# Contents

# SAFETY INFORMATION

1. Parts that have special safety characteristics are identified by the ⚠ symbol on schematics or by special notes on the parts list. Use only replacement parts that have critical characteristics recommended by the manufacturer.

2. Make leakage current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the unit to the customer. Refer to Paragraph 84 of UL 1270. Use the following checks to perform these measurements:

   A. **Leakage Current Hot Check**-With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 “Leakage Current for Appliances” and Underwriters Laboratories (UL) 1492 (71). With the unit AC switch first in the ON position, then in the OFF position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the unit (antennas, handle bracket, metal cabinet, screwheads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milliamp. Reverse the unit power cord plug in the outlet and repeat test. ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE UNIT TO THE CUSTOMER.

   B. **Insulation Resistance Test Cold Check**-(1) Unplug the power supply and connect a jumper wire between the two prongs of the plug. (2) Turn on the power switch of the unit. (3) Measure the resistance with an ohmmeter between the jumpered AC plug and each exposed metallic cabinet part on the unit. When the exposed metallic part has a return path to the chassis, the reading should be between 1 and 5.2 Megohms. When there is no return path to the chassis, the reading must be “infinite”. If it is not within the limits specified, there is the possibility of a shock hazard, and the unit must be repaired and rechecked before it is returned to the customer.

# ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) DEVICE HANDLING

This unit contains ESDS devices. We recommend the following precautions when repairing, replacing, or transporting ESDS devices:

• Perform work at an electrically grounded work station.

• Wear wrist straps that connect to the station or heel straps that connect to conductive floor mats.

• Avoid touching the leads or contacts of ESDS devices or PC boards even if properly grounded. Handle boards by the edges only.

• Transport or store ESDS devices in ESD protective bags, bins, or totes. Do not insert unprotected devices into materials such as plastic, polystyrene foam, clear plastic bags, bubble wrap or plastic trays.

# SPECIFICATIONS

| | |
|---|---|
| **Dimensions:** | 1.63" H x 19.0" W x 10" D (4.14 x 48.3 x 25.4 cm) |
| **Weight:** | 5.5 lbs. (2.5 kg.) |
| **Chassis material:** | 16 gauge steel with painted/zinc coated finish |
| **Cover plate material:** | Brushed aluminum, painted |
| **Input Connections:** | Balanced XLR |
| **Output Connections:** | Balanced high frequency and low frequency XLR |
| **Input Impedance:** | Balanced input, -10 dB level: 14 k Ω<br>Balanced input, +4 dB level: 6 k Ω<br>Unbalanced input (+ input used), -10 dB level: 12 k Ω<br>Unbalanced input (+ input used), +4 dB level: 4 k Ω |
| **Output Impedance:** | 100 Ω nominal |
| **Input Level:** | -10 dB or +4 dB, selectable |
| **Output Level:** | 8.0 Vrms max. @ 1 kHz into 10 k Ω load |
| **Low Frequency (LF) Output Mode:** | Sum or normal |
| **LF Output Level:** | -18 dB to +3 dB, variable |
| **Crossover Frequency:** | 140 Hz (Bi-amp mode), Roll-off slope: -18 dB/oct. |
| **Total harmonic distortion:** | |
| 802**:** | Midrange distortion of HF output: ≤ 0.2 % at 5.8 V, 700 Hz |
| 402: | Midrange distortion of HF output: ≤ 0.2% at 1.4 V, 850 Hz |
| 402, 802: | Low frequency distortion of LF output: ≤ 0.1 % at 160 mV, 80 Hz |
| **Output Noise:** | Bi-amp mode, HF outputs: ≤ 90µV<br>Bi-amp mode, LF outputs: ≤ 40µV<br>Passive mode: ≤ 90µV |
| **Offset:** | All channels: ≤ 15 mV |
| **Power Requirements:** | 120 VAC, 50/60 Hz, 12 Watts (US/Can.)<br>230 VAC, 50/60 Hz, 12 Watts (Eur.)<br>100 VAC, 50/60 Hz, 12 Watts (Japan)<br>240 VAC, 50/60 Hz, 12 Watts (Aus./UK) |

# THEORY OF OPERATION

This discussion is an electrical overview of the 402® and 802® controllers. Equalization curves are referenced and are located in the back of this manual. Additionally, the block diagram and schematic diagrams should be referenced as required.

**1. Differential Input Stage**

The input stage features protection against RFI (radio frequency interference), ESD (electro-static discharge), and overvoltage. Referring to the channel 1 circuit, R2/C1, R1/C120, R3/C2, and R9, R10/C7 provide low pass filtering to reduce the possibility of RFI. Diodes D1-D4, D25, and D26 provide input clamping to protect against overvoltage and ESD.

Op-amp U1 amplifies the difference between the + and - input pins, and converts it to a single ended signal that drives the equalizers. Gain switch S3 selects between two gains, a high gain setting for -10 dB sources and a low gain setting for +4 dB sources.

**2. Equalizer for High Frequency Outputs**

Op-amps U1, U2 and U3 constitute the principal equalization for the high frequency output. Each stage makes a contribution to the total low or high frequency contouring required by the loudspeaker. Op-amp U4 (pins 12, 13 and 14) implements a high pass filter suitable for the Full Range mode, while op-amp U4 (pins 8, 9, and 10) is selected for a high pass filter with a higher corner frequency for use in the Bi-amp mode. The circuitry is duplicated for both channels. See the high frequency equalization curves for more information about the stage by stage response of the equalizer.

**3. Output mode switch, Low frequency level control, and Normal/sum mode stage**

Output mode switch S2 (on the rear panel) controls op-amp summing amplifier U6 (pins 5, 6, and 7). In the normal mode, the stage is not used, and the channel 1 and channel 2 low frequency outputs pass independent, 2-channel bass to 2 bass cabinets. In the sum mode, channels 1 and 2 are combined, and this "mono" bass signal appears at the channel 1 low frequency output only. Potentiometer R126 (on the rear panel), Low Frequency Level, provides for adjustment of the signal sent into the low frequency equalizer.

**4. Equalizer for Low Frequency Outputs**

After the normal/sum stage, there is op-amp stage U7 (pins 12, 13, and 14) and op-amp equalizer stages U7 (pins 8, 9, and 10), U8 (pins 12, 13, and 14), and U8 (pins 8, 9, and 10). The equalizer provides high pass, low pass, and contouring equalization. See the low frequency equalization curves for more information about the stage by stage response of the equalizer.

**5. Mode switch**

Rotary switch S1 is located on the rear panel. It selects the four operating modes for the controllers. Currently, position 3 (NC) is not used.

# THEORY OF OPERATION

### 6. Output stage

**NOTE**: The components mentioned in this paragraph are for the high frequency output only.

The output stage is compatible with balanced signal transmission systems. Inverting op-amp stage U9 (pins 1, 2, and 3) provides the output signal. Diodes D9, D10, D29 and D30 provide output clamping to protect against overvoltage and ESD. Relays K1 and K2 clamp the outputs to ground to protect against power on/off transients. When the relay is de-energized, as when the AC power is off, the outputs are clamped. About 1.2 seconds after the power is turned on, the relay is energized by transistor Q1 and allows audio to pass through the controller. When the power is turned off, a fast acting detector de-energizes the relays to protect against power off transients.

**NOTE:** At the controller outputs, only the positive (+) output pin is driven. The negative (-) output pin is connected to signal ground through a series impedance identical to the positive (+) pin. When used to drive a balanced input, the controller output provides equal common-mode source impedances (100 Ω). This guarantees that any common-mode noise is induced equally into the positive (+) and negative (-) legs of a differential input in order to take full advantage of common-mode noise rejection.

### 7. Power Supply

The controllers use only a nominal amount of power. Therefore, full wave bridge rectifier Z1 and regulators U13 and U14 are all that are needed to develop the quiet, stable +/- 15 volt supply needed by the op-amps.

### 8. Turn On/Off Muting Circuit

Relays K1 and K2 clamp the outputs and are controlled by three sections of quad comparator U15. U15 (pins 8, 9 and 14) drives the relay control transistor Q1 by pulling the relay-coil terminal to nearly 15 volts . This energizes the relay for normal audio operation. At power on, U15 (pins 8, 9 and 14) is prevented from energizing the relay until capacitor C152 can be charged up sufficiently. This takes about 1.2 seconds, and mutes any turn-on transients. At power off, U15 (pins 2, 4, and 5) quickly detects the loss of AC power and causes Q1 to snap quickly off. This de-energizes the relay in about 100 ms, before any transients can reach the output.

### 9. Troubleshooting Tips

If a differential output test generator isn't available, connect the generator ground to the controller's ground terminal, and the generator hot lead to the negative (-) input terminal. Leave the positive (+) terminal unconnected.

If you need to connect the controller outputs to a single-ended (not differential) instrument, connect the controller's output ground to the instrument ground, and the controller's positive (+) output terminal to the instrument hot pin. Leave the negative (-) output pin unconnected.

Since the controllers are two channel devices, you can troubleshoot any problem occurring in only one channel more easily by applying the identical signal to both channel 1 and channel 2 inputs and tracing stage by stage, comparing the signal as it passes through the various stages. In general, the corresponding channel 1 and channel 2 stages share the left and right hand sides of the respective op-amps. This makes it easier to compare the stages.

# THEORY OF OPERATION

With a nominal AC power input voltage (100, 115, or 230, depending on the country), the AC voltages at the transformer secondary should be:

between P3-1 and P3-3: 41.3 Vrms

With a cold (i.e. -room temperature) power transformer, you should expect primary and secondary resistances of:

For the 100 VAC version:

between P2-1 and P2-2: 41.8 Ω
between P3-1 and P3-3: 6.9 Ω

For the 115 VAC version:

between P2-1 and P2-2: 45.4 Ω
between P3-1 and P3-3: 6.3 Ω

For the 230/240 VAC version:

between P2-1 and P2-2: 195 Ω
between P3-1 and P3-3: 7.1 Ω

Other DC voltages are of use in troubleshooting:

Turn On/Off Muting Circuit

Typical DC voltages after 2 seconds wake up

| | |
|---|---|
| U15-1 | Section not used |
| U15-2 | +13.5 |
| U15-3 | -15.0 |
| U15-4 | +.15 |
| U15-5 | +3.2 |
| U15-6 | Section not used |
| U15-7 | Section not used |
| U15-8 | +7.5 |
| U15-9 | +13.5 |
| U15-10 | +7.5 |
| U15-11 | +9.7 |
| U15-12 | -15.0 |
| U15-13 | +13.5 |
| U15-14 | -13.9 |
| Q1-collector | -14.7 |

Power Supply

| | |
|---|---|
| U13-1 | +26.0 |
| U14-2 | -26.0 |

# THEORY OF OPERATION

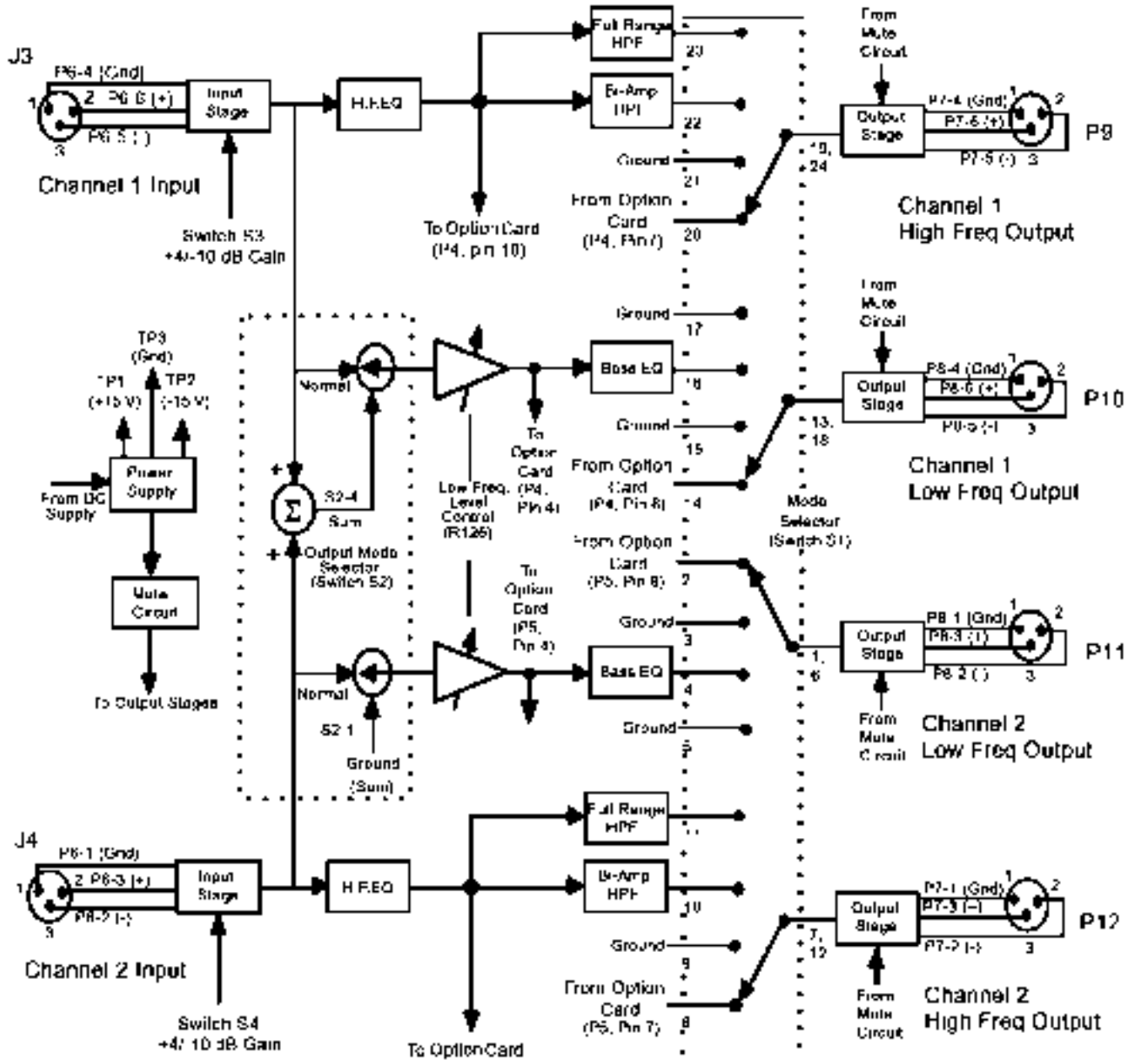



**Figure 1. Block Diagram**

# DISASSEMBLY/ASSEMBLY PROCEDURES

402® and 802® II First Variation (Removable Front Panel)

**Note:** Refer to Figure 2 for the following procedures.

**1. Top cover Removal**

**1.1** Remove the two screws (7) that secure the top cover (2) to the front panel (9).

**1.2** Remove the two screws (1) that secure the top cover to the rear of the chassis.

**1.3** Lift up the rear of the top cover and slide it out from under the front panel.

**2. Top cover Replacement**

**2.1** Place the top cover (2) onto the unit and slide it under the front panel (9).

**2.2** Secure the rear of the top cover using the screws (1) removed in procedure 1.2.

**2.3** Secure the front of the top cover using the two screws (7) removed in procedure 1.1.

**3. Front Panel Removal**

**3.1** Perform procedure 1.

**3.2** Remove the two wires (14) that connect to the power switch (10).

**NOTE:** On some earlier versions there was hot melt applied to the wires.

**3.3** Remove the two screws (7) that secure the front cover to the bottom of the chassis.

**3.4** Pull the front panel away from the chassis.

**4. Front Panel Replacement**

**4.1** Slide the front panel (9) onto the chassis.

**4.2** Replace the two screws (7) that secure the front panel (9) to the bottom of the chassis.

**4.3** Connect the two wires (14) to the power switch (10).

**4.4** Perform procedure 2.

**5. PCB Removal**

**5.1** Perform procedure 3.

**5.2** Remove the 6 screws (5) that secure the connectors (4) to the rear panel.

**5.3** Disconnect the one line cord connector (P1) and the two power transformer connectors P2) and (P3).
**NOTE:** If the Opti-Voice® PCB is installed on the PCB assembly remove the connector from the Opti-Voice PCB.

**5.4** Remove the 5 screws (3) that secure the PCB assembly (15) to the chassis.

**5.5** Squeeze the two metal posts (not shown) located at the two front corners of the PCB and lift up the PCB. Slide the PCB assembly towards the front of the chassis and lift it out.

**6. PCB Replacement**

**6.1** Slide the PCB assembly (15) into the front of the unit aligning the connectors (4) to the rear panel. Push the two front corners of the PCB on to the two metal posts.

**6.2** Secure the PCB assembly to the chassis using the 5 screws (3) that were removed in procedure 5.4.

**6.3** Secure the PCB to the rear panel using the 6 screws (5) that were removed in procedure 5.2.

**6.4** Reconnect all connectors removed in procedure 5.3.

**6.5** Perform procedure 4.

# DISASSEMBLY/ASSEMBLY PROCEDURES



**Note:** Refer to Figure 2 for the following procedures.

**7. Transformer Removal**

**7.1** Perform procedure 1.

**7.2** Disconnect the two wire harnesses (P2) and (P3) from the transformer to the PCB.

**7.3** Remove the two 11/32” hex nuts (12) that secure the transformer (13) to the chassis.

**7.4** Lift the transformer up and away from the chassis.

**8. Transformer Replacement**

**8.1** Place the transformer (13) into the chassis aligning it to the studs.
**Note:** Proper orientation is required for the transformer wire harnesses.

**8.2** Secure the transformer to the chassis using the two 11/32” hex nuts (12) that was removed in procedure 7.3.

**8.3** Connect the two wire harnesses from the transformer to the PCB.

**8.4** Perform procedure 2.

# DISASSEMBLY/ASSEMBLY PROCEDURES

402® and 802® II Second Variation

**Note:** Refer to Figure 3 for the following procedures.

**1. Top Cover Removal**

**1.1** Remove the 5 screws (1) that secure the top cover (2) to the chassis.

**1.2** Lift off the top cover .

**2. Top Cover Replacement**

**2.1** Place the top cover (2) onto the chassis.

**2.2** Secure the top cover to the chassis using the 5 screws (1) that were remove in procedure 1.1.

**NOTE:** The front panel is not removable.

**3. PCB Removal**

**3.1** Perform procedure 1.

**3.2** Disconnect the two power transformer connectors and the two wires (12) going to the power switch (9).
**NOTE:** If the opti-Voice® PCB is used, disconnect the harness at the opti-Voice PCB.

**3.3** Remove the 6 screws (6) that secure the connectors (4) to the rear panel.

**3.4** Remove the 7 screws (3) that secure the PCB assembly (5) to the chassis.

**3.5** Slide the PCB assembly towards the front of the unit and lift up the rear of the PCB to remove it from the chassis.

**4. PCB Replacement**

**4.1** Place the PCB assembly into the chassis aligning the connectors (4) with the rear panel.

**4.2** Secure the PCB assembly (5) to the chassis using the 7 screws (3) removed in procedure 3.4.

**4.3** Secure the connectors (4) to the rear panel using the 6 screws (6) removed in procedure 3.3.

**4.4** Connect the connectors for the line cord and power transformer. If the opti-Voice PCB was used, connect the harness to the PCB.

**4.5** Perform procedure 2.

**5. Transformer Removal**

**5.1** Perform procedure 1.

**5.2** Disconnect the two wire harnesses from the transformer (11) to the PCB assembly (5).

**5.3** Remove the two 11/32” hex nuts (10) that secure the transformer to the chassis.

**5.4** Lift the transformer up and away from the chassis.

**6. Transformer Replacement**

**6.1** Place the transformer (11) into the chassis aligning it to the studs.
**Note:** Proper orientation is required for the transformer wire harnesses.

**6.2** Secure the transformer to the chassis using the two 11/32” hex nuts (10) that were removed in procedure 7.3.

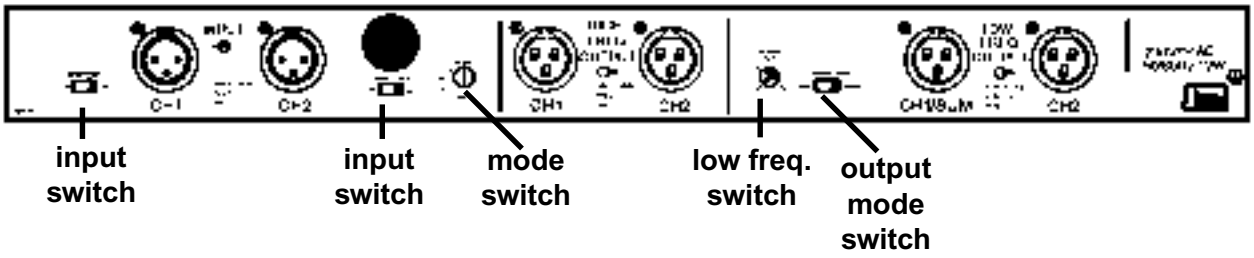
**6.3** Connect the two wire harnesses from the transformer to the PCB.

**6.4** Perform procedure 2.

# TEST SETUP PROCEDURE

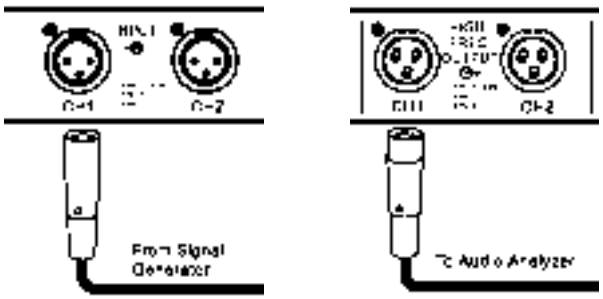
The controls on the back panel should be set as follows (unless otherwise specified):

1. Set the input switches to the -10 dB position.
2. Set the Mode switch to the number 2 (BA) position.
3. Set the Low Frequency Level control to the +3 dB position.
4. Set the Output Mode switch to the NORM position




**Back Panel View**

Input connections: connect pin 1 (-) and pin 3 (shield) together at the signal generator and audio analyzer (oscilloscope and dB meter).



**Input and Output connection Diagram**

The following test procedures refer to the 402®, 402 series II, 802® series II and the 802 series III. These references are to the PCB assembly changes that were made recently to accommodate the new series of 402 and 802 speakers.

The new PCB assembly can be identified by the label on the top side of the PCB near the BOSE® logo. The following are the new PCB assembly part numbers:
259148 for the 402

259145 for the 802

# 402® TEST PROCEDURES

**Note:** Perform the following tests on both channels.

**1. High Frequency Gain Test**

**1.1** Apply a 100 mVrms, 850 Hz signal to the controller's input terminals.

**1.2** Reference a dB meter to the input of the controller.

**1.3** Measure the gain at the high frequency output terminals. The gain should be +9.8 ± 1.0 dB.

**1.4** Change the input switches to +4 dB.

**1.5** The gain should be -3.4 ± 1.0 dB.

**2. Low Frequency Gain Test**

**Note:** Set the input switches to the -10 dB position.

**2.1** Apply a 100 mVrms, 80 Hz signal to the controller's input terminals.

**2.2** Reference a dB meter to the input.

**2.3** Measure the gain at the low frequency outputs. The gain should be +22.5 dB ± 2.0 dB.

**2.4** Change the Output Mode switch to the SUM position and measure the output at channel 1. The gain should be +28.1 dB ± 1.5 dB.

**3. Frequency Response Test Full Range Mode**

**Note:** Set the Mode switch to the number 1 position (FR), the input switch to the -10 dB position and the Output Mode switch to the NORM position.

**3.1** Apply a 100 mVrms, 850 Hz signal to the controller's input terminals.

**3.2** Reference a dB meter to the input signal.

**3.3** Measure the response at the high frequency output terminals. Refer to the frequency response table for the series of 402 you are testing.

402 Frequency Response Table
Full Range Mode

| Frequency | Output | Tolerance |
|---|---|---|
| 60 Hz | -3.7 dB | ±1.5 dB |
| 105 Hz | +8.5 dB | ±1.5 dB |
| 220 Hz | +3.5 dB | ±1.5 dB |
| 850 Hz | 0.0 dB | reference |
| 4 kHz | +5.8 dB | ±1.5 dB |
| 14.5 kHz | +13.3 dB | ±1.5 dB |

402 Series II Frequency Response Table
Full Range Mode

| Frequency | Output | Tolerance |
|---|---|---|
| 60 Hz | +3.2 dB | ±1.5 dB |
| 90 Hz | +10.0 dB | ±1.5 dB |
| 220 Hz | +7.3 dB | ±1.5 dB |
| 600 Hz | -2.4 dB | ±1.5 dB |
| 850 Hz | 0.0 dB | reference |
| 4 kHz | +5.6 dB | ±1.5 dB |
| 13.5 kHz | +15.5 dB | ±1.5 dB |

**4. Frequency Response Test Bi-Amp Mode**

**Note:** Set the Mode switch to the number 2 position (BA).

**4.1** Apply a 100mVrms, 850 Hz signal to the controller's input terminals.

**4.2** Reference a dB meter to the input signal.

**4.3** Measure the output at the high frequency output terminals. Refer to the frequency response table for the series of 402 you are testing.

# 402® TEST PROCEDURES

402 Frequency Response Table Bi-Amp Mode Full Range Output

| Frequency | Output | Tolerance |
|---|---|---|
| 60 Hz | -16.4 dB | ±1.5 dB |
| 105 Hz | -4.8 dB | ±1.5 dB |
| 220 Hz | +2.8 dB | ±1.5 dB |
| 850 Hz | 0.0 dB | reference |
| 4 kHz | +5.8 dB | ±1.5 dB |
| 14.5 kHz | +13.3 dB | ±1.5 dB |

402 Series II Frequency Response Table Bi-Amp Mode Full Range Output

| Frequency | Output | Tolerance |
|---|---|---|
| 60 Hz | -13.0 dB | ±1.5 dB |
| 90 Hz | -5.6 dB | ±1.5 dB |
| 220 Hz | +6.8 dB | ±1.5 dB |
| 600 Hz | -2.4 dB | ±1.5 dB |
| 850 Hz | 0.0 dB | reference |
| 4 kHz | +5.8 dB | ±1.5 dB |
| 13.5 kHz | +15.5 dB | ±1.5 dB |

**5. Low Frequency Response Bi-Amp Mode**

**5.1** Apply a 100mVrms, 80 Hz signal to the controller's input terminals.

**5.2** Reference a dB meter to the input.

**5.3** Measure the output at the low frequency output terminals. Refer to the frequency response table for the series of 402 you are testing.

402 Low Frequency Response Table Bi-Amp Mode Low Frequency output

| Frequency | Output | Tolerance |
|---|---|---|
| 40 Hz | -6.2 dB | ±2 dB |
| 80 Hz | 0.0 dB | reference |
| 100 Hz | +1.3 dB | ±1 dB |
| 300 Hz | -17.5 dB | ±2 dB |

402 Series II Low Frequency Response Table Bi-Amp Mode Low Frequency Output

| Frequency | Output | Tolerance |
|---|---|---|
| 40 Hz | -6.2 dB | ±2 dB |
| 80 Hz | 0.0 dB | reference |
| 100 Hz | +1.3 dB | ±1 dB |
| 300 Hz | -17.5 dB | ±2 dB |

**6. Midrange Distortion Test**

**Note:** Set the Input Mode switch to the +4 dB position for the following test procedures.

**6.1** Set the mode switch to the number 1 (FR) position.

**6.2** Apply a 7.5 Vrms, 850 Hz signal to the controller's input.

**6.3** Measure the distortion at the high frequency output terminals. The measurement should be ≤ .1%.

**7. High Frequency Distortion Test**

**7.1** Apply a 2.25 Vrms, 6 kHz signal to the controller's input terminals.

**7.2** Measure the distortion at the high frequency output terminals. The measurement should be ≤ .2%.

**8. Low Frequency Distortion Test Bi-Amp Mode**

**8.1** Set the mode switch to the 2 (BA) position.

**8.2** Apply a 1.6 Vrms, 80 Hz signal to the controller's input terminals.

**8.3** Measure the distortion at the low frequency output terminals. The measurement should be ≤ .1%.

**9. Midrange Frequency Distortion Test Bi-Amp Mode**

**9.1** Apply a 7.5 Vrms, 850 Hz signal to the controller's input terminals.

**9.2** Measure the distortion at the high frequency output terminals. The measurement should be ≤ .1%.

**10. High Frequency Distortion Test Bi-Amp Mode**

**10.1** Apply a 2.25 Vrms, 6 kHz signal to the controller's input terminals.

**10.2** Measure the distortion at the high frequency output terminals. The measurement should be ≤ .2%.

**11. Clipping Headroom Test**

**11.1** Apply a 6.9 Vrms, 850 Hz signal to the controller's input terminals.

**11.2** Measure the distortion (at an output of 4.6 ± .5 Vrms) at the high frequency output terminals. The measurement should be ≤ 1%.

**12. Channel Separation Test Bi-Amp Mode**

**12.1** Apply a 7.5 Vrms, 850 Hz signal to the controller's input terminals.

12.2 Reference a dB meter to the left channel output.

**12.3** Measure the right channel output. It should be ≥ 40 dB.

**13. Hum**

**13.1** Measure the hum and noise at the low frequency outputs with no input signal applied. The reading should be ≤ 40 uV.

# 802® TEST PROCEDURES

**Note:** Perform the following tests on both channels.

**1. High Frequency Gain Test**

**1.1** Apply a 100 mVrms, 700 Hz signal to the controller's input terminals.

**1.2** Reference a dB meter to the input of the controller.

**1.3** Measure the gain at the high frequency output terminals. The gain should be +15.1 ± 1.0 dB.

**1.4** Change the input switches to +4 dB.

**1.5** The gain should be 2.0 ± 1.0 dB.

**2. Low Frequency Gain Test**

**Note:** Set the input switches to the -10 dB position.

**2.1** Apply a 100 mVrms, 80 Hz signal to the controller's input terminals.

**2.2** Reference a dB meter to the input.

**2.3** Measure the output at the low frequency outputs. The gain should be +23.5 dB ± 2.0 dB.

**2.4** Change the Output Mode switch to the SUM position and measure the output at channel 1. The gain should be +28.1 dB ± 1.5 dB.

**3. Frequency Response Test Full Range Mode**

**Note:** Set the Mode switch to the number 1 position (FR), the input switch to the -10 dB position and the Output Mode switch to the NORM position.

**3.1** Apply a 100 mVrms, 700 Hz signal to the controller's input terminals.

**3.2** Reference a dB meter to the input signal.

**3.3** Measure the response at the high frequency output terminals. Refer to the frequency response table for the series of 802 you are testing.

802 Series II Frequency Response Table
Full Range Mode

| Frequency | Output | Tolerance |
|---|---|---|
| 40 Hz | +8.0 dB | ±1.5 dB |
| 55 Hz | +13.5 dB | ±1.5 dB |
| 140 Hz | +6.6 dB | ±1.5 dB |
| 700 Hz | 0.0 dB | reference |
| 2.5 kHz | +2.1 dB | ±1.5 dB |
| 6 kHz | +9.6 dB | ±1.5 dB |
| 15 kHz | +16.7 dB | ±1.5 dB |

802 Series III Frequency Response Table
Full Range Mode

| Frequency | Output | Tolerance |
|---|---|---|
| 40 Hz | +1.9 dB | ±1.5 dB |
| 70 Hz | +13.5 dB | ±1.5 dB |
| 140 Hz | +7.5 dB | ±1.5 dB |
| 700 Hz | 0.0 dB | reference |
| 2.5 kHz | +1.8 dB | ±1.5 dB |
| 6 kHz | +6.9 dB | ±1.5 dB |
| 15 kHz | +13.8 dB | ±1.5 dB |

**4. Frequency Response Test Bi-Amp Mode**

**Note:** Set the Mode switch to the number 2 position (BA).

**4.1** Apply a 100mVrms, 700 Hz signal to the controller's input terminals.

**4.2** Reference a dB meter to the input signal.

**4.3** Measure the output at the high frequency output terminals. Refer to the frequency response table for the series of 802 you are testing.

# 802® TEST PROCEDURES

802 Series II Frequency Response Table
Bi-Amp Mode Full Range Output

| Frequency | Output | Tolerance |
|---|---|---|
| 40 Hz | -21.0 dB | ±1.5 dB |
| 60 Hz | -11.5 dB | ±1.5 dB |
| 700 Hz | 0.0 dB | reference |
| 2.5 kHz | +2.1 dB | ±1.5 dB |
| 6 kHz | +9.6 dB | ±1.5 dB |
| 15 kHz | +16.7 dB | ±1.5 dB |

802 Series III Frequency Response Table
Bi-Amp Mode Full Range Output

| Frequency | Output | Tolerance |
|---|---|---|
| 40 Hz | -24.9 dB | ±1.5 dB |
| 70 Hz | -10.6 dB | ±1.5 dB |
| 140 Hz | +5.2 dB | ±1.5 dB |
| 700 Hz | 0.0 dB | reference |
| 2.5 kHz | +1.9 dB | ±1.5 dB |
| 6 kHz | +7.0 dB | ±1.5 dB |
| 13 kHz | +13.9 dB | ±1.5 dB |

**5. Low Frequency Response Bi-Amp Mode**

**5.1** Apply a 100mVrms, 80 Hz signal to the controller's input terminals.

**5.2** Reference a dB meter to the input.

**5.3** Measure the output at the low frequency output terminals. Refer to the frequency response table for the series 802 you are testing.

802 Series II Low Frequency Response Table
Bi-Amp Mode Low Frequency output

| Frequency | Output | Tolerance |
|---|---|---|
| 40 Hz | -6.2 dB | ±2 dB |
| 80 Hz | 0.0 dB | reference |
| 100 Hz | +1.3 dB | ±1.5 dB |
| 300 Hz | -17.5 dB | ±2 dB |

802 Series III Low Frequency Response Table
Bi-Amp Mode Low Frequency output

| Frequency | Output | Tolerance |
|---|---|---|
| 40 Hz | -6.2 dB | ±2 dB |
| 80 Hz | 0.0 dB | reference |
| 100 Hz | +1.3 dB | ±1.5 dB |
| 300 Hz | -17.5 dB | ±2 dB |

**Note:** Set the Input Mode switch to the +4 dB position for the following test procedures.

**6. Midrange Distortion Test**

**6.1** Set the mode switch to the number 1 (FR) position.

**6.2** Apply a 5.8 Vrms, 700 Hz signal to the controller's input.

**6.3** Measure the distortion at the high frequency output terminals. The measurement should be ≤ .2%.

**7. High Frequency Distortion Test**

**7.1** Apply a 1.30 Vrms, 6 kHz signal to the controller's input terminals.

**7.2** Measure the distortion at the high frequency output terminals. The measurement should be ≤ .2%.

**8. Low Frequency Distortion Test Bi-Amp Mode**

**8.1** Set the mode switch to the number 2 (BA) position.

**8.2** Apply a 1.6 Vrms, 80 Hz signal to the controller's input terminals.

**8.3** Measure the distortion at the low frequency output terminals. The measurement should be ≤ .1%.

**9. Midrange Frequency Distortion Test Bi-Amp Mode**

**9.1** Apply a 5.8 Vrms, 700 Hz signal to the controller's input terminals.

**9.2** Measure the distortion at the high frequency output terminals. The measurement should be ≤ .1%.

**10. High Frequency Distortion Test Bi-Amp Mode**

**10.1** Apply a 1.30Vrms, 6 kHz signal to the controller's input terminals.

**10.2** Measure the distortion at the high frequency output terminals. The measurement should be ≤ .2%.

**11. Clipping Headroom Test**

**11.1** Apply a 5.8 Vrms, 700 Hz signal to the controller's input terminals.

**11.2** Measure the distortion (at an output of 7.35 ± .5 Vrms) at the high frequency output terminals. The measurement should be ≤ .1%.

**12. Channel Separation Test Bi-Amp Mode**

**12.1** Apply a 4.0 Vrms, 700 Hz signal to the controller's input terminals.

**12.2** Measure the channel separation across the high frequency output terminals. It should be ≥ 40 dB.

**13. Hum**

**13.1** Measure the hum and noise at the low frequency outputs with no input signal applied. The reading should be ≤ 40 uV.

# PART LIST NOTES

1. This part is not normally available from customer service. Approval from the Field Service Manager is required before ordering.

2. The individual parts located on the PCBs are listed in the Electrical Part List.

3. ⚠ This part is critical for safety purposes. Failure to use a substitute replacement with the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards.

4. This part is not shown.

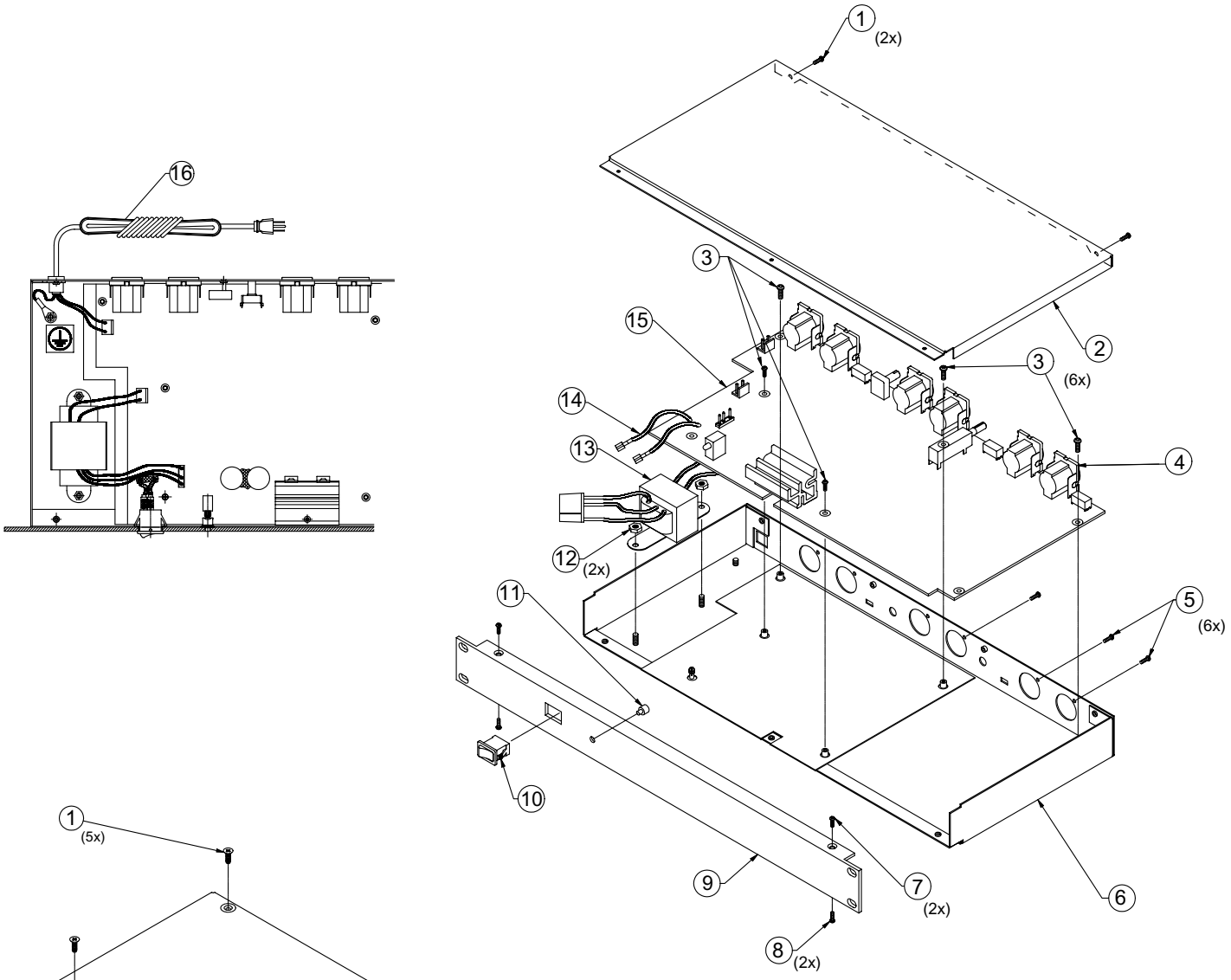



**Figure 2. 402®, 802® II Original Version Exploded View**

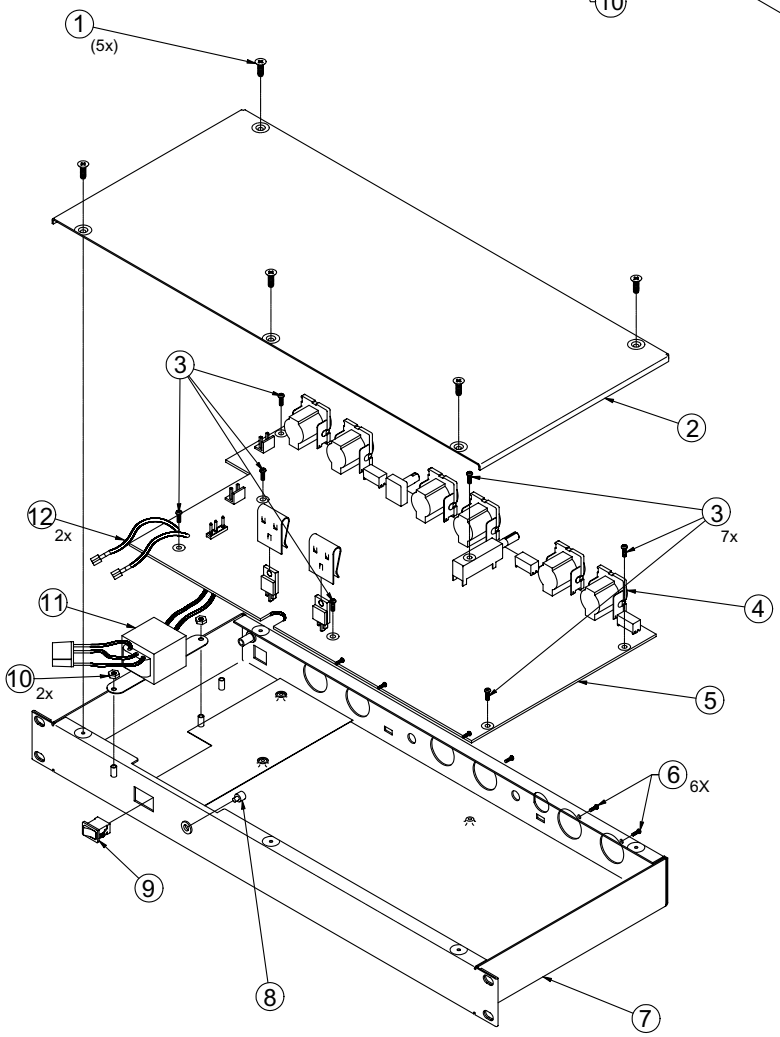



**Figure 3. 402, 802 II Current Version Exploded View**

# MAIN PART LIST

See Figure 2

| Item Number | Description | Part Number | Qty. | Note |
|---|---|---|---|---|
| 1 | SCREW, TAPP, #4-40 x .375, PAN, XREC | 170284-06 | 2 | |
| 2 | COVER, CHASSIS, EQ, CNTLR | 172180 | 1 | |
| 3 | SCREW, TAPP, #4-40 x .25, PAN, TORX | 171796-04 | 5 | |
| 4 | CONNECTOR, XLR, MALE<br>CONNECTOR, XLR, FEMALE | 144004<br>189222-001 | 4<br>2 | |
| 5 | SCREW, TAPP, #4-40 x .375, PAN, XREC | 170284-06 | 6 | |
| 6 | CHASSIS, EQ, CONTROLLER | 173002-03 | 1 | |
| 7 | SCREW, TAPP, #4-40 x .312, BTN, XREC | 170285-05 | 2 | |
| 8 | SCREW, TAPP, #4-40 x .312, BTN, XREC | 170285-05 | 2 | |
| 9 | FRONT PANEL, ASSEMBLY | 172181 | 1 | |
| 10 | SWITCH, ROCKER, SPST, POWER | 143960 | 1 | 3 |
| 11 | LENS, LED, CHASSIS, CLEAR | 144023 | 1 | |
| 12 | STND. HEX NUT, WASHER, KEPS | 118260-08 | 3 | |
| 13 | TRANSFORMER, 100/120V<br>TRANSFORMER, 220/230V | 180128-1<br>180128-2 | 1 | 3 |
| 15 | PCB ASSY, CONTROLLER. 402C II<br>PCB ASSY, CONTROLLER, 802C III | 259145<br>259148 | 1 | 1, 4 |
| 16 | LINE CORD, 3 WIRE, USA/CAN<br>LINE CORD, 2 WIRE, 220V, EURO<br>LINE CORD, 2 WIRE, 100V, JAPAN<br>LINE CORD, 3 WIRE, 230V, UK<br>LINE CORD, 2 WIRE, 240V, AUST. | 173242<br>173243<br>173244<br>173245<br>173246 | 1 | 3 |

# MAIN PART LIST

See Figure 3

| Item Number | Description | Part Number | Qty. | Note |
|---|---|---|---|---|
| 1 | SCREW, 6-32 x .5, TAPP, FLAT, XREC | 198422-008 | 5 | |
| 2 | COVER, CHASSIS, EQ, CNTLR | 198374-001 | 1 | |
| 3 | SCREW, TAPP, 4-40 x .25, PAN, XREC | 103118-04 | 7 | |
| 4 | CONNECTOR, XLR, MALE<br>CONNECTOR, XLR, FEMALE | 144004<br>189222-001 | 4<br>2 | |
| 5 | PCB ASSY., CONTROLLER. 402C II<br>PCB ASSY., CONTROLLER, 802C III | 259145<br>259148 | 1 | 1 |
| 6 | SCREW, TAPP, #4-40 x .375, PAN, XREC | 170284-06 | 6 | |
| 7 | CHASSIS, EQ, CONTROLLER | 198373-005 | 1 | |
| 8 | LENS, LED, CHASSIS, CLEAR | 144023 | 1 | |
| 9 | SWITCH, ROCKER, SPST, POWER | 143960 | 1 | 3  |
| 10 | STND. HEX NUT, WASHER, KEPS | 118260-08 | 3 | |
| 11 | TRANSFORMER, 100/120V<br>TRANSFORMER, 220/230V | 180128-1<br>180128-2 | 1 | 3  |
| 16 | LINE CORD, 3 WIRE, USA/CAN<br>LINE CORD, 2 WIRE, 220V, EURO<br>LINE CORD, 2 WIRE, 100V, JAPAN<br>LINE CORD, 3 WIRE, 230V, UK<br>LINE CORD, 2 WIRE, 240V, AUST. | 173242<br>173243<br>173244<br>173245<br>173246 | 1 | 3  |

# 402® ELECTRICAL PART LIST

Resistors

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R1 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R2 | 1.00K, MF, 1% | 121245-2211001 | |
| R3 | 1.00K, MF, 1% | 121245-2211001 | |
| R4 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R5 | 100K, CF, 2% | 121243-1211042 | |
| R6 | 100K, CF, 2% | 121243-1211042 | |
| R7 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R8 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R9 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R10 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R11 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R12 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R13 | 3.92K, 1206, 1/8W, 1% | 124894-3921 | |
| R14 | 3.92K, 1206, 1/8W, 1% | 124894-3921 | |
| R17 | JUMPER, CHIP | 124896 | |
| R19 | JUMPER, CHIP | 124896 | |
| R21 | JUMPER, CHIP | 124896 | |
| R24 | JUMPER, CHIP | 124896 | |
| R27 | JUMPER, CHIP | 124896 | |
| R30 | JUMPER, CHIP | 124896 | |
| R32 | 274K, 1206, 1/8W, 1% | 124894-2743 | |
| R33 | 20K, 1206, 1/8W, 1% | 124894-2002 | |
| R36 | 78.7K, 1206, 1/8W, 1% | 124894-7872 | |
| R37 | 21.5K, 1206, 1/8W, 1% | 124894-2152 | |
| R38 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R39 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R40 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R41 | 5.90K, 1206, 1/8W, 1% | 124894-5901 | |
| R42 | 5.11K, 1206, 1/8W, 1% | 124894-5111 | |
| R43 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R44 | 1.10K, 1206, 1/8W, 1% | 124894-1101 | |
| R45 | 49.9K, 1206, 1/8W, 1% | 124894-4992 | |
| R46 | 68.1K, 1206, 1/8W, 1% | 124894-6812 | |
| R47 | 6.98K, 1206, 1/8W, 1% | 124894-6981 | |
| R48 | 5.49K, 1206, 1/8W, 1% | 124894-5491 | |
| R49 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R50 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R64 | JUMPER, CHIP | 124896 | |
| R65 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R66 | 1.00K, MF, 1% | 121245-2211001 | |
| R67 | 1.00K, MF, 1% | 121245-2211001 | |
| R68 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R69 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R70 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R71 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R72 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R73 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |

# 402® ELECTRICAL PART LIST

Resistors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R74 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R75 | 3.92K, 1206, 1/8W, 1% | 124894-3921 | |
| R76 | 3.92K, 1206, 1/8W, 1% | 124894-3921 | |
| R79 | JUMPER, CHIP | 124896 | |
| R81 | JUMPER, CHIP | 124896 | |
| R83 | JUMPER, CHIP | 124896 | |
| R86 | JUMPER, CHIP | 124896 | |
| R89 | JUMPER, CHIP | 124896 | |
| R92 | JUMPER, CHIP | 124896 | |
| R94 | 274K, 1206, 1/8W, 1% | 124894-2743 | |
| R95 | 20K, 1206, 1/8W, 1% | 124894-2002 | |
| R98 | 78.7K, 1206, 1/8W, 1% | 124894-7872 | |
| R99 | 21.5K, 1206, 1/8W, 1% | 124894-2152 | |
| R100 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R101 | 5.90K, 1206, 1/8W, 1% | 124894-5901 | |
| R102 | 5.11K, 1206, 1/8W, 1% | 124894-5111 | |
| R103 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R104 | 1.10K, 1206, 1/8W, 1% | 124894-1101 | |
| R105 | 49.9K, 1206, 1/8W, 1% | 124894-4992 | |
| R106 | 68.1K, 1206, 1/8W, 1% | 124894-6812 | |
| R107 | 6.98K, 1206, 1/8W, 1% | 124894-6981 | |
| R108 | 5.49K, 1206, 1/8W, 1% | 124894-5491 | |
| R109 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R110 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R113 | JUMPER, CHIP | 124896 | |
| R117 | JUMPER, CHIP | 124896 | |
| R120 | JUMPER, CHIP | 124896 | |
| R125 | JUMPER, CHIP | 124896 | |
| R127 | 5.6K, CF, 5%, .5W, 52mm | 121243-1515625 | |
| R128 | 100K, CF, 2%, 52mm | 121243-1211042 | |
| R129 | 100K, CF, 2%, 52mm | 121243-1211042 | |
| R130 | 2.74K, 1206, 1/8W, 1% | 124894-2741 | |
| R131 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R134 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R135 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R136 | JUMPER, CHIP | 124896 | |
| R138 | 2.74K, 1206, 1/8W, 1% | 124894-2741 | |
| R139 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R142 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R143 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R144 | JUMPER, CHIP | 124896 | |
| R146 | 47 OHM, MF, 1/4W, 2%, 52mm | 121243-1214702 | |
| R147 | 47 OHM, MF, 1/4W, 2%, 52mm | 121243-1214702 | |
| R148 | 47 OHM, MF, 1/4W, 2%, 52mm | 121243-1214702 | |
| R149 | 47 OHM, MF, 1/4W, 2%, 52mm | 121243-1214702 | |
| R150 | 47 OHM, MF, 1/4W, 2%, 52mm | 121243-1214702 | |
| R151 | 47 OHM, MF, 1/4W, 2%, 52mm | 121243-1214702 | |

# 402® ELECTRICAL PART LIST

Resistors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R152 | 47 OHM, MF, 1/4W, 2% | 121243-1214702 | |
| R153 | 47 OHM, MF, 1/4W, 2% | 121243-1214702 | |
| R154 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R155 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R156 | JUMPER, CHIP | 124896 | |
| R157 | 10K, CF, 5%, .5W | 121243-1511035 | |
| R158 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R159 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R160 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R161 | 4.32K, 1206, 1/8W, 1% | 124894-4321 | |
| R162 | 8.25K, 1206, 1/8W, 1% | 124894-8251 | |
| R163 | 1.82K, 1206, 1/8W, 1% | 124894-1821 | |
| R164 | 1.82K, 1206, 1/8W, 1% | 124894-1821 | |
| R167 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R168 | 4.32K, 1206, 1/8W, 1% | 124894-4321 | |
| R169 | 8.25K, 1206, 1/8W, 1% | 124894-8251 | |
| R170 | 1.82K, 1206, 1/8W, 1% | 124894-1821 | |
| R171 | 1.82K, 1206, 1/8W, 1% | 124894-1821 | |
| R174 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R175 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R176 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R177 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R180 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R182 | JUMPER, CHIP | 124896 | |
| R183 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R184 | 100K, 1206, 1/8W, 1% | 124894-1003 | |
| R185 | 100K, 1206, 1/8W, 1% | 124894-1003 | |
| R191 | 47.5 OHM, 1206, 1/8W, 1% | 124894-47R5 | |
| R192 | 47.5 OHM, 1206, 1/8W, 1% | 124894-47R5 | |
| R193 | 47 OHM, MF, 1/4W, 2% | 121243-1214702 | |
| R194 | 47 OHM, MF, 1/4W, 2% | 121243-1214702 | |
| R195 | 47.5 OHM, 1206, 1/8W, 1% | 124894-47R5 | |
| R196 | 47.5 OHM, 1206, 1/8W, 1% | 124894-47R5 | |
| R197 | 47.5 OHM, 1206, 1/8W, 1% | 124894-47R5 | |
| R198 | 47.5 OHM, 1206, 1/8W, 1% | 124894-47R5 | |
| R199 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R200 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R201 | 17.8K, 1206, 1/8W, 1% | 124894-1782 | |
| R202 | 1 MEG, 1206, 1/8W, 5% | 124895-1055 | |
| R203 | 221 OHM, 1206, 1/8W, 1% | 124894-2210 | |
| R204 | 221 OHM, 1206, 1/8W, 1% | 124894-2210 | |
| R205 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R206 | 1 MEG, 1206, 1/8W, 5% | 124895-1055 | |
| R207 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R208 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R209 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R210 | 475 OHM, 1206, 1/8W, 1% | 124894-4750 | |
| R212 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |

# 402® ELECTRICAL PART LIST

Capacitors

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| C1 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C2 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C3 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C4 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C5 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C6 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C7 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C8 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C9 | 0.27uF, BOX, 85, 100V, 5% | 137127-274 | |
| C10 | 680pF, SL, DISC, 50V, 10% | 137269-681 | |
| C12 | .047uF, BOX, 85, 50V, 5% | 137127-473 | |
| C13 | JUMPER, 0 OHM | 139942 | |
| C16 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C17 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C22 | JUMPER, 0 OHM | 139942 | |
| C23 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C24 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C25 | JUMPER, 0 OHM | 139942 | |
| C26 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C27 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C28 | .47uF, BOX, 85, 50V, 5% | 137127-474 | |
| C29 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C30 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C31 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C32 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C33 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C34 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C35 | .18uF, BOX, 85, 50V, 5% | 137127-184 | |
| C36 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C37 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C47 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C48 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C49 | 22uF, EL, 85, 35V, 50% | 119944-220 | |
| C50 | 22uF, EL, 85, 35V, 50% | 119944-220 | |
| C51 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C52 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C55 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C56 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C57 | 0.27uF, BOX, 85, 100V, 5% | 137127-274 | |
| C58 | 680pF, SL, DISC, 50V, 10% | 137269-681 | |
| C60 | .047uF, BOX, 85, 50V, 5% | 137127-473 | |
| C61 | JUMPER, 0 OHM | 139942 | |
| C64 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C65 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C70 | JUMPER, 0 OHM | 139942 | |
| C71 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |

# 402® ELECTRICAL PART LIST

Capacitors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| C72 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C73 | JUMPER, 0 OHM | 139942 | |
| C74 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C75 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C76 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C77 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C78 | .47uF, BOX, 85, 50V, 5% | 137127-474 | |
| C79 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C80 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C81 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C82 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C83 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C84 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C85 | .18uF, BOX, 85, 50V, 5% | 137127-184 | |
| C86 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C87 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C97 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C98 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C99 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C100 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C101 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C103 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C105 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C107 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C109 | .0047uF, 250VAC, 20% | 146354 | 3  |
| C110 | .01uF, 1206, Y5V, 50V, 80% | 124959-103 | |
| C111 | .01uF, 1206, Y5V, 50V, 80% | 124959-103 | |
| C112 | .01uF, 1206, Y5V, 50V, 80% | 124959-103 | |
| C113 | 2200uF, EL, 105C, 50V, 20% | 144000-222H | 3  |
| C114 | 2200uF, EL, 105C, 50V, 20% | 144000-222H | 3  |
| C115 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C116 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C117 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C118 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C119 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C120 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C121 | 0.0047uF, BOX, 85, 100V, 5% | 137127-472 | |
| C122 | 0.0022uF, BOX, 85, 100V, 5% | 137127-222 | |
| C123 | .047uF, BOX, 85, 50V, 5% | 137127-473 | |

# 402® ELECTRICAL PART LIST

Capacitors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| C125 | 0.0047uF, BOX, 85, 100V, 5% | 137127-472 | |
| C126 | 0.0022uF, BOX, 85, 100V, 5% | 137127-222 | |
| C127 | .047uF, BOX, 85, 50V, 5% | 137127-473 | |
| C129 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C130 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C131 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C132 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C133 | .01uF, 1206, Y5V, 50V, 80% | 124959-103 | |
| C140 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C141 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C142 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C143 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C144 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C145 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C146 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C147 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C148 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C149 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C150 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C151 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C152 | 22uF, EL, BP, 85C, 25V, 20% | 147522-220 | |
| C153 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C155 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C157 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C159 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C161 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C162 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C163 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C164 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |

# 802® II ELECTRICAL PART LIST

Resistors

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R1 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R2 | 1.00K, MF, 1% | 121245-2211001 | |
| R3 | 1.00K, MF, 1% | 121245-2211001 | |
| R4 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R5 | 100K, CF, 2% | 121243-1211042 | |
| R6 | 100K, CF, 2% | 121243-1211042 | |
| R7 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R8 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R9 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R10 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R11 | 13K, 1206, 1/8W, 1% | 124894-1302 | |
| R12 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R13 | 18K, 1206, 1/8W, 1% | 124894-1835 | |
| R14 | 18K, 1206, 1/8W, 1% | 124894-1835 | |
| R15 | 20K, 1206, 1/8W, 1% | 124894-2002 | |
| R16 | 2.74K, 1206, 1/8W, 1% | 124894-2741 | |
| R17 | JUMPER, CHIP | 124896 | |
| R18 | 9.09K, 1206, 1/8W, 1% | 124894-9091 | |
| R19 | JUMPER, CHIP | 124896 | |
| R21 | JUMPER, CHIP | 124896 | |
| R24 | JUMPER, CHIP | 124896 | |
| R25 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R26 | 470 OHM, 1206, 1/8W, 5% | 124895-4715 | |
| R27 | 22K, 1206, 1/8W, 1% | 124894-2235 | |
| R28 | 27.4K, 1206, 1/8W, 1% | 124894-2742 | |
| R29 | 130K, 1206, 1/8W, 1% | 124894-1303 | |
| R30 | 8.2K, 1206, 1/8W, 1% | 124894-8225 | |
| R31 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R32 | 160K, 1206, 1/8W, 1% | 124894-1645 | |
| R33 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R34 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R35 | 1.74K, 1206, 1/8W, 1% | 124894-1741 | |
| R36 | 34.8K, 1206, 1/8W, 1% | 124894-3482 | |
| R37 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R38 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R39 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R40 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R41 | 5.90K, 1206, 1/8W, 1% | 124894-5901 | |
| R42 | 5.11K, 1206, 1/8W, 1% | 124894-5111 | |
| R43 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R44 | 1.10K, 1206, 1/8W, 1% | 124894-1101 | |
| R45 | 49.9K, 1206, 1/8W, 1% | 124894-4992 | |
| R46 | 68.1K, 1206, 1/8W, 1% | 124894-6812 | |
| R47 | 6.98K, 1206, 1/8W, 1% | 124894-6981 | |
| R48 | 5.49K, 1206, 1/8W, 1% | 124894-5491 | |
| R49 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R50 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |

# 802® II ELECTRICAL PART LIST

Resistors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R64 | JUMPER, CHIP | 124896 | |
| R65 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R66 | 1.00K, MF, 1% | 121245-2211001 | |
| R67 | 1.00K, MF, 1% | 121245-2211001 | |
| R68 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R69 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R70 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R71 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R72 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R73 | 13K, 1206, 1/8W, 1% | 124894-1302 | |
| R74 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R75 | 18K, 1206, 1/8W, 1% | 124894-1835 | |
| R76 | 18K, 1206, 1/8W, 1% | 124894-1835 | |
| R77 | 20K, 1206, 1/8W, 1% | 124894-2002 | |
| R78 | 2.74K, 1206, 1/8W, 1% | 124894-2741 | |
| R79 | JUMPER, CHIP | 124896 | |
| R80 | 9.09K, 1206, 1/8W, 1% | 124894-9091 | |
| R81 | JUMPER, CHIP | 124896 | |
| R83 | JUMPER, CHIP | 124896 | |
| R85 | 2.49K, 1206, 1/8W, 1% | 124894-2491 | |
| R86 | JUMPER, CHIP | 124896 | |
| R87 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R88 | 470 OHM, 1206, 1/8W, 5% | 124895-4715 | |
| R89 | 22K, 1206, 1/8W, 1% | 124894-2235 | |
| R90 | 27.4K, 1206, 1/8W, 1% | 124894-2742 | |
| R91 | 130K, 1206, 1/8W, 1% | 124894-1303 | |
| R92 | 8.2K, 1206, 1/8W, 1% | 124894-8225 | |
| R93 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R94 | 160K, 1206, 1/8W, 1% | 124894-1645 | |
| R95 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R96 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R97 | 1.74K, 1206, 1/8W, 1% | 124894-1741 | |
| R98 | 34.8K, 1206, 1/8W, 1% | 124894-3482 | |
| R99 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R100 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R101 | 5.90K, 1206, 1/8W, 1% | 124894-5901 | |
| R102 | 5.11K, 1206, 1/8W, 1% | 124894-5111 | |
| R103 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R104 | 1.10K, 1206, 1/8W, 1% | 124894-1101 | |
| R105 | 49.9K, 1206, 1/8W, 1% | 124894-4992 | |
| R106 | 68.1K, 1206, 1/8W, 1% | 124894-6812 | |
| R107 | 6.98K, 1206, 1/8W, 1% | 124894-6981 | |
| R108 | 5.49K, 1206, 1/8W, 1% | 124894-5491 | |
| R109 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R110 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R113 | JUMPER, CHIP | 124896 | |

# 802® II ELECTRICAL PART LIST

Resistors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R117 | JUMPER, CHIP | 124896 | |
| R120 | JUMPER, CHIP | 124896 | |
| R125 | JUMPER, CHIP | 124896 | |
| R127 | 5.6K, CF, 5%, .5W | 121243-1515625 | |
| R128 | 100K, CF, 2% | 121243-1211042 | |
| R129 | 100K, CF, 2% | 121243-1211042 | |
| R130 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R131 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R134 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R135 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R136 | JUMPER, CHIP | 124896 | |
| R138 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R139 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R142 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R143 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R144 | JUMPER, CHIP | 124896 | |
| R146 | 47 OHM, MF, 1/4W, 2% | 121243-1214702 | |
| R147 | 47 OHM, MF, 1/4W, 2% | 121243-1214702 | |
| R148 | 47 OHM, MF, 1/4W, 2% | 121243-1214702 | |
| R149 | 47 OHM, MF, 1/4W, 2% | 121243-1214702 | |
| R150 | 47 OHM, MF, 1/4W, 2% | 121243-1214702 | |
| R151 | 47 OHM, MF, 1/4W, 2% | 121243-1214702 | |
| R152 | 47 OHM, MF, 1/4W, 2% | 121243-1214702 | |
| R153 | 47 OHM, MF, 1/4W, 2% | 121243-1214702 | |
| R154 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R155 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R156 | JUMPER, CHIP | 124896 | |
| R157 | 10K, CF, 5%, .5W | 121243-1511035 | |
| R158 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R159 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R160 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R161 | 4.32K, 1206, 1/8W, 1% | 124894-4321 | |
| R162 | JUMPER, CHIP | 124896 | |
| R165 | 23.7K, 1206, 1/8W, 1% | 124894-2372 | |
| R166 | 61.9K, 1206, 1/8W, 1% | 124894-6192 | |
| R167 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R168 | 4.32K, 1206, 1/8W, 1% | 124894-4321 | |
| R169 | JUMPER, CHIP | 124896 | |
| R172 | 23.7K, 1206, 1/8W, 1% | 124894-2372 | |
| R173 | 61.9K, 1206, 1/8W, 1% | 124894-6192 | |
| R174 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R175 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R176 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R177 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R180 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R182 | JUMPER, CHIP | 124896 | |

# 802® II ELECTRICAL PART LIST

Resistors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R183 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R191 | 47.5 OHM, 1206, 1/8W, 1% | 124894-47R5 | |
| R192 | 47.5 OHM, 1206, 1/8W, 1% | 124894-47R5 | |
| R193 | 47 OHM, MF, 1/4W, 2%, 52mm | 121243-1214702 | |
| R194 | 47 OHM, MF, 1/4W, 2%, 52mm | 121243-1214702 | |
| R195 | 47.5 OHM, 1206, 1/8W, 1% | 124894-47R5 | |
| R196 | 47.5 OHM, 1206, 1/8W, 1% | 124894-47R5 | |
| R197 | 47.5 OHM, 1206, 1/8W, 1% | 124894-47R5 | |
| R198 | 47.5 OHM, 1206, 1/8W, 1% | 124894-47R5 | |
| R199 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R200 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R201 | 17.8K, 1206, 1/8W, 1% | 124894-1782 | |
| R202 | 1 MEG, 1206, 1/8W, 5% | 124895-1055 | |
| R203 | 221 OHM, 1206, 1/8W, 1% | 124894-2210 | |
| R204 | 221 OHM, 1206, 1/8W, 1% | 124894-2210 | |
| R205 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R206 | 1 MEG, 1206, 1/8W, 5% | 124895-1055 | |
| R207 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R208 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R209 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R210 | 475 OHM, 1206, 1/8W, 1% | 124894-4750 | |
| R212 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |

Capacitors

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| C1 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C2 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C3 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C4 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C5 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C6 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C7 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C8 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C9 | .0068uF, BOX, 85, 100V, 5% | 137127-682 | |
| C10 | 270pF, SL, DISC, 50V, 10% | 137269-271 | |
| C11 | .0012uF, BOX, 85, 63V, 5% | 137127-122 | |
| C12 | .0068uF, BOX, 85, 100V, 5% | 137127-682 | |
| C13 | .0068uF, BOX, 85, 100V, 5% | 137127-682 | |
| C14 | .0082uF, BOX, 85, 100V, 5% | 137127-822 | |
| C15 | .0056uF, BOX, 85, 100V, 5% | 137127-562 | |
| C16 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C17 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C18 | .033uF, BOX, 85, 100V, 5% | 137127-333 | |
| C19 | .068uF, BOX, 85, 100V, 5% | 137127-683 | |
| C20 | .033uF, BOX, 85, 100V, 5% | 137127-333 | |
| C22 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C23 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |

# 802® II ELECTRICAL PART LIST

Capacitors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| C24 | .33uF, BOX, 85, 100V, 5% | 137127-334 | |
| C25 | .15uF, BOX, 85, 50V, 5% | 137127-154 | |
| C26 | .15uF, BOX, 85, 50V, 5% | 137127-154 | |
| C27 | .47uF, BOX, 85, 50V, 5% | 137127-474 | |
| C28 | .47uF, BOX, 85, 50V, 5% | 137127-474 | |
| C29 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C30 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C31 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C32 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C33 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C34 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C35 | .18uF, BOX, 85, 50V, 5% | 137127-184 | |
| C36 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C37 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C47 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C48 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C49 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C50 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C51 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C52 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C53 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C54 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C55 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C56 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C57 | .0068uF, BOX, 85, 100V, 5% | 137127-682 | |
| C58 | 270pF, SL, DISC, 50V, 10% | 137269-271 | |
| C59 | .0012uF, BOX, 85, 63V, 5% | 137127-122 | |
| C60 | .0068uF, BOX, 85, 100V, 5% | 137127-682 | |
| C61 | .0068uF, BOX, 85, 100V, 5% | 137127-682 | |
| C62 | .0082uF, BOX, 85, 100V, 5% | 137127-822 | |
| C63 | .0056uF, BOX, 85, 100V, 5% | 137127-562 | |
| C64 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C65 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C66 | .033uF, BOX, 85, 100V, 5% | 137127-333 | |
| C67 | .068uF, BOX, 85, 100V, 5% | 137127-683 | |
| C68 | .033uF, BOX, 85, 100V, 5% | 137127-333 | |
| C69 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C70 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C71 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C72 | .33uF, BOX, 85, 100V, 5% | 137127-334 | |
| C73 | .15uF, BOX, 85, 50V, 5% | 137127-154 | |
| C74 | .15uF, BOX, 85, 50V, 5% | 137127-154 | |
| C75 | .47uF, BOX, 85, 50V, 5% | 137127-474 | |
| C76 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C77 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C78 | .47uF, BOX, 85, 50V, 5% | 137127-474 | |

# 802® II ELECTRICAL PART LIST

Capacitors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| C79 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C80 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C81 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C82 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C83 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C84 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C85 | .18uF, BOX, 85, 50V, 5% | 137127-184 | |
| C86 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C87 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C95 | JUMPER, 0 OHM | 139942 | |
| C97 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C98 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C99 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C100 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C101 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C103 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C105 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C107 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C109 | .0047uF, 250VAC, 20% | 146354 | 3  |
| C110 | .01uF, 1206, Y5V, 50V, 80% | 124959-103 | |
| C111 | .001uF, 1206, Y5V, 50V, 80% | 124959-102 | |
| C112 | .01uF, CHIP, 5% | 124959-103 | |
| C113 | 2200uF, EL, 105C, 50V, 20% | 144000-222H | 3  |
| C114 | 2200uF, EL, 105C, 50V, 20% | 144000-222H | 3  |
| C115 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C116 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C117 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C118 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C119 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C120 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C129 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C130 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C131 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C132 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C133 | 1000pF, CHIP, 5% | 124959-103 | |
| C142 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C143 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C144 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C145 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C146 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |

# 802® II ELECTRICAL PART LIST

Capacitors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| C147 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C148 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C149 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C150 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C151 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C152 | 22uF, EL, BP, 85C, 25V, 20% | 147522-220 | |
| C153 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C155 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C157 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C159 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C161 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C162 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C163 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C164 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |

# 402® II ELECTRICAL PART LIST

Resistors

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R1 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R2 | 1.00K, MF, 1%, 52mm | 121245-2211001 | |
| R3 | 1.00K, MF, 1%, 52mm | 121245-2211001 | |
| R4 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R5 | 100K, CF, 2%, 52mm | 121243-1211042 | |
| R6 | 100K, CF, 2%, 52mm | 121243-1211042 | |
| R7 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R8 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R9 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R10 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R11 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R12 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R13 | 2.21K, 1206, 1/8W, 1% | 124894-2211 | |
| R14 | 1.47K, 1206, 1/8W, 1% | 124894-1471 | |
| R15 | 182K, 1206, 1/8W, 1% | 124894-1823 | |
| R16 | 3.83K, 1206, 1/8W, 1% | 124894-3831 | |
| R17 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R18 | 5.76K, 1206, 1/8W, 1% | 124894-5761 | |
| R19 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R20 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R21 | JUMPER, CHIP | 124896 | |
| R24 | JUMPER, CHIP | 124896 | |
| R25 | JUMPER, CHIP | 124896 | |
| R27 | 30.1K, 1206, 1/8W, 1% | 124894-3012 | |
| R28 | 5.76K, 1206, 1/8W, 1% | 124894-5761 | |
| R29 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R30 | 634 OHM, 1206, 1/8W, 1% | 124894-6340 | |
| R31 | 3.01K, 1206, 1/8W, 1% | 124894-3011 | |
| R32 | 75.0K, 1206, 1/8W, 1% | 124894-7502 | |
| R33 | 7.15K, 1206, 1/8W, 1% | 124894-7151 | |
| R36 | 78.7K, 1206, 1/8W, 1% | 124894-7872 | |
| R37 | 21.5K, 1206, 1/8W, 1% | 124894-2152 | |
| R38 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R39 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R40 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R41 | 5.90K, 1206, 1/8W, 1% | 124894-5901 | |
| R42 | 5.11K, 1206, 1/8W, 1% | 124894-5111 | |
| R43 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R44 | 1.10K, 1206, 1/8W, 1% | 124894-1101 | |
| R45 | 49.9K, 1206, 1/8W, 1% | 124894-4992 | |
| R46 | 68.1K, 1206, 1/8W, 1% | 124894-6812 | |
| R47 | 6.98K, 1206, 1/8W, 1% | 124894-6981 | |
| R48 | 5.49K, 1206, 1/8W, 1% | 124894-5491 | |
| R49 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R50 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R64 | JUMPER, CHIP | 124896 | |
| R65 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |

# 402® II ELECTRICAL PART LIST

Resistors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R66 | 1.00K, MF, 1%, 52mm | 121245-2211001 | |
| R67 | 1.00K, MF, 1%, 52mm | 121245-2211001 | |
| R68 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R69 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R70 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R71 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R72 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R73 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R74 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R76 | 1.47K, 1206, 1/8W, 1% | 124894-1471 | |
| R75 | 2.21K, 1206, 1/8W, 1% | 124894-2211 | |
| R77 | 182K, 1206, 1/8W, 1% | 124894-1823 | |
| R78 | 3.83K, 1206, 1/8W, 1% | 124894-3831 | |
| R79 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R80 | 5.76K, 1206, 1/8W, 1% | 124894-5761 | |
| R81 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R82 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R83 | JUMPER, CHIP | 124896 | |
| R86 | JUMPER, CHIP | 124896 | |
| R87 | JUMPER, CHIP | 124896 | |
| R89 | 30.1K, 1206, 1/8W, 1% | 124894-3012 | |
| R90 | 5.76K, 1206, 1/8W, 1% | 124894-5761 | |
| R91 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R92 | 634 OHM, 1206, 1/8W, 1% | 124894-6340 | |
| R93 | 3.01K, 1206, 1/8W, 1% | 124894-3011 | |
| R94 | 75.0K, 1206, 1/8W, 1% | 124894-7502 | |
| R98 | 78.7K, 1206, 1/8W, 1% | 124894-7872 | |
| R99 | 21.5K, 1206, 1/8W, 1% | 124894-2152 | |
| R100 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R101 | 5.90K, 1206, 1/8W, 1% | 124894-5901 | |
| R102 | 5.11K, 1206, 1/8W, 1% | 124894-5111 | |
| R103 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R104 | 1.10K, 1206, 1/8W, 1% | 124894-1101 | |
| R105 | 49.9K, 1206, 1/8W, 1% | 124894-4992 | |
| R106 | 68.1K, 1206, 1/8W, 1% | 124894-6812 | |
| R107 | 6.98K, 1206, 1/8W, 1% | 124894-6981 | |
| R108 | 5.49K, 1206, 1/8W, 1% | 124894-5491 | |
| R109 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R110 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R113 | JUMPER, CHIP | 124896 | |
| R117 | JUMPER, CHIP | 124896 | |
| R120 | JUMPER, CHIP | 124896 | |
| R125 | JUMPER, CHIP | 124896 | |
| R127 | 5.6K, CF, 5%, .5W, 52mm | 121243-1515625 | |
| R126 | 100K, CF, 2%, 52mm | 121243-1211042 | |
| R129 | 100K, CF, 2%, 52mm | 121243-1211042 | |
| R130 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |

# 402® II ELECTRICAL PART LIST

Resistors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R131 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R134 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R135 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R136 | JUMPER, CHIP | 124896 | |
| R138 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R139 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R142 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R143 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R144 | JUMPER, CHIP | 124896 | |
| R146 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R147 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R148 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R149 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R150 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R151 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R152 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R153 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R154 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R155 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R156 | JUMPER, CHIP | 124896 | |
| R157 | 10K, CF, 5%, .5W, 52mm | 121243-1511035 | |
| R158 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R159 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R160 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R161 | 4.32K, 1206, 1/8W, 1% | 124894-4321 | |
| R162 | JUMPER, CHIP | 124896 | |
| R165 | 25.5K, 1206, 1/8W, 1% | 124894-2552 | |
| R167 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R168 | 4.32K, 1206, 1/8W, 1% | 124894-4321 | |
| R169 | JUMPER, CHIP | 124896 | |
| R172 | 25.5K, 1206, 1/8W, 1% | 124894-2552 | |
| R174 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R175 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R176 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R177 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R180 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R182 | JUMPER, CHIP | 124896 | |
| R183 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R191 | 200 OHM, CHIP, 1% | 124894-2000 | |
| R192 | 200 OHM, CHIP, 1% | 124894-2000 | |
| R193 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R194 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R195 | 200 OHM, CHIP, 1% | 124894-2000 | |
| R196 | 200 OHM, CHIP, 1% | 124894-2000 | |
| R197 | 200 OHM, CHIP, 1% | 124894-2000 | |
| R198 | 200 OHM, CHIP, 1% | 124894-2000 | |
| R199 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |

# 402® II ELECTRICAL PART LIST

Resistors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R200 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R201 | 17.8K, 1206, 1/8W, 1% | 124894-1782 | |
| R202 | 1 MEG, 1206, 1/8W, 5% | 124895-1055 | |
| R203 | 221 OHM, 1206, 1/8W, 1% | 124894-2210 | |
| R204 | 221 OHM, 1206, 1/8W, 1% | 124894-2210 | |
| R205 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R206 | 1 MEG, 1206, 1/8W, 5% | 124895-1055 | |
| R207 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R208 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R209 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R210 | 475 OHM, 1206, 1/8W, 1% | 124894-4750 | |
| R212 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R213 | JUMPER, 22AWG, NON-INSUL, 10.0mm | 148242-100 | |
| R214 | JUMPER, 22AWG, NON-INSUL, 10.0mm | 148242-100 | |
| R215 | JUMPER, 22AWG, NON-INSUL, 10.0mm | 148242-100 | |
| R216 | JUMPER, 22AWG, NON-INSUL, 10.0mm | 148242-100 | |
| R217 | JUMPER, 22AWG, NON-INSUL, 10.0mm | 148242-100 | |
| R218 | JUMPER, 22AWG, NON-INSUL, 10.0mm | 148242-100 | |

# 402® II ELECTRICAL PART LIST

Capacitors

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| C1 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C2 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C3 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C4 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C5 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C6 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C7 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C9 | .0022uF, BOX, 85, 100V, 5% | 137127-222 | |
| C10 | .0018uF, BOX, 85, 100V, 5% | 137127-182 | |
| C11 | .027uF, BOX, 85, 63V, 5% | 137127-273 | |
| C12 | .082uF, BOX, 85, 50V, 5% | 137127-823 | |
| C13 | .01uF, BOX, 85, 100V, 5% | 137127-103 | |
| C16 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C17 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C18 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C20 | .068uF, BOX, 85, 63V, 5% | 137127-683 | |
| C21 | .047uF, 1206, X7R, 50V, 10% | 138552-473 | |
| C22 | JUMPER, 0 OHM | 139942 | |
| C23 | .082uF, BOX, 85, 50V, 5% | 137127-823 | |
| C24 | .082uF, BOX, 85, 50V, 5% | 137127-823 | |
| C25 | JUMPER, 0 OHM | 139942 | |
| C26 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C27 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C28 | .47uF, BOX, 85, 50V, 5% | 137127-474 | |
| C29 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C30 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C31 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C32 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C33 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C34 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C35 | .18uF, BOX, 85, 50V, 5% | 137127-184 | |
| C36 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C37 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C47 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C48 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C49 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C50 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C51 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C52 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C53 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C54 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C55 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C57 | .0022uF, BOX, 85, 100V, 5% | 137127-222 | |
| C58 | .0018uF, BOX, 85, 100V, 5% | 137127-182 | |
| C59 | .027uF, BOX, 85, 63V, 5% | 137127-273 | |
| C60 | .082uF, BOX, 85, 50V, 5% | 137127-823 | |

# 402® II ELECTRICAL PART LIST

Capacitors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| C61 | .01uF, BOX, 85, 100V, 5% | 137127-103 | |
| C64 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C65 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C66 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C68 | .068uF, BOX, 85, 63V, 5% | 137127-683 | |
| C69 | .047uF, 1206, X7R, 50V, 10% | 138552-473 | |
| C70 | JUMPER, 0 OHM | 139942 | |
| C71 | .082uF, BOX, 85, 50V, 5% | 137127-823 | |
| C72 | .082uF, BOX, 85, 50V, 5% | 137127-823 | |
| C73 | JUMPER, 0 OHM | 139942 | |
| C74 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C75 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C76 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C77 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C78 | .47uF, BOX, 85, 50V, 5% | 137127-474 | |
| C79 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C80 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C81 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C82 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C83 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C84 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C85 | .18uF, BOX, 85, 50V, 5% | 137127-184 | |
| C86 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C87 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C95 | JUMPER, 0 OHM | 139942 | |
| C97 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C98 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C99 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C100 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C109 | .0047uF, 250VAC, 20% | 146354 | 3  |
| C110 | .001uF, 1206, Y5V, 50V, 80% | 124959-102 | |
| C111 | .001uF, 1206, Y5V, 50V, 80% | 124959-102 | |
| C112 | .01uF, 1206, Y5V, 50V, 80% | 124959-103 | |
| C113 | 2200uF, EL, 105C, 50V, 20% | 144000-222H | 3  |
| C114 | 2200uF, EL, 105C, 50V, 20% | 144000-222H | 3  |
| C115 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C116 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C117 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C118 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C119 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C120 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |

# 402® II ELECTRICAL PART LIST

Capacitors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| C133 | .01uF, 1206, Y5V, 50V, 80% | 124959-103 | |
| C142 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C143 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C144 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C145 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C146 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C147 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C148 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C149 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C150 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C151 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C152 | 22uF, EL, BP, 85C, 25V, 20% | 147522-220 | |
| C153 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C155 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C157 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C159 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C161 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C162 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C163 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C164 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |

# 802® III ELECTRICAL PART LIST

Resistors

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R1 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R2 | 1.00K, MF, 1%, 52mm | 121245-2211001 | |
| R3 | 1.00K, MF, 1%, 52mm | 121245-2211001 | |
| R4 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R5 | 100K, CF, 2%, 52mm | 121243-1211042 | |
| R6 | 100K, CF, 2%, 52mm | 121243-1211042 | |
| R7 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R8 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R9 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R10 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R11 | 3.32K, 1206, 1/8W, 1% | 124894-3321 | |
| R12 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R13 | 1.27K, 1206, 1/8W, 1% | 124894-1271 | |
| R14 | 1.27K, 1206, 1/8W, 1% | 124894-1271 | |
| R15 | 9.09K, 1206, 1/8W, 1% | 124894-9091 | |
| R16 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R17 | 5.62K, 1206, 1/8W, 1% | 124894-5621 | |
| R18 | 9.09K, 1206, 1/8W, 1% | 124894-9091 | |
| R19 | 54.9K, 1206, 1/8W, 1% | 124894-5492 | |
| R21 | JUMPER, CHIP | 124896 | |
| R23 | 2.49K, 1206, 1/8W, 1% | 124894-2491 | |
| R24 | JUMPER, CHIP | 124896 | |
| R27 | JUMPER, CHIP | 124896 | |
| R30 | 20.0K, 1206, 1/8W, 1% | 124894-2002 | |
| R31 | 16.5K, 1206, 1/8W, 1% | 124894-1652 | |
| R32 | 93.1K, 1206, 1/8W, 1% | 124894-9312 | |
| R33 | 6.34K, 1206, 1/8W, 1% | 124894-6341 | |
| R35 | 1.74K, 1206, 1/8W, 1% | 124894-1741 | |
| R36 | 34.8K, 1206, 1/8W, 1% | 124894-3482 | |
| R37 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R38 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R39 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R40 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R41 | 5.90K, 1206, 1/8W, 1% | 124894-5901 | |
| R42 | 5.11K, 1206, 1/8W, 1% | 124894-5111 | |
| R43 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R44 | 1.10K, 1206, 1/8W, 1% | 124894-1101 | |
| R45 | 49.9K, 1206, 1/8W, 1% | 124894-4992 | |
| R46 | 68.1K, 1206, 1/8W, 1% | 124894-6812 | |
| R47 | 6.98K, 1206, 1/8W, 1% | 124894-6981 | |
| R48 | 5.49K, 1206, 1/8W, 1% | 124894-5491 | |
| R49 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R50 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R64 | JUMPER, CHIP | 124896 | |
| R65 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R66 | 1.00K, MF, 1%, 52mm | 121245-2211001 | |
| R67 | 1.00K, MF, 1%, 52mm | 121245-2211001 | |

# 802® III ELECTRICAL PART LIST

Resistors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R68 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R69 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R70 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R71 | 8.06K, 1206, 1/8W, 1% | 124894-8061 | |
| R72 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R73 | 3.32K, 1206, 1/8W, 1% | 124894-3321 | |
| R74 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R75 | 1.27K, 1206, 1/8W, 1% | 124894-1271 | |
| R76 | 1.27K, 1206, 1/8W, 1% | 124894-1271 | |
| R77 | 9.09K, 1206, 1/8W, 1% | 124894-9091 | |
| R78 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R79 | 5.62K, 1206, 1/8W, 1% | 124894-5621 | |
| R80 | 9.09K, 1206, 1/8W, 1% | 124894-9091 | |
| R81 | 54.9K, 1206, 1/8W, 1% | 124894-5492 | |
| R83 | JUMPER, CHIP | 124896 | |
| R85 | 2.49K, 1206, 1/8W, 1% | 124894-2491 | |
| R86 | JUMPER, CHIP | 124896 | |
| R89 | JUMPER, CHIP | 124896 | |
| R92 | 20.0K, 1206, 1/8W, 1% | 124894-2002 | |
| R93 | 16.5K, 1206, 1/8W, 1% | 124894-1652 | |
| R94 | 93.1K, 1206, 1/8W, 1% | 124894-9312 | |
| R95 | 6.34K, 1206, 1/8W, 1% | 124894-6341 | |
| R97 | 1.74K, 1206, 1/8W, 1% | 124894-1741 | |
| R98 | 34.8K, 1206, 1/8W, 1% | 124894-3482 | |
| R99 | 2.00K, 1206, 1/8W, 1% | 124894-2001 | |
| R100 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R101 | 5.90K, 1206, 1/8W, 1% | 124894-5901 | |
| R102 | 5.11K, 1206, 1/8W, 1% | 124894-5111 | |
| R103 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R104 | 1.10K, 1206, 1/8W, 1% | 124894-1101 | |
| R105 | 49.9K, 1206, 1/8W, 1% | 124894-4992 | |
| R106 | 68.1K, 1206, 1/8W, 1% | 124894-6812 | |
| R107 | 6.98K, 1206, 1/8W, 1% | 124894-6981 | |
| R108 | 5.49K, 1206, 1/8W, 1% | 124894-5491 | |
| R109 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R110 | 14.0K, 1206, 1/8W, 1% | 124894-1402 | |
| R113 | JUMPER, CHIP | 124896 | |
| R117 | JUMPER, CHIP | 124896 | |
| R120 | JUMPER, CHIP | 124896 | |
| R125 | JUMPER, CHIP | 124896 | |
| R127 | 5.6K, CF, 5%, .5W, 52mm | 121243-1515625 | |
| R128 | 100K, CF, 2%, 52mm | 121243-1211042 | |
| R129 | 100K, CF, 2%, 52mm | 121243-1211042 | |
| R130 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R131 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R134 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |

# 802® III ELECTRICAL PART LIST

Resistors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R135 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R136 | JUMPER, CHIP | 124896 | |
| R138 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R139 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R142 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R143 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R144 | JUMPER, CHIP | 124896 | |
| R146 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R147 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R148 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R149 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R150 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R151 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R152 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R153 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R154 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R155 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R156 | JUMPER, CHIP | 124896 | |
| R157 | 10K, CF, 5%, .5W, 52mm | 121243-1511035 | |
| R158 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R159 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R160 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R161 | 4.32K, 1206, 1/8W, 1% | 124894-4321 | |
| R162 | JUMPER, CHIP | 124896 | |
| R165 | 3.01K, 1206, 1/8W, 1% | 124894-3011 | |
| R166 | 61.9K, 1206, 1/8W, 1% | 124894-6192 | |
| R167 | 1.00K, 1206, 1/8W, 1% | 124894-1001 | |
| R168 | 4.32K, 1206, 1/8W, 1% | 124894-4321 | |
| R169 | JUMPER, CHIP | 124896 | |
| R172 | 3.01K, 1206, 1/8W, 1%, | 124894-3011 | |
| R173 | 61.9K, 1206, 1/8W, 1% | 124894-6192 | |
| R174 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R175 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R176 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R177 | 681 OHM, 1206, 1/8W, 1% | 124894-6810 | |
| R180 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R182 | JUMPER, CHIP | 124896 | |
| R183 | 221K, 1206, 1/8W, 1% | 124894-2213 | |
| R191 | 200 OHM, CHIP, 1% | 124894-2000 | |
| R192 | 200 OHM, CHIP, 1% | 124894-2000 | |
| R193 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R194 | 200 OHM, MF, 1/4W, 1%, 52mm | 121245-2212000 | |
| R195 | 200 OHM, CHIP, 1% | 124894-2000 | |
| R196 | 200 OHM, CHIP, 1% | 124894-2000 | |
| R197 | 200 OHM, CHIP, 1% | 124894-2000 | |
| R198 | 200 OHM, CHIP, 1% | 124894-2000 | |

# 802® III ELECTRICAL PART LIST

Resistors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| R199 | 6.81K, 1206, 1/8W, 1% | 124894-6811 | |
| R200 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R201 | 17.8K, 1206, 1/8W, 1% | 124894-1782 | |
| R202 | 1 MEG, 1206, 1/8W, 5% | 124895-1055 | |
| R203 | 221 OHM, 1206, 1/8W, 1% | 124894-2210 | |
| R204 | 221 OHM, 1206, 1/8W, 1% | 124894-2210 | |
| R205 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R206 | 1 MEG, 1206, 1/8W, 5% | 124895-1055 | |
| R207 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R208 | 10.0K, 1206, 1/8W, 1% | 124894-1002 | |
| R209 | 47.5K, 1206, 1/8W, 1% | 124894-4752 | |
| R210 | 475 OHM, 1206, 1/8W, 1% | 124894-4750 | |
| R212 | 4.75K, 1206, 1/8W, 1% | 124894-4751 | |
| R213 | JUMPER, 22AWG, NON-INSUL, 10.0mm | 148242-100 | |
| R214 | JUMPER, 22AWG, NON-INSUL, 10.0mm | 148242-100 | |
| R215 | JUMPER, 22AWG, NON-INSUL, 10.0mm | 148242-100 | |
| R216 | JUMPER, 22AWG, NON-INSUL, 10.0mm | 148242-100 | |
| R217 | JUMPER, 22AWG, NON-INSUL, 10.0mm | 148242-100 | |
| R218 | JUMPER, 22AWG, NON-INSUL, 10.0mm | 148242-100 | |

Capacitors

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| C1 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C2 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C3 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C4 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C5 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C6 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C7 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C9 | .0068uF, BOX, 85, 100V, 5% | 137127-682 | |
| C10 | .0027uF, BOX, 85, 100V, 5% | 137127-272 | |
| C11 | .033uF, BOX, 85, 63V, 5% | 137127-333 | |
| C12 | .12uF, BOX, 85, 50V, 5% | 137127-124 | |
| C13 | .033uF, BOX, 85, 63V, 5% | 137127-333 | |
| C14 | .0082uF, BOX, 85, 100V, 5% | 137127-822 | |
| C15 | .0056uF, BOX, 85, 100V, 5% | 137127-562 | |
| C16 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C17 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C21 | .1uF, 1206, X7R, 50V, 10% | 124957-104 | |
| C22 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C23 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C24 | JUMPER, 0 OHM | 139942 | |
| C25 | .15uF, BOX, 85, 50V, 5% | 137127-154 | |

# 802® III ELECTRICAL PART LIST

Capacitors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| C26 | .15uF, BOX, 85, 50V, 5% | 137127-154 | |
| C27 | .47uF, BOX, 85, 50V, 5% | 137127-474 | |
| C28 | .47uF, BOX, 85, 50V, 5% | 137127-474 | |
| C29 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C30 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C31 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C32 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C33 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C34 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C35 | .18uF, BOX, 85, 50V, 5% | 137127-184 | |
| C36 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C37 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C47 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C48 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C49 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C50 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C51 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C52 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C53 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C54 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C55 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C57 | .0068uF, BOX, 85, 100V, 5% | 137127-682 | |
| C58 | .0027uF, BOX, 85, 100V, 5% | 137127-272 | |
| C59 | .033uF, BOX, 85, 63V, 5% | 137127-333 | |
| C60 | .12uF, BOX, 85, 50V, 5% | 137127-124 | |
| C61 | .033uF, BOX, 85, 63V, 5% | 137127-333 | |
| C62 | .0082uF, BOX, 85, 100V, 5% | 137127-822 | |
| C63 | .0056uF, BOX, 85, 100V, 5% | 137127-562 | |
| C64 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C65 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C69 | .1uF, 1206, X7R, 50V, 10% | 124957-104 | |
| C70 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C71 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C72 | JUMPER, 0 OHM | 139942 | |
| C73 | .15uF, BOX, 85, 50V, 5% | 137127-154 | |
| C74 | .15uF, BOX, 85, 50V, 5% | 137127-154 | |
| C75 | .47uF, BOX, 85, 50V, 5% | 137127-474 | |
| C76 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C77 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C78 | .47uF, BOX, 85, 50V, 5% | 137127-474 | |
| C79 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C80 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C81 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C82 | .1uF, BOX, 85, 50V, 5% | 137127-104 | |
| C83 | .22uF, BOX, 85, 50V, 5% | 137127-224 | |
| C84 | .022uF, BOX, 85, 100V, 5% | 137127-223 | |
| C85 | .18uF, BOX, 85, 50V, 5% | 137127-184 | |

# 802® III ELECTRICAL PART LIST

Capacitors (continued)

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| C86 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C87 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C95 | JUMPER, 0 OHM | 139942 | |
| C97 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C98 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C99 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C100 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C109 | .0047uF, 250VAC, 20% | 146354 | 3  |
| C110 | .001uF, 1206, Y5V, 50V, 80% | 124959-102 | |
| C111 | .001uF, 1206, Y5V, 50V, 80% | 124959-102 | |
| C112 | .01uF, 1206, Y5V, 50V, 80% | 124959-103 | |
| C113 | 2200uF, EL, 105C, 50V, 20% | 144000-222H | 3  |
| C114 | 2200uF, EL, 105C, 50V, 20% | 144000-222H | 3  |
| C115 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C116 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C117 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C118 | 1uF, EL, 85C, 35V, 50% | 137265-1R0 | |
| C119 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C120 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |
| C129 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C130 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C131 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C132 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C133 | .01uF, 1206, Y5V, 50V, 80% | 124959-103 | |
| C142 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C143 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C144 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C145 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C146 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C147 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C148 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C149 | 1000pF, 1206, COG, 50V, 10% | 124956-1022 | |
| C150 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C151 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C152 | 22uF, EL, BP, 85C, 25V, 20% | 147522-220 | |
| C153 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C155 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C157 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C159 | 22uF, EL, 85C, 35V, 50% | 119944-220 | |
| C161 | .1uF, 1206, Y5V, 50V, 80% | 138551-104 | |
| C162 | 100pF, 1206, COG, 50V, 10% | 124956-1012 | |

# 402® AND 802® II ELECTRICAL PART LIST

The following parts are common on all 402 and 802 controllers.

Diodes

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| D1 | 1N4531, 5MM | 136603 | |
| D2 | 1N4531, 5MM | 136603 | |
| D3 | 1N4531, 5MM | 136603 | |
| D4 | 1N4531, 5MM | 136603 | |
| D5 | 1N4531, 5MM | 136603 | |
| D6 | 1N4531, 5MM | 136603 | |
| D7 | 1N4531, 5MM | 136603 | |
| D8 | 1N4531, 5MM | 136603 | |
| D9 | 1N4148, 52MM AXIAL | 121501 | |
| D10 | 1N4531, 5MM | 136603 | |
| D13 | 1N4148, 52MM AXIAL | 121501 | |
| D14 | 1N4531, 5MM | 136603 | |
| D17 | 1N4148, 52MM AXIAL | 121501 | |
| D18 | 1N4531, 5MM | 136603 | |
| D21 | 1N4148, 52MM AXIAL | 121501 | |
| D22 | 1N4531, 5MM | 136603 | |
| D25 | 1N4746, ZEN, 18V, 1W, 5% | 116995-4746A | |
| D26 | 1N4746, ZEN, 18V, 1W, 5% | 116995-4746A | |
| D27 | 1N4746, ZEN, 18V, 1W, 5% | 116995-4746A | |
| D28 | 1N4746, ZEN, 18V, 1W, 5% | 116995-4746A | |
| D29 | 1N4746, ZEN, 18V, 1W, 5% | 116995-4746A | |
| D30 | 1N4746, ZEN, 18V, 1W, 5% | 116995-4746A | |
| D31 | 1N4746, ZEN, 18V, 1W, 5% | 116995-4746A | |
| D32 | 1N4746, ZEN, 18V, 1W, 5% | 116995-4746A | |
| D33 | 1N4746, ZEN, 18V, 1W, 5% | 116995-4746A | |
| D34 | 1N4746, ZEN, 18V, 1W, 5% | 116995-4746A | |
| D35 | 1N4746, ZEN, 18V, 1W, 5% | 116995-4746A | |
| D36 | 1N4746, ZEN, 18V, 1W, 5% | 116995-4746A | |
| D37 | 1N4531, 5MM | 136603 | |
| D38 | 1N4531, 5MM | 136603 | |
| D39 | 1N4531, 5MM | 136603 | |
| D40 | 1N4737, ZEN, 7.5V, 1W, 5% | 116995-4737A | |
| D42 | 1N4531, 5MM | 136603 | |
| D43 | 1N4531, 5MM | 136603 | |

Transistors

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| Q1 | 2SC2812 SOT23 | 134741 | |

# 402® AND 802® II ELECTRICAL PART LIST

The following parts are common on all 402 and 802 controllers.

Integrated Circuits

| Reference Designator | Description | Part Number | Note |
|---|---|---|---|
| U1 | NJM2059, OP AMP, QUAD | 144008 | |
| U2 | NJM2059, OP AMP, QUAD | 144008 | |
| U3 | NJM2059, OP AMP, QUAD | 144008 | |
| U4 | NJM2059, OP AMP, QUAD | 144008 | |
| U6 | NJM2059, OP AMP, QUAD | 144008 | |
| U7 | NJM2059, OP AMP, QUAD | 144008 | |
| U8 | NJM2059, OP AMP, QUAD | 144008 | |
| U9 | RC4559, OP AMP, DUAL, DIP-8 | 108568 | |
| U10 | RC4559, OP AMP, DUAL, DIP-8 | 108568 | |
| U11 | RC4559, OP AMP, DUAL, DIP-8 | 108568 | |
| U15 | LM339N | 137929 | |

# PACKAGING PART LIST

| Item Number | Description | Part Number | Qty. | Note |
|---|---|---|---|---|
| 1 | CARTON, RCS, CONTROLLER | 174875 | 1 | |
| 2 | PACKING, END CAP | 174119 | 2 | |
| 3 | BAG, POLY | 110892 | 1 | |
| --- | LIT KIT, 402<br>LIT KIT, 802C II | 172188<br>172252 | 1 | 4 |

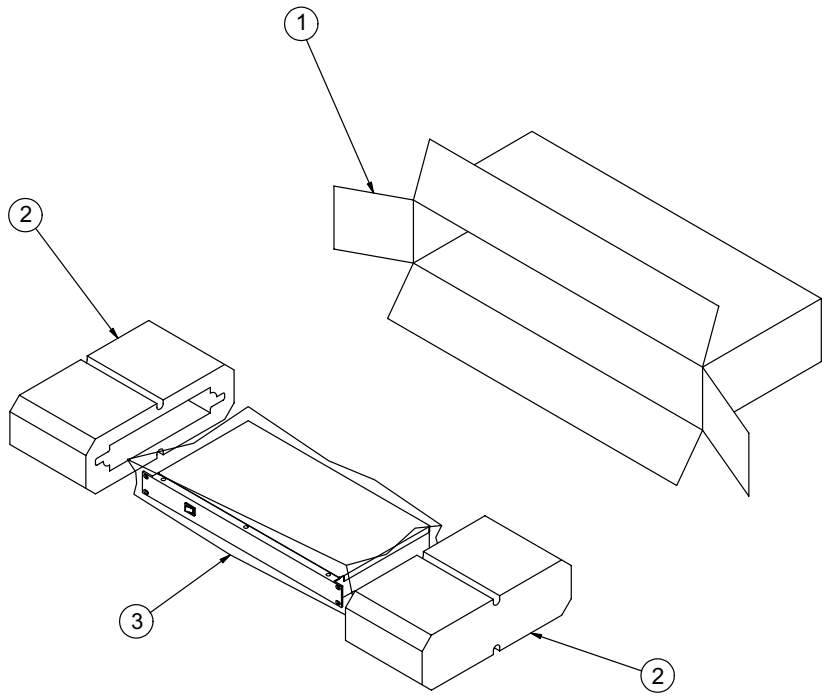
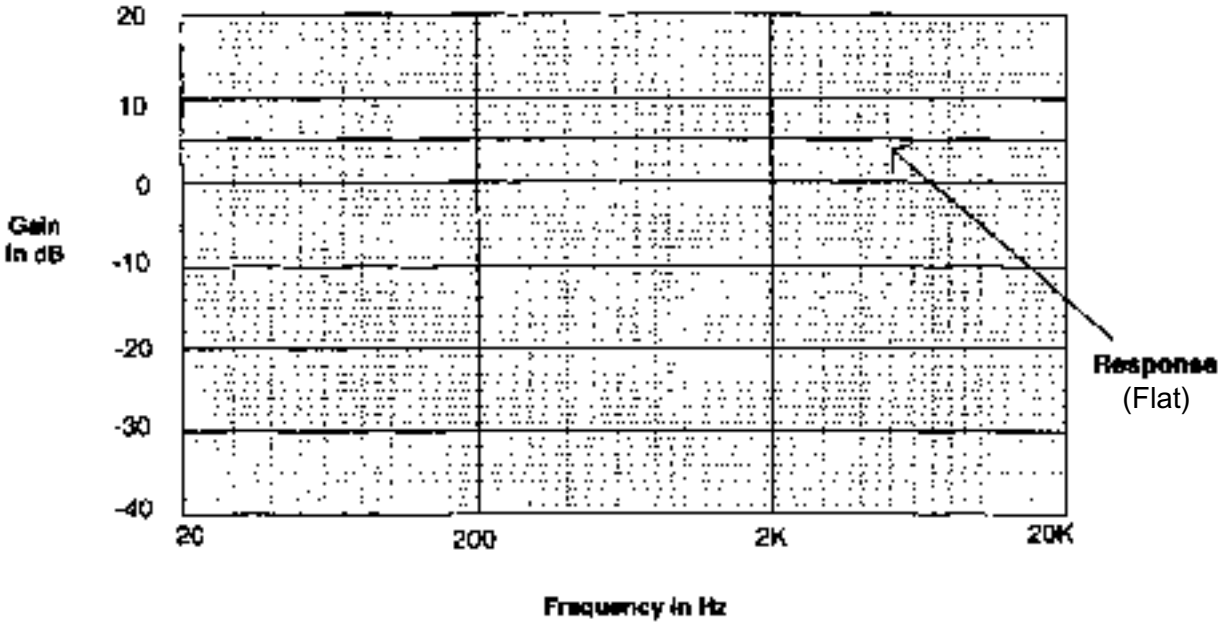


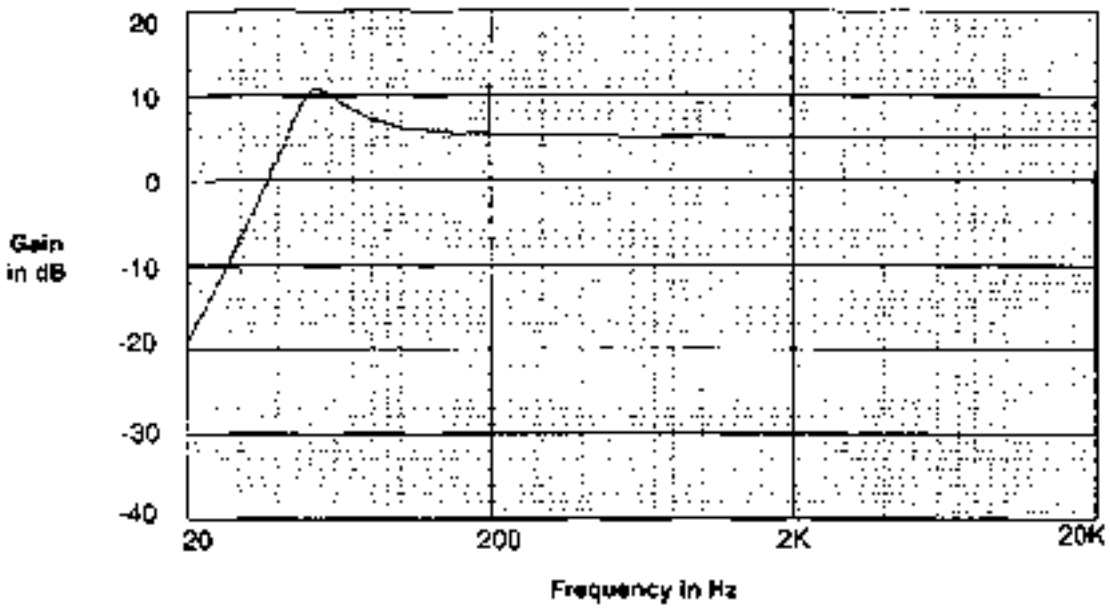

**Figure 4. Packaging Exploded View**

# FREQUENCY RESPONSE CURVES

Unless otherwise noted the controls are set as follows: Mode switch position 2 (BA), Output Mode switch set to NORM, Low Frequency Level set to +3 dB and the Input switch set to +4 dB.

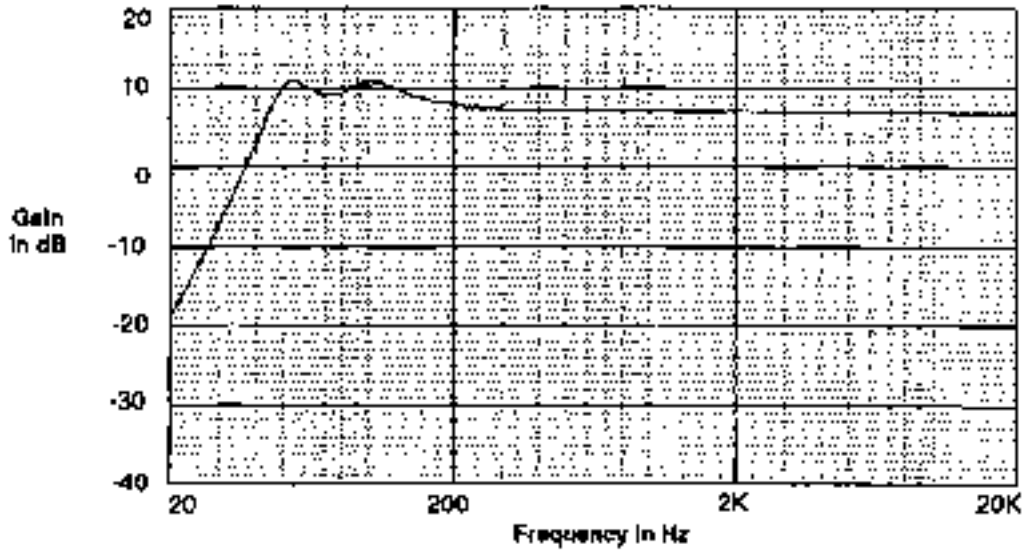



Low Frequency EQ
Output measured from U7 pins 1 and 14

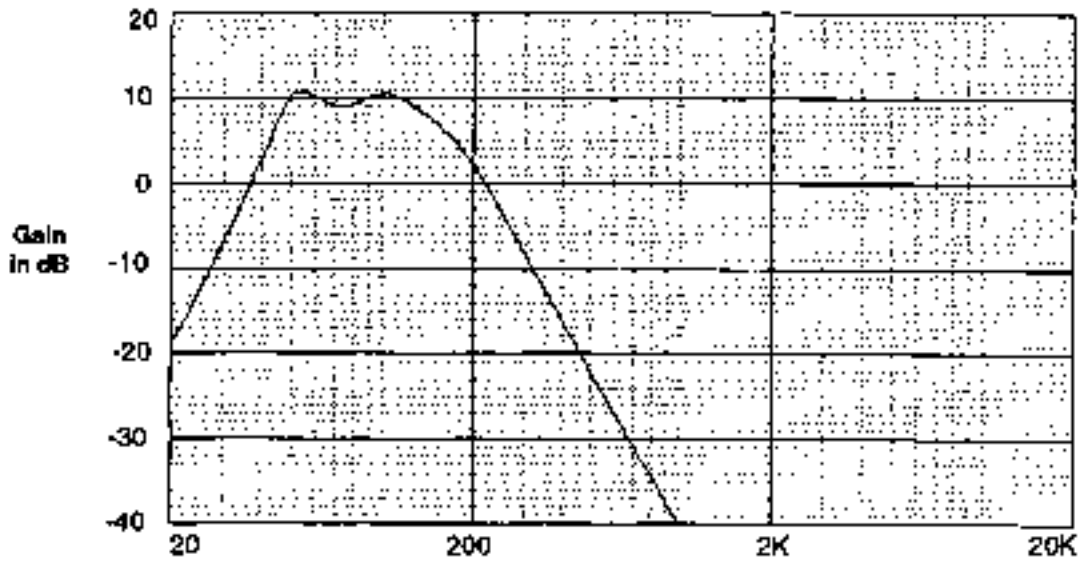



Low Frequency EQ
Output is measured from U7 pins 7 and 8

# FREQUENCY RESPONSE CURVES

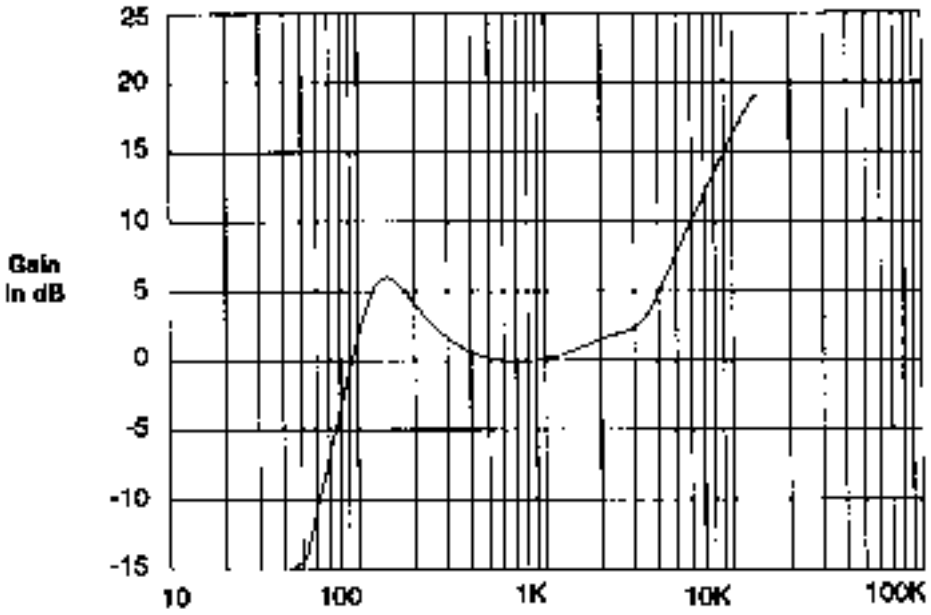



Low Frequency EQ
Output is measured from U8 pins 1 and 14

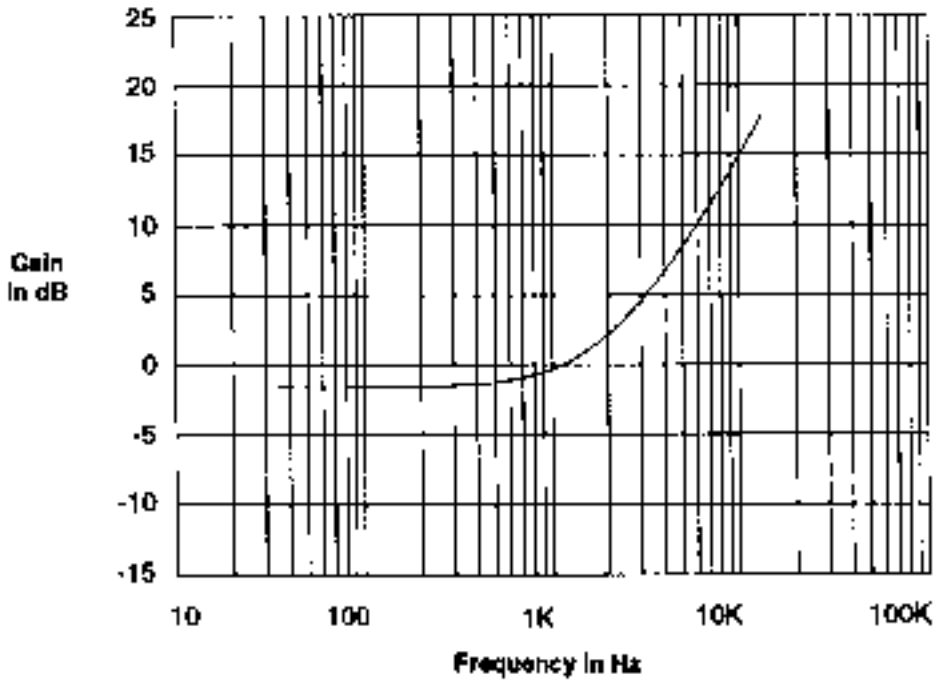



Low Frequency EQ
Output is measured from U8 pins 7 and 8

# FREQUENCY RESPONSE CURVES

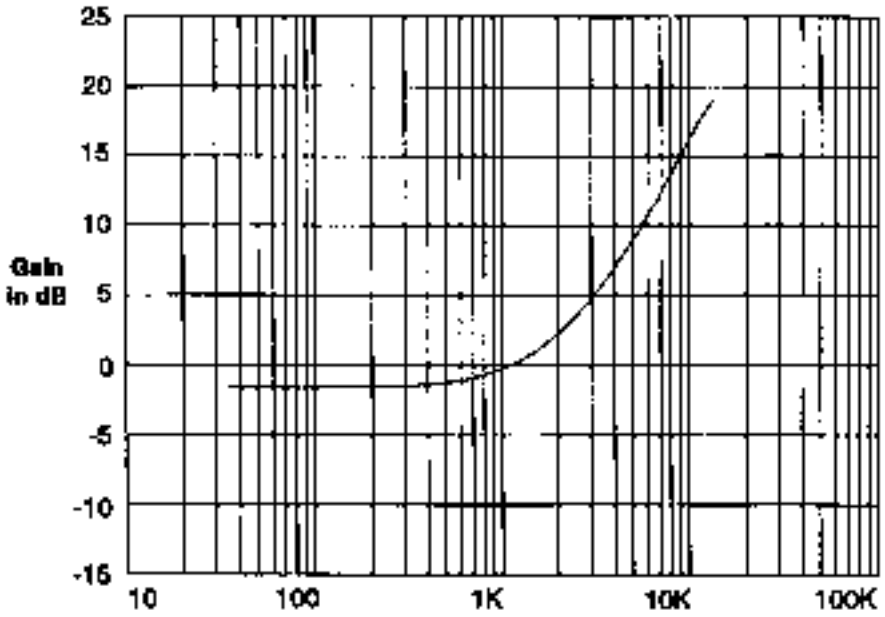



802® II High Frequency EQ
Output is measured at the High Frequency Output
Mode swith is set to position 1 (FR)

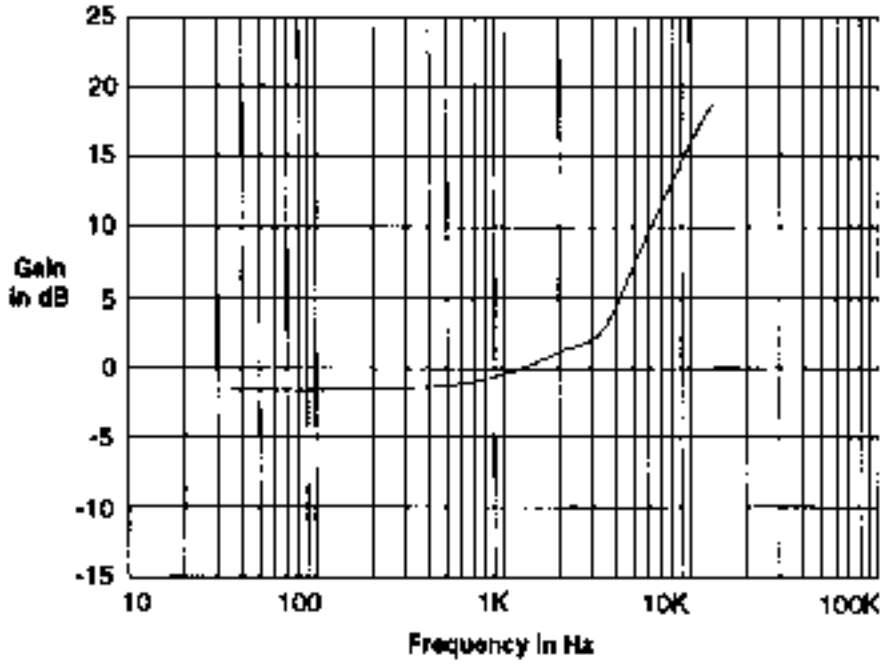



802 II High Frequency EQ
Output measured at U1 pin 8

# FREQUENCY RESPONSE CURVES

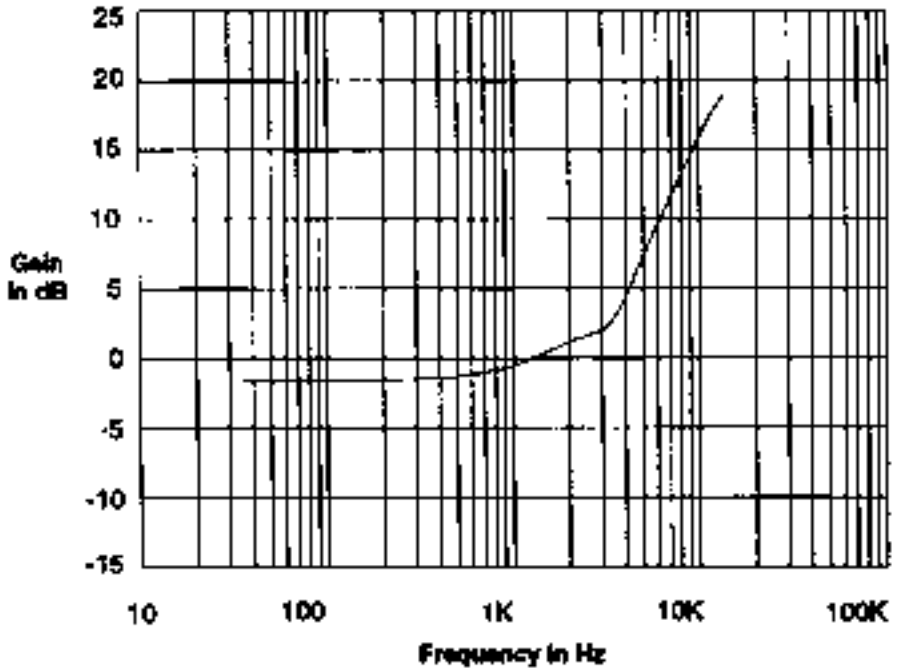



802® II High Frequency EQ
Output is measured at U2 pin 14

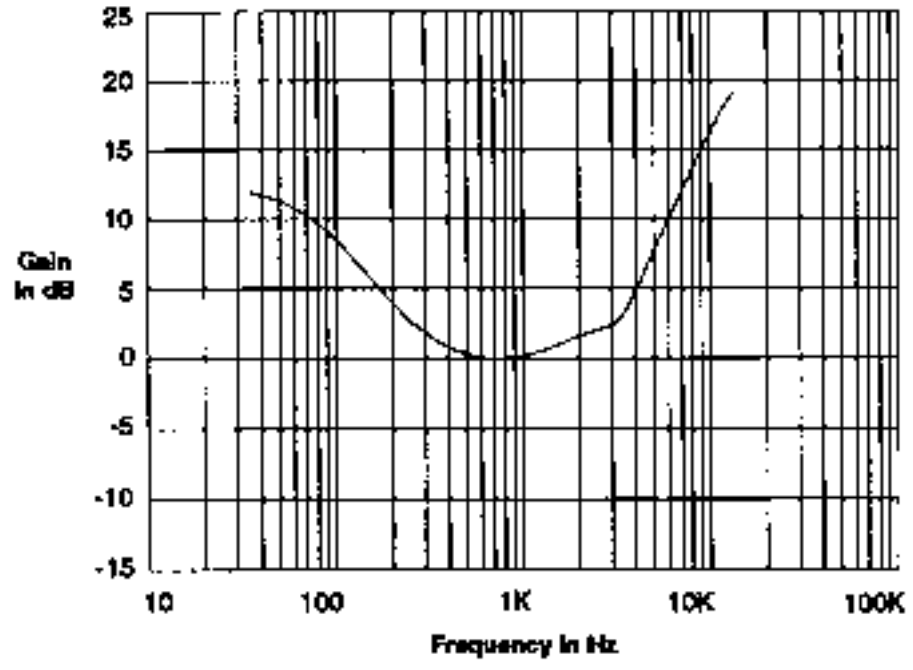



802 II High Frequency EQ
Output is measured at U2 pin 8

# FREQUENCY RESPONSE CURVES

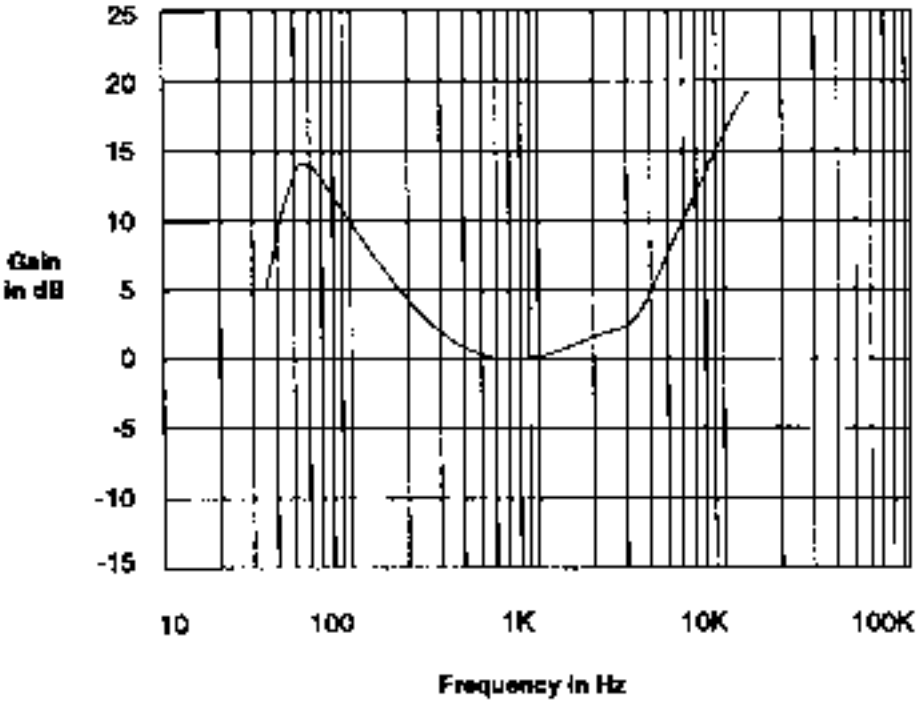



802® II High Frequency EQ
Output is measured at U3 pin 14

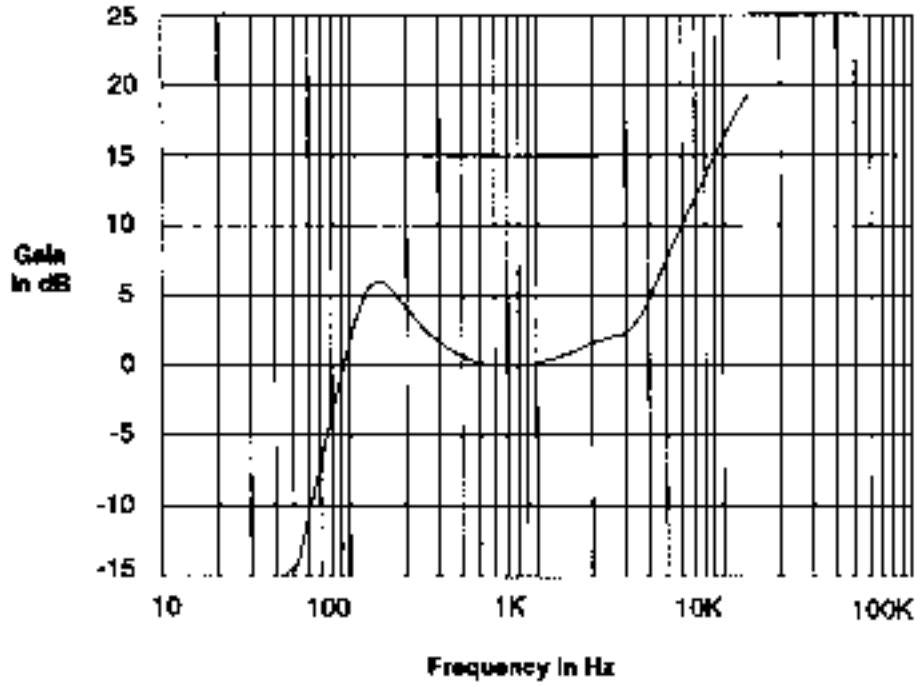



802 II High Frequency EQ
Output is measured at U3 pin 8

# FREQUENCY RESPONSE CURVES

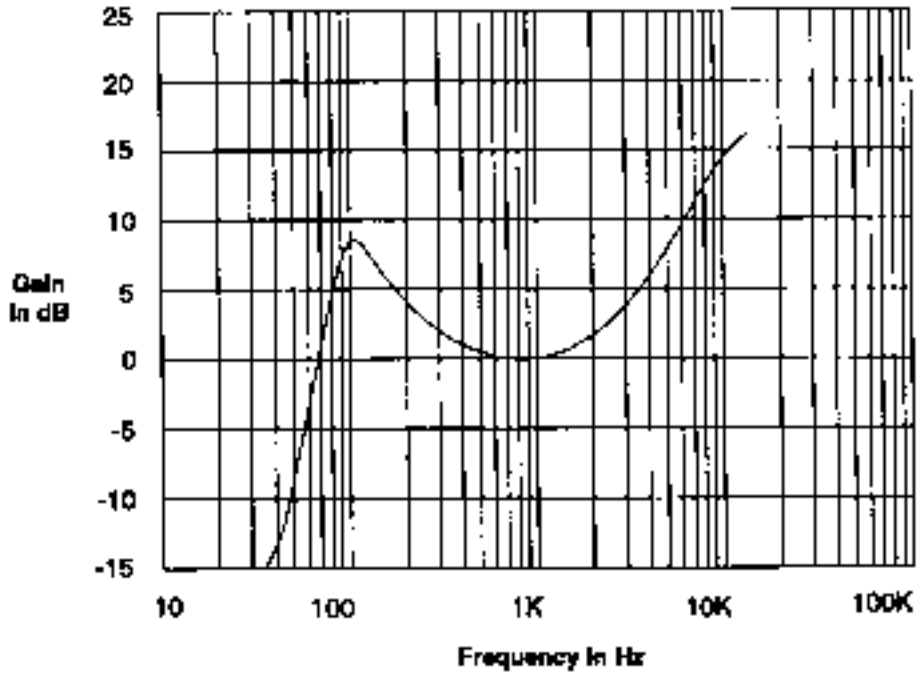



802® II High Frequency EQ
Output is measured at U4 pin 14

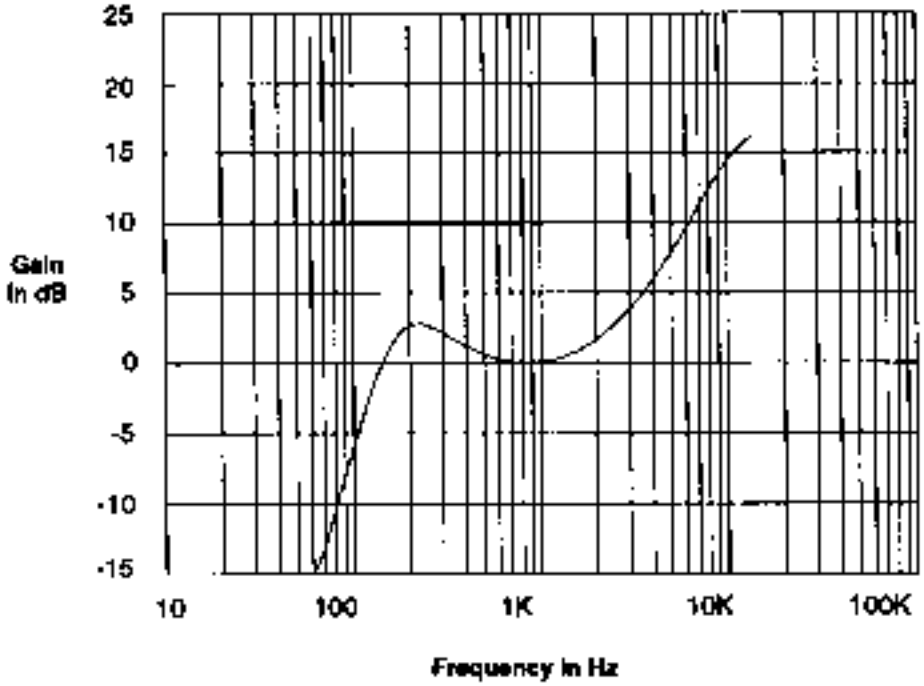



802 II High Frequency EQ
Output is measured at U4 pin 8

# FREQUENCY RESPONSE CURVES

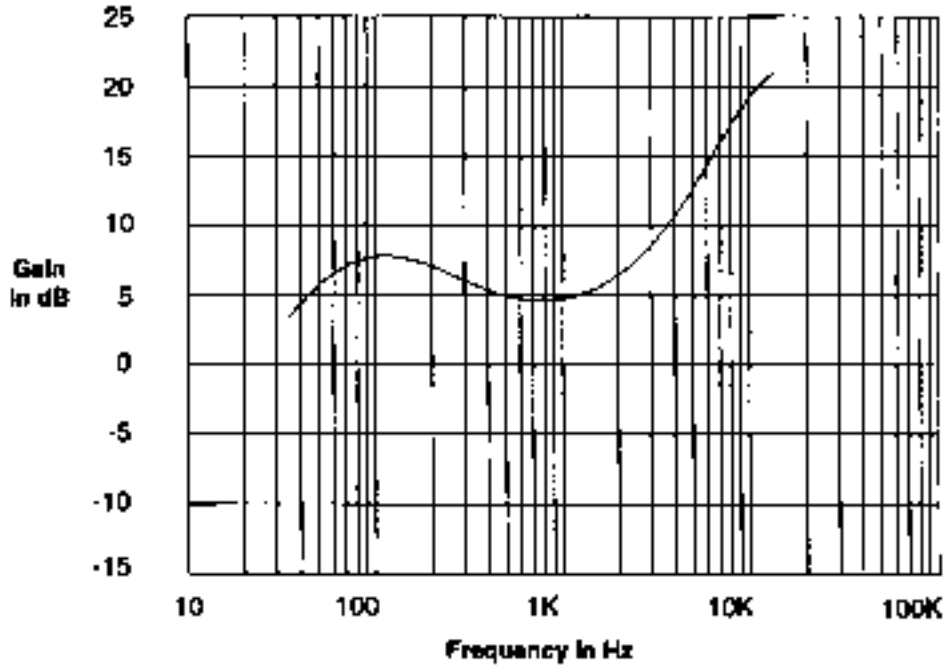



402® High Frequency EQ
Output is measured at the output terminals
Mode swith set to position 1 (FR)

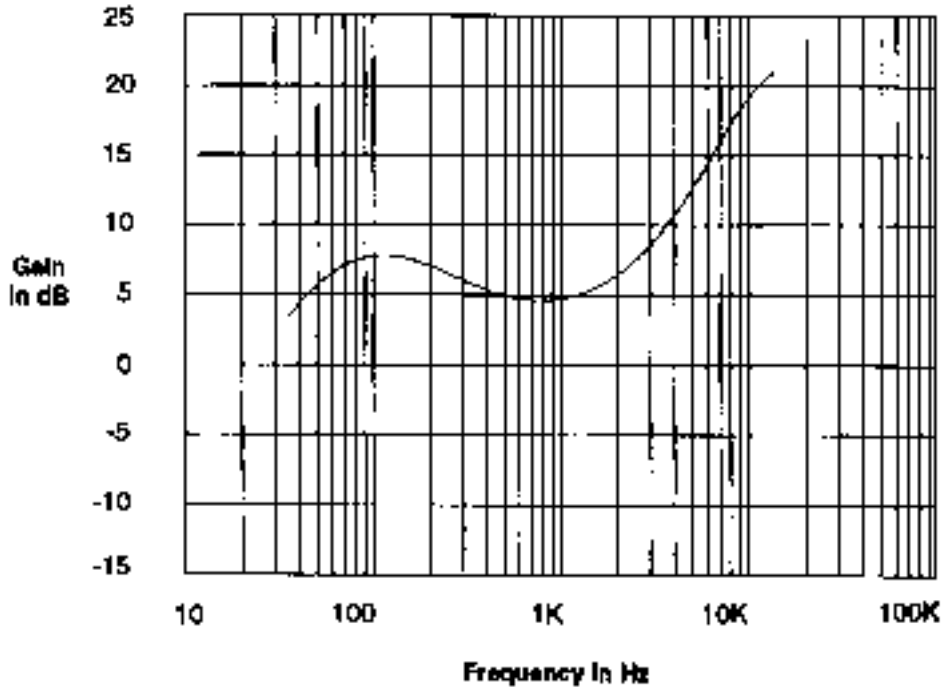



402 High Frequency EQ
Output is measured at the output terminals
Mode switch set to position 2 (BA)

# FREQUENCY RESPONSE CURVES

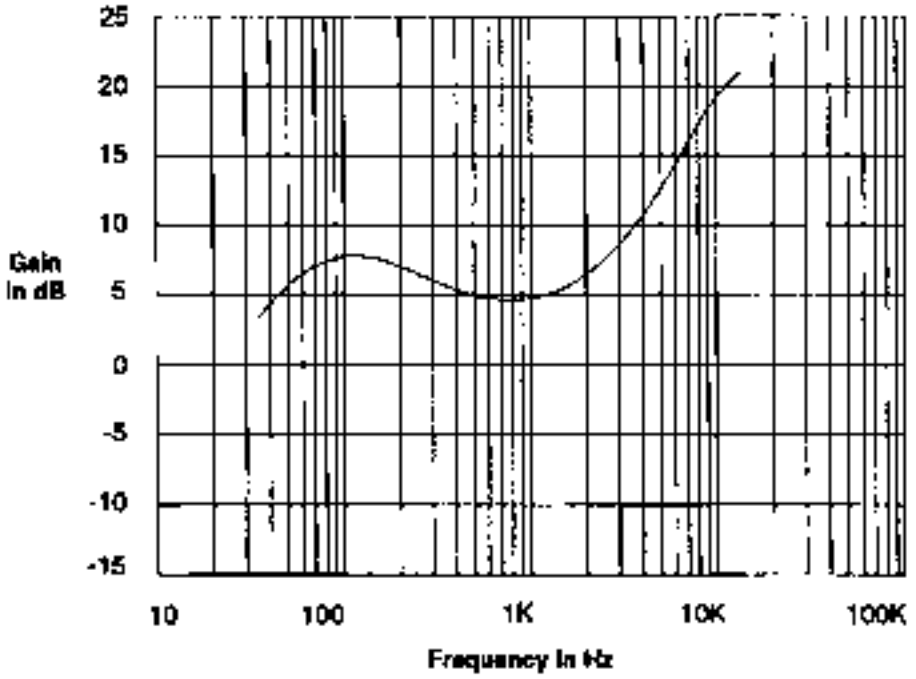



402® High Frequency EQ
Output is measured at U2 pin 8

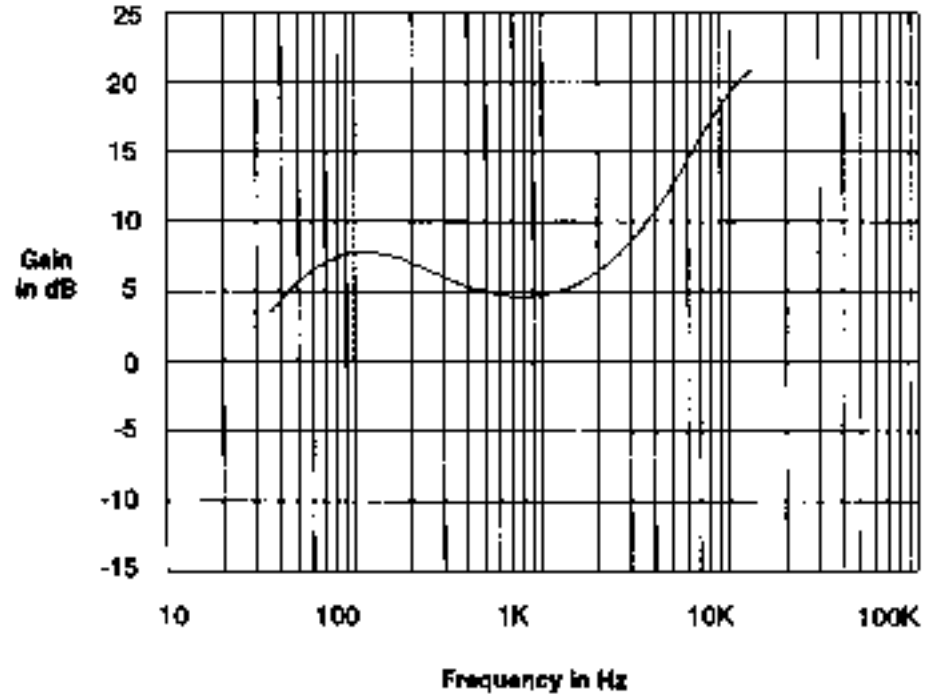



402 High Frequency EQ
Output is measured at U3 pin 14

# FREQUENCY RESPONSE CURVES

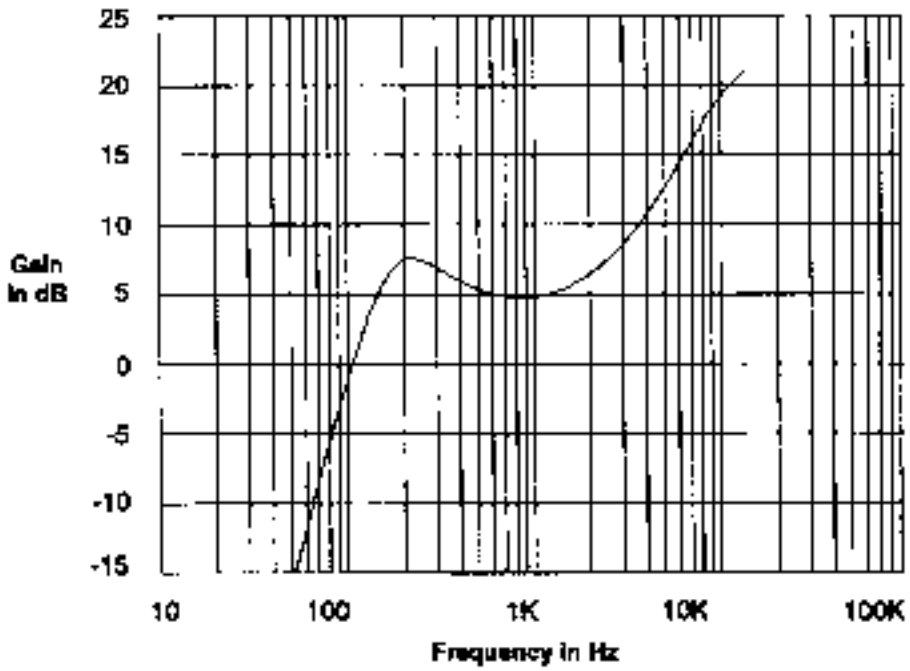



402® High Frequency EQ
Output measured at U3 pin 8



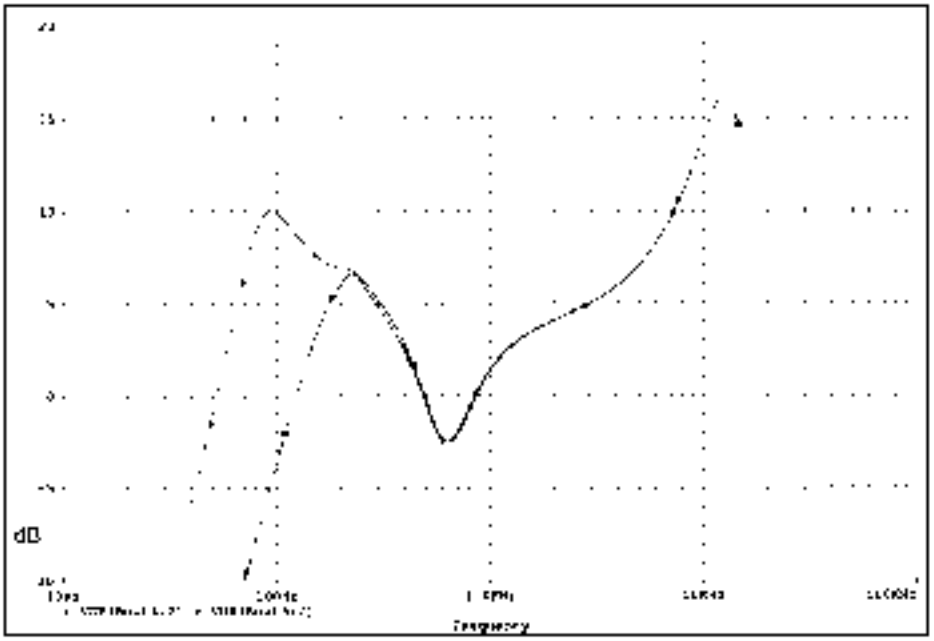

402 High Frequency EQ
Output measured at U4 pin 14

# FREQUENCY RESPONSE CURVES

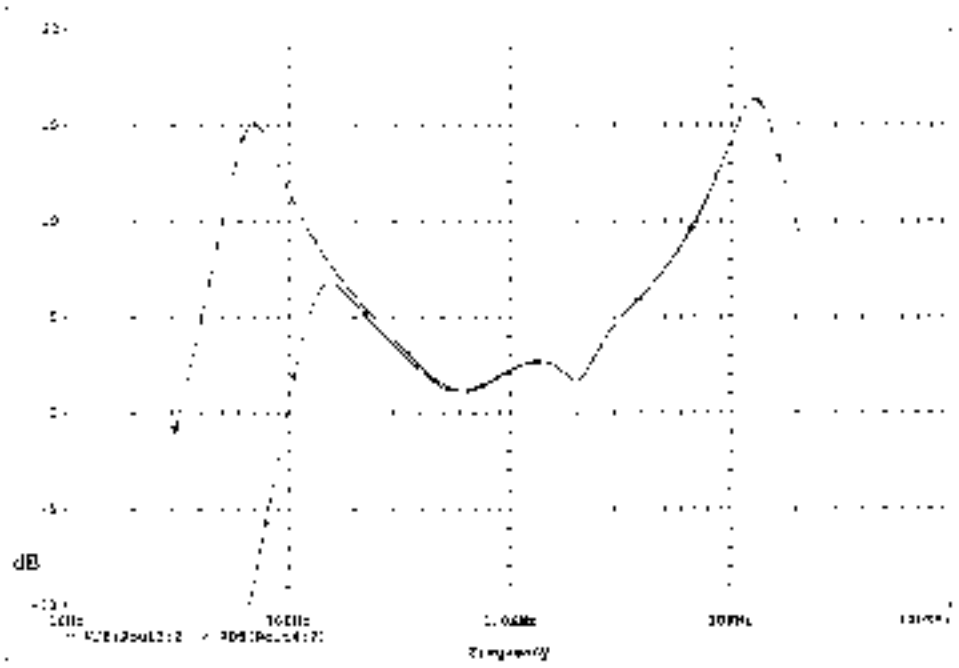



402® High Frequency EQ
Output measured at U4 pin 8

# FREQUENCY RESPONSE CURVES

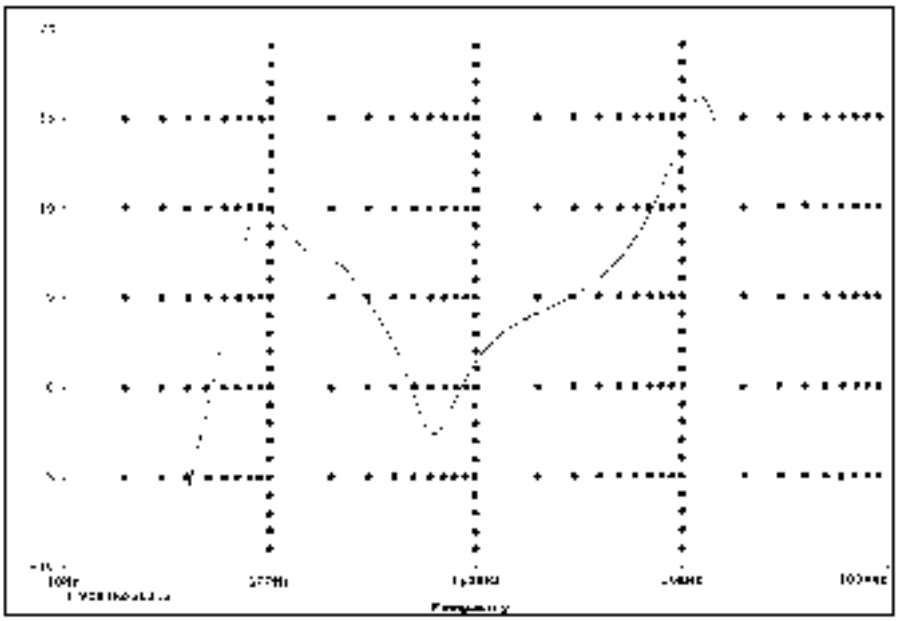



402® Series II Frequency Response Bi-Amp Mode
Measured at the high frequency and low frequency outputs

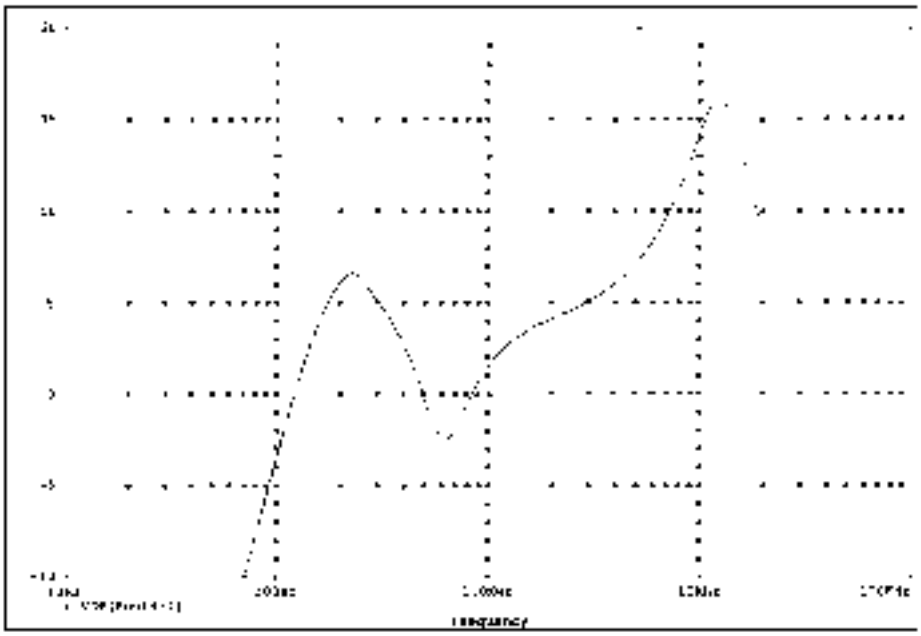



802® Series III Frequency Response Bi-Amp Mode
Measured at the high frequency and low frequency outputs

# FREQUENCY RESPONSE CURVES

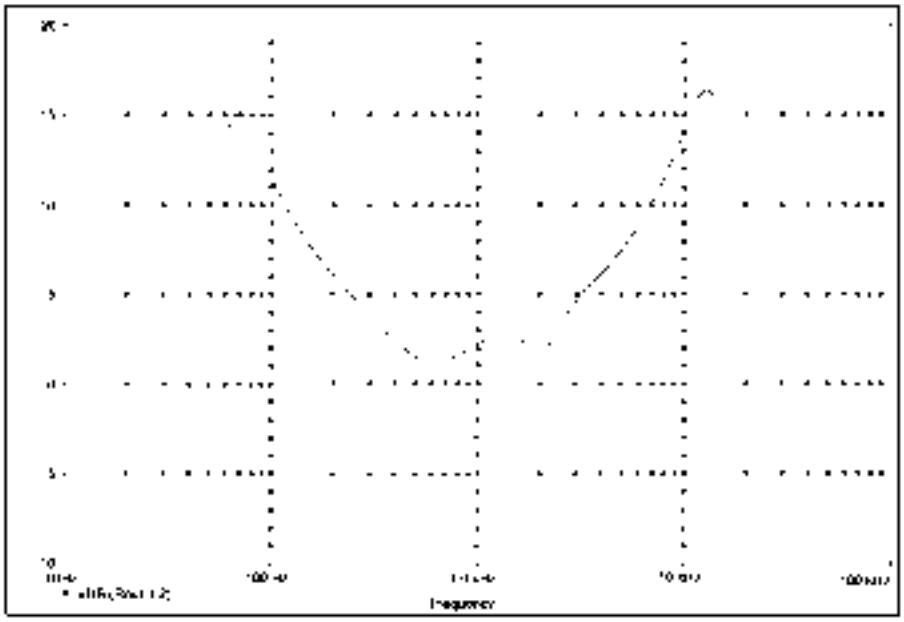


402® Series II Frequency Response Full Range Mode
Measured at the high frequency output terminals
Mode switch set to position 1 (FR)

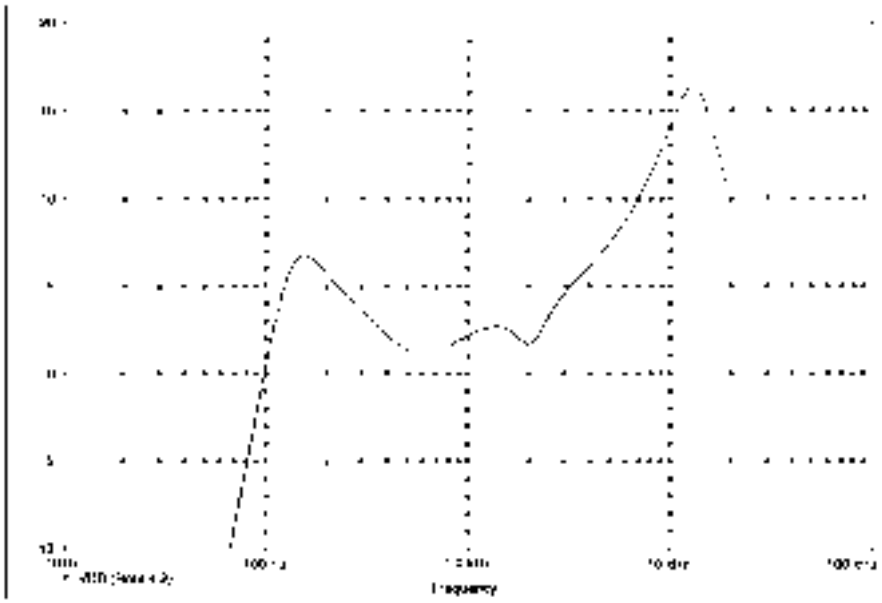


402 Series II Frequency Response Bi-Amp Mode
Measured at the high frequency output terminals

# FREQUENCY RESPONSE CURVES



802® Series III Frequency Response Full Range Mode
Measured at the high frequency output terminals
Mode switch set to position 1 (FR)



802 Series III Frequency Response Bi-Amp Mode
Measured at the high frequency output terminals

BOSE®
Better sound through research®

# 402® System Controller and 802® II System Controller

**Note:** This service manual includes all changes to the controllers to date (6/2001) including the controllers with one of these labels on the side of the chassis.

COMPATIBLE WITH
402 SERIES II

COMPATIBLE WITH
802 SERIES III



**Service Manual**

Part Number 174785 REV 01

SPECIFICATIONS AND FEATURES SUBJECT TO CHANGE WITHOUT NOTICE

BOSE®

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