LBI-31629B

Maintenance Manual

M-PDTM SYSTEM 136-174 MHz PERSONAL TWO-WAY FM RADIO COMBINATION



INCLUDES

SERVICE SECTION LBI-31677

Ericsson Inc. Private Radio Systems Mountain View Road Lynchburg, Virginia 24502 1-800-528-7711 (Outside USA, 804-528-7711)



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SPECIFICATIONS

SYSTEM	
Frequency Range	FCC I
136 MHz to 160 MHz	AXA9
150 MHz to 174 MHz	AXA9
Frequency Stability	5 PPM
Battery Drain (at 7.5 VDC)	65 M 1
Standby Receiver (Rated Audio)	65 Mil 195 M
Transmitter	1.9 am
Dimensions (H x W x D)	
(With Standard Capacity)	183 x
(With High Capacity (short) Battery)	183 x
(With High Capacity (long) Battery)	219 x
(With Extra High Capacity Battery)	219 x
Weight (With Standard Capacity Battery)	24 our
(With High Capacity (short) Battery)	24 our
(With High Capacity (long) Battery)	29 our
(With Extra High Capacity Battery)	29 our
Operable Temperature Range	-30°C
TRANSMIT	
RF Power Output	0.5 to :
Spurious Emissions	-37 dB
Maximum Deviation	5 kHz
FM Hum & Noise (EIA)	-45 dB
Audio Distortion (60% MOD)	3%
<u>Frequency Stability</u> $(-30^{\circ}C \text{ to } + 60^{\circ}C)$	5 PPM
RF Load Impedance	50 ohr
Microphone Sensitivity (EIA 60% MOD)	Less th
<u>Maximum Attack Time</u> (PTT Pushed)	25 mil
Audio Frequency Response	Within
	pre-em
RECEIVE	
Sensitivity (12 dB SINAD)	-116 d
Spurious Emissions	-57 dB
Spurious Response Rejection	72 dB
IM Distortion Rejection	70 dB
Adjacent Channel Selectivity	70 dB
Squelch Sensitivity	6 dB S
Distortion (EIA 0.5 Watt)	5% (N
Audio Frequency Response	Within
· · ·	de-em

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Identification Number 9WNTR-145-A A9WNTR-145-B Μ

illiamperes Milliamperes mperes

69 x 43 mm x 69 x 43 mm 69 x 43 mm x 69 x 43 mm

inces inces inces inces

C to $+60^{\circ}$ C

5 Watts lBm lΒ

М

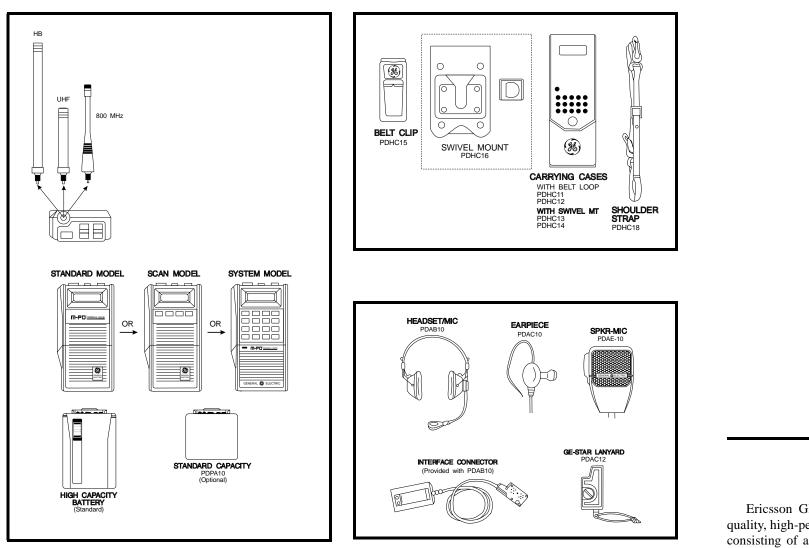
ms than 90 dB SPL

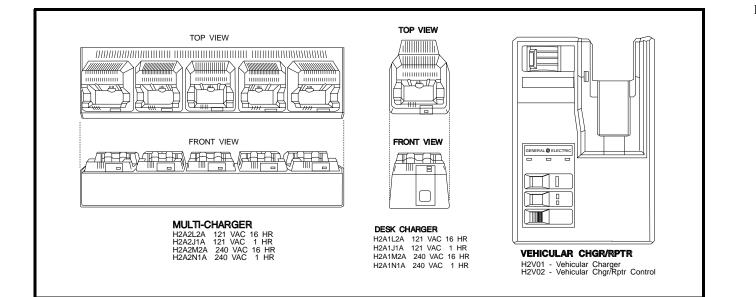
illiseconds

hin +1 and -3 dB of a 6 dB/octave mphasis from 300 Hz to 3000 Hz.

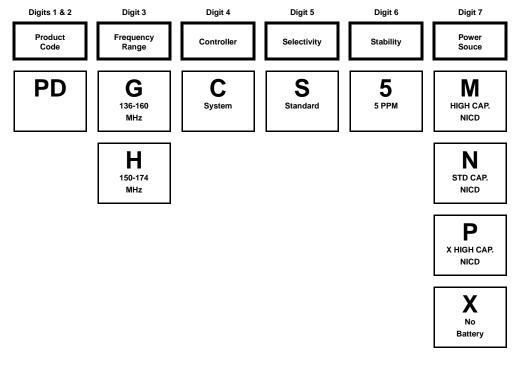
dBm Bm B (Minimum) B (Minimum) 3 (30 kHz) SINAD (Minimum) Adjustable Maximum) in +1 and -3 dB of a 6 dB/octave nphasis from 300 Hz to 3000 Hz.

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COMBINATION NOMENCLATURE



DESCRIPTION

Ericsson GE's M-PD System Personal Radio is a highquality, high-performance, two-way, FM, communications unit consisting of a transmit/receive circuit with a frequency synthesizer controlled by a microprocessor. The M-PD Personal Radio is ideal for use in public services by providing the following features:

- 48 Channel Capability: Channel designation can be a mixture of numerics (0 - 48) and alphanumerics through the eight characters in the LCD display. Channel control can come from either the up/down channel ramping buttons, front keypad entry or the "Home" Channel feature.
- Eight Programmable Modes: Up to eight modes are programmable with any number of channels in each mode: the sum of channels and blank channels in all modes equal to 48.
- Programmable Multi-Tone Channel Guard (CTCSS) Encode/Decode: Channel Guard tone frequencies within the range of 67 Hz to 210.7 Hz, including all of the standard EIA frequencies, may be programmed. Different encode/decode, encode only and with/without Channel Guard frequencies are also programmable into the radio.

The same channel is used with and without Channel Guard by programming two different radio channels with the same frequency information but only one with Channel Guard capability.

• Programmable Multi-Code Digital Channel Guard Encode/Decode: Similar capability as with Tone Channel Guard is provided.

• Programmable Carrier Control Timer: Personality information includes an optional period of transmit time from 15 to 120 seconds, after which the unit will automatically unkey and provide an alerting tone. This feature is reinitiated on every PTT and the alert tone is removed upon release of the PTT.

• Minimum Volume Level: Personality information includes a minimum volume level below which the radio controls cease to reduce the volume.

• Squelch Tail Elimination: Squelch and audio circuits are designed so that annoying squelch pops which may occur at the end of received messages are minimized, both with and without Channel Guard. This system is compatible with an existing GE system.

• **Programmable Squelch**: The noise squelch opening threshold can be programmed for each channel.

- Channel Busy Lock Out: Personality information includes the capability to prevent the transmitter from operating on a channel where carrier activity is present. The "Channel Busy" indicator (BSY) is active during this time.
- Automatic/Manual Power Levels: The desired power level on each channel can be programmed into the radio personality such that it is automatically selected channelby-channel or selected manually.
- Home Channel Feature: A "Home" channel can be programmed into the radio which is selected by pressing the "Home" button. This allows a user to quickly reach a reference channel.
- Surveillance Feature: In addition to the ability to program the display lighting on or off per channel, the sidetone beep related to the operation of a radio control is capable of being disabled on a channel by channel basis.
- Eight Character Alphanumeric Liquid Crystal Display: This display is used to exhibit the condition of the radio. It shows: Channel Designation, Signaling ON/OFF, Transmit, Volume Level, Battery Condition, Channel Busy, High/Low Power output, SCAN 0N/0FF and Priority 1 & 2.
- Simple Remote Control Capability: By connection through the UDC (Universal Devices Connector) a simple speaker/ microphone can be operated which can also control PTT and Volume level.
- Push Button Controls Only: All control functions on the radio, with the exception of the power ON/OFF switch, are operated through push button controls on the top and sides of the radio.
- Programmable through UDC: The entire personality of the radio is programmed into the radio through the UDC through four connections. The Ericsson GE TQ2310 Universal programmer is one method of programming the radio, while the capability exists to interface to an RS-232 device at a maximum of 1200 baud.
- Keyboard Enable: Pressing two keypad keys (Secondary Function and KEY BD) in sequence activates the front DTMF keyboard. The user can then change radio functions as required. The top keypad is not protected in this manner for ease of using the frequently switched functions (volume, channel, Signaling On/Off, . . .etc.).
- Two-Tone Sequential Encode/Decode: Selective calling encode, decode or encode/decode is enabled or disabled on each individual channel. Three simultaneous unique decodes are available for each channel to allow large systems the capability for individual and group calls.

Compatibility with Channel Guard, Digital Channel Guard, GE-STAR, DTMF, Dual Priority and Scan are maintained. Various audible alerting signals are available on choice when programming the radio.

• **DTMF Encode Reperatory Dialing**: When enabled by the information programmed into the personality of the radio, the DTMF encode function can be used by either manually dialing from the keypad or by recalling a complete number stored in memory. Ten stored numbers, including the 1ast number dialed, up to 16 digits are easily recalled to the display for viewing. A convenient display overflow and shift mechanism is incorporated into the display control procedure.

It is not necessary to press the PTT switch while dialing. Features needed for overdialing, autopatch and paging terminals, including programmed delays, pauses and the generation of the "*" and "#" DTMF pairs are included.

- Programmable Dual-Priority Scan: The radio is programmed to listen to a selected channel while scanning back to two priority channels. The radio reverts to the priority level channels should any activity occur on those channels. There are two levels of priority. The first priority channel takes precedence over the second priority channel and the second priority channel takes precedence over the user selected channel.
- Manual High/Low Power Selection: If programmed into the radio, the user will be able to manually select either high or low RF power output through the front panel keyboard.

Physically an M-PD radio consists of three printed wire board assemblies and a battery pack as follows:

- a. A printed wire board specially shielded with zinc alloy on which the radio assembly (transmit/receive/synthesizer) is assembled.
- b. A Logic control board containing the microprocessor.
- c. A Display board carrying various display and indicating circuits.
- d. A battery pack that fits the M-PD main unit.
- e. Light weight metal front and back housing.

Radio Assembly

Transmit:

The transmit circuit is made up of four major circuits as follows:

- a. Wideband Hybrid Exciter: Amplifies the signal from the frequency synthesizer with about 21 dB gain.
- b. Wideband Power Amplifier: Amplifies the output signal of the exciter (13 dB to 18 dB) to the desired output level for transmission.
- c. Wideband Power Control Hybrid IC: Can reduce the transmitter output level by 10 dB.
- d. Output Low pass Filter (LPF): Consists of a three stage LPF to eliminate higher harmonics.

The transmitter completely covers the band within the split with no adjustments except for the RF power control voltage from the controller.

Receive Circuit:

The receiver consists of three major circuits as follows:

- a. Front End Circuit: Consists of single stage preamplifier with about 12 dB gain and the pre BPFs and the post-BPFs of the pre-amplifier.
- b. First Mixer and IF Circuit: A special double balanced mixer provide a 45 MHz first IF, which is coupled through band pass filter (BPF) and an IF amplifier to get the desired first IF signal.
- c. Second IF (455 kHz): Consists of one IC and one BPF, containing the second mixer, second IF amplifier and FM detector. The second IF output provides the Logic section with audio output.

Frequency Synthesizer:

The frequency synthesizer is made up of three major modules as follows:

> a. VCO Module: The VHF band frequency synthesizer has two VCO's, one for transmitting and one for receiving. The transmitter is modulated at both the VCO and the VCTCXO.

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- b. VCTCXO Module: The VCTCXO is a temperature compensated crystal oscillator to provide a 13.2 MHz reference frequency and has modulation capability.
- c. Phase Lock Loop: Consists of a frequency divider and a low current drain C-MOS IC for phase comparison.

Logic Circuit

The Logic circuit consists of a LCD board, a signaling board and a control board with an audio IC as follows:

- a. LCD Board: Includes LCD driver circuits for the display.
- b. Signaling Board: Includes a CMOS microcomputer, an audio amplifier and a comparator circuit. This board provides DTMF and GE STAR encoding, sequential Two Tone decoding and control for the SCAN operation.
- c. Control Board: Carries a microprocessor, a battery backed RAM, audio circuit and I/O interconnections with the frequency synthesizer and the display. Thus, this board commands all the functions and operation of the M-PD radio.
- d. Audio IC: Includes transmitter and receiver audio circuits.

Power Supply

The M-PD battery pack connects to the bottom of the M-PD radio to supply 7.5 Volts DC to the unit. The battery packs are available in three capacities: standard, high and extra high. To charge these battery packs, charges are available in three different styles: a desk charger, a wall mount multicharger and a vehicular charger.

OPERATION

The M-PD Personal Radio is delivered disassembled into three parts:

- 1. M-PD Radio (Main Unit)
- 2. Antenna
- 3. Battery Pack

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Assemble these parts into one unit according to the following procedure and as shown in Figure 1 - M-PD Operating Controls and Accessories.

NOTE -----

Either the antenna or the RF connector should be connected to the M-PD radio main unit, as desired. If the RF connector is inserted in the receptacle, located in the side of the unit, the antenna connector circuit will become open.

- 1. Screw the antenna (2) or the RF test connector (4)In its receptacle. A clockwise turn will insert the antenna or RF test connector, while a counter clockwise turn will remove them.
- 2. Slide the battery pack along the bottom of the M-PD main unit from the arrow-marked direction, shown in Figure 1, until the battery pack locks into place.

Operating Procedure (Refer to Figure 1)

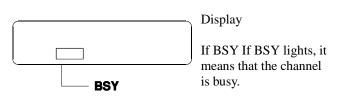
To Receive a Message:

- 1. Slide the Power switch (8) on the side of the battery pack up to turn on the radio.
- 2. Select a desired channel within a selected mode by pressing the \blacktriangle mark side or \checkmark mark side, of the CHAN switch 6 while watching the indication in the display window.

An operating channel may also be selected by pressing the CHAN key on the front keypad. Pressing this CHAN key displays the current operating channel. To select a different channel, key in the channel number, then press the CHAN key. The display will indicate the new channel name or number and update the display flags.

An operating mode may be selected by pressing the **MODE** key, also located on the front keypad. Pressing the **MODE** key displays the current mode. To select a different mode, key in the desired mode number, then press the **MODE** key. The new mode will be displayed.

3. To monitor the channel for idle or busy, watch for the "BSY" symbol to be illuminated in the display or audibly monitor the channel by simultaneously depressing both the \blacktriangle and \triangledown volume buttons.

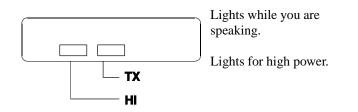


4. Adjust the audio volume to the desired level by pressing the \blacktriangle mark side (to turn the volume up) or the $\mathbf{\nabla}$ mark side (to turn the volume down) of the VOL switch (5). As the VOL switch is operated, the indication in the display window changes 1 through 31 (about 45 dB). The volume level cannot be set lower than the level programmed in the minimum volume option.

To Send a Message:

Hold the radio so that the antenna is vertical. Then, press the Push-to-Talk (PTT) bar (9) on the left side of the main unit an speak directly into the microphone in a clear and distinctive voice. Always release the PTT bar as soon as you stop talking.

Upon pressing the PTT bar, an indication will appear in the display window (7).



NOTE -The M-PD unit is provided with an optional timer which inhibits continuous transmission beyond about 12O seconds. When transmission is interrupted due to "time-out", you can resume transmission by releasing and then pressing the PTT bar again.

To Make a Telephone Call:

You can make a telephone call by direct entry through the DTMF keypad or through the **Recall Telephone Num**ber feature.

1. Turn the radio on, adjust the audio level and select the desired operating channel as covered in TO **RECEIVE A MESSAGE.**

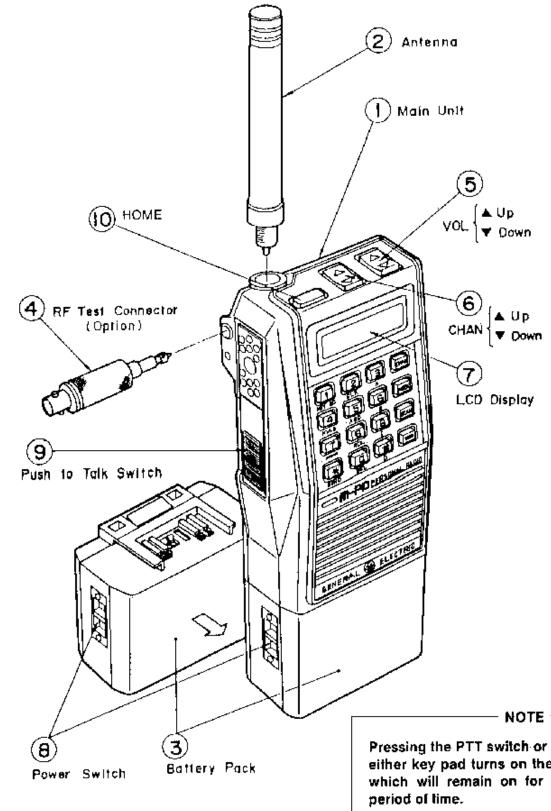


Figure 1 - M-PD Operating Controls and Accessories

Pressing the PTT switch or any other button on either key pad turns on the LCD back lighting which will remain on for a pre-programmed

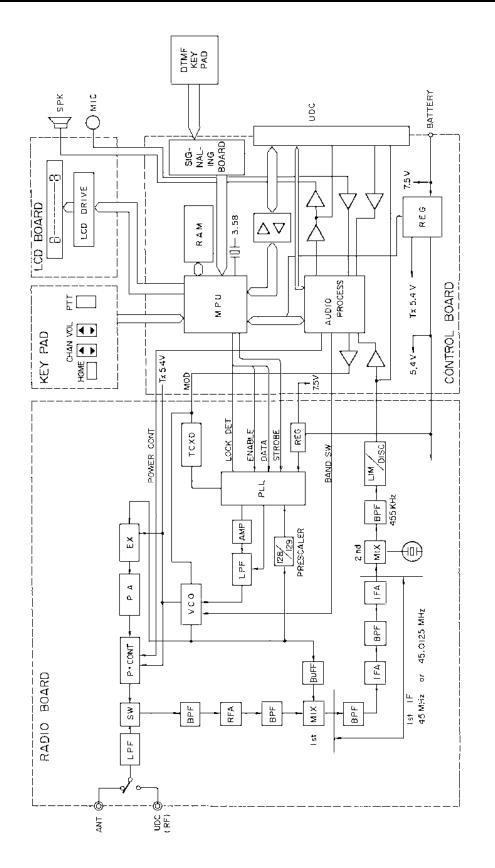


Figure 2 - Block Diagram

- 2. Use the DTMF keypad or use the Recall Telephone Number key (RCL) to enter the digits of the telephone number.
- 3. Press the secondary key and then press the SEND key. An optional tone (sidetone) may be heard as each digit is transmitted.
- When someone answers, press the PTT bar and 4. speak directly into the grille on the radio, or across the face of an external microphone. Release the PTT bar as soon as you stop talking. Messages can not be received when the PTT bar is pressed.
- 5. When the conversation is completed, press the (#) key to disconnect from the telephone system.

To Recall a Telephone Number:

The **RCL** button is used to recall the last number dialed or to recall one of the ten 16-digit numbers that can be stored in memory.

To Recall the Last Number Dialed:

- Press the secondary key and then the RCL 1. button.
- 2. Then press the secondary key and then the **SEND** key as in Step 3 of To Make a Telephone Call.

To Recall a Telephone Number Stored in Memory:

- 1. Press the key number of the memory location (1 through 9).
- Press the secondary key and then the **RCL** 2. key.
- 3. Press the secondary key and the SEND key as in Step 3 of To Make a Telephone Call.

SYSTEM ANALYSIS

Ericsson GE M-PD Personal radios are two-way, FM radios designed for public communications. The M-PD System radio consists of four printed wire boards as follows:

- Radio Board: carries the transmit, receive and frequency synthesizer circuits
- Control Board: supports logic, control and audio processor circuits
- **Display Board**: carries LCD displays

• Signaling Board: provides additional software controlled signaling functions

Interconnection of the control board with other boards and control circuits is made with flexible circuit boards and connectors. All control leads which are "barred", such as PTT, mean that the function indicated occurs when the lead is in a low voltage condition.

Circuit illustrations shown in the following text are simplified representatives of actual circuits. They are intended only to illustrate basic circuit functions.

RADIO BOARD

Transmit Circuits

The M-PD transmit circuit, as shown in Figure 2 - Block Diagram, consists of the following integrated circuit modules:

• Amplifier (TX-Amp) • Power Amplifier (PA) • Power Controller (PC) Antenna Switch (AS) • Filter Network (FN)

Amplifier Module (A201):

Amplifier module (TX-Amp) A201 is a single stage RF amplifier hybrid IC. A 0 dBm RF signal on the input will produce a +23 dBm signal on the output (refer to Figure 3). This module is broadband and does not require tuning.

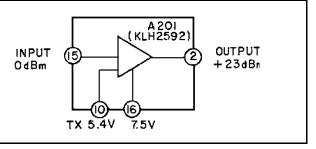


Figure 3 - Amplifier Module (TX-Amp)

Power Amplifier Module (A202):

Power Amplifier (PA) A202 is a three stage, wide band amplifier module with an input and an output impedance of 50 ohms (refer to Figure 4). The first stage of the PA module has the DC power supplied by power control transistor

Q202. The RF power output from Pin 2 of the TX-Amp module A201 is connected through a resistor attenuator to Pin 1 of the PA module where it is applied to the input of the RF power amplifier stages. The RF power amplifier stages amplify the input from the TX-Amp module to a typical power output level of 6 watts at Pin 5. The output at Pin 5 is connected through the power control hybrid IC A203 (PC) and TX-RX switching diode CR201 to low pass filter network FN. A minimum power level of 5 watts is on the output of the filter network.

Power Control Module (A203):

The RF power output of the radio is regulated by sensing variations in the RF power output of the transmit PA module to control the supply voltage to the first stage of the PA module (refer to Figure 5). Supply voltage cannot be applied to the first stage of the PA module until the transmit circuit is keved, applying 5.4 Volts to Pin 11 of Power Control (PC) hybrid IC A203. When the transmit circuit is keyed, the output of a reference amplifier, determined by the High-Low power control, is applied to the positive (+) input of a comparator circuit.

The output of the final PA is connected to Pin 1 of the PC module and to the 50 ohm coupled line. The detected voltage of the CM coupled output is applied to the negative (-) input of the comparator circuit. The amplifier is enabled when the transmit circuit is keyed, until then, the output of the amplifier is low and transistor Q202 is held off. As the PA module begins to increase output power, the detected voltage causes the series regulator circuit to regulate the supply voltage to maintain constant RF output power.

Filter Network (FN):

The output of the PA module is connected to filter network FN through TX-RX switching diode CR201. The FN network is a passive LC low pass filter with an insertion loss of less than 0.5 dB in the pass band. It also has a rejection greater than 45 dB in the stop band. The output of the FN is connected to the system antenna or to the UDC connector.

Receive Circuit

The M-PD receive circuit, as shown in Figure 2, consists of the following circuits:

- RF Amplifier/Mixer
- First IF Amplifier
- Second IF Amplifier/Discriminator

RF Amplifier/Mixer:

The RF Amplifier/Mixer circuit contains two third order band pass filters (FL301 and FL302), an RF amplifier circuit (O301) and a double balanced diode mixer circuit (A301). Refer to Figure 6 - RF Amplifier/Mixer. RF from the antenna or UDC connector is coupled through transmit low pass filter FN and RF switching diode CR201 to the input of the RF amplifier circuit. Low pass filter FN is used in the receive circuit to provide additional receive selectivity. The RF signal on the input of the RF amplifier is first coupled through band pass filter FL301 to the input of grounded emitter, broad band RF amplifier transistor Q301. This amplifier provides 12 dB of power gain to reduce thermal noise. The output of the RF amplifier is coupled through band pass filter FL302 to drive double balanced mixer A301.

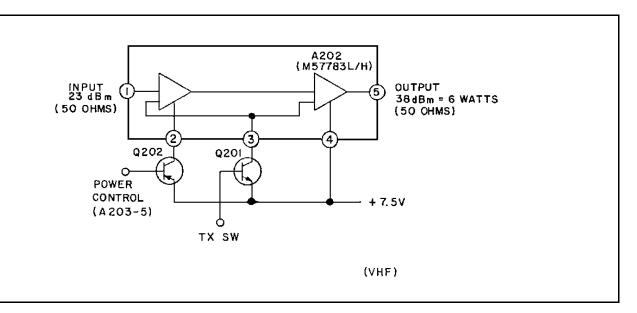
The RF signal from the RF amplifier and the injection frequency from the synthesizer circuit, provide a difference of 45 MHz IF on the output of the mixer. The double balanced Mixer has a typical conversion loss of 6 dB between the RF input and IF output. All inputs and the output of the RF Amplifier/Mixer one 50 ohms impedance. The +7 dBm injection frequency level, provided by the synthesizer and amplifier circuit transistor Q106, is connected to the injection frequency input through a 50 ohms matching circuit. The output of the Mixer circuit is connected to the input of the first IF Amplifier.

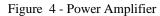
First IF Amplifier:

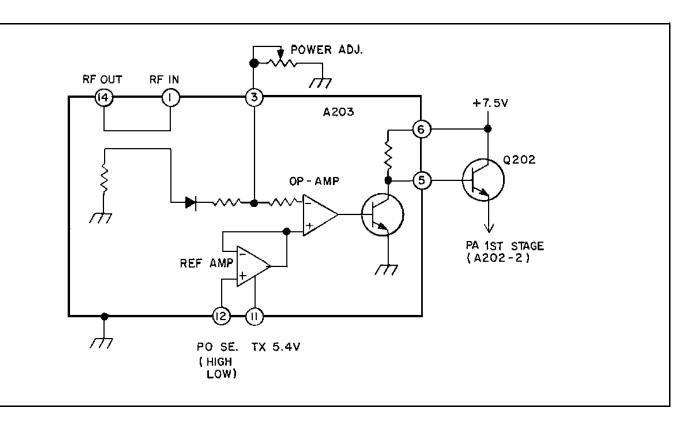
The first IF amplifier contains two amplifier circuits and two crystal filters of two and four poles respectively (refer to Figure 7). The first IF signal (45 MHz) from the first mixer circuit connects to the input of pre-amplifier transistor Q302 through pre-crystal filter FL303 with an impedance of approximately 3K ohms. Pre-amplifier Q302 provides a 17 dB power gain. The output is connected to the input of IF amplifier transistor Q303 through crystal filter FL304. IF amplifier Q303 has a 13 dB power gain, an input impedance of approximately 3K ohms and an output impedance of approximately 2.2K ohms.

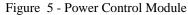
Second IF Amplifier/Discriminator (A302):

The Second IF Amplifier/Discriminator circuit contains FM IF IC A302 (HA12442V) and 455 kHz ceramic filter FL305 (refer to Figure 8). The FM IF IC contains a local oscillator, mixer, IF amplifier, FM detector and an audio amplifier. The 45 MHz IF output from the first IF amplifier is connected to the input of second IF amplifier A302a, Pin 2 of HA12442V and converted to the second IF frequency (455 kHz). The second IF output is connected to Pin 7 of HA12442V through the 455 kHz ceramic filter to the IF amplifier and FM detector circuits. The recovered audio from the FM IF IC is connected to J102-4.









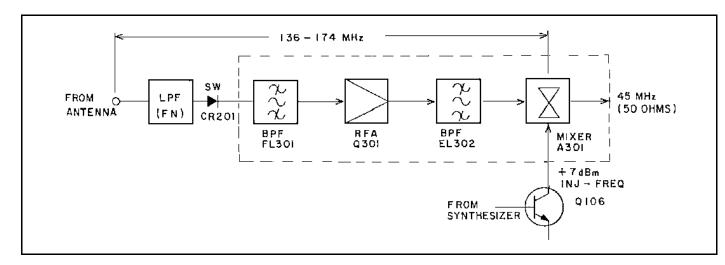


Figure 6 - RF Amplifier/Mixer

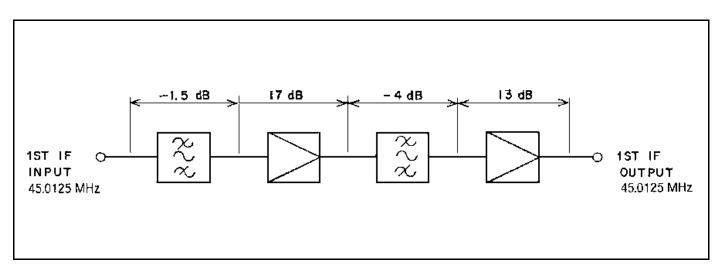


Figure 7 - First IF Amplifier

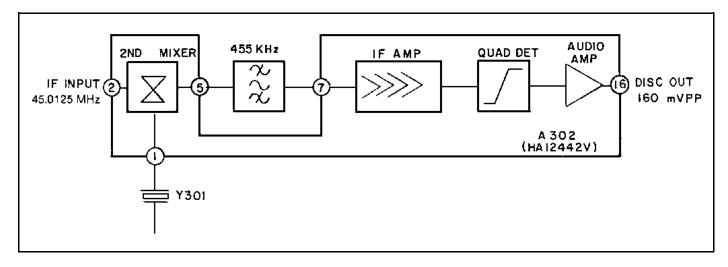


Figure 8 - Second IF Amplifier/Discriminator

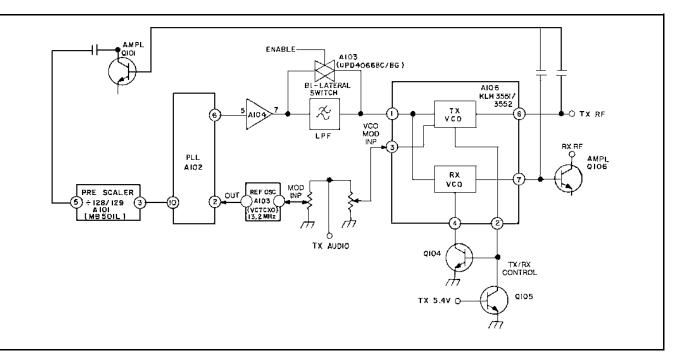
Synthesizer Circuit

The Synthesizer circuit contains Phase-Lock-loop module (PLL) A102, VCTCXO Reference Oscillator module A103, TX/RX Voltage Controlled Oscillator module (VCO) A106 and a Low Pass Filter amplifier (LPF). Refer to Figure 9 - Synthesizer. The VCO used to generate the receive and transmit reference frequencies is phase locked to a stable VCTCXO reference oscillator through the use of the PLL. This feedback loop divides the VCO frequency down to a signal in the range of 7 MHz - 10 MHz; divides this signal with a programmable divider to 5/6.25 kHz and generates a VCO control signal by comparing the 5/6.25 kHz feedback with a 5/6.25 kHz signal derived by dividing a 13.5 MHz VCTCXO by 1056. As the least significant bit in the programming is changed, the VCO is forced to change by 5/6.25 kHz.

The synthesizer circuitry is contained on two modules, the VCO module A106 and the VCTCXO reference Oscillator module A103.

Phase-Lock-Loop Module (A102):

The PLL module A102 contains a reference frequency, divider, phase detector and a programmable divider. The phase detector DC voltage output signal is filtered with a passive low pass filter followed by a 6.25 kHz filter to reduce the level of reference modulation on the VCO. This DC output represents the error between the VCO frequency



Serial data from the microcomputer is shifted into the PLL to set the division parameter which establishes the frequency. A clock signal is provided on another input and the data is latched with the enable input.

The VCO uses a low noise, high gain transistor as the basic oscillator. The resonant circuit, which determines the frequency of oscillation, is formed by a High Q coil which is used to set the center frequency at the factory. The output of each VCO (TX and RX) is coupled into a cascade amplifier which produces +3 dBm. The output of the RX-VCO amplifier is coupled into the receive first double balanced mixer circuit A301 through buffered amplifier Q106. The TX-VCO amplifier output is directly connected to the TX-Amp input through attenuator circuit R201, R202 and R203.

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(phase) and the reference (VCTCXO) and is applied to the VCO on frequency. A lock detect output is developed from Pin 9 output of A102. This output is checked by the microcomputer to prevent transmission before the VCO is on frequency.

Voltage Controlled Oscillator A106:

VCTCXO Reference Oscillator A103:

The A103 oscillator module is self contained, fully temperature compensated and operates at a frequency of 13.2 MHz. The oscillator also has modulation capability. Frequency is adjusted by a trimmer while monitoring the transmit circuit output at the antenna jack.

CONTROLLER CIRCUIT

This controller circuit consists of control circuits and audio circuits. Physically, this circuit consists of three circuit boards as follows:

- Control Board
- Signaling Board
- LCD Board

Control Board

The Control board consists of the following circuits (see Figure 2):

- CMOS Microcomputer (A1)
- RAM with Lithium Battery (A2 plus BT1)
- Audio Processor (A3)
- Audio Amplifier (A4, A6)
- Voltage Regulator Circuits (A7, A9, O2, O3, O10 and 011)
- External Data Buffer (A5)

Microcomputer (A1):

The microcomputer provides various software for controlling the radio unit as follows:

- Loading data to the frequency synthesizer
- Fetching and processing the PTT, monitor, channel selection and volume control
- Loading data to the LCD display
- Controlling the audio circuit (Processor)
- Encoding/decoding the Channel Guard and digital Channel Guard
- Controlling the loading interface for the radio data (channel number and signaling)

RAM (A2):

RAM has a capacity of 2K bits X 8 for storing various data for controlling the radio. The data is entered from the outside to the microcomputer through the UDC connector and then to the RAM. The data mainly consist of the following:

- Channel Frequency Data
- CG/DCG data

- TX Power, TX Modulation Data
- Squelch Data
- Display Data ... etc.

Audio Processor (A3):

The Audio processor consists of a one-chip IC accommodating almost all of the audio functions. The audio functions are under control of the microcomputer in compliance with the function of the radio unit. The functions of the audio processor are as follows:

- Tone Reject Filter
- Limiter Amplifier
- Volume and Modulation Level Control
- Post Limiter Filter
- Squelch Filter and Rectifier
- CG/DCG Encode/Decode Filter and Limiter
- D/A Converter and comparator
- OSC Circuit and Digital Interface for Microcomputer

All of these functions are made up of switched, capacitor filters, amplifiers and timing logic. The timing for this logic is derived from the 3.579545 MHz clock generator. The clock signal is also applied to the microcomputer.

Audio Amplifier (A4 and A6):

The audio amplifier is located between the audio processor and the microphone or the speaker. Amplifier A6 provides pre-emphasis and amplification for transmit audio and de-emphasis for the receive audio. Amplifier A4 amplifies the output signal of A6 to the level adequate for driving the speaker and VDC audio output.

Voltage Regulator Circuits (A7, A9, Q2, Q3, Q10 and Q11):

Voltage Regulator Circuit A9 provides a regulated +2.5 VDC. Using the 2.5 VDC as a reference voltage, A9, Q2 and Q3, in combination, generate 5.4 VDC for the radio unit. The control Transistors Q10 and Q11 are used for currentlimiting to avoid break down.

External Data Buffer (A5):

The External Data Buffer is located between the UDC connector and the microcomputer for protection of the internal circuits.

Signaling Board

The Signaling Board consists of the following circuits:

- CMOS Microcomputer (A301)
- Audio Amplifier (A302)
- Comparator (A303)

Microcomputer (A301):

The microcomputer provides various software for signaling the radio unit as follows:

- Encoding the DTMF and GE Star
- Decoding the sequential Two Tone
- Providing control for SCAN operation

Audio Amplifier (A302):

The audio amplifier is located between the audio processor and the microcomputer (A301). Amplifier (A302b and A302a) provides a Low Pass Filter, resistors R310-R312 and capacitors C303-C305, for tone encoding.

Comparator (A303):

The comparator converts the audio signal from the DISC output into a signal which can decode the microcomputer (A301).

LCD Board

The LCD board is composed of the following items:

- LCD Drive IC (A1)
- LCD
- Back Lighting Circuit (Q1, Q2 and CR1 6)

The LCD driver converts data from the microcomputer into a signal which can drive the LCD display. The LCD display is equipped with 8 character, 14 segments each and eight status displays. Microcomputer signals drive the LCD driver and the driver turns the LCD on. Also this board has a back lighting circuit enabled upon receiving a signal from the microcomputer when any of the control switches (VOL, PTT, ...etc.) are operated.

Key Pad

The key pad, used with the standard M-PD Personal Radio. is located on the top of the housing. This key pad consists of

flexible cable and rubber contacts. The cable connects with the microcomputer.

UDC Connector

as follows:

- TX Data
- RX Data
- CTS
- PTT
- EXT MIC
 - RX Audio Out
 - T/R
 - Mute
 - Disc Out
 - +7.5 Volts
 - Switch Out
 - EMER
 - UDC

Battery Packs

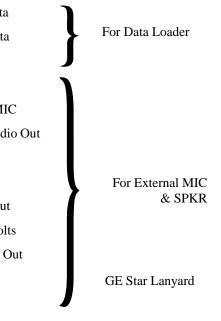
The battery packs are available in three capacities: standard, high and extra high. All battery packs provide a nominal 7.5 Volt DC output.

To protect the battery pack from external short circuits, the positive (+) charging contact is diode protected.

An internal thermistor senses variations in battery pack temperature to automatically control a charger and provide a maximum charge without overheating the battery pack. All battery packs can be charged in one hour.

The battery is shipped fully charged to the customer, ready for use. However, if the battery pack is stored for any length of time it should be fully charged before placing into service.

The UDC connector is located on the side of the radio housing so that various kinds of external equipment connections can be made. External equipment connecting signals are

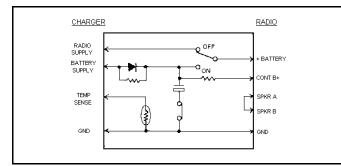


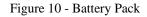
The radio control microprocessor senses the value of voltage at the UDC line and switches the appropriate audio circuits to provide proper radio/ accessory operation. The UDC voltage is set by two resistors within the UDC connector.

Charger combinations for charging the battery packs are available with charge times of 1 hour, 3 hours and 16 hours. A combination can be a single unit desk or a vehicular charger. It can also be a wall mounted multiple charger.

Charge Level

A fully charged battery pack should provide a terminal voltage greater than 7.5V. A fully discharged battery pack should provide a reading of no less than 6V.





MAINTENANCE

This Maintenance section provides information on adjustments of the radio (transmit, receive and synthesizer), preventive maintenance and a Disassembly Procedure. Information is also provided for removing and replacing chip components and module replacement. The Service Section, listed in the Table Of Contents, provides a more complete set of alignment procedures for the radio plus a detailed Troubleshooting Procedure.

INITIAL ADJUSTMENT

After the radio has been programmed, as described in Programming Instructions (LBI-31635), the following adjustments should be made by a certified electronics technician.

Transmit Circuit Alignment:

The transmit circuit is factory tuned and should not require any readjustment. The frequency and modulation should be measured and recorded for future reference.

Receive Circuit:

No initial adjustments to the receive circuit are required.

Synthesizer Circuit:

No initial adjustments to the synthesizer are required.

PREVENTIVE MAINTENANCE

To ensure a high operating efficiency and to prevent mechanical and electrical failures, routine checks should be performed of all mechanical and electrical parts at regular intervals. Preventive maintenance should include the following checks:

Antenna:

The antenna and antenna contact should be kept clean, free from dirt or corrosion. If the antenna or contact should become dirty or corroded, loss of radiation and a weak signal will result.

Mechanical Inspection:

Since portable radio units are subject to shock and vibration, check for loose plugs, nuts, screws and other parts to make sure that nothing is working loose.

Alignment:

The transmit and receive circuit meter readings should be checked periodically and the alignment "touched up" when necessary. Refer to the applicable alignment procedure and troubleshooting sheet, found in Service Section LBI-31677, for typical voltage readings.

Frequency Check:

Check transmit frequency and deviation. Normally, these checks are made when the unit is first put into operation. They should be repeated after the first month of operation, then again one time each year.

WARNING

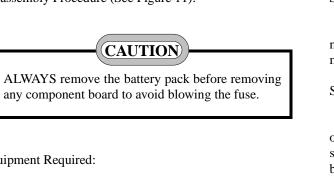
To prevent loss of memory in RAM A2 on the Controller Board, lithium battery BT1 should be replaced at three years. A procedure for changing BT1 is provided in Service Section LBI-31677.

DISASSEMBLY

To gain access to the Radio board (transmit, receive and synthesizer circuits) or Control Board for servicing, disassemble as follows:

Radio Board: Controller Board:

Step 1 through Step 4 Step 5 through Step 7 Disassembly Procedure (See Figure 11):



- Small Phillips-head screwdriver
- Small flat-blade screwdriver
- Needlenose pliers

Equipment Required:

- Allen-head wrench for removing set screws
- Pencil-type soldering iron (25-40 Watts) with a fine tip

Step 1:

To gain access to the radio, loosen, but do not remove, the four captive screws shown at (A) and (B). Carefully remove the back cover. For normal radio alignment, the back cover is all that needs to be removed. When tightening the captive screws, they should be no tighter than 4 0.5 inchpounds. (See Figure 12)

Step 2:

To remove the Radio Board, unscrew and remove the antenna at (\mathbf{C}) and RF connector at (\mathbf{D}) . Remove the six screws at (using the Phillips-head screwdriver. The radio portion can now be detached from the rear cover. (See Figure 13)

Step 3:

Remove the shield cover (\mathbf{F}) from the eggcrate. (See Figure 14)

Step 4:

To remove the antenna changeover switch, remove the tap screw at (G) using the Phillips-head screwdriver. Unsolder the antenna switch lead connection at (\mathbf{H}) . The antenna switch assembly can now readily be removed by hand. (See Figure 15)

Step 5:

To remove the Controller Board remove the five screws from the Controller board. Use the Phillips-head screwdriver. (See Figure 16)

Step 6:

Step 7:

Maintenance of the M-PD Personal Radio is faciliated by using the Troubleshooting Procedures and service techniques unique to this radio. The Troubleshooting procedures are designed to quickly lead the serviceman to the defective circuit or component. These procedures are found in the Service Section.

LBI-31629

Unplug the LCD control flex circuit at (\mathbf{J}) from the connector at (**K**). The Controller Board can now readily be removed from the LCD board. (See Figure 17)

To remove the LCD Board, pull the contact Pins at out of the socket in the MIC flex circuit. Remove the seven screws at (**M**), using the Phillips-head screwdriver. The LCD board can now be readily removed. (See Figure 18)

REPLACEMENT

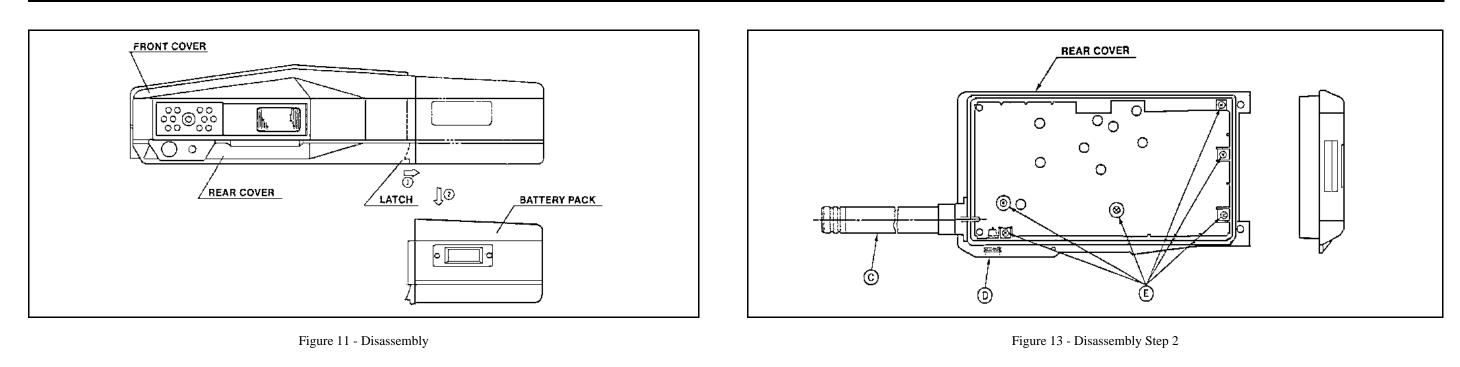
The major components of the M-PD Personal Radio are the PA, TX-AMP (driving amplifier), PC (Power Control Module), VCO (Voltage Controlled Oscillator) and the VCTCXO (Ref. Osc.). These are very reliable devices and will not normally need to be replaced. Before replacing any of these modules, always check out the associated circuitry carefully.

To remove any of these major components, refer to the applicable replacement procedure found in the Service Section (LBI-31677).

TROUBLESHOOTING PROCEDURE

WEATHERPROOF INTEGRITY

The M-PD radio is designed to meet MI-810-D specification for Blowing Rain. All access to the M-PD radio are protected from water entry by suitable gaskets and seals. However, degradation due to use, or disassembly during repairs, may affect the integrity of the seals as provided by factory assembly. A maintenance procedure is provided in the Service Section (LBI-31677) to assure that the radio housing will continue to meet the weatherproof features as designed.



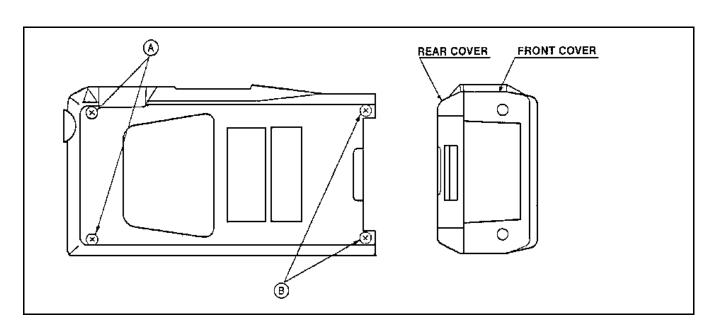
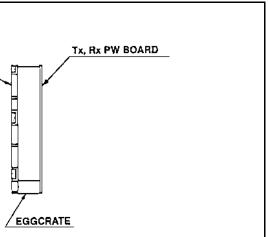


Figure 14 - Disassembly Step 3

Figure 12 - Disassembly Step 1



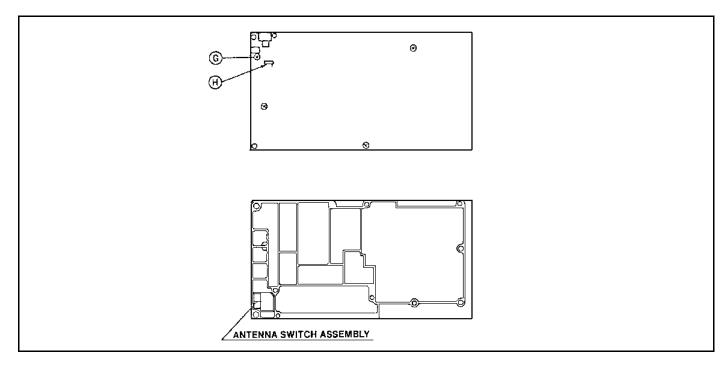


Figure 15 - Disassembly Step 4

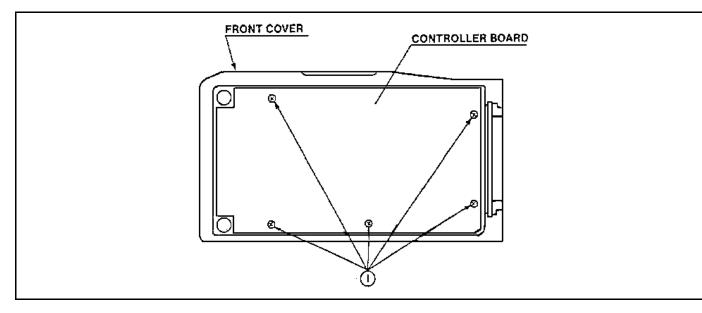


Figure 16 - Disassembly Step 5

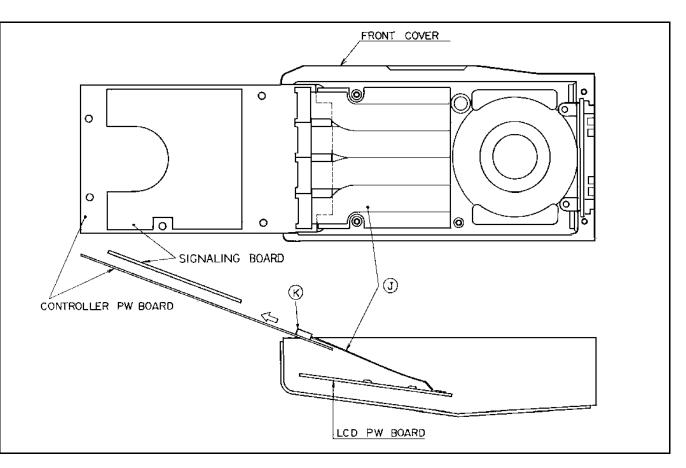


Figure 17 - Disassembly Step 6

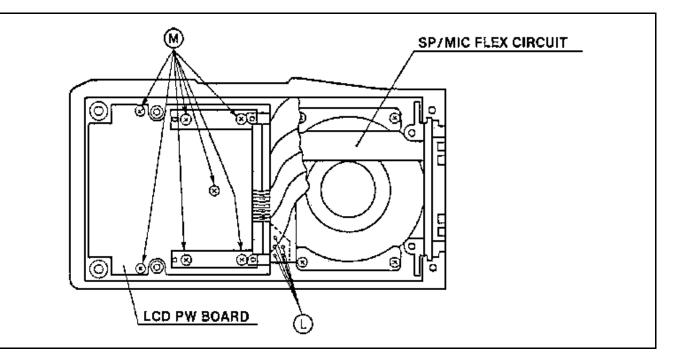


Figure 18 - Disassembly Step 7

INTRINSICALLY SAFE USAGE

Selected personal radios with appropriate factory installed F4 Options are certified as Intrinsically Safe by the Factory Mutual Research Corporation for use in Class 1, Division 1 or 2, hazardous locations in the presence of Groups C and D atmospheres; Non-incendive Class 1, Division 2, hazardous locations in the presence of Groups A, B, C and D atmospheres.

Hazardous locations are defined in the National Electrical Code Useful standards NFPA 437A and NFPA 437M for the classifications of hazardous areas may be ordered from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

BATTERIES

Only batteries with a green latch shall be used with a personal radio that is rated and labeled as Factory Mutual Intrinsically Safe. Use of non-specified batteries voids Factory Mutual approval. The following battery options are approved for use in intrinsically safe radios:

• PDPA1C (19A704850P4)	Rechargeable battery, standard capacity
• PDPA1D (19A704860P4)	Rechargeable battery, high capacity
• PDPA1F (19A704860P6)	Rechargeable battery, extra high capacity

ACCESSORIES

The accessories listed below are approved for use with intrinsically safe radios. Use of accessories other than those listed voids Factory Mutual approval.

- PDAB1A (19B801508P3) Headset/MicrophonePDAC1A (19B801508P2) Earpiece kit
- PDAC1B (19B801508P8) GE-STAR Lanyard
- PDAE1A (19B801508P1) Speaker/Microphone
 PDAE1B (19B801508P4) Speaker/Microphone with GE-STAR Lanyard
- PDAE1C (19B801508P6) Speaker/Microphone/Antenna

Helical. WB

- PDNC1A (19B234804P21) Antenna, 150-174 MHz,
- PDNC1B (19B234804P1) Antenna, 136-151 MHz, Helical
- PDNC1C (19B234804P2) Antenna, 150-162 MHz, Helical

• PDNC1D (

- PDNC1E (
- PDNC1F (
- PDNC1G (
- PDNC1L (
- PDNC1M
- PDNC1N (
- PDNC1H (
- PDNC1J (1
 - PDNC1K (

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• PDHC1C (
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• PDHC1D (
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• PDHC1P (
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• PDHC1R (
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• PDHC1S (
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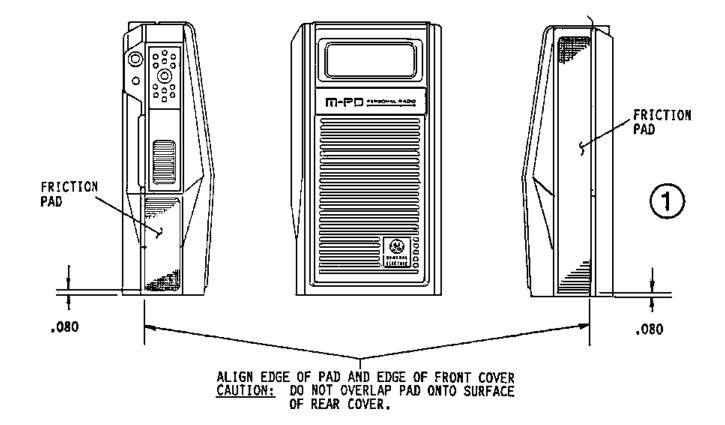
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• PDHC1T (
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- PDHC1K (1

MEMORY EFFECT IN NICKEL-CADMIUM BATTERIES:

Nickel-Cadmium batteries can develop a condition called "**Memory Effect**" or reduced battery capacity. This condition occurs when:



-IMPORTANT NOTICE-

DO NOT USE FRICTION PAD KIT ON RADIO UNITS WHICH WILL BE USED IN VEHICULAR CHARGERS.

APPLICATION OF PADS AS SPECIFIED MAKES THE RADIO HOUSING UNSUITABLE FOR USE IN VEHICULAR CHARGERS DUE TO LIMITED CLEARANCE IN CHARGER POCKET.

THESE INSTRUCTIONS COVER THE INSTALLATION OF FRICTION PAD KIT 19A705585G1

CAUTION: AVOID CONTACT OF CLEANING LIQUIDS WITH PLASTIC PARTS OF

1. MOUNTING SURFACES OF HOUSING TO BE CLEAN, DRY AND FREE OF GREASE.

2. REMOVE PROTECTIVE LINER AND APPLY FRICTION PADS IN POSITION SHOWN.

3. APPLY PRESSURE TO PAD TO SQUEEZE OUT ALL TRAPPED AIR AND ASSURE ALL

SURFACE MAY BE WIPED CLEAN WITH ISOPROPYL ALCOHOL.

EDGES ARE IN FULL CONTACT WITH CASE

RADIO ASSEMBLY.

(19B234804P3)	Antenna, 162-174 MHz, Helical
(19B234804P11)	Antenna, 403-440 MHz, Helical
19B234804P12)	Antenna, 440-470 MHz, Helical
(19B234804P13)	Antenna, 470-512 MHz, Helical
(19A149061P10)	Antenna, 403-440 MHz, Whip
(19A149061P11)	Antenna, 440-470 MHz, Whip
(19A149061P12)	Antenna, 470-512 MHz, Whip
(19B235043P1)	Antenna, 806-870 MHz, Elevated Feed
19A149061P2)	Antenna, 806-870 MHz, Short Flex
(19A149061P1)	Antenna, 806-870 MHz, Flex
(19A144704G1) (19B233241G1)	Belt Clip
(19B226627G2) (19A144704G1) (19B233243G1)	Swivel Mount
(19D901765P2) (19D901765P5) (19D901765P13)	Case & Belt Loop
(19D901765P4)	Case & Belt Loop for
(19D901765P5) (19D901765P13)	radio w/high capacity battery
(19D901765P1) (19D9017 65P5) (19D901765P13) (19B226627G2)	Case/Swivel Mount/Belt Loop
(19D901765P3) (19D901765P5) (19D901765P13) (19B226627G2)	Case/Swivel Mount/Belt Loop for radio w/high capacity battery
(19B233236G1) (19B216496P3)	Shoulder Strap

- 1. The battery is continuously overcharged for long periods of time.
- 2. A regularly performed duty cycle which allows the battery to expend only a limited portion of its capacity.

If the nickel-cadmium battery is only sparingly or seldom used and is left on continuous charge for one or two months at a time, it could develop the "Memory Effect." On the first discharging cycle, the output voltage could be sufficiently lowered to reduce the battery's hours of useful service.

The most common method of causing the "Memory Effect" is regularly performing short duty cycles. This is when the battery is operated so that only a portion (50%) of its capacity is expended. This type of operation can cause the battery to become temporarily inactive and show a severe decrease in the ability to deliver at full rated capacity.

Any nickel-cadmium battery showing signs of reduced capacity should be checked for the "Memory Effect" before being returned under warranty or scrapped. If the "Memory Effect" is a fact, a procedure for reconditioning it should be performed as follows:

- 1. A complete discharge (deep discharge). This can be accomplished by turning the radio on and allowing the battery to discharge overnight.
- 2. A full charge cycle using an appropriate Ericsson GE charger.
- 3. This procedure should be repeated again. Performing the deep discharge and charge cycle at least twice should sufficiently restore the battery.

REDUCED CAPACITY IN NICKEL-CADMIUM BATTERIES:

Nickel-Cadmium batteries in some applications can develop a condition of reduced capacity, sometimes called "Memory Effect". This condition may occur when:

- 1. The battery is continuously overcharged for long periods of time.
- 2. A regularly performed duty cycle which allows the battery to expend only a limited portion of its capacity.

If the nickel-cadmium battery is only sparingly or seldom used and is left on continuous charge for one or two months at a time, it could experience reduced capacity. On the first discharging cycle, the output voltage could be sufficiently lowered to reduce the battery's hours of useful service.

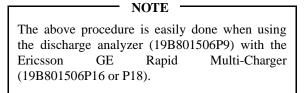
The most common method of causing this limited capacity is regularly performing short duty cycles; when the battery is operated so that only a portion (< 50%) of its capacity is expended. This type of operation can cause the battery to become temporarily inactive and show a severe decrease in the ability to deliver at full rated capacity.

Any nickel-cadmium battery showing signs of reduced capacity should be carefully checked before being returned under warranty or scrapped. If reduced capacity is a fact, the following procedure may restore capacity:

1. Discharge the multicell battery at the normal discharge rate until the output voltage is approximately 1 Volt per cell. This equals 6 Volts output for current Ericsson GE M-PD personal radio batteries.

Refer to the typical Ni-Cd cell discharge curve in Figure 19. Note the flatness of the discharge voltage. Discharging below the knee of the curve does not give added service. Experience shows discharging below 1.0 Volt is not necessary for reconditioning a cell.

- 2. A full charge cycle using an appropriate Ericsson GE charger.
- 3. This procedure should be repeated again. Performing the rated discharge and charge cycle at least twice should sufficiently restore the battery.



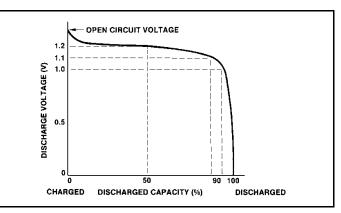


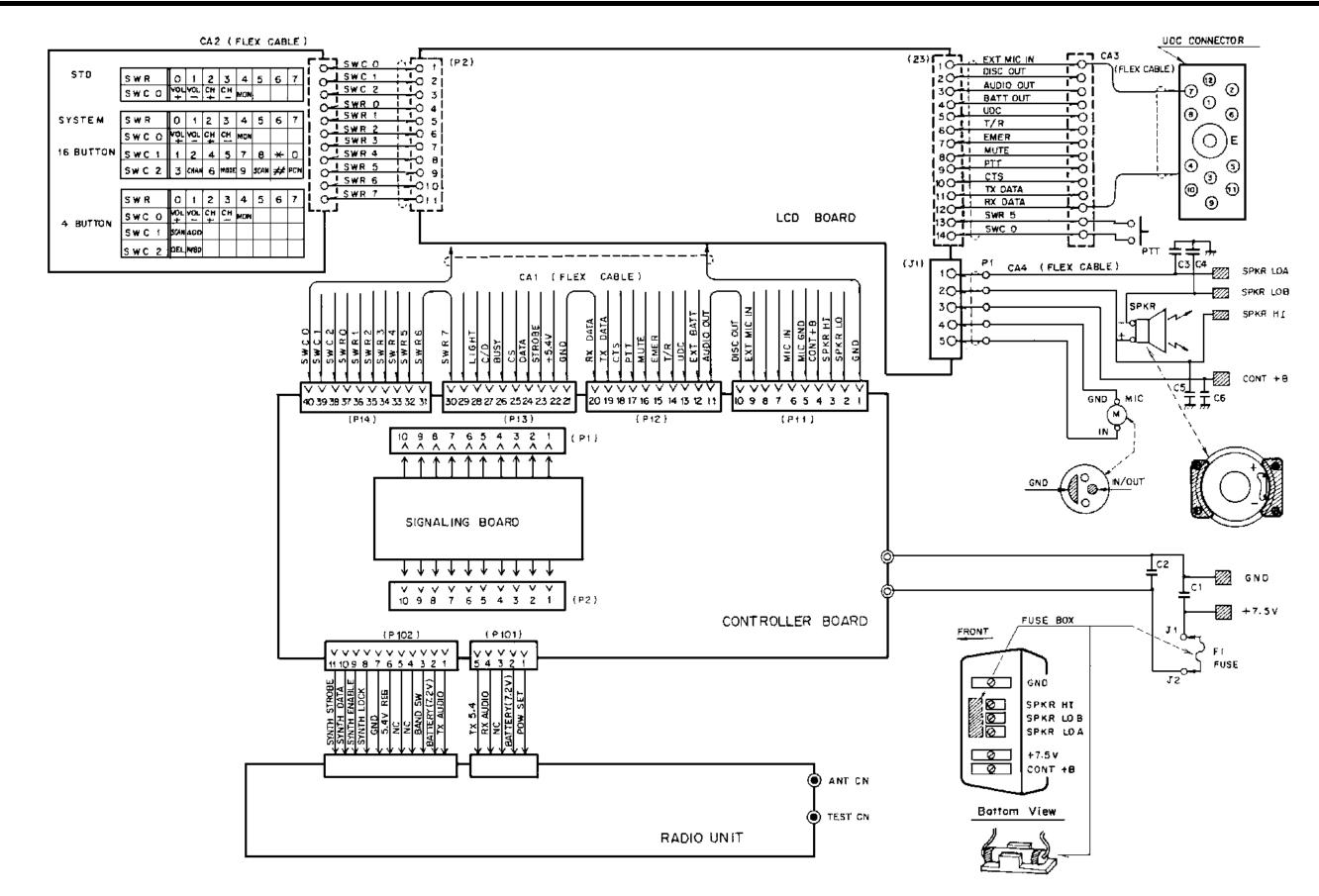
Figure 19 - Typical Ni-Cd Voltage Discharge Curve

PARTS LIST

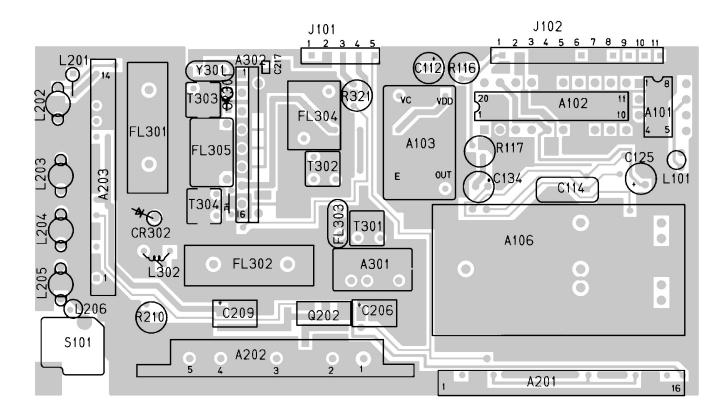
N-PD SYSTEM RADIO CHASSIS ISSUE 3

SYMBOL	GE PART NO.	DESCRIPTION
MPDD1	A4WE03737	LCD Board
MPDC3	A4WE04023	Controller Board
MPDSIG	A4WE04024	Signaling Board
J1 and J2	SL-101-T-12	Socket
		FUSES
F1	K19/2DDB010043	275005 5A
	,	
		PLUG8
P1	K19/2PDA023150	68908-006P
SPKR1	K19/2SDA001286	VS-50W-240hm 0.5W
	,	
		MICROPHONE UNIT
MIC	K19/28AA006109	EM-78
C1 tbru C5	K19/2CAK011196	Ceramic chip, 1000 pF, 50 WV
		ASSOCIATED PARTS
	198234804P1	Antenna 136-150 MHz.
	19B234804P1	Antenna 130-150 MHz.
	198234804P2	Antenna 150-174 MHz.
	198234804P21	Antenna 162-174 MHz.
	19B234804P11	Antenna 403-440, 406-460 MHz.
	198234804P12	Antenna 440-492 MHz.
	198234804P13	Anteona 470-512 MHz.
	19A149061P1	Antenna 806-870 MHz.
	19411000111	

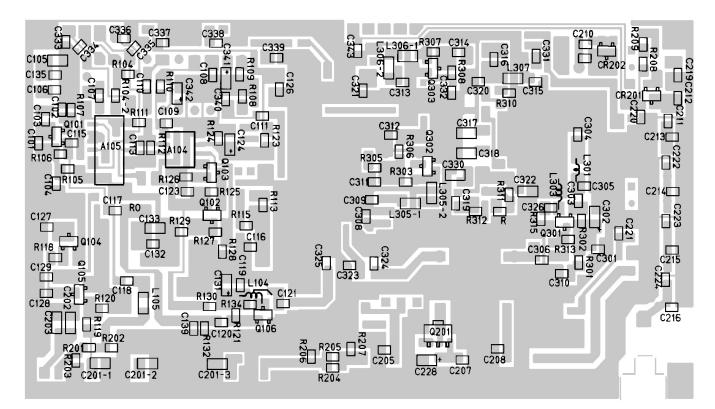
INTERCONNECTION DIAGRAM





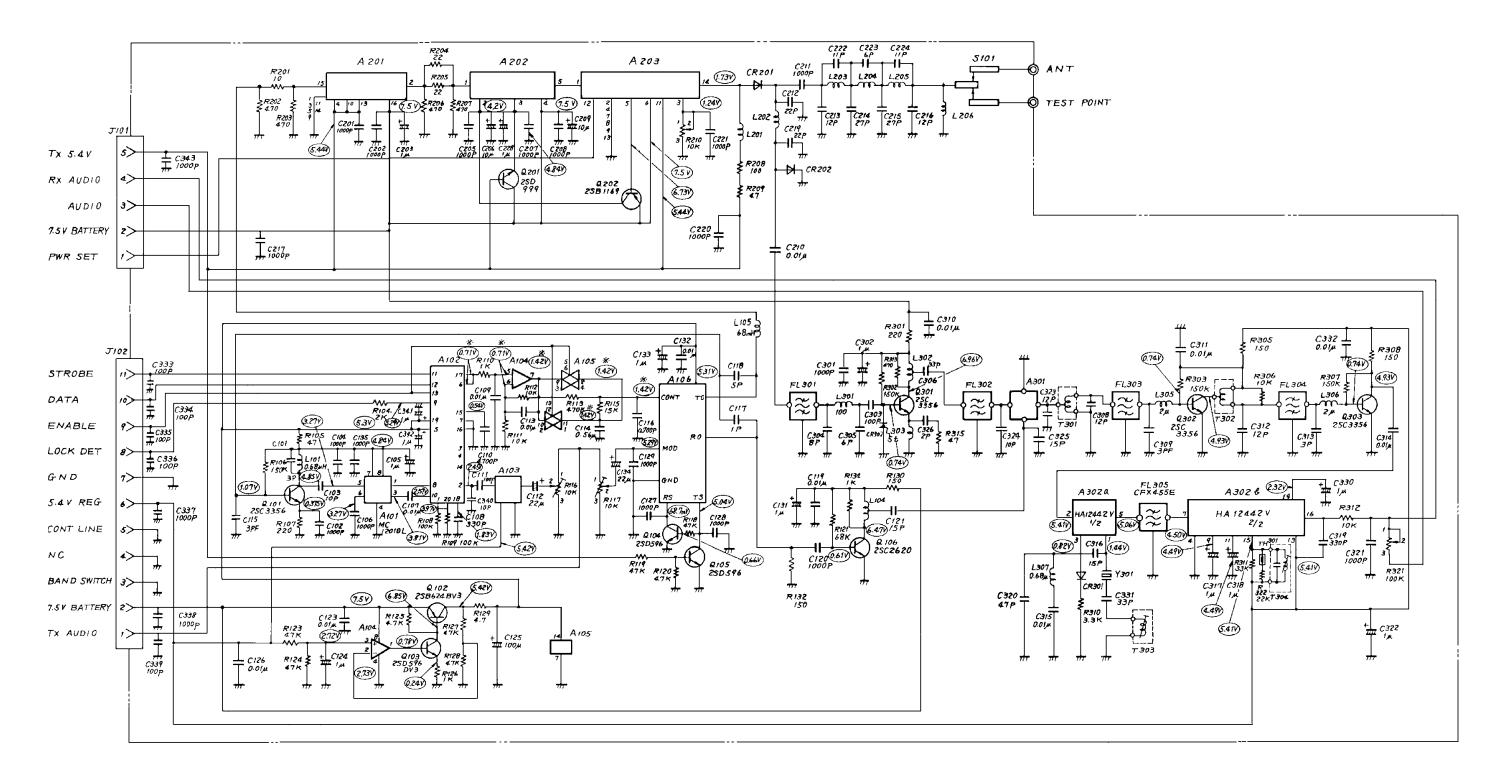


SOLDER SIDE



LBI-31629

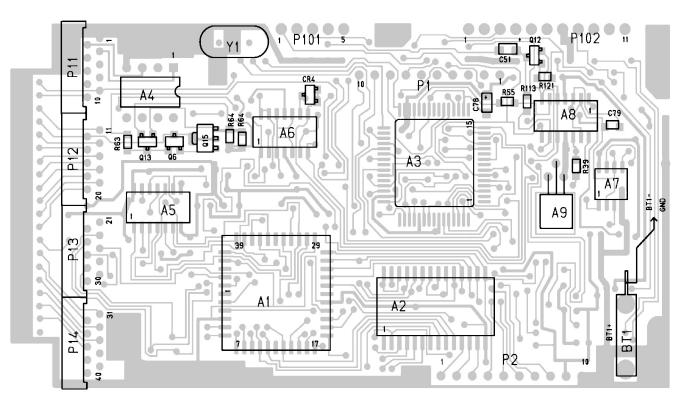
RADIO BOARD A4WE03739/40



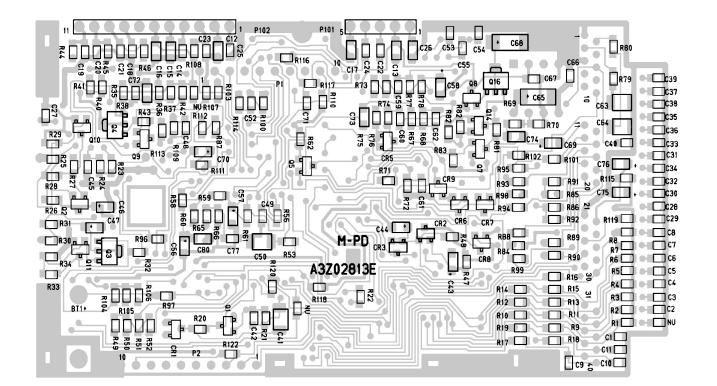
* ; TYPICAL VOLTAGE AT LOWEST CHANNEL

RADIO SCHEMATIC DIAGRAM WITH TYPICAL VOLTAGE A4WE03739/40 **OUTLINE DIAGRAM**

COMPONENT SIDE



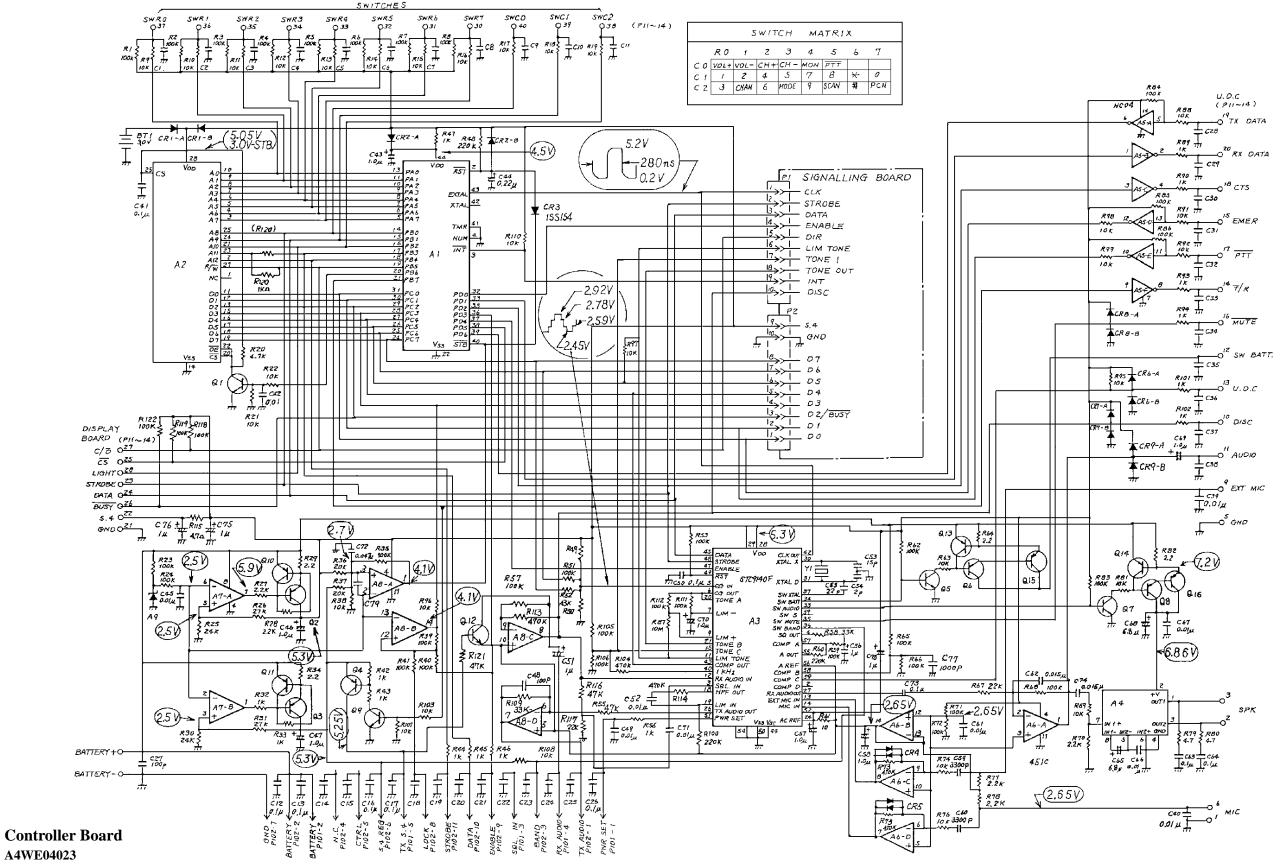
SOLDER SIDE



LBI-31629

Controller Board A4WE04023

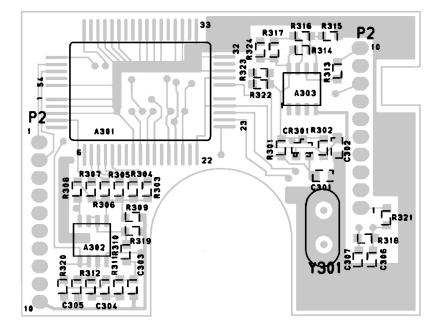
SCHEMATIC DIAGRAM



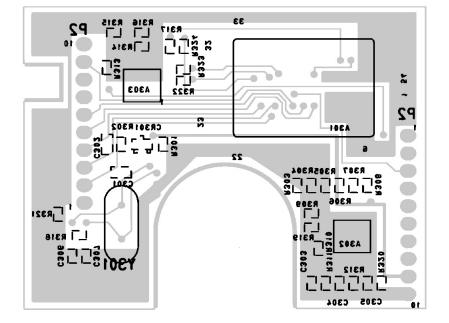
OUTLINE DIAGRAM

SCHEMATIC DIAGRAM

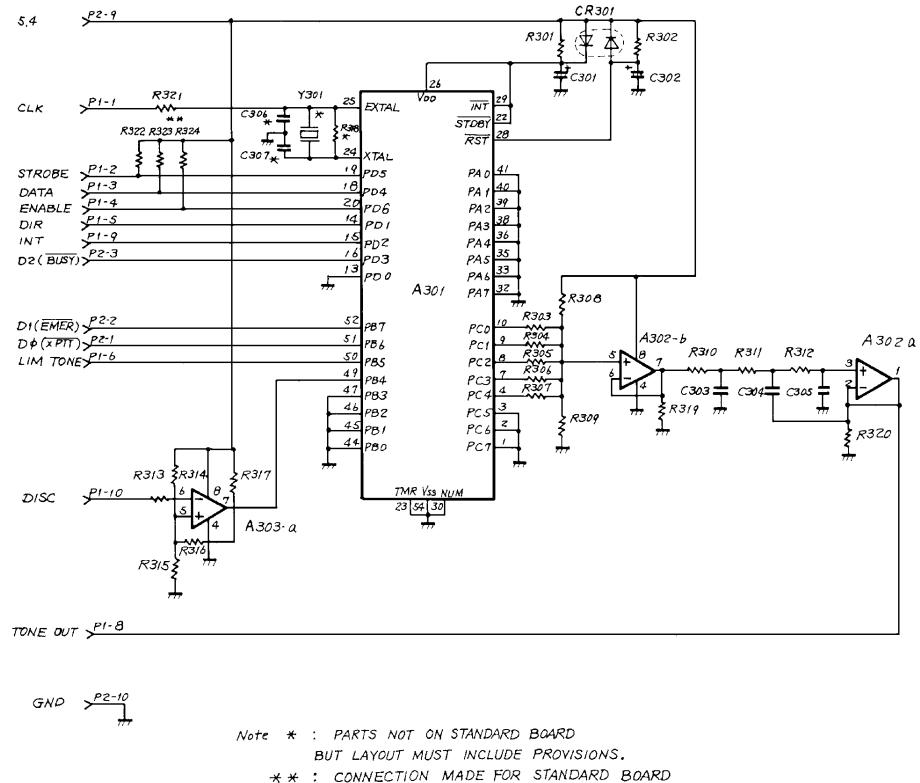
COMPONENT SIDE



SOLDER SIDE



Signalling Board A4WE04024

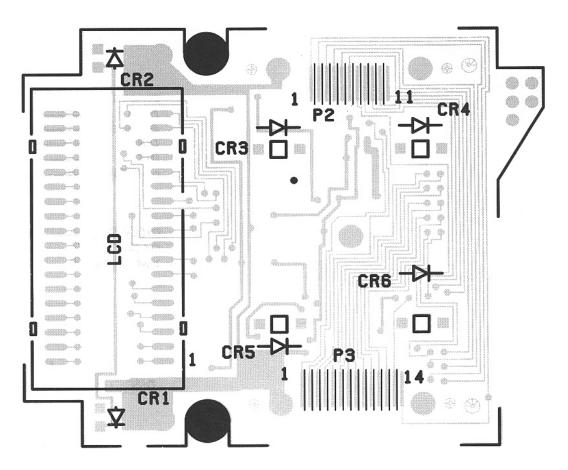


REMOND FOR OPTION .

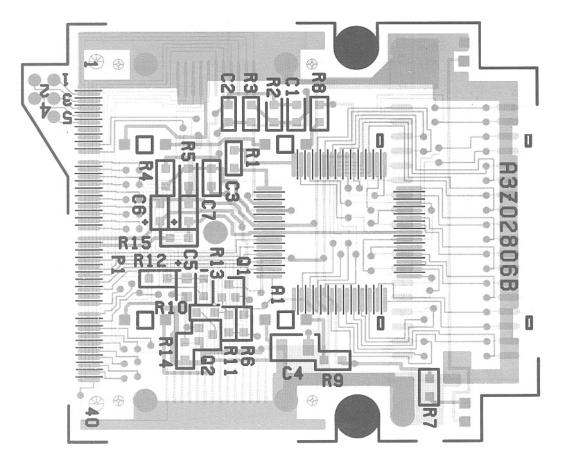
LBI-31629

M-PD Signaling Board A4WE04024

SOLDER SIDE

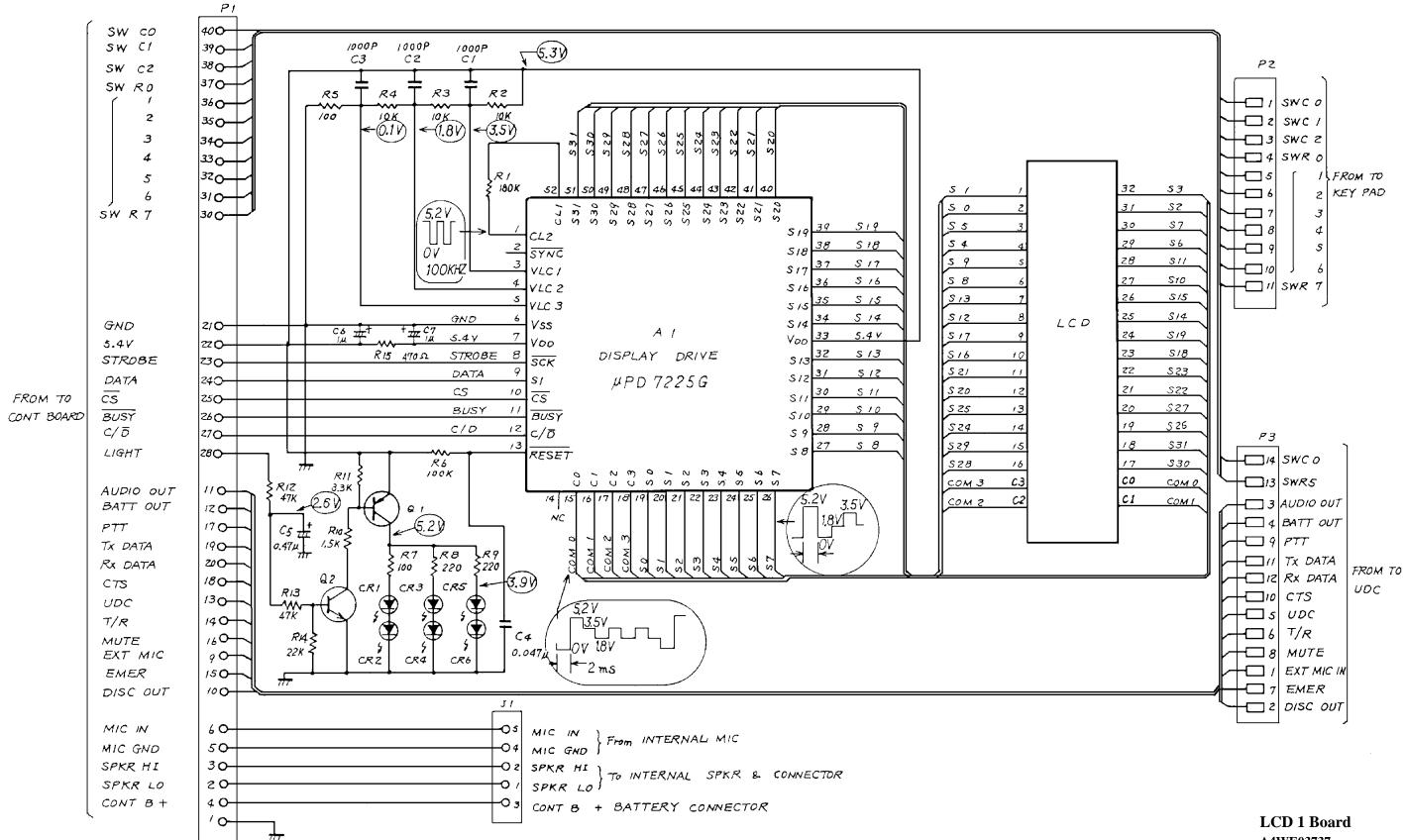


COMPONENT SIDE



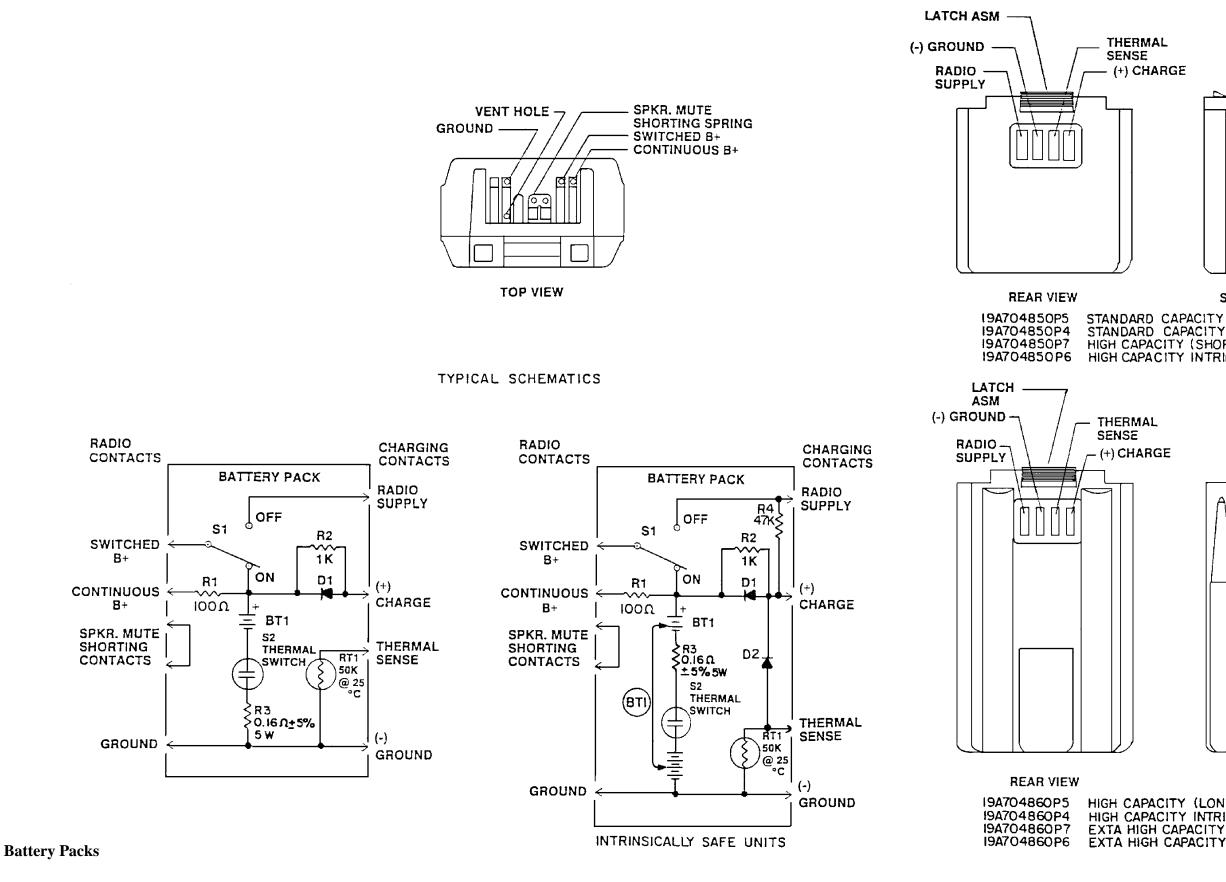
LCD Board A4WE03737

SCHEMATIC DIAGRAM



LBI-31629

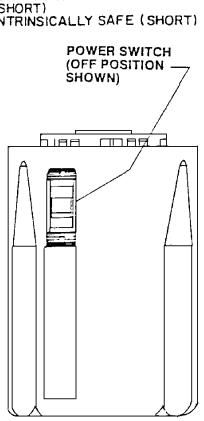
A4WE03737



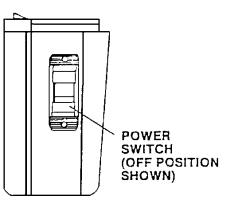
22

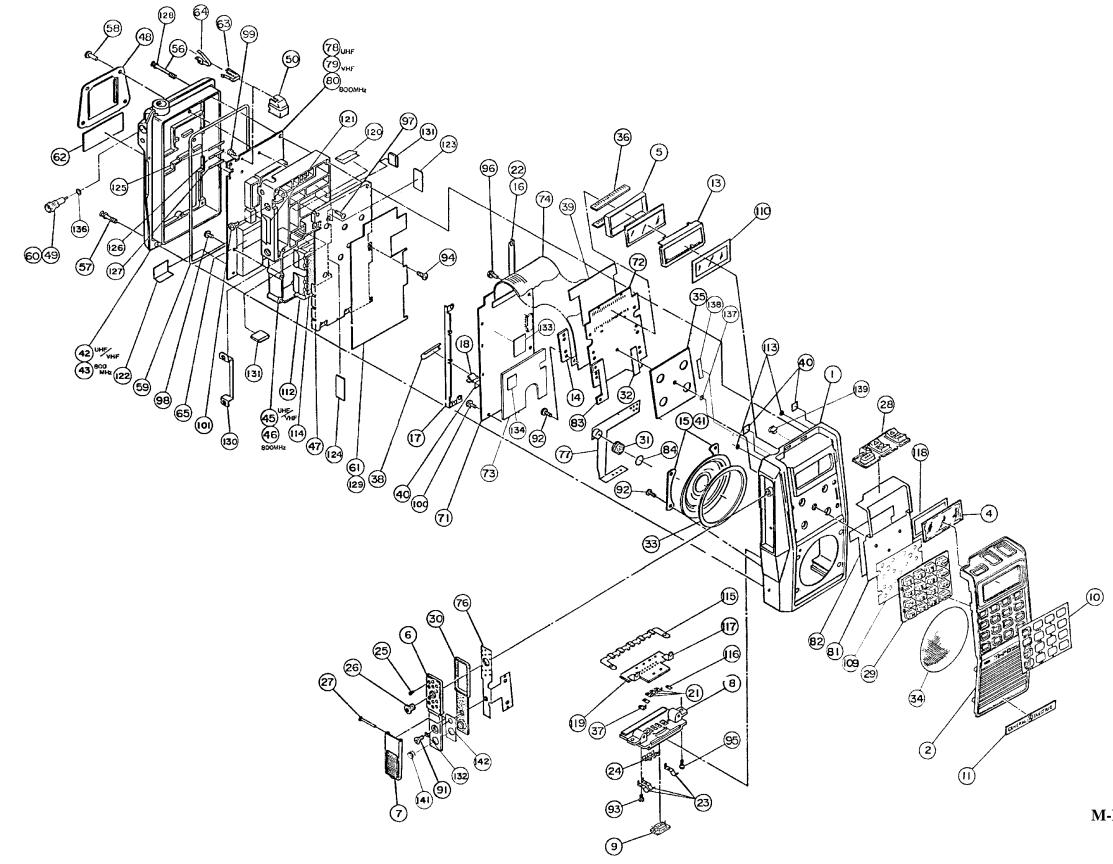
HIGH CAPACITY (LONG) HIGH CAPACITY INTRINSICALLY SAFE (LONG) EXTA HIGH CAPACITY INTRINSICALLY SAFE

FRONT VIEW



SIDE VIEW STANDARD CAPACITY INTRINSICALLY SAFE HIGH CAPACITY (SHORT) HIGH CAPACITY INTRINSICALLY SAFE (SHORT)





M-PD EXPLODED VIEW SYSTEM TYPE A1WL09006

PARTS LIST

M-PD RADIO SYSTEM TYPE A4WL08999 (MECHANICAL PARTS) ISSUE 3

1 (13)/AUD768 Front Cover 2 (13)/AUD7601 Front Escutcheon (SYS) 3 MOT USED Front Escutcheon (SYS) 4 K13)/ASUC0761 Light Diffuer 5 K13)/ASUC0767 Light Diffuer 6 K13)/ASUC0767 FILe 7 K13)/ASUC0767 Fue Cover 8 K13)/ASUC0767 Fue Cover 9 K13)/ASUC0767 Fue Cover 10 K13)/ASUC0767 Fue Cover 11 K13/ASUC0761 NamePlate (02) 12 NOT USED Plates 13 K13/ASUC0760 SPER Monitig Brackets 14 K13/ASUC0760 SPER Monitig Brackets 15 K13/ASUC0760 Gontact Lags 16 K13/ASUC0760 Gontact Lags 17 K16/ASUC0760 Gontact Lags 18 K113/ASUC0760 Gontact Stap 19 NOT USED Gontact Stap 21 K19/ASUC0760 Gontact Lags 22 K19/ASUC0760		4
2KT9/ATUC768Fractor Security3NT USE04K19/ASUC7574Fiador5K19/ASUC7574Ligkt Diffaser6K19/ASUC7575DT Lover7K19/ASUC7575Base Plate7K19/ASUC7575Base Plate9K19/ASUC7575Base Plate9K19/ASUC7575Base Plate10K19/ASUC7575Base Plate11K19/ASUC75761Name Plate12NOT USEDLCD Prame13K19/ASUC7580Plates14K19/ASUC7580Plates15K19/ASUC7580Bistap16K19/ASUC7580Ground Stap17K19/ASUC7580Ground Stap18K19/ASUC7580Bistap19NOT USEDInter State20K19/ASUC7580Bistap21K19/ASUC7580Ground Stap23K19/ASUC7580Bistap State24K19/ASUC7581Bistery Goneotor Byrings25K19/ASUC7581Bistery Goneotor Byrings26K19/ASUC7581Bistery Goneotor Byrings27K19/ASUC7581Bistery Goneotor Byrings28K19/ASUC7581Bistery Goneotor Byrings29K19/ASUC7581Bistery Goneotor Byrings20K19/ASUC7581Bistery Goneotor Byrings21K19/ASUC7581Bistery Goneotor Byrings22K19/ASUC7581Bistery Goneotor Byrings23K19/ASUC7582Bistery Buring24K19/ASUC7582		2
3 NOT USED Yindow 4 K19/ASPL07574 Yindow 5 K19/ASPL07573 Bac Plate 6 K19/ASPL07573 Bac Plate 7 K19/ASPL07573 Bac Plate 8 K19/ASPL07573 Bac Plate 8 K19/ASPL07573 Bac Plate 9 K19/ASPL07573 Bac Plate 11 K19/ASPL07573 Bac Plate 12 NOT USED Flates 13 K19/ASPL07614 LOP Frame 14 K19/ASPL07614 Batery Brakes 15 K19/ASPL07514 Batery Brakes 16 K19/ASPL07514 Batery Brakes 17 K19/ASPL07514 Batery Brakes 18 K19/ASPL07510 Contact Lugs 20 NOT USED Contact Lugs 21 K19/ASPL07500 SPRE/Nite Contacts 22 K19/ASPL07578 Ib Key Pad 23 K19/ASPL07578 Ib Key Pad 24 K19/ASPL07579 To Stitch Pad		7
4 K19/ASU07574 Findow 5 K19/ASU07576 Light Diffuser 6 K19/ASU07575 FUT Lower 7 K19/ASU07575 Fuse Cover 9 K19/ASU07577 Fuse Cover 10 K19/ASU07577 Fuse Cover 11 K19/ASU07571 Fuse Cover 12 NOT USED Inte 13 K19/ASU07561 Key Pad Name Plate 14 K19/ASU07562 Plates 15 K19/ASU07802 Blates 16 K19/ASU07803 Blatesy Bolder 17 K19/ASU07805 Blatesy Bolder 18 K19/ASU07805 Blatesy Bolder 19 NOT USED Contact Lugs 20 NOT USED Contact Lugs 21 K19/ASU0781 Battery Connector Byrings 22 K19/ASU0781 Byring Sudden 23 K19/ASU07878 ID Satter Contacts 24 K19/ASU07879 Top Suitch Pad 25 K19/ASU07879 Top Suitch Pa		7
dFi9/A9U0756UC PTC Flate7K19/A3U07575PTT Lever8K19/A3U07575Fuse Cover9K19/A3U07577Fuse Cover10K19/A3U07577Fuse Cover11K19/A3U07571Kue Cover11K19/A3U07571Kue Cover12NOT USEDInter Cover13K19/A3U07614LCD Frame14K19/A3U07802Plates15K19/A3U07803Plates16K19/A4U07803Plates17K19/A4U07803Plates18K19/A4U07514Battery Holder19NOT USEDInter Constant Lugs21K19/A4U07514Battery Holder23K19/A4U07514Battery Consector Springs24K19/A4U07600SPER/Atto Contacts25K19/A4U07600UDC Contacts26K19/A4U07600UDC Contacts27K19/A4U07600UDC Contacts28K19/A4U07600UDC Contacts29K19/A4U07600UDC Contacts20K19/A4U07600UDC Contacts21K19/A4U07600UDC Contacts22K19/A4U07600UDC Contacts23K19/A4U07600UDC Contacts24K19/A4U07600UDC Contacts25K19/A4U07600UDC Contacts26K19/A4U07600UDC Contacts27K19/A4U07600UDC Contacts28K19/A4U07600UDC Contacts29K19/A4U07600UDC Contacts20 <td< td=""><td></td><td>7</td></td<>		7
7K19/ASU07575FT Lover8K19/ASU07575Buse Plate9K19/ASU07575Fuse Cover10K19/ASU07514Key Pad Name Plate11K19/ASU07514Nameplate (GS)12NOT USEDItal13K19/ASU07614LCD Frame14K19/ASU07615Plates15K19/ASU07616Cond Stap16K19/ASU07516Be Strap17K19/ASU07516Ground Strap18K19/ASU07516Ground Strap18K19/ASU07516Ground Strap20NOT USEDItalian21K19/ASU07514Battery Holder22K19/ASU07540Contact Lugs23K19/ASU07540DC Costacts24K19/ASU07540DC Costacts25K19/ASU07540DC Costacts26K19/ASU07540DC Costacts27K19/ASU07540Pro Fin28K19/ASU07540Pro Fin29K19/ASU07540DC Costacts20K19/ASU07540Pro Stich Pad21K19/ASU07540Pro Stich Pad22K19/ASU07540Pro Stich Pad23K19/ASU07540Bout Screen24K19/ASU07540SPKR Gasket25K19/ASU07540SPKR Dust Screen26K19/ASU07540SPKR Gasket27K19/ASU07540SPKR Gasket28K19/ASU07540SPKR Gasket29K19/ASU07540SPKR Gasket20K19/ASU07540SPKR		7
8N19/ASPL07873Base Plate9K19/ASPL07873Rey PAR Name Plate11K19/ASPL07814Rey PAR Name Plate11K19/ASPL07814KCD Frame12NOT OSEDPlates13K19/ASPL07814LCD Frame14K19/ASPL07814ECD Frame15K19/ASPL07820Plates16K19/ASPL07826B* Strap17K19/ASPL07826B* Strap18X19/ASPL07814Battery Holder19NOT USED20NOT USED21K19/ASPL07814Battery Holder23K19/ASPL07810Contact Lugs24K19/ASPL07814Battery Connector Springs25K19/ASPL07804UDC Contacts26K19/ASPL07804UDC Contacts27K19/ASPL07804UDC Contacts28K19/ASPL07804UDC Contacts29K19/ASPL07804DE Not20K19/ASPL07804DE Not21K19/ASPL07804DE Not22K19/ASPL07804DE Not23K19/ASPL07804DE Not24K19/ASPL07804DE Not25K19/ASPL07804DE Not26K19/ASPL07804DE Not27K19/ASPL07804DE Not28K19/ASPL0780429K19/ASPL0780420K19/ASPL0780420K19/ASPL0780421K19/ASPL0780422K19/ASPL0780423K19/ASPL0780724K19/ASPL07807		7
9fig/AMI/07451Fue Cover10K19/AMI/07451Kay Pad Name Plate11K19/AMI/07451Name Plate12NOT USED13K19/AMI/07802Plates14K19/AMI/07803Plates15K19/AMI/07807SPER Mounting Brackets16K19/AMI/07803B' Strap17K19/AMI/07804Gorund Strap18K19/AMI/07804Battory Bolder19NOT USEDImage Strap20NOT USEDImage Strap21K19/AMI/07804Battory Bolder22K19/AMI/07804Battory Bolder23K19/AMI/07804Battory Connector Springs24K19/AMI/07804Byter Connector Springs25K19/AMI/07804Bottory Connector Springs26K19/AMI/07804Plot Pin27K19/AMI/07804Plot Pin28K19/AMI/07804Plot Strap29K19/AMI/07804Plot Strap20K19/AMI/07804Plot Strap21K19/AMI/07804Plot Strap22K19/AMI/07804Plot Strap23K19/AMI/07804Plot Strap24K19/AMI/07804Strap Strap25K19/AMI/07804Strap26K19/AMI/07804Strap27K19/AMI/07804Strap28K19/AMI/07804Strap29K19/AMI/07804Strap20K19/AMI/07804Strap21K19/AMI/07804Strap22K19/AMI/078		7
10K19/A9107451Key Pad Name Plate11K19/A910761Mameplate (GS)12NOT USED13K19/A9107614LOD Prame14K19/A9107628Plates15K19/A9107628Plates16K19/A9107820Batsa17K19/A9107820Batsa18K19/A9107820Batsa19NOT USEDNOT USED21K19/A9107814Batsary Bolder19NOT USEDSPER/Monting Brackets21K19/A9107814Batsary Bolder23K19/A9107814Batsary Connector Springs24K19/A9107603SPER/Mute Contacts25K19/A9107604UCC Contacts26K19/A9107605UCC Nut27K19/A9107609UCC Nut28K19/A9107609UCC Nut29K19/A9107609UCC Nut20K19/A9107609DY Switch Pad21K19/A9107609DY Switch Pad23K19/A9107630PYT Switch Pad24K19/A9107630SPER Suts Sceen25K19/A9107630SPER Dust Sceen26K19/A94107630SPER Dust Sceen27K19/A94107630SPER Dust Sceen28K19/A94107630SPER Dust Sceen29K19/A94107630SPER Dust Sceen29K19/A94107630SFER Mounting Rubber21K19/A94107630SFER Mounting Rubber23K19/A94107630SFER Mounting Rubber24K19/A94107630SFER Mounting		7
11K19/A4U07661Nameplate (GE)12NOT USED13NOT USED14K19/A4U107692Plates15K19/A4U107693Plates16K19/A4U107693Plates17K19/A4U107693B* Strap18K19/A4U107694Gorund Strap19NOT USEDInterpretaine20NOT USEDInterpretaine21K19/A4U107610Contact Lugs22K19/A4U107601SERR/Nute Contacts23K19/A4U107605UDC Contacts24K19/A4U107606SERR/Nute Contacts25K19/A4U107606UDC Contacts26K19/A4U107607TO Switch Pad27K19/A4U107608SERR/Nute Contacts28K19/A4U107605UDC Contacts29K19/A4U107605UDC Nut20K19/A4U107605UDC Nut21K19/A4U107605PT Switch Pad22K19/A4U107605PT Switch Pad23K19/A4U107605PT Switch Pad24K19/A4U107605SPKR Duat Screen25K19/A4U107605SPKR Duat Screen26K19/A4U107605SPKR Duat Screen27K19/A4U107605SPKR Mouting Rubber28K19/A4U107605SPKR Mouting Rubber29K19/A4U107605SPKR Mouting Rubber21K19/A4U107605SPKR Mouting Rubber22K19/A4U107606Rec Cover, (MO MED)23K19/A4U107607Casting Rubber24K19/A4U107607C		8
12 NOT USED LCD Prame 13 K19/ASU.7614 LCD Prame 14 K19/ASU.7614 LCD Prame 15 K19/ASU.7614 Butses 16 K19/ASU.76290 Pistas 17 K19/ASU.72930 B+ Strap 18 X19/ASU.72940 Ground Strap 18 X19/ASU.72940 Battery Bolder 20 NOT USED E 21 K19/ASU.7610 Contact Lugs 22 X19/ASU.7614 Battery Connector Springs 23 K19/ASU.7604 UDC Contacts 24 K19/ASU.7679 TOP Switch Pad 25 K19/ASU.7679 TOP Switch Pad 26 K19/ASU.7679 TOP Switch Pad 27 K19/ASU.7630 PTT Switch Pad 28 K19/ASU.7635 PT Switch Pad 29 K19/ASU.7635 Elstite Rubber 21 K19/ASU.7635 Zebru Contacts 23 K19/ASU.7635 Zebru Contacts 24 K19/ASU.7635 Zeb		8
13K19/ASVL07614LCD Prame14K19/ASVL07286Plates15K19/ASVL07286B+ Strap16K19/ASVL07286B+ Strap17K19/ASVL07286Ground Strap18K19/ASVL07286Ground Strap19NOT USEDEntry Bolder20NOT USEDEntry Bolder21K19/ASVL07284B- Strap Bheet22K19/ASVL07608SPKR/Mute Contacts23K19/ASVL07608SPKR/Mute Contacts24K19/ASVL07608SPKR/Mute Contacts25K19/ASVL07608SPKR/Mute Contacts26K19/ASVL07787TO SWItch Pad27K19/ASVL07787TO SWItch Pad28K19/ASVL07787TO SWItch Pad29K19/ASVL07787TO SWItch Pad20K19/ASVL07578I Skyrap21K19/ASVL07578I Skyrap23K19/ASVL07578I Skyrap24K19/ASVL07582Elastic Rubber25K19/ASVL07582Elastic Rubber26K19/ASVL07583JTC Casket27K19/ASVL07584Insulator (LCD B).28K19/ASVL07585Zebra Contacts29K19/ASVL07584Insulator Sheet20K19/ASVL07585SFKR Moanting Rubber21K19/ASVL07586Rear Cover, (SO Milz)23K19/ASVL07586Rear Cover, (SO Milz)24K19/ASVL07586Rear Cover, (SO Milz)25K19/ASVL07587Rear Cover, (SO Milz)26K19/ASVL07588		8
16K19/AVU/07907SPFE Nounting Brackets16K19/AVU/07296Ground Strap17K19/AVU/07296Ground Strap18K19/AVU/07296Ground Strap18K19/AVU/07296Ground Strap19NOT USED21K19/AVU/07201Battery Bolder22K19/AVU/07203SPER/Mule Contact Lugs23K19/AVU/07603SPER/Mule Contacts24K19/AVU/07603SPER/Mule Contacts25K19/AVU/07604UCC Contacts26K19/AVU/07605UDC Nut27K19/AVU/07507TO Svitch Pad28K19/AVU/07508PT Switch Pad29K19/AVU/07509TO Svitch Pad20K19/AVU/07509TO Svitch Pad21K19/AVU/07509TO Svitch Pad22K19/AVU/07509TO Svitch Pad23K19/AVU/07509PT Switch Pad24K19/AVU/07509SPER Contacts25K19/AVU/07501SPER Dout Screen36K19/AVU/07501SPER Dout Screen37K19/AVU/07501Insulator (LOD BD).38X19/AVU/07501Insulator Sheet39K19/AVU/07501Rear Cover, (300 Hilz)41K19/AVU/07501Rear Cover, (300 Hilz)41K19/AVU/07501Rear Cover, (300 Hilz)42K19/AVU/07501Rear Cover, (300 Hilz)43K19/AVU/07501Rear Cover, (300 Hilz)44K19/AVU/07501Rear Cover, (300 Hilz)44K19/AVU/07501Rear Cov		8
16 K19/A3VL07295 B÷ Strap 17 K19/A3VL07296 Ground Strap 18 K19/A3VL07296 Ground Strap 19 NOT USED Image: Strap Strap 20 NOT USED Image: Strap Strap 21 K19/A4VL08244 B+ Strap Strap Strap 22 K19/A4VL08244 B+ Strap Strap Strap 23 K19/A4VL07610 Contact Lugs 24 K19/A4VL07610 Strap Strap 25 K19/A4VL07604 UDC Contacts 26 K19/A4VL07604 UDC Contacts 26 K19/A4VL07605 DOC Not 27 K19/A4VL07604 UDC Contacts 28 K19/A4VL07604 DVot Pin 29 K19/A4VL07604 PM Conset 30 K19/A4VL07604 MIC Gasket 31 K19/A4VL07695 SPKR Dust Screen 32 K19/A4VL07695 SPKR Nouting Rubber 33 K19/A4VL07695 Seren Contacts 34 K19/A4VL07691 Rear Cover, (UMF/VHF) 35		8
17K19/A3EL07296Ground Strap18K19/A4EL07514Battery Bolder19NOT USED20NOT USED21K19/A4EL07610Contact Lugs22K19/A4EL07611Battery Connector Springs23K19/A4EL07614Battery Connector Springs24K19/A4EL07604UDC Contacts25K19/A4EL07605UDC Not26K19/A4EL07605UDC Not27K19/A4EL07605UDC Not28K19/A4EL07605UDC Not29K19/A4EL0757815 Key Pad20K19/A4EL0757815 Key Pad21K19/A4EL07584MIC Gasket22K19/A4EL07584Elsatte Rubber23K19/A4EL07584Elsatte Rubber24K19/A4EL07585Elsatte Rubber25K19/A4EL07685Isentacts26K19/A4EL07685Isentacts27K19/A4EL07685Isentacts28K19/A4EL07685Isentacts29K19/A4EL07685Isentacts20K19/A4EL07685Isentacts21K19/A4EL07685Isentacts23K19/A4EL07685Isentacts24K19/A4EL07685Isentacts25K19/A4EL07686Isentacts26K19/A4EL07686Isentacts27K19/A4EL07686Isentacts28K19/A4EL07686Isentacts29K19/A4EL07686Isentacts29K19/A4EL07686Isentacts20K19/A4EL07688Recover		8
18X1B/A4FL07514Battery Bolder19NOT USE021NOT USE021K19/A4FL07610Contact Lugs22K19/A4FL07610Battery Connector Springs24K19/A4FL07604B*KEA/Lute Contacts25K19/A4FL07604UDC Contacts26K19/A4FL07605UDC Not27K19/A4FL07605UDC Not28K19/A4FL07605UDC Not29K19/A4FL07605UDC Not20K19/A4FL07605UDC Not21K19/A4FL07760ID Kont28K19/A4FL07760ID Kont29K19/A4FL07780ID Key Pad30K19/A4FL07780ID Key Pad31K19/A4FL07860ID Key Pad32K19/A4FL07860ID Key Pad33K19/A4FL07860ID Key Pad34K19/A4FL07863ID Key Pad35K19/A4FL07863ID Key Pad36K19/A4FL07863ID Key Pad37K19/A4FL07863ID Key Pad38K19/A4FL07863ID Key Pad39K19/A4FL07863ID Key Pad31K19/A4FL07863ID Key Pad33K19/A4FL07863ID Stereen34K19/A4FL07863ID Stereen35K19/A4FL07863ID Stereen36K19/A4FL07864Insultor Sheet31K19/A4FL07863ID Stereen36K19/A4FL07864Insultor Sheet31K19/A4FL07864Rear Cover, (180 ME)34K19/A4FL07864Rea		8
19NOT USEDImage: start of the start		8
20NOT USEDContact Lugs21K19/A4RL07610E+ Strap Sheet23K19/A4RL07604E+ Strap Sheet23K19/A4RL07605SPKR/kute Contacts24K19/A4RL07604UC Contacts25K19/A4RL07605UDC Nut26K19/A4RL07605UDC Nut27K19/A4RL07605UDC Nut28K19/A3RL07578I6 Key Pad29K19/A3RL07578I6 Key Pad30K19/A3RL07578If Key Pad31K19/A4RL07630PTT Settch Pad32K19/A4RL07804HC Casket33K19/A4RL07635SPKR Dust Screen34K19/A4RL07635SPKR Dust Screen35K19/A4RL07636Zebra Contacts36K19/A4RL07636Zebra Contacts37K19/A4RL07636LCD Sheet38K19/A4RL07636LCD Sheet41K19/A4RL07786LICD Sheet41K19/A4RL0786SPKR Mounting Rubber42K19/A4RL0786SPKR Mounting Rubber43K19/A4RL0786Rec Cover, (800 ME2)44NOT USEDCasting, (800 ME2)45K19/A4RL075704Casting, (800 ME2)46K19/A4RL075705Rec Cover, 100 ME2)47K19/A4RL075704Casting, (800 ME2)48K19/A4RL075704Casting, (800 ME2)49K19/A4RL075704Casting, (800 ME2)41K19/A4RL075705Casting, (800 ME2)41K19/A4RL075704Casting, (800 ME2)42K19/A4RL		8
21K19/A4KL07610Contact Lugs22K19/A4KL07610B+ Strap Sheet23K19/A4KL07610B+ Strap Sheet24K19/A4KL07608SPKB/Kute Contacts25K19/A4KL07605UDC Contacts26K19/A4KL07605UDC Contacts27K19/A4KL07605UDC Nut28K19/A3KL07579Top Switch Pad29K19/A3KL07578I Skey Pad20K19/A3KL07578I Skey Pad21K19/A4KL07630PTT Switch Pad22K19/A3KL07580PTT Switch Pad23K19/A4KL07532Elastic Rubber24K19/A4KL07435SPKR Gasket25K19/A4KL07435SPKR Dust Screen26K19/A4KL07435SPKR Dust Screen27K19/A4KL07665Zebra Contacts28K19/A4KL07665L-Battery Cover39K19/A4KL07665LI-Battery Cover39K19/A4KL07664Insulator (UMF/VHF)41K19/A4KL07664Insulator Screen42K19/A4KL07665Rear Cover, (WMF/VHF)43K19/A4KL07570PCasting, (UNF/VHF)44NOT USEDScreentaule Puite45K19/A4KL07509Rear Cover, (WMF/VHF)46K19/A4KL07509Rear Cover, (WMF/VHF)47K19/A4KL07509Casting, (UNF/VHF)48K19/A4KL07509Rear Cover, (WMF/VHF)49K19/A4KL07509Rear Cover, (WMF/VHF)41NOT USEDSatter, Cover, SoO MHz)42K19/A4KL07509Rear Co		9
22 K19/A4WL08244 B+ Strap Sheet 23 K19/A4WL07611 Battery Connector Springs 24 K19/A4WL07608 SFRE/Mute Contacts 25 K19/A4WL07608 UDC Contacts 26 K19/A4WL07605 UDC Nut 27 K19/A4WL07605 UDC Nut 28 K19/A3WL07579 Top Switch Pad 29 K19/A3WL07578 16 Key Pad 30 K19/A3WL07580 PTF Switch Pad 31 K19/A4WL07580 PTF Switch Pad 31 K19/A4WL07580 PTF Switch Pad 32 K19/A4WL07580 PTF Switch Pad 33 K19/A4WL07580 PTE Switch Pad 34 K19/A4WL07582 Elastic Rubber 35 K19/A4WL07685 Zebra Contacts 36 K19/A4WL07685 Zebra Contacts 37 K19/A4WL07684 LCD Sheet 40 K19/A4WL07684 LCD Sheet 41 K19/A4WL07500 Rear Cover, (UF/VHF) 42 K19/A4WL07500 Rear Cover, (USO MHZ) <t< td=""><td></td><td>9</td></t<>		9
23K19/A4WL07601Battery Connector Springs24K19/A4WL07605SPRR/Mute Contacts25K19/A4WL07604UDC Contacts26K19/A4WL07605UDC Nut27K13/A4WL07605UDC Nut28K19/A3WL07578Top Switch Pad29K19/A3WL07578If Kay Pad30K19/A3WL07578If Kay Pad31K19/A4WL07580PTT Switch Pad33K19/A4WL07580PTT Switch Pad34K19/A4WL07582Elastic Rubber35K19/A4WL07586Insulator (LCD BD).36K19/A4WL07685Zebra Contacts37K19/A4WL07685Lob Sect38X19/A4WL07685LCD Sheat39K19/A4WL07685LCD Sheat31K19/A4WL07868LCD Sheat33K19/A4WL07883LI-Battery Cover34X19/A4WL07864Insulator Rubber35K19/A4WL07865Rear Cover, (800 MHz)46K19/A1WL07580Rear Cover, (800 MHz)47K19/A1WL07580Rear Cover, (800 MHz)48K19/A1WL07580Rear Cover, (800 MHz)49K19/A1WL07591Casting, (UNF/VHF)46K19/A1WL07591Casting, (NDF/VHF)47K19/A3WL07512Tar/Ka Shield Cover48K19/A1WL07599Receptacto Flate49K19/A3WL07544Antenna Switch Housing41K19/A4WL0888RF Connector53NOT USEDCaptive Screws54NOT USEDCaptive Screws <t< td=""><td></td><td>9</td></t<>		9
24K19/A4TL07608SPRE/Kute Contacts25K19/A4TL07605UDC Contacts26K19/A4TL07605UDC Not27K19/A4TL07605UDC Not28K19/A3TL07578Top Switch Pad29K19/A3TL07578IS Kay Pad30K19/A3TL07578IS Kay Pad31K19/A4TL07804PTT Switch Pad32K19/A4TL07882Flastia Rubber33K19/A4TL07882SPKR Gasket34K19/A4TL07893SPKR Gasket35K19/A4TL07893SPKR Dust Screen36K19/A4TL07893Getra Contacts37K19/A4TL07863LT-Battery Cover38X19/A4TL07863LT-Battery Cover38K19/A4TL07864LCO Sheet41K19/A4TL07864Insulator Rubber43K19/A4TL07865SPKR Mounting Rubber44NOT USEDEast Cover, (WE/YHF)45K19/A4TL07570PCasting, (UK/YHF)46K19/A4TL07570PCasting, (UK/YHF)47K19/A4TL07570PCasting, (SOO ME2)47K19/A4TL07570PCasting, (SOO ME2)48K19/A4TL07570PCasting, (SOO ME2)49K19/A4TL07580Recencuor50K19/A4TL07580Recenture51NOT USEDAntenna Switch Housing52NOT USEDCaptive Screws53NOT USEDCaptive Screws54K19/A4TL07880Revets55NOT USEDCaptive Screws56K19/A4TL07880Revet		9
26 k19/A4WL07605 UDC Nut 27 K19/A4WL07605 Pivot Pin 28 K19/A3WL07579 Top Switch Pad 29 K19/A3WL07578 16 Key Pad 30 K19/A3WL07578 16 Key Pad 31 K19/A4WL07580 PTT Switch Pad 31 K19/A4WL07580 PTT Switch Pad 31 K19/A4WL0730 SPKR Gasket 33 K19/A4WL07805 Elastia Rubber 33 K19/A4WL07805 SPKR Gasket 34 K19/A4WL07805 SPKR Gasket 35 K19/A4WL07605 Zebra Contacts 36 X19/A4WL07685 Zebra Contacts 37 K19/A4WL07685 LCD Sheat 40 K19/A4WL07808 LPaktery Cover 38 K19/A4WL07808 REW Cover, (WH/YHF) 41 K19/A4WL07808 REW Cover, (800 MHz) 42 K19/A1WL07570P2 Casting, (URP/VHF) 43 K19/A4WL07804 REW Cover 44 NOT USE0 Antenna Switch Housing 54<		9
27K19/A4WL07434Pivot Pin28K19/A3WL07579Top Switch Pad29K19/A3WL07578IS Kay Pad30K19/A3WL07580PTT Switch Pad31K19/A4WL07584MIC Gasket32K19/A4WL07584Filssita Rubber33K19/A4WL07584SPKR Gasket34K19/A4WL07435SPKR Dust Screen35K19/A4WL07696Insulator (LCD BD).36K19/A4WL07695Zebra Contacts37K19/A4WL07695Zebra Contacts38X19/A4WL07684Insulator Screen38K19/A4WL07685LOT Sneet40K19/A4WL07684Insulator Sheet41K19/A4WL07684Insulator Sheet41K19/A4WL07684Rear Cover, (WH/YHF)43K19/A1WL07560Rear Cover, (WH/YHF)44NOT USEDCasting, (UK/YHF)45K19/A1WL07500Casting, (SOO MHz)46K19/A1WL07500Casting, (SOO MHz)47K19/A2WL07512Ta/Ra Shield Cover48K19/A1WL05500Reeptaulo Piate49K19/A1WL0550Antenna Switch Housing50K19/A3WL07544Antenna Switch Housing51NOT USEDCaptive Screws53NOT USEDCaptive Screws54K19/A4WL076991Captive Screws55NOT USEDCaptive Screws56K19/A4WL07694Rivets59K19/A4WL07695Reptive Screws58K19/A4WL076991Captive Screws58		9
28K19/A3WL07579Top Switch Pad29K19/A3WL07578I6 Key Pad30K19/A3WL07580PT Switch Pad31K19/A4WL07584MIC Gasket32K19/A4WL07584Elastic Rubber33K19/A4WL07882Elastic Rubber34K19/A4WL07800SNKR Gasket35K19/A4WL07605Isulator (LCD BD).36K19/A4WL07665Zetra Contacts37K19/A4WL07665Zetra Contacts38K19/A4WL07665Zetra Contacts39K19/A4WL07665Zetra Contacts39K19/A4WL07665Zetra Contacts30K19/A4WL07665Zetra Contacts31K19/A4WL07665Zetra Contacts32K19/A4WL07665Zetra Contacts33K19/A4WL07665Zetra Contacts34K19/A4WL07664Insulator Sheet40K19/A4WL075701Rear Cover, (WF/VHF)43K19/A1WL075702Casting, (CMF/VHF)44NOT USE0X19/A3WL0751245K19/A1WL075702Casting, (CMF/VHF)46K19/A1WL075704Antenna Switch Housing51NOT USE0X10/AWL0780953NOT USE0X10/AWL0780954NOT USE0Captive Screws55NOT USE0Captive Screws56K19/A4WL078901Captive Screws57K19/A4WL078902Captive Screws58K19/A4WL078903Housing59K19/A4WL078904Rivets59K19/A4WL078904Riv		9
29K19/A3WL0757816 Key Pad30K19/A3WL075780PTT Switch Pad31K19/A4WL07504MIC Gasket32K19/A4WL07862Elastic Rubber33K19/A4WL07863SPKR Gasket34K19/A4WL07805SPKR Dask Screen35K19/A4WL07665Sebra Contact S36K19/A4WL07665Zebra Contact Log B37K19/A4WL07663L-Battery Cover38K19/A4WL07684Insulator (LCD BD).38K19/A4WL07685LCD Sheet39K19/A4WL07684Insulator Sheet40K19/A4WL07684Insulator Sheet41K19/A4WL07684Insulator Sheet42K19/A4WL07684Rear Cover, (WH/YHF)43K19/A4WL07570Rear Cover, (S00 MHz)44NOT USE0Varianting Rubber45K19/A4WL075702Casting, (UNF/YHF)46K19/A1WL075702Casting, (S00 MHz)47K19/A3WL07512Tx/Rx Shield Cover48K19/A3WL07512Tx/Rx Shield Cover49K19/A3WL07512Tx/Rx Shield Cover49K19/A3WL07512Tx/Rx Shield Cover50NOT USE0Insulator51NOT USE0Insulator52NOT USE0Sative Screws53NOT USE0Sative Screws54K19/A4WL074991Captive Screws55NOT USE0Sative Screws56K19/A4WL074991Captive Screws57NOT USE0Sityle AffUGA88358K19/		9
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35K19/A4WL07606Insulator (LCD BD).36K19/A4WL07665Zebra Contact S37K19/A4WL07607Contact Lug B38K19/A4WL07803L1-Battery Cover39K19/A4WL07864LCD Sheet40K19/A4WL07804Insulator Sheet41K19/A4WL07501Rear Cover, (UMF/VHF)42K19/A1WL07501Rear Cover, (UMF/VHF)43K19/A1WL07502Rear Cover, (UMF/VHF)44NOT USEDHear Cover, (SOO MH2)45K19/A1WL07502Casting, (UMF/VHF)46K19/A1WL07512TAK Shield Cover47K19/A3WL07512Raceptacle Plate48K19/A3WL07554Antenna Switch Housing49K19/A3WL07554Antenna Switch Housing51NOT USED52NOT USED53NOT USED54K19/A4WL074091Captive Screws55K19/A4WL074091Captive Screws56K19/A4WL07680Rivets57K19/A4WL07680Rivets58K19/A4WL07680Rivets59K19/A4WL07680Rivets59K19/A4WL07680Rivets59K19/A4WL07680Rivets59K19/A4WL07680Rivets59K19/A4WL07680Rivets59K19/A4WL07680Rivets59K19/A4WL07680Rivets59K19/A4WL07680Rivets59K19/A4WL07680Rivets59K19/A4WL07680Rivets59K19/A4WL07		10
36 X19/A4RL07665 Zebra Contacts 37 X19/A4RL07663 Lonatt Lug B 38 X19/A4RL07863 LineLatery Cover 39 X19/A4RL07863 LineLatery Cover 39 X19/A4RL07863 LineLatery Cover 39 X19/A4RL07864 Insulator Sheet 40 X19/A4RL07864 Insulator Sheet 41 X19/A4RL078608 SFKR Mounting Rubber 42 X19/A4RL075608 Rear Cover, (BOO MHz) 43 K19/A1RL075700 Rear Cover, (BOO MHz) 44 NOT USED Casting, (UNF/VHF) 45 X19/A1WL075700 Casting, (UNF/VHF) 46 X19/A1WL075700 Casting, (UNF/VHF) 47 X19/A2WL07512 Tx/Rx Shield Cover 48 X19/A3WL07554 Antenna Switch Housing 51 NOT USED Stield Covers 52 NOT USED Antenna Switch Housing 53 NOT USED Stield Covers 54 NOT USED Captive Screws 55 NOT USED Captive Screws 56 K19/A4WL078904 Captive Screws 57 K19/A4WL07894 Stieve Screws 58 K19/A4WL07894 Stieve Screws 59 K19/A		10
37 X19/A4WL08007 Contact Lug B 38 X19/A4WL07863 L1-Battery Cover 39 X19/A4WL07864 LC Sheet 40 X19/A4WL07864 Insulator Sheet 41 X19/A4WL07864 Insulator Sheet 41 X19/A4WL07864 Rex Cover, (WH/VHF) 43 X19/A1WL07560 Rear Cover, (WH/VHF) 43 X19/A1WL075708 Rear Cover, (800 MHz) 44 NOT USED Casting, (CNF/VHF) 45 X19/A1WL075702 Casting, (S00 MHz) 46 X19/A1WL075702 Casting, (S00 MHz) 47 X19/A2WL07512 Tx/Rx Shield Cover 48 X19/A1WL075702 Casting, CNE Piale 49 X19/A4WL07654 Antenna Switch Housing 51 NOT USED NOT USED 52 NOT USED Secretare 53 NOT USED Captive Screws 54 NOT USED Captive Screws 55 NOT USED Captive Screws 56 K19/A4WL07899 Captive Screws <td></td> <td>10</td>		10
38 X19/A4TL07863 L1-Battery Cover 39 K19/A4TL07864 LCD Sheet 40 X19/A4TL07644 Insulator Sheet 41 K19/A4TL07561 Rear Cover, (WF/VHF) 43 K19/A4TL07561 Rear Cover, (WF/VHF) 43 K19/A1TL07560 Rear Cover, (WF/VHF) 44 NOT USED		10
39 K19/A4WL08445 LCD Sheet 40 K19/A4WL07664 Insulator Sheet 41 K19/A4WL0766708 SPER Mounting Rubber 42 K18/A1WL07560 Rear Cover, (UHF/YHF) 43 K19/A1WL07560 Rear Cover, (BOO MHz) 44 NOT USED		10
40 K19/A4KL07664 Insulator Sheet 41 K19/A4KL0E708 SFKR Muniting Rubber 42 K19/A14KL07501 Rear Cover, (UMF/VHF) 43 K19/A14KL07560 Rear Cover, (B00 MHz) 44 NOT USB		10
41 K19/A4KL08708 SFKR Mounting Rubber 42 K19/A1WL07561 Rear Cover, (UHF/VHF) 43 K19/A1WL07500 Rear Cover, (BOO MH2) 44 NOT USE0		11
42 K19/A1%L07561 Rear Cover, (WHF/YHF) 43 K19/A1%L07560 Rear Cover, (800 MHz) 44 NOT USE0		11
43 K19/A1WL075500 Rear Cover, (800 MHz) 44 NOT USED		11
45 X19/A1WL07570P2 Casting, (UNF/VHF) 46 K19/A1WL07570P1 Casting, (S00 MH2) 47 K19/A2WL07512 Tx/Rx Shield Cover 48 K19/A3WL07509 Receptuale Diate 49 K19/A3WL07564 RF Concector 50 K19/A3WL07654 Antenna Switch Housing 51 NOT USER		11
46 K19/A1WL07570P1 Casting, (S60 MHz) 47 K19/A2WL07512 Tx/Rx Shield Cover 48 K19/A2WL07512 Tx/Rx Shield Cover 48 K19/A3WL07509 Receptacle Diale 49 K19/A3WL07684 Antenna Switch Howsing 50 K19/A3WL07684 Antenna Switch Howsing 51 NOT USED NOT USED 52 NOT USED Screws 53 NOT USED Captive Screws 54 K19/A4WL07499P2 Captive Screws 55 K19/A4WL0749P2 Captive Screws 56 K19/A4WL0789P1 Captive Screws 57 K19/A4WL0789P1 Gastet 59 K19/A4WL0789P Rivets 59 K19/A4WL0789A RF Connector Gastet 60 K19/A4WL0789A RF Connector Gastet 61 K19/A3WL07513 Insulator		11
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49 K19/A4KL08826 RF Connector 50 K19/A4KL07854 Antenna Switch Housing 51 NOT USR0 52 NOT USR0 53 NOT USR0 54 NOT USR0 55 NOT USR0 56 K19/A4WL07499D2 57 K19/A4WL07499D1 58 K19/A4WL07499D1 59 K19/A4WL07499D1 59 K19/A4WL0789A 60 K19/A4WL0783A 60 K19/A4WL0783A 61 K19/A4WL0783A		u
51 K19/A3WL07654 Antenna Switch Housing 51 NOT USEN - 52 NOT USEO - 54 NOT USEO - 55 NOT USEO - 56 NOT USEO - 57 NOT USEO - 58 NOT USEO - 56 K19/A4WL07499P2 Captive Screws 57 K19/A4WL07499P2 Captive Screws 58 K19/A4WL07499P1 Captive Screws 59 K19/A4WL07499 Horsting Gasket 59 K19/A4WL07499 Horsting Gasket 61 K19/A3WL07513 For Onnector Gasket		11
51 NOT USED 52 NOT USED 53 NOT USED 54 NOT USED 55 NOT USED 56 NOT USED 57 K19/A4%L07499P1 58 K19/A4%L07499P1 58 K19/A4%L07499P1 58 K19/A4%L07499P1 59 K19/A4%L07499P1 59 K19/A4%L07499P1 59 K19/A4%L07499P1 59 K19/A4%L07499P1 60 K19/A4%L07499 61 K19/A4%L07499		12
52 NOT USED 53 NOT USED 54 NOT USED 55 NOT USED 56 K19/A4VL07490P1 57 K19/A4VL07490P1 58 K19/A4VL07490P1 58 K19/A4VL07490P1 59 K19/A4VL07694 60 K19/A4VL07830 61 K19/A4VL07830 62 K19/A4VL07830 63 K19/A4VL07830 64 K19/A4VL07830		12
S4 NOT USED 55 NOT USRD 56 K19/A4VL07490P2 Captive Screws 57 K19/A4VL07490P1 Captive Screws 58 K19/A4VL07490P4 S4 K19/A4VL07490P4 S5 K19/A4VL07490P4 S6 K19/A4VL07490P4 S7 K19/A4VL07490P4 S8 K19/A4VL07490P4 S8 K19/A4VL07490P4 S9 K19/A4VL07490P4 S9 K19/A4VL07490P4 S9 K19/A4VL07490P4 S9 K19/A4VL07490P4 S9 K19/A4VL07490P4 S9 K19/A4VL07490P4		12:
S5 NOT USRD 56 K19/A4VL07490P1 Captive Screws 57 K19/A4VL0769P1 Captive Screws 58 K19/A4VL0769P1 Sk K19/A4VL0769P1 Captive Screws 59 K19/A4VL07694 Rivets 60 K19/A4VL07808 FF Connector Gasket 61 K19/A4VL07813		12
56 K19/A4WL07499P2 Captive Screws 57 K19/A4WL07499P1 Captive Screws 58 K19/A4WL07694 Rivets 59 K19/A4WL07894 Rivets 60 K19/A4WL07880 PC connector Gasket 61 K19/A3WL07513 Insulator		12
57 K19/A4%L07499P1 Captive Screws 58 K19/A4%L07694 Rivets 59 K19/A4%L07894 Nousing Gasket 60 K19/A4%L07818 RP Connector Gasket 61 K19/A3%L07513 Insulator		12
58 K19/A4WL07694 Rivets 59 K19/A4WL083B3 Housing Gasket 60 K19/A4WL07840 RF Connector Gasket 61 K19/A3WL07513 Insulator		12
59 K19/A4WL08383 Housing Gasket 60 K19/A4WL07880 RF Connector Gasket 61 K19/A3WL07513 Insulator		12
60 K19/A4WL07880 RF Connector Gasket 61 K19/A3WL07513 Insulator		129
61 K19/A3WL07513 Insulator		130
		13:
		101

SYMBOL	ge part no.	DESCRIPTION
63	K19/A4WL07655	ANT Switch Spring B
64	K19/A4WL07656	ANT Switch Spring A
65	K19/A4WL07727	Shield Plate
56	NOT USED	
67	NOT USED	
68	NOT USED	
69	NOT USED	
70	NOT USED K19/A3WL07897	Controller P.W. Beard
72	K19/A3WL07895	LCD P.W. Board
73	K19/A3WL08505	Signal P.W. Board
74	K19/A3WL08833	LCD-Cont Flex. Circuit
75	K19/A3WL08837	Top Flex. Circuit (SYS)
76	K19/A3WL08834	UCD/PTT Flex. Circuit
77	K19/A3%L08835	SPKR/MIC Flex. Circuit
7B 79	K19/A3WL08593 K19/A3WL08695	Tx/Rx P.W. Board, (UHF) Tx/Rx P.W. Board, (VHF)
80	K19/A3WL08696	Tx/Rx P.W. Board, (800 MHz)
81	NOT USED	
82	K19/A4WL08088	Adhesion Sheet
83	K19/A4WL08409	Rubber Sheet
84	K19/A4WL08385	MIC Film
85 86	NOT USED NOT USED	
86	NOT USED	
88	NOT USED	
89	NOT USED	
90	NOT USED	
91	K19/A4WL08827P1	Flush Head Screw, M2.6 x 3
92	K19/A4WL08828P2	Pan Head Tapping Screw, M2 x 6 Pan Head Screw, M1.7 x 4
93 94	K19/A4WL08827P2 K19/A4WL08827P3	Pan Head Screw, MI.7 x 4 Pan Head Screw with SW, M2 x 4
95	K19/A4WL08828P3	Pan Head Tapping Screw, M2 x 10
96	K19/A4WL08827P4	Pau Head Screw with SW, M2 x 6
97	K19/A4WL08827P6	Pan Head Screw with SW, M2 x 15
98	K19/A4WL08827P6	Pan Head Screw, M2 x 4
99 100	K19/A4WL08828P1	Pan Head Tapping Screw, M2 x 4 Pan Head Screw with SW, M2 x 8
100	K19/A4WL08827P5 K19/A4WL08827P8	Pan Head Screw with SW, M2.6 x 6
102	NOT USED	
103	NOT USED	
104	NOT USED	
105	NOT USED	
108 107	NOT USED NOT USED	
108	NOT USED	
109	K19/A4WL07909	Front Sheet
110	K19/A4WL08437	Window Sheet
111	K19/A4WL08438	STD Rubber Plate
112	K19/A4WL07595	Shield Cover
113 114	K19/A4WL08730 K19/A4WL08494	Mylar Washer VCO Rubber
115	K19/A4WL08628	Base Shield Spring
116	K19/A4WL08629	Contact Lug C
117	K19/A4WL08630	Base Contact
118	X19/A4WL08673	Window Gasket
119	K19/A3WL08672	Base P.W. Board
120 121	K19/A4WL08829	RF Spring A
121	K19/A4WL08830 K19/A4WL08832	RF Spring B RF Spring Plate (800 MHz only)
123	K19/A4WL08495P1	Connector Spacer A
124	K19/A4WL08495P2	Connector Spacer B
125	K19/A4WL08831P1	RF PWB Contact A
126	K19/A4WL08831P2	RF PWB Contact B
127	K19/A4WL08831P3 K19/A4WL08802	RF PWB Contact C
128 129	K19/A4WL08802 K19/A4WL08698	Nylon Washer Tracking Data Label
130	K19/A4WL07663	Power Pack Bracket
131	K19/A4ZL05484	Crystal Protection Tube
132	K19/A4WL08802	Nylon Washer

SYMBOL	GE PART NO.	DESCRIPTION
133	K19/A4WL08710	Yellow Label (For Cont. P/B)
134	K19/A4WL09709	Yellow Label (For Signal P/B)
135	NOT USED	
136	K19/A4WL08848	RF Connector Washer
137	K19/A4WL09711	LCD P/B Washer
138	K19/A4WL09712	LCD P/B Spacer
139	K19/A4WL09046	Cap
140	NOT USED	
141	K19/A4WL09422	Coil Spring
142	K19/A4WL09662	PTT Spacer
2.14	,	
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PARTS LIST

VHF M-PD PERSONAL RADIO RF BOARDS K19/A4WE03739 136-160 MHz RF Board K19/A4WE03740 150-174 MHz RF Board

ISSUE 1

9/2ABD004124 9/2ABD004062 9/2YBA106082 9/2YBA106082 9/2AAB004243 9/2ABC029105 9/200KLR3551 9/200KLR3552 9/200KLR3552 9/200KLR552 9/20AL013112 8/2AAA013112 9/200KLR518 9/200KLR518	
9/2AAJ004062 9/2YBA106062 9/2YBA106082 9/2AAB004243 9/2AB004243 9/2AB004243 9/200KLH3552 9/200KLH3552 9/200KLH2592 8/2AAA013112 8/2AAA013104 9/200KLE8516 9/2EDG00208	Prescaler KC12018L PLL HC145159P1 VCTCKO A4WX01328-2.5 ppm VCTCKO A4WX01328-5 ppm OP AMP UPC12518G Analog Switch UPD40068BG VCO A4WX01391 #4-1 KLM3552, 150-174 MHz VCO A4WX01391 #4-2 KLM3551, 136-160 MHz Gaia Hybrid KLM2592 PA Pack A4WX01422-1H, 150-174 MHz
9/2AAJ004062 9/2YBA106062 9/2YBA106082 9/2AAB004243 9/2AB004243 9/2AB004243 9/200KLH3552 9/200KLH3552 9/200KLH2592 8/2AAA013112 8/2AAA013104 9/200KLE8516 9/2EDG00208	Prescaler KC12018L PLL MC145159P1 VCTCKO A4WX01328-2.5 ppm VCTCKO A4WX01328-5 ppm OP AMP UPC12518G Analog Switch UPD40068BG VCO A4WX01391 #4-1 KLM3552, 150-174 MHz VCO A4WX01391 #4-2 KLM3551, 136-160 KHz Gaia Hybrid KLM2592 PA Pack A4WX01422-1H, 150-174 MHz
9/2AAJ004062 9/2YBA106062 9/2YBA106082 9/2AAB004243 9/2AB004243 9/2AB004243 9/200KLH3552 9/200KLH3552 9/200KLH2592 8/2AAA013112 8/2AAA013104 9/200KLE8516 9/2EDG00208	PLL MC145159P1 VCTCKO A4WX01328-2.5 ppm VCTCKO A4WX01328-5 ppm OP AMP UPC12518G Analog Switch UPD40668G VCO A4WX01391 #4-1 KLM3552, 150-174 MHz VCO A4WX01391 #4-2 KLM3551, 136-160 KHz Gaia Hybrid KLM2592 PA Pack A4WX01422-1H, 150-174 MHz
9/278A108090 9/278A108082 9/2AAB004243 9/2AB004243 9/2AB0039105 9/200KLH3552 9/200KLH3552 9/200KLH2592 9/2AAA013112 8/2AAA0131104 9/200KLH8518 9/2EDG002028	VCTCKO A4WX01328-2.5 ppm VCTCKO A4WX01328-5 ppm OP AMP UPC12518G Analog Switch UPD40668G VCO A4WX01391 #4-1 KLM3552, 150-174 MHz VCO A4WX01391 #4-2 KLM3551, 136-160 MHz Gaia Hybrid KLM2592 PA Pack A4WX01422-1H, 150-174 MHz
9/2YBA106082 9/2AAB004243 9/2AB004243 9/2AB0039105 9/200KLH3551 9/200KLH3552 9/200KLH2592 8/2AAA013112 8/2AAA013114 9/200KLH8516 9/2EDG002028	VCTCKO A4WXO1328-5 ppm OP AMP UPC1251BG Analog Switch UPD4066BG VCO A4WX01391 #4-1 KLM3552, 150-174 MHz VCO A4WX01391 #4-2 KLM3551, 136-160 MHz Gaia Hybrid KLM2592 PA Pack A4WX01422-1H, 150-174 MHz
9/2AAB004243 9/2ABC039105 9/200KLH3551 9/200KLH3552 9/200KLH3552 9/200KLH3552 9/2AAA013112 9/2AAA0131104 9/200KLH8516 9/2EDG002028	OP AMP UPC1251BG Annlog Switch UPD4066BG VCC A4WX01391 #4-1 KLH3552, 150-174 MHz VCC A4WX01391 #4-2 KLH3551, 136-160 MHz Gaia Hybrid KLH2592 PA Pack A4WX01422-1H, 150-174 MHz
9/2ABC039105 9/200KLH3551 9/200KLH3552 9/200KLH3552 9/2AAA013112 9/2AAA013114 9/200KLH8516 9/2EDG002028	Annlog Switch UPD406686 VCO A4WX01391 #4-1 KLH3852, 160-174 MHz VCO A4WX01391 #4-2 KLH3551, 136-160 MHz Gaia Hybrid KLH2592 PA Pack A4WX01422-1H, 180-174 MHz
9/200KLH3551 9/200KLH3552 9/200KLH2592 9/2AAA013112 9/2AAA013104 9/200KLH8516 9/2EDG002028	VCC 44WX01391 #4-1 KLN3852, 160-174 MHz VCC 44WX01391 #4-2 KLN3551, 136-180 MHz Gais Hybrid KLN2592 PA Pack 44WX01422-1H, 180-174 MHz
9/200KLH3552 9/200KLH3592 9/2AAA013112 9/2AAA013104 9/200KLH8516 9/2EDG002028	VCO A4WXO1391 #4-2 KLM3551, 138-180 MHz Gais Hybrid KLM2592 PA Pack A4WX01422-1H, 150-174 MHz
9/200KLH2592 9/2AAA013112 9/2AAA013104 9/200KLH8516 9/2EDG002028	Gain Hybrid KLH2592 PA Pack A4WX01422-1H, 150-174 MHz
9/2AAA013112 9/2AAA013104 9/200KLH8516 9/2EDG002028	PA Pack A4WX01422-1H, 150-174 MHz
9/2AAA013104 9/200KLH8516 9/2EDG002028	
9/200KLH8516 9/2EDG002028	
9/2EDG002028	PWR-Cont KLH8516
	Mixer UST-2L A4WX01376
,	IF HA12442V
	CAPACITORS
9/2CAK009034	Ceramic chip 3 pF ±0.25 pF 50V
9/2CAK009208	Ceramic chip 1000 pF ±10% 50V
9/2CAK009257	Ceramic chip 10 pF ±0.5 pF SOV
9/2CAK009208	Ceramic chip 1990 pF ±10% 50V
9/2CCF004085	Tantalum 1 uF 16V
9/2CAK009208	Ceramic chip 1000 pF ±10% 50V
9/2CAK009216	Ceramic chip 0.01 uF ±10% 50V
9/2CAX009190	Ceramic chip 330 pF ±5% 50V
9/2CAK009216	Ceramic chip 0.01 uF ±10% 50V
9/2CAK009331	Ceramic chip 4700 pF ±10% 50V
9/2CAK009182	Ceramic chip 100 pF ±5% 50V
9/2CBB034121	Electrolytic 22 uF 18V
9/2CAK009218	Ceramic chip 0.01 uF ±10% 50V
9/2CDA055016	MET POLY-PROP Film 0.56 uF 50V
9/2CAK009034	Ceramic chip 3 pF ±0.25 pF 50V
9/2CAR009331	Ceramic chip 4700 pF ±10% 50V
9/2CAK009018	Ceramic chip 1 pF ±0.25 pF 50V
9/2CAX009059	Ceramic chip 5 pF ±0.25 pF 50V
9/2CAK009216	Ceramic chip 0.01 uF ±10% 50V
9/2CAX009208	Ceramic chip 1000 pF ±10% 50V
9/2CAK009125	Ceramic chip 15 pF ±5% 50V
9/2CAK009216	Ceramic chip 0.01 uF <u>+</u> 10% 50V
9/2CCF004086	Tantalum 1 uF 16V
9/2CBB062171	Electrolytic 100 uF 16V
9/2CAK009216	Ceramic chip 0.01 uF ±10% 50V
9/2CAK00920B	Ceramic chip 1000 pF ±10% 50V
9/2CCF004086	Tantalum 1 uF 16V
9/2CAK009216	Ceramic chip 0.01 uF ±10% 50V
	Tantalum 1 uF 16V
9/2007004088	Electrolytic 22 uF 16V
9/2CCF004088 9/2CBB034121	Ceramic chip 1000 pF ±10% 50V
	/2CAK009218 /2CCF004088

SYMBOL	GE PART NO.	DESCRIPTION
C201 and C202	K19/2CAK009208	Ceramic chip 1000 pF ±10% 50V
C203	K19/2CCF004086	Tantalum 1 uF 16V
C205	K19/2CAK009208	Ceramic chip 1000 pF ±10% 50V
C206	K19/2CCB026018	Tantalum 10uF 16V
C207	K19/2CAK009208	Ceramic chip 1000 pF ±10% 50V
and C208		
C209	K19/2CCB026018	Tantalum 10 uF 16V
C210	R19/2CAK009216	Ceramic chip 0.01 uF ±10% 50V
C211	K19/2CAK009208	Ceramic chip 1000 pF ±10% 50%
C212	K19/2CAK009141	Ceramic chip 22 pF ±5% 50V
C213	K19/2CAK009109	Ceramic chip 12 pF ±5% 50V
C214 and C215	K19/2CAK009372	Ceramic chip 27 pF $\pm 5\%$ 50%
C216	K19/2CAK009109	Ceramic chip 12 pF ±5% 50V
C217	K19/2CAK009208	Ceramic chip 1000 pF ±10% 50V
C219	K19/2CAK009141	Ceramic chip 22 pF ±5% 50V
C220 and C221	K19/2CAK009208	Ceramic chip 1000 pF <u>+</u> 10% 50v
C222	K19/2CAK009398	Ceramic chip 11 pF ±5% 50V
C223	K19/2CAK009281	Ceramic chip 6 pF ±0.5 pF 50V
C224	K19/2CAK009398	Ceramic chip 11 pF ±5% 50V
C228	K19/2CCF004086	Taotalum 1 uF 16V
C301	K19/2CAK009208	Ceramic chip 1000 pF ±10% 50V
C302	K19/2CCF004086	Tantalum 1 uF 16V
C303	K19/2CAK009182	Ceramic chip 100 pP ±5% 50V
C304	K19/2CAK009307	Ceramic chip 8 pF ±0.5 pP 50V
C305	K19/2CAK009281	Ceramic chip 6 pP ±0.5 pF 50V
C306	K19/2CAR009158	Ceramic chip 33 pF ±5% 50V
C308	K19/2CAK009109	Ceramic objp 12 pF ± 57550
C309 C310	K19/2CAK009034 K19/2CAK009216	Ceramic chip 3 pF ± 0.25 pF 50V Ceramic chip 0.01 uF $\pm 10\%$ 50V
C311	K19/2CAK009216	Ceramic chip 0.01 uF ±10% 50V
C312	K19/2CAK009109	Ceramic chip 12 pF $\pm 5\%$ 50V
C313	K19/2CAK009034	Ceramic chip 3 pF ±0.25 pF 50Y
C314	K19/2CAK009216	Ceramic chip 0.01 uF ±10% 50V
and C315		•
C316	K19/2CAK009125	Ceramic chip 15 pF ±5% 50V
C317 and	K19/2CCF004086	Tantalum I uF 16V
C318		
C319	K19/2CAK009190	Ceramic chip 330 pF ±5% 50V
C320	K19/2CAK009166	Ceramic chip 47 pF ±5% 50V
C321	K19/2CAK009208	Ceramic chip 1000 pF ±10% 50V
C322	K19/2CCF004086	Tantalum 1 uF 164
C323	K19/2CAK009109	Ceramic chip 12 pF ±5% 50V
C324	K19/2CAK009257	Ceramic chip 10 pF ±0.5 pF 50V
C325	K19/2CAK009125	Ceramic chip 15 pF ±5% 50V Ceramic chip 2 pF ±0.25 pF 50V
C326	K19/2CAK009026	-
C330 C331	K19/2CCF004086 K19/2CAK009158	Taptalum 1 uF $16V$
C331	K19/2CAK009158	Ceramic chip 33 pF $\pm 5\%$ 50V Ceramic chip 0.01 uF $\pm 10\%$ 50V
C333	K19/2CAK009182	Ceramic chip 100 pF $\pm 5\%$ 50V
thru C336		
C337 and C338	K19/2CAK009208	Ceramic chip 1000 pF <u>+</u> 10% 50V
C339	K19/2CAK009182	Ceramic chip 100 pF ±5% 50V
C340	K19/2CAK009257	Ceramic chip 10 pF ±0.5 pF 50V

SYMBOL	GE PART NO.	DESCRIPTION
C341 and C342	K19/2CCF004086	Tantalum I uF 16V
C343	K19/2CAR009208	Ceramic chip 1000 pF $\pm 10\%$ 50V
CR201 and CR202	K19/2QBA012024	MA57
CH301 and CH302	K19/2QBA006166	1 82075 K
FL301	K19/2FBD001471	A3FX01829 #1, 136-160 MHz
	K19/2FBD001489	A3FX01829 #2, 150-174 MHz
FL302	K19/2F8D001471	A3FX01829 #1, 136-160 MHz
	K19/2F8D001489	A3FX01829 #2, 150-174 MHz
FL303	K19/2FAA103041	A4WX01306
FL304	K19/2FAA103058	A4WX01307
FL305	K19/2FAD001242	CFX455E
		JACKS
J101	K19/2PDA023036	69775-005
J102	K19/2PDA023044	69775-011
		COILS
I,101	K19/2LAA001149	FL3HR68M
L104	K19/2EDE001014	A4WX01364
L105	K19/2LAD001112	NL322522T-068M
L201	K19/2LAA001743	LAL02KRB47M
L202	K19/2LAB014943	A4WX01369-4.5t
L203	K19/2LAB014935	A4WX01340-39nH
L204	K19/2LAB014943	A4WX01369
L205	K19/2LAB014935	A4WX01340
L206	K19/2LAA001743	LAL02KRR47M
L301	K19/2LAD001070	NL322522T-R10M
L302	K19/2EDE001014	A4WX01364
L303	K19/27,AB024140	A4FX01878 #5
L305 and L306	K19/2LAD001062	MLP3216D1ROK
L307	K19/2LAD001021	MLF3216DR68K
		TRANSISTORS
Q101	K19/2QAD004020	28C3356R22
Q102	K19/2QAD004087	2886248V3
Q103 thru Q105	K19/2QAD004046	28D596DV3
Q106	K19/2QAD001133	28C2620QC
Q201	K19/2QAD004053	28D999
Q202	K19/2QA9015077	28B1169
Q301 thru Q303	K19/2QAD004020	28C3356R22
		RESISTORS
R104-1 and R104-2	K19/2RGC003110	Square chip 1/16¥ 1% ohms ±5%
R105	K19/2RGC003383	Square chip 1/16W 47 chms <u>+</u> 5%
R106	K19/28GC003243	Square chip 1/16W 150K chms ±5%
R107	K19/2RGC003060	Square chip 1/16W 220 ohms ±5%
R108 and R109	K19/2RGC003227	Square chip 1/16W 100K chms <u>+</u> 5%
1100		

SYMBOL	GE PART NO.	DESCRIPTION
R111 and R112	K19/2RGC003177	Square chip 1/16% 10K ohms <u>+</u> 5%
R113	K19/2RGC003278	Square chip 1/18¥ 470K ohms ±5%
R115	K19/2RGC003185	Square chip 1/16W 15K obms ±5%
R116	K19/2RFB003253	Variable GP04W 10K ohms
and R117		
R118 thru R120	K19/2RGC003219	Square chip 1/16W 47K ohms <u>+</u> 5%
R120	K19/2RGC003409	Square chip 1/16% 68K ohms ±5%
R123	K19/2RGC003219	Square chip 1/16% 47K ohns ±5%
and R124	,	
R125	K19/2RGC003151	Square chip 1/16¥ 4.7K ohms ±5%
R126	K19/2RGC003110	Square chip 1/16W 1K ohms ±5%
R127 and R128	K19/2RGC003219	Square chip 1/16W 47% ohms ±5%
R129	K19/2RGC003383	Square chip 1/16¥ 4.7 chms ±5%
R130	K19/2RGC003045	Square chip 1/16W 150 ohms ±5%
R132	K19/2RGC003045	Square chip 1/16W 150 ohms ±5%
R134	K19/2RGC003110	Square chip 1/16W 1K ohms ±5%
R201	K19/2RGC003326	Square chip 1/16W 10 ohms ±5%
E202 and E203	K19/2RGC003094	Square chip $1/16W$ 470 ohms $\pm 5\%$
R204 and R205	K19/2RGC003334	Square chlp 1/16W 22 ohms ±5%
R206 and R207	K19/2R6C003094	Square chip 1/16W 470 ohms ±5%
R208	K19/2RGC003037	Square chip 1/16W 100 ohms ±5%
R209	K19/2RGC003342	Square chip $1/16\%$ 47 ohns $+5\%$
R210	K19/2RFB003253	Variable GF04W 10K ohms
R301	K19/2RGC003060	Square chip 1/16# 220 ohms ±5%
R302	K19/2RGC003243	Square chip $1/16$ 150K ohms ± 5 %
and R303		
R305	K19/2RGC003045	Square chip 1/16% 150 ohms ±5%
R306	K19/2RGC003177	Square chip 1/16W LOK ohms ±5%
R307	£19/2RGC003243	Square chip 1/16W 150K ohms ±5%
R308	K19/2RGC003045	Square chip 1/16W 150 ohms ±5%
R310	K19/2RGC003144	Square chip 1/16W 3.3K ohms ±5%
R311	K19/2RGC003201	Square chip 1/16W 33K ohms ±5%
R312	K19/2RGC003177	Square chip 1/16W 10K ohms ±5%
R313	K19/2R0C003094	Square chip 1/16W 470 ohms ±5%
R315	K19/2RGC003342	Square chip 1/16W 47 ohms ±5%
R321	K19/2RFB003261	Variable GF04W 100K ohms
R322	K19/2RGC003193	Square chip 1/16W 22K ohms <u>*</u> 5%
		TRANSFORMERS
T301 and	K19/2LAB014893	A4WX01333
T302		
T 303	X19/2LAB014901	A4WX01334
T304	K19/2LAB014919	A4WX01335
TH301	K19/2QBD016139	NTCDS30183HG103HC
		CRYSTALS
¥901	K19/27AA181657	44.545 MHz A4#X01304
		ANTENNA SWITCH
\$101	K19/2A3WL07654	VHF Antenna

PARTS	LIST

M-PD CONTROLLER BOARD

A4WE04023-B ISSUE 1

SYMBOL	GE PART NO.	DESCRIPTION
		INTEGRATED CIRCUITS
A1	K19/2ADA004313	Micro Processor HD63705VOCP
A2	K19/2CAA017382	RAM TC5517AFL-2
A3	K19/86041901A0	Audio Processor STC9140F
A4	K19/2AAJ010036	NJM2073D
A5	K19/2ABD025012	uPD74HC04G-T1
AB	K19/2AAB004250	uPC45162-T1
A7	K19/2AAB004243	uPC1251G2-T1
AB	X19/2AAB004250	uPC45162-T1
A 9	K19/2AAZ001060	LM385Z-2.5
		LITHIUM BATTERY
811	K19/5PBA004058	BR425
011	KI975PBR004058	BR460
		CAPACITORS
Cl thru	K19/2CAK011253	Ceramic chip 100 pF 50 WV
C11		
C12 and C13	K19/2CAR005511	Ceramic chip 0.1 uF 25 WY
C14	K19/2CAK09265	Ceramic chip 220 pF 50 WV
and C15		
C16 and C17	K19/2CAK005511	Ceramic chip 0.1 uf 25 WV
C18	K19/2CAK009265	Caramic chip 220 pF 50 WV
thru C25		
C26	K19/2CAK005511	Ceramic chip 0.1 uP 25 WV
C27	K19/2CAK011253	Ceramic chip 100 pF 50 WV
thru C38	,	
C39 and C40	K19/2CAK011188	Ceramic chip 0.01 uF 50 WV
C41	K19/2CAK005511	Ceramic chip 0.1 uF 25 WV
C42	K19/9CAK011188	Ceramic chip 0.01 uf 50 WV
C43	R19/2CCF004102	Tantalum 1 uF 15 WV
C44	K19/2CCF004185	Tantaluz 0.22 uF 50 WV
C45	K19/2CAK011188	Ceramic chip 0.01 uF 50 WV
C46	K19/2CCP004102	Tantalum 1 uF 15 WV
and C47		
C48	K19/2CAK011253	Ceramic chip 100 pF 50 WV
C48 C49	K19/2CAK011233	Ceramic chip 100 pr 50 WV
C50	K19/2CAR005511	Ceramic chip 0.1 uF 25 WV
C51	K19/2CCF004102	Ceramic Chip 0.1 ur 25 WV Tentalum 1 uF 15 WV
C52	K19/2CAK01118B	Ceramic chip 0.01 uF 50 WV
C52	K19/2CAK011261	Ceramic chip 0.01 ur 50 WV
C54	K19/2CAK011251	Ceramic chip 15 pr 50 WV
C55	K19/2CAK011055	Ceramic chip 2 pf 50 WV
C56		
thru	K19/2CCF004102	Tantalum 1 uF 15 WV
C58		
COMPONE	ENTS ADDED, DEL	LETED OR CHANGED BY PRODUCTION CHANGES

CS9 MAG K19/2CAK011360 Ceramic chip 3300 pP 50 WV C61 K19/2CAK011205 Ceramic chip 0.01 uF 50 WV C62 K19/2CAK011205 Ceramic chip 0.01 uF 50 WV C63 K19/2CAK001225 Ceramic chip 0.01 uF 25 WV C64 K19/2CAK01186 Ceramic chip 0.1 uF 25 WV C65 K19/2CCF006024 Tantalum 6.8 uF 10 WV C68 K19/2CCF006024 Tantalum 1 uF 15 WV C69 K19/2CCF006024 Tantalum 1 uF 15 WV C70 K19/2CCF00402 Tantalum 1 uF 15 WV C71 K19/2CCF004102 Tantalum 1 uF 15 WV C72 K19/2CCF004102 Tantalum 1 uF 15 WV C73 K19/2CCF004102 Tantalum 1 uF 15 WV C74 K19/2CCF004102 Tantalum 1 uF 15 WV C75 K19/2CCF004102 Tantalum 1 uF 15 WV C78 K19/2CCF004102 Tantalum 1 uF 15 WV C79 K19/2CF004102 Tantalum 1 uF 15 WV C78 K19/2QE005032 DA204KT-96 C81 K19/2QE005032 DA204KT-96 C82 K19/2QAD00133	
C61 X19/2CAK011185 Ceramic chip 0.01 uF 50 WY C62 K19/2CAK011295 Ceramic chip 0.015 uF 50 WY C63 K19/2CAK005511 Ceramic chip 0.01 uF 25 WY C64 K19/2CCF006024 Tantalum 6.8 uF 10 WY C68 K19/2CCF006024 Tantalum 6.8 uF 10 WY C68 K19/2CCF006024 Tantalum 6.8 uF 10 WY C68 K19/2CCF006024 Tantalum 1 uF 15 W C68 K19/2CCF006024 Tantalum 1 uF 15 W C697 K19/2CAK011185 Ceramic chip 0.01 uF 50 WY C71 K19/2CAK011295 Ceramic chip 0.1 uF 25 WY C72 K19/2CAK011295 Ceramic chip 0.01 uF 25 WY C73 K19/2CAK011295 Ceramic chip 0.01 uF 25 WY C74 X19/2CAK011295 Ceramic chip 1000 pF 50 WY C75 K19/2CAK011295 Ceramic chip 1000 pF 50 WY C76 K19/2CP004102 Tantalum 1 uF 15 W C77 K19/2CAK011295 Ceramic chip 1000 pF 50 WY C78 K19/2QE0005032 DA204KT-96 C82 X19/2QBE005032 DA204KT-96 C84 <td></td>	
C62 K19/2CAK011295 Coramic chip 0.015 uF 50 WV C63 K19/2CAK005511 Ceramic chip 0.1 uF 25 WV C65 K19/2CAK005511 Ceramic chip 0.01 uF 50 WV C66 K19/2CAK011385 Ceramic chip 0.01 uF 50 WV C68 K19/2CCF006024 Tantalum 6.8 uF 10 WV C68 K19/2CCF006024 Tantalum 1 uF 15 WV C69 X19/2CCF004103 Tantalum 1 uF 15 WV C71 K19/2CAK011385 Ceramic chip 0.01 uF 50 WV C72 K19/2CAK05511 Ceramic chip 0.01 uF 50 WV C73 K19/2CAK011285 Ceramic chip 0.01 uF 25 WV C74 X19/2CAK011285 Ceramic chip 0.01 uF 25 WV C74 X19/2CAK011285 Ceramic chip 1000 pF 30 WV C75 K19/2CAJ023037 Ceramic chip 330 pF 50 WV C76 K19/2QBE005032 DA204KT-96 CR1 K19/2QBE005032 DA204KT-96 CR2 X19/2QBE005032 DA204KT-96 CR3 K19/2QBE005032 DA204KT-96 CR4 K19/2QAD004095 PPP, 2S862471BW3 C78 K19/2QAD0	
C63 end C64 X18/20XR005511 Coramic chip 0.1 uF 25 WV C65 X19/20CF006024 Tantalum 6.8 uF 10 WV C68 X19/20CF006024 Tantalum 6.8 uF 10 WV C68 X19/20CF006024 Tantalum 1 uF 15 WV C69 X19/20CF006024 Tantalum 1 uF 15 WV C71 X19/20CF004024 Tantalum 1 uF 15 WV C72 X19/20CF004024 Tantalum 1 uF 15 WV C73 X19/20CR00556 Coramic chip 0.01 uF 50 WV C74 X19/20CR00551 Ceramic chip 0.1 uF 25 WV C74 X19/20CR00102 Tantalum 1 uF 15 WV C74 X19/20CR00102 Tantalum 1 uF 15 WV C75 X19/20CR00102 Tantalum 1 uF 15 WV C76 X19/20CR005032 DAN202KT-96 C77 X19/20E005032 DA204KT-96 C78 X19/20E0005032 DA204KT-96	
C65 X19/2CCF006024 Tatalum 6.8 uF 10 WV C66 c07 K19/2CAK011188 Ceramic chip 0.01 uF 50 WV C68 K19/2CCF006024 Tatalum 1 uF 15 WV C69 K19/2CCF006024 Tatalum 1 uF 15 WV C70 K19/2CCF004102 Tatalum 1 uF 15 WV C71 K19/2CAK011188 Ceramic chip 0.01 uF 50 WV C72 K19/2CAK005511 Ceramic chip 0.01 uF 50 WV C73 K19/2CAK00551 Ceramic chip 0.01 uF 50 WV C74 X19/2CAK011295 Ceramic chip 0.01 uF 50 WV C75 K19/2CAK011295 Ceramic chip 1000 pF 50 WV C76 K19/2CAK01196 Ceramic chip 300 pF 50 WV C77 K19/2CAK011295 Ceramic chip 300 pF 50 WV C78 K19/2CF004102 Tatalum 1 uF 15 WV C79 K19/2CAK01138 DAN202KT-96 C81 K19/2QBE005127 155154 C84 K19/2QBE005032 DA204KT-96 C88 K19/2QAD0005032 DA204KT-96 C89 K19/2QAD0005032 DA204KT-96 C79 K19/2QAD0005032 DA	
C66 end end C67 K19/2CAK011188 Ceramic chip 0.01 uF 50 WV C68 K19/2CCF006024 Tantalum 1 uF 15 WV C70 K19/2CCK005086 Ceramic chip 0.01 uF 50 WV C71 K19/2CAK011188 Ceramic chip 0.047 uF 50 WV C72 K19/2CAK005586 Ceramic chip 0.047 uF 50 WV C73 K19/2CAK005586 Ceramic chip 0.01 uF 25 WV C74 X19/2CCF004102 Tantalum 1 uF 15 WV C74 K19/2CCF004102 Tantalum 1 uF 15 WV C76 K19/2CCF004102 Tantalum 1 uF 15 WV C77 K19/2CCF004102 Tantalum 1 uF 15 WV C77 K19/2CCF004102 Tantalum 1 uF 15 WV C78 K19/2CCF004102 Tantalum 1 uF 15 WV C79 K19/2CAB005032 DA204KT-96 CR2 K19/2QEB005032 DA204KT-96 CR3 K19/2QBE005032 DA204KT-96 CR4 K19/2QBE005032 DA204KT-96 CR9 X19/2QBE005032 DA204KT-96 C80 K19/2QAD001034 NPN, 23C2402QCTL Q1 K19/2QAD001034 NPN, 23C	
C68 K19/2CCF006034 Tantalum 6.8 uP 10 WV C69 and C70 K19/2CCF004102 Tantalum 1 uP 15 WV C71 K19/2CAK011188 Ceramic chip 0.047 uP 50 WV C73 K19/2CAK005586 Ceramic chip 0.1 uP 25 WV C73 K19/2CAK011295 Ceramic chip 0.015 uP 25 WV C74 K19/2CAK011295 Ceramic chip 0.015 uP 25 WV C75 K19/2CCF004102 Tantalum 1 uP 15 WV C76 K19/2CCF004102 Tantalum 1 uF 15 WV C77 K19/2CAK011196 Ceramic chip 300 pF 50 WV C77 K19/2CA023037 Ceramic chip 330 pF 50 WV C78 K19/2Q88005016 DAX202KT-96 C79 K19/2Q88005032 DA204KT-96 C79 K19/2Q8005032 DA204KT-96 C79 K19/2Q4000133 NPN, 28C24620CTL C80 K19/2QA0000405 PNP, 288624T189V3	
and c70 K19/2CAK011188 Ceramic chip 0.01 uF 50 WV C71 K19/2CAK005586 Ceramic chip 0.047 uF 50 WV C73 K19/2CAK005511 Ceramic chip 0.015 uF 25 WV C74 X19/2CAK011295 Ceramic chip 0.015 uF 25 WV C74 K19/2CAK011295 Ceramic chip 0.015 uF 25 WV C75 K19/2CCF004102 Tantalum 1 uF 15 WV C76 K19/2CCF004102 Tantalum 1 uF 15 WV C77 K19/2CAK011196 Ceramic chip 300 pF 50 WV C77 K19/2CAG020037 Coramic chip 330 pF 50 WV C78 K19/2Q8E005018 DA202KT-96 C82 K19/2Q8E005032 DA204KT-96 C83 K19/2Q8E005032 DA204KT-96 C89 X19/2Q8E005032 DA204KT-96 C89 K19/2Q8E005032 DA204KT-96 C91 K19/2QAD00133 NPN, 2SC2462CTL Q2 K19/2QAD000133 NPN, 2SC2462LCTL Q3 K19/2QAD0000495 PNP, 2SB624T1BPV3 Q4 K19/2QAD001034 NPN, 2SC2462LCTL Q6 K19/2QAD001034 NPN, 2SC2462LC	
G71 K19/2CAK011188 Ceramic chip 0.01 uF 50 WV G73 K19/2CAK005586 Ceramic chip 0.047 uF 50 WV G73 K19/2CAK005511 Ceramic chip 0.1 uF 25 WV G74 K19/2CAK011295 Ceramic chip 0.015 uF 25 WV G74 K19/2CCF004102 Tantalum 1 uF 15 WV G76 K19/2CCF004102 Tantalum 1 uF 15 WV G77 K19/2CCF004102 Tantalum 1 uF 15 WV G78 K19/2CCF004102 Tantalum 1 uF 15 WV G79 K19/2CF004102 Tantalum 1 uF 15 WV G79 K19/2CF004102 Tantalum 1 uF 15 WV G79 K19/2Q8005015 DAN202KT-96 G71 K19/2Q8005032 DA204KT-96 G78 K19/2Q8005032 DA204KT-96 G78 K19/2Q8005032 DA204KT-96 G78 K19/2Q8005032 DA204KT-96 G79 K19/2Q8005032 DA204KT-96 G79 K19/2Q8000133 NPN, 2SC2462CTL G79 K19/2QA000133 NPN, 2SC2462CTL Q1 K19/2QA0001034 NPN, 2SC2462LCTL <t< td=""><td></td></t<>	
C72 K19/2CAK005586 Ceramic chip 0.047 uF 50 WV C73 K19/2CAK011295 Ceramic chip 0.1 uF 25 WV C74 X19/2CAK011295 Ceramic chip 0.015 uF 25 WV C75 K19/2CAK011295 Ceramic chip 0.015 uF 25 WV C77 K19/2CAK011196 Ceramic chip 1000 pF 50 WV C78 K19/2CAK011295 Ceramic chip 330 pF 50 WV C79 K19/2CAK01120 Tantalum 1 uF 15 WV C79 K19/2CAK00102 Tantalum 1 uF 15 WV C79 K19/2CAK00112 Tantalum 1 uF 15 WV C79 K19/2QBE005012 Ceramic chip 330 pF 50 WV C71 K19/2QBE005032 DA204KT-96 C78 K19/2QBE005032 DA204KT-96 C78 K19/2QBE005032 DA204KT-96 C78 K19/2QBE005032 DA204KT-96 C79 K19/2QBE005032 DA204KT-96 C79 K19/2QBE005032 DA204KT-96 C79 K19/2QA000133 FPN, 2SC2402CTL Q1 K19/2QAD00134 PNP, 2SC2402CTL Q2 K19/2QAD0001034 PNP, 2SB624T1BBV3	
C73 K19/2CAK005511 Ceramic chip 0.1 uP 25 WV C74 K19/2CAK011295 Ceramic chip 0.015 uP 25 WV C75 K19/2CAK011295 Tantalum 1 uP 15 WV C77 K19/2CAK011196 Ceramic chip 1000 pF 50 WV C78 K19/2CCA004102 Tantalum 1 uP 15 WV C79 K19/2CAX023037 Coramic chip 330 pF 50 WV C79 K19/2Q85005016 DAN204KT-96 CR2 K19/2Q85005022 DA204KT-96 CR3 K19/2Q85005032 DA204KT-96 CR4 K19/2Q85005032 DA204KT-96 CR9 K19/2Q85005032 DA204KT-96 C1 K19/2Q85005032 DA204KT-96 C1 K19/2Q85005032 DA204KT-96 C28 K19/2Q85005032 DA204KT-96 C1 K19/2QA000133 NPN, 2SC24020CTL Q1 K19/2QAD0001034 NPN, 2SC24020CTL Q2 K19/2QAD001034 <	
C74 X19/2CAK011295 Ceramic chip 0.015 UP 25 WV C75 and C76 K19/2CCF004102 Tantalum 1 UF 15 WV C77 K19/2CAK011196 Ceramic chip 1000 pF 50 WV C78 K19/2CAK01202 Tantalum 1 uF 15 WV C79 K19/2CAK01196 Ceramic chip 330 pF 50 WV C79 K19/2QBE005015 DAN202KT-96 CR1 K19/2QBE005032 DA204KT-96 CR3 K19/2QBE005032 DA204KT-96 CR4 X19/2QBE005032 DA204KT-96 CR9 K19/2QBE005032 DA204KT-96 CR9 K19/2QAD00133 NPN, 2SC2020CTL Q1 K19/2QAD001034 NPN, 2SC2462LCTL Q2 K19/2QAD001034	
C75 and C76 K19/2CCF004102 Tantalum 1 uP 15 VV C77 K19/2CAX011196 Ceramic chip 1000 pF 50 VV C78 K19/2CCF004102 Tantalum 1 uF 15 VV C79 K19/2CAX011196 Ceramic chip 1300 pF 50 VV C79 K19/2CAX023037 Ceramic chip 330 pF 50 VV C79 K19/2QBE005032 DA204KT-96 CR2 K19/2QBE005032 DA204KT-96 CR3 K19/2QBE005032 DA204KT-96 CR9 K19/2QAD00133 NPN, 2SC2402QCTL Q2 K19/2QAD004095 PNP, 2SB624T1BP3 Q3 K19/2QAD0004095	
C76 K19/2CAK011196 Ceramic chip 1000 pF 50 WV C77 K19/2CA0023037 Coramic chip 330 pF 50 WV C79 K19/2CA0023037 Coramic chip 330 pF 50 WV C79 K19/2QBE005013 DAN202KT-96 CR1 K19/2QBE005012 DA204KT-96 CR2 K19/2QBE005032 DA204KT-96 CR4 K19/2QBE005032 DA204KT-96 CR8 K19/2QBE005032 DA204KT-96 CR9 K19/2QBE005032 DA204KT-96 C1 K19/2QAD00133 NPN, 2SC24620CTL Q2 K19/2QAD004095 PNP, 2SB624T1BBV3 Q3 K19/2QAD001034 NPN, 2SC2462LCTL Q4 X19/2QAD001034 NPN, 2SC2462LCTL Q5 K19/2QAD001034 NPN, 2SC2462LCTL Q6 K19/2QAD001034 <td< td=""><td></td></td<>	
C78 K19/2CCF004102 Tentalum 1 uF 15 VV C79 K19/2CAJ023037 Ceramic chip 330 pF 50 WV	
C79 K19/2CAJ023037 Ceramic chip 330 pF 50 WV CR1 K19/2Q8E003016 DAN202KT-96 CR2 K19/2Q8E005032 DA204KT-96 CR3 K19/2Q8E005032 DA204KT-96 CR4 K19/2Q8E005032 DA204KT-96 CR9 K19/2Q8E005032 DA204KT-96 C1 K19/2QA003103 65646-205 P102 K19/2QA000133 NPN, 28C2620QCTL Q2 K19/2QA0004095 PNP, 28B24T1BBV3 Q3 K19/2QA0001034 NPN, 28C2462LCTL Q4 K19/2QA0001034 NPN, 28C2462LCTL Q4 K19/2QA0001034 NPN, 28C2462LCTL Q4 K19/2QA0001034 NPN, 28C2462LCTL <	
CR1 K19/2QBE005016 DAN202KT-96 CR2 X19/2QBE005032 DA204KT-96 CR3 K19/2QBE005032 DA204KT-96 CR4 X19/2QBE005032 DA204KT-96 CR9 X19/2QBE005032 DA204KT-96 CR9 X19/2QBE005032 DA204KT-96 CR9 X19/2QBE005032 DA204KT-96 P101 K19/2QBE005032 DA204KT-96 CR9 X19/2QBE005032 DA204KT-96 C10 K19/2QA00133 NPN, 2SC24620CTL Q2 K19/2QAD001034 NPN, 2SC2462LCTL Q3 K19/2QAD001034 NPN, 2SC2462LCTL Q4 X19/2QAD001034 NPN, 2SC2462LCTL Q5 K19/2QAD001034 NPN, 2SC2462LCTL <	
CR1 K19/2Q85005016 DAN202KT-96 CR2 K19/2Q85005032 DA204KT-96 CR3 K19/2Q85005032 DAN204KT-96 CR9 X19/2Q85005032 DA204KT-96 CR9 X19/2Q85005032 DA204KT-96 CR9 X19/2Q85005032 DA204KT-96 P101 K19/2Q85005032 DA204KT-96 P102 K19/2QB2005033 55646-305 P102 K19/2PDA023093 55646-211 P102 K19/2QA000133 NPN, 2SC2d20QCTL Q2 K19/2QAD00133 NPN, 2SC2d20QCTL Q3 K19/2QAD004095 PNP, 2SB624T1BBV3 Q4 K19/2QAD001034 NPN, 2SC2462LCTL Q6 K19/2QAD001034 NPN, 2SC2462LCTL Q1 K19/2QAD001034 NPN, 2SC2463LCTL Q1 K19/2QAD001034 NPN, 2SC2463LCTL<	
CR2 X19/2Q8E005032 DA204KT-96 CR3 K19/2Q8E005127 155154 CR4 X19/2Q8E005032 DA204KT-96 CR9 X19/2Q8E005032 DA204KT-96 P101 K19/2Q8E005032 DA204KT-96 P102 K19/2QB00133 S5646-305 P103 K19/2QA000133 NPN, 2SC2402QCTL Q2 K19/2QA0001034 NPN, 2SC2462LCTL Q3 K19/2QA0001034 NPN, 2SC2462LCTL Q4 K19/2QA0001034 NPN, 2SC2462LCTL Q4 K19/2QA0001034 NPN, 2SC2462LCTL Q6 K19/2QA0001034 NPN, 2SC2462LCTL Q10 K19/2QA0001034 NPN, 2SC2463LCTL	
CR3 K19/2QB5005127 155154 CR4 thru CR9 K19/2QB8005032 DA204KT-96 CR9 K19/2QB8005032 DA204KT-96	
CR4 thru X19/2QBE005032 DAN204KT-96 CR9 X19/2QBE005032 DA204KT-96	
thru K19/2QBE005032 DA204KT-96 CR9 K19/2QBE005032 DA204KT-96 F101 K19/2DDA023093 55846-205 P102 K19/2DDA023101 65646-211 CR9 K19/2QA0001133 NPN, 2SC202QCTL Q1 K19/2QA0004095 PNP, 2SB624T1B8V3 Q3 K19/2QA0001034 NPN, 2SC2462LCTL Q4 X19/2QA0001034 NPN, 2SC2462LCTL Q6 K19/2QA0001034 NPN, 2SC2462LCTL Q6 K19/2QA0001034 NPN, 2SC2462LCTL Q6 K19/2QA0001034 NPN, 2SC2462LCTL Q6 K19/2QA0001034 NPN, 2SC2462LCTL Q7 K19/2QAD001034 NPN, 2SC2462LCTL Q8 K19/2QAD001034 NPN, 2SC2462LCTL Q9 K19/2QAD001034 NPN, 2SC2462LCTL Q11 K19/2QAD001034 NPN, 2SC2462LCTL Q12 K19/2QAD001034 NPN, 2SC2462LCTL Q13 K19/2QAD001034 NPN, 2SC2462LCTL Q14 K19/2QAD001034 NPN, 2SC2462LCTL Q13 K19/2QAD001034	
P101 K19/2PDA023093 655846-205 P102 K19/2PDA023101 65646-211	
P101 K19/2PDA023083 95846-205 P102 K19/2PDA023101 65646-211 Image: Ima	
P102 X19/2PDA023101 65646-211 01 K19/2QAD004035 NPN, 2SC2d20QCTL 02 K19/2QAD004095 PNP, 2SB624T1BBV3 03 K19/2QAD004095 PNP, 2SB624T1BBV3 04 X19/2QAD004095 PNP, 2SB624T1BBV3 05 K16/2QAD001034 NPN, 2SC2462LCTL 06 K19/2QAD004095 PNP, 2SB624T1BBV3 07 K19/2QAD004095 PNP, 2SB624T1BBV3 08 X19/2QAD004095 PNP, 2SB624T1BBV3 09 K19/2QAD004095 PNP, 2SB624T1BBV3 09 K19/2QAD004095 PNP, 2SB624T1BBV3 01 K19/2QAD004095 PNP, 2SB624T1BBV3 011 K19/2QAD004095 PNP, 2SB624T1BBV3 012 K19/2QAD004095 PNP, 2SB624T1BBV3 013 K19/2QAD004095 PNP, 2SB624T1BBV3	
Q1 K19/2QAD001133 NPN, 2SC2d20QCTL Q2 K19/2QAD004095 PNP, 2SB624T1BBV3 Q3 K19/2QAD004095 PNP, 2SB624T1BBV3 Q4 NPN, 2SC2462LCTL Q5 K19/2QAD001034 PNP, 2SB624T1BBV3 Q6 K19/2QAD004095 PNP, 2SB624T1BBV3 Q7 K19/2QAD004095 PNP, 2SB624T1BBV3 Q7 K19/2QAD004095 PNP, 2SB624T1BBV3 Q7 K19/2QAD004095 PNP, 2SB624T1BBV3 Q7 K19/2QAD004095 PNP, 2SB624T1BBV3 Q9 K19/2QAD004095 PNP, 2SB624T1BBV3 Q10 K19/2QAD004095 PNP, 2SB624T1BBV3 Q11 K19/2QAD004095 PNP, 2SB624T1BBV3 Q12 K19/2QAD004095 PNP, 2SB624T1BBV3 Q13 K19/2QAD004095 PNP, 2SB624T1BBV3	
Q1 K19/2QAD001133 NPN, 2SC2d2QQCTL Q2 K19/2QAD004095 PNP, 2SB624T1BBV3 Q3 K19/2QAD004103 PNP, 2SB798T1DL Q5 K19/2QAD001034 NPN, 2SC2462LCTL Q6 K19/2QAD004095 PNP, 2SB24T1BBV3 Q7 K19/2QAD001034 NPN, 2SC2462LCTL Q8 K19/2QAD001034 NPN, 2SC2462LCTL Q8 K19/2QAD001034 NPN, 2SC2462LCTL Q9 K19/2QAD001034 NPN, 2SC2462LCTL Q10 K19/2QAD001034 NPN, 2SC2462LCTL Q11 K19/2QAD001034 NPN, 2SC2462LCTL Q12 K19/2QAD001034 NPN, 2SC2462LCTL Q13 K19/2QAD001034 NPN, 2SC2462LCTL Q14 K19/2QAD001034 NPN, 2SC2462LCTL Q13 K19/2QAD001034 NPN, 2SC2462LCTL Q14 K19/2QAD001034 NPN, 2SC2462LCTL Q13 K19/2QAD001034 NPN, 2SC2462LCTL Q14 K19/2QAD001034 NPN, 2SC2462LCTL	
Q2 K19/2QAD004095 PNP, 2SB624T1BBV3 Q3 and Q4 K19/2QAD004103 PNP, 2SB798T1DL Q5 K19/2QAD001034 NFN, 2SC2462LCTL Q6 K19/2QAD004095 PNP, 2SB624T1BBV3 Q7 K19/2QAD001034 NFN, 2SC2462LCTL Q8 K19/2QAD001034 NFN, 2SC2462LCTL Q8 K19/2QAD001034 NFN, 2SC2462LCTL Q9 K19/2QAD004095 PNP, 2SB624T1B8V3 Q9 K19/2QAD001034 NFN, 2SC2462LCTL Q11 K19/2QAD004095 PNP, 2SB624T1BBV3 Q12 K19/2QAD001034 NFN, 2SC2462LCTL Q13 K19/2QAD004095 PNP, 2SB624T1BBV3 Q14 K19/2QAD004095 PNP, 2SB624T1BBV3	
Q2 K19/2QAD004095 PNP, 2SB624T1BBV3 Q3 end Q4 K19/2QAD004103 PNP, 2SB798T1DL Q5 K19/2QAD001034 NFN, 2SC2462LCTL Q6 K19/2QAD001034 NFN, 2SC2462LCTL Q6 K19/2QAD004095 PNP, 2SB624T1BBV3 Q7 K19/2QAD001034 NFN, 2SC2462LCTL Q8 K19/2QAD001034 NFN, 2SC2462LCTL Q9 K16/2QAD001034 NFN, 2SC2462LCTL Q10 K19/2QAD004095 PNP, 2SB624T1BBV3 Q11 K19/2QAD004095 PNP, 2SB624T1BBV3 Q12 K19/2QAD001034 NFN, 2SC2462LCTL Q13 K19/2QAD004095 PNP, 2SB624T1BBV3 Q14 K19/2QAD004095 PNP, 2SB624T1BBV3	
Q3 acd acd K19/2QAD004103 PNP, 2SD3098T1DL Q5 K19/2QAD001034 NPN, 2SC2462LCTL Q6 K19/2QAD001034 NPN, 2SD62471BBV3 Q7 K19/2QAD001034 NPN, 2SC2462LCTL Q6 K19/2QAD001034 NPN, 2SC2462LCTL Q6 K19/2QAD004095 PNP, 2SB624T1BBV3 Q9 K19/2QAD001034 NPN, 2SC2462LCTL Q10 K19/2QAD004095 PNP, 2SB624T1BBV3 Q12 K19/2QAD004095 PNP, 2SB624T1BBV3 Q13 K19/2QAD004095 PNP, 2SB624T1BBV3	
95 X19/2QAD001034 NFN, 2SC2462LCTL Q6 K19/2QAD004095 PNP, 2SD824T1BBV3 Q7 K19/2QAD001034 NFN, 2SC2462LCTL Q8 X19/2QAD004095 PNP, 2SD824T1BBV3 Q9 X19/2QAD001034 NPN, 2SC2462LCTL Q10 K19/2QAD004095 PNP, 2SD824T1BBV3 Q12 K19/2QAD004095 PNP, 2SB824T1BBV3 Q13 K19/2QAD004095 PNP, 2SB824T1BBV3	
Q6 K19/2QAD004095 PNP, 2SB624T1BBv3 Q7 K19/2QAD001034 NPM, 2SC2462LCTL, Q8 K19/2QAD004095 PNP, 2SB624T1B6V3 Q9 K19/2QAD001034 NPM, 2SC2462LCTL, Q1 K19/2QAD004095 PNP, 2SB624T1B6V3 Q11 K19/2QAD004095 PNP, 2SB624T1B6V3 Q12 K19/2QAD001034 NPM, 2SC2462LCTL, Q13 K19/2QAD004095 PNP, 2SB624T1BBV3	
Q7 K19/2QAD001034 NPN, 2SC2462LCTL Q8 K19/2QAD004095 PNP, 2SB624T1B8V3 Q9 K19/2QAD001034 NPN, 2SC2462LCTL C10 K19/2QAD004095 PNP, 2SB624T1BBV3 Q11 K19/2QAD001034 NPN, 2SC2462LCTL Q12 K19/2QAD001034 NPN, 2SC2462LCTL Q13 K19/2QAD001034 NPN, 2SC2462LCTL Q14 K19/2QAD001034 NPN, 2SC2462LCTL	
Q8 X19/2QAD004095 PNP, 2SB624T1B8V3 Q9 X19/2QAD001034 NPN, 2SC2462LCTL Q10 X19/2QAD004095 PNP, 2SB624T1BBV3 Q11 K19/2QAD001034 NPN, 2SC2462LCTL Q12 K19/2QAD001034 NPN, 2SC2462LCTL Q13 X19/2QAD001034 NPN, 2SC2462LCTL Q14 NPN, 2SC2462LCTL	
Q9 K19/2QAD001034 NPR, 2SC2462LCTL Q10 and and Q11 K19/2QAD004095 PNP, 2SB624T1BBV3 Q12 K19/2QAD001034 NPN, 2SC2462LCTL Q13 K19/2QAD001035 PNP, 2SB624T1BBV3	
Q10 and Q11 K19/2QAD004095 PNP, 288624713BV3 Q12 K19/2QAD001034 NPN, 28C2462LCTL Q13 K19/2QAD004095 PNP, 28B624T1BBV3	
and Q11 Q12 K19/2QAD001034 NPN, 2SC2462LCTL Q13 K19/2QAD004095 PNP, 2SB624T1BB¥3 and	
Q13 K19/2QAD004095 PNP, 25B624T1BBV3	
and	
Q15 K19/2QAD004103 PNP, 28B798T1DL	
Q16 K19/2QAD004095 PNP, 288624T188V3	
R1 K19/2RGC001643 Square chip 1/10W 100 X ohm ±5% R8 R8	

SYMBOL	ge part no.	DESCRIPTION
R9 thru R19	K19/2RGC001627	Square chip 1/10W 10 K ohm ±5%
R20	K19/2RGC001619	Square chip 1/10% 4.7 K ohm ±5%
R21 and R22	K19/2RGC001627	Square chip 1/10# 10 K ohm ±5%
R23 and R24	K19/2RGC001643	Square chip 1/10# 100 K ohm <u>+</u> 5%
R25	K19/2RGC001908	Square chip 1/10W 24 K ohm <u>+</u> 1%
R26	K19/2RGC001916	Square chip 1/10W 27 K ohm <u>+</u> 1%
R27 and R28	K19/2RGC001593	Square chip 1/10W 2.2 K ohm <u>+</u> 5%
R29	K19/2RGC001833	Square chip 1/10W 2.2 ohm ±10%
R30	K19/2RGC001908	Square chip 1/10W 24 K ohm ±1%
R31	K19/2RGC001916	Square chip 1/10W 27 K ohm ±1%
R32 and R33	K19/2RGC001585	Square chip 1/10W 1 K ohm <u>+</u> 5%
R34	K19/2RGC001833	Square chip 1/10W 2.2 chm ±10%
R35	K19/2RGC001643	Square chip 1/10% 100 K ohm <u>+</u> 5%
R36 and R37	K19/2RGC001890	Square chip 1/10W 20 K ohm ±1%
838	K19/2RGC001874	Square chip 1/10W 10 K ohm ±1%
839 thru 841	K19/2RGC001643	Square chip 1/10W 100 K ohm <u>+</u> 5%
R42 thru R47	K19/2RGC001585	Square chip 1/10W 1 K ohm ±5%
R48	K19/2RGC00182 5	Square chip 1/10W 220 K ohm <u>+</u> 5%
R49 and R50	K19/2RGC004019	Square chip 1/10W 8.2 K ohm <u>+</u> 1%
R 51	K19/2RGC001932	Square chip $1/10W$ 100 K ohm $\pm 1\%$
R52	K19/2RGC001924	Square chip 1/10W 43 K ohm ±1%
R53	K19/2RGC001643	Square chip 1/10W 100 K ohm ±5%
R55	K19/2RGC001726	Square chip 1/10W 47 K ohm ±5%
R56	K19/2RGC001585	Square chip 1/10W 1 K ohm ±5%
R57	K19/2RGC001643	Square chip 1/10W 100 K ohm ±5%
R58	K19/2RGC001817	Square chip 1/10W 33 K ohm <u>+</u> 5%
R59	K19/2RGC001643	Square chip 1/10W 100 K ohm ±5%
R60	K19/2RGC001825 K19/2RGC001502	Square chip 1/10W 220 K ohm ±5% Square chip 1/10W 10 ohm ±5%
R61 R62	K19/2RGC001502	Square chip 1/10% 10 K ohm $\pm 5\%$
R63	K19/2RGC001627	Square chip 1/10% 106 a bha <u>1</u> 5%
R64	K19/2RGC001833	Square chip 1/10% 2.2 ohm ±10%
R65 and R66	K19/2RGC001932	Square chip 1/10W 100 K ohm ±1%
R67	K19/2RGC001635	Square chip 1/10W 22 K ohm ±5%
R68	K19/2RGC001932	Square chip 1/10W 100 K ohm ±1%
R89	K19/2RGC001627	Square chip 1/10% 10 K ohm ±5%
R70	K19/2RGC001585	Square chip 1/10% 1 K ohm ±5%
R71 and R72	K19/2RGC001932	Square chip 1/10W 100 K ohm <u>+</u> 1%
R73	K19/2RGC004076	Square chip 1/10W 470 K ohm ±1%
R74	K19/2RGC001874	Square chip 1/10W 10 K ohm <u>+</u> 1%
R75	K19/2RGC004076	Square chip 1/10W 470 K ohm ±1%
R76	K19/2RGC001874	8quare chip 1/10W 10 K ohm <u>+</u> 1%

GE PART NO.	DESCRIPTION
K19/2RGC001858	Square chip 1/10W 2 K chm ±1%
K19/2RGC001841	Square chip 1/10W 4.7 ohm ±10%
K19/2RGC001627	Square chip 1/10W 10 K ohm ±5%
K19/2RCC001833	Square chip 1/10W 2.2 ohm ±10%
K19/2RGC001643	Square chip 1/10W 100 K ohm <u>+</u> 5%
K19/2RGC001791	Square chip 1/10W 10 M ohm ±10%
K19/2RGC001627	Square chip 1/10% 10 K ohm ±5%
K19/2RGC001585	Square chip 1/10W 1 K ohm <u>+</u> 5%
K19/2RGC001627	Square chip 1/10W 10 K ohm ±5%
K19/2RGC001585	Square chip 1/10W 1 K ohm ±5%
K19/2RGC001874	Square chip 1/10W 10 K ohm ±1%
K19/2RGC001627	Square chip 1/10# 10 K ohm ±5%
K19/2RGC001825	Square chip 1/10W 220 K ohm ±5%
K19/2RGC001585	Square chip 1/10W 1 K ohm ±5%
K19/2RGC001627	Square chip 1/10% 10 K ohm ±5%
K19/2RGC001759	Square chip 1/10W 470 K ohm ±5%
K19/2RGC001643	Square chip 1/10W 100 K ohm <u>+</u> 5%
K19/2RGC001627	Square chip 1/10% 10 K ohm <u>+</u> 5%
K19/2RGC001817	Square chip 1/10W 33 K ohm ±5%
K19/2R6C001627	Square chip 1/10W 10 K ohm ±5%
k19/2RGC001643	Square chip 1/10% 100 K ohm ±5%
K19/2RGC001759	Square chip 1/109 470 K ohm ±5%
K19/2RGC001841	Square chip 1/100 4.7 ohm ±10%
K19/2RGC001726	Square chip 1/10W 47 K chm <u>+</u> 5%
K19/2RGC001635	Square chip 1/10W 22 K ohm ±5%
K19/2BGC001643	Square chip 1/100 100 K chm ±5%
K19/2RGC001585	Square chip 1/10% 1 K ohm ±5%
K19/2RGC001726	Square chip 1/10W 47 K ohm <u>+</u> 5%
K19/2RGC001643	Square chip 1/10% 100 K chm +5%
K19/2YYZ001062	
	20140214.0
X19/27AA181665	

SYMBOL

R77 and R78

R79 and R80

R81

R82

R83 thru R86

R87

R88

RS9 and R90

R91 and R92

R93 and R94

R95

R96 thru R99

R100

R101 and R102

R103

R104

R105 and R106

R107 and R108

R109

R110

R111 and R112

R113 and R114

R115

R116

R117

R118 and R119

R120

R121

8122

XY1

¥1

PARTS LIST

M-PD LCD BOARD

A4WE03737B ISSUE 3

PARTS LIST

SIGNALING BOARD A4WE04024 ISSUE 2

SYMBOL	GE PART NO.	DESCRIPTION
		INTEGRATED CIRCUITS
A1	K19/2ADC003107	uPD72256
		CAPACITORS
C1 thru C3	K19/2CAK011196	Ceramic chip 1000 př
C4	K19/2CAK005586	Ceramic chip 0.047 uF
C5	£19/2CCF004193	Tantalum 0.47 uF
C6 and C7	K19/2CCF004102	Tantalum 1 uF
CR1 thru CR6	K19/2HAA010202	нцир-е500
Q1	K19/2QAD001026	Silicon, 2SA11218BTL
Q2	K19/2QAD001034	Silicon, 2SC2462LCTL
RI	#101000001704	
R2	K19/2RGC001734 K19/2RGC001627	Square chip 1/10W 180 K ohm <u>+</u> 5% Square chip 1/10W 10 K ohm <u>+</u> 5%
thru R4	ETB/SU00001021	oduare chip 1/10% IC & bhm 75%
R 5	K19/2RGC001528	Square chip 1/10W 100 ohm ±5%
R6	K19/2RGC001643	Square chip 1/10W 100 K ohm <u>+</u> 5%
R7	K19/2RGC001528	Square chip 1/10W 100 ohm <u>+</u> 5%
R8 and R9	K19/2R6C001544	Square chip 1/109 220 chm ±5%
R10	K19/2RGC001700	Square chip 1/10W 1.5 K ohm <u>+</u> 5%
R11	K19/2RGC001601	Square chip 1/10¥ 3.3 K ohm ±5%
R12 and R13	K19/2RGC001726	Square chip 1/10# 47 K ohm ±5%
R14	K19/2RGC001635	Square chip 1/10W 22 K ohm <u>+</u> 5%
R15	K19/2RGC001569	Square chip 1/10W 470 ohm <u>+</u> 5%
		~ LCD DISPLAY
LCD	K19/2DCA005020	T164003A
J1-1 thru J1-5	K19/2PDA023143	Minisert 76693-001
		1

SYMBOL	GE PART NO.	DESCRIPTION
		INTEGRATED CIRCUITS
A301	K19/2ADA004404	Micro Processor; HD63705V0F
A302	K19/2AAB004292	OP-AMP, uPC1251G2-TL
A303	K19/2AAC004135	Comparator, uPC393
A303	X18/28AC004135	Comparator, DPC393
		CAPACITORS
C301 and C302	X19/2CCP004102	Tantalum, 1 uF
C303	K19/2CAK013101	Ceramic chip, 390 pF
C304	K19/2CAK013044	Ceramic chip, 1500 pF
C305	K19/2CAK005818	Ceramic chip, 22 pF
		DIODES
CR301	K19/2QBE005032	DA204KT~96
011001	x10/ 545500005	
P1 and	K19/2PDA023143	76693-001
and P2		
		RESISTORS
R301	K19/2RCC001585	Square chip, 1/10W, 1 KobmJ
R302	K19/2R0C001643	Square chip, 1/10W, 100 KohmJ
R303	K19/2RGC004472	Square chip, 1/10W, 620 KohmJ
R304	K19/2RGC001742	Square chip, 1/10W, 380 KohmJ
R305	K19/2RGC004480	Square chip, 1/10W, 160 KohmJ
R306	K19/2RGC004407	Square chip, 1/10%, 82 KohmJ
R307	K19/2RGC004316	Square chip, 1/10W, 39 KohmJ
R30B and R309	K19/2RGC001627	Square chip, 1/10%, 10 KohmJ
R310 thru R312	K19/2NGC001825	Square chip, 1/10W, 220 KohmJ
R313 thru R315	K19/2RGC001627	Square chip, 1/10W, 10 KohmJ
R316	K19/2RGC001775	Square chip, 1/10W, 1 MohmJ
R317	K19/2RGC001627	Square chip, 1/10%, 10 KohmJ
R319	K19/2RGC001627	Square chip, 1/10W, 10 KohmJ Square chip, 1/10W, 10 KohmJ
and R320		Square only, Niton, to Roums
R321	K19/2RGC001833	Square chip, 1/10W, 2.2 chmK
R322	K19/2RGC001643	Square chip, 1/10W, 100 KohmJ
thru R324	,	- gan - outpy -y-out -ou wonne
¥1	K19/27AA181665	
11	N19/218A101003	NOT USED
		1

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

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