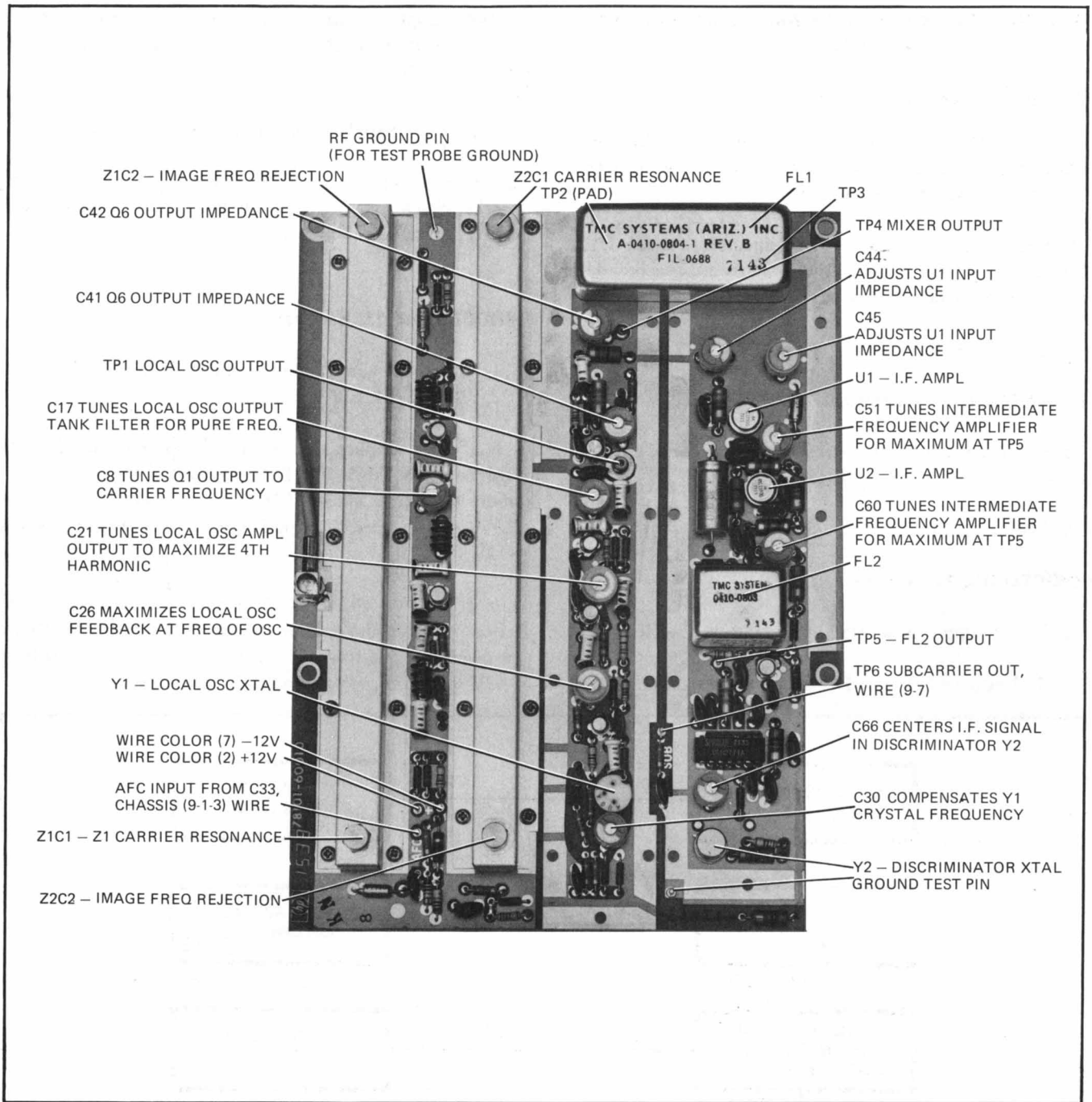


Figure 5-9. High Frequency Board Test Points and Adjustments

A. If square-wave is not present, check subcarrier oscillator Q12-Q17.

B. If square-wave is present, check INOP or ECG amplifier circuits, including Q11, U1C, Q12, Q13, Q7, Q8, and C6.

d. Check waveform on TP7. If incorrect, check components at first active filter.

e. Check waveform on TP9. If incorrect, check components of second active filter. If correct, check R38, C16, L11.

Note: If R31, R41, or R61 were lifted or removed during troubleshooting, replace them now.

PROCEDURE 7: Receiver Low Frequency Board.

Check U5 and other components at AFC amplifier.

PROCEDURE 8: No Subcarrier, Noise or Subcarrier less than 650 Hz.

Short transmitter leads together.

- a. Check Q11 base and emitter voltages to determine whether Q11 is conducting. If it is, the fault may be in Q7, Q8, or their bias resistors; or is CR6.
- b. Check voltage on U1 (6). If incorrect, check U1C. Check emitter-base diode of Q11 for forward bias (conduction). If not forward biased, check Q11.
- c. Check R23, R24.

PROCEDURE 9: Transmitter.

- a. Check voltage on U1 (16). If incorrect, check U1C and its bias resistors, and for leakage through C6.
- b. Check resistors R23 through R26.

PROCEDURE 10: Receiver.

- a. Power supply is shorted to ground on the HF Board.
 - 1. Neither +12V nor -12V supply works:

If both supply voltages are missing, short is from +12V to ground. Further troubleshoot the HF Board, using the tree in Figure 5-10.

- 2. +12V Supply is OK, -12V Supply is faulty:

Disconnect one end of L16. If the negative supply now works, check Q4, C31, C37. If the negative supply is still faulty, check CR3, C36, C72.

PROCEDURE 11: Receiver.

- a. Check the unregulated supplies. If faulty, check C1, C2, CR1, T1, S1, S7.
- b. If both supplies are less than 11.5V, measure the voltage between TP15 and TP16 (Regulator U4). If TP15 is more than 0.5V above TP16, there may be a short on the LF Board between +12V and ground, or between +12V and -12V.
- c. If +12V is OK but -12V is more positive than 11.5V, check Q3 base and emitter voltages to determine whether it is conducting. If it is, there may be a LF Board short from -12V to ground, or between -12V and +12V.

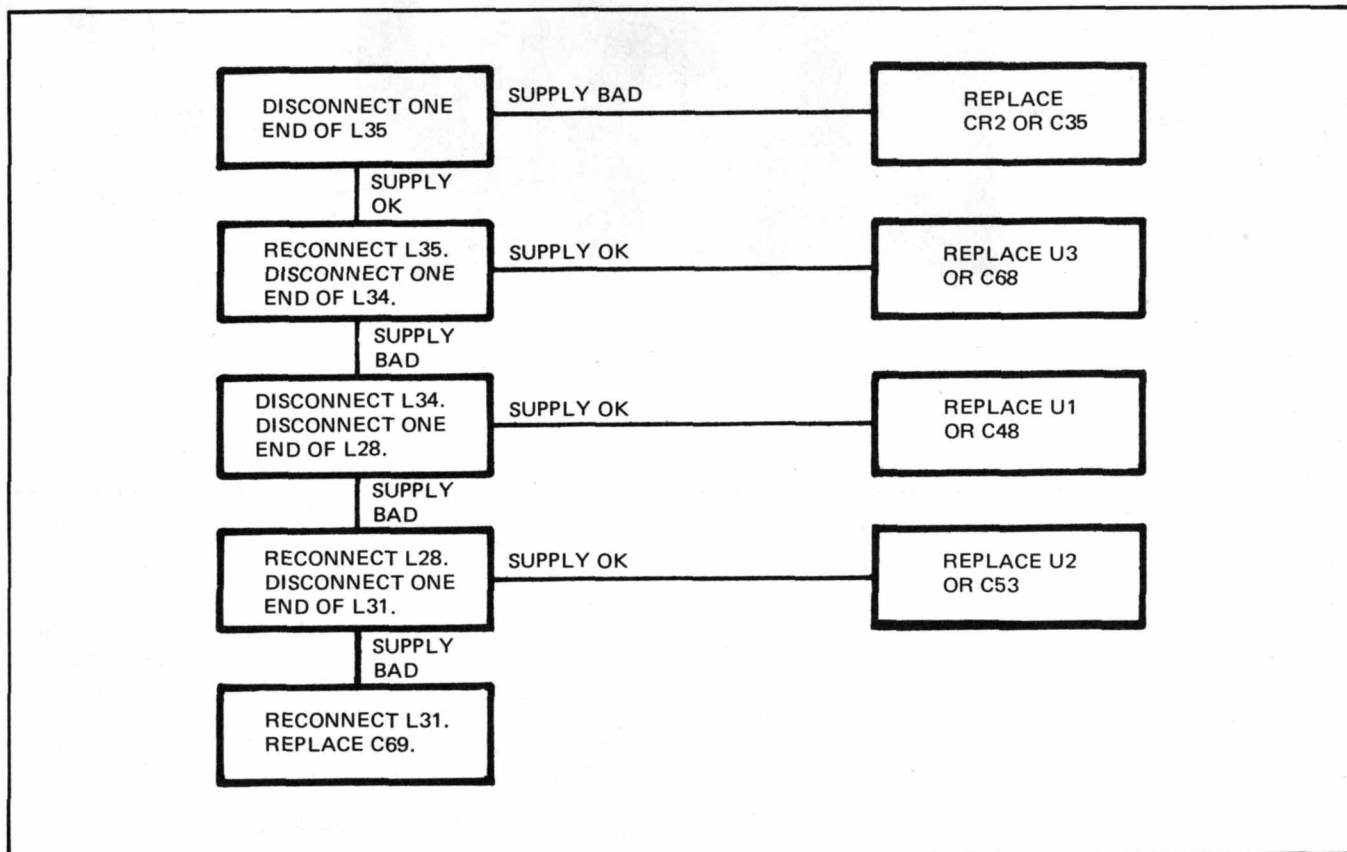


Figure 5-10. Receiver Power Supply Troubleshooting

d. If both supplies are bad, check U4, Q1 and -12V regulator passive components.

PROCEDURE 12: Low power from Transmitter.

With clip leads, attach an 8.4 volt battery or power supply to the battery terminals, with a current meter in series with one lead.

a. If power is (1.25 mW and the current drawn is 6.5 mA \pm 1 mA, the second (diode) frequency doubler (Q22 and circuitry) may be faulty. Use the Spectrum Analyzer and a coil to look for the 200 MHz at Q22 output.

b. If the current drawn is (4 mA, check the first frequency doubler, Q21. It is likely that the tuning capacitors C25, C28, C30, C31 and C33 are faulty or misadjusted. These capacitors are easily broken. Check C32, CR7 and L5 also.

c. If the current drawn is between 4 mA and 5.5 mA (after tuning), check that R55 has a tuning effect. If it does, check Q22. If R55 has no affect, check Q21 or CR8.

d. If harmonics are not 30 db below, check C29, C32, and L5.

PROCEDURE 13: Receiver HF Board.

Excessive power loss causes RANGE/BATT Light to come on; fault is not in antenna or in receiver internal antenna cable.

a. Connect receiver internal antenna cable to rear panel antenna connector J3.

b. Set 8656A Signal Generator frequency for the Carrier Frequency of the channel under test (Table 5-6). Adjust amplitude for -40 dBm. Set the Spectrum Analyzer Display section as follows:

Scan Width	1 MHz/Div
Bandwidth	300 kHz/Div
Frequency	21.82 MHz

c. Connect the 8656A Signal Generator to the receiver ANTENNA connector. Make sure the transmitter is turned off. Connect the 10020A, 250-ohm resistive divider test probe to the Spectrum Analyzer input. Measure the mixer output (TP4) at 21.82 MHz. Fine tune the 8656A Signal Generator to obtain maximum mixer output. As the generator is tuned, the mixer output should dip sharply at exactly 21.82 MHz. If the frequency of the mixer output differs from the frequency of the dip by more than 1 MHz, check mixer Q6.

d. At maximum mixer output, the Spectrum Analyzer should read at least -32 dBm. If not, measure the local oscillator (LO) output at TP1. It should be greater than -12 dBm at the fourth harmonic of the crystal oscillator (refer to Table 5-6 for a value that is four times the crystal frequency). If the L.O. power output is less than -12 dBm, attempt to peak the power using C21 and C17. If either adjustment causes more than 3 dBm increase in power out of the associated amplifier stage, check the components in that stage. Failures of Q3 or Q4 result in abnormal emitter voltages. Note that the bias on Q4 is altered if the crystal oscillator is inoperative.

e. If the L.O. power is OK, RF amplifier power or mixer power may be deficient. To detect faulty transistors, measure collector voltages of Q1 and Q2, and the source voltage of Q6. To detect the failure of passive components in the first RF amplifier stage, try to increase gain by adjusting Z1C1. Failures in either stage would make C8 adjustments effective in increasing gain.

Note: Adjustments for this test using Z2C1 are not valid.

f. If RF gain (checked in step e) is good, check the IF gain. Install Telemetry transmitter into Test Box 00780-63030, and set attenuator on test box to 0 dB. Connect test box to receiver rear panel ANTENNA connector. Attach 10002A Resistive Divider Probe, 50:1 ratio, with 10035A pincer jaw tip 5060-0417, found in 10035A Probe Tip Kit, to the input of the 1740A Scope.

Observe signal at TP5 of HF Board (Figure 5-11). It should be possible to attenuate with the test box by at least 80 dB before the signal at TP5 drops to less than 0.5V pp. If not, try to isolate the IF stages by peaking them: if C60 increases IF gain, check U2; if C51 only can increase gain, check U1.

g. Check U3 for loading of TP5.

PROCEDURE 14: Receiver. Transmitter is off, but ELECTRODE light is on.

a. On the Receiver LF Board, check voltage on the positive end of C9. It should be noise voltage (subcarrier noise determined in troubleshooting tree) pp, less one volt. If not, check the Threshold Lo Comparator circuit (short time-constant pp detector).

b. Check voltage on positive end of C7. It should be noise voltage pp, less one volt. If not, check the Threshold Hi Comparator circuit (long time-constant pp detector).

c. Check CR10.

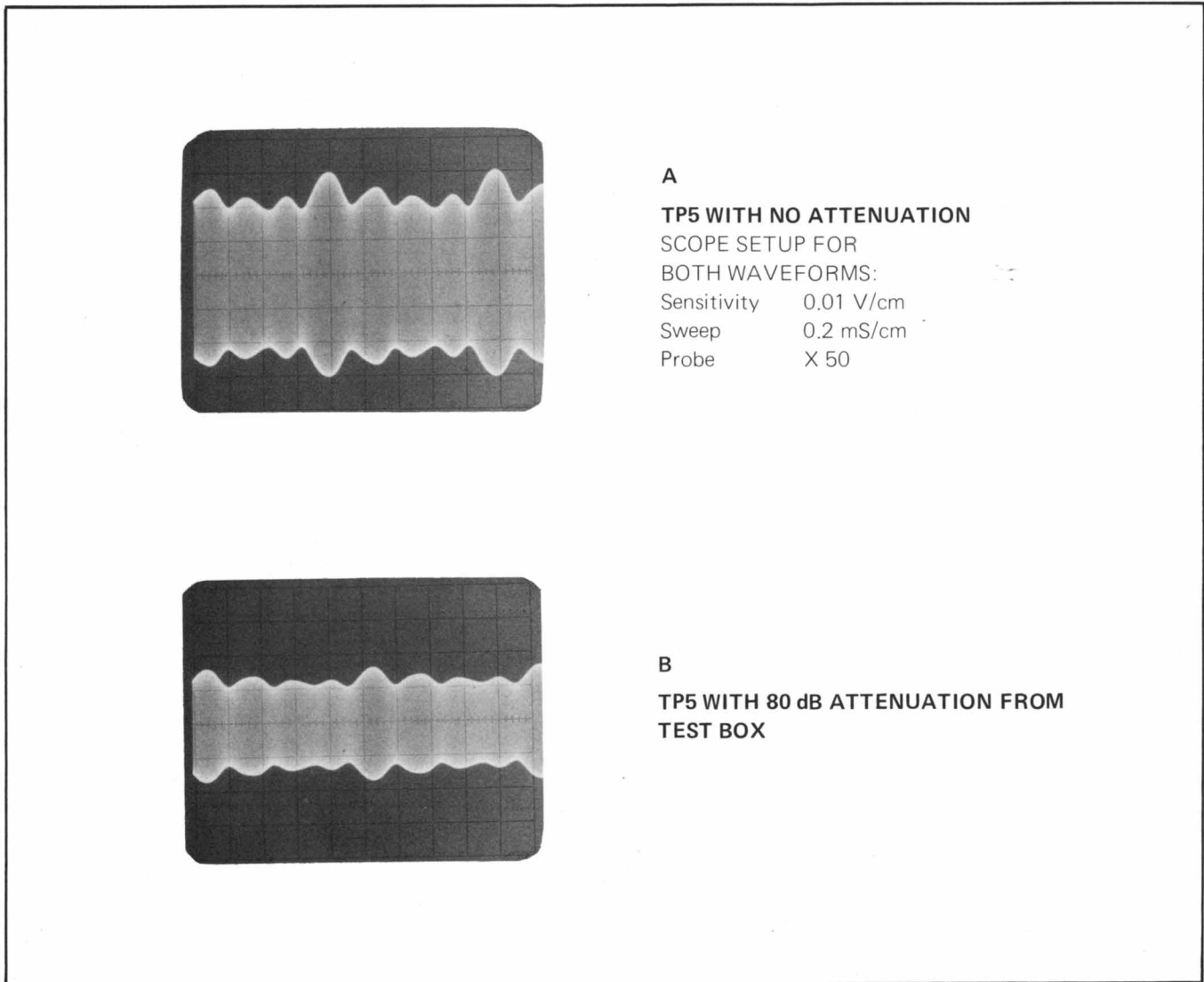


Figure 5-11. Intermediate Frequency Waveforms

5-35. Compensatory Adjustment References.

5-36. After components are replaced, adjustments are to be made to the PC Boards according to the following schedule

a. If a transmitter board is exchanged, it is necessary to perform all the adjustments as described in the Transmitter Service Test Procedure. If components only are replaced, refer to Table 5-3 for an index to the compensatory adjustments.

b. If a receiver high frequency board is exchanged, perform receiver tests found in paragraphs 5-51 through 5-69; if individual components are replaced, refer to Table 5-4 for a list of compensatory adjustments.

c. If a receiver low frequency board is exchanged, perform receiver tests found in paragraphs 5-51 through 5-69; if individual components are replaced, refer to Table 5-5 for a list of compensatory adjustments.

5-37. TRANSMITTER TESTS AND ADJUSTMENTS.

5-38. The following tests, when complete, will assure that the Model 78100A Transmitter meets Federal Communications Commission requirements for frequency and modulation. The transmitter's INOP and GAIN parameters are measured when adjusting the corresponding 78101A Receiver controls to establish system performance. Therefore, before a given receiver and transmitter can be mated for use as a system, the "INOP Adjust and ECG Gain" portions of the 78101A Receiver tests must be performed.

Table 5-3. Transmitter Compensatory Adjustments

Transmitter Component Replaced	Adjust	Paragraph Reference	Transmitter Component Replaced	Adjust	Paragraph Reference
CR1	Transmitter C25, C21, R38	5-44 to 5-50	Q12, 13, 14, 15, 16, 17	Transmitter R23	5-44 to 5-45
CR7	Transmitter C28, 30, 31, 33	5-44 to 5-50	Q21	Transmitter C21, 25 and R38, 55	5-44 to 5-50
Q7	LF Board R65	5-72	Q22	Transmitter C28, 30; R55	5-44 to 5-50
Q8	LF Board R65	5-72	U1	Transmitter R23, and Receiver R65	5-43 and 5-72

Table 5-4. Receiver High Frequency Board Compensatory Adjustments

HF Board Component Replaced	Adjust (HF Board)	Paragraph Reference (See Note)	HF Board Component Replaced	Adjust (HF Board)	Paragraph Reference (See Note)
Q1	Z1C1, C8	5-63, 5-70	Q7	C60	5-66, 5-70
Q2	Z2C1, C8	5-63, 5-70	U1	C44, 45, 51	5-76, 5-66, 5-70
Q3	C17, C21	5-56, 5-59, 5-68	U2	C51, C60	5-66, 5-70
Q4	C21, C26, C30	5-56, 5-59, 5-68	U3	C60, C66 LF Board: R78, R100	5-66, 5-68, 5-70
Q5	C21, C26, C30	5-56, 5-59, 5-68	FL1, FL2	C66, and on the LF Board R78, R100	5-66, 5-68, 5-70
Q6	Z2C1, C41, C42	5-76, 5-63, 5-70			

Note: Perform tests in the order given in the Paragraph Reference column.

Table 5-5. Receiver Low Frequency Board Compensatory Adjustments

LF Board Component Replaced	Adjust (LF Board)	Paragraph Reference
Q19	R52	5-72
Q20	R52	5-72
U4	R8, to obtain +12V ±0.02 Vdc at LF Board Test Terminal E	

5-39. Transmitter exchange boards will not have the transmitter oscillator crystal (Y1) installed. Remove crystal from defective transmitter P.C. board and install it in the exchange board. A list of carrier frequencies, crystal frequencies and respective crystal part numbers is supplied in Table 5-6 under the applicable channel and option number.

5-40. Test Equipment Setup.

5-41. Test equipment is set up in the following manner for all transmitter testing. Switch names appear at the left, under each instrument name, and switch positions are at the right.

8901A MODULATION ANALYZER

Automatic Operation

Measurement – FM or FREQ as required during test

Low Pass Filter – 3 kHz

Detector – Peak⁺, Peak⁻ – as required during test

Resolution – 10 Hz as required during test (see Special Functions for the 8901A)

141S SPECTRUM ANALYZER DISPLAY SECTION

View/Store/Write/Erase – Select Write

Focus – Adjust as required

Persistence – Adjust as required

Intensity – Adjust as required without causing trace to bloom

(IF 141T DISPLAY SECTION IS USED)

Storage – STD Position

Time – Minimum Position

Persistence – As required (usually close to minimum)

Intensity – As required without causing trace to bloom

Focus – As required

8554L SPECTRUM ANALYZER RF SECTION

Tuning Stabilizer – ON (up position)

Bandwidth – 300 kHz

Scan Width – 100 MHz

Scan Width (Per Division) – “0-1250 MHz”

Input Atten. – 10 dB

Freq. (Fine Tune) – During test as required

Freq. – Approximately 470 MHz

8552A SPECTRUM ANALYZER IF SECTION

Base Line Clipper – Adjust as required with 141S

Intensity Persistence to eliminate bloom

Scan Time (Per Division) – 5 ms

Log/Linear Select – Log

Log Ref Level – 10 dBm

Display Adjust – Fully CCW

Video Filter – Off

Scan Mode – Int

Scan Trigger – Auto

HP 1740A OSCILLOSCOPE

Position controls during test as required.

HP 432A POWER METER (With HP 478 Thermistor Mount)

Mount resistance to 200

Calibration Factor to 100

Range to 3 mW

5300B/5306A MULTIMETER/COUNTER IN MAINFRAME

Function – FREQ

Range – 10 kHz

5-42. Subcarrier Frequency.

5-43. This procedure is used to adjust the nominally 1000 Hz subcarrier frequency. R23 controls the currents flowing in Q12 and Q13, which controls the charging times of capacitors C8 and C11 in the subcarrier oscillator. R23 is adjusted to produce a 1 kHz subcarrier frequency, which is monitored by the 5306A Counter.

a. Prepare transmitter by removing sealed cover (Paragraph 5-21). Install battery into transmitter and mate transmitter to test box 00780-63030 plug (Figure 5-12).

b. Attach clip leads from 5306A Counter input to transmitter TP8 (Figure 5-13, Figure 5-14).

c. Adjust R23 on transmitter P.C. board for 1 kHz \pm 10 Hz.

d. Remove clip leads from TP8 and replace tuning cover.

5-44. Carrier Output.

5-45. The following sequence of adjustments assures that the carrier frequency emission will comply with FCC regulations.

5-46. The adjustment of C25 tunes the collector tank circuit of Q21, which is the oscillator transistor, so that the oscillator turns on. Adjusting C28 in the transistor frequency doubler permits selection and amplification of the crystal oscillator second harmonic.

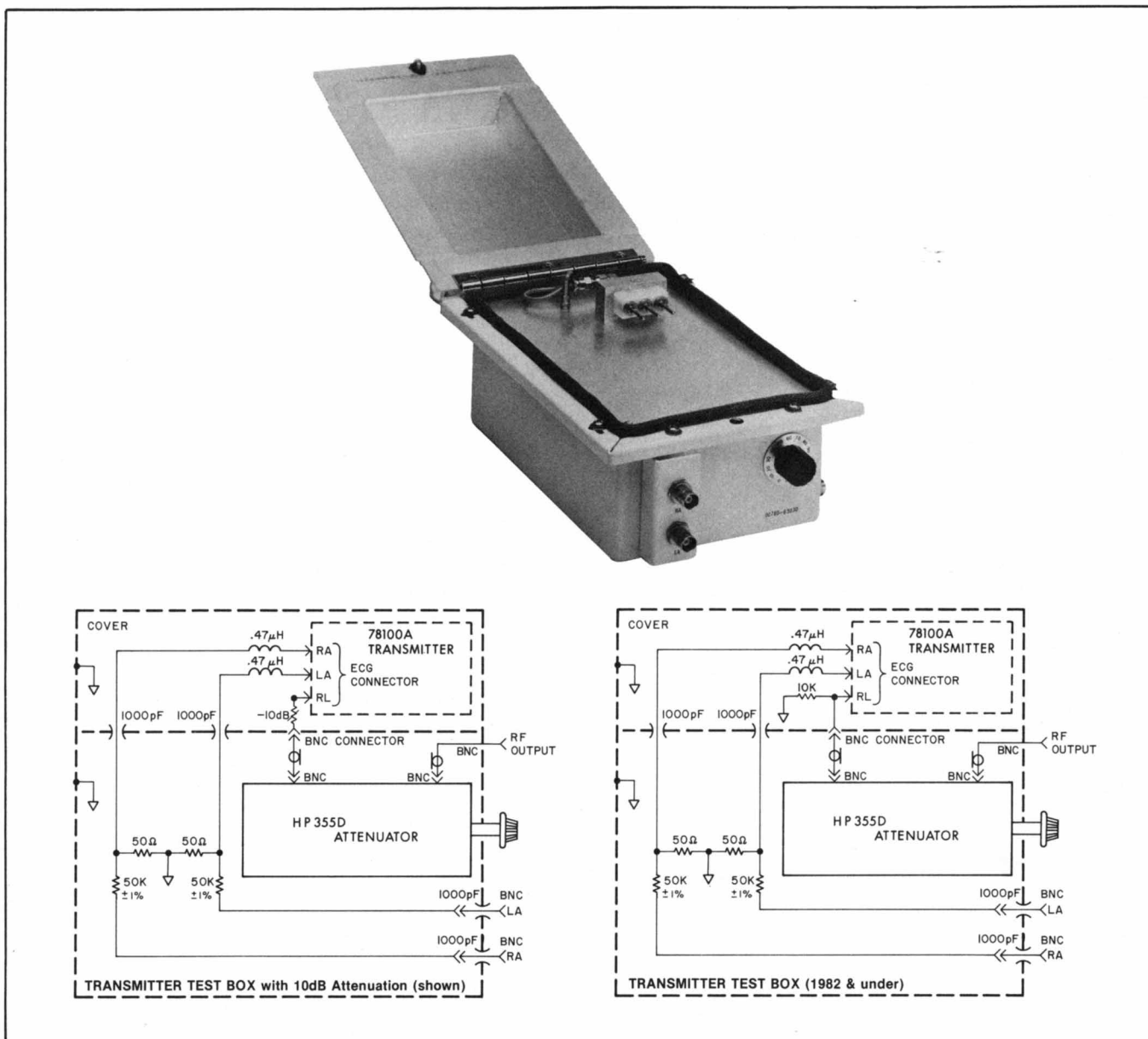


Figure 5-12. Transmitter Test Box 00780-63030

5-47. Adjusting C30, C31 and C33 tunes the step-recovery diode frequency doubler, as follows: C30 primarily adjusts the input impedance, while adjustments of C31 and C33 purify the transmitted frequency to meet the harmonic rejection requirements of the FCC. R55 controls the current of Q22, the transistor frequency doubler, which controls the output power.

5-48. Spurious frequencies, aside from the crystal oscillator harmonics, may be generated in the diode frequency doubler during tuning. The procedure for eliminating these spurious frequencies tests the diode doubler circuit and its response to output antenna load variations by simulating

load changes when C33 is rotated through its range. The reading taken with the power meter insures that the output power will yield maximum transmission range. At this point, the output frequency is adjusted with C21 to the exact carrier frequency, for optimum reception on the specified channel.

- a. Attach the 78100A to the 00780-63030 Test Box.

Note: If the 00780-63030 test box has a calibrated load, it will have an additional 10 dB attenuator in series with the connector. The following tests are written assuming no additional load so you must compensate for an existing

load during all power measurements (mW and dB). The 10 dB attenuation will affect mW measurements by a simple scale change on the 432A Power Meter. Keep this in mind in Paragraphs 5-48e (step 7), and 5-70. Other tests are relative and are not affected.

b. Set test box attenuator to 0 dB.

c. Apply dc power to transmitter (approx. 8V dc) with 6234A DC Power Supply, OR, install battery and connect multimeter in series to measure current.

d. Connect the RF output of the test box to 8554L Spectrum Analyzer RF Section, RF Input connector (Figure 5-13).

e. On transmitter, referring to Figure 5-14 for adjustment locations,

1. Rotate R55 fully CW.
2. Adjust C25, C28, C30, C31 and C33 to maximize the 4th harmonic.

3. Adjust R55 to no more than 6.5 mA as indicated on the transmitter external Power Supply meter. If spurious frequencies are generated other than the harmonics of the crystal oscillator, disregard these frequencies for the moment.

4. Readjust C25, C28, C30, C31, and C33 to maximize the carrier output (Figure 5-15, with the amplitude of all other harmonics at least 23 db below that of the main carrier i.e., 4th harmonic). The 2nd harmonic must be greater than 30 db down from the main carrier (4th harmonic). At this point, spurious frequencies may or may not still be observed.

5. Tune C33 through its entire range (360 degrees of rotation). In doing so, if spurious frequencies are generated, retune C30 slightly to eliminate them. Now retune C33 for maximum output of carrier relative to its harmonics. *Note:* It may be necessary to perform this step more than once. Refer to Figure 5-15 for typical spectrum analyzer presentation of carrier output.

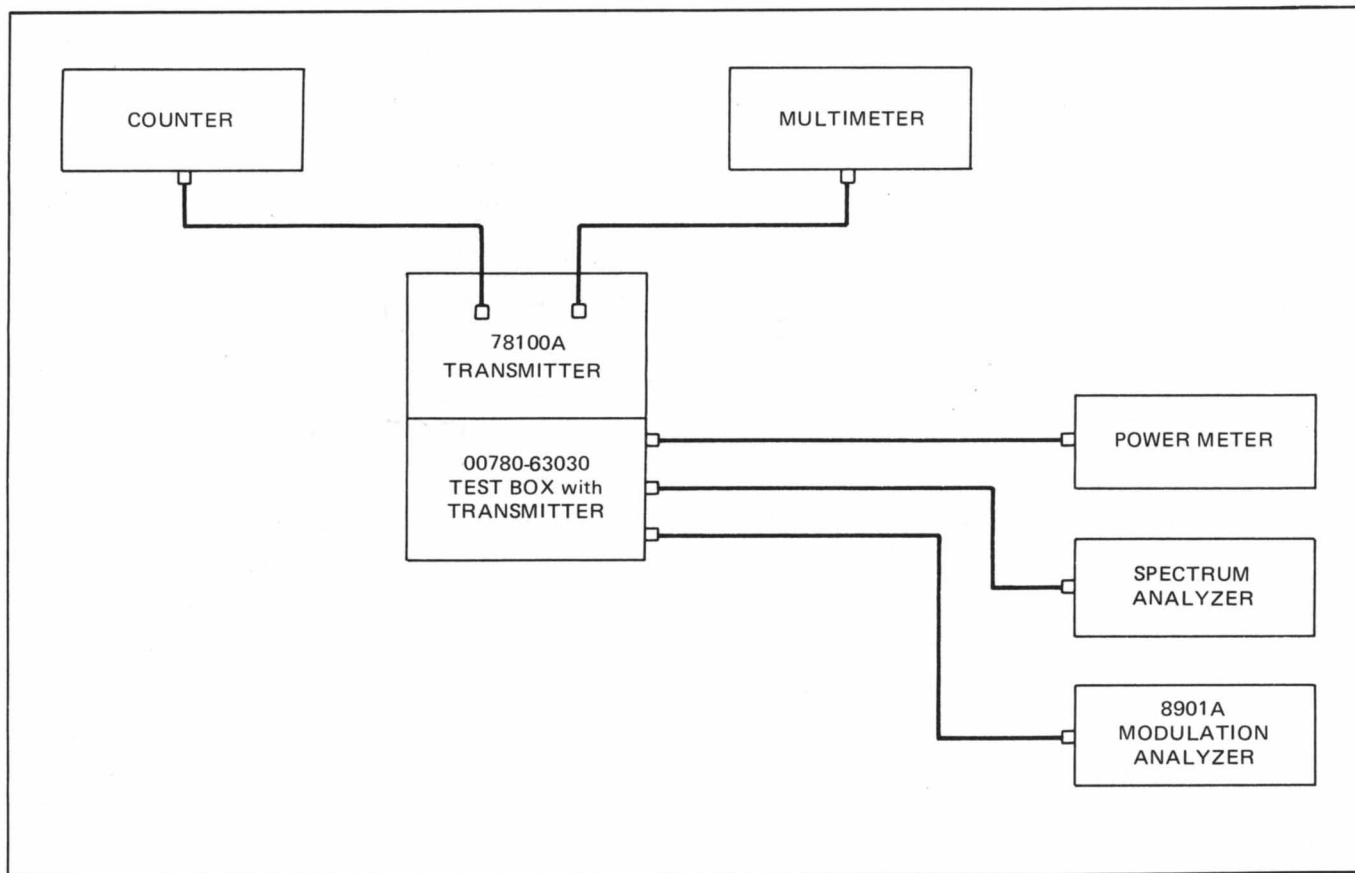


Figure 5-13. Test Setup for Transmitter Tests

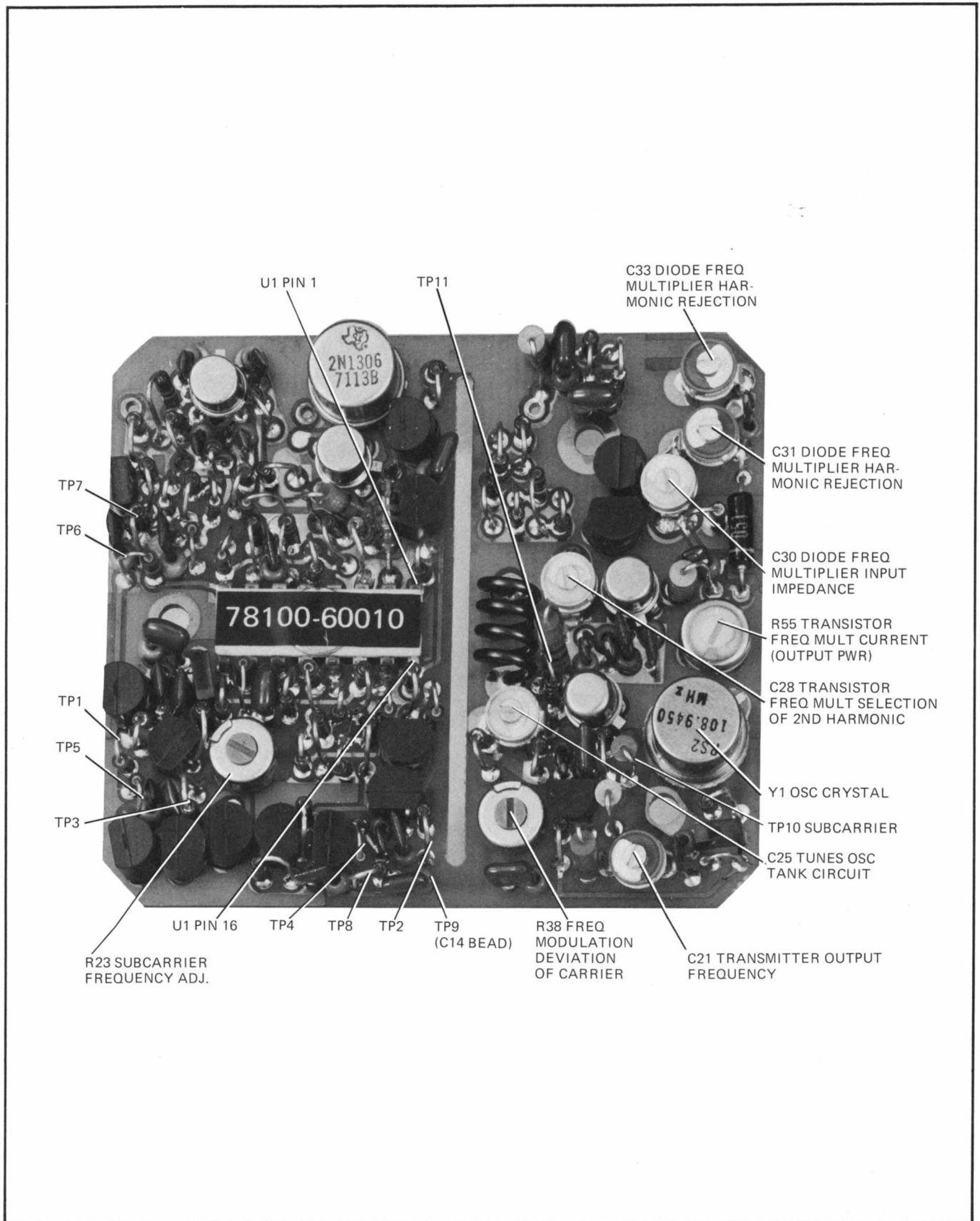


Figure 5-14. Transmitter Board Test Points and Adjustments

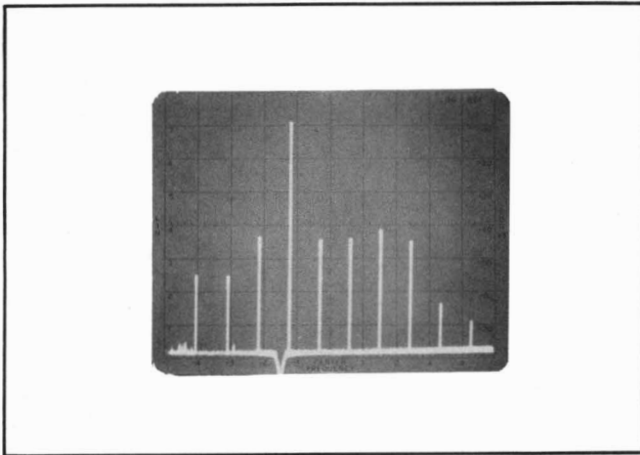


Figure 5-15. Adjustment of Transmitter for Maximum Fourth Harmonic

6. Connect thermistor mount 432A power meter cable to RF output of test box. Momentarily depress the FINE ZERO switch on the power meter.

7. The transmitter output power must be 2.0 ± 0.75 mw. A slight readjustment of C33 may be necessary to achieve this specification.

8. With the power meter still connected, readjust C25 for peak reading on meter. This is required to ensure that the transmitter crystal oscillator will not turn off with slight changes in adjustment of C25 due to physical jarring of the transmitter.

9. Connect test box RF output to 8901A Modulation Analyzer. Set 8901A up for 10 Hz resolution (7.1, SPCL, FREQ) to display carrier frequency.

10. Adjust C21 until the displayed output frequency is within 0 to +300 Hz of the frequency specified in Table 5-6.

5-49. Carrier Frequency Deviation.

5-50. During transmission, the carrier frequency must deviate a certain amount around the center frequency to achieve frequency modulation, but the amount permitted by the FCC is 5.2 kHz total, so an accurate adjustment is required.

a. Leave the RF output of the 00780-63030 attached to the input of the 8901A Modulation Analyzer. Change Modulation Analyzer Measurement from FREQ to FM.

b. Measure PEAK + and record. Then measure PEAK -. Add the absolute peak values to determine full deviation (5.2 kHz maximum).

c. Adjust R38 on the transmitter until the deviation is within the limit.

d. Recheck the transmitter carrier frequency with the 8901A Modulation Analyzer and readjust C21, if necessary.

5-51. RECEIVER TESTS AND ADJUSTMENTS.

5-52. There are nine receiver tests. As noted in Paragraph 5-16, the first seven must be run on each board, whether repaired or exchanged, and the last two are performed after component replacement only, since factory rebuilt boards are already aligned in the circuits covered by those tests.

5-53. The receiver high frequency (HF) exchange board will not have the local oscillator crystal (Y1) installed. Remove the crystal from the defective receiver HF board and install it in the exchange board. A list of local oscillator crystal frequencies and the crystal part numbers are supplied in Table 5-6 under the applicable channel and option number.

5-54. Test Equipment Setup.

5-55. Test equipment is initially set up in the following way.

5306A FREQUENCY MULTIMETER/COUNTER

Function - FREQ
Range - 10 kHz

8554L SPECTRUM ANALYZER RF SECTION

Input Atten - 10 dB
Scan Width - 10 MHz
Scan Width (Per Division) - "0-1250 MHz"
Tuning Stabilizer - On
Frequency - 22 MHz
Bandwidth - 300 kHz

8552A SPECTRUM ANALYZER I.F. SECTION

Video Filter - Off
Scan Mode - INT
Scan Trigger - AUTO
Log/Linear - LOG
Baseline Clipper - As Required

Scan Time Per Div. – 5 ms
Log REF Level – 0 dB
Display Adjust – 0 dB

8656A SIGNAL GENERATOR

Carrier – Carrier Frequency (MHz)
Modulation – FM
Units – dBm
Reset/Stby/On – On
Source – Off

141S SPECTRUM ANALYZER DISPLAY SECTION

Persistence – Max CCW Adjustable (Not in Normal)
Intensity – Adjust to Eliminate “Blooming”
View/Store/Write/Erase – Write
Writing Rate – Normal
Focus – As Required

(IF 141T DISPLAY SECTION IS USED)

Storage – STD Position
Time – Minimum Position
Persistence – As Required (usually close to minimum)
Intensity – As Required Without Causing Trace to Bloom
Focus – As Required

3312A FUNCTION GENERATOR

Frequency – 10.0
Range – x1
Channel A – Sine
Output – 1.0V rms (as measured on 3465B meter)

3465B DIGITAL MULTIMETER

Function – ACV
Range – 1V

432A POWER METER

Attach HP 478A Thermistor Mount

5-56. Local Oscillator Tuning.

5-57. The local oscillator (L.O.) is tuned for proper reception of the desired transmitter signal. Adjusting C26 tunes the collector tank circuit of Q5 to provide maximum feedback to start the crystal oscillator. C21 tunes the collector circuit of Q4 to maximize the fourth harmonic of the crystal oscillator with respect to all other harmonics, since the L.O. frequency is four times the crystal oscillator frequency. Q3 is part of a buffer stage provided to filter the output of amplifier Q4, and capacitor C17 tunes the Q3

collector tank circuit to purify the local oscillator frequency spectrum.

a. Disconnect AC Power Cord and remove top cover of receiver.

b. Remove chassis cover (shield) from receiver High Frequency (HF) board and reconnect AC Power Cord to receiver.

WARNING – EXERCISE EXTREME CAUTION IN PERFORMING TESTS WITH RECEIVER TOP COVER OFF, AS CONTACT WITH 115V/230V AC EXPOSED INSIDE MAY BE LETHAL.

c. Remove 250 ohm probe tip from the 10020A Probe (A– Figure 5-16).

d. Remove crystal (Y1) from defective HF Board and install in exchange board, HP Part Number 78101-60018.

e. Connect Spectrum Analyzer to Local Oscillator (L.O.) by connecting the 10020A Probe between the spectrum analyzer RF Input and TP1 of the HF Board (refer to Figure 5-9 for test point location).

f. If the L.O. is oscillating, a display of vertical lines will be observed on Spectrum Analyzer Display (see Figure 5-17). If a display is NOT observed, proceed with steps g through j. *Note:* For telemetry channels 5, 6, 11 through 130, S1 through S7, a display will probably be observed.

g. Adjust C26 until a display of vertical lines appear on the Spectrum Analyzer display.

h. The fourth signal from the left of the display (about 440 MHz) is the local oscillator output.

i. Adjust C26, C21 and C17 for maximum output of the 440 MHz L.O. signal which must be in the range of -12 to -4 dBm on the Spectrum Analyzer display.

j. The amplitude of all harmonic responses (observed on the display at multiples of 110 MHz) must be 30 dB below the L.O. output (Figure 5-17).

5-58. Crystal Frequency Compensation and AFC Output.

5-59. This procedure sets the local oscillator (L.O.) frequency on the desired channel by compensating for any slight error in the oscillator crystal, and sets the limits to which the L.O. can be swept when driven by the Automatic Frequency Control (AFC) amplifier.

5-60. Capacitor C30, in series with the L.O. feedback loop,

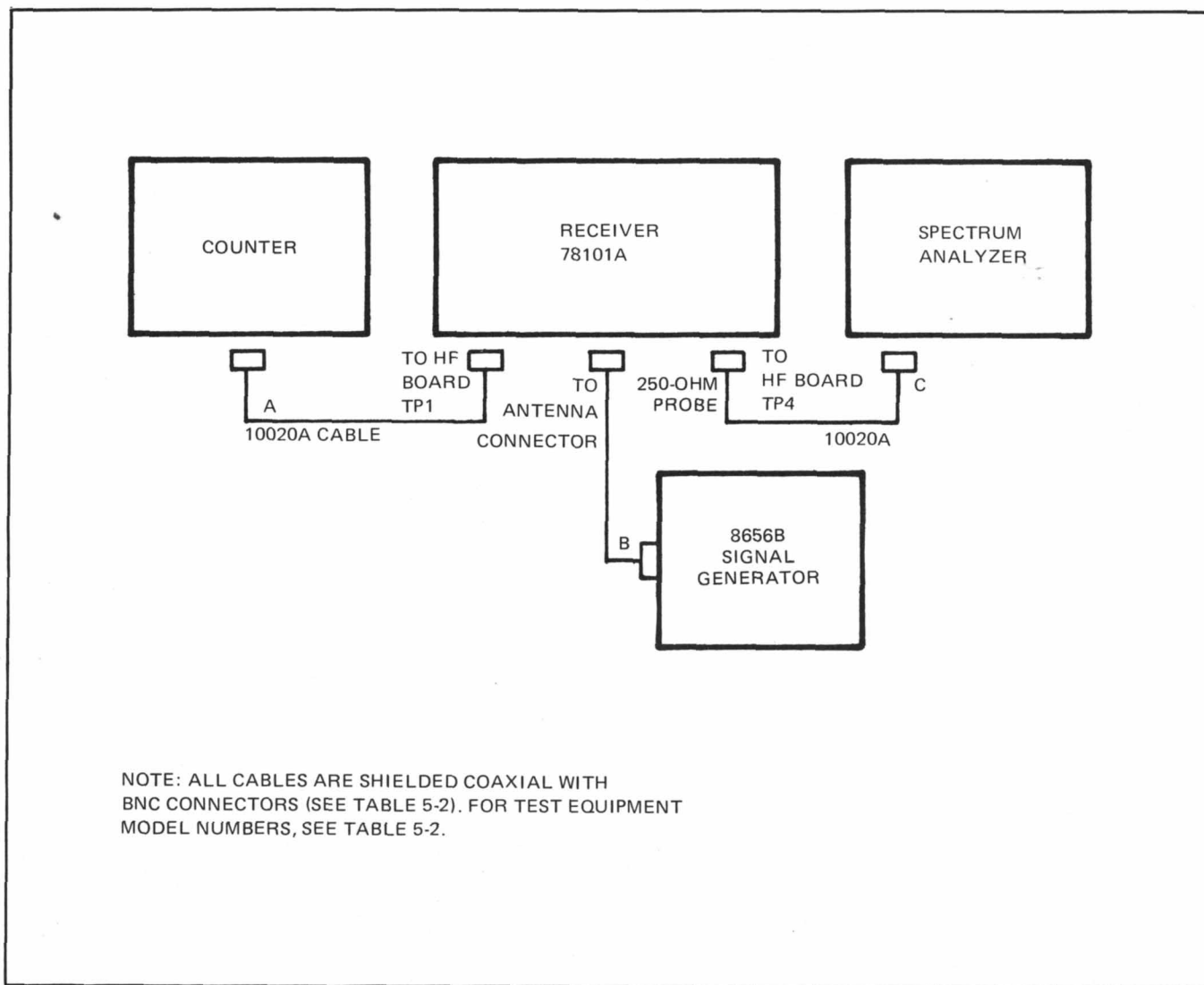


Figure 5-16. Test Setup for Receiver Sensitivity

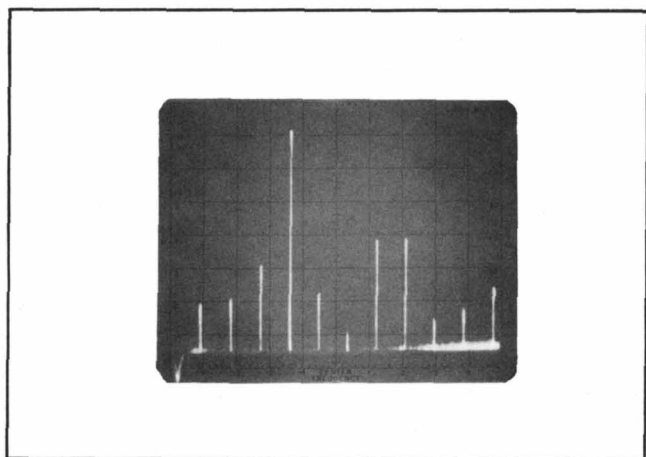


Figure 5-17. Local Oscillator Spectrum Analyzer Display

provides phase lead or lag that compensates for the frequency error allowed in crystal Y1. This adjustment must be made with the AFC voltage disconnected.

5-61. The AFC loop provides automatic correction of the L.O. frequency for tracking of the transmitter over the operating temperature range, or to compensate for changes in either the L.O. or the transmitter oscillator from aging. When the AFC voltage, which is applied to varactor (capacitive) diode CR1, changes, the altered bias changes the capacitance of CR1, thus changing the net reactance of the feedback loop and shifting the oscillator frequency. The range over which the L.O. can be swept is determined by the amplitude of the AFC output. R93 of the low frequency (LF) board sets this amplitude and insures an AFC range around center frequency of ± 5 to ± 10 kHz.

- a. Disconnect the 10020A Probe from the Spectrum Analyzer RF Plug-in and connect it to the 8901A Modulation Analyzer.
- b. Disconnect the AFC wire attached to AFC pin on HF board.
- c. Adjust C30 (Figure 5-9) to bring L.O. frequency to within ± 100 Hz of that specified in Table 5-6.
- d. Reconnect AFC wire (9-1-3) to AFC Pin and remove bottom cover of receiver allowing access to the LF board.
- e. Remove power from receiver and connect TP1 on LF board to ground with a clip lead. (See Figure 5-7 for location of TP1.)
- f. Disconnect subcarrier wire (9-7) from "SUB" pin on HF board (see Figure 5-16).
- g. Adjust LF Board R93 (Figure 5-7) to obtain a L.O. frequency that is greater than 5 kHz but less than 10 kHz below that frequency specified in Table 5-6. Adjustment closer to 5 kHz better protects against crosstalk.
- h. Disconnect LF board TP1 from ground and connect to LF board terminal E with a clip lead.
- i. The L.O. frequency should be greater than 7 kHz but less than 10 kHz above that frequency specified in Table 5-6. Adjustment closer to 5 kHz better protects against crosstalk.
- j. Disconnect subcarrier wire from terminal E (+12V supply) and reconnect it to pin SUB.
- k. Remove 10020A Probe (Cable A, Figure 5-16) from the HF board.

5-62. RF Amplifier Gain and Tuning.

5-63. The radio-frequency (RF) amplifier filters the input from the antenna to reject spurious signals before they can reach the mixer stage, to prevent their being converted into spurious intermediate frequencies (IF). The spurious signal primarily rejected is the image frequency. It is found at the same frequency separation (21.82 MHz) below the L.O. frequency that the carrier is found above the L.O. frequency, and thus would produce an invalid signal at the proper IF if it were mixed with the L.O. output. The RF amplifier adjustments also maximize the gain at the carrier frequency to insure satisfactory transmission range and signal quality.

5-64. Capacitors Z1C1 and C2, and Z2C1 and C2 are located at the ends of RF resonators Z1 and Z2, which are transmission lines fabricated as part of the HF board. They are adjusted in two stages:

1. The image frequency is rejected by adjusting Z1C2 and Z2C2 to resonate in series at the image frequency. The impedance at series resonance is very low and bypasses or shunts the incoming image frequency to ground.
2. The resonators are then tuned for parallel resonance at the carrier frequency (by Z1C1 and Z2C1), which provides the required passband and RF amplification.

An interstage adjustment with C8 tunes the collector of Q1 for a pass band at the carrier frequency.

- a. Disconnect P2 of the HF Board (Figure 5-9) from chassis cover P1. Connect P2 to the remote antenna connector, J3, on inside of receiver rear panel (see Figure 5-16).
- b. Set 8656A frequency for the Carrier Frequency of the channel under test (Table 5-6). Adjust amplitude for -40 dBm.
- c. Use Cable B to connect the 8656A Signal Generator to the receiver rear panel input BNC antenna connector as shown in test setup in Figure 5-16.
- d. Connect 10020A Probe with 250 ohm tip (C- Figure 5-16) between the Spectrum Analyzer RF input and TP4 on HF board. Attach probe ground to RF ground pin on HF board.
- e. Remove power cord from receiver and then remove the protective covers from input resonator capacitors Z1C1, Z1C2, Z2C1 and Z2C2. Now adjust the tuning slugs on these capacitors CCW until the top of the screw is flush with the threaded shoulder.
- f. Reinstall power cord and apply power to receiver.
- g. Turn ZERO/PER DIVISION/0-1250 MHz Switch on 8554L to "Per Division" position.
- h. With the 8554L Frequency tuned to 22 MHz on the dial, observe minus 21.82 MHz, 0 Hz and +21.82 MHz on the spectrum analyzer (Figure 5-18). The +21.82 MHz (IF Signal) should be centered on the display.
- i. Tune the 8554L to 21.82 MHz with a BANDWIDTH of 300 kHz and SCAN WIDTH of 1 MHz/Division.

Note: Maintain 8656A output amplitude low enough to

keep signal out of control of the Automatic Gain Control loop and to see IF signal changes corresponding with input level changes during steps j – q.

- j. Adjust Z1C1 and Z2C1 for maximum signal.
- k. Adjust 8656A to 43.64 MHz below carrier frequency. Adjust 8656A output amplitude to 0 dBm, then adjust to see image.
- l. Remove cover and adjust Z1C2 to MINIMIZE amplitude of scope display.
- m. Remove cover and adjust Z2C2 to MINIMIZE amplitude of scope display.
- n. Change 8656A frequency to carrier frequency. Change output amplitude back to -40 dBm.
- o. Remove cover and adjust Z1C1 for maximum signal.
- p. Adjust C8 for maximum signal.
- q. If necessary, remove cover and adjust Z2C1 so that the signal is greater than -32 dBm but less than -26 dBm.
- r. Replace cover that were removed from Z1C1, Z1C2, Z1C1, and Z2C2 in steps l and m, then remove all probes and cables.

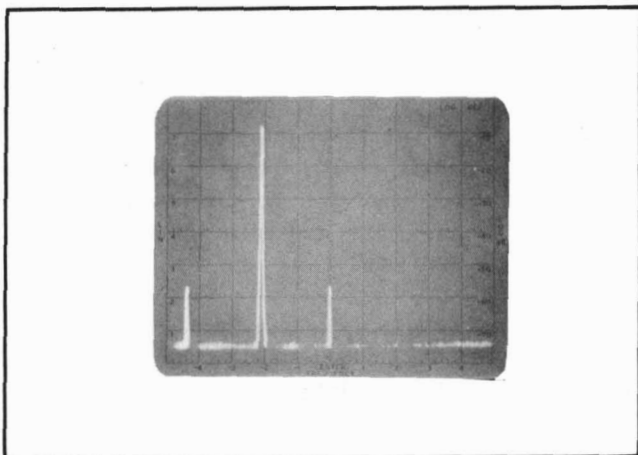


Figure 5-18. Peak Intermediate Frequency Display

- s. Remove HF board P2 from rear panel antenna connector and reconnect it to J2 on inside of chassis cover (78101-60254).
- t. Remove power cord from receiver and reinstall chassis cover.
- u. Reconnect chassis cover cable P1 to antenna connector J3 inside rear panel.

5-65. IF Gain and Discriminator Alignment.

5-66. The following adjustments tune the IF amplifier for maximum gain and center the IF signal in the discriminator operating frequency range. The IF amplifier has two integrated circuit amplifiers that are tuned to maximize the gain at the intermediate frequency. This is accomplished by tuning C51 and C60 so parallel resonance occurs at the intermediate frequency. The output amplitude measured at TP5 is maximized by this procedure. An adjustment with C66 then adjusts the center of the discriminator range to coincide with the IF signal frequency.

- a. Place transmitter in test box 00780-63030 with test box attenuator set to 0 dB. Do not put test box top cover on for this test.
- b. Connect test box RF output to receiver rear panel antenna input, J3.
- c. Attach 50:1 scope probe (HP 10002C) to HF board TP5, Figure 5-9).
- d. Set scope sensitivity of 0.01V/cm and sweep to 0.5 ms/cm. Observe the p-p amplitude of the scope waveform, (Figure 5-11, A). (This signal is the saturated output of the IF amplifier.)
- e. Switch the test box attenuator to a position at which the p-p amplitude of the scope display drops to less than half of the saturated amplitude noted in preceding step (Figure 5-11, B).
- f. Referring to Figure 5-9, adjust C51 and C60 for maximum amplitude on scope, switching in additional attenuation is necessary to eliminate saturation of the IF amplifier.
- g. Remove scope probe from TP5 and attach to subcarrier output pin SUB.
- h. Remove battery from transmitter and adjust C66 so a symmetrical noise picture is obtained at the subcarrier output. Note the peak-to-peak (pp) noise amplitude.

- i. Reinsert battery or power supply energized at 8.4V dc into transmitter and plug transmitter back into test box. Observe a 1 kHz signal, the pp amplitude of which should be at least 2V pp less than the pp noise amplitude observed in the preceding step. The 1 kHz signal should be at least 2V pp in amplitude. If not, repeat step h.

5-67. IF Alignment and AFC Loop Zero.

5-68. Adjustments are now made on the AFC loop to establish the AFC zero point, which aligns the transmitter (carrier) and receiver (local) oscillators. At this point in the

procedures, both oscillators have been adjusted to their nominal center frequencies. The two sets of signals meet at the mixer stage, which generates a difference frequency by summing the carrier and L.O. frequencies; one of the resulting products, the difference signal, is the intermediate frequency (IF). The IF signal is amplified, and then is demodulated in the discriminator circuit. The alignment required to center the IF signal in the discriminator's operating frequency range is accomplished by adjusting R78 in the AFC amplifier. The AFC output voltage controls the local oscillator frequency as described in Paragraph 5-61.

a. Insert a battery into transmitter 78100A and place the transmitter into test box 00780-63030 (Figures 5-12 and 5-19).

b. Attach the test box TOP COVER using ALL of the fastening screws so RF leakage is minimized.

c. Interconnect test equipment per Figure 5-19 and switch the external 355C and 355D Attenuators to 0 dB.

d. Adjust output amplitude of the 3312A Function Generator to read $1.0 \pm 0.02V$ rms on the 3465B Multimeter.

e. Adjust the test box attenuator to 60 dB.

f. Connect 3465B DVM to terminal D on LF board.

g. Adjust R78 on the LF board (Figure 5-7) to $0 \pm 0.05V$ dc as observed on the 3465B DVM.

h. Disconnect the 3465B from terminal D.

5-69. Inoperative Threshold.

5-70. The threshold of the inoperative signal must be set, to insure the quality of the ECG data and to help the nursing staff determine a malfunction. The test setup simulates a transmitter that is at the extreme end of its useful transmission range. The ECG channel must be interrupted when the transmitted signal is so weak that noisy data is received. The threshold is determined by comparing the peak-to-peak subcarrier to the peak-to-peak noise at the subcarrier output, and the comparator levels are adjusted to this threshold with R100 on the LF board.

a. Adjust the test box attenuator to 0 dB.

b. Momentarily depress the FINE ZERO switch on Power Meter 432A.

c. Disconnect the test box cable from receiver rear panel antenna connector J3 and connect it to Thermistor Mount

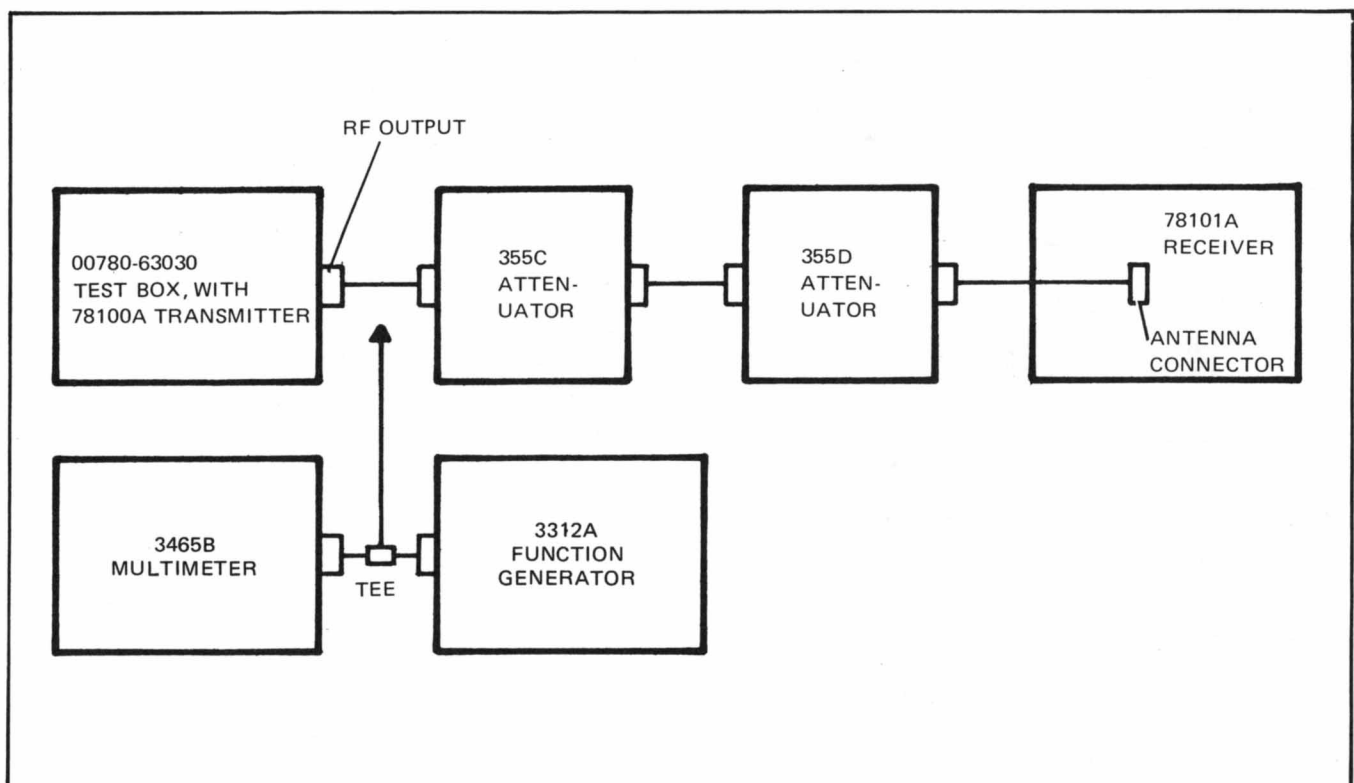


Figure 5-19. Test Setup for Receiver Bandwidth

478A, which should be attached to the power meter.

d. Switch the power meter range switch to the 1 mW position. (In this position, 1 mW equals 0 dBm.) If reading is less than 0 dBm, check Paragraph 5-44 before continuing with test. If reading is greater than 0 dBm, position 355C Attenuator dial to achieve a reading closest to 0 dBm. Read positive dBm directly from the dial.

e. If the dBm reading is positive, add it to 117 dB to obtain the correct attenuator setting for the following step. Keep a record of the power meter dBm reading for use in the Gain and Noise Check (Paragraph 5-72, step c).

f. Adjust the transmitter test box attenuator for -60 dB and adjust the 355C and 355D Attenuators for the total attenuation calculated in the preceding step, minus the -60 dB of attenuation already set in on test box attenuator.

g. Disconnect the test box cable from the thermistor mount and reconnect it to receiver rear panel antenna connector J3.

h. From fully CCW position, turn LF board R100 to position when the RANGE/BATTERY INOP light is ON and then readjust R100 to the point where the RANGE/BATTERY light flickers or is ON but any further adjustment would cause it to go OFF.

i. Decrease the 355C Attenuator setting by 1 dB. The RANGE/BATTERY light should now be solidly OFF and not flicker.

j. Adjust test box attenuator to -60 dB and adjust the 355C and 355D Attenuators to 0 dB.

5-71. ECG Amplifier Gain and Zero.

5-72. This check sets the ECG amplifier gain and zero. The dc zero point of the ECG amplifier depends on the alignment of the transmitter subcarrier frequency and the output of the monostable multivibrator (MSMV) on the LF board. With the transmitter input leads shorted by the test box, R52 on the LF board is adjusted to make the MSMV square wave output symmetrical. After filtering, the MSMV signal is applied to the ECG amplifier with an average value of zero volts. ECG gain is adjusted with R65, which is in series with the feedback resistors that determine amplifier gain.

a. The transmitter should still be installed in its test box, with cabling as in the preceding steps.

b. Set LF board switch S5 to 1000 and receiver front panel SIZE switch S3 to STD SIZE position.

c. Connect Multimeter to the receiver rear panel ECG connector J4.

d. Adjust R52 on LF board to $0 \pm 0.05V$ dc as observed on the Multimeter.

e. Connect a $1V \pm 0.02V$ rms 10 Hz sine wave to test box RA input.

f. Adjust R65 on receiver LF board so that the ECG output is $1.00 \pm 0.02V$ rms as measured on the multimeter.

g. Turn receiver front panel variable SIZE control R103 fully CCW, and the SIZE switch to the VARIABLE position.

h. Observe that the multimeter reads less than 0.2V rms ECG output.

i. Turn receiver front panel VARIABLE SIZE control fully CW and note that the multimeter reads over 4V rms ECG output.

j. Switch receiver front panel SIZE switch back to the STD SIZE position.

k. Repeat step e for LA Input and note a multimeter reading of $1.0 \pm 0.02V$ rms at ECG output J4.

5-73. System Gain and Noise.

5-74. After the following adjustments, the system gain and noise performance should meet the published specifications.

a. Disconnect cable from test box LA input (LA Input only).

b. Disconnect cable from 3465B Multimeter and connect it to 1740A Scope vertical input.

c. Inspect the power meter dBm reading that was taken in Paragraph 5-70, step e. If dBm reading was positive, add it to 110 dB to obtain the attenuator setting of the following step (d).

d. Adjust the 355C and 355D Attenuators to give the total attenuation calculated in the preceding step when added to the -60 dB of attenuation already set in on the test box attenuator.

e. Adjust scope vertical sensitivity to 10 mV/div.

Note A: If transmitter is a standard unit (i.e., monitoring bandwidth) the 50 Hz/100 Hz switch on receiver LF board should be in the 50 Hz position.

Note B: If transmitter has the Diagnostic Bandwidth (Option 021 or Option 099 non-U.S. channels), the 50 Hz/100 Hz switch should be in the 100 Hz position and the 355D attenuation reduced by 10 dB from the setting just calculated.

f. Observe that noise on scope is 80 mV pp maximum.

g. Adjust scope sensitivity to 0.5 V/Div.

h. Depress receiver front panel 1 mV CAL Switch S5 and observe appearance of 1.0 ±0.1V PEAK calibration pulse on scope.

5-75. Crystal Filter Impedance Match.

5-76. The telemetry system selectivity is determined by the characteristics of crystal filter FL1, which must be terminated with 385 ohms, phase angle 0 degrees ±10 degrees. The output impedance of mixer Q6 is adjusted to 385 ohms at a phase angle of 0 degrees with C41 and C42, as required to maximize the output from FL1. Then the input impedance of U1 is adjusted with C44 and C45 to conform to the output impedance of FL1, which is also 385 ohms at a 0 degree ±10 degrees phase angle.

Note: This procedure is necessary only if Q6, F11, or U1 has been replaced. Perform the impedance matching adjustment while filter FL1 is removed from the HF board, so TP2 and TP3, the mounting pads, are accessible.

a. Connect test equipment following Figure 5-20. Tune

frequency of 4815A Vector Impedance Meter (VIM) to 21.82 MHz ±10 kHz.

b. Attach the VIM probe to HF board TP2, making sure that a good ground connection also exists.

c. Adjust C41 for maximum positive phase shift.

d. Adjust C42 for maximum positive phase shift.

e. Adjust C41 385 ±20 ohms.

f. Adjust C42 for 0 ±10 degrees phase shift. (Alternately adjust C41 and C42 to obtain 385 ±20 ohms at 0 ±10 degrees phase shift.)

g. Attach VIM probe to TP3 making sure that a good ground connection also exists.

h. Adjust C51 for minimum current drain on the +12 volt supply.

i. Adjust C45 for maximum positive phase shift.

j. Adjust C44 for maximum positive phase shift.

k. Adjust C45 for 385 ±20 ohms.

l. Adjust C44 for 0 degrees ±10 degrees phase shift. (Alternately adjust C45 and C44 to obtain 385 ±20 ohms at 0 degrees ±10 degrees phase shift.)

m. Remove VIM probe from TP3.

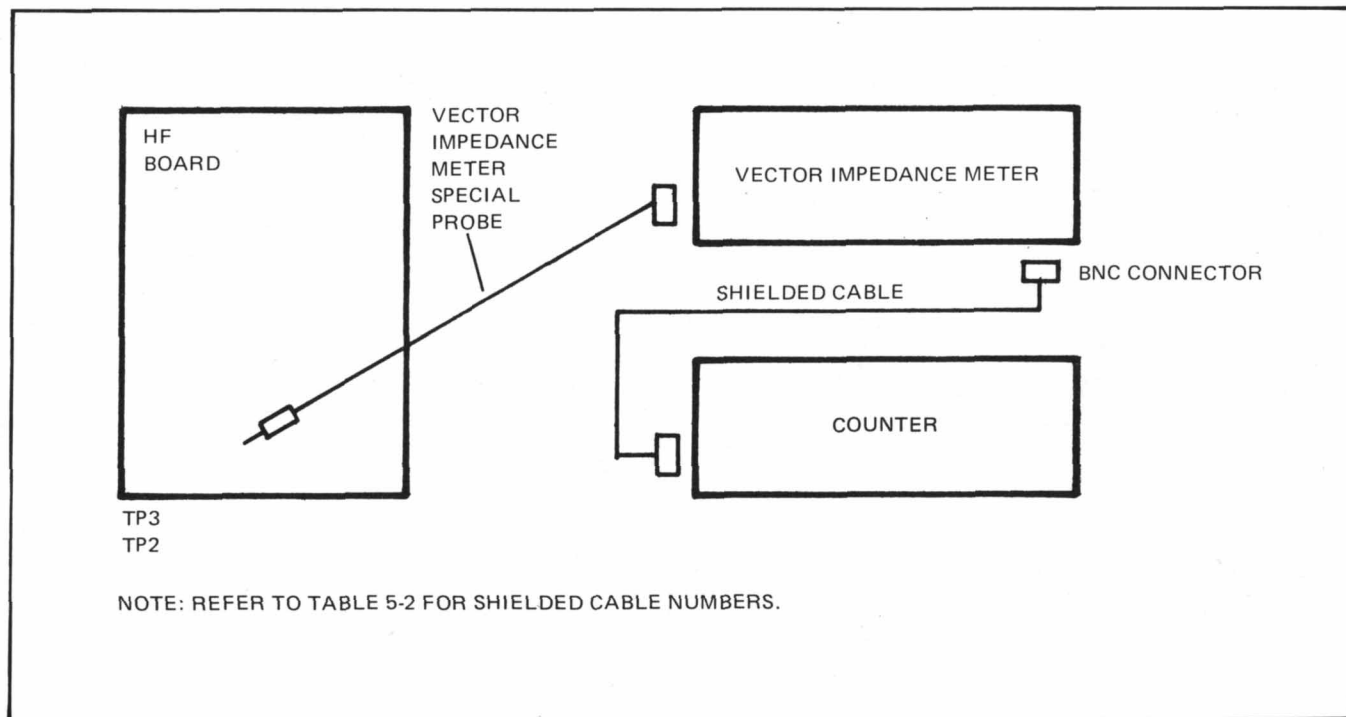


Figure 5-20. High Frequency Board Filter Impedance Matching

Table 5-6. Crystal Frequencies and Part Numbers

CH.	OPT.	Carrier Freq.(MHz)	Trans.(1) Crystal Freq.(MHz)	Trans. Crystal Part No.	Local Osc(2) Freq. (MHz)	Receiver(3) Crystal Freq.(MHz)	Receiver Crystal Part No.
1	001	467.775	116.94375	0410-0806	445.9550	111.48875	0410-0818
2	002	467.825	116.95625	0410-0808	446.0050	111.50125	0410-0820
3	003	467.900	116.97500	0410-0811	446.0800	111.52000	0410-0823
4	004	467.850	116.96250	0410-0809	446.0300	111.50750	0410-0821
5	005	457.550	114.38750	0410-0814	435.7300	108.93250	0410-0826
6	006	457.575	114.39375	0410-0815	435.7550	108.93875	0410-0825
7	007	467.925	116.98125	0410-0812	446.1050	111.52625	0410-0824
8	008	467.800	116.95000	0410-0807	445.9800	111.49500	0410-0819
9	009	467.875	116.96875	0410-0810	446.0550	111.51375	0410-0822
10	010	467.750	116.93750	0410-0805	445.9300	111.48250	0410-0817
11	011	465.6875	116.42188	0410-0829	443.8675	110.96688	0410-0851
12	012	465.7375	116.43438	0410-0830	443.9175	110.97938	0410-0852
13	013	465.8375	116.45938	0410-0831	444.0175	111.00438	0410-0853
14	014	465.6625	116.41563	0410-0832	443.8425	110.96063	0410-0854
15	015	465.8625	116.46563	0410-0833	444.0425	111.01063	0410-0855
16	016	465.7875	116.44688	0410-0834	443.9675	110.99188	0410-0856
17	017	465.7125	116.42813	0410-0835	443.8925	110.97313	0410-0857
18	018	465.7625	116.44063	0410-0836	443.9425	110.98563	0410-0858
19	019	465.8125	116.45313	0410-0837	443.9925	110.99813	0410-0859
20	020	460.6875	115.17188	0410-0838	438.8675	109.71688	0410-0860
21	037	460.7375	115.18438	0410-0839	438.9175	109.72938	0410-0861
22	038	460.8375	115.20938	0410-0840	439.0175	109.75438	0410-0862
23	039	460.6625	115.16563	0410-0841	438.8425	109.71063	0410-0863
24	040	460.8625	115.21563	0410-0842	439.0425	109.76063	0410-0864
25	041	460.7875	115.19688	0410-0843	438.9675	109.74188	0410-0865
26	042	460.7125	115.17813	0410-0844	438.8925	109.72313	0410-0866
27	043	460.7625	115.19063	0410-0845	438.9425	109.73563	0410-0867
28	044	460.8125	115.20313	0410-0846	438.9925	109.74813	0410-0868
29	045	468.3125	117.07813	0410-0847	446.4925	111.62313	0410-0869
30	046	468.3625	117.09063	0410-0848	446.5425	111.63563	0410-0870
31	047	468.4375	117.10938	0410-0849	446.6175	111.65438	0410-0871
32	048	468.3875	117.09688	0410-0850	446.5675	111.64188	0410-0872
33	049	466.2125	116.553125	0410-1041	444.3925	111.098125	0410-1039
34	050	466.2625	116.565625	0410-1040	444.4425	111.110625	0410-1038
35	051	466.3375	116.584375	0410-1083	444.5175	111.129375	0410-1037
36	052	466.2875	116.571875	0410-1082	444.4675	111.116875	0410-1036
37	053	468.7625	117.190625	0410-1081	444.9425	111.735625	0410-1064
38	054	468.8125	117.203125	0410-1080	446.9925	111.748125	0410-1063
39	055	468.8875	117.221875	0410-1079	447.0675	111.766875	0410-1062
40	056	468.8375	117.209375	0410-1078	447.0175	111.754375	0410-1061
41	057	469.0875	117.271875	0410-1077	447.2675	111.816875	0410-1060
42	058	469.1375	117.284375	0410-1076	447.3175	111.827375	0410-1059
43	059	469.2125	117.303125	0410-1075	447.3925	111.848125	0410-1058
44	060	469.1625	117.290625	0410-1074	447.3425	111.835625	0410-1056
45	061	466.6625	116.665625	0410-1073	444.8425	111.210625	0410-1055
46	062	466.7125	116.678125	0410-1072	444.8925	111.223125	0410-1054
47	063	466.7875	116.696875	0410-1071	444.9675	111.241875	0410-1053
48	064	466.7375	116.684375	0410-1070	444.9175	111.229375	0410-1052

Table 5-6, cont'd.

CH.	OPT.	Carrier Freq.(MHz)	Trans. Crystal Freq.(MHz)	Trans. Crystal Part No.	Local Osc. Freq. (MHz)	Receiver Crystal Freq.(MHz)	Receiver Crystal Part No.
49	065	468.2875	117.071875	0410-1069	446.4675	111.616875	0410-1051
50	066	468.3375	117.084375	0410-1068	446.5175	111.629375	0410-1050
51	067	468.4125	117.103125	0410-1067	446.5925	111.648125	0410-1049
52	068	468.4625	117.115625	0410-1066	446.6425	111.660625	0410-1048
53	069	466.1875	116.546875	0410-1065	444.3675	111.091875	0410-1057
54	082	466.0125	116.50313	0410-0799	444.0125	111.04813	0410-0793
55	083	465.9625	116.49063	0410-0798	465.9625	111.03563	0410-0792
56	084	468.9125	117.22813	0410-0797	447.0925	111.77313	0410-0791
57	085	468.7375	117.18438	0410-0796	446.9175	111.72938	0410-0790
58	086	469.2375	117.30938	0410-0795	447.4175	111.85438	0410-0788
59	087	469.0625	117.26563	0410-0794	447.2425	111.81063	0410-0789
60	088	466.8125	116.70313	0410-1237	444.9925	111.24813	0410-1256
61	089	466.6375	116.65938	0410-1238	444.8175	111.20438	0410-1257
62	091	466.0375	116.50938	0410-1239	444.2175	111.05438	0410-1258
63	093	466.0875	116.52188	0410-1240	444.2675	111.06688	0410-1259
64	094	468.7875	117.19688	0410-1241	446.9675	111.74188	0410-1260
65	095	468.8625	117.21563	0410-1242	447.0425	111.76068	0410-1261
66	097	469.1125	117.27813	0410-1243	447.2925	111.82313	0410-1262
67	098	469.1875	117.29688	0410-1244	447.3675	111.84188	0410-1263
68	100	466.6875	116.67188	0410-1245	444.8675	111.21688	0410-1264
69	101	466.7625	116.69063	0410-1246	444.9425	111.23563	0410-1265
70	102	469.3625	117.34063	0410-1247	447.5425	111.88563	0410-1266
71	103	469.4125	117.35313	0410-1248	447.5925	111.89813	0410-1267
72	104	465.9375	116.48438	0410-1249	444.1175	111.02938	0410-1268
73	105	466.0625	116.51563	0410-1250	444.2425	111.06063	0410-1269
74	106	465.9875	116.49688	0410-1251	444.1675	111.04188	0410-1270
75	107	466.1125	116.52813	0410-1252	444.2925	111.07313	0410-1271
76	108	469.3375	117.33438	0410-1230	447.5175	111.87938	0410-1272
77	109	469.2875	117.32188	0410-1231	447.4675	111.86688	0410-1273
78	110	469.3125	117.32813	0410-1232	447.4925	111.87313	0410-1274
79	111	465.8875	116.47188	0410-1350	444.0675	111.01688	0410-1364
80	112	466.1375	116.53438	0410-1345	444.3175	111.07938	0410-1365
81	113	466.3625	116.59063	0410-1344	444.5425	111.13563	0410-1366
82	114	466.4375	116.60938	0410-1342	444.6175	111.15438	0410-1367
83	115	466.5125	116.62813	0410-1343	444.6925	111.17313	0410-1368
84	116	466.3875	116.59688	0410-1341	444.5675	111.14188	0410-1369
85	117	466.4625	116.61563	0410-1340	444.6425	111.16063	0410-1370
86	118	466.5375	116.63438	0410-1339	444.7175	111.17938	0410-1371
87	119	466.4125	116.60313	0410-1354	444.5925	111.14813	0410-1372
88	120	466.4875	116.62188	0410-1353	444.6675	111.16688	0410-1373
89	121	466.5625	116.64063	0410-1352	444.7425	111.18563	0410-1374
90	122	466.8375	116.70938	0410-0970	445.0175	111.25438	0410-0974
91	123	466.9125	116.72813	0410-1346	445.0925	111.27313	0410-1356
92	124	466.5875	116.64688	0410-1347	444.7675	111.19188	0410-1357
93	125	466.9875	116.74688	0410-1348	445.1675	111.29188	0410-1358

Table 5-6, cont'd.

CH.	OPT.	Carrier Freq. (MHz)	Trans. Crystal Freq. (MHz)	Trans. Crystal Part No.	Local Osc. Freq. (MHz)	Receiver Crystal Freq. (MHz)	Receiver Crystal Part No.
94	126	466.8625	116.71563	0410-0971	445.0425	111.26063	0410-0975
95	127	466.6125	116.65313	0410-1362	444.7925	111.19813	0410-1360
96	128	466.9375	116.73438	0410-1363	445.1175	111.27938	0410-1361
97	129	467.0125	116.75313	0410-1482	445.1925	111.29813	0410-1419
98	130	466.8875	116.72188	0410-0972	445.0625	111.26688	0410-0976
99	131	466.9625	116.74063	0410-1450	445.1425	111.28563	0410-1417
100	132	467.0375	116.75983	0410-1451	445.2175	111.30438	0410-1418
101	133	467.1125	116.77813	0410-1452	445.2925	111.32313	0410-1420
102	134	468.2125	117.05313	0410-1453	446.3925	111.59813	0410-1421
103	135	468.4875	117.12187	0410-1454	446.6675	111.66688	0410-1422
104	136	467.1375	116.78438	0410-1455	445.3175	111.32938	0410-1423
105	137	467.0625	116.76563	0410-1456	445.2425	111.31063	0410-1424
106	138	468.2375	117.05938	0410-1457	446.4175	111.60438	0410-1425
107	139	467.1625	116.79063	0410-1458	445.3425	111.33563	0410-1426
108	140	467.0875	116.77188	0410-1459	445.2675	111.31688	0410-1427
109	141	468.2625	117.06563	0410-1460	446.4425	111.61063	0410-1428
110	142	468.5125	117.12813	0410-1461	446.6925	111.67313	0410-1429
111	143	468.5875	117.14688	0410-1462	446.7675	111.69188	0410-1430
112	144	468.6625	117.16563	0410-1463	446.8425	111.71063	0410-1431
113	145	468.5375	117.13438	0410-1464	446.7175	111.67938	0410-1432
114	146	468.6125	117.15313	0410-1465	446.7925	111.69813	0410-1433
115	147	468.6875	117.17188	0410-1466	446.8675	111.71688	0410-1435
116	148	468.5625	117.14063	0410-1467	446.7425	111.68563	0410-1436
117	149	468.6375	117.15938	0410-1468	446.8175	111.70438	0410-1437
118	150	468.7125	117.17813	0410-1469	446.8925	111.72313	0410-1438
119	151	468.9375	117.23438	0410-1470	447.1175	111.77938	0410-1439
120	152	469.0125	117.23313	0410-1471	447.1925	111.79813	0410-1440
121	153	469.2625	117.31563	0410-1472	447.4425	111.86063	0410-1441
122	154	468.9625	117.24063	0410-1473	447.1425	111.78563	0410-1442
123	155	469.0375	117.25938	0410-1474	447.2175	111.80438	0410-1443
124	156	469.4625	117.36563	0410-1475	447.6425	111.91063	0410-1444
125	157	469.5375	117.38438	0410-1476	447.7175	111.92938	0410-1445
126	158	468.9875	117.24688	0410-1477	447.1675	111.79188	0410-1446
127	159	469.4875	117.37188	0410-1478	447.6675	111.91688	0410-1447
128	160	469.5625	117.39063	0410-1479	447.7425	111.93563	0410-1448
129	161	469.5125	117.37813	0410-1480	447.6925	111.92313	0410-1483
130	162	465.9125	116.47813	0410-1481	444.0925	111.02313	0410-1434
S1	035	457.525	114.38125	0410-0813	435.7050	108.92625	0410-0825
S2	036	457.600	114.40000	0410-0816	435.7800	108.94500	0410-0828
S3	075	466.2375	116.559375	0410-1042	444.4175	111.104375	0410-1045
S4	076	466.3125	116.578125	0410-1043	444.4925	111.123125	0410-1046
S5	077	466.1625	116.540625	0410-1044	444.3425	111.085625	0410-1047
S6	073	469.3875	117.34688	0410-1233	447.5675	111.89188	0410-1275
S7	074	469.4375	117.35938	0410-1234	447.6175	111.90438	0410-1276
A1	A01	466.8125	116.70313	0410-0969	444.9925	111.24813	0410-0973
A2	A02	466.8375	116.70938	0410-0970	445.0175	111.25438	0410-0974

Table 5-6, cont'd.

CH.	OPT.	Carrier Freq.(MHz)	Trans. Crystal Freq.(MHz)	Trans. Crystal Part No.	Local Osc. Freq. (MHz)	Receiver Crystal Freq.(MHz)	Receiver Crystal Part No.
A3	A03	466.8625	116.71563	0410-0971	445.0425	111.26063	0410-0975
A4	A04	466.8875	116.72189	0410-0972	445.0675	111.26688	0410-0976
B1	B01	433.600	108.40000	0410-0983	411.780	102.94500	0410-0979
D1	D01	448.000	112.00000	0410-0945	426.180	106.05450	0410-0957
D2	D02	448.025	112.00625	0410-0946	426.205	106.55125	0410-0958
D3	D03	448.075	112.01875	0410-0947	426.255	106.56375	0410-0959
D4	D04	448.100	112.02500	0410-0948	426.280	106.57000	0410-0960
D5	D05	448.250	112.06250	0410-0949	426.430	106.60750	0410-0961
D6	D06	448.275	112.06875	0410-0950	426.455	106.61375	0410-0962
D7	D07	448.050	112.01250	0410-0951	426.230	106.55750	0410-0963
D8	D08	448.125	112.03125	0410-0952	426.305	106.57625	0410-0964
D9	D09	448.150	112.03750	0410-0953	426.330	106.58250	0410-0965
DA	D10	448.175	112.04375	0410-0954	426.355	106.58875	0410-0966
DB	D11	448.200	112.05000	0410-0955	426.380	106.59500	0410-0967
DC	D12	448.225	112.05625	0410-0956	426.405	106.60125	0410-0968
E1	E01	438.600	109.65000	0410-0984	416.780	104.19500	0410-0980
F1	F01	446.050	111.51250	0410-0873	424.230	106.05750	0410-0909
F2	F02	446.100	111.52500	0410-0874	424.280	106.07000	0410-0910
F3	F03	446.350	111.58750	0410-0875	424.530	106.13250	0410-0911
F4	F04	446.400	111.60000	0410-0876	424.580	106.14500	0410-0912
F5	F05	446.500	111.62500	0410-0877	424.680	106.17000	0410-0913
F6	F06	446.550	111.63750	0410-0878	424.730	106.18250	0410-0914
F7	F07	446.800	111.70000	0410-0879	424.980	106.24500	0410-0915
F8	F08	446.850	111.71250	0410-0880	425.030	106.25750	0410-0916
F9	F09	446.000	111.50000	0410-0881	424.180	106.04500	0410-0917
FA	F10	446.150	111.53750	0410-0882	424.330	106.08250	0410-0918
FB	F11	446.200	111.55000	0410-0883	424.380	106.09500	0410-0919
FC	F12	446.450	111.61250	0410-0884	424.630	106.15750	0410-0920
FD	F13	446.600	111.65000	0410-0885	424.780	106.19500	0410-0921
FE	F14	446.650	111.66250	0410-0886	424.830	106.20750	0410-0922
FF	F15	446.900	111.72500	0410-0887	425.080	106.27000	0410-0923
FG	F16	446.950	111.73750	0410-0888	425.130	106.28250	0410-0924
FH	F17	446.250	111.56250	0410-0889	424.430	106.10750	0410-0925
FJ	F18	446.300	111.57500	0410-0890	424.480	106.12000	0410-0926
FK	F19	446.700	111.67500	0410-0891	424.880	106.22000	0410-0927
FL	F20	446.750	111.68750	0410-0892	424.930	106.23250	0410-0928
G1	G01	456.210	114.05250	0410-0985	434.390	108.59750	0410-0981
G2	G02	456.250	114.06250	0410-0651	434.430	108.60750	0410-0654
G3	G03	456.330	114.08250	0410-0652	434.510	108.62750	0410-0655
G4	G04	466.210	116.55250	0410-0659	444.390	111.09750	0410-0656
G5	G05	466.250	116.56250	0410-0660	444.430	111.10750	0410-0657
G6	G06	466.330	116.58250	0410-0653	444.510	111.12750	0410-0658
H1	H01	468.525	117.13125	0410-1317	446.705	111.67625	0410-1318

Table 5-6, cont'd.

CH.	OPT.	Carrier Freq.(MHz)	Trans. Crystal Freq.(MHz)	Trans. Crystal Part No.	Local Osc. Freq.(MHz)	Receiver Crystal Freq.(MHz)	Receiver Crystal Part No.
J1	J01	449.775	112.44375	0410-1323	427.955	106.98875	0410-1320
J2	J02	449.800	112.45000	0410-1321	427.980	106.99500	0410-1324
J3	J03	449.850	112.46250	0410-1322	428.030	107.00750	0410-1319
K1	K01	439.750	109.93750	0410-0621	417.930	104.48250	0410-0629
K2	K02	439.775	109.94375	0410-0622	417.955	104.48875	0410-0630
K3	K03	439.800	109.95000	0410-1145	417.980	104.49500	0410-1148
K4	K04	439.825	109.95625	0410-1149	418.005	104.50125	0410-1150
K5	K05	439.850	109.96250	0410-1151	418.030	104.50750	0410-1152
K6	K06	439.875	109.96875	0410-1153	418.055	104.51375	0410-1146
K7	K07	439.950	109.9875	0410-0627	418.130	104.53250	0410-0634
K8	K08	439.975	109.99375	0410-0628	418.155	104.53875	0410-0936
K9	K09	439.900	109.97500	0410-1147	418.080	104.52000	0410-1154
KA	K10	439.925	109.98125	0410-1155	418.105	104.52625	0410-1156
LD	L13	458.500	114.625	0410-0692	436.680	109.170	0410-0685
LE	L14	458.525	114.63125	0410-0693	436.705	109.17625	0410-0686
LF	L15	458.5625	114.640625	0410-0694	436.7425	109.185625	0410-0687
LG	L16	458.5875	114.646875	0410-0695	436.7675	109.191875	0410-0688
LH	L17	458.700	114.675	0410-0696	436.88	109.220	0410-0689
LJ	L18	458.725	114.68125	0410-0682	436.905	109.22625	0410-0690
LK	L19	458.775	114.69375	0410-0683	436.955	109.23875	0410-0691
LL	L20	458.800	114.700	0410-0684	436.980	109.245	0410-0697
N1	N01	441.975	110.49375	0410-0977	420.155	105.03875	0410-0978
N2	N02	441.9250	110.48125	0410-0637	420.105	105.02625	0410-0640
N3	N03	441.850	110.46250	0410-1135	420.030	105.00750	0410-1134
N4	N04	441.900	110.47500	0410-1136	420.080	105.02000	0410-1133
N5	N05	441.875	110.46875	0410-1157	420.055	105.01375	0410-1158
N6	N06	441.950	110.48750	0410-1159	420.130	105.03250	0410-1160
C1	C01	433.375	108.34375	0410-0893	411.555	102.88875	0410-0929
C2	C02	433.425	108.35625	0410-0894	411.605	102.90125	0410-0930
C3	C03	433.675	108.41875	0410-0895	411.855	102.96375	0410-0931
C4	C04	433.725	108.43125	0410-0896	411.905	102.97625	0410-0932
C5	C05	433.825	108.45625	0410-0897	412.005	103.00125	0410-0933
C6	C06	433.875	108.46875	0410-0898	412.055	103.01375	0410-0934
C7	C07	433.225	108.30625	0410-0899	411.405	102.85125	0410-0935
C8	C08	434.050	108.51250	0410-0900	412.230	103.05750	0410-0936
C9	C09	434.100	108.52500	0410-0901	412.280	103.07000	0410-0937
CA	C10	433.275	108.31875	0410-0902	411.455	102.86375	0410-0938
CB	C11	434.200	108.55000	0410-0903	412.380	103.09500	0410-0939
CC	C12	434.250	108.56250	0410-0904	412.430	103.10750	0410-0940
CD	C13	434.500	108.62500	0410-0905	412.680	103.17000	0410-0941
CE	C14	434.550	108.63750	0410-0906	412.730	103.18250	0410-0942
CF	C15	434.650	108.66250	0410-0907	412.830	103.20750	0410-0943
CG	C16	434.700	108.67500	0410-0908	412.880	103.22000	0410-0944
CH	C17	433.075	108.26875	0410-1161	411.255	102.31375	0410-1162
CJ	C18	433.125	108.28125	0410-1163	411.305	102.82625	0410-1164
CK	C19	433.175	108.29375	0410-1165	411.355	102.83875	0410-1166

Table 5-6, cont'd.

CH.	OPT.	Carrier Freq.(MHz)	Trans. Crystal Freq.(MHz)	Trans. Crystal Part No.	Local Osc. Freq.(MHz)	Receiver Crystal Freq.(MHz)	Receiver Crystal Part No.
CL	C20	433.325	108.33125	0410-1167	411.505	102.87625	0410-1168
CM	C21	433.475	108.36875	0410-1169	411.655	102.91375	0410-1170
CN	C22	433.525	108.38125	0410-1171	411.705	102.92625	0410-1172
CP	C23	433.575	108.39325	0410-1173	411.755	102.93875	0410-1174
CQ	C24	433.625	108.40625	0410-1175	411.805	102.95125	0410-1176
CR	C25	450.9300	112.73250	0410-1235	429.1100	107.27750	0410-1277
CS	C26	450.9700	112.74250	0410-1236	429.1500	107.28750	0410-1278
CT	C27	451.0100	112.75250	0410-1253	429.1900	107.29750	0410-1279
CU	C28	451.0500	112.76250	0410-1254	429.2300	107.30750	0410-1280
CV	C29	451.0900	112.77250	0410-1255	429.2700	107.31750	0410-1281

NOTES:

- 1) Transmitter Crystal Frequency= $\frac{\text{Carrier Frequency}}{4}$
- 2) Local Oscillator Frequency= Carrier Frequency - 21.82 MHz
- 3) Receiver Oscillator Frequency= $\frac{\text{Local Oscillator Frequency}}{4}$

Table 5-7. List of Recommended Spare Parts

REFERENCE DESIGNATION	QTY	HP PART NO.	DESCRIPTION
TRANSMITTER 78100A			
A2A1Q7	1	1854-0529	Transistor, Dual Si, NPN
A2A1Q8	1	1853-0316	Transistor, Dual Si, PNP
A2A1Q11	3	1853-0259	Transistor, Si PNP
A2A1Q2	1	1854-0642	Transistor, Si NPN
A2A1Q6	3	1854-0491	Transistor, Si NPN
A2A1U1	1	1826-0015	I.C. Linear Triple Operational Amplifier
A2A1CR2	2	1901-0040	Diode, Si 30 mA
A2A1C31	1	0121-0461	Cap, Var. Ceramic 6-22 pF
A2A1CR6	1	1901-0460	Diode 30V Stabistor
RECEIVER 78101A			
A1A1DS2	2	2140-0358	Lamp, Incandescent, 18V, 0.026A
A1A1DS1	1	07800-60491	Lamp and Lens, White
A1A2F1	1	2110-0004	Fuse, 0.25A, 250V
A2Q1	2	1853-0045	Transistor, Si PNP
A2Q4	3	1854-0717	Transistor, Si NPN Selected
A2Q12	2	1853-0020	Transistor, Si PNP Selected
A2U1	2	5081-1834	I.C. Linear Operational Amplifier
A2U2	2	5081-1835	I.C. Operational Amplifier, 8-pin DIP
A2CR1	1	1901-0363	Diode Assembly
A2C35	1	0160-2768	Capacitor, Fixed Mylar 1.75 μ F
A5Q4	1	1854-0345	Transistor, Si NPN
A5Q7	1	1854-0019	Transistor, Si NPN
A5U1	1	1826-0028	I.C., Linear RF-IF Amplifier
A5C26	2	0121-0061	Cap. Var. Ceramic 5.5 to 18 pF
A5C30	2	0121-0046	Cap. Var. Ceramic 9-35 pF

SECTION VI REPLACEABLE PARTS

6-1. INTRODUCTION.

6-2. This section contains schematics, figures and information for identifying, locating and ordering replacement parts.

6-3. Tables 6-1 and 6-2 list parts in sequential order of the reference designations (circuit references) and provides the following information for each item.

- a. Description of the part (see list of abbreviations on the following page).
- b. Typical manufacturer of the part using a five-digit code. See the code list of manufacturers in Table 6-3.
- c. Manufacturer's part number.
- d. Total quantity used in the instrument (TQ column).

Note: Identification of the attaching parts (screws, nuts, washers, rivets, etc.) used to secure a component in place is entered immediately after the listing of the respective component in Table 6-1 or 6-2.

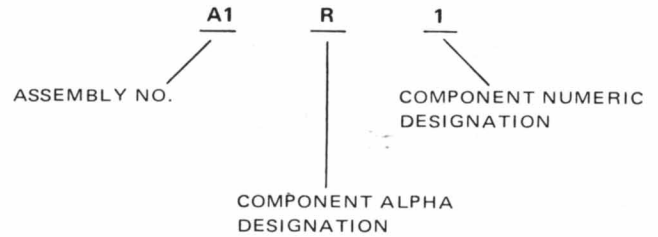
6-4. REFERENCE DESIGNATIONS.

6-5. Tables 6-1 and 6-2 use an alphabetical-numerical (alpha-numeric) method of listing the end item, assemblies, subassemblies and circuit components. These items are defined as follows.

- a. An END ITEM is the instrument with all the supplied accessories. The END ITEM is made up of assemblies to aid in the location of parts.
- b. Each assembly and subassembly is assigned an "A" number (A1, A2, A3, etc). Assemblies and subassemblies that can be purchased have part numbers in the part number column; those that cannot be purchased have the word "Reference" in the column.
- c. Components within the assembly and subassembly circuits are assigned circuit reference designators (C1 capacitor, R1 resistor, etc.). These parts are prefaced by the assembly number (A1C1, A2C2, A1R1, A2R2, etc.) to indicate the assembly on which the part is located.

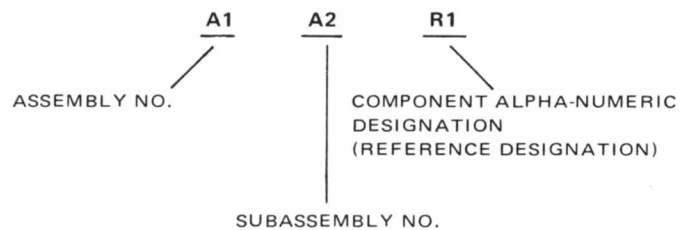
6-6. Examples of the alpha-numeric numbering method used to identify assemblies, subassemblies and circuit components follow:

a.



The complete reference designation is read as the first resistor (R1) of the first assembly (A1).

b.



The complete reference designation is read as the first resistor (R1) of the second subassembly (A2) of the first assembly (A1).

6-7. Partial reference designations are normally used on the equipment and illustrations. The partial reference designation consists of the component alpha designation and numeric designation. The complete reference designations are obtained by placing the proper assembly number (and subassembly number, when applicable) before the partial reference designations.

6-8. In this section, these assembly prefix numbers are usually shown with each reference designation, in the title of the figure or at the bottom of the illustration block following the notation "REF DESIG PREFIX". The complete reference designation should be used to easily locate a part and the description in the Parts List.

6-9. For example, to determine the value and the part number of resistor R6 in the A2 assembly (A2R6), locate the A2 group listing (the second group) in the parts list. Then refer to the R (resistor) designations in the group and find R6. The value and the part number are in the columns adjacent to the description.

6-10. ORDERING INFORMATION.

6-11. To order a replacement part, address order or inquiry to the local Hewlett-Packard Sales/Service Office (see list of addresses at the rear of this manual) and supply the HP part number of the item from Table 6-1 or 6-2.

6-12. To order a part not listed in the table, provide the following information:

a. Model number of the instrument.

b. Complete serial number of the instrument.

c. Description of the part including function and location.

6-13. To order a part from a manufacturer other than Hewlett-Packard Company provide the complete part description and the manufacturer's part number from Table 6-1 or 6-2.

REFERENCE DESIGNATORS

A = assembly	F = fuse	Q = transistor	U = non repairable assembly
B = motor	FL = filter	R = resistor	V = vacuum tube
BT = battery	HR = heater	RT = thermistor	photo cell, etc.
C = capacitor	J = jack	S = switch	VR = voltage regulator
CP = coupler	K = relay	T = transformer	W = cable
CR = diode	L = inductor	TB = terminal board	X = socket
DL = delay line	M = meter	TC = thermocouple	XDS = lampholder
DS = device signaling (lamp)	MP = mechanical part	TP = test point	XF = fuseholder
E = miscellaneous electronic part	P = plug		Y = crystal
			Z = network

ABBREVIATIONS •

A = amperes	ACC = accessories	AFC = automatic frequency control	Al = aluminum	AMP = amplifier	as ord = as ordered	Be Cu = beryllium copper	BFO = beat frequency oscillator	bh = binder head	bp = bandpass	brs = brass	c/s = cycles/second (see Hz)	CALIB = calibration	ccw = counterclockwise	cd pl = cadmium plate	cer = ceramic	ch = channel	cmo = cabinet mount only	coef = coefficient	com = common	comp = composition	conn = connector	CRT = cathode-ray tube	cw = clockwise	dB = decibel	dep C = deposited carbon	DISP = display	DPDT = double-pole double-throw	DPST = double-pole single-throw	EIA = tubes or transistors meeting Electronic Industries Association standards will normally result in instrument operating within specifications; tubes and transistors selected for best performance will be supplied if ordered by stock numbers	elect = electrolytic	encap = encapsulated	F = farad(s)	fet = field effect transistor	fh = flat head	FIG = figure	fil hd = fillister head	flm = film	FR = front	fwd = forward	fxd = fixed	G c/s = gigacycles per second (see G Hz)	Ge = germanium	GEN = generator	G Hz = gigacycles per second	gl = glass	grd = ground(ed)	h = henry(ies)	hex = hexagonal	Hg = mercury	Hz = cycle per second	imp g = impregnated	incd = incandescent	ins = insulation(ed)	ips = inches per second	k, K = kilo (1000)	Kc, k c/s = kilocycles (see k Hz)	KEPS = hex nut with lockwasher	k Hz = kilocycles/second	lin = linear taper	lkwash = lockwasher	log = logarithmic taper	lp flt = low-pass filter	m = milli (10 ⁻³)	mA = milliamperes	mam = milliammeter	M = mega (10 ⁶)	M c/s = megacycles (see M Hz)	met flm = metal film	mfr = manufacturer	mH = millihenry	M Hz = megacycles/second	minat = miniature	mom = momentary	mtg = mounting	mV = millivolt	mW = milliwatt	my = mylar® (Dupont de Nemours)	n = nano (10 ⁻⁹)	NC = normally closed	Ne = neon	NETWRK = network	Ni Pl = nickel plate	NO = normally open	NPN = negative positive negative	NPO = negative positive zero (zero temperature coefficient)	nsr = not separately replaceable	obd = order by description	od = outside diameter	ov hd = oval head	ox = oxide	pc = printed circuit board	PEMS = circular press fitted nut	pF = picofarad (10 ⁻¹² farads)	PH = phone	ph brz = phosphor bronze	Phl hd = Phillips head	piv = peak inverse voltage	pk = peak	PNL = panel	PNP = positive negative positive	poly = polystyrene	por = porcelain	pos = position(s)	pot = potentiometer	pp = peak-to-peak	PREAMP = preamplifier	prec = precision (temperature coefficient, long term stability, and/or tolerance)	pt = point	rec = recorder	rect = rectifier	rev = reverse	rf = radio frequency	rh = round head	rmo = rack mount only	rms = root-mean-square	rot = rotary	s-b = slow-blow	scon = semiconductor	Se = selenium	sect = section(s)	SEMS = machine screw with washer	SEQ = sequential	Si = silicon	sil = silver	sl = slide	SPDT = single-pole double-throw	spl = special	SPST = single-pole single-throw	sst = stainless steel	SWTCH = switch	Ta = tantalum	td = time delay	Ti = titanium	tog = toggle	tol = tolerance	trim. = trimmer	twt = traveling wave tube	μR U = micro (10 ⁻⁶)	μA = microamperes	μF = microfarads	μV = microvolts	V = volt(s)	vac = vacuum	Vacw = volt(s) alternating current working	var = variable	Vdcw = volt(s) direct current working	W = watt(s)	w/ = with	w/o = without	wiv = reverse working voltage	ww = wirewound	Ω = ohm
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* Electric Accounting Machines (EAM) capitalize all abbreviations

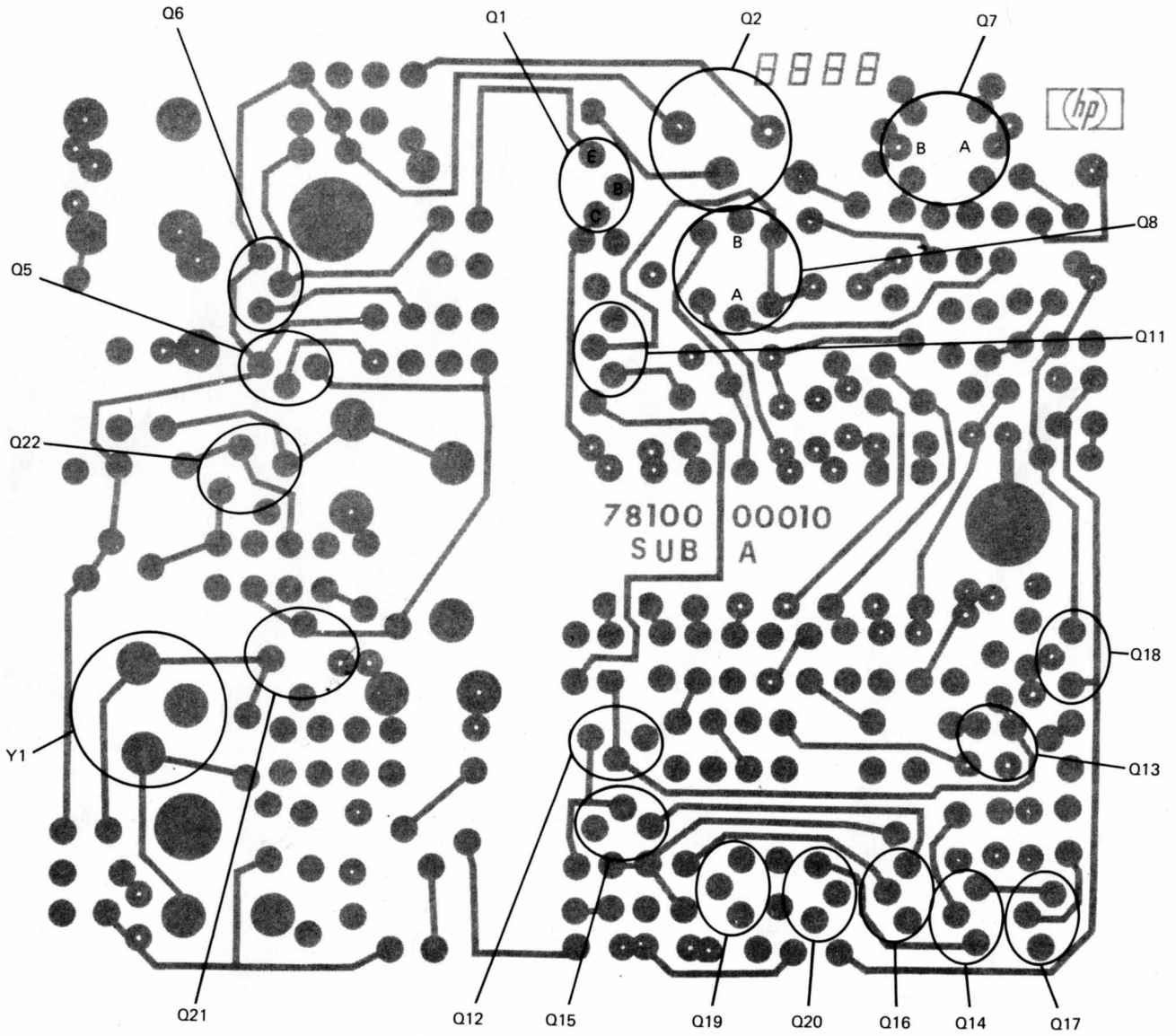
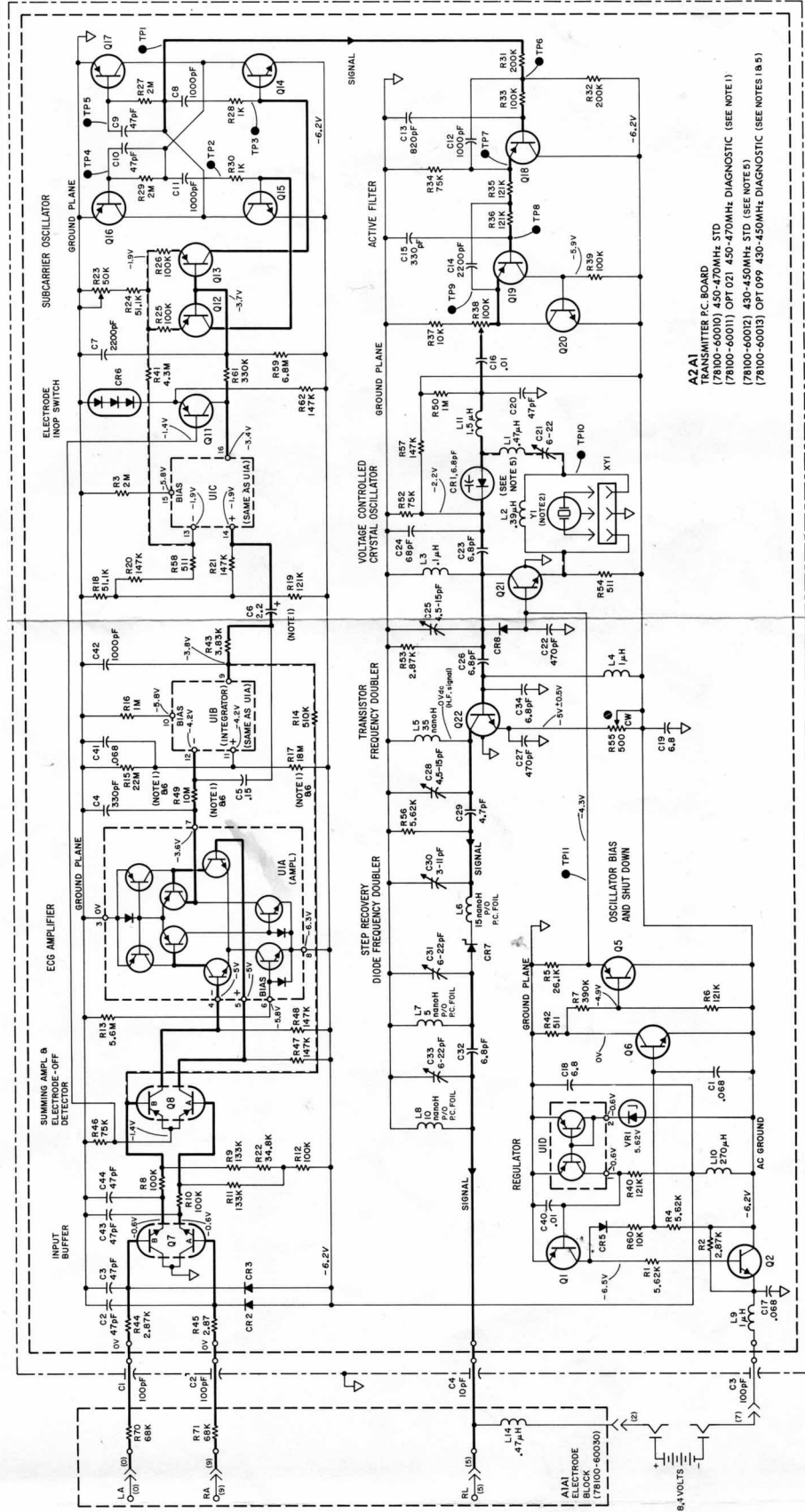


Figure 6-2. (Part 2 of 2) Bottom View of Transmitter Board Showing Transistor Locations

Models 78100A, 78101A

Section VI
Replaceable Parts



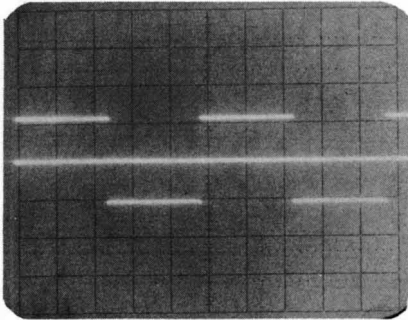
A2A1
TRANSMITTER PC BOARD
(78100-60010) 450-470MHZ STD
(78100-60011) OPT 021 450-470MHZ DIAGNOSTIC (SEE NOTE 1)
(78100-60012) 430-450MHZ STD (SEE NOTES 5)
(78100-60013) OPT 099 430-450MHZ DIAGNOSTIC (SEE NOTES 1 & 5)

AZAZ SHIELD CAN
(78100-60060)

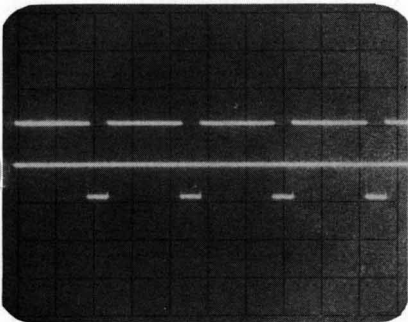
- NOTES:**
- FOR OPTION 021 0.99 COMPONENT VALUES ARE CHANGED AS FOLLOWS:
R15 - 1M
R17 - 1M
R49 - 390K
C6 - 15µF
 - FREQUENCY IS DETERMINED BY OPTION.
 - VOLTAGE & WAVEFORM TEST CONDITIONS:
a. ALL D.C. VOLTAGES TAKEN WITH H.P. 812A VTVM. DO NOT USE DVM AS ITS INPUT Z IS TOO LOW WHEN TAKEN WITH H.P. 812A VERTICAL PLUG IN.
b. 1800A SWEEP TIME BASE.
c. 1800A 100µS/CM.
d. 1800A 10:1 PROBE.
e. ALL VOLTAGE & WAVEFORMS (EXCEPT AS NOTED) TAKEN WITH SHORTER PROBES TOGETHER.
f. ALL 5 INPUTS TO SHORTER PROBES TOGETHER.
g. APPLIES TO PREFIX CODES OF 1401A AND ABOVE.
 - FOR PC BOARDS 78100-60012 & 78100-60013: L1 (1.56µH) AND L2 (.47µH)
 - FOR OPTIONS 80 & 81 COMPONENT VALUES ARE CHANGED AS FOLLOWS:
R9 - 1M
R97 - 1M
R98 - 350K

- 78100-60010
TRANSMITTER PC BOARD
11-9-71
4-24-74
H.L.G.
11-29-83

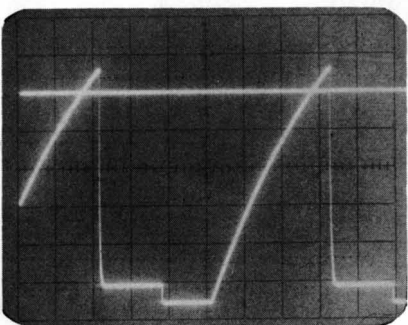
Figure C-3. Transmitter PC Board 78100-60010/60011/60012/60013 (A2A1), Schematic Diagram



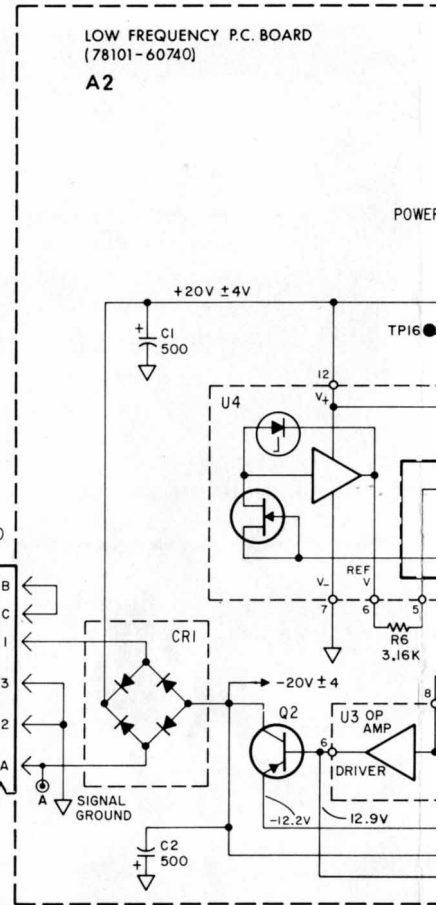
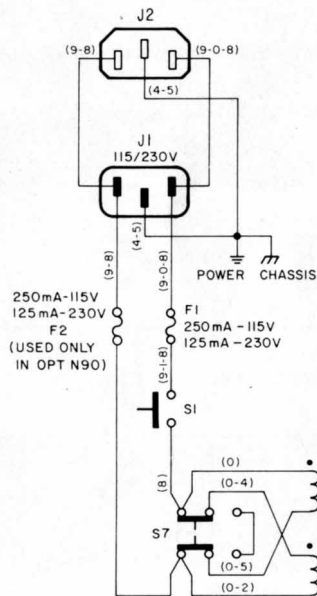
TP3
SWEEP 0.5 MS/CM
TRANSMITTER INPUT DISCONNECTED
(ELECTRODE INOP)



TP9
SENSITIVITY 1.0 V/CM
TRANSMITTER INPUT OPEN
(ELECTRODE INOP)

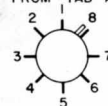


TP14
SENSITIVITY 0.2 V/CM
SWEEP 0.2 MS/CM
TRANSMITTER INPUTS OPEN
(ELECTRODE INOP)



NOTES:

1. CAN TYPE IC PINS GO CCW, FROM TAB AT PIN 8:



TOP VIEW

2. JUMPER CONNECTS FROM CR32 TO PIN NO. 2 WHEN:
 - A. 7810IA IS USED WITH A 78220A ARRHYTHMIA MONITORING SYSTEM.
 - B. 7810IA IS CONNECTED DIRECTLY TO A 7811B PATIENT SELECTOR, AND NO ANCILLARY RATE OR ALARM INDICATING INSTRUMENTS ARE USED.
- FOR THESE APPLICATIONS THE 7810IA ON/OFF SWITCH CONTROLS THE 7811B BED NUMERAL LAMP ILLUMINATION. 7810IA RECEIVERS NORMALLY DO NOT PROVIDE THIS FUNCTION. FOR OTHER APPLICATIONS, THE JUMPER CONNECTS FROM CR32 TO PIN NO. 1.

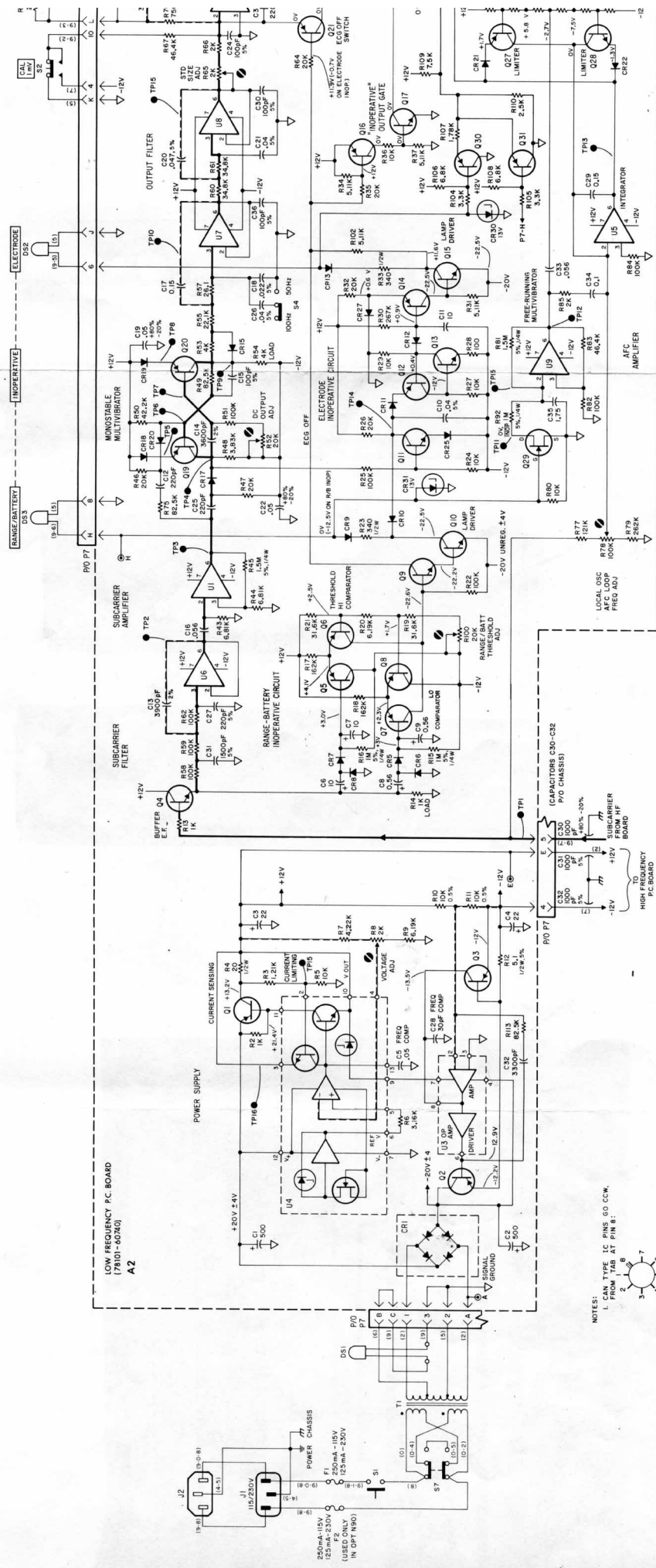


Figure 6-7.

078100-2

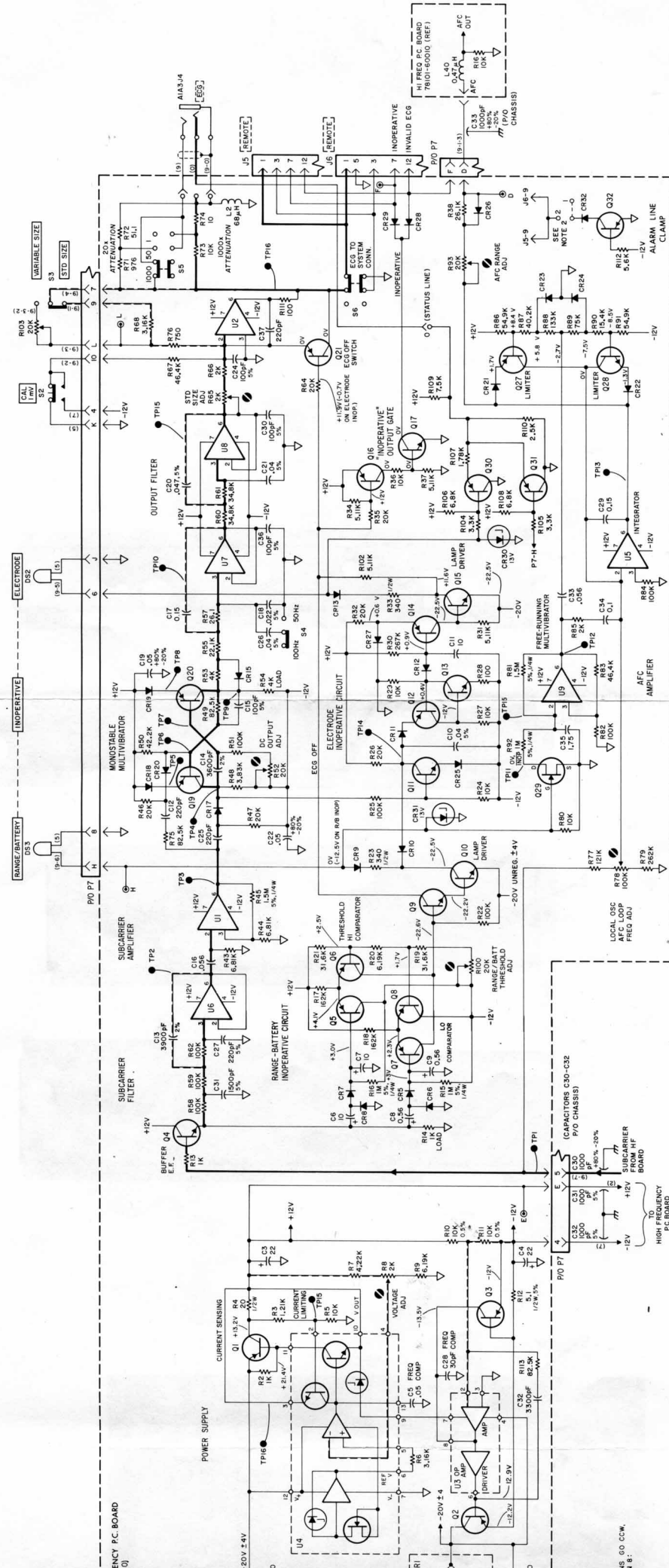
NOTES:
 1. CAN TYPE IC PINS GO CCW.
 2. FROM TAB AT PIN 8.



- TOP VIEW
 JUMPER CONNECTS FROM CR32 TO
- A. 78100A IS USED WITH A 78220A ARRHYTHMIA MONITORING SYSTEM.
 - B. 78100A IS USED WITH A 78220A ARRHYTHMIA MONITORING SYSTEM AND A 78101A BOARD. IN THIS CASE, THE JUMPER CONNECTS FROM CR32 TO PIN 1.
 - C. 78100A IS USED WITH A 78220A ARRHYTHMIA MONITORING SYSTEM AND A 78101A BOARD. IN THIS CASE, THE JUMPER CONNECTS FROM CR32 TO PIN 1.
 - D. 78100A IS USED WITH A 78220A ARRHYTHMIA MONITORING SYSTEM AND A 78101A BOARD. IN THIS CASE, THE JUMPER CONNECTS FROM CR32 TO PIN 1.



250V-15V
 125mA-15V
 125mA-230V
 125mA-230V
 (USED ONLY IN OPT NBD)

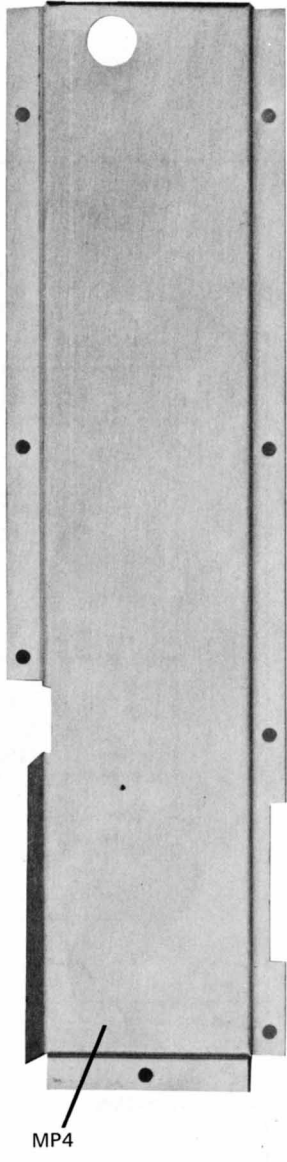
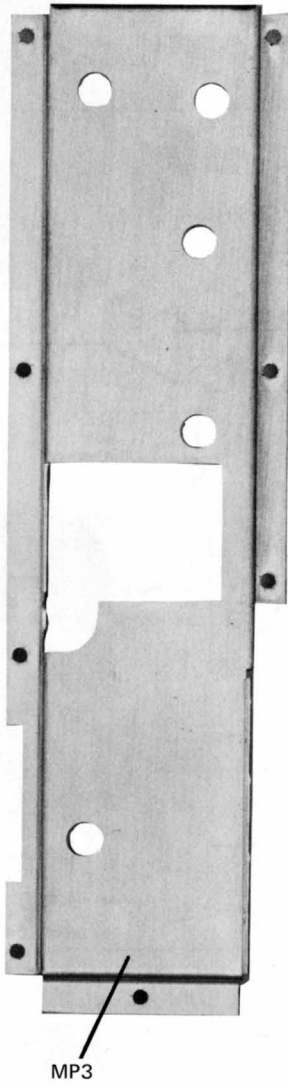
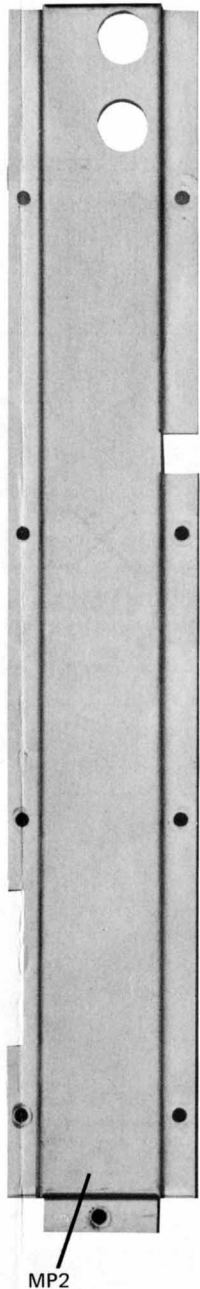
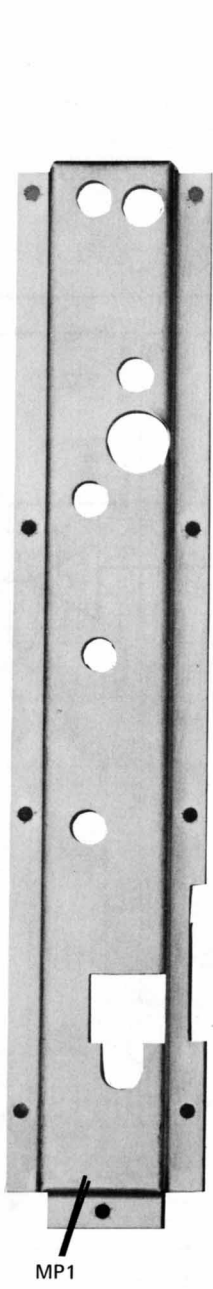


78101-60740
 LOW FREQ PC BD
 H.L.G.
 8-4-74
 5-17-77 BEV.W
 7-4-77
 11-29-83

Figure 6-7. Low Frequency PC Board 78101-60740, Schematic Diagram

078100-2

IS FROM CR32 TO
 REE WITH A 78200A
 MONITORING SYSTEM.
 CONNECTED DIRECTLY TO
 CURRENT SELECTOR, AND NO
 OTHER INSTRUMENTS ARE USED.
 INSTRUMENTS THE 7810A
 CONTROLS THE 7810B
 5 NORMALLY DO NOT
 JUNCTION. FOR OTHER
 JUMPER CONNECTS
 FROM 7810A



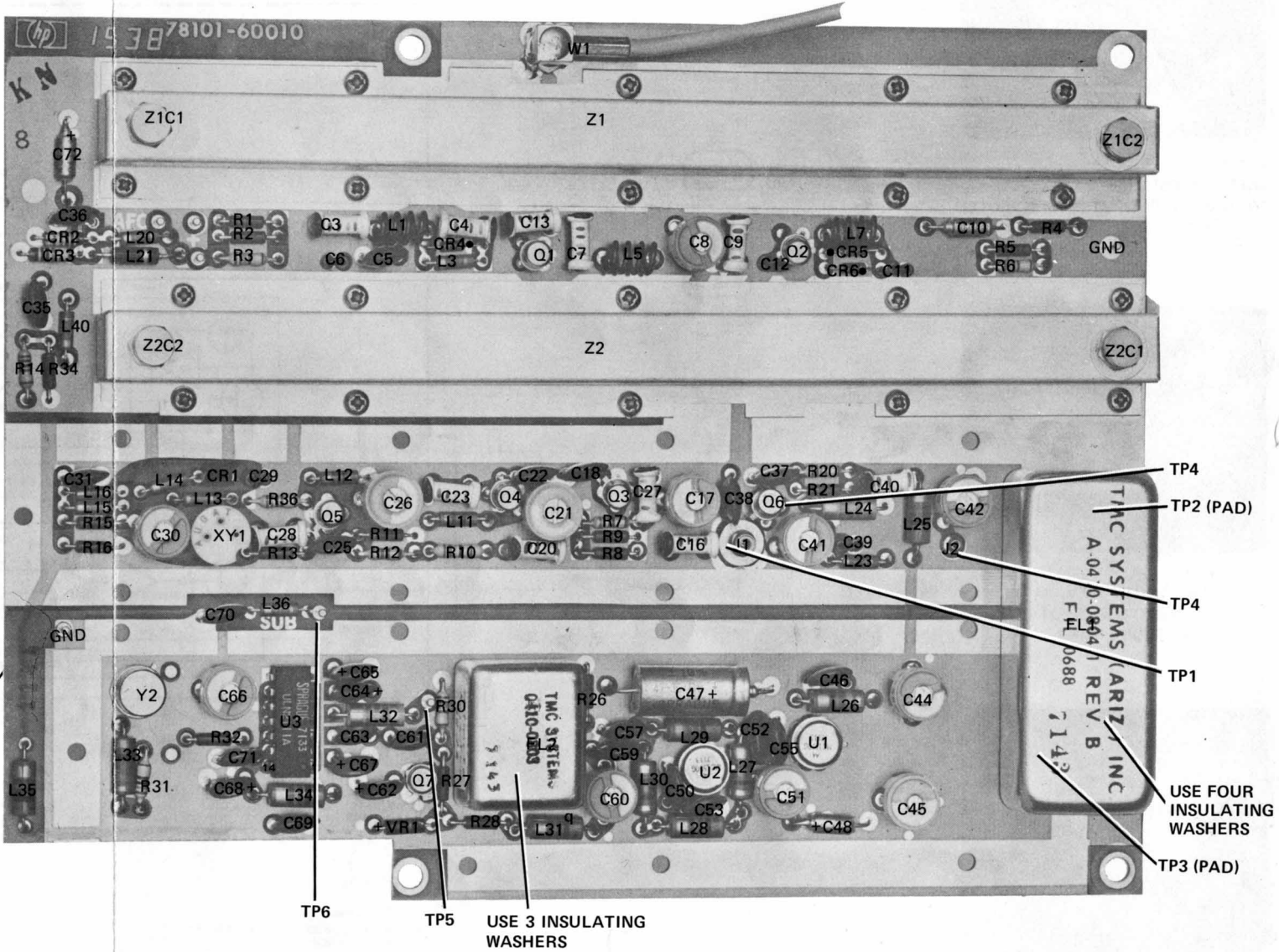
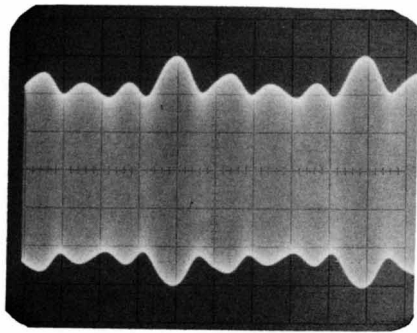
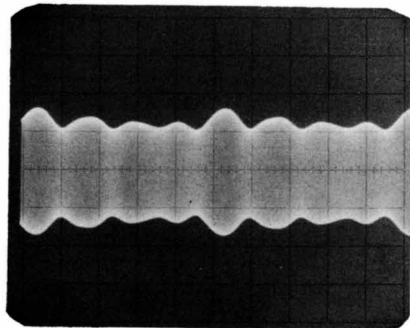


Figure 6-8. High Frequency PC Board 78101-60010 (A5) Parts Location Diagram

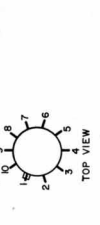


TP5
NO ATTENUATION



TP5
-80 dB

- TEST VOLTAGES**
1. CONDITIONS OF TEST:
SWITCHER ON WITH ALL INPUTS
CHASSIS COVER AMPRS REMOVED,
REMOVED, AND ANTENNA
RECONNECTED.
 2. TOP COVER WITH ANTENNA OFF,
CHASSIS COVER AMPRS REMOVED,
REMOVED, AND ANTENNA
RECONNECTED.
 3. ALL DC VOLTAGE MEASUREMENTS
MADE WITH HP-121A VTVM.
- NOTES:**
1. FIGURE 6-9 IS TO BE USED FOR
REC. DETERMINED BY CHANNEL
CONFIGURATION.
 2. UNLESS OTHERWISE SPECIFIED:
CAPACITORS ARE IN μF , $\frac{1}{2}\text{M}$, $\frac{1}{10}\text{M}$,
RESISTORS ARE IN OHMS, $\frac{1}{2}\text{K}$, $\frac{1}{10}\text{K}$,
3. UNLESS OTHERWISE SPECIFIED.



4. L14 (L56 μH) FOR 78101-60011

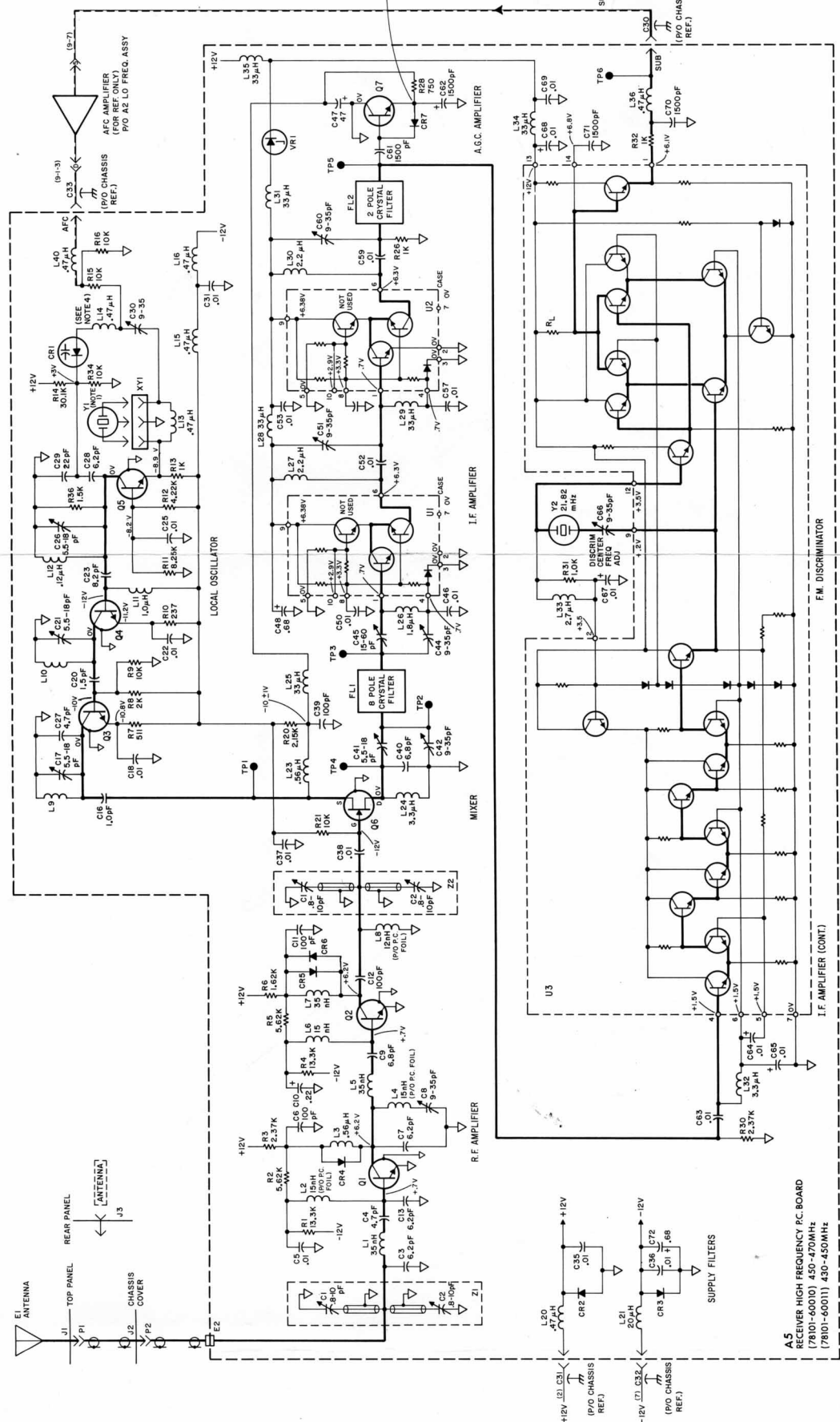


Figure 6-9. High Frequency PC Board 78101-60010/60011 Schematic Diagram and Waveforms

078100-2

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
	78100A	2		TRANSMITTER-ECG TELEMETRY	28480	78100A
A1	78100-60200	8	1	CASE (FIGURE 6-1)	28480	78100-60200
A1A1	78100-60030	2	1	BLOCK-ELECTRODE (FIGURE 6-1)	28480	78100-60030
A2	78100-60210	0	1	CAPSULE-TRANSMITTER (FIGURE 6-1)	28480	78100-60210
A2A1	78100-60010	8	1	BOARD-TRANSMITTER PC (FIGURE 6-2)	28480	78100-60010
A2A2	78100-60100	7	1	CAN-SHIELD (FIGURE 6-4)	28480	78100-60100
A3	78100-63499	3	1	ACCESSORIES-78100A (FIGURE 6-4)	28480	78100-63499
A4	78100A-#001	7		CHANNEL 1	28480	78100A-#001
A5	78100A-#002	8		CHANNEL 2	28480	78100A-#002
A6	78100A-#003	9		CHANNEL 3	28480	78100A-#003
A7	78100A-#004	0		CHANNEL 4	28480	78100A-#004
A8	78100A-#005	1		CHANNEL 5	28480	78100A-#005
A9	78100A-#006	2		CHANNEL 6	28480	78100A-#006
A10	78100A-#007	3		CHANNEL 7	28480	78100A-#007
A11	78100A-#008	4		CHANNEL 8	28480	78100A-#008
A12	78100A-#009	5		CHANNEL 9	28480	78100A-#009
A13	78100A-#010	8		CHANNEL 10	28480	78100A-#010
A14	78100A-#011	9		CHANNEL 11	28480	78100A-#011
A15	78100A-#012	0		CHANNEL 12	28480	78100A-#012
A16	78100A-#013	1		CHANNEL 13	28480	78100A-#013
A17	78100A-#014	2		CHANNEL 14	28480	78100A-#014
A18	78100A-#015	3		CHANNEL 15	28480	78100A-#015
A19	78100A-#016	4		CHANNEL 16	28480	78100A-#016
A20	78100A-#017	5		CHANNEL 17	28480	78100A-#017
A21	78100A-#018	6		CHANNEL 18	28480	78100A-#018
A22	78100A-#019	7		CHANNEL 19	28480	78100A-#019
A23	78100A-#020	0		CHANNEL 20	28480	78100A-#020
A24	78100A-#021	1		DIA BW 450-470MH	28480	78100A-#021
A24A1	78100-60011	9		DIAG BW 450-470MHZ	28480	78100-60011
A25	78100A-#022	2		REUSEABLE ELECTRODE	28480	78100A-#022
A26	78100A-#035	7		LOAN CHANNEL S1	28480	78100A-#035

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A27	78100A-#036	8		LOAN CHANNEL S2	28480	78100A-#036
A28	78100A-#037	9		CHANNEL 21	28480	78100A-#037
A29	78100A-#038	0		CHANNEL 22	28480	78100A-#038
A30	78100A-#039	1		CHANNEL 23	28480	78100A-#039
A31	78100A-#040	4		CHANNEL 24	28480	78100A-#040
A32	78100A-#041	5		CHANNEL 25	28480	78100A-#041
A33	78100A-#042	6		CHANNEL 26	28480	78100A-#042
A34	78100A-#043	7		CHANNEL 27	28480	78100A-#043
A35	78100A-#044	8		CHANNEL 28	28480	78100A-#044
A36	78100A-#045	9		CHANNEL 29	28480	78100A-#045
A37	78100A-#046	0		CHANNEL 30	28480	78100A-#046
A38	78100A-#047	1		CHANNEL 31	28480	78100A-#047
A39	78100A-#048	2		CHANNEL 32	28480	78100A-#048
A40	78100A-#049	3		CHANNEL 33	28480	78100A-#049
A41	78100A-#050	6		CHANNEL 34	28480	78100A-#050
A42	78100A-#051	7		CHANNEL 35	28480	78100A-#051
A43	78100A-#052	8		CHANNEL 36	28480	78100A-#052
A44	78100A-#053	9		CHANNEL 37	28480	78100A-#053
A45	78100A-#054	0		CHANNEL 38	28480	78100A-#054
A46	78100A-#055	1		CHANNEL 39	28480	78100A-#055
A47	78100A-#056	2		CHANNEL 40	28480	78100A-#056
A48	78100A-#057	3		CHANNEL 41	28480	78100A-#057
A49	78100A-#058	4		CHANNEL 42	28480	78100A-#058
A50	78100A-#059	5		CHANNEL 43	28480	78100A-#059
A51	78100A-#060	8		CHANNEL 44	28480	78100A-#060
A52	78100A-#061	9		CHANNEL 45	28480	78100A-#061
A53	78100A-#062	0		CHANNEL 46	28480	78100A-#062
A54	78100A-#063	1		CHANNEL 47	28480	78100A-#063
A55	78100A-#064	2		CHANNEL 48	28480	78100A-#064
A56	78100A-#065	3		CHANNEL 49	28480	78100A-#065

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A57	78100A-#066	4		CHANNEL 50	28480	78100A-#066
A58	78100A-#067	5		CHANNEL 51	28480	78100A-#067
A59	78100A-#068	6		CHANNEL 52	28480	78100A-#068
A60	78100A-#069	7		CHANNEL 53	28480	78100A-#069
A61	78100A-#072	2		CSA APPROVED	28480	78100A-#072
A62	78100A-#073	3		CHANNEL S6	28480	78100A-#073
A63	78100A-#074	4		CHANNEL S7	28480	78100A-#074
A64	78100A-#075	5		CHANNEL S3	28480	78100A-#075
A65	78100A-#076	6		CHANNEL S4	28480	78100A-#076
A66	78100A-#077	7		CHANNEL S5	28480	78100A-#077
A67	78100A-#078	8		TRANSMITTER ONLY	28480	78100A-#078
A68	78100A-#080	2		TRANS US FREQ	28480	78100A-#080
A68A1	78100-60014	2		PACE PULSE PASS BOARD	28480	78100-60014
A69	78100A-#081	3		TRANS EUROPE FREQ	28480	78100A-#081
A69A1	78100-60015	3		PACE PULSE PASS BOARD	28480	78100-60015
A70	78100A-#082	4		CHANNEL 54	28480	78100A-#082
A71	78100A-#083	5		CHANNEL 55	28480	78100A-#083
A72	78100A-#084	6		CHANNEL 56	28480	78100A-#084
A73	78100A-#085	7		CHANNEL 57	28480	78100A-#085
A74	78100A-#086	8		CHANNEL 58	28480	78100A-#086
A75	78100A-#087	9		CHANNEL 59	28480	78100A-#087
A76	78100A-#088	0		CHANNEL 60	28480	78100A-#088
A77	78100A-#089	1		CHANNEL 61	28480	78100A-#089
A78	78100A-#091	5		CHANNEL 62	28480	78100A-#091
A79	78100A-#093	7		CHANNEL 63	28480	78100A-#093
A80	78100A-#094	8		CHANNEL 64	28480	78100A-#094
A81	78100A-#095	9		CHANNEL 65	28480	78100A-#095
A82	78100A-#097	1		CHANNEL 66	28480	78100A-#097
A83	78100A-#098	2		CHANNEL 67	28480	78100A-#098
A84	78100A-#099	3		DIA BW 430-450MH	28480	78100A-#099
A84A1	78100-60013	1		DIAG BW 430-450MHZ	28480	78100-60013

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A85	78100A-#100	7		CHANNEL 68	28480	78100A-#100
A86	78100A-#101	8		CHANNEL 69	28480	78100A-#101
A87	78100A-#102	9		CHANNEL 70	28480	78100A-#102
A88	78100A-#103	0		CHANNEL 71	28480	78100A-#103
A89	78100A-#104	1		CHANNEL 72	28480	78100A-#104
A90	78100A-#105	2		CHANNEL 73	28480	78100A-#105
A91	78100A-#106	3		CHANNEL 74	28480	78100A-#106
A92	78100A-#107	4		CHANNEL 75	28480	78100A-#107
A93	78100A-#108	5		CHANNEL 76	28480	78100A-#108
A94	78100A-#109	6		CHANNEL 77	28480	78100A-#109
A95	78100A-#110	9		CHANNEL 78	28480	78100A-#110
A96	78100A-#111	0		CHANNEL 79	28480	78100A-#111
A97	78100A-#112	1		CHANNEL 80	28480	78100A-#112
A98	78100A-#113	2		CHANNEL 81	28480	78100A-#113
A99	78100A-#114	3		CHANNEL 82	28480	78100A-#114
A100	78100A-#115	4		CHANNEL 83	28480	78100A-#115
A101	78100A-#116	5		CHANNEL 84	28480	78100A-#116
A102	78100A-#117	6		CHANNEL 85	28480	78100A-#117
A103	78100A-#118	7		CHANNEL 86	28480	78100A-#118
A104	78100A-#119	8		CHANNEL 87	28480	78100A-#119
A105	78100A-#120	1		CHANNEL 88	28480	78100A-#120
A106	78100A-#121	2		CHANNEL 89	28480	78100A-#121
A107	78100A-#122	3		CHANNEL 90	28480	78100A-#122
A108	78100A-#123	4		CHANNEL 91	28480	78100A-#123
A109	78100A-#124	5		CHANNEL 92	28480	78100A-#124
A110	78100A-#125	6		CHANNEL 93	28480	78100A-#125
A111	78100A-#126	7		CHANNEL 94	28480	78100A-#126
A112	78100A-#127	8		CHANNEL 95	28480	78100A-#127
A113	78100A-#128	9		CHANNEL 96	28480	78100A-#128
A114	78100A-#A02	1		OP FREQ 466.8375, NEW ZEALAND	28480	78100A-#A02
A115	78100A-#A03	2		OP FREQ 466.8625	28480	78100A-#A03
A116	78100A-#A04	3		OP FREQ 466.8875	28480	78100A-#A04
A117	78100A-#A05	4		OP FREQ 466.8125	28480	78100A-#A05
A118	78100A-#B01	1		OP FREQ 433.200, SWITZERLAND	28480	78100A-#B01
A118A1	78100-60012	0		PCB- 430-450MHZ	28480	78100-60012
A119	78100A-#C01	2		OP FREQ- 433.375, NETHERLANDS	28480	78100A-#C01
A120	78100A-#C02	3		OP FREQ- 433.425	28480	78100A-#C02

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A121	78100A-#C03	4		OP FREQ- 433.675	28480	78100A-#C03
A122	78100A-#C04	5		OP FREQ- 433.725	28480	78100A-#C04
A123	78100A-#C05	6		OP FREQ- 433.825	28480	78100A-#C05
A124	78100A-#C06	7		OP FREQ- 433.875	28480	78100A-#C06
A125	78100A-#C07	8		OP FREQ- 433.225	28480	78100A-#C07
A126	78100A-#C08	9		OP FREQ- 434.050	28480	78100A-#C08
A127	78100A-#C09	0		OP FREQ- 434.100	28480	78100A-#C09
A128	78100A-#C10	3		OP FREQ- 433.275	28480	78100A-#C10
A129	78100A-#C11	4		OP FREQ- 434.200	28480	78100A-#C11
A130	78100A-#C12	5		OP FREQ- 434.250	28480	78100A-#C12
A131	78100A-#C13	6		OP FREQ- 434.500	28480	78100A-#C13
A132	78100A-#C14	7		OP FREQ- 434.550	28480	78100A-#C14
A133	78100A-#C15	8		OP FREQ- 434.650	28480	78100A-#C15
A134	78100A-#C16	9		OP FREQ- 434.700	28480	78100A-#C16
A135	78100A-#C17	0		OP FREQ- 433.075	28480	78100A-#C17
A136	78100A-#C18	1		OP FREQ- 433.125	28480	78100A-#C18
A137	78100A-#C19	2		OP FREQ- 433.175	28480	78100A-#C19
A138	78100A-#C20	5		OP FREQ- 433.325	28480	78100A-#C20
A139	78100A-#C21	6		OP FREQ- 433.475	28480	78100A-#C21
A140	78100A-#C22	7		OP FREQ- 433.525	28480	78100A-#C22
A141	78100A-#C23	8		OP FREQ- 433.575	28480	78100A-#C23
A142	78100A-#C24	9		OP FREQ- 433.625	28480	78100A-#C24
A143	78100A-#C25	0		OP FREQ- 450.930	28480	78100A-#C25
A144	78100A-#C26	1		OP FREQ- 450.970	28480	78100A-#C26
A145	78100A-#C27	2		OP FREQ- 451.010	28480	78100A-#C27
A146	78100A-#C28	3		OP FREQ- 451.050	28480	78100A-#C28
A147	78100A-#C29	4		OP FREQ- 451.090	28480	78100A-#C29
A148	78100A-#D01	3		OP FREQ 448.000, DENMARK	28480	78100A-#D01
A149	78100A-#D02	4		OP FREQ 448.025	28480	78100A-#D02
A150	78100A-#D03	5		OP FREQ 448.075	28480	78100A-#D03
A151	78100A-#D04	6		OP FREQ 448.100	28480	78100A-#D04
A152	78100A-#D05	7		OP FREQ 448.250	28480	78100A-#D05
A153	78100A-#D06	8		OP FREQ 448.275	28480	78100A-#D06
A154	78100A-#D07	9		OP FREQ 448.050	28480	78100A-#D07
A155	78100A-#D08	0		OP FREQ 448.125	28480	78100A-#D08
A156	78100A-#D09	1		OP FREQ 448.150	28480	78100A-#D09
A157	78100A-#D10	4		OP FREQ 448.175	28480	78100A-#D10
A158	78100A-#D11	5		OP FREQ 448.200	28480	78100A-#D11
A159	78100A-#D12	6		OP FREQ 448.225	28480	78100A-#D12
A160	78100A-#E01	4		OP FREQ 438.600, ITALY	28480	78100A-#E01
A161	78100A-#F01	5		OP FREQ 446.050, FRANCE	28480	78100A-#F01
A162	78100A-#F02	6		OP FREQ 446.100	28480	78100A-#F02
A163	78100A-#F03	7		OP FREQ 446.350	28480	78100A-#F03
A164	78100A-#F04	8		OP FREQ 446.400	28480	78100A-#F04
A165	78100A-#F05	9		OP FREQ 446.500	28480	78100A-#F05

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A166	78100A-#F06	0		OP FREQ 446.550	28480	78100A-#F06
A167	78100A-#F07	1		OP FREQ 446.800	28480	78100A-#F07
A168	78100A-#F08	2		OP FREQ 446.850	28480	78100A-#F08
A169	78100A-#F09	3		OP FREQ 446.000	28480	78100A-#F09
A170	78100A-#F10	6		OP FREQ 446.150	28480	78100A-#F10
A171	78100A-#F11	7		OP FREQ 446.200	28480	78100A-#F11
A172	78100A-#F12	8		OP FREQ 446.450	28480	78100A-#F12
A173	78100A-#F13	9		OP FREQ 446.600	28480	78100A-#F13
A174	78100A-#F14	0		OP FREQ 446.650	28480	78100A-#F14
A175	78100A-#F15	1		OP FREQ 446.900	28480	78100A-#F15
A176	78100A-#F16	2		OP FREQ 446.950	28480	78100A-#F16
A177	78100A-#F17	3		OP FREQ 446.250	28480	78100A-#F17
A178	78100A-#F18	4		OP FREQ 446.300	28480	78100A-#F18
A179	78100A-#F19	5		OP FREQ 446.700	28480	78100A-#F19
A180	78100A-#F20	8		OP FREQ 446.750	28480	78100A-#F20
A181	78100A-#G01	6		OP FREQ 456.210, WEST GERMANY	28480	78100A-#G01
A182	78100A-#G02	7		OP FREQ 456.250	28480	78100A-#G02
A183	78100A-#G03	8		OP FREQ 456.330	28480	78100A-#G03
A184	78100A-#G04	9		OP FREQ 466.210	28480	78100A-#G04
A185	78100A-#G05	0		OP FREQ 466.250	28480	78100A-#G05
A186	78100A-#G06	1		OP FREQ 466.330	28480	78100A-#G06
A187	78100A-#H01	7		OP FREQ 468.525, FINLAND	28480	78100A-#H01
A188	78100A-#J01	6		OP FREQ 449.775, AUSTRIA	28480	78100A-#J01
A189	78100A-#J02	7		OP FREQ 449.800	28480	78100A-#J02
A190	78100A-#J03	8		OP FREQ 449.850	28480	78100A-#J03
A191	78100A-#K02	8		OP FREQ 439.775, SWEDEN	28480	78100A-#K02
A192	78100A-#K03	9		OP FREQ 439.800	28480	78100A-#K03
A193	78100A-#K04	0		OP FREQ 439.825	28480	78100A-#K04
A194	78100A-#K05	1		OP FREQ 439.850	28480	78100A-#K05
A195	78100A-#K06	2		OP FREQ 439.875	28480	78100A-#K06
A196	78100A-#K07	3		OP FREQ 439.850	28480	78100A-#K07
A197	78100A-#K08	4		OP FREQ 439.975	28480	78100A-#K08
A198	78100A-#K09	5		OP FREQ 439.900	28480	78100A-#K09
A199	78100A-#K10	8		OP FREQ 439.925	28480	78100A-#K10
A200	78100A-#L13	2		OP FREQ 458.500, UNITED KINGDOM	28480	78100A-#L13
A201	78100A-#L14	3		OP FREQ 458.525	28480	78100A-#L14
A202	78100A-#L15	4		OP FREQ 458.5625	28480	78100A-#L15
A203	78100A-#L16	5		OP FREQ 458.5875	28480	78100A-#L16
A204	78100A-#L17	6		OP FREQ 458.700	28480	78100A-#L17
A205	78100A-#L18	7		OP FREQ 458.725	28480	78100A-#L18
A206	78100A-#L19	8		OP FREQ 458.775	28480	78100A-#L19
A207	78100A-#L20	1		OP FREQ 458.800	28480	78100A-#L20
A208	78100A-#N01	0		OP FREQ 441.975, NORWAY	28480	78100A-#N01
A209	78100A-#N02	1		OP FREQ 441.925	28480	78100A-#N02
A210	78100A-#N03	2		OP FREQ 441.937	28480	78100A-#N03

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A211	78100A- N 04	3		OP FREQ 441.962	28480	78100A- N 04
A212	78100A- N 05	4		OP FREQ 441.875	28480	78100A- N 05
A213	78100A- N 06	5		OP FREQ 441.950	28480	78100A- N 06

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A1	78100-60200	8		ASSEMBLY-CASE	28480	78100-60200
A1MP1	78100-60301	0	1	BATTERY CONTACT:RED	28480	78100-60301
A1MP2	78100-60302	1	1	BATTERY CONTACT:PURPLE	28480	78100-60302
A1MP3	78100-60061	9	1	BATTERY DOOR	28480	78100-60061
A1MP4	78100-20200	4	1	BATTERY BLOCK	28480	78100-20200
A1MP5	78100-40000	4	1	CASE-BODY	28480	78100-40000
A1MP6	SEE OPTIONS	8		CASE COVER, SPEC BY OPTION	28480	SEE OPTIONS
	1600-0218	7	1	BLANK COVER	28480	1600-0218
A1MP7	78100-20100	3	5	TERMINAL POST	28480	78100-20100
A1MP8	78100-20100	3		TERMINAL POST	28480	78100-20100
A1MP9	78100-20100	3		TERMINAL POST	28480	78100-20100
A1MP10	78100-20100	3		TERMINAL POST	28480	78100-20100
A1MP11	78100-20100	3		TERMINAL POST	28480	78100-20100
				MISCELLANEOUS		
	0520-0128	7	2	SCREW-MACH 2-56 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	0520-0130	1	2	SCREW-MACH 2-56 .375-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	0520-0155	0	5	SCREW-MACH 2-56 .125-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	0520-0163	0	2	SCREW-MACH 2-56 .188-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
	0520-0173	2	1	SCREW-MACH 2-56 .188-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	0520-0174	3	5	SCREW-MACH 2-56 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	78100-20090	5	1	INSERT	28480	78100-20090
A1A1	78100-60030	2	1	ASSEMBLY-ELECT. BLOCK	28480	78100-60030
A1A1L1	9100-2255	4	2	INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A1A1MP1	1251-2866	4	3	CONNECTOR-TEST POINT	28480	1251-2866
A1A1MP2	1251-2866	4		CONNECTOR-TEST POINT	28480	1251-2866
A1A1MP3	1251-2866	4		CONNECTOR-TEST POINT	28480	1251-2866
A1A1MP4	1401-0090	1	1	CAP-TEST POINT, WHITE	28480	1401-0090
A1A1MP5	1401-0091	2	1	CAP-TEST POINT, GREEN	28480	1401-0091
A1A1MP6	1401-0092	3	1	CAP-TEST POINT, BLACK	28480	1401-0092
A1A1R70	0686-6835	5	2	RESISTOR 68K 5% .5W CC TC=0+765	01121	EB6835
A1A1R71	0686-6835	5		RESISTOR 68K 5% .5W CC TC=0+765	01121	EB6835
	0590-0975	9	2	THREADED INSERT	28480	0590-0975
A2	78100-60210	0	1	ASSEMBLY-TRANSMITTER	28480	78100-60210
A2MP1	78100-60070	0	1	ASSEMBLY-TUNING COVER	28480	78100-60070
A2MP2	78100-80050	8	1	COVER	28480	78100-80050
A2MP3	78100-20060	4	3	CAN-SPACER	28480	78100-20060
A2MP4	78100-20060	4		CAN-SPACER	28480	78100-20060
A2MP5	78100-20060	4		CAN-SPACER	28480	78100-20060
A2MP6	78100-20040	0	3	SCREW-CAN	28480	78100-20040
A2MP7	78100-20040	0		SCREW-CAN	28480	78100-20040
A2MP8	78100-20040	0		SCREW-CAN	28480	78100-20040
A2MP9	78100-00100	1	1	FOAM PAD	28480	78100-00100
A2MP10	9223-0162	8	1	DESICCANT PAPER	00000	08D
A2MP11	7124-1964	8	2	BINS-NAMEPLATE	28480	7124-1964
A2MP12	7124-1964	8		BINS-NAMEPLATE	28480	7124-1964
	0470-0357	7	2	ADHESIVE DOW CORNING 3145 SILICONE IP	71984	3145
	78100-00190	9	1	INSULATOR-TRANSMITTER	28480	78100-00190
A2A1	78100-60010	8	1	PC BOARD 450-470MHZ	28480	78100-60010
A2A1C1	0160-3828	6	3	CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A2A1C2	0160-3747	8	7	CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A2A1C3	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A2A1C4	0160-4031	5	2	CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031
A2A1C5	0160-3667	1	1	CAPACITOR-FXD .15UF +-20% 50VDC CER	28480	0160-3667
A2A1C6	0180-2375	8	1	CAPACITOR-FXD 2.2UF+-10% 25VDC TA	28480	0180-2375
A2A1C7	0160-3751	4	2	CAPACITOR-FXD 2200PF +-5% 50VDC CER	28480	0160-3751
A2A1C8	0160-4040	6	4	CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A2A1C9	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A2A1C10	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A2A1C11	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A2A1C12	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A2A1C13	0160-4030	4	1	CAPACITOR-FXD 820PF +-5% 100VDC CER	28480	0160-4030
A2A1C14	0160-3751	4		CAPACITOR-FXD 2200PF +-5% 50VDC CER	28480	0160-3751
A2A1C15	0160-4031	5		CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2A1C16	0160-3831	1	2	CAPACITOR-FXD .01UF +-20% 50VDC CER	28480	0160-3831
A2A1C17	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A2A1C18	0180-2378	1	2	CAPACITOR-FXD 6.8UF+-10% 10VDC TA	28480	0180-2378
A2A1C19	0180-2378	1		CAPACITOR-FXD 6.8UF+-10% 10VDC TA	28480	0180-2378
A2A1C20	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A2A1C21	0121-0461	5	3	CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A2A1C22	0160-3745	6	2	CAPACITOR-FXD 470PF +-20% 50VDC CER	28480	0160-3745
A2A1C23	0160-3746	7	4	CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A2A1C24	0160-3890	2	1	CAPACITOR-FXD 68PF +-10% 100VDC CER	28480	0160-3890
A2A1C25	0121-0471	7	2	CAPACITOR-V TRMR-CER 4.5-15PF 63V PC-MTG	28480	0121-0471
A2A1C26	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A2A1C27	0160-3745	6		CAPACITOR-FXD 470PF +-20% 50VDC CER	28480	0160-3745
A2A1C28	0121-0471	7		CAPACITOR-V TRMR-CER 4.5-15PF 63V PC-MTG	28480	0121-0471
A2A1C29	0160-3835	5	1	CAPACITOR-FXD 4.7PF +-10% 100VDC CER	28480	0160-3835
A2A1C30	0121-0449	9	1	CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A2A1C31	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A2A1C32	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A2A1C33	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A2A1C34	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A2A1C40	0160-3831	1		CAPACITOR-FXD .01UF +-20% 50VDC CER	28480	0160-3831
A2A1C41	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A2A1C42	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 200VDC CER	28480	0160-4040
A2A1C43	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A2A1C44	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A2A1CR1	0122-0056	6	1	DIODE-VVC 6.8PF 10% C2/C30-MIN=2.5	04713	MV2101
A2A1CR2	1901-0040	1	3	DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A2A1CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A2A1CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A2A1CR6	1901-0460	9	1	DIODE-STABISTOR 30V 150MA DO-7	28480	1901-0460
A2A1CR7	1901-1051	6	1	DIODE-STEP RECOVERY	28480	1901-1051
A2A1CR8	1901-0535	9	1	DIODE-SM SIG SCHOTTKY	28480	1901-0535
A2A1L1	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A2A1L2	9100-2254	3		INDUCTOR RF-CH-MLD 390NH 10% .105DX.26LG	28480	9100-2254
A2A1L3	9100-2247	4	1	INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A2A1L4	9140-0158	6	2	INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A2A1L5	9100-3183	9	1	INDUCTOR 35NH 10%	28480	9100-3183
A2A1L9	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A2A1L10	9100-2281	6	1	INDUCTOR RF-CH-MLD 270UH 10% .105DX.26LG	28480	9100-2281
A2A1L11	9100-2259	8	1	INDUCTOR RF-CH-MLD 1.5UH 10% .105DX.26LG	28480	9100-2259
A2A1Q1	1853-0259	1	9	TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A2A1Q2	1854-0642	8	1	TRANSISTOR NPN SI PD=625MW FT=80MHZ	04713	MPS-A17
A2A1Q5	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A2A1Q6	1854-0491	5	4	TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A2A1Q7	1854-0529	0	1	TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0529
A2A1Q8	1853-0316	1	1	TRANSISTOR-DUAL PNP PD=500MW	28480	1853-0316
A2A1Q11	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A2A1Q12	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A2A1Q13	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A2A1Q14	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A2A1Q15	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A2A1Q16	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A2A1Q17	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A2A1Q18	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A2A1Q19	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A2A1Q20	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A2A1Q21	1854-0345	8	2	TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A2A1Q22	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A2A1R1	0698-7254	9	3	RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A2A1R2	0698-7247	0	4	RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A2A1R3	0698-7187	7	3	RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055
A2A1R4	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A2A1R5	0698-7270	9	1	RESISTOR 26.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2612-F
A2A1R6	0698-7286	7	5	RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A2A1R7	0698-7938	6	1	RESISTOR 390K 5% .125W CC TC=-600/+1137	01121	BB3945
A2A1R8	0698-3923	1	2	RESISTOR 100K .5% .05W F TC=0+-100	28480	0698-3923
A2A1R9	0698-3924	2	2	RESISTOR 133K .5% .05W F TC=0+-100	28480	0698-3924
A2A1R10	0698-3923	1		RESISTOR 100K .5% .05W F TC=0+-100	28480	0698-3923
A2A1R11	0698-3924	2		RESISTOR 133K .5% .05W F TC=0+-100	28480	0698-3924
A2A1R12	0698-7284	5	5	RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A2A1R13	0698-8036	7	1	RESISTOR 5.6M 5% .125W CC TC=-666/+1262	01121	BB5655
A2A1R14	0698-7939	7	1	RESISTOR 510K 5% .125W CC TC=-600/+1137	01121	BB5145
A2A1R15	0698-8033	4	1	RESISTOR 22M 5% .125W CC TC=-666/+1262	01121	BB2265
A2A1R16	0698-7097	8	2	RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055
A2A1R17	0698-8034	5	1	RESISTOR 18M 5% .125W CC TC=-666/+1262	01121	BB1865
A2A1R18	0698-7277	6	2	RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A2A1R19	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A2A1R20	0698-7288	9	5	RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2A1R21	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A2A1R22	0698-7273	2	1	RESISTOR 34.8K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3482-F
A2A1R23	2100-2031	7	1	RESISTOR-TRMR 50K 10% C TOP-ADJ 1-TRN	73138	82PRS0K
A2A1R24	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A2A1R25	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A2A1R26	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A2A1R27	0698-7187	7		RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055
A2A1R28	0698-7236	7	2	RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A2A1R29	0698-7187	7		RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055
A2A1R30	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A2A1R31	0698-7940	0	2	RESISTOR 200K 5% .125W CC TC=-600/+1137	01121	BB2045
A2A1R32	0698-7940	0		RESISTOR 200K 5% .125W CC TC=-600/+1137	01121	BB2045
A2A1R33	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A2A1R34	0698-7281	2	3	RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
A2A1R35	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A2A1R36	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A2A1R37	0698-7260	7	2	RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A1R38	2100-2655	1	1	RESISTOR-TRMR 100K 10% C TOP-ADJ 1-TRN	73138	82PR100K
A2A1R39	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A2A1R40	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A2A1R41	0698-5345	5	1	RESISTOR 4.3M 5% .125W CC TC=-666/+1262	28480	0698-5345
A2A1R42	0698-7229	8	3	RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A2A1R43	0698-7250	5	1	RESISTOR 3.83K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3831-F
A2A1R44	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A2A1R45	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A2A1R46	0698-7281	2		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
A2A1R47	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A2A1R48	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A2A1R49	0698-8035	6	1	RESISTOR 10M 5% .125W CC TC=-666/+1262	01121	BB1065
A2A1R50	0698-7097	2		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055
A2A1R52	0698-7281	8		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
A2A1R53	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A2A1R54	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A2A1R55	2100-1788	9	1	RESISTOR-TRMR 500 10% C TOP-ADJ 1-TRN	73138	82PRS00
A2A1R56	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A2A1R57	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A2A1R58	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A2A1R59	0698-6592	6	1	RESISTOR 6.8M 5% .125W CC TC=-666/+1262	28480	0698-6592
A2A1R60	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A2A1R61	0698-7965	9	1	RESISTOR 330K 5% .125W CC TC=-600/+1137	28480	0698-7965
A2A1R62	0698-7288	9		RESISTOR 147K	28480	0698-7288
A2A1U1	1826-0015	0	1	IC OP AMP SPCL 16-DIP-C PKG	3L585	CA3060D
A2A1U2	78100-00010	2	1	PC BOARD	28480	78100-00010
A2A1VR1	1902-1277	0	1	DIODE-ZNR 5.62V 2% D0-7	28480	1902-1277
A2A1XU1	1200-0607	0	1	SOCKET-IC 16-CONT DIP DIP-SLDR	28480	1200-0607
A2A1XY1	1200-0445	4	1	SOCKET-XSTR 3-CONT TO-5 DIP-SLDR	28480	1200-0445
MISCELLANEOUS						
	0340-0453	9	1	INSULATOR-XSTR NYLON	28480	0340-0453
	0340-0572	3	30	INSULATOR-BEAD 7052-GL BLUE	28480	0340-0572
	9211-0484	2	1	BOX-INK STYLUS	28480	9211-0484
	9220-0858	3	2	BINS-FOAM INSERT	28480	9220-0858
	78100-00120	5	1	LABEL-PC BOARD	28480	78100-00120
A2A2	78100-60100	7	1	TRANSMITTER CAN	28480	78100-60100
A3	78100-63499	3		ACCESSORIES- 78100A	28480	78100-63499
	1420-0031	0	1	BATTERY-8.4 VOLT	28480	1420-0031
	9230-0413	7	1	WARNING ENVELOPE	28480	9230-0413
	9300-0825	4	1	APRON ASSEMBLY	28480	9300-0825
	07807-05050	5	1	COVER-POWER	28480	07807-05050
	14121A	3	1	ELECTRODE SET	28480	14121A
	14445A	4		ELECTRODE DISPOSABLE	28480	14445A
	78101-91998	7		78100/101A OPERATING MANUAL	28480	78101-91998
	78101-91999	8		78100/101A INSTRUMENT CARD	28480	78101-91999

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4	78100A-#001	7	1	CHANNEL 1	28480	78100A-#001
A4A1MP6	78100-40001	5	1	CASE-COVER	28480	78100-40001
A4A2A1Y1	0410-0806	5	1	CRYSTAL-QUARTZ	28480	0410-0806
A5	78100A-#002	8	1	CHANNEL 2	28480	78100A-#002
A5A1MP6	78100-40002	6	1	CASE-COVER	28480	78100-40002
A5A2A1Y1	0410-0808	7	1	CRYSTAL-QUARTZ	28480	0410-0808
A6	78100A-#003	9	1	CHANNEL 3	28480	78100A-#003
A6A1MP6	78100-40003	7	1	CASE-COVER	28480	78100-40003
A6A2A1Y1	0410-0811	2	1	CRYSTAL-QUARTZ	28480	0410-0811
A7	78100A-#004	0	1	CHANNEL 4	28480	78100A-#004
A7A1MP6	78100-40004	8	1	CASE-COVER	28480	78100-40004
A7A2A1Y1	0410-0809	8	1	CRYSTAL-QUARTZ	28480	0410-0809
A8	78100A-#005	1	1	CHANNEL 5	28480	78100A-#005
A8A1MP6	78100-40005	9	1	CASE-COVER	28480	78100-40005
A8A2A1Y1	0410-0814	5	1	CRYSTAL-QUARTZ	28480	0410-0814
A9	78100A-#006	2	1	CHANNEL 6	28480	78100A-#006
A9A1MP6	78100-40006	0	1	CASE-COVER	28480	78100-40006
A9A2A1Y1	0410-0815	6	1	CRYSTAL-QUARTZ	28480	0410-0815
A10	78100A-#007	3	1	CHANNEL 7	28480	78100A-#007
A10A1MP6	78100-40007	1	1	CASE-COVER	28480	78100-40007
A10A2A1Y1	0410-0812	3	1	CRYSTAL-QUARTZ	28480	0410-0812
A11	78100A-#008	4	1	CHANNEL 8	28480	78100A-#008
A11A1MP6	78100-40008	2	1	CASE-COVER	28480	78100-40008
A11A2A1Y1	0410-0807	6	1	CRYSTAL-QUARTZ	28480	0410-0807
A12	78100A-#009	5	1	CHANNEL 9	28480	78100A-#009
A12A1MP6	78100-40009	3	1	CASE-COVER	28480	78100-40009
A12A2A1Y1	0410-0810	1	1	CRYSTAL-QUARTZ	28480	0410-0810
A13	78100A-#010	8	1	CHANNEL 10	28480	78100A-#010
A13A1MP6	78100-40010	6	1	CASE-COVER	28480	78100-40010
A13A2A1Y1	0410-0805	4	1	CRYSTAL-QUARTZ	28480	0410-0805
A14	78100A-#011	9	1	CHANNEL 11	28480	78100A-#011
A14A1MP6	78100-40011	7	1	CASE-COVER	28480	78100-40011
A14A2A1Y1	0410-0829	2	1	CRYSTAL-QUARTZ	28480	0410-0829
A15	78100A-#012	0	1	CHANNEL 12	28480	78100A-#012
A15A1MP6	78100-40012	8	1	CASE-COVER	28480	78100-40012
A15A2A1Y1	0410-0830	5	1	CRYSTAL-QUARTZ	28480	0410-0830
A16	78100A-#013	1	1	CHANNEL 13	28480	78100A-#013
A16A1MP6	78100-41013	1	1	CASE-COVER (MARKED)	28480	78100-41013
A16A2A1Y1	0410-0831	6	1	CRYSTAL-QUARTZ	28480	0410-0831
A17	78100A-#014	2	1	CHANNEL 14	28480	78100A-#014
A17A1MP6	78100-41014	2	1	CASE-COVER (MARKED)	28480	78100-41014
A17A2A1Y1	0410-0832	7	1	CRYSTAL-QUARTZ	28480	0410-0832
A18	78100A-#015	3	1	CHANNEL 15	28480	78100A-#015

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A18A1MP6	78100-41015	3	1	CASE-COVER (MARKED)	28480	78100-41015
A18A2A1Y1	0410-0833	8	1	CRYSTAL-QUARTZ	28480	0410-0833
A19	78100A-#016	4	1	CHANNEL 16	28480	78100A-#016
A19A1MP6	78100-41016	4	1	CASE-COVER (MARKED)	28480	78100-41016
A19A2A1Y1	0410-0834	9	1	CRYSTAL-QUARTZ	28480	0410-0834
A20	78100A-#017	5	1	CHANNEL 17	28480	78100A-#017
A20A1MP6	78100-41017	5	1	CASE-COVER (MARKED)	28480	78100-41017
A20A2A1Y1	0410-0835	0	1	CRYSTAL-QUARTZ	28480	0410-0835
A21	78100A-#018	6	1	CHANNEL 18	28480	78100A-#018
A21A1MP6	78100-41018	6	1	CASE-COVER (MARKED)	28480	78100-41018
A21A2A1Y1	0410-0836	1	1	CRYSTAL-QUARTZ	28480	0410-0836
A22	78100A-#019	7	1	CHANNEL 19	28480	78100A-#019
A22A1MP6	78100-41019	7	1	CASE-COVER (MARKED)	28480	78100-41019
A22A2A1Y1	0410-0837	2	1	CRYSTAL-QUARTZ	28480	0410-0837
A23	78100A-#020	0	1	CHANNEL 20	28480	78100A-#020
A23A1MP6	78100-41020	0	1	CASE-COVER (MARKED)	28480	78100-41020
A23A2A1Y1	0410-0838	3	1	CRYSTAL-QUARTZ	28480	0410-0838
A24	78100A-#021	1	1	DIAG BW 450-470 MHZ	28480	78100A-#021
A2A2A1	78100-60010	8	79	DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A2A2A4A1	78100-60011	9	1	ADD THE FOLLOWING: PCB-BW 450-470 MHZ (OPTION 021)	28480	78100-60011
A2A4A1MP3	78100-60061	9	1	DELETE THE FOLLOWING: BATTERY DOOR	28480	78100-60061
	78100-60062	0	2	ADD THE FOLLOWING: MISC. - 78100-60062 -DIAGNOSTIC DOOR	28480	78100-60062
A24A1A1	78100-60011	9		PCB-BW 450-470 MHZ (OPTION 021)	28480	78100-60011
A24A1C1	0160-3828	6	15	CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A24A1C2	0160-3747	8	35	CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A24A1C3	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A24A1C4	0160-4031	5	10	CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031
A24A1C5	0160-3667	1	5	CAPACITOR-FXD .15UF +-20% 50VDC CER	28480	0160-3667
A24A1C6	0180-2348	5	2	CAPACITOR-FXD 15UF+-10% 20VDC TA	28480	0180-2348
A24A1C7	0160-3751	4	10	CAPACITOR-FXD 2200PF +-5% 50VDC CER	28480	0160-3751
A24A1C8	0160-4040	6	20	CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A24A1C9	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A24A1C10	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A24A1C11	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A24A1C12	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A24A1C13	0160-4030	4	5	CAPACITOR-FXD 820PF +-5% 100VDC CER	28480	0160-4030
A24A1C14	0160-3751	4		CAPACITOR-FXD 2200PF +-5% 50VDC CER	28480	0160-3751
A24A1C15	0160-4031	5		CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031
A24A1C16	0160-3831	1	10	CAPACITOR-FXD .01UF +-20% 50VDC CER	28480	0160-3831
A24A1C17	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A24A1C18	0180-2378	1	10	CAPACITOR-FXD 6.8UF+-10% 10VDC TA	28480	0180-2378
A24A1C19	0180-2378	1		CAPACITOR-FXD 6.8UF+-10% 10VDC TA	28480	0180-2378
A24A1C20	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A24A1C21	0121-0461	5	15	CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A24A1C22	0160-3745	6	10	CAPACITOR-FXD 470PF +-20% 50VDC CER	28480	0160-3745
A24A1C23	0160-3746	7	20	CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A24A1C24	0160-3890	2	5	CAPACITOR-FXD 68PF +-10% 100VDC CER	28480	0160-3890
A24A1C25	0121-0471	7	10	CAPACITOR-V TRMR-CER 4.5-15PF 63V PC-MTG	28480	0121-0471
A24A1C26	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A24A1C27	0160-3745	6		CAPACITOR-FXD 470PF +-20% 50VDC CER	28480	0160-3745
A24A1C28	0121-0471	7		CAPACITOR-V TRMR-CER 4.5-15PF 63V PC-MTG	28480	0121-0471
A24A1C29	0160-3835	5	5	CAPACITOR-FXD 4.7PF +-5PF 100VDC CER	28480	0160-3835
A24A1C30	0121-0449	9	5	CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A24A1C31	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A24A1C32	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A24A1C33	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A24A1C34	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A24A1C40	0160-3831	1		CAPACITOR-FXD .01UF +-20% 50VDC CER	28480	0160-3831

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A24A1C41	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A24A1C42	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A24A1C43	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A24A1C44	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A24A1CR1	0122-0056	6	5	DIODE-VVC 6.8PF 10% C2/C30-MIN=2.5	04713	MV2101
A24A1CR2	1901-0040	1	15	DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A24A1CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A24A1CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A24A1CR6	1901-0460	9	5	DIODE-STABISTOR 30V 150MA DO-7	28480	1901-0460
A24A1CR7	1901-1051	6	5	DIODE-STEP RECOVERY	28480	1901-1051
A24A1CR8	1901-0535	9	5	DIODE-SM SIG SCHOTTKY	28480	1901-0535
A24A1L1	9100-2255	4	5	INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A24A1L2	9100-2254	3	2	INDUCTOR RF-CH-MLD 390NH 10% .105DX.26LG	28480	9100-2254
A24A1L3	9100-2247	4	5	INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A24A1L4	9140-0158	6	10	INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A24A1L5	9100-3183	9	5	INDUCTOR 35NH 10%	28480	9100-3183
A24A1L9	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A24A1L10	9100-2281	6	5	INDUCTOR RF-CH-MLD 270UH 10% .105DX.26LG	28480	9100-2281
A24A1L11	9100-2259	8	5	INDUCTOR RF-CH-MLD 1.5UH 10% .105DX.26LG	28480	9100-2259
A24A1Q1	1853-0259	1	45	TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A24A1Q2	1854-0642	8	5	TRANSISTOR NPN SI PD=625MW FT=80MHZ	04713	MPS-A17
A24A1Q5	0340-0453	9	5	INSULATOR-XSTR NYLON	28480	0340-0453
A24A1Q6	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A24A1Q6	1854-0491	5	20	TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A24A1Q7	1854-0529	0	5	TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0529
A24A1Q8	1853-0316	1	5	TRANSISTOR-DUAL PNP PD=500MW	28480	1853-0316
A24A1Q11	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A24A1Q12	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A24A1Q13	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A24A1Q14	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A24A1Q15	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A24A1Q16	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A24A1Q17	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A24A1Q18	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A24A1Q19	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A24A1Q20	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A24A1Q21	1854-0345	8	10	TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A24A1Q22	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A24A1R1	0698-7254	9	15	RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A24A1R2	0698-7247	0	20	RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A24A1R3	0698-7187	7	15	RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055
A24A1R4	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A24A1R5	0698-7270	9	5	RESISTOR 26.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2612-F
A24A1R6	0698-7286	7	25	RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A24A1R7	0698-7938	6	9	RESISTOR 390K 5% .125W CC TC=-600/+1137	01121	BB3945
A24A1R8	0698-3923	1	10	RESISTOR 100K .5% .05W F TC=0+-100	28480	0698-3923
A24A1R9	0698-3924	2	10	RESISTOR 133K .5% .05W F TC=0+-100	28480	0698-3924
A24A1R10	0698-3923	1		RESISTOR 100K .5% .05W F TC=0+-100	28480	0698-3923
A24A1R11	0698-3924	2		RESISTOR 133K .5% .05W F TC=0+-100	28480	0698-3924
A24A1R12	0698-7284	5	25	RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A24A1R13	0698-8036	7	5	RESISTOR 5.6M 5% .125W CC TC=-666/+1262	01121	BB5655
A24A1R14	0698-7939	7	5	RESISTOR 510K 5% .125W CC TC=-600/+1137	01121	BB5145
A24A1R15	0698-7097	8	18	RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055
A24A1R16	0698-7097	8		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055
A24A1R17	0698-7097	8		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055
A24A1R18	0698-7277	6	10	RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A24A1R19	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A24A1R20	0698-7288	9	25	RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A24A1R21	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A24A1R22	0698-7273	2	5	RESISTOR 34.8K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3482-F
A24A1R23	2100-2031	7	5	RESISTOR-TRMR 50K 10% C TOP-ADJ 1-TRN	73138	82PRS50K
A24A1R25	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A24A1R26	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A24A1R27	0698-7187	7		RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055
A24A1R28	0698-7236	7	10	RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A24A1R29	0698-7187	7		RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055
A24A1R30	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A24A1R31	0698-7940	0	10	RESISTOR 200K 5% .125W CC TC=-600/+1137	01121	BB2045
A24A1R32	0698-7940	0		RESISTOR 200K 5% .125W CC TC=-600/+1137	01121	BB2045
A24A1R33	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A24A1R34	0698-7281	2	15	RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
A24A1R35	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A24A1R36	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A24A1R37	0698-7260	7	10	RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A24A1R38	2100-2655	1	5	RESISTOR-TRMR 100K 10% C TOP-ADJ 1-TRN	73138	82PR100K
A24A1R39	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A24A1R40	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A24A1R41	0698-5345	5	5	RESISTOR 4.3M 5% .125W CC TC=-666/+1262	28480	0698-5345
A24A1R42	0698-7229	8	15	RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A24A1R43	0698-7250	5	5	RESISTOR 3.83K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3831-F
A24A1R44	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A24A1R45	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A24A1R46	0698-7281	2		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
A24A1R47	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A24A1R48	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A24A1R49	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A24A1R49	0698-7938	6		RESISTOR 390K 5% .125W CC TC=-600/+1137	01121	BR3945
A24A1R50	0698-7097	8		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BR1055
A24A1R52	0698-7281	2		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
A24A1R53	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A24A1R54	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A24A1R55	2100-1788	9	5	RESISTOR-TRMR 500 10% C TOP-ADJ 1-TRN	73138	82PRS00
A24A1R56	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A24A1R57	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A24A1R58	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A24A1R59	0698-6592	6	5	RESISTOR 6.8M 5% .125W CC TC=-666/+1262	28480	0698-6592
A24A1R60	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A24A1R61	0698-7965	9	5	RESISTOR 330K 5% .125W CC TC=-600/+1137	28480	0698-7965
A24A1U1	1826-0015	0	5	IC OP AMP SPLC 16-DIP-C PKG	3L585	CA3060D
A24A1U2	78100-00010	2	5	PC BOARD, BLANK	28480	78100-00010
A24A1VR1	1902-1277	0	5	DIODE-ZNR 5.62V 2% DO-7	28480	1902-1277
A24A1XU1	1200-0607	0	5	SOCKET-IC 16-CONT DIP DIP-SLDR	28480	1200-0607
A24A1XY1	1200-0445	4	5	SOCKET-XSTR 3-CONT TO-5 DIP-SLDR	28480	1200-0445
MISCELLANEOUS						
	0340-0572	3	150	INSULATOR-BEAD 7052-GL BLUE	28480	0340-0572
	9211-0484	2	3	BOX-INK STYLUS	28480	9211-0484
	9220-0858	3	10	BINS-FOAM INSERT	28480	9220-0858
	78100-00130	7	1	LABEL-PC BOARD	28480	78100-00130
A26	78100A-#035	7	1	LOAN CHANNEL S1	28480	78100A-#035
A26A1MP6	78100-40201	7	2	CASE-COVER	28480	78100-40201
A26A2A1Y1	0410-0813	4	1	CRYSTAL-QUARTZ	28480	0410-0813
A27	78100A-#036	8	1	LOAN CHANNEL S2	28480	78100A-#036
A27A1MP6	78100-40202	8	2	CASE-COVER	28480	78100-40202
A27A2A1Y1	0410-0816	7	1	CRYSTAL-QUARTZ	28480	0410-0816
A28	78100A-#037	9	1	CHANNEL 21	28480	78100A-#037
A28A1MP6	78100-41021	1	1	CASE-COVER (MARKED)	28480	78100-41021
A28A2A1Y1	0410-0839	4	1	CRYSTAL-QUARTZ	28480	0410-0839
A29	78100A-#038	0	1	CHANNEL 22	28480	78100A-#038
A29A1MP6	78100-41022	2	1	CASE-COVER (MARKED)	28480	78100-41022
A29A2A1Y1	0410-0840	7	1	CRYSTAL-QUARTZ	28480	0410-0840
A30	78100A-#039	1	1	CHANNEL 23	28480	78100A-#039
A30A1MP6	78100-41023	3	1	CASE-COVER (MARKED)	28480	78100-41023
A30A2A1Y1	0410-0841	8	1	CRYSTAL-QUARTZ	28480	0410-0841
A31	78100A-#040	4	1	CHANNEL 24	28480	78100A-#040
A31A1MP6	78100-41024	4	1	CASE-COVER (MARKED)	28480	78100-41024
A31A2A1Y1	0410-0842	9	1	CRYSTAL-QUARTZ	28480	0410-0842
A32	78100A-#041	5	1	CHANNEL 25	28480	78100A-#041
A32A1MP6	78100-41025	5	1	CASE-COVER (MARKED)	28480	78100-41025
A32A2A1Y1	0410-0843	0	1	CRYSTAL-QUARTZ	28480	0410-0843

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A33	78100A-#042	6	1	CHANNEL 26	28480	78100A-#042
A33A1MP6	78100-41026	6	1	CASE-COVER (MARKED)	28480	78100-41026
A33A2A1Y1	0410-0844	1	1	CRYSTAL-QUARTZ	28480	0410-0844
A34	78100A-#043	7	1	CHANNEL 27	28480	78100A-#043
A34A1MP6	78100-41027	7	1	CASE-COVER (MARKED)	28480	78100-41027
A34A2A1Y1	0410-0845	2	1	CRYSTAL-QUARTZ	28480	0410-0845
A35	78100A-#044	8	1	CHANNEL 28	28480	78100A-#044
A35A1MP6	78100-41028	8	1	CASE-COVER (MARKED)	28480	78100-41028
A35A2A1Y1	0410-0846	3	1	CRYSTAL-QUARTZ	28480	0410-0846
A36	78100A-#045	9	1	CHANNEL 29	28480	78100A-#045
A36A1MP6	78100-41029	9	1	CASE-COVER (MARKED)	28480	78100-41029
A36A2A1Y1	0410-0847	4	1	CRYSTAL-QUARTZ	28480	0410-0847
A37	78100A-#046	0	1	CHANNEL 30	28480	78100A-#046
A37A1MP6	78100-41030	2	1	CASE-COVER (MARKED)	28480	78100-41030
A37A2A1Y1	0410-0848	5	1	CRYSTAL-QUARTZ	28480	0410-0848
A38	78100A-#047	1	1	CHANNEL 31	28480	78100A-#047
A38A1MP6	78100-41031	3	1	CASE-COVER (MARKED)	28480	78100-41031
A38A2A1Y1	0410-0849	6	1	CRYSTAL-QUARTZ	28480	0410-0849
A39	78100A-#048	2	1	CHANNEL 32	28480	78100A-#048
A39A1MP6	78100-41032	4	1	CASE-COVER (MARKED)	28480	78100-41032
A39A2A1Y1	0410-0850	9	1	CRYSTAL-QUARTZ	28480	0410-0850
A40	78100A-#049	3	1	CHANNEL 33	28480	78100A-#049
A40A1MP6	78100-41178	9	1	CASE-COVER (MARKED)	28480	78100-41178
A40A2A1Y1	0410-1041	2	1	CRYSTAL-QUARTZ	28480	0410-1041
A41	78100A-#050	6	1	CHANNEL 34	28480	78100A-#050
A41A1MP6	78100-41179	0	1	CASE-COVER (MARKED)	28480	78100-41179
A41A2A1Y1	0410-1040	1	1	CRYSTAL-QUARTZ	28480	0410-1040
A42	78100A-#051	7	1	CHANNEL 35	28480	78100A-#051
A42A1MP6	78100-41180	3	1	CASE-COVER (MARKED)	28480	78100-41180
A42A2A1Y1	0410-1083	2	1	CRYSTAL-QUARTZ	28480	0410-1083
A43	78100A-#052	8	1	CHANNEL 36	28480	78100A-#052
A43A1MP6	78100-41181	4	1	CASE-COVER (MARKED)	28480	78100-41181
A43A2A1Y1	0410-1082	1	1	CRYSTAL-QUARTZ	28480	0410-1082
A44	78100A-#053	9	1	CHANNEL 37	28480	78100A-#053
A44A1MP6	78100-41182	5	1	CASE-COVER (MARKED)	28480	78100-41182
A44A2A1Y1	0410-1081	0	1	CRYSTAL-QUARTZ	28480	0410-1081
A45	78100A-#054	0	1	CHANNEL 38	28480	78100A-#054
A45A1MP6	78100-41183	6	1	CASE-COVER (MARKED)	28480	78100-41183
A45A2A1Y1	0410-1080	9	1	CRYSTAL-QUARTZ	28480	0410-1080
A46	78100A-#055	1	1	CHANNEL 39	28480	78100A-#055
A46A1MP6	78100-41184	7	1	CASE-COVER (MARKED)	28480	78100-41184
A46A2A1Y1	0410-1079	6	1	CRYSTAL-QUARTZ	28480	0410-1079
A47	78100A-#056	2	1	CHANNEL 40	28480	78100A-#056
A47A1MP6	78100-41185	8	1	CASE-COVER (MARKED)	28480	78100-41185

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A47A2A1Y1	0410-1078	5	1	CRYSTAL-QUARTZ	28480	0410-1078
A48	78100A-#057	3	1	CHANNEL 41	28480	78100A-#057
A48A1MP6	78100-41186	9	1	CASE-COVER (MARKED)	28480	78100-41186
A48A2A1Y1	0410-1077	4	1	CRYSTAL-QUARTZ	28480	0410-1077
A49	78100A-#058	4	1	CHANNEL 42	28480	78100A-#058
A49A1MP6	78100-41187	0	1	CASE-COVER (MARKED)	28480	78100-41187
A49A2A1Y1	0410-1076	3	1	CRYSTAL-QUARTZ	28480	0410-1076
A50	78100A-#059	5	1	CHANNEL 43	28480	78100A-#059
A50A1MP6	78100-41188	1	1	CASE-COVER (MARKED)	28480	78100-41188
A50A2A1Y1	0410-1075	2	1	CRYSTAL-QUARTZ	28480	0410-1075
A51	78100A-#060	8	1	CHANNEL 44	28480	78100A-#060
A51A1MP6	78100-41189	2	1	CASE-COVER (MARKED)	28480	78100-41189
A51A2A1Y1	0410-1074	1	1	CRYSTAL-QUARTZ	28480	0410-1074
A52	78100A-#061	9	1	CHANNEL 45	28480	78100A-#061
A52A1MP6	78100-41191	6	1	CASE-COVER (MARKED)	28480	78100-41191
A52A2A1Y1	0410-1073	0	1	CRYSTAL-QUARTZ	28480	0410-1073
A53	78100A-#062	0	1	CHANNEL 46	28480	78100A-#062
A53A1MP6	78100-41192	7	1	CASE-COVER (MARKED)	28480	78100-41192
A53A2A1Y1	0410-1072	9	1	CRYSTAL-QUARTZ	28480	0410-1072
A54	78100A-#063	1	1	CHANNEL 47	28480	78100A-#063
A54A1MP6	78100-41193	8	1	CASE-COVER (MARKED)	28480	78100-41193
A54A2A1Y1	0410-1071	8	1	CRYSTAL-QUARTZ	28480	0410-1071
A55	78100A-#064	2	1	CHANNEL 48	28480	78100A-#064
A55A1MP6	78100-41194	9	1	CASE-COVER (MARKED)	28480	78100-41194
A55A2A1Y1	0410-1070	7	1	CRYSTAL-QUARTZ	28480	0410-1070
A56	78100A-#065	3	1	CHANNEL 49	28480	78100A-#065
A56A1MP6	78100-41195	0	1	CASE-COVER (MARKED)	28480	78100-41195
A56A2A1Y1	0410-1069	4	1	CRYSTAL-QUARTZ	28480	0410-1069
A57	78100A-#066	4	1	CHANNEL 50	28480	78100A-#066
A57A1MP6	78100-41196	1	1	CASE-COVER (MARKED)	28480	78100-41196
A57A2A1Y1	0410-1068	3	1	CRYSTAL-QUARTZ	28480	0410-1068
A58	78100A-#067	5	1	CHANNEL 51	28480	78100A-#067
A58A1MP6	78100-41197	2	1	CASE-COVER (MARKED)	28480	78100-41197
A58A2A1Y1	0410-1067	2	1	CRYSTAL-QUARTZ	28480	0410-1067
A59	78100A-#068	6	1	CHANNEL 52	28480	78100A-#068
A59A1MP6	78100-41198	3	1	CASE-COVER (MARKED)	28480	78100-41198
A59A2A1Y1	0410-1066	1	1	CRYSTAL-QUARTZ	28480	0410-1066
A60	78100A-#069	7	1	CHANNEL 53	28480	78100A-#069
A60A1MP6	78100-41199	4	1	CASE-COVER (MARKED)	28480	78100-41199
A60A2A1Y1	0410-1065	0	1	CRYSTAL-QUARTZ	28480	0410-1065
A61	78100A-#072	2	1	CSA APPROVED	28480	78100A-#072
	7120-5969	3	1	LABEL-FR WARNING	28480	7120-5969
A62	78100A-#073	3	1	CHANNEL 56	28480	78100A-#073
A62A1MP6	78100-41246	2	1	CASE-COVER (MARKED)	28480	78100-41246

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A62A2A1Y1	0410-1233	4	1	CRYSTAL-QUARTZ	28480	0410-1233
A63	78100A-#074	4	1	CHANNEL S7	28480	78100A-#074
A63A1MP6	78100-41247	3	1	CASE-COVER (MARKED)	28480	78100-41247
A63A2A1Y1	0410-1234	5	1	CRYSTAL-QUARTZ	28480	0410-1234
A64	78100A-#075	5	1	CHANNEL S3	28480	78100A-#075
A64A1MP6	78100-41200	8	1	CASE-COVER (MARKED)	28480	78100-41200
A64A2A1Y1	0410-1042	3	1	CRYSTAL-QUARTZ	28480	0410-1042
A65	78100A-#076	6	1	CHANNEL S4	28480	78100A-#076
A65A1MP6	78100-41201	9		CASE-COVER (MARKED)	28480	78100-41201
A65A2A1Y1	0410-1043	4	1	CRYSTAL-QUARTZ	28480	0410-1043
A66	78100A-#077	7	1	CHANNEL S5	28480	78100A-#077
A66A1MP6	78100-41202	0		CASE-COVER (MARKED)	28480	78100-41202
A66A2A1Y1	0410-1044	5	1	CRYSTAL-QUARTZ	28480	0410-1044
A68	78100A-#080	2	1	TRANS U.S. FREQ PACE PASS	28480	78100A-#080
A68A0	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A68A0	78100-60014	2	1	ADD THE FOLLOWING: PCB-450-470 MHZ (OPTION 080)	28480	78100-60014
A68A1C1	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A68A1C2	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A68A1C3	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A68A1C4	0160-4031	5		CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031
A68A1C5	0160-3667	1		CAPACITOR-FXD .15UF +-20% 50VDC CER	28480	0160-3667
A68A1C6	0180-2375	4	3	CAPACITOR-FXD 2.2UF+-10% 25VDC TA	28480	0180-2375
A68A1C7	0160-3751	8		CAPACITOR-FXD 2200PF +-5% 50VDC CER	28480	0160-3751
A68A1C8	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A68A1C9	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A68A1C10	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A68A1C11	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A68A1C12	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A68A1C13	0160-4030	4		CAPACITOR-FXD 820PF +-5% 100VDC CER	28480	0160-4030
A68A1C14	0160-3751	4		CAPACITOR-FXD 2200PF +-5% 50VDC CER	28480	0160-3751
A68A1C15	0160-4031	5		CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031
A68A1C16	0160-3831	1		CAPACITOR-FXD .01UF +-20% 50VDC CER	28480	0160-3831
A68A1C17	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A68A1C18	0180-2378	1		CAPACITOR-FXD 6.8UF+-10% 10VDC TA	28480	0180-2378
A68A1C19	0180-2378	1		CAPACITOR-FXD 6.8UF+-10% 10VDC TA	28480	0180-2378
A68A1C20	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A68A1C21	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A68A1C22	0160-3745	6		CAPACITOR-FXD 470PF +-20% 50VDC CER	28480	0160-3745
A68A1C23	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A68A1C24	0160-3890	2		CAPACITOR-FXD 68PF +-10% 100VDC CER	28480	0160-3890
A68A1C25	0121-0471	7		CAPACITOR-V TRMR-CER 4.5-15PF 63V PC-MTG	28480	0121-0471
A68A1C26	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A68A1C28	0121-0471	7		CAPACITOR-V TRMR-CER 4.5-15PF 63V PC-MTG	28480	0121-0471
A68A1C29	0160-3835	5		CAPACITOR-FXD 4.7PF +-5PF 100VDC CER	28480	0160-3835
A68A1C30	0121-0449	9		CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A68A1C31	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A68A1C32	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A68A1C33	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A68A1C34	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A68A1C40	0160-3831	1		CAPACITOR-FXD .01UF +-20% 50VDC CER	28480	0160-3831
A68A1C41	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A68A1C42	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A68A1C43	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A68A1C44	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A68A1C73	0160-3745	6		CAPACITOR-FXD 470PF +-20% 50VDC CER	28480	0160-3745
A68A1CR1	0122-0056	6		DIODE-VVC 6.8PF 10% C2/C30-MIN=2.5	04713	MV2101
A68A1CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A68A1CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A68A1CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A68A1CR6	1901-0460	9		DIODE-STABISTOR 30V 150MA DO-7	28480	1901-0460
A68A1CR7	1901-1051	6		DIODE-STEP RECOVERY	28480	1901-1051
A68A1CR8	1901-0535	9		DIODE-SM SIG SCHOTTKY	28480	1901-0535

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A68A1L1	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A68A1L2	9100-2254	3		INDUCTOR RF-CH-MLD 390NH 10% .105DX.26LG	28480	9100-2254
A68A1L3	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A68A1L4	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A68A1L5	9100-3183	9		INDUCTOR 35NH 10%	28480	9100-3183
A68A1L9	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A68A1L10	9100-2281	6		INDUCTOR RF-CH-MLD 270UH 10% .105DX.26LG	28480	9100-2281
A68A1L11	9100-2259	8		INDUCTOR RF-CH-MLD 1.5UH 10% .105DX.26LG	28480	9100-2259
A68A1Q1	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A68A1Q2	1854-0642	8		TRANSISTOR NPN SI PD=625MW FT=80MHZ	04713	MPS-A17
	0340-0453	9		INSULATOR-XSTR NYLON	28480	0340-0453
A68A1Q5	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A68A1Q6	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A68A1Q7	1854-0529	0		TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0529
A68A1Q8	1853-0316	1		TRANSISTOR-DUAL PNP PD=500MW	28480	1853-0316
A68A1Q11	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A68A1Q12	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A68A1Q13	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A68A1Q14	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A68A1Q15	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A68A1Q16	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A68A1Q17	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A68A1Q18	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A68A1Q19	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A68A1Q20	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A68A1Q21	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A68A1Q22	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A68A1R1	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A68A1R2	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A68A1R3	0698-7187	7		RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BR2055
A68A1R4	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A68A1R5	0698-7270	9		RESISTOR 26.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2612-F
A68A1R6	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A68A1R7	0698-7938	6		RESISTOR 390K 5% .125W CC TC=-600/+1137	01121	BR3945
A68A1R8	0698-3923	1		RESISTOR 100K .5% .05W F TC=0+-100	28480	0698-3923
A68A1R9	0698-3924	2		RESISTOR 133K .5% .05W F TC=0+-100	28480	0698-3924
A68A1R10	0698-3923	1		RESISTOR 100K .5% .05W F TC=0+-100	28480	0698-3923
A68A1R11	0698-3924	2		RESISTOR 133K .5% .05W F TC=0+-100	28480	0698-3924
A68A1R12	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A68A1R13	0698-8036	7		RESISTOR 5.6M 5% .125W CC TC=-666/+1262	01121	BR5655
A68A1R14	0698-7939	7		RESISTOR 510K 5% .125W CC TC=-600/+1137	01121	BR5145
A68A1R15	0698-7097	8		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BR1055
A68A1R16	0698-7097	8		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BR1055
A68A1R17	0698-7097	8		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BR1055
A68A1R18	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A68A1R19	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A68A1R20	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A68A1R21	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A68A1R22	0698-7273	2		RESISTOR 34.8K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3482-F
A68A1R23	2100-2031	7		RESISTOR-TRMR 50K 10% C TOP-ADJ 1-TRN	73138	B2PR50K
A68A1R24	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A68A1R25	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A68A1R26	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A68A1R27	0698-7187	7		RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BR2055
A68A1R28	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A68A1R29	0698-7187	7		RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BR2055
A68A1R30	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A68A1R31	0698-7940	0		RESISTOR 200K 5% .125W CC TC=-600/+1137	01121	BR2045
A68A1R32	0698-7940	0		RESISTOR 200K 5% .125W CC TC=-600/+1137	01121	BR2045
A68A1R33	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A68A1R34	0698-7281	2		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
A68A1R35	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A68A1R36	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A68A1R37	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A68A1R38	2100-2655	1		RESISTOR-TRMR 100K 10% C TOP-ADJ 1-TRN	73138	B2PR100K
A68A1R39	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A68A1R40	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A68A1R41	0698-5345	5		RESISTOR 4.3M 5% .125W CC TC=-666/+1262	28480	0698-5345
A68A1R42	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A68A1R43	0698-7250	5		RESISTOR 3.83K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3831-F
A68A1R44	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A68A1R45	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A68A1R46	0698-7281	2		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
A68A1R47	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A68A1R48	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A68A1R49	0698-7938	6		RESISTOR 390K 5% .125W CC TC=-600/+1137	01121	BR3945
A68A1R50	0698-7097	8		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BR1055

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A68A1R52	0698-7281	2		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
A68A1R53	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A68A1R54	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A68A1R55	2100-1788	9		RESISTOR-TRMR 500 10% C TOP-ADJ 1-TRN	73138	82PR500
A68A1R56	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A68A1R57	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A68A1R58	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A68A1R59	0698-6592	6		RESISTOR 6.8M 5% .125W CC TC=-666/+1262	28480	0698-6592
A68A1R60	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A68A1R61	0698-7965	9		RESISTOR 330K 5% .125W CC TC=-600/+1137	28480	0698-7965
A68A1U1	1826-0015	0		IC OP AMP SPCL 16-DIP-C PKG	3L585	CA3060D
A68A1U2	78100-00010	2		PC BOARD-BLANK	28480	78100-00010
A68A1VR1	1902-1277	0		DIODE-ZNR 5.62V 2% DO-7	28480	1902-1277
A68A1XU1	1200-0607	0		SOCKET-IC 16-CONT DIP DIP-SLDR	28480	1200-0607
A68A1XY1	1200-0445	4		SOCKET-XSTR 3-CONT TO-5 DIP-SLDR	28480	1200-0445
				MISCELLANEOUS		
	0340-0572	3		INSULATOR-READ 7052-GL BLUE	28480	0340-0572
	9220-0858	3		BINS-FOAM INSERT	28480	9220-0858
	78100-00170	5		BINS-LABEL	28480	78100-00170
A69	78100A-#081	3	1	TRANS EUROPE FREQ	28480	78100A-#081
A69A2A1	78100-60012	0	77	DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60012
A69A1	78100-60015	3	1	ADD THE FOLLOWING: PCB-430-450 MHZ (OPTION 081)	28480	78100-60015
A69A1C1	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A69A1C2	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A69A1C3	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A69A1C4	0160-4031	5		CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031
A69A1C5	0160-3667	1		CAPACITOR-FXD .15UF +-20% 50VDC CER	28480	0160-3667
A69A1C6	0180-2375	8		CAPACITOR-FXD 2.2UF+-10% 25VDC TA	28480	0180-2375
A69A1C7	0160-3751	4		CAPACITOR-FXD 2200PF +-5% 50VDC CER	28480	0160-3751
A69A1C8	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A69A1C9	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A69A1C10	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A69A1C11	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A69A1C12	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A69A1C13	0160-4030	4		CAPACITOR-FXD 820PF +-5% 100VDC CER	28480	0160-4030
A69A1C14	0160-3751	4		CAPACITOR-FXD 2200PF +-5% 50VDC CER	28480	0160-3751
A69A1C15	0160-4031	5		CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031
A69A1C16	0160-3831	1		CAPACITOR-FXD .01UF +-20% 50VDC CER	28480	0160-3831
A69A1C17	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A69A1C18	0180-2378	1		CAPACITOR-FXD 6.8UF+-10% 10VDC TA	28480	0180-2378
A69A1C19	0180-2378	1		CAPACITOR-FXD 6.8UF+-10% 10VDC TA	28480	0180-2378
A69A1C20	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A69A1C21	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A69A1C22	0160-3745	6		CAPACITOR-FXD 470PF +-20% 50VDC CER	28480	0160-3745
A69A1C23	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A69A1C24	0160-3890	2		CAPACITOR-FXD 68PF +-10% 100VDC CER	28480	0160-3890
A69A1C25	0121-0471	7		CAPACITOR-V TRMR-CER 4.5-15PF 63V PC-MTG	28480	0121-0471
A69A1C26	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A69A1C27	0160-3745	6		CAPACITOR-FXD 470PF +-20% 50VDC CER	28480	0160-3745
A69A1C28	0121-0471	7		CAPACITOR-V TRMR-CER 4.5-15PF 63V PC-MTG	28480	0121-0471
A69A1C29	0160-3835	5		CAPACITOR-FXD 4.7PF +-.5PF 100VDC CER	28480	0160-3835
A69A1C30	0121-0449	9		CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A69A1C31	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A69A1C32	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A69A1C33	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A69A1C34	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A69A1C40	0160-3831	1		CAPACITOR-FXD .01UF +-20% 50VDC CER	28480	0160-3831
A69A1C41	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A69A1C42	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A69A1C43	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A69A1C44	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A69A1CR1	0122-0056	6		DIODE-VVC 6.8PF 10% C2/C30-MIN=2.5	04713	MV2101
A69A1CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A69A1CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A69A1CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A69A1CR6	1901-0460	9		DIODE-STABISTOR 30V 150MA DO-7	28480	1901-0460
A69A1CR7	1901-1051	6		DIODE-STEP RECOVERY	28480	1901-1051
A69A1CR8	1901-0535	9		DIODE-SM SIG SCHOTTKY	28480	1901-0535

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A69A1L1	9100-2256	5	3	INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG	28480	9100-2256
A69A1L2	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A69A1L3	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A69A1L4	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A69A1L5	9100-3183	9		INDUCTOR 35NH 10%	28480	9100-3183
A69A1L9	9140-0158	6	INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158	
A69A1L10	9100-2281	6	INDUCTOR RF-CH-MLD 270UH 10% .105DX.26LG	28480	9100-2281	
A69A1L11	9100-2259	8	INDUCTOR RF-CH-MLD 1.5UH 10% .105DX.26LG	28480	9100-2259	
A69A1Q1	1853-0259	1	TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259	
A69A1Q2	1854-0642	8	TRANSISTOR NPN SI PD=625MW FT=80MHZ	04713	MPS-A17	
	0340-0453	9	INSULATOR-XSTR NYLON	28480	0340-0453	
A69A1Q5	1853-0259	1	TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259	
A69A1Q6	1854-0491	5	TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491	
A69A1Q7	1854-0529	0	TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0529	
A69A1Q8	1853-0316	1	TRANSISTOR-DUAL PNP PD=500MW	28480	1853-0316	
A69A1Q11	1853-0259	1	TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259	
A69A1Q12	1853-0259	1	TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259	
A69A1Q13	1853-0259	1	TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259	
A69A1Q14	1854-0491	5	TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491	
A69A1Q15	1854-0491	5	TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491	
A69A1Q16	1853-0259	1	TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259	
A69A1Q17	1853-0259	1	TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259	
A69A1Q18	1853-0259	1	TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259	
A69A1Q19	1853-0259	1	TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259	
A69A1Q20	1854-0491	5	TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491	
A69A1Q21	1854-0345	8	TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179	
A69A1Q22	1854-0345	8	TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179	
A69A1R1	0698-7254	9	RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F	
A69A1R2	0698-7247	0	RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F	
A69A1R3	0698-7187	7	RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055	
A69A1R4	0698-7254	9	RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F	
A69A1R5	0698-7270	9	RESISTOR 26.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2612-F	
A69A1R6	0698-7286	7	RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F	
A69A1R7	0698-7938	6	RESISTOR 390K 5% .125W CC TC=-600/+1137	01121	BB3945	
A69A1R8	0698-3923	1	RESISTOR 100K .5% .05W F TC=0+-100	28480	0698-3923	
A69A1R9	0698-3924	2	RESISTOR 133K .5% .05W F TC=0+-100	28480	0698-3924	
A69A1R10	0698-3923	1	RESISTOR 100K .5% .05W F TC=0+-100	28480	0698-3923	
A69A1R11	0698-3924	2	RESISTOR 133K .5% .05W F TC=0+-100	28480	0698-3924	
A69A1R12	0698-7284	5	RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F	
A69A1R13	0698-8036	7	RESISTOR 5.6M 5% .125W CC TC=-666/+1262	01121	BB5655	
A69A1R14	0698-7939	7	RESISTOR 510K 5% .125W CC TC=-600/+1137	01121	BB5145	
A69A1R15	0698-7097	8	RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055	
A69A1R16	0698-7097	8	RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055	
A69A1R17	0698-7097	8	RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055	
A69A1R18	0698-7277	6	RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F	
A69A1R19	0698-7286	7	RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F	
A69A1R20	0698-7288	9	RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F	
A69A1R21	0698-7288	9	RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F	
A69A1R22	0698-7273	2	RESISTOR 34.0K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3482-F	
A69A1R23	2100-2031	7	RESISTOR-TRMR 50K 10% C TOP-ADJ 1-TRN	73138	82PRS0K	
A69A1R24	0698-7277	6	RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F	
A69A1R25	0698-7284	5	RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F	
A69A1R26	0698-7284	5	RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F	
A69A1R27	0698-7187	7	RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055	
A69A1R28	0698-7236	7	RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F	
A69A1R29	0698-7187	7	RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055	
A69A1R30	0698-7236	7	RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F	
A69A1R31	0698-7940	0	RESISTOR 200K 5% .125W CC TC=-600/+1137	01121	BB2045	
A69A1R32	0698-7940	0	RESISTOR 200K 5% .125W CC TC=-600/+1137	01121	BB2045	
A69A1R33	0698-7284	5	RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F	
A69A1R34	0698-7281	2	RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G	
A69A1R35	0698-7286	7	RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F	
A69A1R36	0698-7286	7	RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F	
A69A1R37	0698-7260	7	RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F	
A69A1R38	2100-2655	1	RESISTOR-TRMR 100K 10% C TOP-ADJ 1-TRN	73138	82PR100K	
A69A1R39	0698-7284	5	RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F	
A69A1R40	0698-7286	7	RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F	
A69A1R41	0698-5345	5	RESISTOR 4.3M 5% .125W CC TC=-666/+1262	28480	0698-5345	
A69A1R42	0698-7229	8	RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F	
A69A1R43	0698-7250	5	RESISTOR 3.83K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3831-F	
A69A1R44	0698-7247	0	RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F	
A69A1R45	0698-7247	0	RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F	
A69A1R46	0698-7281	2	RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G	
A69A1R47	0698-7288	9	RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F	
A69A1R48	0698-7288	9	RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F	
A69A1R49	0698-7938	6	RESISTOR 390K 5% .125W CC TC=-600/+1137	01121	BB3945	
A69A1R50	0698-7097	8	RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055	

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A69A1R52	0698-7281	2		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
A69A1R53	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A69A1R54	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511-F
A69A1R55	2100-1788	9		RESISTOR-TRMR 500 10% C TOP-ADJ 1-TRN	73138	82PR500
A69A1R56	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A69A1R57	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A69A1R58	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511-F
A69A1R59	0698-6592	6		RESISTOR 6.8M 5% .125W CC TC=-666/+1262	28480	0698-6592
A69A1R60	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A69A1R61	0698-7965	9		RESISTOR 330K 5% .125W CC TC=-600/+1137	28480	0698-7965
A69A1U1	1826-0015	0		IC OP AMP SPCL 16-DIP-C PKG	3L585	CA3060D
A69A1U2	78100-00010	2		PC BOARD-BLANK	28480	78100-00010
A69A1VR1	1902-1277	0		DIODE-ZNR 5.62V 2% DO-7	28480	1902-1277
A69A1XU1	1200-0607	0		SOCKET-IC 16-CONT DIP DIP-SLDR	28480	1200-0607
A69A1XY1	1200-0445	4		SOCKET-XSTR 3-CONT TO-5 DIP-SLDR	28480	1200-0445
				MISCELLANEOUS		
	0340-0572	3		INSULATOR-BEAD 7052-GL BLUE	28480	0340-0572
	9211-0484	2		BOX-INK STYLUS	28480	9211-0484
	9220-0858	3		BINS-FDAM INSERT	28480	9220-0858
	78100-00180	7	1	BINS-LABEL	28480	78100-00180
A70	78100A-#082	4	1	CHANNEL 54	28480	78100A-#082
A70A1MP6	78100-41216	6	1	CASE-COVER (MARKED)	28480	78100-41216
A70A2A1Y1	0410-0799	5	1	CRYSTAL-QUARTZ	28480	0410-0799
A71	78100A-#083	5	1	CHANNEL 55	28480	78100A-#083
A71A1MP6	78100-41217	7	1	CASE-COVER (MARKED)	28480	78100-41217
A71A2A1Y1	0410-0798	4	1	CRYSTAL-QUARTZ	28480	0410-0798
A72	78100A-#084	6	1	CHANNEL 56	28480	78100A-#084
A72A1MP6	78100-41218	8	1	CASE-COVER (MARKED)	28480	78100-41218
A72A2A1Y1	0410-0797	3	1	CRYSTAL-QUARTZ	28480	0410-0797
A73	78100A-#085	7	1	CHANNEL 57	28480	78100A-#085
A73A1MP6	78100-41219	9	1	CASE-COVER (MARKED)	28480	78100-41219
A73A2A1Y1	0410-0796	2	1	CRYSTAL-QUARTZ	28480	0410-0796
A74	78100A-#086	8	1	CHANNEL 58	28480	78100A-#086
A74A1MP6	78100-41220	2	1	CASE-COVER (MARKED)	28480	78100-41220
A74A2A1Y1	0410-0795	1	1	CRYSTAL-QUARTZ	28480	0410-0795
A75	78100A-#087	9	1	CHANNEL 59	28480	78100A-#087
A75A1MP6	78100-41221	3	1	CASE-COVER (MARKED)	28480	78100-41221
A75A2A1Y1	0410-0794	0	1	CRYSTAL-QUARTZ	28480	0410-0794
A76	78100A-#088	0	1	CHANNEL 60	28480	78100A-#088
A76A1MP6	78100-41227	9	1	CASE-COVER (MARKED)	28480	78100-41227
A76A2A1Y1	0410-1237	8	1	CRYSTAL-QUARTZ	28480	0410-1237
A77	78100A-#089	1	1	CHANNEL 61	28480	78100A-#089
A77A1MP6	78100-41228	0	1	CASE-COVER (MARKED)	28480	78100-41228
A77A2A1Y1	0410-1238	9	1	CRYSTAL-QUARTZ	28480	0410-1238
A78	78100A-#091	5	1	CHANNEL 62	28480	78100A-#091
A78A1MP6	78100-41229	1	1	CASE-COVER (MARKED)	28480	78100-41229
A78A2A1Y1	0410-1239	0	1	CRYSTAL-QUARTZ	28480	0410-1239
A79	78100A-#093	7	1	CHANNEL 63	28480	78100A-#093
A79A1MP6	78100-41230	4	1	CASE-COVER (MARKED)	28480	78100-41230
A79A2A1Y1	0410-1240	3	1	CRYSTAL-QUARTZ	28480	0410-1240

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
AB0	78100A-#094	8	1	CHANNEL 64	28480	78100A-#094
AB0A1MP6	78100-41231	5	1	CASE-COVER (MARKED)	28480	78100-41231
AB0A2A1Y1	0410-1241	4	1	CRYSTAL-QUARTZ	28480	0410-1241
AB1	78100A-#095	9	1	CHANNEL 65	28480	78100A-#095
AB1A1MP6	78100-41232	6	1	CASE-COVER (MARKED)	28480	78100-41232
AB1A2A1Y1	0410-1242	5	1	CRYSTAL-QUARTZ	28480	0410-1242
AB2	78100A-#097	1	1	CHANNEL 66	28480	78100A-#097
AB2A1MP6	78100-41233	7	1	CASE-COVER (MARKED)	28480	78100-41233
AB2A2A1Y1	0410-1243	6	1	CRYSTAL-QUARTZ	28480	0410-1243
AB3	78100A-#098	2	1	CHANNEL 67	28480	78100A-#098
AB3A1MP6	78100-41234	8	1	CASE-COVER (MARKED)	28480	78100-41234
AB3A2A1Y1	0410-1244	7	1	CRYSTAL-QUARTZ	28480	0410-1244
AB4	78100A-#099	3	1	DIAG BW 430-450 MHZ	28480	78100A-#099
AB4A2A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
AB4A1	78100-60013	1	1	ADD THE FOLLOWING: PC BOARD-430-450 MHZ (OPTION 099)	28480	78100-60013
A1MP3	78100-60062	0		DIAGNOSTIC DOOR	28480	78100-60062
AB4A1C1	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
AB4A1C2	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
AB4A1C3	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
AB4A1C4	0160-4031	5		CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031
AB4A1C5	0160-3667	1		CAPACITOR-FXD .15UF +-20% 50VDC CER	28480	0160-3667
AB4A1C6	0180-2348	5		CAPACITOR-FXD 15UF+-10% 20VDC TA	28480	0180-2348
AB4A1C7	0160-3751	4		CAPACITOR-FXD 2200PF +-5% 50VDC CER	28480	0160-3751
AB4A1C8	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
AB4A1C9	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
AB4A1C10	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
AB4A1C11	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
AB4A1C12	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
AB4A1C13	0160-4030	4		CAPACITOR-FXD 820PF +-5% 100VDC CER	28480	0160-4030
AB4A1C14	0160-3751	4		CAPACITOR-FXD 2200PF +-5% 50VDC CER	28480	0160-3751
AB4A1C15	0160-4031	5		CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031
AB4A1C16	0160-3831	1		CAPACITOR-FXD .01UF +-20% 50VDC CER	28480	0160-3831
AB4A1C17	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
AB4A1C18	0180-2378	1		CAPACITOR-FXD 6.8UF+-10% 10VDC TA	28480	0180-2378
AB4A1C19	0180-2378	1		CAPACITOR-FXD 6.8UF+-10% 10VDC TA	28480	0180-2378
AB4A1C20	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
AB4A1C21	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
AB4A1C22	0160-3745	6		CAPACITOR-FXD 470PF +-20% 50VDC CER	28480	0160-3745
AB4A1C23	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
AB4A1C24	0160-3890	2		CAPACITOR-FXD 68PF +-10% 100VDC CER	28480	0160-3890
AB4A1C25	0121-0471	7		CAPACITOR-V TRMR-CER 4.5-15PF 63V PC-MTG	28480	0121-0471
AB4A1C26	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
AB4A1C27	0160-3745	6		CAPACITOR-FXD 470PF +-20% 50VDC CER	28480	0160-3745
AB4A1C28	0121-0471	7		CAPACITOR-V TRMR-CER 4.5-15PF 63V PC-MTG	28480	0121-0471
AB4A1C29	0160-3835	5		CAPACITOR-FXD 4.7PF +-1.5PF 100VDC CER	28480	0160-3835
AB4A1C30	0121-0449	9		CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
AB4A1C31	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
AB4A1C32	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
AB4A1C33	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
AB4A1C34	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
AB4A1C40	0160-3831	1		CAPACITOR-FXD .01UF +-20% 50VDC CER	28480	0160-3831
AB4A1C41	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
AB4A1C42	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
AB4A1C43	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
AB4A1C44	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
AB4A1CR1	0122-0056	6		DIODE-VVC 6.8PF 10% C2/C30-MIN=2.5	04713	MV2101
AB4A1CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
AB4A1CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
AB4A1CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
AB4A1CR6	1901-0460	9		DIODE-STABISTOR 30V 150MA DO-7	28480	1901-0460
AB4A1CR7	1901-1051	6		DIODE-STEP RECOVERY	28480	1901-1051
AB4A1CR8	1901-0535	9		DIODE-SH SIG SCHOTTKY	28480	1901-0535

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
AB4A1L1	9100-2256	5		INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG	28480	9100-2256
AB4A1L2	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
AB4A1L3	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
AB4A1L4	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
AB4A1L5	9100-3183	9		INDUCTOR 35NH 10%	28480	9100-3183
AB4A1L9	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
AB4A1L10	9100-2281	6		INDUCTOR RF-CH-MLD 270UH 10% .105DX.26LG	28480	9100-2281
AB4A1L11	9100-2259	8		INDUCTOR RF-CH-MLD 1.5UH 10% .105DX.26LG	28480	9100-2259
AB4A1Q1	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
AB4A1Q2	1854-0642	8		TRANSISTOR NPN SI PD=625MW FT=80MHZ	04713	MP5-A17
	0340-0453	9		INSULATOR-XSTR NYLON	28480	0340-0453
AB4A1Q5	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
AB4A1Q6	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
AB4A1Q7	1854-0529	0		TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0529
AB4A1Q8	1853-0316	1		TRANSISTOR-DUAL PNP PD=500MW	28480	1853-0316
AB4A1Q11	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
AB4A1Q12	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
AB4A1Q13	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
AB4A1Q14	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
AB4A1Q15	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
AB4A1Q16	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
AB4A1Q17	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
AB4A1Q18	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
AB4A1Q19	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
AB4A1Q20	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
AB4A1Q21	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
AB4A1Q22	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
AB4A1R1	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
AB4A1R2	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
AB4A1R3	0698-7187	7		RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055
AB4A1R4	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
AB4A1R5	0698-7270	9		RESISTOR 26.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2612-F
AB4A1R6	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
AB4A1R7	0698-7938	6		RESISTOR 390K 5% .125W CC TC=-600/+1137	01121	BB3945
AB4A1R8	0698-3923	2		RESISTOR 100K .5% .05W F TC=0+-100	28480	0698-3923
AB4A1R9	0698-3924	1		RESISTOR 133K .5% .05W F TC=0+-100	28480	0698-3924
AB4A1R10	0698-3923	1		RESISTOR 100K .5% .05W F TC=0+-100	28480	0698-3923
AB4A1R11	0698-3924	2		RESISTOR 133K .5% .05W F TC=0+-100	28480	0698-3924
AB4A1R12	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
AB4A1R13	0698-8036	7		RESISTOR 5.6M 5% .125W CC TC=-666/+1262	01121	BB5655
AB4A1R14	0698-7939	7		RESISTOR 510K 5% .125W CC TC=-600/+1137	01121	BB5145
AB4A1R15	0698-7097	8		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055
AB4A1R16	0698-7097	8		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055
AB4A1R17	0698-7097	8		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055
AB4A1R18	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
AB4A1R19	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
AB4A1R20	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
AB4A1R21	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
AB4A1R22	0698-7273	2		RESISTOR 34.8K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3482-F
AB4A1R23	2100-2031	7		RESISTOR-TRMR 50K 10% C TOP-ADJ 1-TRN	73138	B2PR50K
AB4A1R24	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
AB4A1R25	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
AB4A1R26	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
AB4A1R27	0698-7187	7		RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055
AB4A1R28	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
AB4A1R29	0698-7187	7		RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055
AB4A1R30	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
AB4A1R31	0698-7940	0		RESISTOR 200K 5% .125W CC TC=-600/+1137	01121	BB2045
AB4A1R32	0698-7940	0		RESISTOR 200K 5% .125W CC TC=-600/+1137	01121	BB2045
AB4A1R33	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
AB4A1R34	0698-7281	2		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
AB4A1R35	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
AB4A1R36	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
AB4A1R37	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
AB4A1R38	2100-2655	1		RESISTOR-TRMR 100K 10% C TOP-ADJ 1-TRN	73138	B2PR100K
AB4A1R39	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
AB4A1R40	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
AB4A1R41	0698-5345	5		RESISTOR 4.3M 5% .125W CC TC=-666/+1262	28480	0698-5345
AB4A1R42	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
AB4A1R43	0698-7250	5		RESISTOR 3.83K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3831-F
AB4A1R44	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
AB4A1R45	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
AB4A1R46	0698-7281	2		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
AB4A1R47	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
AB4A1R48	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
AB4A1R49	0698-7938	6		RESISTOR 390K 5% .125W CC TC=-600/+1137	01121	BB3945
AB4A1R50	0698-7097	8		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
AB4A1R52	0698-7281	2		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
AB4A1R53	0698-7247	8		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
AB4A1R54	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
AB4A1R55	2100-1788	9		RESISTOR-TRMR 500 10% C TOP-ADJ 1-TRN	73138	82PR500
AB4A1R56	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
AB4A1R57	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
AB4A1R58	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
AB4A1R59	0698-6592	6		RESISTOR 6.8M 5% .125W CC TC=-666/+1262	28480	0698-6592
AB4A1R60	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
AB4A1R61	0698-7965	9		RESISTOR 330K 5% .125W CC TC=-600/+1137	28480	0698-7965
AB4A1U1	1826-0015	0		IC OP AMP SPCL 16-DIP-C PKG	3L585	CA3060D
AB4A1U2	78100-00010	2		PC BOARD-BLANK	28480	78100-00010
AB4A1VR1	1902-1277	0		DIODE-ZNR 5.62V 2% D0-7	28480	1902-1277
AB4A1XU1	1200-0607	0		SOCKET-IC 16-CONT DIP DIP-SLDR	28480	1200-0607
AB4A1XY1	1200-0445	4		SOCKET-XSTR 3-CONT TO-5 DIP-SLDR	28480	1200-0445
				MISCELLANEOUS		
	0340-0572	3		INSULATOR-BEAD 7052-GL BLUE	28480	0340-0572
	9211-0484	2		BOX-INK STYLUS	28480	9211-0484
	9220-0858	3		BINS-FDAM INSERT	28480	9220-0858
	78100-00160	3	1	BINS-LABEL, PC	28480	78100-00160
A85	78100A-#100	7	1	CHANNEL 68	28480	78100A-#100
A85A1MP6	78100-41235	9	1	CASE-COVER (MARKED)	28480	78100-41235
A85A2A1Y1	0410-1245	8	1	CRYSTAL-QUARTZ	28480	0410-1245
A86	78100A-#101	8	1	CHANNEL 69	28480	78100A-#101
A86A1MP6	78100-41236	0	1	CASE-COVER (MARKED)	28480	78100-41236
A86A2A1Y1	0410-1246	9	1	CRYSTAL-QUARTZ	28480	0410-1246
A87	78100A-#102	9	1	CHANNEL 70	28480	78100A-#102
A87A1MP6	78100-41237	1	1	CASE-COVER (MARKED)	28480	78100-41237
A87A2A1Y1	0410-1247	0	1	CRYSTAL-QUARTZ	28480	0410-1247
A88	78100A-#103	0	1	CHANNEL 71	28480	78100A-#103
A88A1MP6	78100-41238	2	1	CASE-COVER (MARKED)	28480	78100-41238
A88A2A1Y1	0410-1248	1	1	CRYSTAL-QUARTZ	28480	0410-1248
A89	78100A-#104	1	1	CHANNEL 72	28480	78100A-#104
A89A1MP6	78100-41239	3	1	CASE-COVER (MARKED)	28480	78100-41239
A89A2A1Y1	0410-1249	2	1	CRYSTAL-QUARTZ	28480	0410-1249
A90	78100A-#105	2	1	CHANNEL 73	28480	78100A-#105
A90A1MP6	78100-41240	6	1	CASE-COVER (MARKED)	28480	78100-41240
A90A2A1Y1	0410-1250	5	1	CRYSTAL-QUARTZ	28480	0410-1250
A91	78100A-#106	3	1	CHANNEL 74	28480	78100A-#106
A91A1MP6	78100-41241	7	1	CASE-COVER (MARKED)	28480	78100-41241
A91A2A1Y1	0410-1251	6	1	CRYSTAL-QUARTZ	28480	0410-1251
A92	78100A-#107	4	1	CHANNEL 75	28480	78100A-#107
A92A1MP6	78100-41242	8	1	CASE-COVER (MARKED)	28480	78100-41242
A92A2A1Y1	0410-1252	7	1	CRYSTAL-QUARTZ	28480	0410-1252
A93	78100A-#108	5	1	CHANNEL 76	28480	78100A-#108
A93A1MP6	78100-41243	9	1	CASE-COVER (MARKED)	28480	78100-41243
A93A2A1Y1	0410-1230	1	1	CRYSTAL-QUARTZ	28480	0410-1230
A94	78100A-#109	6	1	CHANNEL 77	28480	78100A-#109
A94A1MP6	78100-41244	0	1	CASE-COVER (MARKED)	28480	78100-41244
A94A2A1Y1	0410-1231	2	1	CRYSTAL-QUARTZ	28480	0410-1231

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A95	78100A-#110	9	1	CHANNEL 78	28480	78100A-#110
A95A1MP6	78100-41245	1	1	CASE-COVER (MARKED)	28480	78100-41245
A95A2A1Y1	0410-1232	3	1	CRYSTAL-QUARTZ	28480	0410-1232
A96	78100A-#111	0	1	CHANNEL 79	28480	78100A-#111
A96A1MP6	78100-41252	0	1	CASE-COVER (MARKED)	28480	78100-41252
A96A2A1Y1	0410-1350	6	1	CRYSTAL-QUARTZ	28480	0410-1350
A97	78100A-#112	1	1	CHANNEL 80	28480	78100A-#112
A97A1MP6	78100-41253	1	1	CASE-COVER (MARKED)	28480	78100-41253
A97A2A1Y1	0410-1345	9	1	CRYSTAL-QUARTZ	28480	0410-1345
A98	78100A-#113	2	1	CHANNEL 81	28480	78100A-#113
A98A1MP6	78100-41254	2	1	CASE-COVER (MARKED)	28480	78100-41254
A98A2A1Y1	0410-1344	8	1	CRYSTAL-QUARTZ	28480	0410-1344
A99	78100A-#114	3	1	CHANNEL 82	28480	78100A-#114
A99A1MP6	78100-41255	3	1	CASE-COVER (MARKED)	28480	78100-41255
A99A2A1Y1	0410-1342	6	1	CRYSTAL-QUARTZ	28480	0410-1342
A100	78100A-#115	4	1	CHANNEL 83	28480	78100A-#115
A100A1MP6	78100-41256	4	1	CASE-COVER (MARKED)	28480	78100-41256
A100A2A1Y1	0410-1343	7	1	CRYSTAL-QUARTZ	28480	0410-1343
A101	78100A-#116	5	1	CHANNEL 84	28480	78100A-#116
A101A1MP6	78100-41257	5	1	CASE-COVER (MARKED)	28480	78100-41257
A101A2A1Y1	0410-1341	5	1	CRYSTAL-QUARTZ	28480	0410-1341
A102	78100A-#117	6	1	CHANNEL 85	28480	78100A-#117
A102A1MP1	78100-41258	6	1	CASE-COVER (MARKED)	28480	78100-41258
A102A2A1Y1	0410-1340	4	1	CRYSTAL-QUARTZ	28480	0410-1340
A103	78100A-#118	7	1	CHANNEL 86	28480	78100A-#118
A103A1MP6	78100-41259	7	1	CASE-COVER (MARKED)	28480	78100-41259
A103A2A1Y1	0410-1339	1	1	CRYSTAL-QUARTZ	28480	0410-1339
A104	78100A-#119	8	1	CHANNEL 87	28480	78100A-#119
A104A1MP6	78100-41260	0	1	CASE-COVER (MARKED)	28480	78100-41260
A104A2A1Y1	0410-1354	0	1	CRYSTAL-QUARTZ	28480	0410-1354
A105	78100A-#120	1	1	CHANNEL 88	28480	78100A-#120
A105A1MP6	78100-41261	1	1	CASE-COVER (MARKED)	28480	78100-41261
A105A2A1Y1	0410-1353	9	1	CRYSTAL-QUARTZ	28480	0410-1353
A106	78100A-#121	2	1	CHANNEL 89	28480	78100A-#121
A106A1MP6	78100-41262	2	1	CASE-COVER (MARKED)	28480	78100-41262
A106A2A1Y1	0410-1352	8	1	CRYSTAL-QUARTZ	28480	0410-1352
A107	78100A-#122	3	1	CHANNEL 90	28480	78100A-#122
A107A1MP6	78100-41263	3	1	CASE-COVER (MARKED)	28480	78100-41263
A107A2A1Y1	0410-0970	4	2	CRYSTAL-QUARTZ	28480	0410-0970
A108	78100A-#123	4	1	CHANNEL 91	28480	78100A-#123
A108A1MP6	78100-41264	4	1	CASE-COVER (MARKED)	28480	78100-41264
A108A2A1Y1	0410-1346	0	1	CRYSTAL-QUARTZ	28480	0410-1346
A109	78100A-#124	5	1	CHANNEL 92	28480	78100A-#124
A109A1MP6	78100-41265	5	1	CASE-COVER (MARKED)	28480	78100-41265

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A109A2A1Y1	0410-1347	1	1	CRYSTAL-QUARTZ	28480	0410-1347
A110	78100A-#125	6	1	CHANNEL 93	28480	78100A-#125
A110A1MP6	78100-41266	6	1	CASE-COVER (MARKED)	28480	78100-41266
A110A2A1Y1	0410-1348	2	1	CRYSTAL-QUARTZ	28480	0410-1348
A111	78100A-#126	7	1	CHANNEL 94	28480	78100A-#126
A111A1MP6	78100-41267	7	1	CASE-COVER (MARKED)	28480	78100-41267
A111A2A1Y1	0410-0971	5	2	CRYSTAL-QUARTZ	28480	0410-0971
A112	78100A-#127	8	1	CHANNEL 95	28480	78100A-#127
A112A1MP6	78100-41268	8	1	CASE-COVER (MARKED)	28480	78100-41268
A112A2A1Y1	0410-1362	0	1	CRYSTAL-QUARTZ	28480	0410-1362
A113	78100A-#128	9	1	CHANNEL 96	28480	78100A-#128
A113A1MP6	78100-41269	9	1	CASE-COVER (MARKED)	28480	78100-41269
A113A2A1Y1	0410-1363	1	1	CRYSTAL-QUARTZ	28480	0410-1363
A114	78100A-#A02	1	1	OP FREQ 466.8375	28480	78100A-#A02
A114A1MP6	78100-41102	9	1	CASE-COVER (MARKED)	28480	78100-41102
A114A2A1Y1	0410-0970	4	1	CRYSTAL-QUARTZ	28480	0410-0970
A115	78100A-#A03	2	1	OP FREQ 466.8625	28480	78100A-#A03
A115A1MP6	78100-41103	0	1	CASE-COVER (MARKED)	28480	78100-41103
A115A2A1Y1	0410-0971	5	1	CRYSTAL-QUARTZ	28480	0410-0971
A116	78100A-#A04	3	1	OP FREQ 466.8875	28480	78100A-#A04
A116A1MP6	78100-41104	1	1	CASE-COVER (MARKED)	28480	78100-41104
A116A2A1Y1	0410-0972	2	1	CRYSTAL-QUARTZ	28480	0410-0972
A117	78100A-#A05	4	1	OP FREQ 466.8125	28480	78100A-#A05
A117A1MP6	78100-41101	8	1	CASE-COVER (MARKED)	28480	78100-41101
A117A2A1Y1	0410-0969	1	1	CRYSTAL-QUARTZ	28480	0410-0969
A118	78100A-#B01	1	1	OP FREQ 433.200	28480	78100A-#B01
A118A0MP6	78100-41150	7	1	CASE COVER (MARKED)	28480	
A118A0A1Y1	0410-0983	9	1	CRYSTAL-QUARTZ	28480	0410-0983
A118A2A1	78100-60010	8	1	DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A118A1	78100-60012	0	1	ADD THE FOLLOWING: PC BOARD- 430-450 MHZ (OPTIONS B01,C01-C24,D01-D12,E01,F01-F20,J01-J03,K02-K10,N01-N06.)	28480	78100-60012
A118A1C1	0160-3828	6	1	CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A118A1C2	0160-3747	8	1	CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A118A1C3	0160-3747	8	1	CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A118A1C4	0160-4031	5	1	CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031
A118A1C5	0160-3667	1	1	CAPACITOR-FXD .15UF +-20% 50VDC CER	28480	0160-3667
A118A1C6	0180-2375	8	1	CAPACITOR-FXD 2.2UF+-10% 25VDC TA	28480	0180-2375
A118A1C7	0160-3751	4	1	CAPACITOR-FXD 2200PF +-5% 50VDC CER	28480	0160-3751
A118A1C8	0160-4040	6	1	CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A118A1C9	0160-3747	8	1	CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A118A1C10	0160-3747	8	1	CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A118A1C11	0160-4040	6	1	CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A118A1C12	0160-4040	6	1	CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A118A1C13	0160-4030	4	1	CAPACITOR-FXD 820PF +-5% 100VDC CER	28480	0160-4030
A118A1C14	0160-3751	4	1	CAPACITOR-FXD 2200PF +-5% 50VDC CER	28480	0160-3751
A118A1C15	0160-4031	5	1	CAPACITOR-FXD 330PF +-5% 100VDC CER	28480	0160-4031
A118A1C16	0160-3831	1	1	CAPACITOR-FXD .01UF +-20% 50VDC CER	28480	0160-3831
A118A1C17	0160-3828	6	1	CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A118A1C18	0180-2378	1	1	CAPACITOR-FXD 6.8UF+-10% 10VDC TA	28480	0180-2378
A118A1C19	0180-2378	1	1	CAPACITOR-FXD 6.8UF+-10% 10VDC TA	28480	0180-2378
A118A1C20	0160-3747	8	1	CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A118A1C21	0121-0461	5	1	CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A118A1C22	0160-3745	6	1	CAPACITOR-FXD 470PF +-20% 50VDC CER	28480	0160-3745
A118A1C23	0160-3746	7	1	CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A118A1C24	0160-3890	2	1	CAPACITOR-FXD 68PF +-10% 100VDC CER	28480	0160-3890
A118A1C25	0121-0471	7	1	CAPACITOR-V TRMR-CER 4.5-15PF 63V PC-MTG	28480	0121-0471

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A118A1C26	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A118A1C27	0160-3745	6		CAPACITOR-FXD 470PF +-20% 50VDC CER	28480	0160-3745
A118A1C28	0121-0471	7		CAPACITOR-V TRMR-CER 4.5-15PF 63V PC-MTG	28480	0121-0471
A118A1C29	0160-3835	5		CAPACITOR-FXD 4.7PF +-5PF 100VDC CER	28480	0160-3835
A118A1C30	0121-0449	9		CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG	28480	0121-0449
A118A1C31	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A118A1C32	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A118A1C33	0121-0461	5		CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG	28480	0121-0461
A118A1C34	0160-3746	7		CAPACITOR-FXD 6.8PF +-10% 100VDC CER	28480	0160-3746
A118A1C40	0160-3831	1		CAPACITOR-FXD .01UF +-20% 50VDC CER	28480	0160-3831
A118A1C41	0160-3828	6		CAPACITOR-FXD .068UF +-20% 50VDC CER	28480	0160-3828
A118A1C42	0160-4040	6		CAPACITOR-FXD 1000PF +-5% 100VDC CER	28480	0160-4040
A118A1C43	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A118A1C44	0160-3747	8		CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A118A1CR1	0122-0056	6		DIODE-VVC 6.8PF 10% C2/C30-MIN=2.5	04713	MV2101
A118A1CR2	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A118A1CR3	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A118A1CR5	1901-0040	1		DIODE-SWITCHING 30V 50MA 2NS DO-35	28480	1901-0040
A118A1CR6	1901-0460	9		DIODE-STABISTOR 30V 150MA DO-7	28480	1901-0460
A118A1CR7	1901-1051	6		DIODE-STEP RECOVERY	28480	1901-1051
A118A1CR8	1901-0535	9		DIODE-SM SIG SCHOTTKY	28480	1901-0535
A118A1L1	9100-2256	5		INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG	28480	9100-2256
A118A1L2	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A118A1L3	9100-2247	4		INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG	28480	9100-2247
A118A1L4	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A118A1L5	9100-3183	9		INDUCTOR 35NH 10%	28480	9100-3183
A118A1L9	9140-0158	6		INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A118A1L10	9100-2281	6		INDUCTOR RF-CH-MLD 270UH 10% .105DX.26LG	28480	9100-2281
A118A1L11	9100-2259	8		INDUCTOR RF-CH-MLD 1.5UH 10% .105DX.26LG	28480	9100-2259
A118A1Q1	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A118A1Q2	1854-0642	8		TRANSISTOR NPN SI PD=625MW FT=80MHZ	04713	MPS-A17
A118A1Q5	0340-0453	9		INSULATOR-XSTR NYLON	28480	0340-0453
A118A1Q6	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A118A1Q6	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A118A1Q7	1854-0529	0		TRANSISTOR-DUAL NPN PD=750MW	28480	1854-0529
A118A1Q8	1853-0316	1		TRANSISTOR-DUAL PNP PD=500MW	28480	1853-0316
A118A1Q11	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A118A1Q12	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A118A1Q13	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A118A1Q14	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A118A1Q15	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A118A1Q16	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A118A1Q17	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A118A1Q18	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A118A1Q19	1853-0259	1		TRANSISTOR PNP SI PD=300W FT=.15HZ	28480	1853-0259
A118A1Q20	1854-0491	5		TRANSISTOR NPN SI PD=300MW FT=200MHZ	28480	1854-0491
A118A1Q21	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A118A1Q22	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A118A1R1	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A118A1R2	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A118A1R3	0698-7187	7		RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055
A118A1R4	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A118A1R5	0698-7270	9		RESISTOR 26.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2612-F
A118A1R6	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A118A1R7	0698-7938	6		RESISTOR 390K 5% .125W CC TC=-600/+1137	01121	BB3945
A118A1R8	0698-3923	1		RESISTOR 100K .5% .05W F TC=0+-100	28480	0698-3923
A118A1R9	0698-3924	2		RESISTOR 133K .5% .05W F TC=0+-100	28480	0698-3924
A118A1R10	0698-3923	1		RESISTOR 100K .5% .05W F TC=0+-100	28480	0698-3923
A118A1R11	0698-3924	2		RESISTOR 133K .5% .05W F TC=0+-100	28480	0698-3924
A118A1R12	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A118A1R13	0698-8036	7		RESISTOR 5.6M 5% .125W CC TC=-666/+1262	01121	BB5655
A118A1R14	0698-7939	7		RESISTOR 510K 5% .125W CC TC=-600/+1137	01121	BB5145
A118A1R15	0698-8033	4	1	RESISTOR 22M 5% .125W CC TC=-666/+1262	01121	BB2265
A118A1R16	0698-7097	8		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055
A118A1R17	0698-8034	5	1	RESISTOR 18M 5% .125W CC TC=-666/+1262	01121	BB1865
A118A1R18	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A118A1R19	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A118A1R20	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A118A1R21	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A118A1R22	0698-7273	2		RESISTOR 34.8K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3482-F
A118A1R23	2100-2031	7		RESISTOR-TRMR 50K 10% C TOP-ADJ 1-TRN	73138	B2PR50K
A118A1R24	0698-7277	6		RESISTOR 51.1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5112-F
A118A1R25	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A118A1R26	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A118A1R27	0698-7187	7		RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055
A118A1R28	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A118A1R29	0698-7187	7		RESISTOR 2M 5% .125W CC TC=-666/+1262	01121	BB2055
A118A1R30	0698-7236	7		RESISTOR 1K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1001-F
A118A1R31	0698-7940	0		RESISTOR 200K 5% .125W CC TC=-600/+1137	01121	BB2045
A118A1R32	0698-7940	0		RESISTOR 200K 5% .125W CC TC=-600/+1137	01121	BB2045
A118A1R33	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A118A1R34	0698-7281	2		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
A118A1R35	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A118A1R36	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A118A1R37	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A118A1R38	2100-2655	1		RESISTOR-TRMR 100K 10% C TOP-ADJ 1-TRN	73138	B2PR100K
A118A1R39	0698-7284	5		RESISTOR 100K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1003-F
A118A1R40	0698-7286	7		RESISTOR 121K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1213-F
A118A1R41	0698-5345	5		RESISTOR 4.3M 5% .125W CC TC=-666/+1262	28480	0698-5345
A118A1R42	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A118A1R43	0698-7250	5		RESISTOR 3.83K 1% .05W F TC=0+-100	24546	C3-1/8-T0-3831-F
A118A1R44	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A118A1R45	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A118A1R46	0698-7281	2		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
A118A1R47	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A118A1R48	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A118A1R49	0698-8035	6	1	RESISTOR 10M 5% .125W CC TC=-666/+1262	01121	BB1065
A118A1R50	0698-7097	8		RESISTOR 1M 5% .125W CC TC=-600/+1137	01121	BB1055
A118A1R52	0698-7281	2		RESISTOR 75K 2% .05W F TC=0+-100	24546	C3-1/8-T0-7502-G
A118A1R53	0698-7247	0		RESISTOR 2.87K 1% .05W F TC=0+-100	24546	C3-1/8-T0-2871-F
A118A1R54	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A118A1R55	2100-1788	9		RESISTOR-TRMR 500 10% C TOP-ADJ 1-TRN	73138	B2PR500
A118A1R56	0698-7254	9		RESISTOR 5.62K 1% .05W F TC=0+-100	24546	C3-1/8-T0-5621-F
A118A1R57	0698-7288	9		RESISTOR 147K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1473-F
A118A1R58	0698-7229	8		RESISTOR 511 1% .05W F TC=0+-100	24546	C3-1/8-T0-511R-F
A118A1R59	0698-6592	6		RESISTOR 6.8M 5% .125W CC TC=-666/+1262	28480	0698-6592
A118A1R60	0698-7260	7		RESISTOR 10K 1% .05W F TC=0+-100	24546	C3-1/8-T0-1002-F
A118A1R61	0698-7965	9		RESISTOR 330K 5% .125W CC TC=-600/+1137	28480	0698-7965
A118A1U1	1826-0015	0		IC OP AMP SPKCL 16-DIP-C PKG	3L585	CA3060D
A118A1U2	78100-00010	2		PC BOARD-BLANK	28480	78100-00010
A118A1VR1	1902-1277	0		DIODE-ZNR 5.62V 2% DO-7	28480	1902-1277
A118A1XU1	1200-0607	0		SOCKET-IC 16-CONT DIP DIP-SLDR	28480	1200-0607
A118A1XY1	1200-0445	4		SOCKET-XSTR 3-CONT TO-5 DIP-SLDR	28480	1200-0445
MISCELLANEOUS						
	0340-0572	3		INSULATOR-BEAD 7052-GL BLUE	28480	0340-0572
	9220-0858	3		BINS-FOAM INSERT	28480	9220-0858
	78100-00150	1	1	BINS-LABEL, PC	28480	78100-00150
A119	78100A-#C01	2	1	OP. FREQ. 433.375	28480	78100A-#C01
A119A2A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A119A1MP6	78100-41041	5	1	CASE-COVER (MARKED)	28480	78100-41041
A119A2A1Y1	0410-0893	0	1	CRYSTAL-QUARTZ	28480	0410-0893
A119A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A120	78100A-#C02	3	1	OP. FREQ. 433.425	28480	78100A-#C02
A120A1A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A120A1MP6	78100-41042	6	1	CASE-COVER (MARKED)	28480	78100-41042
A120A2A1Y1	0410-0894	1	1	CRYSTAL-QUARTZ	28480	0410-0894
A120A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A121	78100A-#C03	4	1	OP. FREQ. 433.675	28480	78100A-#C03
A121A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A121A1MP6	78100-41043	7	1	CASE-COVER (MARKED)	28480	78100-41043

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A121A2A1Y1	0410-0895	2	1	CRYSTAL-QUARTZ	28480	0410-0895
A121A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A122	78100A-#C04	5	1	OP. FREQ. 433.725	28480	78100A-#C04
A122A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A122A1MP6	78100-41044	8	1	CASE-COVER (MARKED)	28480	78100-41044
A122A2A1Y1	0410-0896	3	1	CRYSTAL-QUARTZ	28480	0410-0896
A122A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A123	78100A-#C05	6	1	OP. FREQ. 433.825	28480	78100A-#C05
A123A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A123A1MP6	78100-41045	9	1	CASE-COVER (MARKED)	28480	78100-41045
A123A2A1Y1	0410-0897	4	1	CRYSTAL-QUARTZ	28480	0410-0897
A123A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A124	78100A-#C06	7	1	OP. FREQ. 433.875	28480	78100A-#C06
A124A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A124A1MP6	78100-41046	0	1	CASE-COVER (MARKED)	28480	78100-41046
A124A2A1Y1	0410-0898	5	1	CRYSTAL-QUARTZ	28480	0410-0898
A124A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A125	78100A-#C07	8	1	OP. FREQ. 433.225	28480	78100A-#C07
A125A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A125A1MP6	78100-41047	1	1	CASE-COVER (MARKED)	28480	78100-41047
A125A2A1Y1	0410-0899	6	1	CRYSTAL-QUARTZ	28480	0410-0899
A125A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A126	78100A-#C08	9	1	OP. FREQ. 434.050	28480	78100A-#C08
A126A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A126A1MP6	78100-41048	2	1	CASE-COVER (MARKED)	28480	78100-41048
A126A2A1Y1	0410-0900	0	1	CRYSTAL-QUARTZ	28480	0410-0900
A126A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A127	78100A-#C09	0	1	OP. FREQ. 434.100	28480	78100A-#C09
A127A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A127A1MP6	78100-41049	3	1	CASE-COVER (MARKED)	28480	78100-41049
A127A2A1Y1	0410-0901	1	1	CRYSTAL-QUARTZ	28480	0410-0901
A127A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A128	78100A-#C10	3	1	OP. FREQ. 433.275	28480	78100A-#C10
A128A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A128A1MP6	78100-41050	6	1	CASE-COVER (MARKED)	28480	78100-41050
A128A2A1Y1	0410-0902	2	1	CRYSTAL-QUARTZ	28480	0410-0902
A128A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A129	78100A-#C11	4	1	OP. FREQ. 434.200	28480	78100A-#C11
A129A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A129A1MP6	78100-41051	7	1	CASE-COVER (MARKED)	28480	78100-41051
A129A2A1Y1	0410-0903	3	1	CRYSTAL-QUARTZ	28480	0410-0903
A129A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A130	78100A-#C12	5	1	OP. FREQ. 434.250	28480	78100A-#C12
A130A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A130A1MP6	78100-41052	8	1	CASE-COVER (MARKED)	28480	78100-41052
A130A2A1Y1	0410-0904	4	1	CRYSTAL-QUARTZ	28480	0410-0904
A130A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A131	78100A-#C13	6	1	OP. FREQ. 434.500	28480	78100A-#C13
A131A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A131A1MP6	78100-41053	9	1	CASE-COVER (MARKED)	28480	78100-41053
A131A2A1Y1	0410-0905	5	1	CRYSTAL-QUARTZ	28480	0410-0905
A131A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A132	78100A-#C14	7	1	OP. FREQ. 434.550	28480	78100A-#C14
A132A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A132A1MP6	78100-41054	0	1	CASE-COVER (MARKED)	28480	78100-41054
A132A2A1Y1	0410-0906	6	1	CRYSTAL-QUARTZ	28480	0410-0906
A132A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A133	78100A-#C15	8	1	OP. FREQ. 434.650	28480	78100A-#C15
A133A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A133A1MP6	78100-41055	1	1	CASE-COVER (MARKED)	28480	78100-41055
A133A2A1Y1	0410-0907	7	1	CRYSTAL-QUARTZ	28480	0410-0907
A133A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A134	78100A-#C16	9	1	OP. FREQ. 434.700	28480	78100A-#C16
A134A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A134A1MP6	78100-41056	2	1	CASE-COVER (MARKED)	28480	78100-41056
A134A2A1Y1	0410-0908	8	1	CRYSTAL-QUARTZ	28480	0410-0908
A134A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A135	78100A-#C17	0	1	OP. FREQ. 433.075	28480	78100A-#C17
A135A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A135A1MP6	78100-41205	3	1	CASE-COVER (MARKED)	28480	78100-41205
A135A2A1Y1	0410-1161	7	1	CRYSTAL-QUARTZ	28480	0410-1161
A135A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A136	78100A-#C18	1	1	OP. FREQ. 433.125	28480	78100A-#C18
A136A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A136A1MP6	78100-41206	4	1	CASE-COVER (MARKED)	28480	78100-41206
A136A2A1Y1	0410-1163	9	1	CRYSTAL-QUARTZ	28480	0410-1163
A136A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A137	78100A-#C19	2	1	OP. FREQ. 433.175	28480	78100A-#C19
A137A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A137A1MP6	78100-41207	5	1	CASE-COVER (MARKED)	28480	78100-41207
A137A2A1Y1	0410-1165	1	1	CRYSTAL-QUARTZ	28480	0410-1165
A137A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A138	78100A-#C20	5	1	OP. FREQ. 433.325	28480	78100A-#C20
A138A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A138A1MP6	78100-41208	6	1	CASE-COVER (MARKED)	28480	78100-41208
A138A2A1Y1	0410-1167	3	1	CRYSTAL-QUARTZ	28480	0410-1167
A138A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A139	78100A-#C21	6	1	OP. FREQ. 433.475	28480	78100A-#C21
A139A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A139A1MP6	78100-41209	7	1	CASE-COVER (MARKED)	28480	78100-41209
A139A2A1Y1	0410-1169	5	1	CRYSTAL-QUARTZ	28480	0410-1169
A139A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A140	78100A-#C22	7	1	OP. FREQ. 433.525	28480	78100A-#C22
A140A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A140A1MP6	78100-41210	0	1	CASE-COVER (MARKED)	28480	78100-41210
A140A2A1Y1	0410-1171	9	1	CRYSTAL-QUARTZ	28480	0410-1171
A140A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A141	78100A-#C23	8	1	OP. FREQ. 433.575	28480	78100A-#C23
A141A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A141A1MP6	78100-41212	2	1	CASE-COVER (MARKED)	28480	78100-41212
A141A2A1Y1	0410-1173	1	1	CRYSTAL-QUARTZ	28480	0410-1173
A141A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A142	78100A-#C24	9	1	OP. FREQ. 433.625	28480	78100A-#C24
A142A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A142A1MP6	78100-41215	5	1	CASE-COVER (MARKED)	28480	78100-41215
A142A2A1Y1	0410-1175	3	1	CRYSTAL-QUARTZ	28480	0410-1175
A142A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A148	78100A-#D01	3	1	OP. FREQ. 448.000	28480	78100A-#D01
A148A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A148A1MP6	78100-41081	3	1	CASE-COVER (MARKED)	28480	78100-41081
A148A2A1Y1	0410-0945	3	1	CRYSTAL-QUARTZ	28480	0410-0945

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A148A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
	78100-60110	9	12	INDUCTOR CORE	28480	78100-60110
A149	78100A-#D02	4	1	OP. FREQ. 448.025	28480	78100A-#D02
A149A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A149A1MP6	78100-41082	4	1	CASE-COVER (MARKED)	28480	78100-41082
A149A2A1Y1	0410-0946	4	1	CRYSTAL-QUARTZ	28480	0410-0946
A149A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
	78100-60110	9		INDUCTOR CORE	28480	78100-60110
A150	78100A-#D03	5	1	OP. FREQ. 448.075	28480	78100A-#D03
A150A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A150A1MP6	78100-41083	5	1	CASE-COVER (MARKED)	28480	78100-41083
A150A2A1Y1	0410-0947	5	1	CRYSTAL-QUARTZ	28480	0410-0947
A150A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
	78100-60110	9		INDUCTOR CORE	28480	78100-60110
A151	78100A-#D04	6	1	OP. FREQ. 448.100	28480	78100A-#D04
A151A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A151A1MP6	78100-41084	6	1	CASE-COVER (MARKED)	28480	78100-41084
A151A2A1Y1	0410-0948	6	1	CRYSTAL-QUARTZ	28480	0410-0948
A151A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
	78100-60110	9		INDUCTOR CORE	28480	78100-60110
A152	78100A-#D05	7	1	OP. FREQ. 448.250	28480	78100A-#D05
A152A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A152A1MP6	78100-41085	7	1	CASE-COVER (MARKED)	28480	78100-41085
A152A2A1Y1	0410-0949	7	1	CRYSTAL-QUARTZ	28480	0410-0949
A152A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
	78100-60110	9		INDUCTOR CORE	28480	78100-60110
A153	78100A-#D06	8	1	OP. FREQ. 448.275	28480	78100A-#D06
A153A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A153A1MP6	78100-41086	8	1	CASE-COVER (MARKED)	28480	78100-41086
A153A2A1Y1	0410-0950	0	1	CRYSTAL-QUARTZ	28480	0410-0950
A153A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
	78100-60110	9		INDUCTOR CORE	28480	78100-60110
A154	78100A-#D07	9	1	OP. FREQ. 448.050	28480	78100A-#D07
A154A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A154A1MP6	78100-41087	9	1	CASE-COVER (MARKED)	28480	78100-41087
A154A2A1Y1	0410-0951	1	1	CRYSTAL-QUARTZ	28480	0410-0951
A154A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
	78100-60110	9		INDUCTOR CORE	28480	78100-60110

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A155	78100A-#D08	0	1	OP. FREQ. 448.125	28480	78100A-#D08
A155A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A155A1MP6	78100-41088	0	1	CASE-COVER (MARKED)	28480	78100-41088
A155A2A1Y1	0410-0952	2	1	CRYSTAL-QUARTZ	28480	0410-0952
A155A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
	78100-60110	9		INDUCTOR CORE	28480	78100-60110
A156	78100A-#D09	1	1	OP. FREQ. 448.150	28480	78100A-#D09
A156A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A156A1MP6	78100-41089	1	1	CASE-COVER (MARKED)	28480	78100-41089
A156A2A1Y1	0410-0953	3	1	CRYSTAL-QUARTZ	28480	0410-0953
A156A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
	78100-60110	9		INDUCTOR CORE	28480	78100-60110
A157	78100A-#D10	4	1	OP. FREQ. 448.175	28480	78100A-#D10
A157A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A157A1MP6	78100-41090	4	1	CASE-COVER (MARKED)	28480	78100-41090
A157A2A1Y1	0410-0954	4	1	CRYSTAL-QUARTZ	28480	0410-0954
A157A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
	78100-60110	9		INDUCTOR CORE	28480	78100-60110
A158	78100A-#D11	5	1	OP. FREQ. 448.200	28480	78100A-#D11
A158A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A158A1MP6	78100-41091	5	1	CASE-COVER (MARKED)	28480	78100-41091
A158A2A1Y1	0410-0955	5	1	CRYSTAL-QUARTZ	28480	0410-0955
A158A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
	78100-60110	9		INDUCTOR CORE	28480	78100-60110
A159	78100A-#D12	6	1	OP. FREQ. 448.225	28480	78100A-#D12
A159A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A159A1MP6	78100-41092	6	1	CASE-COVER (MARKED)	28480	78100-41092
A159A2A1Y1	0410-0956	6	1	CRYSTAL-QUARTZ	28480	0410-0956
A159A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
	78100-60110	9		INDUCTOR CORE	28480	78100-60110
A160	78100A-#E01	4	1	OP. FREQ. 438.600	28480	78100A-#E01
A160A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A160A1MP6	78100-41130	3	1	CASE-COVER (MARKED)	28480	78100-41130
A160A2A1Y1	0410-0984	0	1	CRYSTAL-QUARTZ	28480	0410-0984
A160A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A161	78100A-#F01	5	1	OP. FREQ. 446.050	28480	78100A-#F01
A161A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A161A1MP6	78100-41061	9	1	CASE-COVER (MARKED)	28480	78100-41061

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A161A2A1Y1	0410-0873	6	1	CRYSTAL-QUARTZ	28480	0410-0873
A161A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A162	78100A-#F02	6	1	OP. FREQ. 446.100	28480	78100A-#F02
A162A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A162A1MP6	78100-41062	0	1	CASE-COVER (MARKED)	28480	78100-41062
A162A2A1Y1	0410-0874	7	1	CRYSTAL-QUARTZ	28480	0410-0874
A162A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A163	78100A-#F03	7	1	OP. FREQ. 446.350	28480	78100A-#F03
A163A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A163A1MP6	78100-41063	1	1	CASE-COVER (MARKED)	28480	78100-41063
A163A2A1Y1	0410-0875	8	1	CRYSTAL-QUARTZ	28480	0410-0875
A163A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A164	78100A-#F04	8	1	OP. FREQ. 446.400	28480	78100A-#F04
A164A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A164A1MP6	78100-41064	2	1	CASE-COVER (MARKED)	28480	78100-41064
A164A2A1Y1	0410-0876	9	1	CRYSTAL-QUARTZ	28480	0410-0876
A164A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A165	78100A-#F05	9	1	OP. FREQ. 446.500	28480	78100A-#F05
A165A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A165A1MP6	78100-41065	3	1	CASE-COVER (MARKED)	28480	78100-41065
A165A2A1Y2	0410-0877	0	1	CRYSTAL-QUARTZ	28480	0410-0877
A165A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A166	78100A-#F06	0	1	OP. FREQ. 446.550	28480	78100A-#F06
A166A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A166A1MP6	78100-41066	4	1	CASE-COVER (MARKED)	28480	78100-41066
A166A2A1Y1	0410-0878	1	1	CRYSTAL-QUARTZ	28480	0410-0878
A166A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A167	78100A-#F07	1	1	OP. FREQ. 446.800	28480	78100A-#F07
A167A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A167A1MP6	78100-41067	5	1	CASE-COVER (MARKED)	28480	78100-41067
A167A2A1Y1	0410-0879	2	1	CRYSTAL-QUARTZ	28480	0410-0879
A167A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A168	78100A-#F08	2	1	OP. FREQ. 446.850	28480	78100A-#F08
A168A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A168A1MP6	78100-41068	6	1	CASE-COVER (MARKED)	28480	78100-41068
A168A2A1Y1	0410-0880	5	1	CRYSTAL-QUARTZ	28480	0410-0880
A168A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A169	78100A-#F09	3	1	OP. FREQ. 446.000	28480	78100A-#F09
A169A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A169A1MP6	78100-41069	7	1	CASE-COVER (MARKED)	28480	78100-41069
A169A2A1Y1	0410-0881	6	1	CRYSTAL-QUARTZ	28480	0410-0881
A169A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A170	78100A-#F10	6	1	OP. FREQ. 446.150	28480	78100A-#F10
A170A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A170A1MP6	78100-41070	0	1	CASE-COVER (MARKED)	28480	78100-41070
A170A2A1Y1	0410-0882	7	1	CRYSTAL-QUARTZ	28480	0410-0882
A170A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A171	78100A-#F11	7	1	OP. FREQ. 446.200	28480	78100A-#F11
A171A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A171A1MP6	78100-41071	1	1	CASE-COVER (MARKED)	28480	78100-41071
A171A2A1Y1	0410-0883	8	1	CRYSTAL-QUARTZ	28480	0410-0883
A171A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A172	78100A-#F12	8	1	OP. FREQ. 446.450	28480	78100A-#F12
A172A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A172A1MP6	78100-41072	2	1	CASE-COVER (MARKED)	28480	78100-41072
A172A2A1Y1	0410-0884	9	1	CRYSTAL-QUARTZ	28480	0410-0884
A172A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A173	78100A-#F13	9	1	OP. FREQ. 446.600	28480	78100A-#F13
A173A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A173A1MP6	78100-41073	3	1	CASE-COVER (MARKED)	28480	78100-41073
A173A2A1Y1	0410-0885	0	1	CRYSTAL-QUARTZ	28480	0410-0885
A173A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A174	78100A-#F14	0	1	OP. FREQ. 446.650	28480	78100A-#F14
A174A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A174A1MP6	78100-41074	4	1	CASE-COVER (MARKED)	28480	78100-41074
A174A2A1Y1	0410-0886	1	1	CRYSTAL-QUARTZ	28480	0410-0886
A174A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A175	78100A-#F15	1	1	OP. FREQ. 446.900	28480	78100A-#F15
A175A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A175A1MP6	78100-41075	5	1	CASE-COVER (MARKED)	28480	78100-41075
A175A2A1Y1	0410-0887	2	1	CRYSTAL-QUARTZ	28480	0410-0887
A175A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A176	78100A-#F16	2	1	OP. FREQ. 446.950	28480	78100A-#F16
A176A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A176A1MP6	78100-41076	6	1	CASE-COVER (MARKED)	28480	78100-41076
A176A2A1Y1	0410-0888	3	1	CRYSTAL-QUARTZ	28480	0410-0888
A176A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A177	78100A-#F17	3	1	OP. FREQ. 446.250	28480	78100A-#F17
A177A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A177A1MP6	78100-41077	7	1	CASE-COVER (MARKED)	28480	78100-41077
A177A2A1Y1	0410-0889	4	1	CRYSTAL-QUARTZ	28480	0410-0889
A177A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A178	78100A-#F18	4	1	OP. FREQ. 446.300	28480	78100A-#F18
A178A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A178A1MP6	78100-41078	8	1	CASE-COVER (MARKED)	28480	78100-41078
A178A2A1Y1	0410-0890	7	1	CRYSTAL-QUARTZ	28480	0410-0890
A178A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A179	78100A-#F19	5	1	OP. FREQ. 446.700	28480	78100A-#F19
A179A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A179A1MP6	78100-41079	9	1	CASE-COVER (MARKED)	28480	78100-41079
A179A2A1Y1	0410-0891	8	1	CRYSTAL-QUARTZ	28480	0410-0891
A179A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A180	78100A-#F20	8	1	OP. FREQ. 446.750	28480	78100A-#F20
A180A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A180A1MP6	78100-41080	2	1	CASE-COVER (MARKED)	28480	78100-41080
A180A2A1Y1	0410-0892	9	1	CRYSTAL-QUARTZ	28480	0410-0892
A180A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A181	78100A-#G01	6	1	OP. FREQ. 456.210	28480	78100A-#G01
A181A1MP6	78100-41140	5	1	CASE-COVER (MARKED)	28480	78100-41140
A181A2A1Y1	0410-0985	1	1	CRYSTAL-QUARTZ	28480	0410-0985
A182	78100A-#G02	7	1	OP. FREQ. 456.250	28480	78100A-#G02
A182A1MP6	78100-41141	6	1	CASE-COVER (MARKED)	28480	78100-41141
A182A2A1Y1	0410-0651	8	1	CRYSTAL-QUARTZ	28480	0410-0651
A183	78100A-#G03	8	1	OP. FREQ. 456.330	28480	78100A-#G03
A183A1MP6	78100-41142	7	1	CASE-COVER (MARKED)	28480	78100-41142
A183A2A1Y1	0410-0652	9	1	CRYSTAL-QUARTZ	28480	0410-0652
A184	78100A-#G04	9	1	OP. FREQ. 466.210	28480	78100A-#G04
A184A1MP6	78100-41143	8	1	CASE-COVER (MARKED)	28480	78100-41143
A184A2A1Y1	0410-0659	6	1	CRYSTAL-QUARTZ	28480	0410-0659
A185	78100A-#G05	0	1	OP. FREQ. 466.250	28480	78100A-#G05
A185A1MP6	78100-41144	9	1	CASE-COVER (MARKED)	28480	78100-41144
A185A2A1Y1	0410-0660	9	1	CRYSTAL-QUARTZ	28480	0410-0660
A186	78100A-#G06	1	1	OP. FREQ. 466.330	28480	78100A-#G06
A186A1MP6	78100-41145	0	1	CASE-COVER (MARKED)	28480	78100-41145

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A186A2A1Y1	0410-0653	0	1	CRYSTAL-QUARTZ	28480	0410-0653
A187	78100A-#H01	7	1	OP. FREQ. 468.525	28480	78100A-#H01
A187A1MP6	78100-41248	4	1	CASE-COVER (MARKED)	28480	78100-41248
A187A2A1Y1	0410-1317	5	1	CRYSTAL-QUARTZ	28480	0410-1317
A188	78100A-#J01	6	1	OP. FREQ. 449.775	28480	78100A-#J01
A188A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A188A1MP6	78100-41249	5	1	CASE-COVER (MARKED)	28480	78100-41249
A188A2A1Y1	0410-1323	3	1	CRYSTAL-QUARTZ	28480	0410-1323
A188A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A189	78100A-#J02	7	1	OP. FREQ. 449.800	28480	78100A-#J02
A189A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A189A1MP6	78100-41250	8	1	CASE-COVER (MARKED)	28480	78100-41250
A189A2A1Y1	0410-1321	1	1	CRYSTAL-QUARTZ	28480	0410-1321
A189A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A190	78100A-#J03	8	1	OP. FREQ. 449.850	28480	78100A-#J03
A190A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A190A1MP6	78100-41251	9	1	CASE-COVER (MARKED)	28480	78100-41251
A190A2A1Y1	0410-1322	2	1	CRYSTAL-QUARTZ	28480	0410-1322
A190A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A191	78100A-#K02	8	1	OP. FREQ. 439.775	28480	78100A-#K02
A191A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A191A1MP6	78100-41171	2	1	CASE-COVER (MARKED)	28480	78100-41171
A191A2A1Y1	0410-0622	3	1	CRYSTAL-QUARTZ	28480	0410-0622
A191A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A192	78100A-#K03	9	1	OP. FREQ. 439.800	28480	78100A-#K03
A192A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A192A1MP6	78100-41172	3	1	CASE-COVER (MARKED)	28480	78100-41172
A192A2A1Y1	0410-1145	7	1	CRYSTAL-QUARTZ	28480	0410-1145
A192A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A193	78100A-#K04	0	1	OP. FREQ. 439.825	28480	78100A-#K04
A193A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A193A1MP6	78100-41173	4	1	CASE-COVER (MARKED)	28480	78100-41173
A193A2A1Y1	0410-1149	1	1	CRYSTAL-QUARTZ	28480	0410-1149
A193A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A194	78100A-#K05	1	1	OP. FREQ. 439.850	28480	78100A-#K05
A194A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A194A1MP6	78100-41174	5	1	CASE-COVER (MARKED)	28480	78100-41174
A194A2A1Y1	0410-1151	5	1	CRYSTAL-QUARTZ	28480	0410-1151

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A194A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A195	78100A-#K06	2	1	OP. FREQ. 439.875	28480	78100A-#K06
A195A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A195A1MP6	78100-41175	6	1	CASE-COVER (MARKED)	28480	78100-41175
A195A2A1Y1	0410-1153	7	1	CRYSTAL-QUARTZ	28480	0410-1153
A195A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A196	78100A-#K07	3	1	OP. FREQ. 439.850	28480	78100A-#K07
A196A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A196A1MP6	78100-41176	7	1	CASE-COVER (MARKED)	28480	78100-41176
A196A2A1Y1	0410-0627	8	1	CRYSTAL-QUARTZ	28480	0410-0627
A196A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A197	78100A-#K08	4	1	OP. FREQ. 439.975	28480	78100A-#K08
A197A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A197A1MP6	78100-41177	8	1	CASE-COVER (MARKED)	28480	78100-41177
A197A2A1Y1	0410-0628	9	1	CRYSTAL-QUARTZ	28480	0410-0628
A197A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A198	78100A-#K09	5	1	OP. FREQ. 439.900	28480	78100A-#K09
A198A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A198A1MP6	78100-41213	3	1	CASE-COVER (MARKED)	28480	78100-41213
A198A2A1Y1	0410-1147	9	1	CRYSTAL-QUARTZ	28480	0410-1147
A198A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A199	78100A-#K10	8	1	OP. FREQ. 439.925	28480	78100A-#K10
A199A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A199A1MP6	78100-41214	4	1	CASE-COVER (MARKED)	28480	78100-41214
A199A2A1Y1	0410-1155	9	1	CRYSTAL-QUARTZ	28480	0410-1155
A199A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A200	78100A-#L13	2	1	OP. FREQ. 458.500	28480	78100A-#L13
A200A1MP6	78100-41163	2	1	CASE-COVER (MARKED)	28480	78100-41163
A200A2A1Y1	0410-0692	7	1	CRYSTAL-QUARTZ	28480	0410-0692
A201	78100A-#L14	3	1	OP. FREQ. 458.525	28480	78100A-#L14
A201A1MP6	78100-41164	3	1	CASE-COVER (MARKED)	28480	78100-41164
A201A2A1Y1	0410-0693	8	1	CRYSTAL-QUARTZ	28480	0410-0693
A202	78100A-#L15	4	1	OP. FREQ. 458.5625	28480	78100A-#L15
A202A1MP6	78100-41165	4	1	CASE-COVER (MARKED)	28480	78100-41165
A202A2A1Y1	0410-0694	9	1	CRYSTAL-QUARTZ	28480	0410-0694
A203	78100A-#L16	5	1	OP. FREQ. 458.5875	28480	78100A-#L16
A203A1MP6	78100-41166	5	1	CASE COVER (MARKED)	28480	78100-41166
A203A2A1Y1	0410-0695	0	1	CRYSTAL-QUARTZ	28480	0410-0695
A204	78100A-#L17	6	1	OP. FREQ. 458.700	28480	78100A-#L17

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A204A1MP6	78100-41167	6	1	CASE COVER (MARKED)	28480	78100-41167
A204A2A1Y1	0410-0696	1	1	CRYSTAL-QUARTZ	28480	0410-0696
A205	78100A-#L18	7	1	OP. FREQ. 458.725	28480	78100A-#L18
A205A1MP6	78100-41168	7	1	CASE COVER (MARKED)	28480	78100-41168
A205A2A1Y1	0410-0682	5	1	CRYSTAL-QUARTZ	28480	0410-0682
A206	78100A-#L19	8	1	OP. FREQ. 458.775	28480	78100A-#L19
A206A1MP6	78100-41169	8	1	CASE COVER (MARKED)	28480	78100-41169
A206A2A1Y1	0410-0683	6	1	CRYSTAL-QUARTZ	28480	0410-0683
A207	78100A-#L20	1	1	OP. FREQ. 458.800	28480	78100A-#L20
A207A1MP6	78100-41190	5	1	CASE COVER (MARKED)	28480	78100-41190
A207A2A1Y1	0410-0684	7	1	CRYSTAL-QUARTZ	28480	0410-0684
A208	78100A-#N01	0	1	OP. FREQ. 441.975	28480	78100A-#N01
A208A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A208A1MP6	78100-41110	9	1	CASE COVER (MARKED)	28480	78100-41110
A208A2A1Y1	0410-0977	1	1	CRYSTAL-QUARTZ	28480	0410-0977
A208A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A209	78100A-#N02	1	1	OP. FREQ. 441.925	28480	78100A-#N02
A209A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A209A1MP6	78100-41111	0	1	CASE COVER (MARKED)	28480	78100-41111
A209A2A1Y1	0410-0637	0	1	CRYSTAL-QUARTZ	28480	0410-0637
A209A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A210	78100A-#N03	2	1	OP. FREQ. 441.937	28480	78100A-#N03
A210A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A210A1MP6	78100-41112	1	1	CASE COVER (MARKED)	28480	78100-41112
A210A2A1Y1	0410-1135	5	1	CRYSTAL-QUARTZ	28480	0410-1135
A210A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A211	78100A-#N04	3	1	OP. FREQ. 441.962	28480	78100A-#N04
A211A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A211A1MP6	78100-41113	2	1	CASE COVER (MARKED)	28480	78100-41113
A211A2A1Y1	0410-1136	6	1	CRYSTAL-QUARTZ	28480	0410-1136
A211A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A212	78100A-#N05	4	1	OP. FREQ. 441.875	28480	78100A-#N05
A212A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A212A1MP6	78100-41203	1	1	CASE COVER (MARKED)	28480	78100-41203
A212A2A1Y1	0410-1157	1	1	CRYSTAL-QUARTZ	28480	0410-1157
A212A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A213	78100A-#N06	5	1	OP. FREQ. 441.950	28480	78100A-#N06
A213A1	78100-60010	8		DELETE THE FOLLOWING: PC BOARD, 450-470 MHZ	28480	78100-60010
A213A1MP6	78100-41204	2	1	CASE COVER (MARKED)	28480	78100-41204

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A213A2A1Y1	0410-1159	3	1	CRYSTAL-QUARTZ	28480	0410-1159
A213A118A1	78100-60012	0		ADD THE FOLLOWING: PC BOARD, 430-450 MHZ	28480	78100-60012
A214	78100A-#129		1	CHANNEL 97	28480	78100A-#129
A214A1MP6	78100-41270	2	1	CASE COVER (MARKED)	28480	78100-41270
A214A2A1Y1	0410-1482	5	1	CRYSTAL-QUARTZ	28480	0410-1482
A215	78100A-#130		1	CHANNEL 98	28480	78100A-#130
A215A1MP6	78100-41271	3	1	CASE COVER (MARKED)	28480	78100-41271
A215A2A1Y1	0410-0972	6	1	CRYSTAL-QUARTZ	28480	0410-0972
A216	78100A-#131		1	CHANNEL 99	28480	78100A-#131
A216A1MP6	78100-41272	4	1	CASE COVER (MARKED)	28480	78100-41272
A216A2A1Y1	0410-1450	7	1	CRYSTAL-QUARTZ	28480	0410-1450
A217	78100A-#132		1	CHANNEL 100	28480	78100A-#132
A217A1MP6	78100-41273	5	1	CASE COVER (MARKED)	28480	78100-41273
A217A2A1Y1	0410-1451	8	1	CRYSTAL-QUARTZ	28480	0410-1451
A218	78100A-#133		1	CHANNEL 101	28480	78100A-#133
A218A1MP6	78100-41274	6	1	CASE COVER (MARKED)	28480	78100-41274
A218A2A1Y1	0410-1452	9	1	CRYSTAL-QUARTZ	28480	0410-1452
A219	78100A-#134		1	CHANNEL 102	28480	78100A-#134
A219AMP6	78100-41275	7	1	CASE COVER (MARKED)	28480	78100-41275
A219A2A1Y1	04101453	0	1	CRYSTAL-QUARTZ	28480	0141-1452
A220	78100A-#135		1	CHANNEL 103	28480	78100A-#135
A220A1MP6	78100-41276	8	1	CASE COVER (MARKED)	28480	78100-41276
A220A2A1Y1	0410-1454	1	1	CRYSTAL-QUARTZ	28480	0410-1454
A221	78100A-#136		1	CHANNEL 104	28480	78100A-#136
A221A1MP6	78100A-41277	9	1	CASE COVER (MARKED)	28480	78100-41277
A221A2A1Y1	0410-1455	2	1	CRYSTAL-QUARTZ	28480	0410-1455
A222	78100A-#137		1	CHANNEL 105	28480	78100A-#137
A222A1MP6	78100-41278	0	1	CASE COVER (MARKED)	28480	78100-41278
A222A2A1Y1	0410-1456	3	1	CRYSTAL-QUARTZ	28480	0410-1456
A223	78100A-#138		1	CHANNEL 106	28480	78100A-#138
A223A1MP6	78100-41279	1	1	CASE COVER (MARKED)	28480	78100-41279
A223A2A1Y1	0410-1457	4	1	CRYSTAL-QUARTZ	28480	0410-1457
A224	78100A-#139		1	CHANNEL 107	28480	78100A-#139
A224A1MP6	78100-41280	4	1	CASE COVER (MARKED)	28480	78100-41280
A224A2A1Y1	0410-1458	5	1	CRYSTAL-QUARTZ	28480	0410-1458
A225	78100A-#140		1	CHANNEL 108	28480	78100A-#140
A225A1MP6	78100-41281	5	1	CASE COVER (MARKED)	28480	78100-41281
A225A2A1Y1	0410-1459	6	1	CRYSTAL-QUARTZ	28480	0410-1459
A226	78100A-#141		1	CHANNEL 109	28480	78100A-#141
A226A1MP6	78100-41282	6	1	CASE COVER (MARKED)	28480	78100-41282
A226A2A1Y1	0410-1460	9	1	CRYSTAL-QUARTZ	28480	0410-1460
A227	78100A-#142		1	CHANNEL 110	28480	78100A-#142
A227A1MP6	78100-41283	7	1	CASE COVER (MARKED)	28480	78100-41283
A227A2A1Y1	0410-1461	0	1	CRYSTAL-QUARTZ	28480	0410-1461
A228	78100A-#143		1	CHANNEL 111	28480	78100A-#143
A228A1MP6	78100-41284	8	1	CASE COVER (MARKED)	28480	78100-41284
A228A2A1Y1	0410-1462	1	1	CRYSTAL-QUARTZ	28480	0410-1462
A229	78100A-#144		1	CHANNEL 112	28480	78100A-#144
A229A1MP6	78100-41285	9	1	CASE COVER (MARKED)	28480	78100-41285
A229A2A1Y1	0410-1463	2	1	CRYSTAL-QUARTZ	28480	0410-1463
A230	78100A-#145		1	CHANNEL 113	28480	78100A-#145
A230A1MP6	78100-41286	0	1	CASE COVER (MARKED)	28480	78100-41286
A230A2A1Y1	0410-1464	3	1	CRYSTAL-QUARTZ	28480	0410-1464
A231	78100A-#146		1	CHANNEL 114	28480	78100A-#146
A231A1MP6	78100-41287	1	1	CASE COVER (MARKED)	28480	78100-41287
A231A2A1Y1	0410-1465	4	1	CRYSTAL-QUARTZ	28480	0410-1465
A232	78100A-#147		1	CHANNEL 115	28480	78100A-#147
A232AMP6	78100-41288	2	1	CASE COVER (MARKED)	28480	78100-41288
A232A2A1Y1	0410-1466	5	1	CRYSTAL-QUARTZ	28480	0141-1466
A233	78100A-#148		1	CHANNEL 116	28480	78100A-#148
A233A1MP6	78100-41289	3	1	CASE COVER (MARKED)	28480	78100-41289
A233A2A1Y1	0410-1467	6	1	CRYSTAL-QUARTZ	28480	0410-1467
A234	78100A-#149		1	CHANNEL 117	28480	78100A-#149
A234A1MP6	78100A-41290	6	1	CASE COVER (MARKED)	28480	78100-41290
A234A2A1Y1	0410-1468	7	1	CRYSTAL-QUARTZ	28480	0410-1468
A235	78100A-#150		1	CHANNEL 118	28480	78100A-#150
A235A1MP6	78100-41291	7	1	CASE COVER (MARKED)	28480	78100-41291
A235A2A1Y1	0410-1469	8	1	CRYSTAL-QUARTZ	28480	0410-1469

Table 6-1. Replaceable Parts, 78100A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A236	78100A-#151		1	CHANNEL 119	28480	78100A-#151
A236A1MP6	78100-41292	8	1	CASE COVER (MARKED)	28480	78100-41292
A236A2A1Y1	0410-1470	1	1	CRYSTAL-QUARTZ	28480	0410-1470
A237	78100A-#152		1	CHANNEL 120	28480	78100A-#152
A237A1MP6	78100-41293	9	1	CASE COVER (MARKED)	28480	78100-41293
A237A2A1Y1	0410-1471	2	1	CRYSTAL-QUARTZ	28480	0410-1471
A238	78100A-#153		1	CHANNEL 121	28480	78100A-#153
A238A1MP6	78100-41294	0	1	CASE COVER (MARKED)	28480	78100-41294
A238A2A1Y1	0410-1472	3	1	CRYSTAL-QUARTZ	28480	0410-1472
A239	78100A-#154		1	CHANNEL 122	28480	78100A-#154
A239A1MP6	78100-41295	1	1	CASE COVER (MARKED)	28480	78100-41295
A239A2A1Y1	0410-1473	4	1	CRYSTAL-QUARTZ	28480	0410-1473
A240	78100A-#155		1	CHANNEL 123	28480	78100A-#155
A240A1MP6	78100-41296	2	1	CASE COVER (MARKED)	28480	78100-41296
A240A2A1Y1	0410-1474	5	1	CRYSTAL-QUARTZ	28480	0410-1474
A241	78100A-#156		1	CHANNEL 124	28480	78100A-#156
A241A1MP6	78100-41297	3	1	CASE COVER (MARKED)	28480	78100-41297
A241A2A1Y1	0410-1475	6	1	CRYSTAL-QUARTZ	28480	0410-1475
A242	78100A-#157		1	CHANNEL 125	28480	78100A-#157
A242A1MP6	78100-41298	4	1	CASE COVER (MARKED)	28480	78100-41298
A242A2A1Y1	0410-1476	7	1	CRYSTAL-QUARTZ	28480	0410-1476
A243	78100A-#158		1	CHANNEL 126	28480	78100A-#158
A243A1MP6	78100-41299	5	1	CASE COVER (MARKED)	28480	78100-41299
A243A2A1Y1	0410-1477	8	1	CRYSTAL-QUARTZ	28480	0410-1477
A244	78100A-#159		1	CHANNEL 127	28480	78100A-#159
A244A1MP6	78100-41300	9	1	CASE COVER (MARKED)	28480	78100-41300
A244A2A1Y1	0410-1478	9	1	CRYSTAL-QUARTZ	28480	0410-1478
A245	78100A-#160		1	CHANNEL 128	28480	78100A-#160
A245A1MP6	78100-41301	0	1	CASE COVER (MARKED)	28480	78100-41301
A245A2A1Y1	0410-1479	0	1	CRYSTAL-QUARTZ	28480	0410-1479
A246	78100A-#161		1	CHANNEL 129	28480	78100A-#161
A246A1MP6	78100-41302	1	1	CASE COVER (MARKED)	28480	78100-41302
A246A2A1Y1	0410-1480	3	1	CRYSTAL-QUARTZ	28480	0410-1480
A247	78100A-#162		1	CHANNEL 130	28480	78100A-#162
A247A1MP6	78100-41303	2	1	CASE COVER (MARKED)	28480	78100-41303
A247A2A1Y1	0410-1481	4	1	CRYSTAL-QUARTZ	28480	0410-1481



Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
	78101A	3	1	78101A RECEIVER		
A1	78101-60340	8	1	RECEIVER; ECG TELEMETRY	28480	78101A
A1A1	78101-60090	5	1	CASE (FIGURE 6-5)	28480	78101-60340
A1A2	78101-60100	8	1	PANEL; FRONT (FIGURE 6-5)	28480	78101-60090
A1A2A1	78101-60310	2	1	PANEL; REAR (FIGURE 6-5)	28480	78101-60100
A1A3	78101-60368	0	1	50 OHM ADAPTER (FIGURE 6-5)	28480	78101-60310
				COVER; TOP (FIGURE 6-5)	28480	78101-60368
A2	78101-60748	0	1	BOARD; LOW FREQUENCY PC (FIGURE 6-6)	28480	78101-60748
A3	78101-60260	1	1	SUB-PANEL (FIGURE 6-5)	28480	78101-60260
A4	78101-60330	6	1	CHASSIS (FIGURE 6-5)	28480	78101-60330
A5	78101-60010	9	1	BOARD; HIGH FREQUENCY PC (FIGURE 6-B)	28480	78101-60010
A6	78101-63499	4	1	ACCESSORIES; 78101A	28480	78101-63499
A7	78101A-#001	8	1	CHANNEL 1	28480	78101A-#001
A8	78101A-#002	9	1	CHANNEL 2	28480	78101A-#002
A9	78101A-#003	0	1	CHANNEL 3	28480	78101A-#003
A10	78101A-#004	1	1	CHANNEL 4	28480	78101A-#004
A11	78101A-#005	2	1	CHANNEL 5	28480	78101A-#005
A12	78101A-#006	3	1	CHANNEL 6	28480	78101A-#006
A13	78101A-#007	4	1	CHANNEL 7	28480	78101A-#007
A14	78101A-#008	5	1	CHANNEL 8	28480	78101A-#008
A15	78101A-#009	6	1	CHANNEL 9	28480	78101A-#009
A16	78101A-#010	9	1	CHANNEL 10	28480	78101A-#010
A17	78101A-#011	0	1	CHANNEL 11	28480	78101A-#011
A18	78101A-#012	1	1	CHANNEL 12	28480	78101A-#012
A19	78101A-#013	2	1	CHANNEL 13	28480	78101A-#013
A20	78101A-#014	3	1	CHANNEL 14	28480	78101A-#014
A21	78101A-#015	4	1	CHANNEL 15	28480	78101A-#015
A22	78101A-#016	5	1	CHANNEL 16	28480	78101A-#016
A23	78101A-#017	6	1	CHANNEL 17	28480	78101A-#017
A24	78101A-#018	7	1	CHANNEL 18	28480	78101A-#018
A25	78101A-#019	8	1	CHANNEL 19	28480	78101A-#019
A26	78101A-#020	1	1	CHANNEL 20	28480	78101A-#020
A27	78101A-#021	2	1	BW 450-470 MHZ	28480	78101A-#021
A28	78101A-#023	4	1	2 FOOT PWR CORD	28480	78101A-#023
A29	78101A-#024	5	1	ANTENNA COVER	28480	78101A-#024
A30	78101A-#025	6	1	LONG EXT ANTENNA	28480	78101A-#025
A31	78101A-#028	9	1	PWR CORD, IEC-IEC	28480	78101A-#028
A32	78101A-#029	0	1	SHARED REMOTE AN	28480	78101A-#029
A33	78101A-#030	3	1	IEC-IEC PWR CORD	28480	78101A-#030
A34	78101A-#031	4	1	COVER GCX WALL M	28480	78101A-#031
A35	78101A-#032	5	1	PERF COVERS	28480	78101A-#032
A36	78101A-#033	6	1	SOLID VINYL COVER	28480	78101A-#033
A37	78101A-#035	8	1	LOAN CHANNEL S1	28480	78101A-#035
A38	78101A-#036	9	1	LOAN CHANNEL S2	28480	78101A-#036
A39	78101A-#037	0	1	CHANNEL 21	28480	78101A-#037
A40	78101A-#038	1	1	CHANNEL 22	28480	78101A-#038
A41	78101A-#039	2	1	CHANNEL 23	28480	78101A-#039
A42	78101A-#040	5	1	CHANNEL 24	28480	78101A-#040
A43	78101A-#041	6	1	CHANNEL 25	28480	78101A-#041
A44	78101A-#042	7	1	CHANNEL 26	28480	78101A-#042
A45	78101A-#043	8	1	CHANNEL 27	28480	78101A-#043
A46	78101A-#044	9	1	CHANNEL 28	28480	78101A-#044
A47	78101A-#045	0	1	CHANNEL 29	28480	78101A-#045
A48	78101A-#046	1	1	CHANNEL 30	28480	78101A-#046
A49	78101A-#047	2	1	CHANNEL 31	28480	78101A-#047
A50	78101A-#048	3	1	CHANNEL 32	28480	78101A-#048
A51	78101A-#049	4	1	CHANNEL 33	28480	78101A-#049
A52	78101A-#050	7	1	CHANNEL 34	28480	78101A-#050
A53	78101A-#051	8	1	CHANNEL 35	28480	78101A-#051
A54	78101A-#052	9	1	CHANNEL 36	28480	78101A-#052
A55	78101A-#053	0	1	CHANNEL 37	28480	78101A-#053
A56	78101A-#054	1	1	CHANNEL 38	28480	78101A-#054
A57	78101A-#055	2	1	CHANNEL 39	28480	78101A-#055
A58	78101A-#056	3	1	CHANNEL 40	28480	78101A-#056
A59	78101A-#057	4	1	CHANNEL 41	28480	78101A-#057
A60	78101A-#058	5	1	CHANNEL 42	28480	78101A-#058
A61	78101A-#059	6	1	CHANNEL 43	28480	78101A-#059
A62	78101A-#060	9	1	CHANNEL 44	28480	78101A-#060
A63	78101A-#061	0	1	CHANNEL 45	28480	78101A-#061
A64	78101A-#062	1	1	CHANNEL 46	28480	78101A-#062
A65	78101A-#063	2	1	CHANNEL 47	28480	78101A-#063
A66	78101A-#064	3	1	CHANNEL 48	28480	78101A-#064
A67	78101A-#065	4	1	CHANNEL 49	28480	78101A-#065
A68	78101A-#066	5	1	CHANNEL 50	28480	78101A-#066
A69	78101A-#067	6	1	CHANNEL 51	28480	78101A-#067
A70	78101A-#068	7	1	CHANNEL 52	28480	78101A-#068
A71	78101A-#069	8	1	CHANNEL 53	28480	78101A-#069

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A72	78101A-#070	1	1	VDE UNIT	28480	78101A-#070
A73	78101A-#071	2	1	RECEIVER 100/115V	28480	78101A-#071
A74	78101A-#072	3	1	CSA APPROVED	28480	78101A-#072
A75	78101A-#073	4	1	CHANNEL 56	28480	78101A-#073
A76	78101A-#074	5	1	CHANNEL 57	28480	78101A-#074
A77	78101A-#075	6	1	CHANNEL 53	28480	78101A-#075
A78	78101A-#076	7	1	CHANNEL 54	28480	78101A-#076
A79	78101A-#077	8	1	CHANNEL 55	28480	78101A-#077
A80	78101A-#078	9	1	RECEIVER ONLY	28480	78101A-#078
A81	78101A-#080	3	1	TRANS US FREQ	28480	78101A-#080
A82	78101A-#081	4	1	TRAN EUROPE FREQ	28480	78101A-#081
A83	78101A-#082	5	1	CHANNEL 54	28480	78101A-#082
A84	78101A-#083	6	1	CHANNEL 55	28480	78101A-#083
A85	78101A-#084	7	1	CHANNEL 56	28480	78101A-#084
A86	78101A-#085	8	1	CHANNEL 57	28480	78101A-#085
A87	78101A-#086	9	1	CHANNEL 58	28480	78101A-#086
A88	78101A-#087	0	1	CHANNEL 59	28480	78101A-#087
A89	78101A-#088	1	1	CHANNEL 60	28480	78101A-#088
A90	78101A-#089	2	1	CHANNEL 61	28480	78101A-#089
A91	78101A-#090	5	1	UN KING PWR CORD	28480	78101A-#090
A92	78101A-#091	6	1	CHANNEL 62	28480	78101A-#091
A93	78101A-#092	7	1	W EUROPE PWR CORD	28480	78101A-#092
A94	78101A-#093	8	1	CHANNEL 63	28480	78101A-#093
A95	78101A-#094	9	1	CHANNEL 64	28480	78101A-#094
A96	78101A-#095	0	1	CHANNEL 65	28480	78101A-#095
A97	78101A-#096	1	1	POWER CORD	28480	78101A-#096
A98	78101A-#097	2	1	CHANNEL 66	28480	78101A-#097
A99	78101A-#098	3	1	CHANNEL 67	28480	78101A-#098
A100	78101A-#099	4	1	BW 430-450 MHZ	28480	78101A-#099
A101	78101A-#100	8	1	CHANNEL 68	28480	78101A-#100
A102	78101A-#101	9	1	CHANNEL 69	28480	78101A-#101
A103	78101A-#102	0	1	CHANNEL 70	28480	78101A-#102
A104	78101A-#103	1	1	CHANNEL 71	28480	78101A-#103
A105	78101A-#104	2	1	CHANNEL 72	28480	78101A-#104
A106	78101A-#105	3	1	CHANNEL 73	28480	78101A-#105
A107	78101A-#106	4	1	CHANNEL 74	28480	78101A-#106
A108	78101A-#107	5	1	CHANNEL 75	28480	78101A-#107
A109	78101A-#108	6	1	CHANNEL 76	28480	78101A-#108
A110	78101A-#109	7	1	CHANNEL 77	28480	78101A-#109
A111	78101A-#110	8	1	CHANNEL 78	28480	78101A-#110
A112	78101A-#111	1	1	CHANNEL 79	28480	78101A-#111
A113	78101A-#112	2	1	CHANNEL 80	28480	78101A-#112
A114	78101A-#113	3	1	CHANNEL 81	28480	78101A-#113
A115	78101A-#114	4	1	CHANNEL 82	28480	78101A-#114
A116	78101A-#115	5	1	CHANNEL 83	28480	78101A-#115
A117	78101A-#116	6	1	CHANNEL 84	28480	78101A-#116
A118	78101A-#117	7	1	CHANNEL 85	28480	78101A-#117
A119	78101A-#118	8	1	CHANNEL 86	28480	78101A-#118
A120	78101A-#119	9	1	CHANNEL 87	28480	78101A-#119
A121	78101A-#120	2	1	CHANNEL 88	28480	78101A-#120
A122	78101A-#121	3	1	CHANNEL 89	28480	78101A-#121
A123	78101A-#122	4	1	CHANNEL 90	28480	78101A-#122
A124	78101A-#123	5	1	CHANNEL 91	28480	78101A-#123
A125	78101A-#124	6	1	CHANNEL 92	28480	78101A-#124
A126	78101A-#125	7	1	CHANNEL 93	28480	78101A-#125
A127	78101A-#126	8	1	CHANNEL 94	28480	78101A-#126
A128	78101A-#127	9	1	CHANNEL 95	28480	78101A-#127
A129	78101A-#128	0	1	CHANNEL 96	28480	78101A-#128
A130	78101A-#A02	2	1	OP FREQ 466.8375	28480	78101A-#A02
A131	78101A-#A03	3	1	OP FREQ 466.8625	28480	78101A-#A03
A132	78101A-#A04	4	1	OP FREQ 466.8875	28480	78101A-#A04
A133	78101A-#A05	5	1	OP FREQ 466.9125	28480	78101A-#A05
A134	78101A-#F01	2	1	OP FREQ 433.200	28480	78101A-#F01
A134 A1	78101-60011	0	1	HF BD 430-450 MHZ	28480	78101-60011
A135	78101A-#C01	3	1	OP FREQ 433.375	28480	78101A-#C01
A136	78101A-#C02	4	1	OP FREQ 433.425	28480	78101A-#C02
A137	78101A-#C03	5	1	OP FREQ 433.675	28480	78101A-#C03
A138	78101A-#C04	6	1	OP FREQ 433.725	28480	78101A-#C04
A139	78101A-#C05	7	1	OP FREQ 433.825	28480	78101A-#C05
A140	78101A-#C06	8	1	OP FREQ 433.875	28480	78101A-#C06
A141	78101A-#C07	9	1	OP FREQ 433.225	28480	78101A-#C07
A142	78101A-#C08	0	1	OP FREQ 434.050	28480	78101A-#C08
A143	78101A-#C09	1	1	OP FREQ 434.100	28480	78101A-#C09
A144	78101A-#C10	4	1	OP FREQ 433.275	28480	78101A-#C10
A145	78101A-#C11	5	1	OP FREQ 434.200	28480	78101A-#C11

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A146	78101A-#C12	6	1	OP FREQ 434.250	28480	78101A-#C12
A147	78101A-#C13	7	1	OP FREQ 434.500	28480	78101A-#C13
A148	78101A-#C14	8	1	OP FREQ 434.550	28480	78101A-#C14
A149	78101A-#C15	9	1	OP FREQ 434.650	28480	78101A-#C15
A150	78101A-#C16	0	1	OP FREQ 434.700	28480	78101A-#C16
A151	78101A-#C17	1	1	OP FREQ 433.075	28480	78101A-#C17
A152	78101A-#C18	2	1	OP FREQ 433.125	28480	78101A-#C18
A153	78101A-#C19	3	1	OP FREQ 433.175	28480	78101A-#C19
A154	78101A-#C20	6	1	OP FREQ 433.325	28480	78101A-#C20
A155	78101A-#C21	7	1	OP FREQ 433.475	28480	78101A-#C21
A156	78101A-#C22	8	1	OP FREQ 433.525	28480	78101A-#C22
A157	78101A-#C23	9	1	OP FREQ 433.575	28480	78101A-#C23
A158	78101A-#C24	0	1	OP FREQ 433.625	28480	78101A-#C24
A159	78101A-#C25	1	1	OP FREQ 450.930	28480	78101A-#C25
A160	78101A-#C26	2	1	OP FREQ 450.970	28480	78101A-#C26
A161	78101A-#C27	3	1	OP FREQ 451.010	28480	78101A-#C27
A162	78101A-#C28	4	1	OP FREQ 451.050	28480	78101A-#C28
A163	78101A-#C29	5	1	OP FREQ 451.090	28480	78101A-#C29
A164	78101A-#D01	4	1	OP FREQ 448.000	28480	78101A-#D01
A165	78101A-#D02	5	1	OP FREQ 448.025	28480	78101A-#D02
A166	78101A-#D03	6	1	OP FREQ 448.075	28480	78101A-#D03
A167	78101A-#D04	7	1	OP FREQ 448.100	28480	78101A-#D04
A168	78101A-#D05	8	1	OP FREQ 448.250	28480	78101A-#D05
A169	78101A-#D06	9	1	OP FREQ 448.275	28480	78101A-#D06
A170	78101A-#D07	0	1	OP FREQ 448.050	28480	78101A-#D07
A171	78101A-#D08	1	1	OP FREQ 448.125	28480	78101A-#D08
A172	78101A-#D09	2	1	OP FREQ 448.150	28480	78101A-#D09
A173	78101A-#D10	5	1	OP FREQ 448.175	28480	78101A-#D10
A174	78101A-#D11	6	1	OP FREQ 448.200	28480	78101A-#D11
A175	78101A-#D12	7	1	OP FREQ 448.225	28480	78101A-#D12
A176	78101A-#E01	5	1	OP FREQ 438.600	28480	78101A-#E01
A177	78101A-#F01	6	1	OP FREQ 446.050	28480	78101A-#F01
A178	78101A-#F02	7	1	OP FREQ 446.100	28480	78101A-#F02
A179	78101A-#F03	8	1	OP FREQ 446.350	28480	78101A-#F03
A180	78101A-#F04	9	1	OP FREQ 446.400	28480	78101A-#F04
A181	78101A-#F05	0	1	OP FREQ 446.500	28480	78101A-#F05
A182	78101A-#F06	1	1	OP FREQ 446.550	28480	78101A-#F06
A183	78101A-#F07	2	1	OP FREQ 446.800	28480	78101A-#F07
A184	78101A-#F08	3	1	OP FREQ 446.850	28480	78101A-#F08
A185	78101A-#F09	4	1	OP FREQ 446.000	28480	78101A-#F09
A186	78101A-#F10	7	1	OP FREQ 446.150	28480	78101A-#F10
A187	78101A-#F11	8	1	OP FREQ 446.200	28480	78101A-#F11
A188	78101A-#F12	9	1	OP FREQ 446.450	28480	78101A-#F12
A189	78101A-#F13	0	1	OP FREQ 446.600	28480	78101A-#F13
A190	78101A-#F14	1	1	OP FREQ 446.650	28480	78101A-#F14
A191	78101A-#F15	2	1	OP FREQ 446.900	28480	78101A-#F15
A192	78101A-#F16	3	1	OP FREQ 446.950	28480	78101A-#F16
A193	78101A-#F17	4	1	OP FREQ 446.250	28480	78101A-#F17
A194	78101A-#F18	5	1	OP FREQ 446.300	28480	78101A-#F18
A195	78101A-#F19	6	1	OP FREQ 446.700	28480	78101A-#F19
A196	78101A-#F20	7	1	OP FREQ 446.750	28480	78101A-#F20
A197	78101A-#G01	9	1	OP FREQ 456.210	28480	78101A-#G01
A198	78101A-#G02	8	1	OP FREQ 456.250	28480	78101A-#G02
A199	78101A-#G03	9	1	OP FREQ 456.330	28480	78101A-#G03
A200	78101A-#G04	0	1	OP FREQ 466.210	28480	78101A-#G04
A201	78101A-#G05	1	1	OP FREQ 466.250	28480	78101A-#G05
A202	78101A-#G06	2	1	OP FREQ 466.330	28480	78101A-#G06
A203	78101A-#H01	8	1	OP FREQ 468.525	28480	78101A-#H01
A204	78101A-#J01	7	1	OP FREQ 449.775	28480	78101A-#J01
A205	78101A-#J02	8	1	OP FREQ 449.800	28480	78101A-#J02
A206	78101A-#J03	9	1	OP FREQ 449.850	28480	78101A-#J03
A207	78101A-#K02	9	1	OP FREQ 439.775	28480	78101A-#K02
A208	78101A-#K03	0	1	OP FREQ 439.800	28480	78101A-#K03
A209	78101A-#K04	1	1	OP FREQ 439.825	28480	78101A-#K04
A210	78101A-#K05	2	1	OP FREQ 439.850	28480	78101A-#K05
A211	78101A-#K06	3	1	OP FREQ 439.875	28480	78101A-#K06
A212	78101A-#K07	4	1	OP FREQ 439.850	28480	78101A-#K07
A213	78101A-#K08	5	1	OP FREQ 439.975	28480	78101A-#K08
A214	78101A-#K09	6	1	OP FREQ 439.900	28480	78101A-#K09
A215	78101A-#K10	9	1	OP FREQ 439.925	28480	78101A-#K10
A216	78101A-#L13	3	1	OP FREQ 458.500	28480	78101A-#L13
A217	78101A-#L14	4	1	OP FREQ 458.525	28480	78101A-#L14
A218	78101A-#L15	5	1	OP FREQ 458.5625	28480	78101A-#L15
A219	78101A-#L16	6	1	OP FREQ 458.5875	28480	78101A-#L16
A220	78101A-#L17	7	1	OP FREQ 458.700	28480	78101A-#L17

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A221	78101A-#L18	8	1	OP FREQ 458.725	28480	78101A-#L18
A222	78101A-#L19	9	1	OP FREQ 458.775	28480	78101A-#L19
A223	78101A-#L20	2	1	OP FREQ 458.800	28480	78101A-#L20
A224	78101A-#N01	1	1	OP FREQ 441.975	28480	78101A-#N01
A225	78101A-#N02	2	1	OP FREQ 441.925	28480	78101A-#N02
A226	78101A-#N03	3	1	OP FREQ 441.937	28480	78101A-#N03
A227	78101A-#N04	4	1	OP FREQ 441.962	28480	78101A-#N04
A228	78101A-#N05	5	1	OP FREQ 441.875	28480	78101A-#N05
A229	78101A-#N06	6	1	OP FREQ 441.950	28480	78101A-#N06
A230	78101A-#N90	8	1	UK OPERATION	28480	78101A-#N90

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A1	78101-60340	8	1	ASSY, CASE	28480	78101-60340
A1MP1	5000-8559	7	2	COVER:SIDE 3 X 11	28480	5000-8559
A1MP2	5000-8559	7		COVER:SIDE 3 X 11	28480	5000-8559
A1MP3	07804-00215	1	1	BOTTOM COVER	28480	07804-00215
A1MP4	5060-0700	0	2	SIDE CASTING	28480	5060-0700
A1MP5	5060-0700	0		SIDE CASTING	28480	5060-0700
A1MP6	5060-0728	2	2	FOOT ASSY:HALF MODULE	28480	5060-0728
A1MP7	7120-3361	5	1	LABEL INFO FCC	28480	7120-3361
A1MP8	07804-00200	4	1	PLATE HOLD DOWN	28480	07804-00200
				MISCELLANEOUS		
	2360-0113	2	2	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2360-0114	3	24	SCREW-MACH 6-32 .25-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
	2360-0192	7	16	SCREW-MACH 6-32 .25-IN-LG 100 DEG	00000	ORDER BY DESCRIPTION
	7124-1964	8	1	NAMEPLATE	28480	7124-1964

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A1A1	78101-60090	5	1	ASSY, FRONT PANEL	28480	78101-60090
A1A1DS1	07800-60491	7	1	LAMP & LENS, WHIT	28480	07800-60491
A1A1DS2	2140-0358	1	2	LAMP-INCAND 7241 18VDC 26MA T-1-BULB	1F556	7241
A1A1DS3	2140-0358	1		LAMP-INCAND 7241 18VDC 26MA T-1-BULB	1F556	7241
A1A1MP7	5060-0728	2		FOOT ASSY:HALF MODULE	28480	5060-0728
A1A1MP8	1490-0032	8	1	TILT STAND 2.236-IN-W 7.088-IN-OA-LG SST	28480	1490-0032
A1A1MP9	5040-0700	8	2	HINGE	28480	5040-0700
A1A1MP10	5040-0700	8		HINGE	28480	5040-0700
A1A1XDS2	1450-0611	5	2	LAMPHOLDER TUR-TERM	28480	1450-0611
A1A1XDS3	1450-0611	5		LAMPHOLDER TUR-TERM	28480	1450-0611
				MISCELLANEOUS		
	1450-0612	6	2	LENS CAP WHT-TL .38-DIA	28480	1450-0612
	2360-0114	3		SCREW-MACH 6-32 .25-IN-LG 82 DEG	00000	ORDER BY DESCRIPTION
	2360-0192	7		SCREW-MACH 6-32 .25-IN-LG 100 DEG	00000	ORDER BY DESCRIPTION
	78101-00090	9	1	FRONT PANEL	28480	78101-00090

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A1A2	78101-60100	8	1	ASSY, REAR PANEL	28480	78101-60100
A1A2F1	2110-0004	1	1	FUSE .25A 250V NTD 1.25X.25 UL	28480	2110-0004
A1A2J1	1251-2357	8	1	CONNECTOR-AC PWR HP-9 MALE FLG-MTG	28480	1251-2357
A1A2J2	1251-2995	0	1	CONNECTOR-AC PWR CEE-22 FEM FLG-MTG	28480	1251-2995
A1A2J4	1251-1777	4	1	CONNECTOR-TEL JACK 3-CKT .25-SHK-DIA	28480	1251-1777
A1A2MP1	07826-40040	0	2	SHIELD, PCB	28480	07826-40040
A1A2MP2	07826-40040	0	1	SHIELD, PCB	28480	07826-40040
A1A2MP3	78101-00100	2	1	REAR PANEL	28480	78101-00100
A1A2MP4	7122-0097	2	1	NAMEPLATE	28480	7122-0097
A1A2S7	3101-2104	8	1	SWITCH-SL DPDT STD 1.5A 250VAC SLDR-LUG	28480	3101-2104
A1A2XF1	2110-0481	8	1	FUSEHOLDER-EXTR POST 20A 300 V UL/IEC	75915	345003
				MISCELLANEOUS		
	0360-1610	4	2	TERMINAL-SLDR LUG PL-MTG FOR-#6-SCR	28480	0360-1610
	0361-0345	2	2	RIVET-SEMITUB OVH .123 DIA .156 LG	00000	ORDER BY DESCRIPTION
	0510-0002	5	8	THREADED INSERT-NUT 6-32 .062-IN-LG STL	28480	0510-0002
	0590-0343	5	4	THREADED INSERT-NUT 4-40 .062-IN-LG	28480	0590-0343
	2190-0037	8	1	WASHER-LK INTL T 1/2 IN .512-IN-ID	28480	2190-0037
	2190-0082	3	1	WASHER-LK INTL T 3/8 IN .384-IN-ID	28480	2190-0082
	2190-0102	8	1	WASHER-LK INTL T 15/32 IN .472-IN-ID	28480	2190-0102
	2190-0356	4	2	WASHER-SHLDR 3/8 IN .38-IN-ID .625-IN-OD	28480	2190-0356
	2950-0001	8	1	NUT-HEX-DBL-CHAM 3/8-32-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
	2950-0035	8	1	NUT-HEX-DBL-CHAM 15/32-32-THD	00000	ORDER BY DESCRIPTION
	78101-60130	4	1	CABLE ASSEMBLY	28480	78101-60130

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A1A2A1	78101-60310	2	1	ADAPTER 50 OHM	28480	78101-60310
				MISCELLANEOUS		
	1250-0830	6	1	CONNECTOR-RF SMC H SGL-HOLE-FR 50-OHM	28480	1250-0830
	1250-0870	4	1	CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM	28480	1250-0870
	1250-0952	3	1	CONTACT-RF CONN BNC/TNC:FEM CTR	24931	C232-2
	2190-0124	4	1	WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
	78101-20090	1	1	BNC NUT	28480	78101-20090
A1A3	5060-4638	1	1	COVER-TOP	28480	5060-4638

ENHANCE
BOARD

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2	78101-60745	7	1	PCB, LOW FREQ	28480	78101-60745
A2 @ R28, R32, R35	0360-1491	9	3	TERM SOLDER STUD		
A2 @ R28, R32, R35	0362-0171	4	3	TERM CABLE#16AWG		
A2 @ Q2	78101-00401	6	1	LABEL, PCB	28480	78101-00401
	78101-60740	2	1	PCB, LOW FREQ	28480	78101-60740
BELOW A2	78101-60780	0	1	PCB	28480	78101-60780
C13	0160-2671	5	1	CAP 0.1M 5% MYL		
C4	0160-5728	9	1	C-F 1000PF 5%		
TP1-8	03601491	9	8	TERM SOLDER STUD		
XMH2, 3	0380-0342	9	2	STANDOFF RVT		
Q1, 2	1855-0432	6	2	MOSFET 3N163		
U1	5180-6853	0	1	PACE PULSE DET		
U3	1820-1932	0	1	ICD-14538 MVIB		
U2	1826-0065	0	1	ICL-311 CMPR		
U5	1826-0547	3	1	AMP		
U4	1826-0777	1	1	ICL-303 SWCH		
	78101-00780	4	1	PCB	28480	78101-00780
C14, 15	0160-4800	6	2	CAP FX 120PF		
C1, 2, 5, 6, 8, 9	0160-4835	7	6	C-F .1UF 10% 50V		
C3, 10, 11	0180-0291	3	3	CAP 1.0M 10% TAN		
R28	0698-3268	7	1	R-F 11.5K 1%		
R21, 22	0698-3519	1	2	RES 12.4K 1% 1/8W		
R27	0698-4444	3	1	RES 4.87K 1% 1/8		
R25	0698-4479	4	1	R-F 14K 1% .125W		
R2	0698-4481	8	1	RES 16.5K 1% 1/8		
R6	0698-7927	3	1	RES-FIXED 1.5M-1		
R4	0698-8960	6	1	R-F 750K 1%		
R19, 20	0757-0277	8	2	RES 49.9 1% 1/8W		
R7, 13, 16	0757-0280	3	3	R-F 1K 1% .125W F		
R26	0757-0438	3	1	RES 5.11K 1% 1/8		
R5, 12, 14	0757-0442	9	3	R-F 10K 1% .125W		
R8, 9, 10, 11, 15	0757-0459	8	5	RES 56.2K 1% 1/8		
R1	0757-0461	2	1	RES 68.1K 1% 1/8		
R3	0757-0466	7	1	RES 110K 1% 1/8W		
CR1, 2, 3, 4, 7, 8	1901-1098	1	6	DIO-1N4150 50V		
CR5, 6	1902-0953	7	2	DIODE 6.2 VOLT		
R17	8159-0005	0	1	BINS, JUMPER, ELEC		
L1	9100-1633	0	1	INDUCT 68 UH		

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2	78101-60740	2	1	PCB, LOW FREQ	28480	78101-60740
A2C1	0180-1985	4	2	CAPACITOR-FXD 500UF+75-10% 30VDC AL	28480	0180-1985
A2C2	0180-1985	4	2	CAPACITOR-FXD 500UF+75-10% 30VDC AL	28480	0180-1985
A2C3	0180-0228	6	2	CAPACITOR-FXD 22UF+-10% 15VDC TA	56289	150D226X9015B2
A2C4	0180-0228	6	2	CAPACITOR-FXD 22UF+-10% 15VDC TA	56289	150D226X9015B2
A2C5	0160-3453	3	3	CAPACITOR-FXD .05UF +80-20% 100VDC CER	28480	0160-3453
A2C6	0180-0374	3	3	CAPACITOR-FXD 10UF+-10% 20VDC TA	56289	150D106X9020B2
A2C7	0180-0374	3	3	CAPACITOR-FXD 10UF+-10% 20VDC TA	56289	150D106X9020B2
A2C10	0160-2685	1	3	CAPACITOR-FXD .04UF +-5% 200VDC POLYE	28480	0160-2685
A2C11	0180-0374	3	3	CAPACITOR-FXD 10UF+-10% 20VDC TA	56289	150D106X9020B2
A2C12	0160-2617	9	3	CAPACITOR-FXD 220PF +-10% 1KVDC CER	28480	0160-2617
A2C13	0160-2723	8	1	CAPACITOR-FXD 3900PF +-2% 500VDC MICA	28480	0160-2723
A2C14	0160-2724	9	1	CAPACITOR-FXD 3600PF +-2% 500VDC MICA	28480	0160-2724
A2C15	0160-2710	3	4	CAPACITOR-FXD 100PF +-5% 500VDC MICA	28480	0160-2710
A2C16	0160-0165	8	2	CAPACITOR-FXD .056UF +-10% 200VDC POLYE	28480	0160-0165
A2C17	0160-3238	2	1	CAPACITOR-FXD .15UF +-5% 200VDC POLYE	28480	0160-3238
A2C18	0160-2414	4	1	CAPACITOR-FXD .022UF +-5% 200VDC POLYE	28480	0160-2414
A2C19	0160-3453	3	1	CAPACITOR-FXD .05UF +80-20% 100VDC CER	28480	0160-3453
A2C20	0160-0138	5	1	CAPACITOR-FXD .047UF +-5% 200VDC POLYE	28480	0160-0138
A2C21	0160-2685	1	1	CAPACITOR-FXD .04UF +-5% 200VDC POLYE	28480	0160-2685
A2C22	0160-3453	3	1	CAPACITOR-FXD .05UF +80-20% 100VDC CER	28480	0160-3453
A2C24	0160-2710	3	1	CAPACITOR-FXD 100PF +-5% 500VDC MICA	28480	0160-2710
A2C25	0160-2617	9	1	CAPACITOR-FXD 220PF +-10% 1KVDC CER	28480	0160-2617
A2C26	0160-2685	1	1	CAPACITOR-FXD .04UF +-5% 200VDC POLYE	28480	0160-2685
A2C27	0160-0134	1	1	CAPACITOR-FXD 220PF +-5% 300VDC MICA	28480	0160-0134
A2C28	0160-2199	2	1	CAPACITOR-FXD 30PF +-5% 300VDC MICA	28480	0160-2199
A2C29	0160-0303	6	1	CAPACITOR-FXD .15UF +-10% 200VDC POLYE	28480	0160-0303
A2C30	0160-2710	3	1	CAPACITOR-FXD 100PF +-5% 500VDC MICA	28480	0160-2710
A2C31	0160-2222	2	1	CAPACITOR-FXD 1500PF +-5% 300VDC MICA	28480	0160-2222
A2C32	0160-2634	8	1	CAPACITOR-FXD 3300PF +-10% 500VDC CER	28480	0160-2634
A2C33	0160-0165	8	1	CAPACITOR-FXD .056UF +-10% 200VDC POLYE	28480	0160-0165
A2C34	0160-0168	1	1	CAPACITOR-FXD .1UF +-10% 200VDC POLYE	28480	0160-0168
A2C35	0160-2768	1	1	CAPACITOR-FXD 1.75UF +-10% 50VDC POLYE	28480	0160-2768
A2C36	0160-2710	3	1	CAPACITOR-FXD 100PF +-5% 500VDC MICA	28480	0160-2710
A2C37	0160-2617	9	1	CAPACITOR-FXD 220PF +-10% 1KVDC CER	28480	0160-2617
A2CR1	1901-0363	1	1	DIODE-FW BRDG 100V 1A	28480	1901-0363
A2CR5	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR6	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR7	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR8	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR9	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR10	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR11	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR12	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR13	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR15	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR16	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR17	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR18	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR19	1901-0053	6	1	DIODE-GEN PRP 30V 150MA DO-7	28480	1901-0053
A2CR20	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR21	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR22	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR23	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR24	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR25	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR26	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR27	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR28	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR29	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2CR30	1902-0555	5	2	DIODE-ZNR 13V 5% PD=1W IR=50A	28480	1902-0555
A2CR31	1902-0555	5	2	DIODE-ZNR 13V 5% PD=1W IR=50A	28480	1902-0555
A2CR32	1901-0033	2	24	DIODE-GEN PRP 180V 200MA DO-7	28480	1901-0033
A2E1	1205-0095	0	2	HEAT SINK SGL TO-5/TO-39-CS	30161	3225B
A2E2	1205-0095	0	2	HEAT SINK SGL TO-5/TO-39-CS	30161	3225B
A2L2	9100-1633	0	1	INDUCTOR RF-CH-HLD 68UH 5% .166DX.385LG	28480	9100-1633
A2Q1	1853-0045	3	2	TRANSISTOR PNP SI TO-39 PD=1W FT=60MHZ	31585	2N4036
A2Q2	1853-0045	3	2	TRANSISTOR PNP SI TO-39 PD=1W FT=60MHZ	31585	2N4036
A2Q3	1853-0020	4	7	TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A2Q4	1854-0717	8	8	TRANSISTOR NPN SI PD=550MW FT=200MHZ	28480	1854-0717
A2Q5	1853-0403	7	5	TRANSISTOR PNP SI TO-18 PD=300MW	28480	1853-0403

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2Q6	1853-0403	7		TRANSISTOR PNP SI TO-18 PD=300MW	28480	1853-0403
A2Q7	1853-0403	7		TRANSISTOR PNP SI TO-18 PD=300MW	28480	1853-0403
A2Q8	1853-0403	7		TRANSISTOR PNP SI TO-18 PD=300MW	28480	1853-0403
A2Q9	1854-0717	8		TRANSISTOR NPN SI PD=550MW FT=200MHZ	28480	1854-0717
A2Q10	1854-0717	8		TRANSISTOR NPN SI PD=550MW FT=200MHZ	28480	1854-0717
A2Q11	1854-0717	8		TRANSISTOR NPN SI PD=550MW FT=200MHZ	28480	1854-0717
A2Q12	1854-0020	4		TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A2Q13	1854-0717	8		TRANSISTOR NPN SI PD=550MW FT=200MHZ	28480	1854-0717
A2Q14	1853-0403	7		TRANSISTOR PNP SI TO-18 PD=300MW	28480	1853-0403
A2Q15	1854-0717	8		TRANSISTOR NPN SI PD=550MW FT=200MHZ	28480	1854-0717
A2Q16	1853-0020	4		TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A2Q17	1854-0717	8		TRANSISTOR NPN SI PD=550MW FT=200MHZ	28480	1854-0717
A2Q19	1853-0433	3	2	TRANSISTOR PNP SI PD=300MW FT=40MHZ	28480	1853-0433
A2Q20	1853-0433	3		TRANSISTOR PNP SI PD=300MW FT=40MHZ	28480	1853-0433
A2Q21	1853-0217	1	1	TRANSISTOR PNP SI PD=310MW	04713	MPS-404A
A2Q27	1853-0020	4		TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A2Q28	1854-0717	8		TRANSISTOR NPN SI PD=550MW FT=200MHZ	28480	1854-0717
A2Q29	1855-0062	8	1	TRANSISTOR J-FET N-CHAN D-MODE SI	28480	1855-0062
A2Q30	1853-0020	4		TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A2Q31	1853-0020	4		TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A2Q32	1853-0020	4		TRANSISTOR PNP SI PD=300MW FT=150MHZ	28480	1853-0020
A2R2	0757-0280	3	3	RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2R3	0757-0274	5	1	RESISTOR 1.21K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1211-F
A2R4	0757-0991	3	1	RESISTOR 20 1% .5W F TC=0+-100	28480	0757-0991
A2R5	0757-0442	9	7	RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2R6	0757-0279	0	2	RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A2R7	0698-3154	0	1	RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A2R8	2100-0567	0	2	RESISTOR-TRMR 2K 10% C TOP-ADJ 1-TRN	28480	2100-0567
A2R9	0757-0290	5	2	RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A2R10	0698-3329	1	2	RESISTOR 10K .5% .125W F TC=0+-100	03888	PM55-1/8-T0-1002-D
A2R11	0698-3329	1		RESISTOR 10K .5% .125W F TC=0+-100	03888	PM55-1/8-T0-1002-D
A2R12	0686-0515	6	1	RESISTOR 5.1 5% .5W CC TC=0+412	01121	ER51G5
A2R13	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2R14	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A2R15	0683-1055	5	3	RESISTOR 1M 5% .25W FC TC=-800/+900	01121	CB1055
A2R16	0683-1055	5		RESISTOR 1M 5% .25W FC TC=-800/+900	01121	CB1055
A2R17	0757-0470	3	2	RESISTOR 162K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1623-F
A2R18	0757-0470	3		RESISTOR 162K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1623-F
A2R19	0698-3160	8	7	RESISTOR 20K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2002-F
A2R20	0757-0290	5		RESISTOR 6.19K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-6191-F
A2R21	0698-3160	8	2	RESISTOR 31.6K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1542-F
A2R22	0757-0465	6	8	RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A2R23	0698-4859	4	2	RESISTOR 340 1% .5W F TC=0+-100	28480	0698-4859
A2R24	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2R25	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A2R26	0757-0449	6		RESISTOR 20K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2002-F
A2R27	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2R28	0757-0401	0	1	RESISTOR 100 1% .125W F TC=0+-100	24546	C4-1/8-T0-101-F
A2R29	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2R30	0698-4531	9	2	RESISTOR 267K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2673-F
A2R31	0757-0438	3	4	RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A2R32	0757-0449	6		RESISTOR 20K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2002-F
A2R33	0698-4859	4		RESISTOR 340 1% .5W F TC=0+-100	28480	0698-4859
A2R34	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A2R35	0757-0449	6		RESISTOR 20K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2002-F
A2R36	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2R37	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A2R38	0698-3159	5	2	RESISTOR 26.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2612-F
A2R43	0757-0439	4	2	RESISTOR 6.81K 1% .125W F TC=0+-100	24546	C4-1/8-T0-6811-F
A2R44	0757-0439	4		RESISTOR 6.81K 1% .125W F TC=0+-100	24546	C4-1/8-T0-6811-F
A2R45	0683-1555	0	2	RESISTOR 1.5M 5% .25W FC TC=-900/+1100	01121	CB1555
A2R46	0757-0449	6		RESISTOR 20K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2002-F
A2R47	0757-0449	6		RESISTOR 20K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2002-F
A2R48	0698-3153	9	1	RESISTOR 3.83K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3831-F
A2R49	0757-0463	4	3	RESISTOR 82.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-8252-F
A2R50	0698-3450	9	1	RESISTOR 42.2K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4222-F
A2R51	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A2R52	2100-2030	6	3	RESISTOR-TRMR 20K 10% C TOP-ADJ 1-TRN	73138	82PR20K
A2R53	0698-5808	5	2	RESISTOR 4K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4001-F
A2R54	0698-5808	5		RESISTOR 4K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4001-F
A2R55	0757-0450	9	1	RESISTOR 22.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2212-F
A2R57	0698-3159	5		RESISTOR 26.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2612-F
A2R58	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A2R59	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A2R60	0757-0123	3	2	RESISTOR 34.8K 1% .125W F TC=0+-100	28480	0757-0123
A2R61	0757-0123	3		RESISTOR 34.8K 1% .125W F TC=0+-100	28480	0757-0123

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A2R62	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A2R64	0757-0449	6		RESISTOR 20K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2002-F
A2R65	2100-0567	0		RESISTOR-TRMR 2K 10% C TOP-ADJ 1-TRN	28480	2100-0567
A2R66	0757-0283	6	2	RESISTOR 2K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2001-F
A2R67	0698-3162	0	2	RESISTOR 46.4K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4642-F
A2R68	0757-0279	0		RESISTOR 3.16K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3161-F
A2R71	0698-4466	9	1	RESISTOR 976 1% .125W F TC=0+-100	24546	C4-1/8-T0-976R-F
A2R72	0757-0394	0	1	RESISTOR 51.1 1% .125W F TC=0+-100	24546	C4-1/8-T0-51R1-F
A2R73	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2R74	0757-0346	2	1	RESISTOR 10 1% .125W F TC=0+-100	24546	C4-1/8-T0-10R0-F
A2R75	0757-0463	4		RESISTOR 82.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-8252-F
A2R76	0757-0420	3	1	RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A2R77	0757-0467	8	1	RESISTOR 121K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1213-F
A2R78	2100-2655	1	1	RESISTOR-TRMR 100K 10% C TOP-ADJ 1-TRN	73138	82PR100K
A2R79	0698-4531	9		RESISTOR 267K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2673-F
A2R80	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A2R81	0683-1555	0		RESISTOR 1.5M 5% .25W FC TC=-900/+1100	01121	CB1555
A2R82	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A2R83	0698-3162	0		RESISTOR 46.4K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4642-F
A2R84	0757-0465	6		RESISTOR 100K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1003-F
A2R85	0757-0283	6		RESISTOR 2K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2001-F
A2R86	0698-4499	8	2	RESISTOR 54.9K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5492-F
A2R87	0698-3499	6	1	RESISTOR 40.2K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4022-F
A2R88	0698-3451	0	1	RESISTOR 133K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1333-F
A2R89	0757-0462	3	1	RESISTOR 75K 1% .125W F TC=0+-100	24546	C4-1/8-T0-7502-F
A2R90	0698-3540	8		RESISTOR 15.4K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1542-F
A2R91	0698-4499	8		RESISTOR 54.9K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5492-F
A2R92	0683-1055	5		RESISTOR 1M 5% .25W FC TC=-800/+900	01121	CB1055
A2R93	2100-2030	6		RESISTOR-TRMR 20K 10% C TOP-ADJ 1-TRN	73138	82PR20K
A2R100	2100-2030	6		RESISTOR-TRMR 20K 10% C TOP-ADJ 1-TRN	73138	82PR20K
A2R102	0757-0438	3		RESISTOR 5.11K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A2R104	0683-3325	6	2	RESISTOR 3.3K 5% .25W FC TC=-400/+700	01121	CB3325
A2R105	0683-3325	6		RESISTOR 3.3K 5% .25W FC TC=-400/+700	01121	CB3325
A2R106	0683-6825	7	2	RESISTOR 6.8K 5% .25W FC TC=-400/+700	01121	CB6825
A2R107	0757-0278	9	1	RESISTOR 1.78K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1781-F
A2R108	0683-6825	7		RESISTOR 6.8K 5% .25W FC TC=-400/+700	01121	CB6825
A2R109	0757-0440	7	1	RESISTOR 7.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-7501-F
A2R110	0698-6250	3	1	RESISTOR 2.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2501-F
A2R111	0683-1015	7	1	RESISTOR 100 5% .25W FC TC=-400/+500	01121	CB1015
A2R112	0683-5625	3	1	RESISTOR 5.6K 5% .25W FC TC=-400/+700	01121	CB5625
A2R113	0757-0463	4		RESISTOR 82.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-8252-F
A2S4	3101-0407	0	2	SWITCH-SL DPDT MINTR .5A 125VAC/DC PC	28480	3101-0407
A2S5	3101-1331	1	1	SWITCH-SL DP3T MINTR .5A 125VAC/DC PC	28480	3101-1331
A2S6	3101-0407	0		SWITCH-SL DPDT MINTR .5A 125VAC/DC PC	28480	3101-0407
A2U1	5081-1834	7	3	IC OP AMP FORMED	28480	5081-1834
A2U2	5081-1835	8	5	IC OP AMP FORMED	28480	5081-1835
A2U3	5081-1834	7		IC OP AMP FORMED	28480	5081-1834
A2U4	1826-0049	0	1	IC V RGLTR 14 DIP-C	07263	723DC
A2U5	5081-1835	8		IC OP AMP FORMED	28480	5081-1835
A2U6	5081-1835	8		IC OP AMP FORMED	28480	5081-1835
A2U7	5081-1835	8		IC OP AMP FORMED	28480	5081-1835
A2U8	5081-1835	8		IC OP AMP FORMED	28480	5081-1835
A2U9	5081-1834	7		IC OP AMP FORMED	28480	5081-1834
				MISCELLANEOUS		
	0340-0778	1	4	INSULATOR-XSTR NYLON WHITE	28480	0340-0778
	0360-1730	9	17	CONNECTOR-SGL CONT PIN .058-IN-BSC-SZ	28480	0360-1730
	1200-0181	5	2	INSULATOR-XSTR NYLON	28480	1200-0181
	4330-0145	9	6	INSULATOR-BEAD GLASS	28480	4330-0145
	8150-0033	6	1	WIRE 22AWG W 300V PVC 7X30 105C	28480	8150-0033
	78101-69740	0		PCB, SEMI LOADED	28480	78101-69740
	78101-00740	6	1	BOARD-BLANK PC	28480	78101-00740

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A3	78101-60260	1	1	ASSY, SUB PANEL	28480	78101-60260
A3MP1	07800-05101	0	1	KNOB	28480	07800-05101
A3MP2	7121-0792	2	1	LABEL, POWER	28480	7121-0792
A3MP3	0370-0164	2	1	PUSHBUTTON .475 X .600 X .485 IN H	28480	0370-0164
A3MP4	7121-0793	3	1	LABEL, 1 MV	28480	7121-0793
A3MP6	0370-1099	4	1	KNOB-BASE-PTR 1/2 JCK .25-IN-ID	28480	0370-1099
A3R88	2100-4025	3	1	RESISTOR-VAR 20K OHM 20%	28480	2100-4025
A3S1	3101-2406	3	1	SWITCH-PB DPDT ALTNG 4A 250VAC	28480	3101-2406
A3S2	3101-1114	8	1	SWITCH-PB DPDT MOM	28480	3101-1114
A3S3	3101-0882	5	1	SWITCH-TGL SUBMIN SPDT 2A 250VAC	28480	3101-0882
				MISCELLANEOUS		
	0590-0199	9	2	NUT-HEX-W/LKWR 4-40-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
	0590-0199	9		NUT-HEX-W/LKWR 4-40-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
	2190-0082	3	1	WASHER-LK INTL T 3/8 IN .384-IN-ID	28480	2190-0082
	2200-0105	4	2	SCREW-MACH 4-40 .312-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	2360-0113	2	2	SCREW-MACH 6-32 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	78101-05010	3	1	SUB-PANEL	28480	78101-05010
	2950-0001	8	1	NUT-HEX-DBL-CHAM 3/8-32.5	00000	ORDER BY DESCRIPTION
	2190-0027	6		WASHER-LK .25		
	2950-0052	9		NUT .25-40X5/16		
	0510-0002	4		NUT 6-32X1/16		

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A4	78101-60330	6	1	ASSY, CHASSIS	28480	78101-60330
A4C30	0160-2357	4	4	CAPACITOR-FDTHRU 1000PF +80 -20% 500V	28480	0160-2357
A4C31	0160-2357	4		CAPACITOR-FDTHRU 1000PF +80 -20% 500V	28480	0160-2357
A4C32	0160-2357	4		CAPACITOR-FDTHRU 1000PF +80 -20% 500V	28480	0160-2357
A4C33	0160-2357	4		CAPACITOR-FDTHRU 1000PF +80 -20% 500V	28480	0160-2357
A4MP1	78101-20010	5	4	DOUBLE POST	28480	78101-20010
A4MP2	78101-20010	5		DOUBLE POST	28480	78101-20010
A4MP3	78101-20010	5		DOUBLE POST	28480	78101-20010
A4MP4	78101-20010	5		DOUBLE POST	28480	78101-20010
A4MP5	78101-00240	1	1	CHASSIS	28480	78101-00240
A4MP6	78101-60250	9	1	CHASSIS COVER	28480	78101-60250
A4T1	78101-60110	0	1	XFORMER ASSY	28480	78101-60110
A4W1	78101-60390	8	1	CHASSIS COVER CABLE	28480	78101-60390
	2950-0078	9	1	NUT-HEX-DBL-CHAM 10-32-THD .067-IN-THK	28480	2950-0078
	2190-0124	4	1	WASHER-LK INTL T NO. 10 .195-IN-ID	28480	2190-0124
				MISCELLANEOUS		
	0590-0159	1	4	NUT-HEX-DBL-CHAM 12-28-THD .1-IN-THK	28480	0590-0159
	0590-0199	9	2	NUT-HEX-W/LKWR 4-40-THD .094-IN-THK	00000	ORDER BY DESCRIPTION
	2190-0025	4	4	WASHER-LK EXT T 5/16 IN .32-IN-ID	28480	2190-0025
	2190-0057	2	4	WASHER-LK INTL T NO. 12 .218-IN-ID	28480	2190-0057
	2200-0166	7	2	SCREW-MACH 4-40 5/16	00000	ORDER BY DESCRIPTION
	2950-0098	3	4	NUT-HEX-DBL-CHAM 5/16-24-THD .188-IN-THK	00000	ORDER BY DESCRIPTION

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A5	78101-60010	9	1	HF BD 450-470 MHZ	28480	78101-60010
A5C3	0160-2252	8	4	CAPACITOR-FXD 6.2PF +- .25PF 500VDC CER	28480	0160-2252
A5C4	0160-2249	3	2	CAPACITOR-FXD 4.7PF +- .25PF 500VDC CER	28480	0160-2249
A5C5	0160-2055	9	22	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C6	0160-3748	9	4	CAPACITOR-FXD 100PF +-10% 100VDC CER	04222	3417-100C-101K
A5C7	0160-2252	8		CAPACITOR-FXD 6.2PF +- .25PF 500VDC CER	28480	0160-2252
A5C8	0121-0046	2	7	CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304322 9/35PF N650
A5C9	0160-2253	9	2	CAPACITOR-FXD 6.8PF +- .25PF 500VDC CER	28480	0160-2253
A5C10	0180-1735	2	1	CAPACITOR-FXD .22UF+-10% 35VDC TA	56289	150D224X9035A2
A5C11	0160-3748	9		CAPACITOR-FXD 100PF +-10% 100VDC CER	04222	3417-100C-101K
A5C12	0160-3748	9		CAPACITOR-FXD 100PF +-10% 100VDC CER	04222	3417-100C-101K
A5C13	0160-2252	8		CAPACITOR-FXD 6.2PF +- .25PF 500VDC CER	28480	0160-2252
A5C16	0160-2236	8	1	CAPACITOR-FXD 1PF +- .25PF 500VDC CER	28480	0160-2236
A5C18	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C20	0150-0091	8	1	CAPACITOR-FXD 1.5PF +- .25PF 500VDC CER	28480	0150-0091
A5C21	0121-0061	1	3	CAPACITOR-V TRMR-CER 5.5-18PF 350V	52763	304322 5.5/18PF NPO
A5C22	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C23	0160-2253	1	1	CAPACITOR-FXD 8.2PF +- .25PF 500VDC CER	28480	0160-2253
A5C25	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C26	0121-0061	1		CAPACITOR-V TRMR-CER 5.5-18PF 350V	52763	304322 5.5/18PF NPO
A5C27	0160-2249	3		CAPACITOR-FXD 4.7PF +- .25PF 500VDC CER	28480	0160-2249
A5C28	0160-2252	8		CAPACITOR-FXD 6.2PF +- .25PF 500VDC CER	28480	0160-2252
A5C29	0160-3875	3	1	CAPACITOR-FXD 22PF +-10% 200VDC CER	28480	0160-3747
A5C30	0121-0046	2		CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304322 9/35PF N650
A5C31	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C35	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C36	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C37	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C38	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C39	0160-3748	9		CAPACITOR-FXD 100PF +-10% 100VDC CER	04222	3417-100C-101K
A5C40	0160-2253	9		CAPACITOR-FXD 6.8PF +- .25PF 500VDC CER	28480	0160-2253
A5C41	0121-0061	1		CAPACITOR-V TRMR-CER 5.5-18PF 350V	52763	304322 5.5/18PF NPO
A5C42	0121-0046	2		CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304322 9/35PF N650
A5C44	0121-0046	2		CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304322 9/35PF N650
A5C45	0121-0178	1	1	CAPACITOR-V TRMR-CER 15-60PF 200V	52763	304322 15/60PF N1500
A5C46	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C47	0180-0097	7	1	CAPACITOR-FXD 47UF+-10% 35VDC TA	56289	150D476X9035S2
A5C48	0180-0373	2	2	CAPACITOR-FXD .68UF+-10% 35VDC TA	56289	150D684X9035A2
A5C50	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C51	0121-0046	2		CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304322 9/35PF N650
A5C52	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C53	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C57	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C59	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C60	0121-0046	2		CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304322 9/35PF N650
A5C61	0160-0776	7	4	CAPACITOR-FXD 1500PF +-20% 1KVDC CER	28480	0160-0776
A5C62	0160-0776	7		CAPACITOR-FXD 1500PF +-20% 1KVDC CER	28480	0160-0776
A5C63	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C64	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C65	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C66	0121-0046	2		CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304322 9/35PF N650
A5C67	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C68	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C69	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A5C70	0160-0776	7		CAPACITOR-FXD 1500PF +-20% 1KVDC CER	28480	0160-0776
A5C71	0160-0776	7		CAPACITOR-FXD 1500PF +-20% 1KVDC CER	28480	0160-0776
A5C72	0180-0373	2		CAPACITOR-FXD .68UF+-10% 35VDC TA	56289	150D684X9035A2
A5CR1	0122-0056	6	1	DIODE-VVC 6.8PF 10% C2/C30-MIN=2.5	04713	MV2101
A5CR2	1910-0016	0	2	DIODE-GE 60V 60MA 1US DO-7	28480	1910-0016
A5CR3	1910-0016	0		DIODE-GE 60V 60MA 1US DO-7	28480	1910-0016
A5CR4	1901-0535	9	4	DIODE-SM SIG SCHOTTKY	28480	1901-0535
A5CR5	1901-0535	9		DIODE-SM SIG SCHOTTKY	28480	1901-0535
A5CR6	1901-0535	9		DIODE-SM SIG SCHOTTKY	28480	1901-0535
A5CR7	1901-0535	9		DIODE-SM SIG SCHOTTKY	28480	1901-0535
A5CR8	1902-3104	6	1	DIODE-ZNR 5.62V 5% DO-35 PD=.4W	28480	1902-3104
A5FL1	0410-0804	3	1	FILTER-ELEC (MISC ITEM)	28480	0410-0804
A5FL2	0410-0803	2	1	FILTER-ELEC (MISC ITEM)	28480	0410-0803
A5J1	1250-0835	1	1	CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A5J2	1251-1859	3	1	CONNECTOR-SGL CONT SKT .025-IN-BSC-SZ	28480	1251-1859

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A5L1	9100-3183	9	3	INDUCTOR 35NH 10%	28480	9100-3183
A5L3	9100-2256	5	2	INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG	28480	9100-2256
A5L5	9100-3183	9		INDUCTOR 35NH 10%	28480	9100-3183
A5L7	9100-3183	9		INDUCTOR 35NH 10%	28480	9100-3183
A5L11	9140-0158	6	1	INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A5L12	9100-2248	5	1	INDUCTOR RF-CH-MLD 120NH 10% .105DX.26LG	28480	9100-2248
A5L13	9100-2255	4	7	INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A5L14	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A5L15	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A5L16	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A5L20	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A5L21	9140-0047	2	1	INDUCTOR 20UH 10% .145DX.343LG Q=75	28480	9140-0047
A5L23	9100-2256	5		INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG	28480	9100-2256
A5L24	9140-0111	1	2	INDUCTOR RF-CH-MLD 3.3UH 10%	28480	9140-0111
A5L25	9100-1625	0	6	INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A5L26	9140-0121	3	1	INDUCTOR RF-CH-MLD 1.8UH 10%	28480	9140-0121
A5L27	9140-0098	3	2	INDUCTOR RF-CH-MLD 2.2UH 10%	28480	9140-0098
A5L28	9100-1625	0		INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A5L29	9100-1625	0		INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A5L30	9140-0098	3		INDUCTOR RF-CH-MLD 2.2UH 10%	28480	9140-0098
A5L31	9100-1625	0		INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A5L32	9140-0111	1		INDUCTOR RF-CH-MLD 3.3UH 10%	28480	9140-0111
A5L33	9140-0180	4	1	INDUCTOR RF-CH-MLD 2.7UH 10%	28480	9140-0180
A5L34	9100-1625	0		INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A5L35	9100-1625	0		INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A5L36	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A5L40	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A5MP1	78101-00220	7	1	SHIELD, I.F., TOP	28480	78101-00220
A5MP2	78101-00230	9	1	SHIELD, I.F., BOT	28480	78101-00230
A5MP3	78101-00300	4	1	SHIELD, L.O., TOP	28480	78101-00300
A5MP4	78101-00310	6	1	SHIELD, L.O., BOT	28480	78101-00310
A5Q1	1854-0048	8	2	TRANSISTOR NPN 2N2857 SI TO-72 PD=200MW	3L585	2N2857
A5Q2	1854-0048	8		TRANSISTOR NPN 2N2857 SI TO-72 PD=200MW	3L585	2N2857
A5Q3	1854-0345	8	3	TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A5Q4	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A5Q5	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A5Q6	1855-0327	8	1	TRANSISTOR J-FET 2N4416 N-CHAN D-MODE	01295	2N4416
A5Q7	1854-0019	3	1	TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0019
A5R1	0757-0289	2	2	RESISTOR 13.3K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-1332-F
A5R2	0757-0200	7	2	RESISTOR 5.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5621-F
A5R3	0698-3150	6	2	RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A5R4	0757-0289	2	2	RESISTOR 13.3K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-1332-F
A5R5	0757-0200	7	2	RESISTOR 5.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5621-F
A5R6	0757-0428	1	1	RESISTOR 1.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1621-F
A5R7	0757-0416	7	1	RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-511R-F
A5R8	0757-0283	6	1	RESISTOR 2K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2001-F
A5R9	0757-0442	9	5	RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A5R10	0698-3442	9	1	RESISTOR 237 1% .125W F TC=0+-100	24546	C4-1/8-T0-237R-F
A5R11	0757-0441	8	1	RESISTOR 8.25K 1% .125W F TC=0+-100	24546	C4-1/8-T0-8251-F
A5R12	0698-3154	0	1	RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A5R13	0757-0280	3	4	RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5R14	0757-0453	2	1	RESISTOR 30.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3012-F
A5R15	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A5R16	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A5R20	0698-0084	9	1	RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A5R21	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A5R26	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5R28	0757-0420	3	1	RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A5R30	0698-3150	6		RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A5R31	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5R32	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A5R34	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A5R36	0757-0427	0	1	RESISTOR 1.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1501-F
A5U1	1826-0028	5	2	IC RF/IF AMPL TO-100 PKG	04713	MC1550G
A5U2	1826-0028	5		IC RF/IF AMPL TO-100 PKG	04713	MC1550G
A5U3	1826-0029	6	1	IC RF/IF AMPL IF 14-DIP-P PKG	13606	ULN-2111A
A5XY1	1200-0453	4	1	SOCKET-XSTR 3-CONT TO-5 DIP-SLDR	28480	1200-0453
A5Y2	0410-0801	0	1	CRYSTAL-QUARTZ 21.82000 MHZ	28480	0410-0801
MISCELLANEOUS						
A5Z2	78101-60350	0	1	ASSY, RESONATOR	28480	78101-60350

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
	0340-0453	9	1	INSULATOR-XSTR NYLON	28480	0340-0453
	0360-1730	9	7	CONNECTOR-SGL CONT PIN .058-IN-BGC-SZ	28480	0360-1730
	0460-0004	0		TAPE ELE .25-IN-W .007-IN-T GL-CLTH	00000	ORDER BY DESCRIPTION
	0520-0174	3	20	SCREW-MACH 2-56 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	0610-0001	6	20	NUT-HEX-DBL-CHAM 2-56-THD .062-IN-THK	00000	ORDER BY DESCRIPTION
	2950-0035	8	1	NUT-HEX-DBL-CHAM 15/32-32-THD	00000	ORDER BY DESCRIPTION
	3050-0786	9	7	WASHER-FL NM NO. 0 .063-IN-ID .187-IN-OD	28480	3050-0786
	4330-0145	9	32	INSULATOR-BEAD GLASS	28480	4330-0145
	78101-60380	6	1	H.F. CABLE	28480	78101-60380
	78101-69010	7	1	PCB SEMI-LOADED	28480	78101-69010

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A6	78101-63499	4	1	ACCY, 78101A MISCELLANEOUS	28480	78101-63499
	1600-0824	1	2	LATCH-SPRING	28480	1600-0824
	2110-0027	8	1	FUSE .125A 250V NTD 1.25X.25 UL	28480	2110-0027
	8120-1992	5	1	CABLE ASSEMBLY (8 FT.)	28480	8120-1992
	07826-40050	2	2	BINS, PROTECT COV	28480	07826-40050
	78101-91997	6	1	78100/101 SER MN	28480	78101-91997
	78101-91998	7	1	78100/101 OPE MN	28480	78101-91998
	78101-91999	8	1	78100/101 INS CD	28480	78101-91999

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A7	78101A-#001	8	1	CHANNEL 1	28480	78101A-#001
A7A5Y1	0410-0818	9	1	CRYSTAL-QUARTZ	28480	0410-0818
A7A2A1MP11	78101-10000	2	20	BINS-CHANNEL LABEL	28480	78101-10000
A8	78101A-#002	9	1	CHANNEL 2	28480	78101A-#002
A8A5Y1	0410-0820	3	1	CRYSTAL-QUARTZ	28480	0410-0820
A8A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A9	78101A-#003	0	1	CHANNEL 3	28480	78101A-#003
A9A5Y1	0410-0823	6	1	CRYSTAL-QUARTZ	28480	0410-0823
A9A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A10	78101A-#004	1	1	CHANNEL 4	28480	78101A-#004
A10A5Y1	0410-0821	4	1	CRYSTAL-QUARTZ	28480	0410-0821
A10A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A11	78101A-#005	2	1	CHANNEL 5	28480	78101A-#005
A11A5Y1	0410-0826	9	1	CRYSTAL-QUARTZ	28480	0410-0826
A11A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A12	78101A-#006	3	1	CHANNEL 6	28480	78101A-#006
A12A5Y1	0410-0827	0	1	CRYSTAL-QUARTZ	28480	0410-0827
A12A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A13	78101A-#007	4	1	CHANNEL 7	28480	78101A-#007
A13A5Y1	0410-0824	7	1	CRYSTAL-QUARTZ	28480	0410-0824
A13A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A14	78101A-#008	5	1	CHANNEL 8	28480	78101A-#008
A14A5Y1	0410-0819	0	1	CRYSTAL-QUARTZ	28480	0410-0819
A14A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A15	78101A-#009	6	1	CHANNEL 9	28480	78101A-#009
A15A5Y1	0410-0822	5	1	CRYSTAL-QUARTZ	28480	0410-0822
A15A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A16	78101A-#010	9	1	CHANNEL 10	28480	78101A-#010
A16A5Y1	0410-0817	8	1	CRYSTAL-QUARTZ	28480	0410-0817
A16A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A17	78101A-#011	0	1	CHANNEL 11	28480	78101A-#011
A17A5Y1	0410-0851	0	1	CRYSTAL-QUARTZ	28480	0410-0851
A17A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A18	78101A-#012	1	1	CHANNEL 12	28480	78101A-#012
A18A5Y1	0410-0852	1	1	CRYSTAL-QUARTZ	28480	0410-0852
A18A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A19	78101A-#013	2	1	CHANNEL 13	28480	78101A-#013
A19A5Y1	0410-0853	2	1	CRYSTAL-QUARTZ	28480	0410-0853
A19A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A20	78101A-#014	3	1	CHANNEL 14	28480	78101A-#014
A20A5Y1	0410-0854	3	1	CRYSTAL-QUARTZ	28480	0410-0854
A20A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A21	78101A-#015	4	1	CHANNEL 15	28480	78101A-#015
A21A5Y1	0410-0855	4	1	CRYSTAL-QUARTZ	28480	0410-0855
A21A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A22	78101A-#016	5	1	CHANNEL 16	28480	78101A-#016
A22A5Y1	0410-0856	5	1	CRYSTAL-QUARTZ	28480	0410-0856
A22A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A23	78101A-#017	6	1	CHANNEL 17	28480	78101A-#017
A23A5Y1	0410-0857	6	1	CRYSTAL-QUARTZ	28480	0410-0857
A23A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A24	78101A-#018	7	1	CHANNEL 18	28480	78101A-#018
A24A5Y1	0410-0858	7	1	CRYSTAL-QUARTZ	28480	0410-0858
A24A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A25	78101A-#019	8	1	CHANNEL 19	28480	78101A-#019
A25A5Y1	0410-0859	8	1	CRYSTAL-QUARTZ	28480	0410-0859
A25A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A26	78101A-#020	1	1	CHANNEL 20	28480	78101A-#020
A26A5Y1	0410-0860	1	1	CRYSTAL-QUARTZ	28480	0410-0860
A26A2A1MP11	78101-10000	2		BINS-CHANNEL LABEL	28480	78101-10000
A29	78101A#A24	8	1	ANTENNAE COVER	28480	78101A#A24
				MISCELLANEOUS		
	78101-60360	2		ANTENNAE COVER	28480	78101-60360
	5060-4638	1		COMBINATION KIT COVER	28480	5060-4638
A30	78101A-#025	6	1	ANTENNA-LONG EXTENSION	28480	78101A-#025
	78101-00370	8	1	ANTENNA-WALL BREAKER	28480	78101-00370
	78101-60360	2		ASSEMBLY-TOP COVER	28480	78101-60360
	78101-60500	2	1	ANTENNA-EXTERNAL	28480	78101-60500
	78101-60530	8	1	CABLE-COAXIAL	28480	78101-60530
A32	78101A-#029	0	1	ANTENNA-SHARED REMOTE	28480	78101A-#029
	1250-0781	6	1	ADAPTER-COAX TEE F-BNC M-BNC F-BNC	28480	1250-0781
	78101-60360	2		DELETE THE FOLLOWING:	28480	78101-60360
	78101-60510	4	1	ASSEMBLY-TOP COVER	28480	78101-60510
				ANTENNA-EXTERNAL CABLE		
A37	78101A-#035	8	1	LOAN CHANNEL S1	28480	78101A-#035
A37A5Y1	0410-0825	8	1	CRYSTAL-QUARTZ	28480	0410-0825
A37A2A1MP11	78101-12000	6	1	LABEL-PUSHBUTTON SIZE	28480	78101-12000
A38	78101A-#036	9	1	LOAN CHANNEL S2	28480	78101A-#036
A38A5Y1	0410-0828	1	1	CRYSTAL-QUARTZ	28480	0410-0828
A38A2A1MP12	78101-12000	7	1	LABEL-PUSHBUTTON SIZE	28480	78101-12000
A39	78101A-#037	0	1	CHANNEL 21	28480	78101A-#037
A39A5Y1	0410-0861	2	1	CRYSTAL-QUARTZ	28480	0410-0861
A39A2A1MP11	78101-01000	3	8	BINS-CHANNEL LABEL	28480	78101-01000
A40	78101A-#038	1	1	CHANNEL 22	28480	78101A-#038
A40A5Y1	0410-0862	3	1	CRYSTAL-QUARTZ	28480	0410-0862
A40A2A1MP11	78101-01000	3		BINS-CHANNEL LABEL	28480	78101-01000
A41	78101A-#039	2	1	CHANNEL 23	28480	78101A-#039
A41A5Y1	0410-0863	4	1	CRYSTAL-QUARTZ	28480	0410-0863
A41A2A1MP11	78101-01000	3		BINS-CHANNEL LABEL	28480	78101-01000
A42	78101A-#040	5	1	CHANNEL 24	28480	78101A-#040
A42A5Y1	0410-0864	5	1	CRYSTAL-QUARTZ	28480	0410-0864
A42A2A1MP11	78101-01000	3		BINS-CHANNEL LABEL	28480	78101-01000
A43	78101A-#041	6	1	CHANNEL 25	28480	78101A-#041

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A43A5Y1	0410-0865	6	1	CRYSTAL-QUARTZ	28480	0410-0865
A43A2A1MP11	78101-01000	3		BINS-CHANNEL LABEL	28480	78101-01000
A44	78101A-#042	7	1	CHANNEL 26	28480	78101A-#042
A44A5Y1	0410-0866	7	1	CRYSTAL-QUARTZ	28480	0410-0866
A44A2A1MP11	78101-01000	3		BINS-CHANNEL LABEL	28480	78101-01000
A45	78101A-#043	8	1	CHANNEL 27	28480	78101A-#043
A45A5Y1	0410-0867	8	1	CRYSTAL-QUARTZ	28480	0410-0867
A45A2A1MP11	78101-01000	3		BINS-CHANNEL LABEL	28480	78101-01000
A46	78101A-#044	9	1	CHANNEL 28	28480	78101A-#044
A46A5Y1	0410-0868	9	1	CRYSTAL-QUARTZ	28480	0410-0868
A46A2A1MP11	78101-01000	3		BINS-CHANNEL LABEL	28480	78101-01000
A47	78101A-#045	0	1	CHANNEL 29	28480	78101A-#045
A47A5Y1	0410-0869	0	1	CRYSTAL-QUARTZ	28480	0410-0869
A47A2A1MP11	78101-02000	5	17	BINS-CHANNEL LABEL	28480	78101-02000
A48	78101A-#046	1	1	CHANNEL 30	28480	78101A-#046
A48A5Y1	0410-0870	3	1	CRYSTAL-QUARTZ	28480	0410-0870
A48A2A1MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
A49	78101A-#047	2	1	CHANNEL 31	28480	78101A-#047
A49A5Y1	0410-0871	4	1	CRYSTAL-QUARTZ	28480	0410-0871
A49A2A1MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
A50	78101A-#048	3	1	CHANNEL 32	28480	78101A-#048
A50A5Y1	0410-0872	5	1	CRYSTAL-QUARTZ	28480	0410-0872
A50A2A1MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
A51	78101A-#049	4	1	CHANNEL 33	28480	78101A-#049
A51A5Y1	0410-1039	8	1	CRYSTAL-QUARTZ	28480	0410-1039
A51A2A1MP11	78101-08000	7	19	BINS-CHANNEL LABEL	28480	78101-08000
A52	78101A-#050	7	1	CHANNEL 34	28480	78101A-#050
A52A5Y1	0410-1038	7	1	CRYSTAL-QUARTZ	28480	0410-1038
A52A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A53	78101A-#051	8	1	CHANNEL 35	28480	78101A-#051
A53A5Y1	0410-1037	6	1	CRYSTAL-QUARTZ	28480	0410-1037
A53A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A54	78101A-#052	9	1	CHANNEL 36	28480	78101A-#052
A54A5Y1	0410-1036	5	1	CRYSTAL-QUARTZ	28480	0410-1036
A54A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A55	78101A-#053	0	1	CHANNEL 37	28480	78101A-#053
A55A5Y1	0410-1064	9	1	CRYSTAL-QUARTZ	28480	0410-1064
A55A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A56	78101A-#054	1	1	CHANNEL 38	28480	78101A-#054
A56A5Y1	0410-1063	8	1	CRYSTAL-QUARTZ	28480	0410-1063
A56A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A57	78101A-#055	2	1	CHANNEL 39	28480	78101A-#055
A57A5Y1	0410-1062	7	1	CRYSTAL-QUARTZ	28480	0410-1062
A57A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A58	78101A-#056	3	1	CHANNEL 40	28480	78101A-#056
A58A5Y1	0410-1061	6	1	CRYSTAL-QUARTZ	28480	0410-1061
A58A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A59	78101A-#057	4	1	CHANNEL 41	28480	78101A-#057
A59A5Y1	0410-1060	5	1	CRYSTAL-QUARTZ	28480	0410-1060
A59A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A60	78101A-#058	5	1	CHANNEL 42	28480	78101A-#058
A60A5Y1	0410-1059	2	1	CRYSTAL-QUARTZ	28480	0410-1059
A60A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A61	78101A-#059	6	1	CHANNEL 43	28480	78101A-#059
A61A5Y1	0410-1058	1	1	CRYSTAL-QUARTZ	28480	0410-1058
A61A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A62	78101A-#060	9	1	CHANNEL 44	28480	78101A-#060
A62A5Y1	0410-1056	9	1	CRYSTAL-QUARTZ	28480	0410-1056
A62A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A63	78101A-#061	0	1	CHANNEL 45	28480	78101A-#061
A63A5Y1	0410-1055	8	1	CRYSTAL-QUARTZ	28480	0410-1055
A63A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A64	78101A-#062	1	1	CHANNEL 46	28480	78101A-#062
A64A5Y1	0410-1054	7	1	CRYSTAL-QUARTZ	28480	0410-1054
A64A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A65	78101A-#063	2	1	CHANNEL 47	28480	78101A-#063
A65A5Y1	0410-1053	6	1	CRYSTAL-QUARTZ	28480	0410-1053
A65A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A66	78101A-#064	3	1	CHANNEL 48	28480	78101A-#064
A66A5Y1	0410-1052	5	1	CRYSTAL-QUARTZ	28480	0410-1052
A66A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A67	78101A-#065	4	1	CHANNEL 49	28480	78101A-#065
A67A5Y1	0410-1051	4	1	CRYSTAL-QUARTZ	28480	0410-1051
A67A2A1MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A68	78101A-#066	5	1	CHANNEL 50	28480	78101A-#066
A68A5Y1	0410-1050	3	1	CRYSTAL-QUARTZ	28480	0410-1050
A68A1A2MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A69	78101A-#067	6	1	CHANNEL 51	28480	78101A-#067
A69A5Y1	0410-1049	0	1	CRYSTAL-QUARTZ	28480	0410-1049
A69A1A2MP11	78101-08000	7		BINS-CHANNEL LABEL	28480	78101-08000
A70	78101A-#068	7	1	CHANNEL 52	28480	78101A-#068
A70A5Y1	0410-1048	9	1	CRYSTAL-QUARTZ	28480	0410-1048
A70A1A2MP11	78101-09000	9	19	BINS-CHANNEL LABEL	28480	78101-09000
A71	78101A-#069	8	1	CHANNEL 53	28480	78101A-#069
A71A5Y1	0410-1057	0	1	CRYSTAL-QUARTZ	28480	0410-1057
A71A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A75	78101A-#073	4	1	CHANNEL 56	28480	78101A-#073
A75A5Y1	0410-1275	4	1	CRYSTAL-QUARTZ	28480	0410-1275

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A75A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A76	78101A-#074	5	1	CHANNEL S7	28480	78101A-#074
A76A5Y1	0410-1276	5	1	CRYSTAL-QUARTZ	28480	0410-1276
A76A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A77	78101A-#075	6	1	CHANNEL S3	28480	78101A-#075
A77A5Y1	0410-1045	6	1	CRYSTAL-QUARTZ	28480	0410-1045
A77A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A78	78101A-#076	7	1	CHANNEL S4	28480	78101A-#076
A78A5Y1	0410-1046	7	1	CRYSTAL-QUARTZ	28480	0410-1046
A78A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A79	78101A-#077	8	1	CHANNEL S5	28480	78101A-#077
A79A5Y1	0410-1047	8	1	CRYSTAL-QUARTZ	28480	0410-1047
A79A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A82	78101A-#082	5	1	CHANNEL S4	28480	78101A-#082
A82A5Y1	0410-0793	9	1	CRYSTAL-QUARTZ	28480	0410-0793
A82A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A84	78101A-#083	6	1	CHANNEL S5	28480	78101A-#083
A84A5Y1	0410-0792	8	1	CRYSTAL-QUARTZ	28480	0410-0792
A84A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A85	78101A-#084	7	1	CHANNEL S6	28480	78101A-#084
A85A5Y1	0410-0791	7	1	CRYSTAL-QUARTZ	28480	0410-0791
A85A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A86	78101A-#085	8	1	CHANNEL S7	28480	78101A-#085
A86A5Y1	0410-0790	6	1	CRYSTAL-QUARTZ	28480	0410-0790
A86A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A87	78101A-#086	9	1	CHANNEL S8	28480	78101A-#086
A87A5Y1	0410-0788	2	1	CRYSTAL-QUARTZ	28480	0410-0788
A87A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A88	78101A-#087	0	1	CHANNEL S9	28480	78101A-#087
A88A5Y1	0410-0789	3	1	CRYSTAL-QUARTZ	28480	0410-0789
A88A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A89	78101A-#088	1	1	CHANNEL S0	28480	78101A-#088
A89A5Y1	0410-1256	1	1	CRYSTAL-QUARTZ	28480	0410-1256
A89A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A90	78101A-#089	2	1	CHANNEL S1	28480	78101A-#089
A90A5Y1	0410-1257	2	1	CRYSTAL-QUARTZ	28480	0410-1257
A90A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A92	78101A-#091	6	1	CHANNEL S2	28480	78101A-#091
A92A5Y1	0410-1258	3	1	CRYSTAL-QUARTZ	28480	0410-1258
A92A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A94	78101A-#093	8	1	CHANNEL S3	28480	78101A-#093
A94A5Y1	0410-1259	4	1	CRYSTAL-QUARTZ	28480	0410-1259
A94A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A95	78101A-#094	9	1	CHANNEL S4	28480	78101A-#094

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A95A5Y1	0410-1260	7	1	CRYSTAL-QUARTZ	28480	0410-1260
A95A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A96	78101A-#095	0	1	CHANNEL 65	28480	78101A-#095
A96A5Y1	0410-1261	8	1	CRYSTAL-QUARTZ	28480	0410-1261
A96A1A2MP11	78101-09000	9		BINS-CHANNEL LABEL	28480	78101-09000
A98	78101A-#097	2	1	CHANNEL 66	28480	78101A-#097
A98A5Y1	0410-1262	9	1	CRYSTAL-QUARTZ	28480	0410-1262
A98A1A2MP11	78101-12000	6	13	BINS-CHANNEL LABEL	28480	78101-12000
A99	78101A-#098	3	1	CHANNEL 67	28480	78101A-#098
A99A5Y1	0410-1263	0	1	CRYSTAL-QUARTZ	28480	0410-1263
A99A1A2MP11	78101-12000	6		BINS-CHANNEL LABEL	28480	78101-12000
A101	78101A-#100	8	1	CHANNEL 68	28480	78101A-#100
A101A5Y1	0410-1264	1	1	CRYSTAL-QUARTZ	28480	0410-1264
A101A1A2MP11	78101-12000	6		BINS-CHANNEL LABEL	28480	78101-12000
A102	78101A-#101	9	1	CHANNEL 69	28480	78101A-#101
A102A5Y1	0410-1265	2	1	CRYSTAL-QUARTZ	28480	0410-1265
A102A1A2MP11	78101-12000	6		BINS-CHANNEL LABEL	28480	78101-12000
A103	78101A-#102	0	1	CHANNEL 70	28480	78101A-#102
A103A5Y1	0410-1266	3	1	CRYSTAL-QUARTZ	28480	0410-1266
A103A1A2MP11	78101-12000	6		BINS-CHANNEL LABEL	28480	78101-12000
A104	78101A-#103	1	1	CHANNEL 71	28480	78101A-#103
A104A5Y1	0410-1267	4	1	CRYSTAL-QUARTZ	28480	0410-1267
A104A1A2MP11	78101-12000	6		BINS-CHANNEL LABEL	28480	78101-12000
A105	78101A-#104	2	1	CHANNEL 72	28480	78101A-#104
A105A5Y1	0410-1268	5	1	CRYSTAL-QUARTZ	28480	0410-1268
A105A1A2MP11	78101-12000	6		BINS-CHANNEL LABEL	28480	78101-12000
A106	78101A-#105	3	1	CHANNEL 73	28480	78101A-#105
A106A5Y1	0410-1269	6	1	CRYSTAL-QUARTZ	28480	0410-1269
A106A1A2MP11	78101-12000	6		BINS-CHANNEL LABEL	28480	78101-12000
A107	78101A-#106	4	1	CHANNEL 74	28480	78101A-#106
A107A5Y1	0410-1270	9	1	CRYSTAL-QUARTZ	28480	0410-1270
A107A1A2MP11	78101-12000	6		BINS-CHANNEL LABEL	28480	78101-12000
A108	78101A-#107	5	1	CHANNEL 75	28480	78101A-#107
A108A5Y1	0410-1271	0	1	CRYSTAL-QUARTZ	28480	0410-1271
A108A1A2MP11	78101-12000	6		BINS-CHANNEL LABEL	28480	78101-12000
A109	78101A-#108	6	1	CHANNEL 76	28480	78101A-#108
A109A5Y1	0410-1272	1	1	CRYSTAL-QUARTZ	28480	0410-1272
A109A1A2MP11	78101-12000	6		BINS-CHANNEL LABEL	28480	78101-12000
A110	78101A-#109	7	1	CHANNEL 77	28480	78101A-#109
A110A5Y1	0410-1273	2	1	CRYSTAL-QUARTZ	28480	0410-1273
A110A1A2MP11	78101-12000	6		BINS-CHANNEL LABEL	28480	78101-12000
A111	78101A-#110	0	1	CHANNEL 78	28480	78101A-#110
A111A5Y1	0410-1274	3	1	CRYSTAL-QUARTZ	28480	0410-1274
A111A1A2MP11	78101-12000	6		BINS-CHANNEL LABEL	28480	78101-12000

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A112	78101A-#111	1	1	CHANNEL 79	28480	78101A-#111
A112A5Y1	0410-1364	2	1	CRYSTAL-QUARTZ	28480	0410-1364
A112A1A2MP11	78101-14000	0	18	BINS-CHANNEL LABEL	28480	78101-14000
A113	78101A-#112	2	1	CHANNEL 80	28480	78101A-#112
A113A5Y1	0410-1365	3	1	CRYSTAL-QUARTZ	28480	0410-1365
A113A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A114	78101A-#113	3	1	CHANNEL 81	28480	78101A-#113
A114A5Y1	0410-1366	4	1	CRYSTAL-QUARTZ	28480	0410-1366
A114A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A115	78101A-#114	4	1	CHANNEL 82	28480	78101A-#114
A115A5Y1	0410-1367	5	1	CRYSTAL-QUARTZ	28480	0410-1367
A115A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A116	78101A-#115	5	1	CHANNEL 83	28480	78101A-#115
A116A5Y1	0410-1368	6	1	CRYSTAL-QUARTZ	28480	0410-1368
A116A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A117	78101A-#116	6	1	CHANNEL 84	28480	78101A-#116
A117A5Y1	0410-1369	7	1	CRYSTAL-QUARTZ	28480	0410-1369
A117A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A118	78101A-#117	7	1	CHANNEL 85	28480	78101A-#117
A118A5Y1	0410-1370	0	1	CRYSTAL-QUARTZ	28480	0410-1370
A118A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A119	78101A-#118	8	1	CHANNEL 86	28480	78101A-#118
A119A5Y1	0410-1371	1	1	CRYSTAL-QUARTZ	28480	0410-1371
A119A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A120	78101A-#119	9	1	CHANNEL 87	28480	78101A-#119
A120A5Y1	0410-1372	2	1	CRYSTAL-QUARTZ	28480	0410-1372
A120A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A121	78101A-#120	2	1	CHANNEL 88	28480	78101A-#120
A121A5Y1	0410-1373	3	1	CRYSTAL-QUARTZ	28480	0410-1373
A121A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A122	78101A-#121	3	1	CHANNEL 89	28480	78101A-#121
A122A5Y1	0410-1374	4	1	CRYSTAL-QUARTZ	28480	0410-1374
A122A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A123	78101A-#122	4	1	CHANNEL 90	28480	78101A-#122
A123A5Y1	0410-0974	8	2	CRYSTAL-QUARTZ	28480	0410-0974
A123A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A124	78101A-#123	5	1	CHANNEL 91	28480	78101A-#123
A124A5Y1	0410-1356	2	1	CRYSTAL-QUARTZ	28480	0410-1356
A124A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A125	78101A-#124	6	1	CHANNEL 92	28480	78101A-#124
A125A5Y1	0410-1357	3	1	CRYSTAL-QUARTZ	28480	0410-1357
A125A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A126	78101A-#125	7	1	CHANNEL 93	28480	78101A-#125
A126A5Y1	0410-1358	4	1	CRYSTAL-QUARTZ	28480	0410-1358

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A126A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A127	78101A-#126	8	1	CHANNEL 94	28480	78101A-#126
A127A5Y1	0410-0975	9	2	CRYSTAL-QUARTZ	28480	0410-0975
A127A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A128	78101A-#127	9	1	CHANNEL 95	28480	78101A-#127
A128A5Y1	0410-1360	8	1	CRYSTAL-QUARTZ	28480	0410-1360
A128A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A129	78101A-#128	0	1	CHANNEL 96	28480	78101A-#128
A129A5Y1	0410-1361	9	1	CRYSTAL-QUARTZ	28480	0410-1361
A129A1A2MP11	78101-14000	0		BINS-CHANNEL LABEL	28480	78101-14000
A130	78101A-#A02	2	1	OP FREQ. 466.8375	28480	78101A-#A02
A130A5Y1	0410-0974	8		CRYSTAL-QUARTZ	28480	0410-0974
A130A1A2MP11	78101-04000	9	18	BINS-CHANNEL LABEL	28480	78101-04000
A131	78101A-#A03	3	1	OP FREQ. 466.8625	28480	78101A-#A03
A131A5Y1	0410-0975	9		CRYSTAL-QUARTZ	28480	0410-0975
A131A1A2MP11	78101-05000	1	6	BINS-CHANNEL LABEL	28480	78101-05000
A132	78101A-#A04	4	1	OP FREQ. 466.8875	28480	78101A-#A04
A132A5Y1	0410-0976	0	2	CRYSTAL-QUARTZ	28480	0410-0976
A132A1A2MP11	78101-05000	1		BINS-CHANNEL LABEL	28480	78101-05000
A133	78101A-#A05	5	1	OP FREQ. 466.8125	28480	78101A-#A05
A133A5Y1	0410-0973	7	1	CRYSTAL-QUARTZ	28480	0410-0973
A133A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000
A134	78101A-#B01	2	1	OP FREQ. 433.200	28480	78101A-#B01
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ F01-F20, J01-J03, K02-K10, N01-N06.	28480	78101-60010
A134A0MP11	78101-06000	3	17	BINS-CHANNEL LABEL	28480	78101-06000
A134A0Y1	0410-0979	3	1	CRYSTAL-QUARTZ	28480	0410-0979
	78101-60011	0	76	ADD THE FOLLOWING: HF BOARD 430-450 MHZ (FOR OPTIONS B01, C01-C24, D01-D12, E01,	28480	78101-60011
A134A1C3	0160-2252	8	4	CAPACITOR-FXD 6.2PF +- .25PF 500VDC CER	28480	0160-2252
A134A1C4	0160-2249	3	2	CAPACITOR-FXD 4.7PF +- .25PF 500VDC CER	28480	0160-2249
A134A1C5	0160-2055	9	22	CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C6	0160-3748	9	4	CAPACITOR-FXD 100PF +-10% 100VDC CER	04222	3417-100C-101K
A134A1C7	0160-2252	8		CAPACITOR-FXD 6.2PF +- .25PF 500VDC CER	28480	0160-2252
A134A1C9	0160-2253	9	2	CAPACITOR-FXD 6.8PF +- .25PF 500VDC CER	28480	0160-2253
A134A1C10	0180-1735	2	1	CAPACITOR-FXD .22UF+-10% 35VDC TA	56289	150D224X9035A2
A134A1C11	0160-3748	9		CAPACITOR-FXD 100PF +-10% 100VDC CER	04222	3417-100C-101K
A134A1C12	0160-3748	9		CAPACITOR-FXD 100PF +-10% 100VDC CER	04222	3417-100C-101K
A134A1C13	0160-2252	8		CAPACITOR-FXD 6.2PF +- .25PF 500VDC CER	28480	0160-2252
A134A1C16	0160-2236	8	1	CAPACITOR-FXD 1PF +- .25PF 500VDC CER	28480	0160-2236
A134A1C17	0121-0061	1	4	CAPACITOR-V TRMR-CER 5.5-18PF 350V	52763	304322 5.5/18PF NPO
A134A1C18	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C20	0150-0091	8	1	CAPACITOR-FXD 1.5PF +- .25PF 500VDC CER	28480	0150-0091
A134A1C21	0121-0061	1		CAPACITOR-V TRMR-CER 5.5-18PF 350V	52763	304322 5.5/18PF NPO
A134A1C22	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C23	0160-2255	1	1	CAPACITOR-FXD 8.2PF +- .25PF 500VDC CER	28480	0160-2255
A134A1C25	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C26	0121-0061	1		CAPACITOR-V TRMR-CER 5.5-18PF 350V	52763	304322 5.5/18PF NPO
A134A1C27	0160-2249	3		CAPACITOR-FXD 4.7PF +- .25PF 500VDC CER	28480	0160-2249
A134A1C28	0160-2252	8		CAPACITOR-FXD 6.2PF +- .25PF 500VDC CER	28480	0160-2252
A134A1C29	0160-3747	8	1	CAPACITOR-FXD 47PF +-10% 200VDC CER	28480	0160-3747
A134A1C30	0121-0046	2	6	CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304322 9/35PF N650
A134A1C31	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C35	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A134A1C36	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C37	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C38	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C39	0160-3748	9		CAPACITOR-FXD 100PF +-10% 100VDC CER	04222	3417-100C-101K
A134A1C40	0160-2253	9		CAPACITOR-FXD 6.8PF +- .25PF 500VDC CER	28480	0160-2253
A134A1C41	0121-0061	1		CAPACITOR-V TRMR-CER 5.5-18PF 350V	52763	304322 5.5/18PF NPO
A134A1C42	0121-0046	2		CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304322 9/35PF N650
A134A1C44	0121-0046	2		CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304322 9/35PF N650
A134A1C45	0121-0178	1	1	CAPACITOR-V TRMR-CER 15-60PF 200V	52763	304322 15/60PF N1500
A134A1C46	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C47	0180-0097	7	1	CAPACITOR-FXD 47UF+-10% 35VDC TA	56289	150D476X9035S2
A134A1C48	0180-0373	2	2	CAPACITOR-FXD .68UF+-10% 35VDC TA	56289	150D684X9035A2
A134A1C50	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C51	0121-0046	2		CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304322 9/35PF N650
A134A1C52	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C53	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C55	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C57	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C59	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C60	0121-0046	2		CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304322 9/35PF N650
A134A1C61	0160-0776	7	4	CAPACITOR-FXD 1500PF +-20% 1KVDC CER	28480	0160-0776
A134A1C62	0160-0776	7		CAPACITOR-FXD 1500PF +-20% 1KVDC CER	28480	0160-0776
A134A1C63	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C64	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C65	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C66	0121-0046	2		CAPACITOR-V TRMR-CER 9-35PF 200V PC-MTG	52763	304322 9/35PF N650
A134A1C67	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C68	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C69	0160-2055	9		CAPACITOR-FXD .01UF +80-20% 100VDC CER	28480	0160-2055
A134A1C70	0160-0776	7		CAPACITOR-FXD 1500PF +-20% 1KVDC CER	28480	0160-0776
A134A1C71	0160-0776	7		CAPACITOR-FXD 1500PF +-20% 1KVDC CER	28480	0160-0776
A134A1C72	0180-0373	2		CAPACITOR-FXD .68UF+-10% 35VDC TA	56289	150D684X9035A2
A134A1CR1	0122-0056	6	1	DIODE-VVC 6.8PF 10% C2/C30-MIN=2.5	04713	MV2101
A134A1CR2	1910-0016	0	2	DIODE-GE 60V 60MA 1US DO-7	28480	1910-0016
A134A1CR3	1910-0016	0		DIODE-GE 60V 60MA 1US DO-7	28480	1910-0016
A134A1CR4	1901-0535	9	4	DIODE-SM SIG SCHOTTKY	28480	1901-0535
A134A1CR5	1901-0535	9		DIODE-SM SIG SCHOTTKY	28480	1901-0535
A134A1CR6	1901-0535	9		DIODE-SM SIG SCHOTTKY	28480	1901-0535
A134A1CR7	1901-0535	9		DIODE-SM SIG SCHOTTKY	28480	1901-0535
A134A1CR8	1902-3104	6	1	DIODE-ZNR 5.62V 5% DO-35 PD=.4W	28480	1902-3104
A134A1J1	1250-0835	1	1	CONNECTOR-RF SMC M PC 50-OHM	28480	1250-0835
A134A1J2	1251-1859	3	1	CONNECTOR-SGL CONT SKT .025-IN-BSC-SZ	28480	1251-1859
A134A1L1	9100-3183	9	3	INDUCTOR 35NH 10%	28480	9100-3183
A134A1L3	9100-2256	5	3	INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG	28480	9100-2256
A134A1L5	9100-3183	9		INDUCTOR 35NH 10%	28480	9100-3183
A134A1L7	9100-3183	9		INDUCTOR 35NH 10%	28480	9100-3183
A134A1L11	9140-0158	6	1	INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG	28480	9140-0158
A134A1L12	9100-2248	5	1	INDUCTOR RF-CH-MLD 120NH 10% .105DX.26LG	28480	9100-2248
A134A1L13	9100-2255	4	6	INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A134A1L14	9100-2256	5		INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG	28480	9100-2256
A134A1L15	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A134A1L16	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A134A1L20	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A134A1L21	9140-0047	2	1	INDUCTOR 20UH 10% .145DX.343LG Q=75	28480	9140-0047
A134A1L23	9100-2256	5		INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG	28480	9100-2256
A134A1L24	9140-0111	1	2	INDUCTOR RF-CH-MLD 3.3UH 10%	28480	9140-0111
A134A1L25	9100-1625	0	6	INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A134A1L26	9140-0121	3	1	INDUCTOR RF-CH-MLD 1.8UH 10%	28480	9140-0121
A134A1L27	9140-0098	3	2	INDUCTOR RF-CH-MLD 2.2UH 10%	28480	9140-0098
A134A1L28	9100-1625	0		INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A134A1L29	9100-1625	0		INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A134A1L30	9140-0098	3		INDUCTOR RF-CH-MLD 2.2UH 10%	28480	9140-0098
A134A1L31	9100-1625	0		INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A134A1L32	9140-0111	1		INDUCTOR RF-CH-MLD 3.3UH 10%	28480	9140-0111
A134A1L33	9140-0180	4	1	INDUCTOR RF-CH-MLD 2.7UH 10%	28480	9140-0180
A134A1L34	9100-1625	0		INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A134A1L35	9100-1625	0		INDUCTOR RF-CH-MLD 33UH 5% .166DX.385LG	28480	9100-1625
A134A1L36	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A134A1L40	9100-2255	4		INDUCTOR RF-CH-MLD 470NH 10% .105DX.26LG	28480	9100-2255
A134A1MP1	78101-00220	7	1	SHIELD-I.F. (TOP)	28480	78101-00220
A134A1MP2	78101-00230	9	1	SHIELD-I.F. (BOTTOM)	28480	78101-00230
A134A1MP3	78101-00300	4	1	SHIELD-L.O. (TOP)	28480	78101-00300
A134A1MP4	78101-00310	6	1	SHIELD-L.O. (BOTTOM)	28480	78101-00310

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A134A1Q1	1854-0048	8	2	TRANSISTOR NPN 2N2857 SI TO-72 PD=200MW	3L585	2N2857
A134A1Q2	1854-0048	8		TRANSISTOR NPN 2N2857 SI TO-72 PD=200MW	3L585	2N2857
A134A1Q3	1854-0345	8	3	TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A134A1Q4	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A134A1Q5	1854-0345	8		TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW	04713	2N5179
A134A1Q6	1855-0327	8	1	TRANSISTOR J-FET 2N4416 N-CHAN D-MODE	01295	2N4416
A134A1Q7	1854-0019	3	1	TRANSISTOR NPN SI TO-18 PD=360MW	28480	1854-0019
A134A1R1	0757-0289	2	2	RESISTOR 13.3K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-1332-F
A134A1R2	0757-0200	7	2	RESISTOR 5.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5621-F
A134A1R3	0698-3150	6	2	RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A134A1R4	0757-0289	2	2	RESISTOR 13.3K 1% .125W F TC=0+-100	19701	MF4C1/8-T0-1332-F
A134A1R5	0757-0200	7	2	RESISTOR 5.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-5621-F
A134A1R6	0757-0428	1	1	RESISTOR 1.62K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1621-F
A134A1R7	0757-0416	7	1	RESISTOR 511 1% .125W F TC=0+-100	24546	C4-1/8-T0-5111-F
A134A1R8	0757-0283	6	1	RESISTOR 2K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A134A1R9	0757-0442	9	5	RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A134A1R10	0698-3442	9	1	RESISTOR 237 1% .125W F TC=0+-100	24546	C4-1/8-T0-237R-F
A134A1R11	0757-0441	8	1	RESISTOR 8.25K 1% .125W F TC=0+-100	24546	C4-1/8-T0-8251-F
A134A1R12	0698-3154	0	1	RESISTOR 4.22K 1% .125W F TC=0+-100	24546	C4-1/8-T0-4221-F
A134A1R13	0757-0280	3	4	RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A134A1R14	0757-0453	2	1	RESISTOR 30.1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-3012-F
A134A1R15	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A134A1R16	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A134A1R20	0698-0084	9	1	RESISTOR 2.15K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2151-F
A134A1R21	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A134A1R26	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A134A1R28	0757-0420	3	1	RESISTOR 750 1% .125W F TC=0+-100	24546	C4-1/8-T0-751-F
A134A1R30	0698-3150	6		RESISTOR 2.37K 1% .125W F TC=0+-100	24546	C4-1/8-T0-2371-F
A134A1R31	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A134A1R32	0757-0280	3		RESISTOR 1K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1001-F
A134A1R34	0757-0442	9		RESISTOR 10K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1002-F
A134A1R36	0757-0427	0	1	RESISTOR 1.5K 1% .125W F TC=0+-100	24546	C4-1/8-T0-1501-F
A134A1U1	1826-0028	5	2	IC RF/IF AMPL TO-100 PKG	04713	MC1550G
A134A1U2	1826-0028	5		IC RF/IF AMPL TO-100 PKG	04713	MC1550G
A134A1U3	1826-0029	6	1	IC RF/IF AMPL IF 14-DIP-P PKG	13606	ULN-2111A
A134A1U4	78101-00010	3	1	PC BOARD-BLANK	28480	78101-00010
A134A1W1	78101-60380	6	1	CABLE-H.F.	28480	78101-60380
A134A1XY1	1200-0453	4	1	SOCKET-XSTR 3-CONT TO-5 DIP-SLDR	28480	1200-0453
A134A1Y1	0410-0804	3	1	FILTER-ELEC (MISC ITEM)	28480	0410-0804
A134A1Y2	0410-0801	0	1	CRYSTAL-QUARTZ 21.82000 MHZ	28480	0410-0801
	0410-0803	2	1	FILTER-ELEC (MISC ITEM)	28480	0410-0803
				MISCELLANEOUS		
A134A1Z1	78101-60350	0	2	ASSEMBLY-RESONATOR	28480	78101-60350
A134A1Z2	78101-60350	0		ASSEMBLY-RESONATOR	28480	78101-60350
	0340-0453	9	1	INSULATOR-XSTR NYLON	28480	0340-0453
	0360-1730	9	7	CONNECTOR-SGL CONT PIN .058-IN-BSC-SZ	28480	0360-1730
	0460-0004	0		TAPE ELE .25-IN-W .007-IN-T GL-CLTH	00000	ORDER BY DESCRIPTION
	0520-0174	3	20	SCREW-MACH 2-56 .25-IN-LG PAN-HD-POZI	00000	ORDER BY DESCRIPTION
	0610-0002	7	8	NUT-HEX-DBL-CHAM 2-56-THD .062-IN-THK	00000	ORDER BY DESCRIPTION
	4330-0145	9		BEADS-INDIAN	28480	4330-0145
	78101-00400	5	1	LABEL-PC BOARD	28480	78101-00400
A135	78101A-#C01	3	1	OP FREQ. 433.375	28480	78101A-#C01
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A135A5Y1	0410-0929	3	1	CRYSTAL-QUARTZ	28480	0410-0929
A135A1A2MP11	78101-03000	7	18	BINS-CHANNEL LABEL	28480	78101-03000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A136	78101A-#C02	4	1	OP FREQ. 433.425	28480	78101A-#C02
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A136A5Y1	0410-0930	6	1	CRYSTAL-QUARTZ	28480	0410-0930
A136A1A2MP11	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000
				DELETE THE FOLLOWING:		

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A137	78101A-#C03	5	1	OP FREQ. 433.675	28480	78101A-#C03
A137A0				DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A137A0MP1	78101-60010	9			28480	78101-60010
A137A0Y1	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000
	0410-0931	7	1	CRYSTAL-QUARTZ	28480	0410-0931
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A138	78101A-#C04	6	1	OP FREQ. 433.725	28480	78101A-#C04
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A138A5Y1	0410-0932	8	1	CRYSTAL-QUARTZ	28480	0410-0932
A138A1A2MP11	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000
A138A5				DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A139	78101A-#C05	7	1	OP FREQ. 433.825	28480	78101A-#C05
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A139A5Y1	0410-0933	9	1	CRYSTAL-QUARTZ	28480	0410-0933
A139A1A2MP11	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A140	78101A-#C06	8	1	OP FREQ. 433.875	28480	78101A-#C06
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A140A5Y1	0410-0934	0	1	CRYSTAL-QUARTZ	28480	0410-0934
A140A1A2MP11	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A141	78101A-#C07	9	1	OP FREQ. 433.225	28480	78101A-#C07
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A141A5Y1	0410-0935	1	1	CRYSTAL-QUARTZ	28480	0410-0935
A141A1A2MP11	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A142	78101A-#C08	0	1	OP FREQ. 434.050	28480	78101A-#C08
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A142A5Y1	0410-0936	2	1	CRYSTAL-QUARTZ	28480	0410-0936
A142A1A2MP11	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A143	78101A-#C09	1	1	OP FREQ. 434.100	28480	78101A-#C09
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A143A5Y1	0410-0937	3	1	CRYSTAL-QUARTZ	28480	0410-0937
A143A1A2MP11	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A144	78101A-#C10	4	1	OP FREQ. 433.275	28480	78101A-#C10
	78101-60011	0		ADD THE FOLLOWING:	28480	78101-60011
A144A5Y1	0410-0938	4	1	HF BOARD 430-450 MHZ	28480	0410-0938
A144A1A2MP11	78101-03000	7		CRYSTAL-QUARTZ	28480	78101-03000
				BINS-CHANNEL LABEL		
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A145	78101A-#C11	5	1	OP FREQ. 434.200	28480	78101A-#C11
	78101-60011	0		ADD THE FOLLOWING:	28480	78101-60011
A145A5Y1	0410-0939	5	1	HF BOARD 430-450 MHZ	28480	0410-0939
A145A1A2MP11	78101-03000	7		CRYSTAL-QUARTZ	28480	78101-03000
				BINS-CHANNEL LABEL		
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A146	78101A-#C12	6	1	OP FREQ. 434.250	28480	78101A-#C12
	78101-60011	0		ADD THE FOLLOWING:	28480	78101-60011
A146A5Y1	0410-0940	8	1	HF BOARD 430-450 MHZ	28480	0410-0940
A146A1A2MP11	78101-03000	7		CRYSTAL-QUARTZ	28480	78101-03000
				BINS-CHANNEL LABEL		
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A147	78101A-#C13	7	1	OP FREQ. 434.500	28480	78101A-#C13
	78101-60011	0		ADD THE FOLLOWING:	28480	78101-60011
A147A5Y1	0410-0941	9	1	HF BOARD 430-450 MHZ	28480	0410-0941
A147A1A2MP11	78101-04000	9		CRYSTAL-QUARTZ	28480	78101-04000
				BINS-CHANNEL LABEL		
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A148	78101A-#C14	8	1	OP FREQ. 434.550	28480	78101A-#C14
	78101-60011	0		ADD THE FOLLOWING:	28480	78101-60011
A148A5Y1	0410-0942	0	1	HF BOARD 430-450 MHZ	28480	0410-0942
A148A1A2MP11	78101-04000	9		CRYSTAL-QUARTZ	28480	78101-04000
				BINS-CHANNEL LABEL		
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A149	78101A-#C15	9	1	OP FREQ. 434.650	28480	78101A-#C15
	78101-60011	0		ADD THE FOLLOWING:	28480	78101-60011
A149A5Y1	0410-0943	1	1	HF BOARD 430-450 MHZ	28480	0410-0943
A149A1A2MP11	78101-04000	9		CRYSTAL-QUARTZ	28480	78101-04000
				BINS-CHANNEL LABEL		
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A150	78101A-#C16	0	1	OP FREQ. 434.700	28480	78101A-#C16
	78101-60011	0		ADD THE FOLLOWING:	28480	78101-60011
A150A5Y1	0410-0944	2	1	HF BOARD 430-450 MHZ	28480	0410-0944
				CRYSTAL-QUARTZ		

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A150A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A151	78101A-#C17	1	1	OP FREQ. 433.075	28480	78101A-#C17
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A151A5Y1	0410-1162	8	1	CRYSTAL-QUARTZ	28480	0410-1162
A151A1A2MP11	78101-11000	4	17	BINS-CHANNEL LABEL	28480	78101-11000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A152	78101A-#C18	2	1	OP FREQ. 433.125	28480	78101A-#C18
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A152A5Y1	0410-1164	0	1	CRYSTAL-QUARTZ	28480	0410-1164
A152A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A153	78101A-#C19	3	1	OP FREQ. 433.175	28480	78101A-#C19
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A153A5Y1	0410-1166	2	1	CRYSTAL-QUARTZ	28480	0410-1166
A153A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A154	78101A-#C20	6	1	OP FREQ. 433.325	28480	78101A-#C20
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A154A5Y1	0410-1168	4	1	CRYSTAL-QUARTZ	28480	0410-1168
A154A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A155	78101A-#C21	7	1	OP FREQ. 433.475	28480	78101A-#C21
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A155A5Y1	0410-1170	8	1	CRYSTAL-QUARTZ	28480	0410-1170
A155A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A156	78101A-#C22	8	1	OP FREQ. 433.525	28480	78101A-#C22
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A156A5Y1	0410-1172	0	1	CRYSTAL-QUARTZ	28480	0410-1172
A156A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A157	78101A-#C23	9	1	OP FREQ. 433.575	28480	78101A-#C23
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A157A5Y1	0410-1174	2	1	CRYSTAL-QUARTZ	28480	0410-1174
A157A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A158	78101A-#C24	0	1	OP FREQ. 433.625	28480	78101A-#C24
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A158A5Y1	0410-1176	4	1	CRYSTAL-QUARTZ	28480	0410-1176
A158A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A159	78101A-#C25	1	1	OP FREQ- 450.930	28480	78101A-#C25
A159A5Y1	0410-1277	6	1	CRYSTAL-QUARTZ	28480	0410-1277
A159A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
A160	78101A-#C26	2	1	OP FREQ- 450.970	28480	78101A-#C26
A160A5Y1	0410-1278	7	1	CRYSTAL-QUARTZ	28480	0410-1278
A160A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
A161	78101A-#C27	3	1	OP FREQ- 451.010	28480	78101A-#C27
A161A5Y1	0410-1279	8	1	CRYSTAL-QUARTZ	28480	0410-1279
A161A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
A162	78101A-#C28	4	1	OP FREQ- 451.050	28480	78101A-#C28
A162A5Y1	0410-1280	1	1	CRYSTAL-QUARTZ	28480	0410-1280
A162A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
A163	78101A-#C29	5	1	OP FREQ- 451.090	28480	78101A-#C29
A163A5Y1	0410-1281	2	1	CRYSTAL-QUARTZ	28480	0410-1281
A163A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
A164	78101A-#D01	4	1	OP FREQ. 448.000	28480	78101A-#D01
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A164A5Y1	0410-0957	7	1	CRYSTAL-QUARTZ	28480	0410-0957
A164A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A165	78101A-#D02	5	1	OP FREQ. 448.025	28480	78101A-#D02
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A165A5Y1	0410-0958	8	1	CRYSTAL-QUARTZ	28480	0410-0958
A165A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A166	78101A-#D03	6	1	OP FREQ. 448.075	28480	78101A-#D03
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A166A5Y1	0410-0959	9	1	CRYSTAL-QUARTZ	28480	0410-0959
A166A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000
				DELETE THE FOLLOWING:		

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A167	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#D04	7	1	OP FREQ. 448.180	28480	78101A-#D04
A167A5Y1	78101-60011	0		ADD THE FOLLOWING; HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0960	2	1	CRYSTAL-QUARTZ	28480	0410-0960
A167A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000
A168	78101-60010	9		DELETE THE FOLLOWING; HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#D05	8	1	OP FREQ. 448.250	28480	78101A-#D05
A168A5Y1	78101-60011	0		ADD THE FOLLOWING; HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0961	3	1	CRYSTAL-QUARTZ	28480	0410-0961
A168A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000
A169	78101-60010	9		DELETE THE FOLLOWING; HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#D06	9	1	OP FREQ. 448.275	28480	78101A-#D06
A169A5Y1	78101-60011	0		ADD THE FOLLOWING; HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0962	4	1	CRYSTAL-QUARTZ	28480	0410-0962
A169A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000
A170	78101-60010	9		DELETE THE FOLLOWING; HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#D07	0	1	OP FREQ. 448.050	28480	78101A-#D07
A170A5Y1	78101-60011	0		ADD THE FOLLOWING; HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0963	5	1	CRYSTAL-QUARTZ	28480	0410-0963
A170A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000
A171	78101-60010	9		DELETE THE FOLLOWING; HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#D08	1	1	OP FREQ. 448.125	28480	78101A-#D08
A171A5Y1	78101-60011	0		ADD THE FOLLOWING; HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0964	6	1	CRYSTAL-QUARTZ	28480	0410-0964
A171A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000
A172	78101-60010	9		DELETE THE FOLLOWING; HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#D09	2	1	OP FREQ. 448.150	28480	78101A-#D09
A172A5Y1	78101-60011	0		ADD THE FOLLOWING; HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0965	7	1	CRYSTAL-QUARTZ	28480	0410-0965
A172A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000
A173	78101-60010	9		DELETE THE FOLLOWING; HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#D10	5	1	OP FREQ. 448.175	28480	78101A-#D10
A173A5Y1	78101-60011	0		ADD THE FOLLOWING; HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0966	8	1	CRYSTAL-QUARTZ	28480	0410-0966
A173A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A174	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#D11	6	1	OP FREQ. 448.200	28480	78101A-#D11
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A174A5Y1	0410-0967	9	1	CRYSTAL-QUARTZ	28480	0410-0967
A174A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000
A175	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#D12	7	1	OP FREQ. 448.225	28480	78101A-#D12
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A175A5Y1	0410-0968	0	1	CRYSTAL-QUARTZ	28480	0410-0968
A175A1A2MP11	78101-04000	9		BINS-CHANNEL LABEL	28480	78101-04000
A176	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#E01	5	1	OP FREQ. 438.600	28480	78101A-#E01
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A176A5Y1	0410-0980	6	1	CRYSTAL-QUARTZ	28480	0410-0980
A176A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A177	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#F01	6	1	OP FREQ. 446.050	28480	78101A-#F01
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A177A5Y1	0410-0909	9	1	CRYSTAL-QUARTZ	28480	0410-0909
A177A1A2MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
A178	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#F02	7	1	OP FREQ. 446.100	28480	78101A-#F02
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A178A5Y1	0410-0910	2	1	CRYSTAL-QUARTZ	28480	0410-0910
A178A1A2MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
A179	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#F03	8	1	OP FREQ. 446.350	28480	78101A-#F03
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A179A5Y1	0410-0911	3	1	CRYSTAL-QUARTZ	28480	0410-0911
A180	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#F04	9	1	OP FREQ. 446.400	28480	78101A-#F04
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A180A5Y1	0410-0912	4	1	CRYSTAL-QUARTZ	28480	0410-0912
A180A1A2MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A181	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#F05	0	1	OP FREQ. 446.500	28480	78101A-#F05
A181A5Y1	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0913	5	1	CRYSTAL-QUARTZ	28480	0410-0913
A181A1A2MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
A182	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#F06	1	1	OP FREQ. 446.550	28480	78101A-#F06
A182A5Y1	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0914	6	1	CRYSTAL-QUARTZ	28480	0410-0914
A182A1A2MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
A183	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#F07	2	1	OP FREQ. 446.800	28480	78101A-#F07
A183A5Y1	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0915	7	1	CRYSTAL-QUARTZ	28480	0410-0915
A183A1A2MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
A184	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#F08	3	1	OP FREQ. 446.850	28480	78101A-#F08
A184A5Y1	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0916	8	1	CRYSTAL-QUARTZ	28480	0410-0916
A184A1A2MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
A185	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#F09	4	1	OP FREQ. 446.000	28480	78101A-#F09
A185A5Y1	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0917	9	1	CRYSTAL-QUARTZ	28480	0410-0917
A185A1A2MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
A186	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#F10	7	1	OP FREQ. 446.150	28480	78101A-#F10
A186A5Y1	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0918	0	1	CRYSTAL-QUARTZ	28480	0410-0918
A186A1A2MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
A187	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
	78101A-#F11	8	1	OP FREQ. 446.200	28480	78101A-#F11
A187A5Y1	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
	0410-0919	1	1	CRYSTAL-QUARTZ	28480	0410-0919

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A187A1A2MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A188	78101A-#F12	9	1	OP FREQ. 446.450	28480	78101A-#F12
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A188A5Y1	0410-0920	4	1	CRYSTAL-QUARTZ	28480	0410-0920
A188A1A2MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A189	78101A-#F13	0	1	OP FREQ. 446.600	28480	78101A-#F13
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A189A5Y1	0410-0921	5	1	CRYSTAL-QUARTZ	28480	0410-0921
A189A1A2MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A190	78101A-#F14	1	1	OP FREQ. 446.650	28480	78101A-#F14
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A190A5Y1	0410-0922	6	1	CRYSTAL-QUARTZ	28480	0410-0922
A190A1A2MP11	78101-02000	5		BINS-CHANNEL LABEL	28480	78101-02000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A191	78101A-#F15	2	1	OP FREQ. 446.900	28480	78101A-#F15
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A191A5Y1	0410-0923	7	1	CRYSTAL-QUARTZ	28480	0410-0923
A191A1A2MP11	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A192	78101A-#F16	3	1	OP FREQ. 446.950	28480	78101A-#F16
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A192A5Y1	0410-0924	8	1	CRYSTAL-QUARTZ	28480	0410-0924
A192A1A2MP11	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A193	78101A-#F17	4	1	OP FREQ. 446.250	28480	78101A-#F17
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A193A5Y1	0410-0925	9	1	CRYSTAL-QUARTZ	28480	0410-0925
A193A1A2MP11	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A194	78101A-#F18	5	1	OP FREQ. 446.300	28480	78101A-#F18
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A194A5Y1	0410-0926	0	1	CRYSTAL-QUARTZ	28480	0410-0926
A194A1A2MP11	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A195	78101A-#F19	6	1	OP FREQ. 446.700	28480	78101A-#F19
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A195A5Y1	0410-0927	1	1	CRYSTAL-QUARTZ	28480	0410-0927
A195A1A2MP11	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A196	78101A-#F20	9	1	OP FREQ. 446.750	28480	78101A-#F20
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A196A5Y1	0410-0928	2	1	CRYSTAL-QUARTZ	28480	0410-0928
A196A1A2MP11	78101-03000	7		BINS-CHANNEL LABEL	28480	78101-03000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A197	78101A-#G01	7	1	OP FREQ. 456.210	28480	78101A-#G01
A197A5Y1	0410-0981	7	1	CRYSTAL-QUARTZ	28480	0410-0981
A197A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A198	78101A-#G02	8	1	OP FREQ. 456.250	28480	78101A-#G02
A198A5Y1	0410-0654	1	1	CRYSTAL-QUARTZ	28480	0410-0654
A198A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A199	78101A-#G03	9	1	OP FREQ. 456.330	28480	78101A-#G03
A199A5Y1	0410-0655	2	1	CRYSTAL-QUARTZ	28480	0410-0655
A199A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A200	78101A-#G04	0	1	OP FREQ. 466.210	28480	78101A-#G04
A200A5Y1	0410-0656	3	1	CRYSTAL-QUARTZ	28480	0410-0656
A200A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A201	78101A-#G05	1	1	OP FREQ. 466.250	28480	78101A-#G05
A201A5Y1	0410-0657	4	1	CRYSTAL-QUARTZ	28480	0410-0657
A201A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A202	78101A-#G06	2	1	OP FREQ. 466.330	28480	78101A-#G06
A202A5Y1	0410-0658	5	1	CRYSTAL-QUARTZ	28480	0410-0658
A202A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A203	78101A-#H01	8	1	OP FREQ. 468.525	28480	78101A-#H01
A203A5Y1	0410-1318	6	1	CRYSTAL-QUARTZ	28480	0410-1318
A203A1A2MP11	78101-13000	8	4	BINS-CHANNEL LABEL	28480	78101-13000
A204	78101A-#J01	7	1	OP FREQ. 449.775	28480	78101A-#J01
				ADD THE FOLLOWING:		
	78101-60011	0		HF BOARD 430-450 MHZ	28480	78101-60011
A204A5Y1	0410-1320	0	1	CRYSTAL-QUARTZ	28480	0410-1320
A204A1A2MP11	78101-13000	8		BINS-CHANNEL LABEL	28480	78101-13000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A205	78101A-#J02	8	1	OP FREQ. 449.800	28480	78101A-#J02
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A205A5Y1	0410-1324	4	1	CRYSTAL-QUARTZ	28480	0410-1324
A205A1A2MP11	78101-13000	8		BINS-CHANNEL LABEL	28480	78101-13000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A206	78101A-#J03	9	1	OP FREQ. 449.850	28480	78101A-#J03
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A206A5Y1	0410-1319	7	1	CRYSTAL-QUARTZ	28480	0410-1319
A206A1A2MP11	78101-13000	8		BINS-CHANNEL LABEL	28480	78101-13000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A207	78101A-#K02	9	1	OP FREQ. 439.775	28480	78101A-#K02
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A207A5Y1	0410-0630	3	1	CRYSTAL-QUARTZ	28480	0410-0630
A207A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A208	78101A-#K03	0	1	OP FREQ. 439.800	28480	78101A-#K03
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A208A5Y1	0410-1148	0	1	CRYSTAL-QUARTZ	28480	0410-1148
A208A1A2MP11	78101-07000	5	6	BINS-CHANNEL LABEL	28480	78101-07000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A209	78101A-#K04	1	1	OP FREQ. 439.825	28480	78101A-#K04
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A209A5Y1	0410-1150	4	1	CRYSTAL-QUARTZ	28480	0410-1150
A209A1A2MP11	78101-07000	5		BINS-CHANNEL LABEL	28480	78101-07000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A210	78101A-#K05	2	1	OP FREQ. 439.850	28480	78101A-#K05
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A210A5Y1	0410-1152	6	1	CRYSTAL-QUARTZ	28480	0410-1152
A210A1A2MP11	78101-07000	5		BINS-CHANNEL LABEL	28480	78101-07000
				DELETE THE FOLLOWING:		
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A211	78101A-#K06	3	1	OP FREQ. 439.875	28480	78101A-#K06
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A211A5Y1	0410-1146	8	1	CRYSTAL-QUARTZ	28480	0410-1146
A211A1A2MP11	78101-07000	5		BINS-CHANNEL LABEL	28480	78101-07000
				DELETE THE FOLLOWING:		

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
	78101-60010	9		HF BOARD 450-470 MHZ	28480	78101-60010
A212	78101A-#K07	4	1	OP FREQ. 439.850	28480	78101A-#K07
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A212A5Y1	0410-0634	7	1	CRYSTAL-QUARTZ	28480	0410-0634
A212A1A2MP11	78101-07000	5		BINS-CHANNEL LABEL	28480	78101-07000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A213	78101A-#K08	5	1	OP FREQ. 439.975	28480	78101A-#K08
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A213A5Y1	0410-0636	9	1	CRYSTAL-QUARTZ	28480	0410-0636
A213A1A2MP11	78101-07000	5		BINS-CHANNEL LABEL	28480	78101-07000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A214	78101A-#K09	6	1	OP FREQ. 439.900	28480	78101A-#K09
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A214A5Y1	0410-1154	8	1	CRYSTAL-QUARTZ	28480	0410-1154
A214A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A215	78101A-#K10	9	1	OP FREQ. 439.925	28480	78101A-#K10
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A215A5Y1	0410-1156	0	1	CRYSTAL-QUARTZ	28480	0410-1156
A215A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A216	78101A-#L13	3	1	OP FREQ. 458.500	28480	78101A-#L13
A216A5Y1	0410-0685	8	1	CRYSTAL-QUARTZ	28480	0410-0685
A216A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A217	78101A-#L14	4	1	OP FREQ. 458.525	28480	78101A-#L14
A217A5Y1	0410-0686	9	1	CRYSTAL-QUARTZ	28480	0410-0686
A217A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A218	78101A-#L15	5	1	OP FREQ. 458.5625	28480	78101A-#L15
A218A5Y1	0410-0687	0	1	CRYSTAL-QUARTZ	28480	0410-0687
A218A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A219	78101A-#L16	6	1	OP FREQ. 458.5875	28480	78101A-#L16
A219A5Y1	0410-0688	1	1	CRYSTAL-QUARTZ	28480	0410-0688
A219A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A220	78101A-#L17	7	1	OP FREQ. 458.700	28480	78101A-#L17
A220A5Y1	0410-0689	2	1	CRYSTAL-QUARTZ	28480	0410-0689
A220A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A221	78101A-#L18	8	1	OP FREQ. 458.725	28480	78101A-#L18
A221A5Y1	0410-0690	5	1	CRYSTAL-QUARTZ	28480	0410-0690

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A221A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A222	78101A-#L19	9	1	OP FREQ. 458.775	28480	78101A-#L19
A222A5Y1	0410-0691	6	1	CRYSTAL-QUARTZ	28480	0410-0691
A222A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A223	78101A-#L20	2	1	OP FREQ. 458.800	28480	78101A-#L20
A223A5Y1	0410-0697	2	1	CRYSTAL-QUARTZ	28480	0410-0697
A223A1A2MP11	78101-06000	3		BINS-CHANNEL LABEL	28480	78101-06000
A224	78101A-#N01	1	1	OP FREQ. 441.975	28480	78101A-#N01
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A224A5Y1	0410-0978	2	1	CRYSTAL-QUARTZ	28480	0410-0978
A224A1A2MP11	78101-05000	1		BINS-CHANNEL LABEL	28480	78101-05000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A225	78101A-#N02	2	1	OP FREQ. 441.925	28480	78101A-#N02
A225A1	78101-60011	0		HF BOARD 430-450 MHZ ADD THE FOLLOWING:	28480	78101-60011
A225A5Y1	0410-0640	5	1	CRYSTAL-QUARTZ	28480	0410-0640
A225A1A2MP11	78101-05000	1		BINS-CHANNEL LABEL	28480	78101-05000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A226	78101A-#N03	3	1	OP FREQ. 441.937	28480	78101A-#N03
A226A1	78101-60011	0		HF BOARD 430-450 MHZ ADD THE FOLLOWING:	28480	78101-60011
A226A5Y1	0410-1134	4	1	CRYSTAL-QUARTZ	28480	0410-1134
A226A1A2MP11	78101-05000	1		BINS-CHANNEL LABEL	28480	78101-05000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A227	78101A-#N04	4	1	OP FREQ. 441.962	28480	78101A-#N04
A227A1	78101-60011	0		HF BOARD 430-450 MHZ ADD THE FOLLOWING:	28480	78101-60011
A227A5Y1	0410-1133	3	1	CRYSTAL-QUARTZ	28480	0410-1133
A227A1A2MP11	78101-05000	1		BINS-CHANNEL LABEL	28480	78101-05000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A228	78101A-#N05	5	1	OP FREQ. 441.875	28480	78101A-#N05
A228A1	78101-60011	0		HF BOARD 430-450 MHZ ADD THE FOLLOWING:	28480	78101-60011
A228A5Y1	0410-1158	2	1	CRYSTAL-QUARTZ	28480	0410-1158
A228A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000
	78101-60010	9		DELETE THE FOLLOWING: HF BOARD 450-470 MHZ	28480	78101-60010
A229	78101A-#N06	6	1	OP FREQ. 441.950	28480	78101A-#N06
	78101-60011	0		ADD THE FOLLOWING: HF BOARD 430-450 MHZ	28480	78101-60011
A229A5Y1	0410-1160	6	1	CRYSTAL-QUARTZ	28480	0410-1160
A229A1A2MP11	78101-11000	4		BINS-CHANNEL LABEL	28480	78101-11000

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A230	78101A-#N90	8	1	UK	28480	78101A-#N90
A230F2	2110-0004	1		FUSE .25A 250V NTD 1.25X.25 UL	28480	2110-0004
A230XF2	2110-0481	8		FUSEHOLDER-EXTR POST 20A 300 V UL/IEC	75915	345003
				MISCELLANEOUS		
	8120-1351	0		CABLE ASSY 3-CNDCT MGP-JKT	28480	8120-1351
	8120-1992	5		CABLE ASSEMBLY (8 FT.)	28480	8120-1992
	78101-00090	9		FRONT PANEL	28480	78101-00090
	78101-00100	2		REAR PANEL	28480	78101-00100
	78101-00440	3		REAR PANEL, UK	28480	78101-00440
	78101-00450	5		FRONT PANEL, UK	28480	78101-00450
A231	78101A-#129		1	CHANNEL 97	28480	78101A-#129
A231ASY1	0410-1419	8	1	CRYSTAL-QUARTZ	28480	0410-1419
A231A1A2MP11	78101-15000	2	18	BINS-CHANNEL LABEL	28480	78101-15000
A232	78101A-#130		1	CHANNEL 98	28480	78101A-#130
A232ASY1	0410-0976	0		CRYSTAL-QUARTZ	28480	0410-0976
A232A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A233	78101A-#131		1	CHANNEL 99	28480	78101A-#131
A233ASY1	0410-1417	6	1	CRYSTAL-QUARTZ	28480	0410-1417
A233A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A234	78101A-#132		1	CHANNEL 100	28480	78101A-#132
A234ASY1	0410-1418	7	1	CRYSTAL-QUARTZ	28480	0410-1418
A234A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A235	78101A-#133		1	CHANNEL 101	28480	78101A-#133
A235ASY1	0410-1420	1	1	CRYSTAL-QUARTZ	28480	0410-1420
A235A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A236	78101A-#134		1	CHANNEL 102	28480	78101A-#134
A236ASY1	0410-1421	2	1	CRYSTAL-QUARTZ	28480	0410-1421
A236A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A237	78101A-#135		1	CHANNEL 103	28480	78101A-#135
A237ASY1	0410-1422	3	1	CRYSTAL-QUARTZ	28480	0410-1422
A237A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A238	78101A-#136		1	CHANNEL 104	28480	78101A-#136
A238ASY1	0410-1423	4	1	CRYSTAL-QUARTZ	28480	0410-1423
A238A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A239	78101A-#137		1	CHANNEL 105	28480	78101A-#137
A239ASY1	0410-1424	5	1	CRYSTAL-QUARTZ	28480	0410-1424
A239A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A240	78101A-#138		1	CHANNEL 106	28480	78101A-#138
A240ASY1	0410-1425	6	1	CRYSTAL-QUARTZ	28480	0410-1425
A240A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A241	78101A-#139		1	CHANNEL 107	28480	78101A-#139
A241ASY1	0410-1426	7	1	CRYSTAL-QUARTZ	28480	0410-1426
A241A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A242	78101A-#140		1	CHANNEL 108	28480	78101A-#140
A242ASY1	0410-1427	8	1	CRYSTAL-QUARTZ	28480	0410-1427
A242A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A243	78101A-#141		1	CHANNEL 109	28480	78101A-#141
A243ASY1	0410-1428	9	1	CRYSTAL-QUARTZ	28480	0410-1428
A243A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A244	78101A-#142		1	CHANNEL 110	28480	78101A-#142
A244ASY1	0410-1429	0	1	CRYSTAL-QUARTZ	28480	0410-1429
A244A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A245	78101A-#143		1	CHANNEL 111	28480	78101A-#143
A245ASY1	0410-1430	3	1	CRYSTAL-QUARTZ	28480	0410-1430
A245A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A246	78101A-#144		1	CHANNEL 112	28480	78101A-#144
A246ASY1	0410-1431	4	1	CRYSTAL-QUARTZ	28480	0410-1431
A246A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A247	78101A-#145		1	CHANNEL 113	28480	78101A-#145
A247ASY1	0410-1432	5	1	CRYSTAL-QUARTZ	28480	0410-1432
A247A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000
A248	78101A-#146		1	CHANNEL 114	28480	78101A-#146
A248ASY1	0410-1433	6	1	CRYSTAL-QUARTZ	28480	0410-1433
A248A1A2MP11	78101-15000	2		BINS-CHANNEL LABEL	28480	78101-15000

Table 6-2. Replaceable Parts, 78101A

Reference Designation	HP Part Number	C D	Qty	Description	Mfr Code	Mfr Part Number
A249	78101A-#147		1	CHANNEL 115	28480	78101A-#147
A249ASY1	0410-1435	8	1	CRYSTAL-QUARTZ	28480	0410-1435
A249A1A2MP11	78101-16000	4	16	BINS-CHANNEL LABEL	28480	78101-16000
A250	78101A-#148		1	CHANNEL 116	28480	78101A-#148
A250ASY1	0410-1436	9	1	CRYSTAL-QUARTZ	28480	0410-1436
A250A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A251	78101A-#149		1	CHANNEL 117	28480	78101A-#149
A251ASY1	0410-1437	0	1	CRYSTAL-QUARTZ	28480	0410-1437
A251A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A252	78101A-#150		1	CHANNEL 118	28480	78101A-#150
A252ASY1	0410-1438	1	1	CRYSTAL-QUARTZ	28480	0410-1438
A252A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A253	78101A-#151		1	CHANNEL 119	28480	78101A-#151
A253ASY1	0410-1439	2	1	CRYSTAL-QUARTZ	28480	0410-1439
A253A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A254	78101A-#152		1	CHANNEL 120	28480	78101A-#152
A254ASY1	0410-1440	5	1	CRYSTAL-QUARTZ	28480	0410-1440
A254A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A255	78101A-#153		1	CHANNEL 121	28480	78101A-#153
A255ASY1	0410-1441	6	1	CRYSTAL-QUARTZ	28480	0410-1441
A255A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A256	78101A-#154		1	CHANNEL 122	28480	78101A-#154
A256ASY1	0410-1442	7	1	CRYSTAL-QUARTZ	28480	0410-1442
A256A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A257	78101A-#155		1	CHANNEL 123	28480	78101A-#155
A257ASY1	0410-1443	8	1	CRYSTAL-QUARTZ	28480	0410-1443
A257A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A258	78101A-#156		1	CHANNEL 124	28480	78101A-#156
A258ASY1	0410-1444	9	1	CRYSTAL-QUARTZ	28480	0410-1444
A258A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A259	78101A-#157		1	CHANNEL 125	28480	78101A-#157
A259ASY1	0410-1445	0	1	CRYSTAL-QUARTZ	28480	0410-1445
A259A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A260	78101A-#158		1	CHANNEL 126	28480	78101A-#158
A260ASY1	0410-1446	1	1	CRYSTAL-QUARTZ	28480	0410-1446
A260A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A261	78101A-#159		1	CHANNEL 127	28480	78101A-#159
A261ASY1	0410-1447	2	1	CRYSTAL-QUARTZ	28480	0410-1447
A261A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A262	78101A-#160		1	CHANNEL 128	28480	78101A-#160
A262ASY1	0410-1448	3	1	CRYSTAL-QUARTZ	28480	0410-1448
A262A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A263	78101A-#161		1	CHANNEL 129	28480	78101A-#161
A263ASY1	0410-1483	6	1	CRYSTAL-QUARTZ	28480	0410-1483
A263A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000
A264	78101A-#162		1	CHANNEL 130	28480	78101A-#162
A264ASY1	0410-1434	7	1	CRYSTAL-QUARTZ	28480	0410-1434
A264A1A2MP11	78101-16000	4		BINS-CHANNEL LABEL	28480	78101-16000



MISCELLANEOUS ASSEMBLIES

78102A Telemetry Antenna

	78102A	END ITEM	Antenna: Telemetry
A1	14094A	1	External Antenna
	2190-0777	6	Washer Flat No. 6
	2360-0185	8	Screw, 6-32 x 1/2
	2420-0006	6	Nut 6-32 x 5/16
	5060-4683	1	Top Cover
	78101-00390	1	Bracket
	78101-60500	1	External Antenna
A2	78101-60530	1	Coaxial Cable
	1250-1405	2	Connector BNC
	8120-1149		Cable
	78101-60500	END ITEM	External Antenna
	0590-0199	3	Nut 4-40 x 1/4
	1401-0050	1	Cap 1/2 x 1/8
	2190-0124	2	Washer Lock No. 10
	2200-0148	3	Screw 4-40 x 1/2
	2360-0192	4	Screw 6-32 x 1/4
	2950-0035	1	Nut 15/32-32
	2950-0078	1	Nut 10-32 Thread
	3030-0276	1	Screw Set 4-40 x 3/32
	78101-00350	1	External Antenna Top
	78101-00360	1	Antenna Mounting Plate
	78101-40030	3	Shoulder Washer
	78101-40040	1	Antenna Insulator
	78101-60300	1	Coaxial Connector
	78101-60320	1	Assembly, Antenna
	78101-60400	1	Cable, External Antenna

78101-60510	END ITEM	Antenna External Cable
0890-1365	2	Tubing- Heat Shrink
1250-0256	2	Cable BNC Plug
1250-0947	2	Contact BNC Male
1250-0956	2	Bushing BNC Assembly
1250-0959	2	Sleeve Crimp BNC
1250-0963	2	Nut BNC
8120-0005		Cable RF58

78101-60400	END ITEM	Cable, External Antenna
1250-0870	1	Jack BNC Bulkhead
1250-0952	1	Contact BNC Female
1250-0958	1	Bushing BNC Assembly
1250-0960	1	Sleeve Crimp BNC
1250-0964	1	Nut BNC
1250-1164	1	Connector Coaxial
1250-1169	1	Connector Nut Assembly
1250-1172	1	Connector Contact
1250-1173	1	Connector Insulator
1250-1175	1	Connector Sleeve Crimp
2190-0102	1	Washer Lock 15/32
2950-0035	1	Nut 15/32-32
8120-0789	1	Cable, 50 Ohm

Table 6-3. Manufacturers Code List

MFR No.	Manufacturer Name	Address	Zip Code
00000	Any Satisfactory Supplier		
01121	Allen-Bradley Co	Milwaukee	WI - 53204
01295	Texas Instr Inc Semicond Cmpnt Div	Dallas	TX 75222
04222	AVX Ceramics Corp	Myrtle Beach	SC 29577
04713	Motorola Semiconductor Products	Phoenix	AZ 85008
1F556	Precision Lamp Inc	Mountain View	CA 94040
13606	Sprague Elect Co Semiconductor Div	Concord	NH 03301
19701	MEPCO/Electra Corp	Mineral Wells	TX 76067
24546	Corning Glass Works (Bradford)	Bradford	PA 16701
28480	Hewlett-Packard Corp Corporate Hdq	Palo Alto	CA 94304
31585	RCA Crop Solid State Div	Somerville	NJ
30161	AAVID Engineering Inc	Laconia	NH 03246
52763	Stettner-Trush Inc	Cazenovia	NY 13035
56289	Sprague Electric Co	North Adams	MA 01247
71984	Dow Corning Corp	Midland	MI 48641
73138	Beckman Instruments Inc Helipot Div	Fullerton	CA 92634
75915	Littelfuse Inc	Des Plaines	IL 60016

APPENDIX I
BACKDATING INFORMATIONP/N 78101-91993
Telemetry Transmitter and Receiver

Below and not including Serial Prefix	Make Manual Changes	Instrument Affected
2220A	CHANGE 1	Receiver
1835A	CHANGE 1,2	Receiver
1814A	CHANGE 1,2,3	Receiver
1653A	CHANGE 1,2,3,4	Receiver
1628A	CHANGE 1,2,3,4,5	Receiver
1540A	CHANGE 1-5,6	Receiver
1450A	CHANGE 1-4,6,7	Receiver
1439A	CHANGE 1-4,6,7,8	Receiver
1401A	CHANGE 1-4,6,7,8,9	Transmitter
1350A	CHANGE 1-4,6-9,10	Receiver
1321A	CHANGE 1-4,6-10,11	Receiver
1339A	CHANGE 1-4,6-11,12	Transmitter
1313A	CHANGE 1-4,6-12,13	Transmitter
1216A	CHANGE 1-4,6-13,14	Receiver
1152A	CHANGE 1-4,6-14,15	Receiver
1144A	CHANGE 1-4,6-15,16	Receiver
1140A	CHANGE 1-4,6-16,17	Receiver, Transmitter
1138A	CHANGE 1-4,6-17,18	Transmitter, Receiver
1127A	CHANGE 1-4,6-15,18,19	Transmitter
1125A	CHANGE 1-4,6-18,19	Receiver, Transmitter

CHANGE 1: Receiver
(2220A) Add wire between AC neutral and voltage selector switch. (Not UL standard however.)

CHANGE 2: Receiver, A2 Low Frequency board, 78101-60740
(1835A) Page 6-62, Table 6-2; Page 6-9, Figure 6-7:
A5R112 was P/N 0683-1045 100k ohm.

CHANGE 3: Receiver, A3 Subpanel
(1814A) Page 6-62, Table 6-2:
The 2 2200-0105 4-40 X 5/16 screws were P/N 2360-0113
6-32 X 1/4 screws.
Delete 2 0590-0199 4-40 X 1/4 nuts.
Add 01250-20802 spacer.
Add 07803-05020 switch fastener.

CHANGE 4: Receiver, A2 Low Frequency Board
(1653A) Page 6-60, Table 6-2; Page 6-9, Figure 6-7:
Delete:

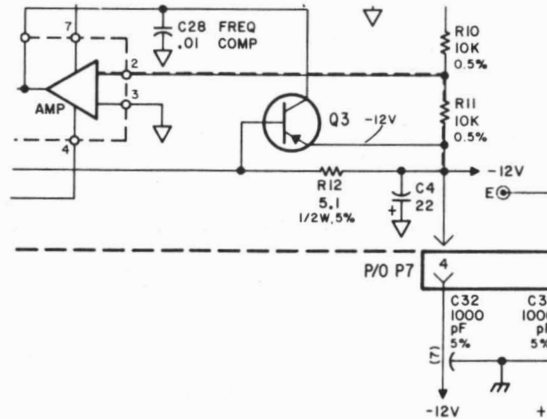
R112 P/N 0683-1045 RES 100K
CR32 P/N 1901-0033 DIODE
Q32 P/N 1853-0020 TRANSISTOR PNP

Units with above components provide clamping for alarm lines for use with arrhythmia.

A2C28 was P/N 0160-3451 C: FXD CER 0.01uF +80-20% 100VDCW
Mfr 56289 Code C023B101F103ZS25-CDH

A2C32 3300pF was P/N 0160-3451 CAP CER 0.01UF.

Change location of C28 and C32 as shown.

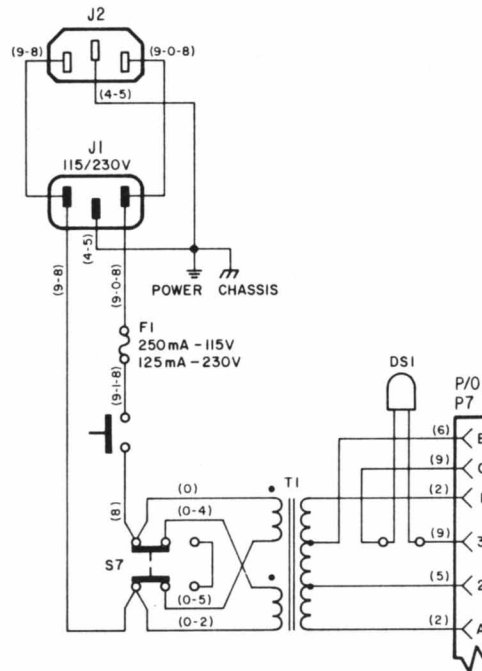


There was also a ground foil addition with this change.
Units with date codes below 1653A have one system ground connection — through L2 68nH inductor.

CHANGE 5: Receiver A4 Chassis (parts list, down to 1458A)
(1628A) Page 6-62 Table 6-2.
A4T1 was P/N 9100-2400 Transformer.

- CHANGE 6: Receiver, A2 Low Frequency PCB (parts list and schematic)
(1540A) Page 6-9, Figure 6-7; Page 6-61, Table 6-2.
A2R51 was P/N 0757-0464 R:FXD MET FLM 90.9K ohm,
1 $\frac{1}{8}$ W Mfr 28480.
- CHANGE 7: Receiver A4 Chassis (parts list)
(1450A) Page 6-62, Table 6-2:
A4T1 was P/N 9100-2366 Transformer.
- CHANGE 8: Receiver A2 Low Frequency board (parts list and schematic)
(1439A) Page 6-60, Table 6-2; Page 6-7, Figure 6-9:
Change A2 from 78101-60740 to 78101-60020 Low Frequency PCB.
Parts list and schematic included on pages A-7 through A-11.
of this Appendix. The 78101-60020 board does not include
status information at the output phone jack necessary for
the 78207A/C cardiotech and 78500-series central stations.
- CHANGE 9: Transmitter (parts lists and schematic)
(1401A) Page 6-21, Table 6-1; Table 6-5, Figure 6-3:
A2A1C5 was C: FXD CER 0.068uF 20% P/N 0160-3828
A2A1R14 was R:FXD COMP 1.5M ohm 5% P/N 0698-7941
A2A1R16 was R:FXD COMP2M ohm 5% P/N 0698-7187
A2A1R22 was R:FXD FLM 13.3k ohm 2% P/N 0698-7263
A2A1R43 was R:FXD FLM 10k ohm 2% P/N 0698-7260
A2A1R59 was R:FXD COMP 2M ohm 5% P/N 0698-7187
A2A1R61 was R:FXD FLM 100k ohm 2% P/N 0698-7284
The DC offset capabilities of patient interface were 100mV
(and presently are 300mV). Boards with higher date codes
have been modified for 300mV DC offset capabilities.
- CHANGE 10: Receiver, Low Frequency PCB 78101-60020 (parts list)
(1350A) Page A-7 of this Appendix:
A2C9 was P/N 0180-1761 C: FXD TA-ELECT 0.56uF 10%
35VDCW Mfr Code 150D564X9035 A2-DYS.
- CHANGE 11: Receiver (parts list)
(1321A) Page 89
Delete 78101-65101 Cable.
Page 6-62, Table 6-2:
A3S1 was P/N 3101-0843 switch Pushbutton Mfr 28480

A3MP1 was P/N 07800-05101 KNOB Mfr 28480
A3MP5 was P/N 78101-00260 SUB-PANEL Mfr 28480
Page A-11 of this Appendix. 78101-60020 Low Frequency
PCB; Change S1 configuration as shown:



CHANGE 12: Transmitter (parts list)
(1339A)

Page 6-20, Table 6-1:
A2A1C8, C11, C12, C42 were P/N 0160-3752 C:FXD CER 1000pF
5% 50VDCW Mfr 72982 Code 8121-A050-W5R-102J.
A2A1C4, C15 were P/N 0160-3749 C:FXD CER 330pF 5% 50VDCM
Mfr 72982 Code 8111-050-W5R-331J.
A2A1C13 was P/N 0160-3750 C:FXD CER 820PF 5% 50VDCW
Mfr 72982 Code 8111-050-W5R-821J.

CHANGE 13: Transmitter (parts lists)
(1313A)

Page 6-3, Table 6-1:
A2A1C7 was P/N 0160-3752 C: FXD CER 1000pF, 5%, 50WVDC

Page 6-5, Figure 6-3. 78100-60010 Transmitter PCB
781 schematic. A2A1C7 was 1000pF.

CHANGE 14: Receiver (parts list)
(1216A)

Page 6-59, Table 6-2:
Add A1A1MP1 2 LENS CAPS P/N 1450-0497.
A1A1XDS2, XDS3 were P/N 1450-0406 LAMPHOLDER

CHANGE 15: Receiver A5 High Frequency PCB (parts list, schematic)
(1152A) Page 6-63, Table 6-2; Page 6-11, Figure 6-9:
A5C21, C26 were P/N 0121-0458 C: VAR CER 2-8pF
A5R14 was P/N 0698-4485 R: FXD FLM 23.2K OHM
A5C61 was P/N 0160-3451 C: FXD CAP 0.1pF
A5R31 was P/N 0757-0427 1.5K OHM
A5CR7 was A5R27 P/N 0757-0442 10K OHM

These units have tuning range only in the 450MHz-470MHz range (U.S. frequencies).

CHANGE 16: Receiver A5 High Frequency PCB (parts list, schematic)
(1144A) Page 6-63, Table 6-2:
A5C21 and C26 were 0121-0458, C:VAR CER 5.5 to 18pF,
Mfr 28480.
A5C61 was 0160-3451, C:FXD CER, 0.01 uF +80% -20%
100VDCW, Mfr 56289, Code C023B101F103ZS25-CDH.
A5CR7 was R27, 0757-0442, R:FXD MET FLM 10.0K OHM
1% 1/8W, MFr 28480.
A5R14 was 0698-4485, R:FXD FLM 23.2K OHM 1% 1/8W,
Mfr 28480.
A5R31 was 0757-0280, R:FXD MET FLM 1.5K OHM 1% 1/8W,
Mfr 28480.

Page 6-11, Figure 6-9:
Make corresponding changes to schematic diagram:
C21, C26 were 5.5 to 18pf
C61 was 0.01uF
CR7 was resistor R27, 10K
R14 was 23.2K
R31 was 1.5K

CHANGE 17: Transmitter and Receiver (parts and schematics)
(1140A) Transmitter.
Page 6-22, Table 6-1; Page 6-5, Figure 6-3:
A2A1R37 was 51.1K.
A2A1R38 was 50K.

Receiver 78101-60020 Low Frequency Board.
Page A-9 of this Appendix (parts list):
A2R102 was CR14, 1901-0033, DIODE: SILICON 100MA
180WV, Mfr 07263, Code FD369.

A5R36 was 0757-0280, R:FXD MET FLM 1K OHM 1 $\frac{1}{8}$ W.

Page A-10 of this Appendix (component location):
Replace R102 with CR14.

Page A-11 of this Appendix (schematic):
Replace R102 (near ECG OFF line) with CR14, cathode
oriented down.

R36 was 1K.

CHANGE 18: Transmitter and Receiver
(1138A) Page 6-21, Table 6-1 (parts list):
A2A1C28 was 0121-0461 C:VAR CER 6-22pF,
63 WVDC; replace with 0121-0471 if repair
is required.
A2A1R37 was 0698-7277, R:FXD FLM, 51.1K.
A2A1R38 was 2100-2031, R:VAR 50K LIN 1/2W.

Page 6-5, Figure 6-3 (schematic):
Change C28 to 6-22pF, R37 to 51.1K, and R38 to 50K.

Receiver 78101-60020 Low Frequency board.
Page A-7 of this Appendix (parts list):
A2C30, C36 were 0160-3451, C:FXD MICA .01uF.

Page A-11 of this Appendix (schematic):
Change C30 and C36 to 0.01.

CHANGE 19: Transmitter was 1127A, Receiver was 1125A
(1127A) Page 6-20, Table 6-1:
A1MP7 Label was not included (however, all units
should now have label attached).
A2A1C25 was 0121-0499 C:FXD CER 3.5 - 11pF.

Page 6-5, Figure 6-3:
Change C25 to 3.5 - 11pF.

Receiver 78100-60020 Low Frequency board.
Page A-9 of this Appendix (parts list):
A2R78 was 2100-2031 R:VAR 50K, LIN 1/2W.
A5Q6 was 1855-0327, TSTR:FET 2N4416.

Page A-11 of this Appendix (schematic):
Change R78 to 50K.

Table 6-2. Receiver 78101A, Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A2	78101-60020		BOARD:LOW FREQUENCY PC(FIGURE 6-6)	28480	78101-60020
A2C1	0180-1985	2	C:FXD ELECT 500 UF +75-10% 30VDCW	56289	39D5076030FL4-DSB
A2C2	0180-1985		C:FXD ELECT 500 UF +75-10% 30VDCW	56289	39D5076030FL4-DSB
A2C3	0180-0228	2	C:FXD ELECT 22 UF 10% 15VDCW	56289	150D226X9015B2-DYS
A2C4	0180-0228		C:FXD ELECT 22 UF 10% 15VDCW	56289	150D226X9015B2-DYS
A2C5	0160-3453	3	C:FXD CER 0.05 UF +80-20% 100VDCW	56289	C023A101L503ZS25-CDH
A2C6	0180-0374	3	C:FXD TANT. 10 UF 10% 20VDCW	56289	150D106X9020B2-DYS
A2C7	0180-0374		C:FXD TANT. 10 UF 10% 20VDCW	56289	150D106X9020B2-DYS
A2C8	0180-1761	2	C:FXD TA-ELECT 0.56 UF 10% 35VDCW	56289	150D564X9035A2-DYS
A2C9	0180-1761		C:FXD TA-ELECT 0.56 UF 10% 35VDCW	56289	150D564X9035A2-DYS
A2C10	0160-2685	3	C:FXD MY 0.04 UF 5% 200VDCW	28480	0160-2685
A2C11	0180-0374		C:FXD TANT. 10 UF 10% 20VDCW	56289	150D106X9020B2-DYS
A2C12	0160-2617	2	C:FXD CER 220 PF 10% 1000VDCW	56289	C028B102F221KS25-CDH
A2C13	0160-2723	1	C:FXD MICA 3900 PF 2% 500VDCW	00853	RDM19F392G55
A2C14	0160-2724	1	C:FXD MICA 3600 PF 2% 500VDCW	00853	RDM20F362G55
A2C15	0160-2710	4	C:FXD MICA 100 PF 5% 500VDCW	00853	RDM15F101J55
A2C16	0160-0165	2	C:FXD MY 0.056 UF 10% 200VDCW	56289	192P56392-PTS
A2C17	0160-3238	1	C:FXD MY 0.15 UF 5% 200VDCW	56289	192P15452-PTS
A2C18	0160-2414	1	C:FXD MY 0.022 UF 5% 200VDCW	28480	0160-2414
A2C19	0160-3453		C:FXD CER 0.05 UF +80-20% 100VDCW	56289	C023A101L503ZS25-CDH
A2C20	0160-0138	1	C:FXD MY 0.047 UF 5% 200VDCW	28480	0160-0138
A2C21	0160-2685		C:FXD MY 0.04 UF 5% 200VDCW	28480	0160-2685
A2C22	0160-3453		C:FXD CER 0.05 UF +80-20% 100VDCW	56289	C023A101L503ZS25-CDH
A2C24	0160-2710		C:FXD MICA 100 PF 5% 500VDCW	00853	RDM15F101J55
A2C25	0160-2617		C:FXD CER 220 PF 10% 1000VDCW	56289	C028B102F221KS25-CDH
A2C26	0160-2685		C:FXD MY 0.04 UF 5% 200VDCW	28480	0160-2685
A2C27	0160-0134	1	C:FXD MICA 220PF 5% 300VDCW	14655	RDM15F221J3C
A2C28	0160-3451	24	C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023B101F103ZS25-CDH
A2C29	0160-0303	1	C:FXD MYLAR .15 UF 10% 200VDCW	28480	0160-0303
A2C30	0160-2710		C:FXD MICA 100 PF 5% 500VDCW	00853	RDM15F101J55
A2C31	0160-2222	1	C:FXD MICA 1500 PF 5% 300VDCW	28480	0160-2222
A2C32	0160-3451		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023B101F103ZS25-CDH
A2C33	0160-0165		C:FXD MY 0.056 UF 10% 200VDCW	56289	192P56392-PTS
A2C34	0160-0168	1	C:FXD MY 0.1 UF 10% 200VDCW	56289	192P10492-PTS
A2C35	0160-2768	1	C:FXD MY 1.75 UF 10% 50VDCW	71471	V146XR
A2C36	0160-2710		C:FXD MICA 100 PF 5% 500VDCW	00853	RDM15F101J55
A2CR1	1901-0363	1	DIODE ASSY:SI 100 PIV PER CELL	28480	1901-0363
A2CR2			THRU		
A2CR4			NOT ASSIGNED		
A2CR5	1901-0033	22	DIODE:SILICON 100MA 180WV	07263	F03369
A2CR6	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR7	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR8	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR9	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR10	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR11	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR12	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR13	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR14			NOT ASSIGNED		
A2CR15	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR16			NOT ASSIGNED		
A2CR17	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR18	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR19	1901-0376	1	DIODE:SILICON 35V	28480	1901-0376
A2CR20	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR21	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR22	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR23	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR24	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR25	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR26	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR27	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR28	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2CR29	1901-0033		DIODE:SILICON 100MA 180WV	07263	F03369
A2E1	1205-0095	2	HEAT SINK:TRANSISTOR	13103	2225B
A2E2	1205-0095		HEAT SINK:TRANSISTOR	13103	2225B
A2L2	9100-1633	1	COIL/CHOKE 68.0 UH 5%	99800	1537-68
A2Q1	1853-0045	2	TSTR:SI PNP	80131	2N4036
	0340-0453	3	INSULATOR:MTG. PAD 0.210" ID	13103	7717-94-N
A2Q2	1853-0045		TSTR:SI PNP	80131	2N4036
	0340-0453		INSULATOR:MTG. PAD 0.210" ID	13103	7717-94-N
A2Q3	1853-0020	4	TSTR:SI PNP(SELECTED FROM 2N3702)	28480	1853-0020
A2Q4	1854-0071	8	TSTR:SI NPN(SELECTED FROM 2N3704)	28480	1854-0071
A2Q5	1853-0066	5	TSTR:SI PNP	80131	2N4250

Table 6-2. Receiver 78101A, Replaceable Parts (continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A2Q6	1853-0066		TSTR:SI PNP	80131	2N4250
A2Q7	1853-0066		TSTR:SI PNP	80131	2N4250
A2Q8	1853-0066		TSTR:SI PNP	80131	2N4250
A2Q9	1854-0071		TSTR:SI NPN(SELECTED FROM 2N3704)	28480	1854-0071
A2Q10	1854-0071		TSTR:SI NPN(SELECTED FROM 2N3704)	28480	1854-0071
A2Q11	1854-0071		TSTR:SI NPN(SELECTED FROM 2N3704)	28480	1854-0071
A2Q12	1853-0020		TSTR:SI PNP(SELECTED FROM 2N3702)	28480	1853-0020
A2Q13	1854-0071		TSTR:SI NPN(SELECTED FROM 2N3704)	28480	1854-0071
A2Q14	1853-0066		TSTR:SI PNP	80131	2N4250
A2Q15	1854-0071		TSTR:SI NPN(SELECTED FROM 2N3704)	28480	1854-0071
A2Q16	1853-0020		TSTR:SI PNP(SELECTED FROM 2N3702)	28480	1853-0020
A2Q17	1854-0071		TSTR:SI NPN(SELECTED FROM 2N3704)	28480	1854-0071
A2Q19	1853-0077	2	TSTR:SI PNP	80131	2N4249
A2Q20	1853-0077		TSTR:SI PNP	80131	2N4249
A2Q21	1853-0217	1	TSTR:SI PNP	28480	1853-0217
A2Q27	1853-0020		TSTR:SI PNP(SELECTED FROM 2N3702)	28480	1853-0020
A2Q28	1854-0071		TSTR:SI NPN(SELECTED FROM 2N3704)	28480	1854-0071
A2Q29	1855-0062	1	TSTR:SI FET 30V	01295	2N1595
A2R2	0757-0280	7	R:FXD MET FLM 1K OHM 1% 1/8W	28480	0757-0280
A2R3	0757-0274	1	R:FXD MET FLM 1.21K OHM 1% 1/8W	28480	0757-0274
A2R4	0757-0991	1	R:FXD MET FLM 20.0 OHM 1.0% 1/2W	28480	0757-0991
A2R5	0757-0442	12	R:FXD MET FLM 10.0K OHM 1% 1/8W	28480	0757-0442
A2R6	0757-0279	2	R:FXD MET FLM 3.16K OHM 1% 1/8W	28480	0757-0279
A2R7	0698-3154	2	R:FXD MET FLM 4.22K OHM 1% 1/8W	28480	0698-3154
A2R8	2100-1774	2	R:VAR MW 2K OHM 5% TYPE H 1W	28480	2100-1774
A2R9	0757-0290	2	R:FXD MET FLM 6.19K OHM 1% 1/8W	28480	0757-0290
A2R10	0698-3329	2	R:FXD FLM 10K OHM 0.5% 1/8W	28480	0698-3329
A2R11	0698-3329		R:FXD FLM 10K OHM 0.5% 1/8W	28480	0698-3329
A2R12	0686-0515	1	R:FXD COMP 5.1 OHM 5% 1/2W	01121	EB 51G5
A2R13	0757-0280		R:FXD MET FLM 1K OHM 1% 1/8W	28480	0757-0280
A2R14	0757-0280		R:FXD MET FLM 1K OHM 1% 1/8W	28480	0757-0280
A2R15	0683-1055	3	R:FXD COMP 1 MEGOHM 5% 1/4W	01121	CB 1055
A2R16	0683-1055		R:FXD COMP 1 MEGOHM 5% 1/4W	01121	CB 1055
A2R17	0757-0470	2	R:FXD MET FLM 162K OHM 1% 1/8W	28480	0757-0470
A2R18	0757-0470		R:FXD MET FLM 162K OHM 1% 1/8W	28480	0757-0470
A2R19	0757-0449	7	R:FXD FLM 20K OHM 1% 1/8W	28480	0757-0449
A2R20	0757-0290		R:FXD MET FLM 6.19K OHM 1% 1/8W	28480	0757-0290
A2R21	0698-3540	2	R:FXD MET FLM 15.4K OHM 1% 1/8W	28480	0698-3540
A2R22	0757-0465	7	R:FXD MET FLM 100K OHM 1% 1/8W	28480	0757-0465
A2R23	0698-4859	2	R:FXD MET FLM 340 OHM 1.0% 1/2W	28480	0698-4859
A2R24	0757-0442		R:FXD MET FLM 10.0K OHM 1% 1/8W	28480	0757-0442
A2R25	0757-0465		R:FXD MET FLM 100K OHM 1% 1/8W	28480	0757-0465
A2R26	0757-0449		R:FXD FLM 20K OHM 1% 1/8W	28480	0757-0449
A2R27	0757-0442		R:FXD MET FLM 10.0K OHM 1% 1/8W	28480	0757-0442
A2R28	0757-0401	1	R:FXD MET FLM 100 OHM 1% 1/8W	28480	0757-0401
A2R29	0757-0442		R:FXD MET FLM 10.0K OHM 1% 1/8W	28480	0757-0442
A2R30	0698-4531	2	R:FXD FLM 267K OHM 1% 1/8W	28480	0698-4531
A2R31	0757-0438	3	R:FXD MET FLM 5.11K OHM 1% 1/8W	28480	0757-0438
A2R32	0757-0449		R:FXD FLM 20K OHM 1% 1/8W	28480	0757-0449
A2R33	0698-4859		R:FXD MET FLM 340 OHM 1.0% 1/2W	28480	0698-4859
A2R34	0757-0438		R:FXD MET FLM 5.11K OHM 1% 1/8W	28480	0757-0438
A2R35	0757-0449		R:FXD FLM 20K OHM 1% 1/8W	28480	0757-0449
A2R36	0757-0442		R:FXD MET FLM 10.0K OHM 1% 1/8W	28480	0757-0442
A2R37	0757-0438		R:FXD MET FLM 5.11K OHM 1% 1/8W	28480	0757-0438
A2R38	0698-3159	2	R:FXD MET FLM 26.1K OHM 1% 1/8W	28480	0698-3159
A2R43	0757-0439	2	R:FXD MET FLM 6.81K OHM 1% 1/8W	28480	0757-0439
A2R44	0757-0439		R:FXD MET FLM 6.81K OHM 1% 1/8W	28480	0757-0439
A2R45	0683-1555	2	R:FXD COMP 1.5 MEGOHM 5% 1/4W	01121	CB 1555
A2R46	0757-0449		R:FXD FLM 20K OHM 1% 1/8W	28480	0757-0449
A2R47	0757-0449		R:FXD FLM 20K OHM 1% 1/8W	28480	0757-0449
A2R48	0698-3153	1	R:FXD MET FLM 3.83K OHM 1% 1/8W	28480	0698-3153
A2R49	0757-0463	2	R:FXD MET FLM 82.5K OHM 1% 1/8W	28480	0757-0463
A2R50	0698-3450	1	R:FXD MET FLM 42.2K OHM 1% 1/8W	28480	0698-3450
A2R51	0757-0464	1	R:FXD MET FLM 90.9K OHM 1% 1/8W	28480	0757-0464
A2R52	2100-2030	3	R:VAR FLM 20K OHM 10% LIN 1/2W	28480	2100-2030
A2R53	0698-5808	2	R:FXD MET FLM 4K OHM 1% 1/8W	28480	0698-5808
A2R54	0698-5808		R:FXD MET FLM 4K OHM 1% 1/8W	28480	0698-5808
A2R55	0757-0450	1	R:FXD MET FLM 22.1K OHM 1% 1/8W	28480	0757-0450
A2R57	0698-3159		R:FXD MET FLM 26.1K OHM 1% 1/8W	28480	0698-3159
A2R58	0757-0465		R:FXD MET FLM 100K OHM 1% 1/8W	28480	0757-0465
A2R59	0757-0465		R:FXD MET FLM 100K OHM 1% 1/8W	28480	0757-0465
A2R60	0757-0123	2	R:FXD MET FLM 34.8K OHM 1% 1/8W	28480	0757-0123
A2R61	0757-0123		R:FXD MET FLM 34.8K OHM 1% 1/8W	28480	0757-0123
A2R62	0757-0465		R:FXD MET FLM 100K OHM 1% 1/8W	28480	0757-0465
A2R64	0757-0449		R:FXD FLM 20K OHM 1% 1/8W	28480	0757-0449

Table 6-2. Receiver 78101A, Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A2R65	2100-1774		R:VAR WW 2K OHM 5% TYPE H 1W	28480	2100-1774
A2R66	0757-0283	3	R:FXD MET FLM 2.00K OHM 1% 1/8W	28480	0757-0283
A2R67	0698-3162	2	R:FXD MET FLM 46.4K OHM 1% 1/8W	28480	0698-3162
A2R68	0757-0279		R:FXD MET FLM 3.16K OHM 1% 1/8W	28480	0757-0279
A2R71	0698-4466	1	R:FXD MET FLM 976 OHM 1% 1/8W	28480	0698-4466
A2R72	0757-0394	1	R:FXD MET FLM 51.1 OHM 1% 1/8W	28480	0757-0394
A2R73	0757-0442		R:FXD MET FLM 10.0K OHM 1% 1/8W	28480	0757-0442
A2R74	0757-0346	1	R:FXD MET FLM 10 OHM 1% 1/8W	28480	0757-0346
A2R75	0757-0463		R:FXD MET FLM 82.5K OHM 1% 1/8W	28480	0757-0463
A2R76	0757-0420	2	R:FXD MET FLM 750 OHM 1% 1/8W	28480	0757-0420
A2R77	0757-0467	1	R:FXD MET FLM 121K OHM 1% 1/8W	28480	0757-0467
A2R78	2100-2655	1	R:VAR FLM 100K OHM 10% LIN 1/2W	28480	2100-2655
A2R79	0698-4531		R:FXD FLM 267K OHM 1% 1/8W	28480	0698-4531
A2R80	0757-0442		R:FXD MET FLM 10.0K OHM 1% 1/8W	28480	0757-0442
A2R81	0683-1555		R:FXD COMP 1.5 MEGOHM 5% 1/4W	01121	CB 1555
A2R82	0757-0465		R:FXD MET FLM 100K OHM 1% 1/8W	28480	0757-0465
A2R83	0698-3162		R:FXD MET FLM 46.4K OHM 1% 1/8W	28480	0698-3162
A2R84	0757-0465		R:FXD MET FLM 100K OHM 1% 1/8W	28480	0757-0465
A2R85	0757-0283		R:FXD MET FLM 2.00K OHM 1% 1/8W	28480	0757-0283
A2R86	0698-4499	2	R:FXD FLM 54.9K OHM 1% 1/8W	28480	0698-4499
A2R87	0698-3499	1	R:FXD FLM 40.2K OHM 1% 1/8W	28480	0698-3499
A2R88	0698-3451	1	R:FXD MET FLM 133K OHM 1% 1/8W	28480	0698-3451
A2R89	0757-0462	1	R:FXD MET FLM 75.0K OHM 1% 1/8W	28480	0757-0462
A2R90	0698-3540		R:FXD MET FLM 15.4K OHM 1% 1/8W	28480	0698-3540
A2R91	0698-4499		R:FXD FLM 54.9K OHM 1% 1/8W	28480	0698-4499
A2R92	0683-1055		R:FXD COMP 1 MEGOHM 5% 1/4W	01121	CB 1055
A2R93	2100-2030		R:VAR FLM 20K OHM 10% LIN 1/2W	28480	2100-2030
A2R100	2100-2030		R:VAR FLM 20K OHM 10% LIN 1/2W	28480	2100-2030
A2R102	0757-0438	1	R:FXD FLM 51.1K OHM 1% 1/8W	19701	MF4C T-0
A2S4	3101-0973	2	SWITCH:SLIDE DPDT 0.5A 125V AC/DC	79727	G126-0018
A2S5	3101-1331	1	SWITCH:SLIDE DP3T 0.5A MINIATURE	79727	G-128L-0006
A2S6	3101-0973		SWITCH:SLIDE DPDT 0.5A 125V AC/DC	79727	G126-0018
A2U1	1820-0477	3	IC:LINEAR OPERATIONAL AMPLIFIER	28480	1820-0477
A2U2	1820-0493	5	IC:OP. AMP. INTERNAL COMP.,8-PIN DIP	12040	LM307N
A2U3	1820-0477		IC:LINEAR OPERATIONAL AMPLIFIER	28480	1820-0477
A2U4	1820-0439	1	IC:VOLTAGE REGULATOR VIN=40V MAX.	07263	U6E7723393
A2U5	1820-0493		IC:OP. AMP. INTERNAL COMP.,8-PIN DIP	12040	LM307N
A2U6	1820-0493		IC:OP. AMP. INTERNAL COMP.,8-PIN DIP	12040	LM307N
A2U7	1820-0493		IC:OP. AMP. INTERNAL COMP.,8-PIN DIP	12040	LM307N
A2U8	1820-0493		IC:OP. AMP. INTERNAL COMP.,8-PIN DIP	12040	LM307N
A2U9	1820-0477		IC: LINEAR OPERATIONAL AMPLIFIER	28480	1820-0477
A2U10	78101-00020	1	BOARD: BLANK PC	28480	78101-00020

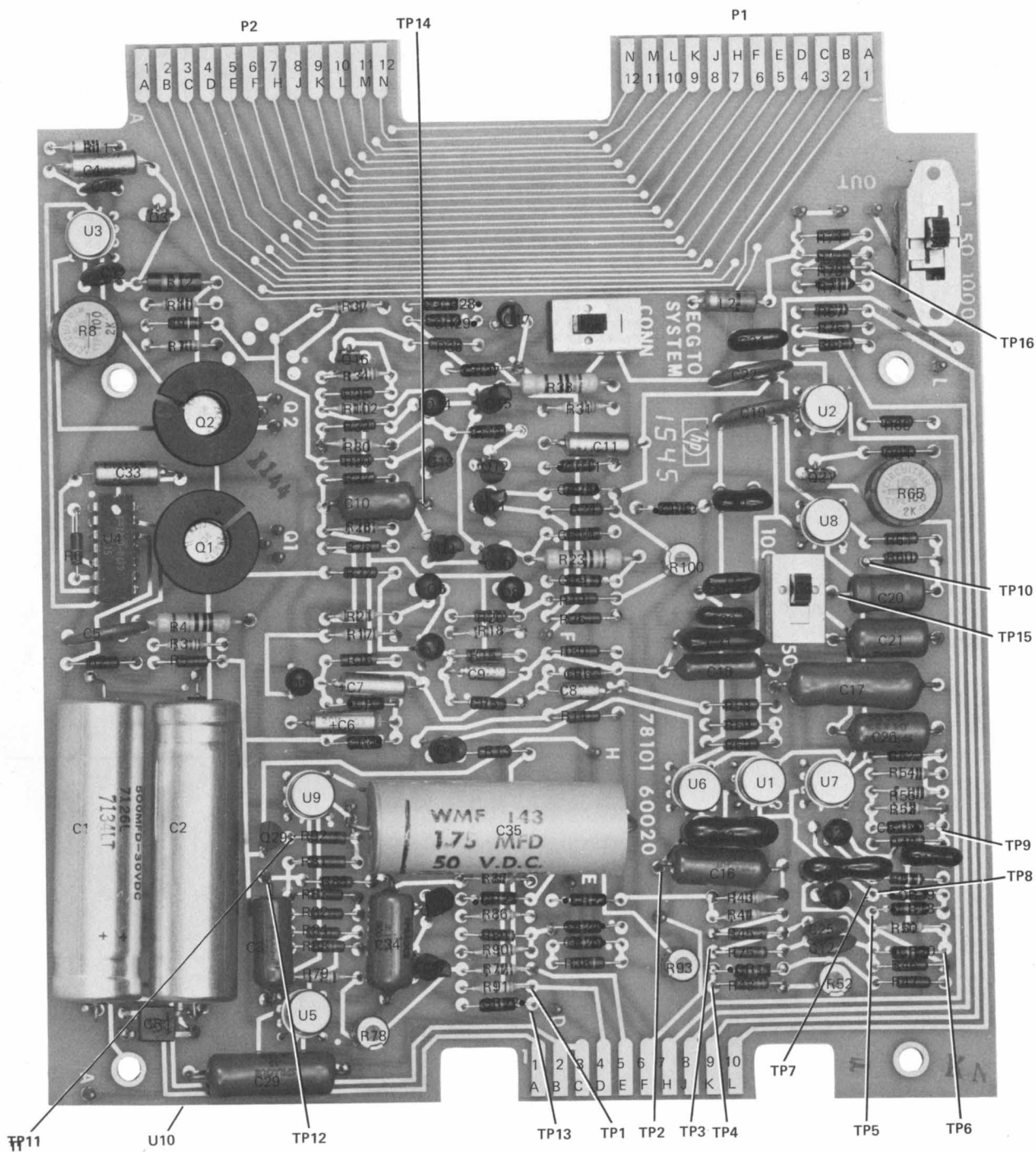
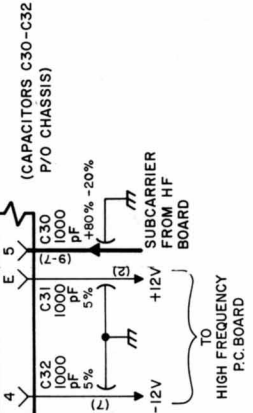
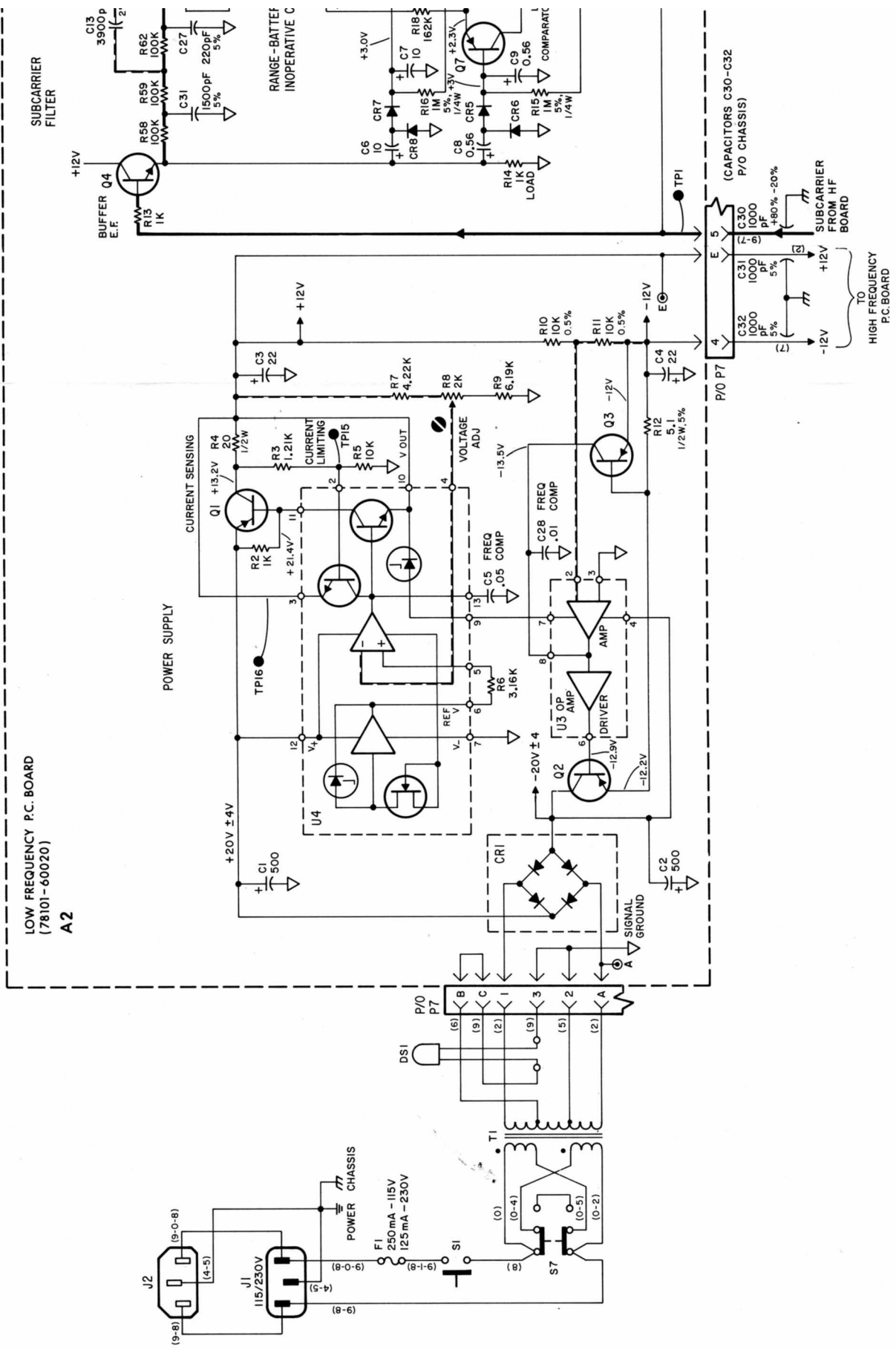
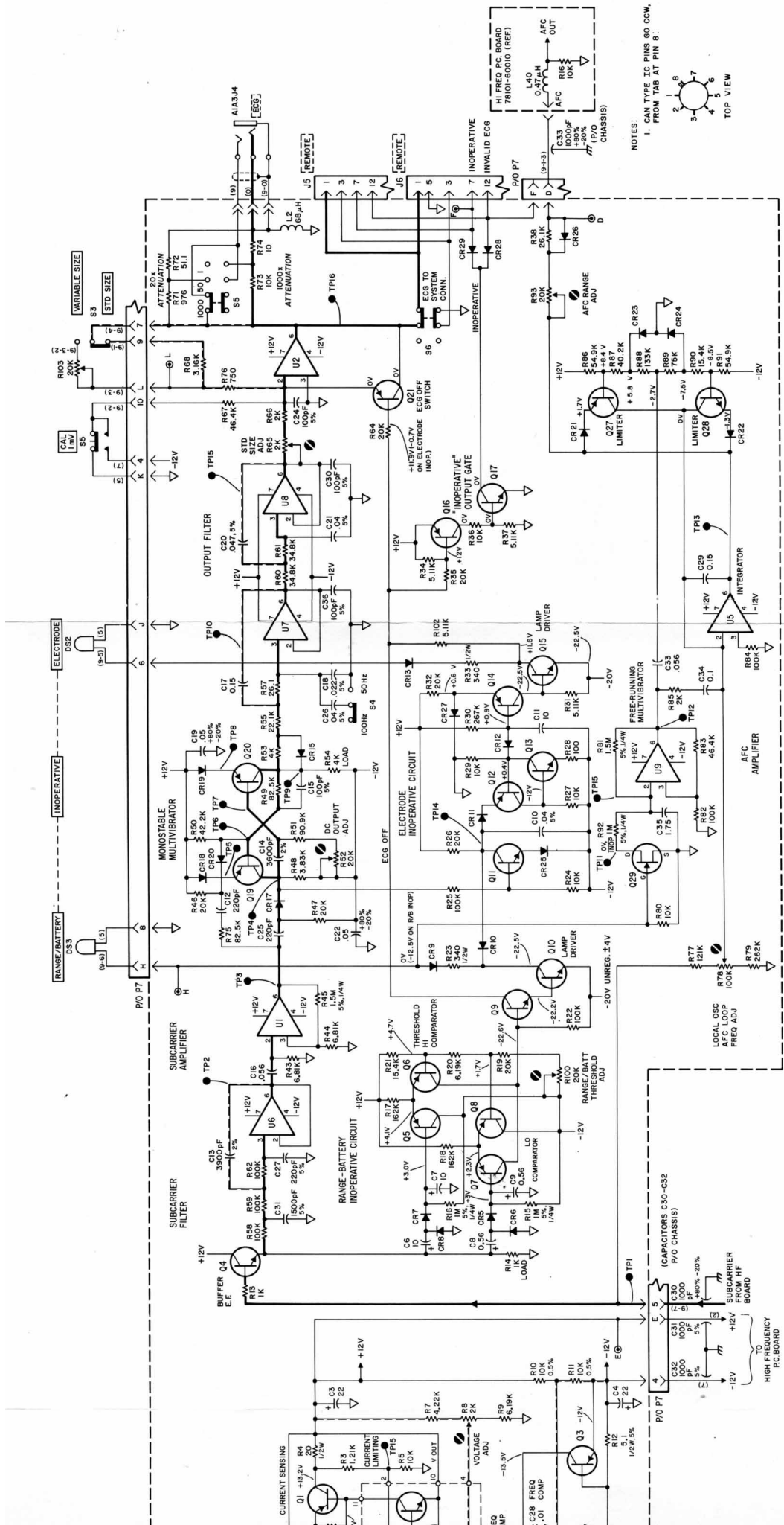


Figure A-1. Low Frequency PC Board 78101-60020 (A2) Parts Location Diagram

LOW FREQUENCY P.C. BOARD
(78101-60020)
A2





NOTES:
 1. CAN TYPE IC PINS 80 CCW, FROM TAB AT PIN 9.



TOP VIEW

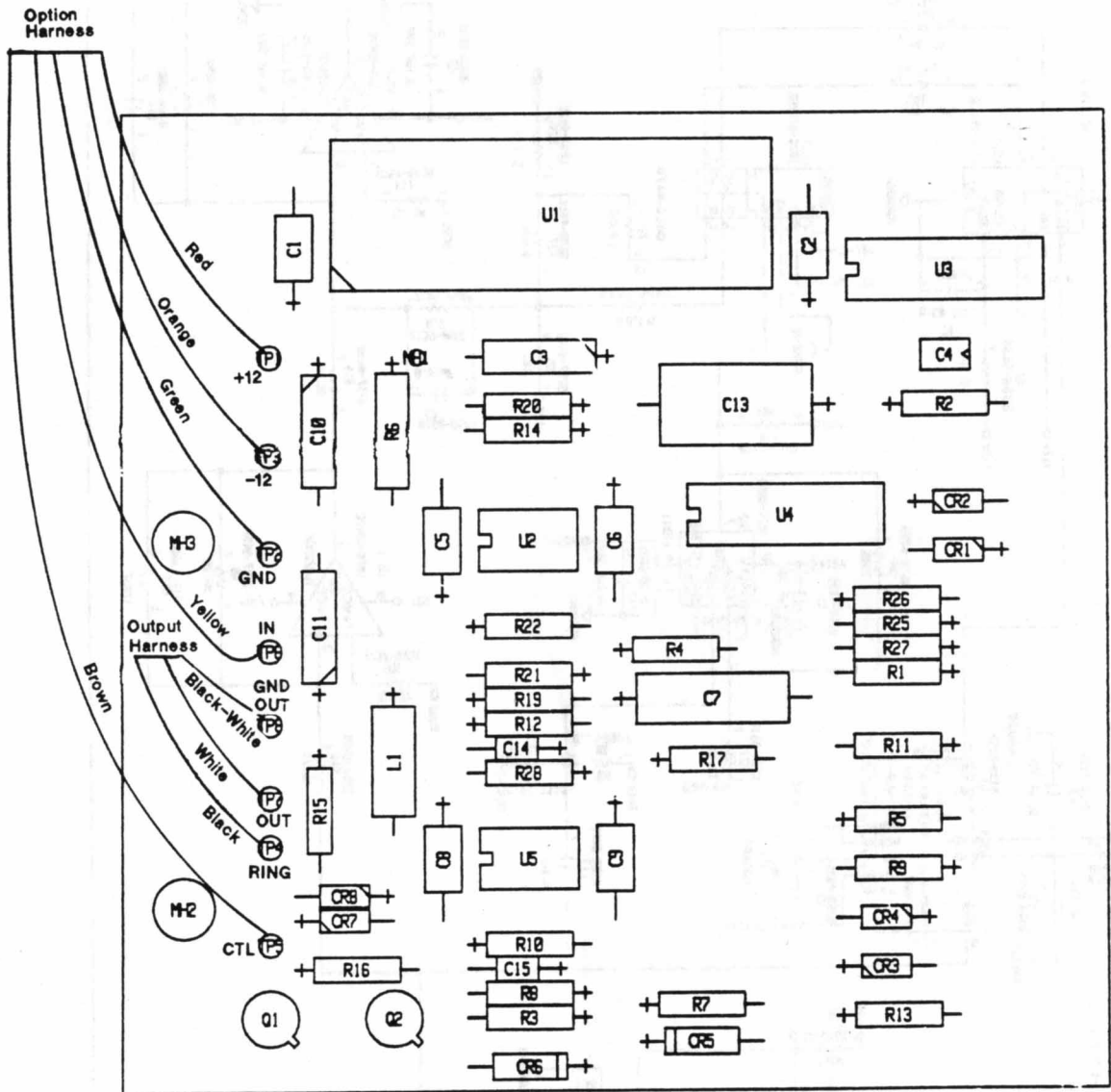


Figure 6-10. PC Board 78101-60780 Parts Location Diagram

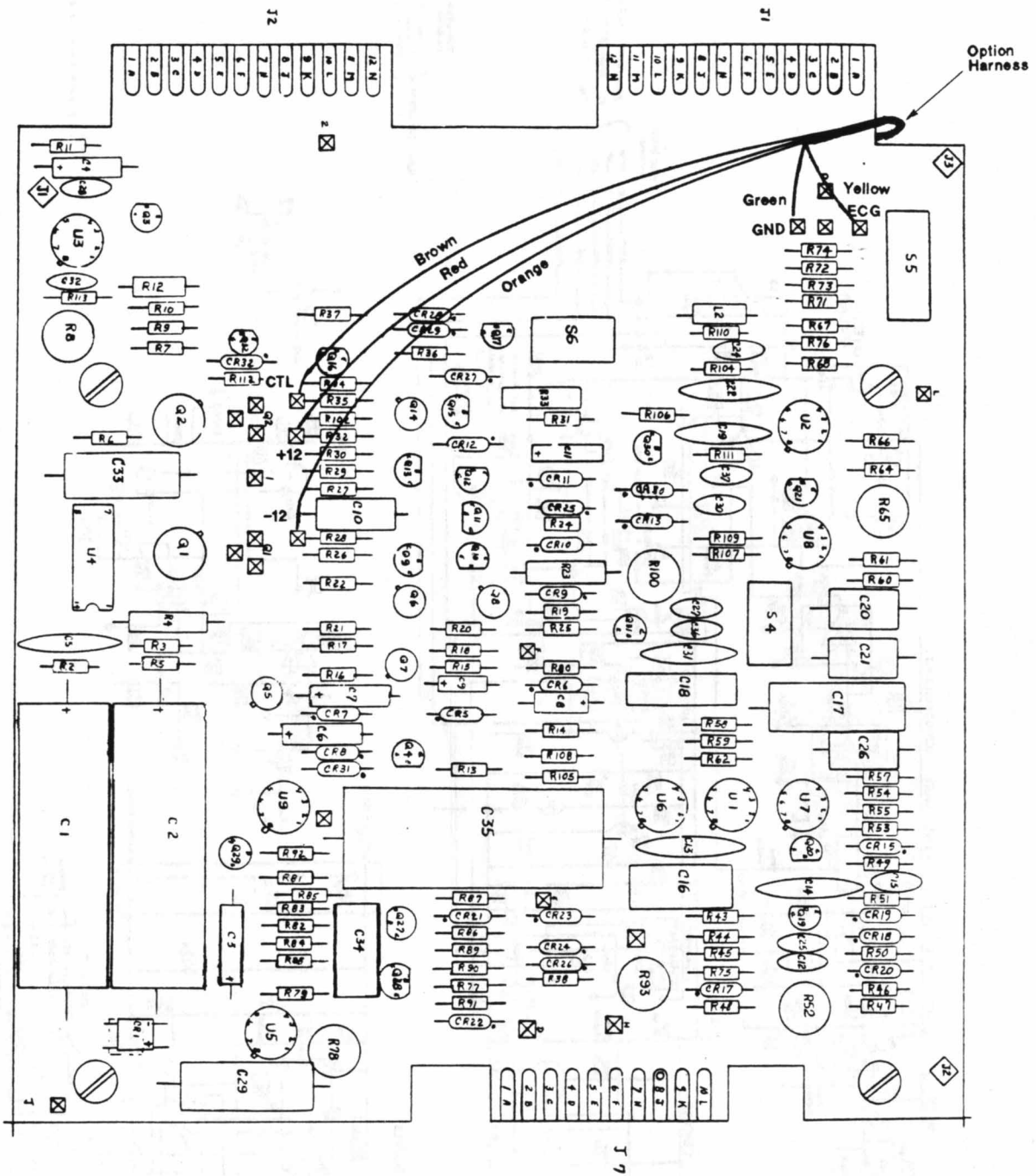


Figure 6-12. Low Frequency PC Board 78101-60745 (A2) Parts Location Diagram

