Technical Service Manual

PowerLight™
Data Port Series

- PowerLight 1.0
- PowerLight 1.4
- PowerLight 1.8
- PowerLight 2.0
- PowerLight 3.4
- PowerLight 4.0

QSC™
AUDIO

REV. A
TD-000071-00

POWERLIGHT DATA PORT SERIES
SERVICE MANUAL

PowerLight 1.0
PowerLight 1.4
PowerLight 1.8
PowerLight 2.0
PowerLight 3.4
PowerLight 4.0

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Costa Mesa, CA 92626

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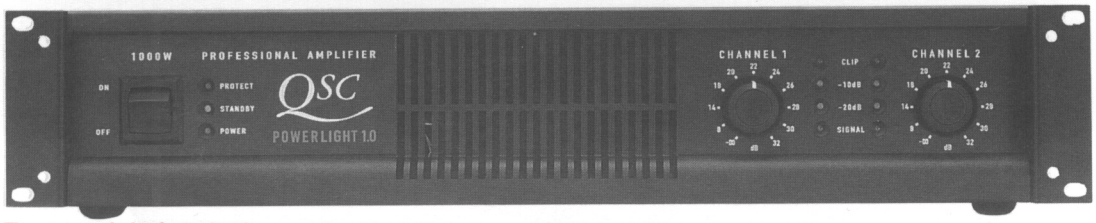
◆ PowerLight 1.0



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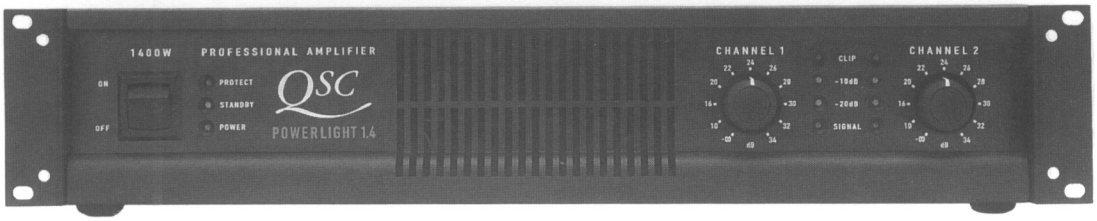

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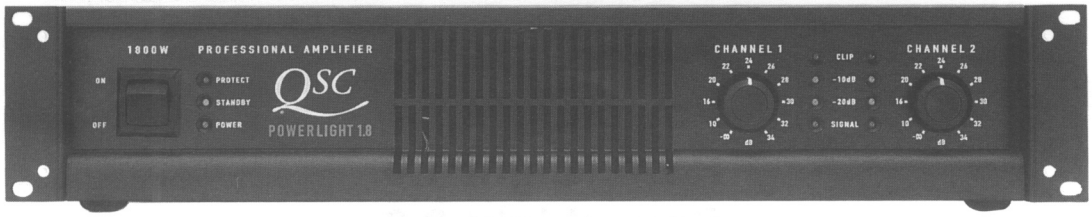

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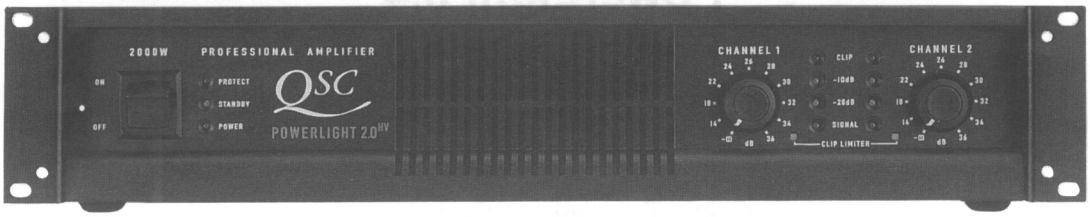

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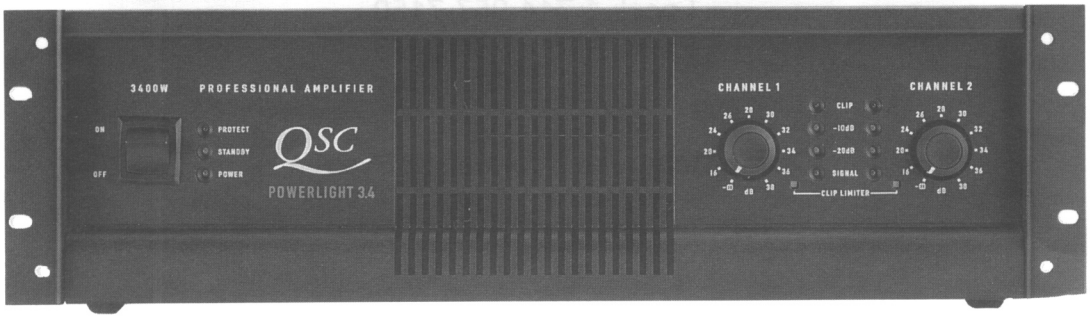

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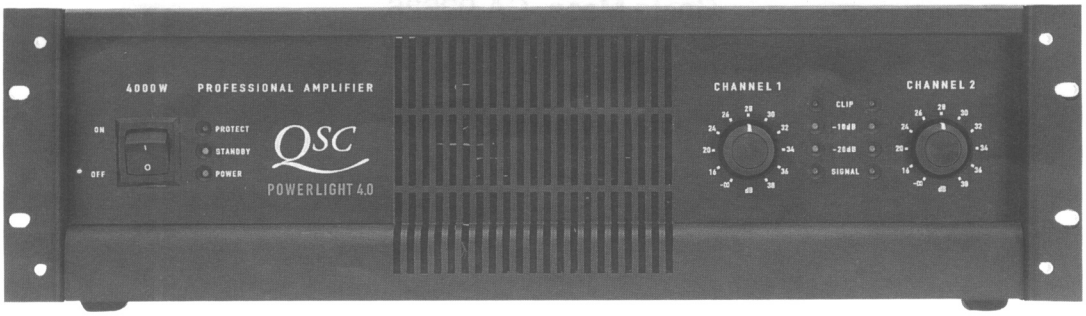

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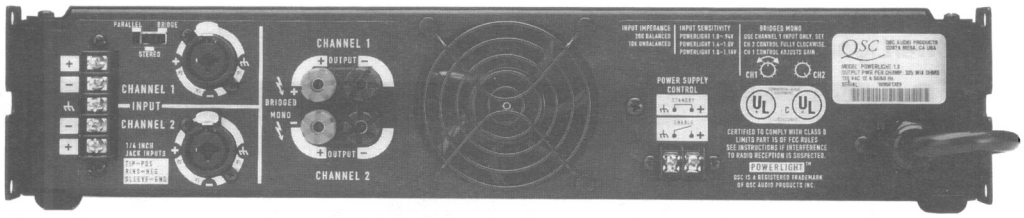
PowerLight Product Specifications

PowerLight 1.0



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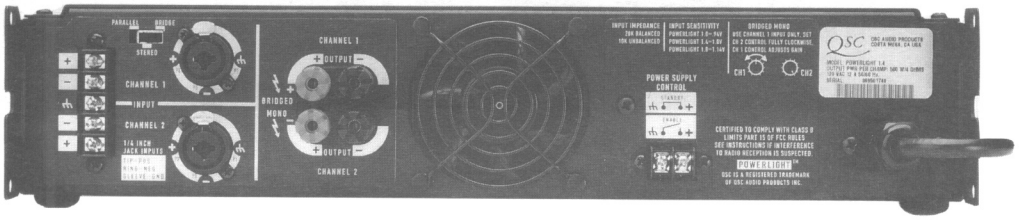

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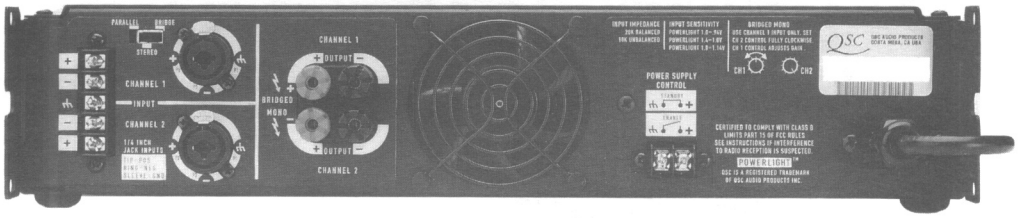
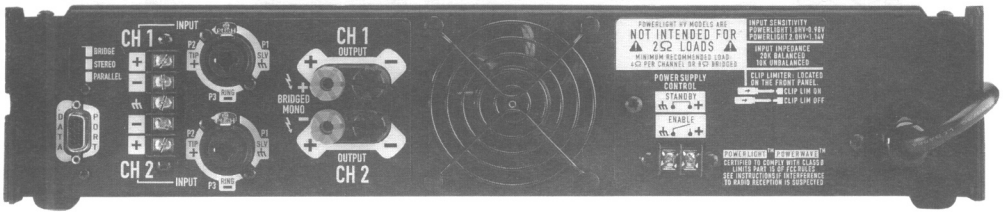


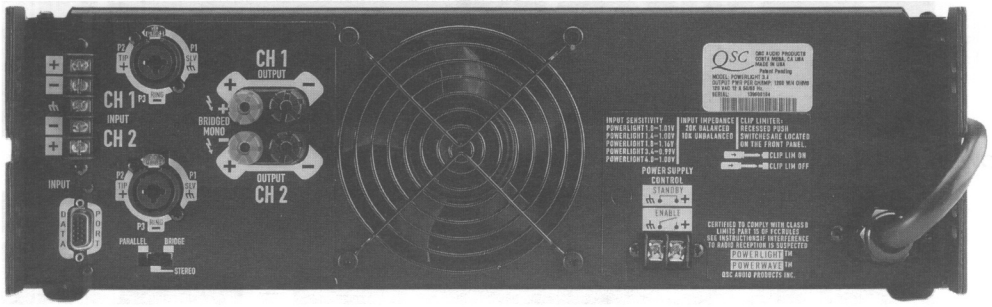
PowerLight 2.0^{HV}



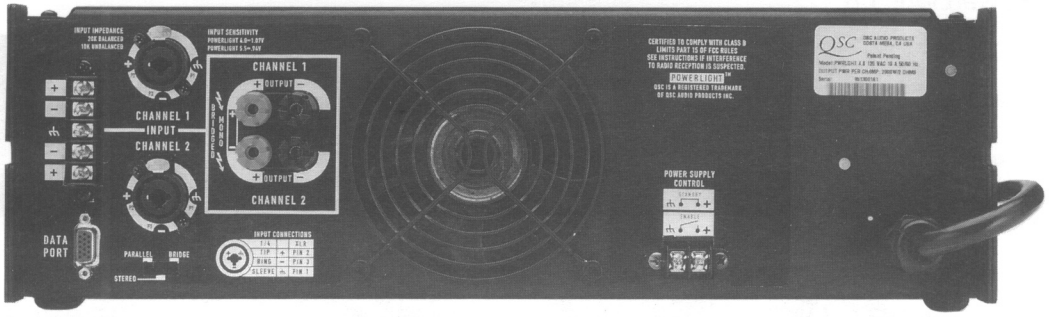
	PL-1.0	PL-1.4	PL-1.8	PL-2.0^{HV}
Output Power (per channel):				
Continuous Average Output Power both channels driven:				
8 ohms, 20Hz - 20kHz, 0.1% THD	200 watts	300 watts	400 watts	650 watts
4 ohms, 20Hz - 20kHz, 0.1% THD	325 watts	500 watts	650 watts	1000 watts 1% THD
Continuous Average Output Power bridged mono operation:				
8 ohms, 20Hz - 20kHz, 0.1% THD	650 watts	1000 watts	1300 watts	2000 watts 1% THD
Voltage Gain (dB):	32	34	34	36
Sensitivity (for rated power @ 8 ohms)	1.00 V rms	0.96 Vrms	1.14 Vrms	1.16 Vrms
Distortion:	SMPTE-IM Less than 0.05%			
Dynamic Headroom:	1.9dB at 4 ohms			3dB at 4 ohms
Frequency Response:	20Hz to 20kHz, +/-0.15dB 8Hz to 100kHz, +0/-3dB			
Damping Factor:	Greater than 350			
Noise:	108dB below rated output (20 Hz to 20 kHz)			
Input Impedance	10k unbalanced, 20k balanced			
Dimensions				
Faceplate Width	Standard 19" Rack Mounting			
Faceplate Height	3.5"	3.5"	3.5"	3.5"
Chassis Depth	17.9"	17.9"	17.9"	17.9"
Weight				
Shipping, Lbs/kg	24/10.6	24/10.6	24/10.6	24/10.6
Net, Lbs/kg	18/8.2	18/8.2	18/8.2	18/8.2

PowerLight Product Specifications

PowerLight 3.4



PowerLight 4.0



	PL-3.4	PL-4.0
Output Power (per channel):		
Continuous Average Output Power both channels driven:		
8 ohms, 20Hz - 20kHz, 0.1% THD	725 watts	900 watts
4 ohms, 20Hz - 20kHz, 0.1% THD	1150 watts	1400 watts
Continuous Average Output Power bridged mono operation:		
8 ohms, 20Hz - 20kHz, 0.1% THD	2300 watts	2800 watts
Voltage Gain (dB):	38	38
Sensitivity (for rated power @ 8 ohms)	0.96 V rms	1.06 Vrms
Distortion:	SMPTE-IM Less than 0.05%	
Dynamic Headroom:	1.9dB at 4 ohms	
Frequency Response:	20Hz to 20kHz, +/-0.15dB	
	5Hz to 60kHz, +0/-3dB	
Damping Factor:	Greater than 500	
Noise:	108dB below rated output (20 Hz to 20 kHz)	
Input Impedance	10k unbalanced, 20k balanced	
Dimensions		
Faceplate Width	Standard 19" Rack Mounting	
Faceplate Height	5.25"	5.25"
Chassis Depth	17.9"	17.9"
Weight		
Shipping, Lbs/kg	36/16.3	36/16.3
Net, Lbs/kg	30/13.6	30/13.6

Introduction

This manual is prepared to assist service personnel with the repair and calibration of PowerLight DP power amplifiers . The procedures described in this manual require advanced technical experience and sophisticated audio test equipment.

CAUTION: To reduce the risk of electric shock, do not remove the cover. No user-serviceable parts inside. Refer servicing to qualified service personnel.

WARNING: To prevent fire or electric shock, do not expose this equipment to rain or moisture.

Documentation

This manual contains schematics, printed circuit board (PCB) drawings, parts lists, and mechanical assembly drawings. This information should be used in conjunction with the test and troubleshooting guide.

The electrical and electronic components are identified by circuit identification numbers on the schematics and the parts list. The test & troubleshooting sections refer to designations shown in the schematics.

Equivalent Parts

Although many of the electronic components used in this product may be available from electronic suppliers, some components are specially tested and approved by QSC. A product repaired with non-QSC supplied components may not meet factory specifications. Repairs performed using non-QSC parts may void the product warranty. When in doubt, you may contact QSC Technical Services for assistance.

Parts orders to QSC should include the product model number, the part description, and the QSC part number (from the parts list in this manual). Parts will be shipped via UPS, F.O.B. Costa Mesa, California. Shipping, handling and COD charges may be added to the cost of the parts.

Factory Repair

It may become necessary to return a product to the factory for repair. Call QSC Technical Services for return instructions. QSC Technical Services may be reached at (800) 772-2834.

Test and Troubleshooting Equipment

For testing, as outlined in this manual, the following equipment will be needed.

REQUIRED TEST EQUIPMENT

- Distortion Analyzer capable of 0.05% THD+N
- High Power Load Bank (8, 4, & 2 ohms)
- Function Generator
- 20MHz Oscilloscope
- Digital Multimeter
- 12V, 0.5A DC Power Supply
- Variac (0-140 VAC, 30-40A)

SUGGESTED TEST EQUIPMENT

- Audio Precision - System One
- Thermocouple probe

Audio Precision test and procedures files are made available, free of charge, from QSC Technical Services by either sending a self addressed stamped envelope and a 3 1/2" disk to QSC, or by logging on to QSC Online and downloading the appropriate files.

Test Point Schedule for PowerLight 1.0, 1.4, 1.8, and 2.0^{HV}

The following test points are described for testing and troubleshooting references. Actual voltage and current will vary.

AMPLIFIER SECTION

J501 Bed of Nails (J601 on Channel 2):
Pin 1 - Negative 7.5VDC LIM
Pin 2 - Positive 7.5VDC LIM
Pin 3 - No Connection
Pin 4 - Second Stage Op Amp. Less than 100mVDC offset.
Pin 5 - No Connection
Pin 6 - Positive Switched Bus Rail. Test signal superimposed on DC voltages.
Pin 7 - No Connection.
Pin 8 - Negative Switched Bus Rail. Test signal superimposed on DC voltages.

Test Points (DMM VAC Measurement):
Channel 2
TP610 - Q610 output transistor emitter voltage
TP609 - Q609 output transistor emitter voltage
TP608 - Q608 output transistor emitter voltage
TP607 - Q607 output transistor emitter voltage
TP606 - Q606 output transistor emitter voltage
TP605 - Q605 output transistor emitter voltage
Channel 1
TP510 - Q510 output transistor emitter voltage
TP509 - Q509 output transistor emitter voltage
TP508 - Q508 output transistor emitter voltage
TP507 - Q507 output transistor emitter voltage
TP506 - Q506 output transistor emitter voltage
TP505 - Q505 output transistor emitter voltage

POWER SUPPLY SECTION

Test Points
TP705 - 12V Keep alive supply
TP706 - 7.37MHz Clock pulse
TP704 - 230kHz Step down counter
TP703 - Protect / Shutdown send
TP707 - Standby Sense
TP701 - 114kHz Clock signal B
TP702 - 114kHz Clock signal A

Note:
The output emitter voltages will have different readings depending on how much power the amplifier is producing. When evaluating the strength of an output power transistor, measure the emitter resistor voltage drop across one of the emitter resistors. There should not be more than a 15% deviation from one reading to another. This measurement will show the gain consistency of one device

Test Point Schedule for PowerLight 3.4 and 4.0

The following test points are described for testing and troubleshooting references. Actual voltage and current will vary.

AMPLIFIER SECTION

J903 Bed of Nails:

Pin 1 - Negative 7.5VDC LIM
Pin 2 - Positive 7.5VDC LIM
Pin 3 - No Connection
Pin 4 - Second Stage Op Amp. Less than 100mVDC offset.
Pin 5 - No Connection
Pin 6 - Positive Switched Bus Rail. Test signal superimposed on DC voltages.
Pin 7 - No Connection.
Pin 8 - Negative Switched Bus Rail. Test signal superimposed on DC voltages.

POWER SUPPLY SECTION

Test Points

TP705 - 12V Keep alive supply
TP706 - 7.37MHz Clock pulse
TP704 - 230kHz Step down counter
TP703 - Protect / Shutdown send
TP707 - Standby Sense
TP701 - 114kHz Clock signal B
TP702 - 114kHz Clock signal A

Test & Calibration

NOTE: This test procedure will refer to the amplifier's channels as Ch1 (Channel 1) & Ch2 (Channel 2). Component designation will have the prefix "5" for Ch1 and "6" for Ch2. Most tests and measurements are referenced to a 120VAC operating voltage.

PowerLight 1.0 Test Procedure

- SET-UP
  1. Connect the load bank to the output terminals of the amplifier.
  2. Make sure the Stereo / Bridge switch is set to the Stereo position.
  3. Connect a distortion analyzer with a resolution of 0.05%, 20-20kHz (or better) to the output terminals of the amplifier. Enable the 80kHz low pass filter.
  4. Connect a dual-channel oscilloscope to the following test points:
     Ch1 - a 10X (vertical sensitivity - 2V/cm) scope probe to the channel speaker output.
     Ch2 - a 1X scope probe (vertical sensitivity - 0.1V/cm) to the distortion analyzer output.
  5. Set amp gain pots fully clockwise and turn on power switch.
  6. Connect the output of the signal generator to the input terminals of the amplifier and select an output of 1.00 VRMS, 1kHz sine wave.
  7. Plug the amplifier in to a variac and set up an AC line current monitor.

- POWER UP & MUTE DELAY TEST
  1. Slowly raise the variac voltage and watch for excessive current draw (Line current greater than 0.5A a.c. at 60 VAC). *This is slightly less for 240V.* Pause at 90VAC *(200VAC European)* for three seconds until the mute / protect circuit disengages. Continue to 120VAC *(240VAC European).*
  2. Turn the power switch off and on a few times to verify the 1 - 3 second power-up muting delay.

- CHANNEL OUTPUT
  1. Look for amplified signal at CH1's speaker output. Switch the input signal and scope to channel 2 and repeat output test. Check for noisy / contaminated gain pots by observing general instability on the distortion waveform while adjusting the gain control knob.
  2. Select an 8 ohm load and confirm that the amplifier is producing 210 watts at 1kHz just beyond the point of clipping (1.0% THD+N).
  3. Repeat output test for CH2.

- BRIDGE MODE
  1. Turn the power switch off.
  2. Move the bridge switch on the amp from the Stereo to Bridge position. Ensure that CH2 gain is fully clockwise (on) and remove the input plug from CH2.
  3. Connect the load bank between the red output binding posts. Select an 8 ohm load.
  4. Apply a 1VRMS, 1kHz sinewave input to CH1 of the amplifier. Check the power and verify that the output does not collapse.

5. Turn power switch off and place the amplifier under test back into the Stereo mode with output loads connected to each channel. Reinsert CH2 input plug and turn both gain controls fully up.

- BIAS ADJUSTMENT
  1. Let the amplifier cool down to room temperature.
  2. Select an 8 ohm load, turn the power switch on, and monitor CH1's distortion output.
  3. With an input amplitude of 1Vrms, increase the input frequency to 20kHz. Reduce the input signal 20dB (80%) from full output. Now, adjust the crossover trimpot VR500 for about a 400mVpk-pk crossover spike protruding from the noise trace on the oscilloscope. It will be necessary to have the oscilloscope measure unfiltered distortion from the amplifier in order to see the crossover spike. It is necessary to disable the 80kHz lowpass filter on the analyzer for this test. Further trim VR500 so that the total distortion for that channel is at about 0.1% THD+N. It may be necessary to enable the 80kHz lowpass filter to obtain this setting. If bias is not adjustable, see the bias description and troubleshooting section of this manual.
  4. If a distortion analyzer is not available, a less accurate crossover distortion and bias adjustment can be made by monitoring the driver transistor (Q510, Q511, Q512, Q513) bias current. With the amplifier at room temperature, and with no input signal plugged into the amplifier, measure the DC voltage across the emitter resistors of Q510, Q511, Q512, & Q513 (R535, R536, R537, R538). Adjust VR500 to obtain about 80mV d.c. across one of these resistors.
  5. With no signal plugged into the amplifier and with an 8 ohm load, verify that the AC idle current from the AC service is no more than 1.2A ac.
  6. Let the amplifier cool down and repeat test for CH2.

- SHORT CIRCUIT CURRENT
  1. Select a 2 ohm load and apply a 1.0Vrms sinewave (1kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up. Note- The output power into a 2 ohm load can only be sustained for a short time interval. Use a gated input signal generator to over come this when adjusting current limits.
  2. While the amplifier is producing power into the loads, apply a short to the output binding posts of each channel. In other words, apply a jumper between the red and black binding posts of each channel. Once this is done, combined AC line current draw for both channels should be about **7.0A - 8.0A** ac. This is with a 120 volt AC service to the amplifier. Current may be higher if AC line voltage is lower.
  3. While the amplifier is driving a short, observe the lowest main supply rail voltages. Ideally, they will be no more than 3 volts from each other.
  4. Remove the short from each channel and verify that the channels recover into 2 ohm loads. The output should not experience any hang up and a full sinewave should be present just as it was before a short was applied for this test.
  5. If the amplifier does not pass any of the above steps, follow the proceeding steps below. If steps 2, 3, and 4 above pass, continue to the next test FREQUENCY RESPONSE.

     Setting Short Circuit Current Limits

     a. Select a 2 ohm load and apply a 1.2Vrms sinewave (1kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up.

     b. Turn gain controls on CH2 fully down. CH1 should be producing max power into the 2 ohm load. It will be necessary to trim CH1's gain control as excessive clipping will be present.

     c. While trimming CH1's gain, scale the output level back until either the positive or negative portion of the sinewave reaches the point of clipping.

d. If one polarity clips before the other, adjust the current limit for that polarity (I +, VR502 or I -, VR501) until both polarities clip at the same time. To reach the best possible current limit setting, adjust one polarity of the output sinewave until there is no further clip level adjustment. Stop the trim adjustment there. On the other polarity, adjust the level of clipping out just until there is no clip limit adjustment left on the sinewave. These output polarities should now clip evenly.

e. While CH1 is delivering max power into the load, apply a short across CH1's binding posts. Verify that the A.C. current draw is **4.5 to 5.5** amps A.C. If there is excessive, or low, current draw, repeat step d. above until the correct amount of current limiting is set.

f. Once the correct AC current draw is set, remove the short from the output. When this is done, the output power should recover back into the 2 ohm load. If it does not, the current limits are set too low.

g. Once the output recovers into the 2 ohm load, verify that both polarities of the output sinewave are clipping at the same time. If one polarity clips before the other, adjust the current limit for that polarity (I + or I -) until both polarities clip at the same time and that the limits are fully extended.

h. After the short circuit current is set and even clipping is achieved, reapply the short to the output to reconfirm AC line current. If the current draw is not within the range specified, again balance the current limit trimpots until even clipping and the correct AC current draw is met.

i. Remove the input signal from CH1 and calibrate CH2. It is important to calibrate only one channel at a time.

- FREQUENCY RESPONSE
  1. Select an 8 ohm loads and scale the input generator to gain 1 watt of power from the amplifier on each channel. Gain controls on the amplifier should be fully up.
  2. Check frequency response from 20Hz to 20kHz (+/- 0.15dB) by sweeping random frequencies between these extremes. This is done by verifying the same voltage amplitude at each of the frequencies selected (within 20Hz to 20kHz). Check both channels.

- POWER vs. DISTORTION TEST
  1. Check to ensure that both channels will produce rated power at 20Hz, 2KHz, and 20kHz. into an 8 ohm load.
  2. While verifying rated power, check that at all frequencies the distortion measurement is less than or equal to 0.1%.

- THERMAL TEST
  1. Set input frequency to 1kHz at 1Vrms and short both channels while they are producing power into a load.
  2. AC line current draw should be about **7.0 - 8.0** amps for both channels. As the amplifier gets hot, there will be some current drift upwards. This is not a problem as long as the case temperature on the output transistors does not exceed 105 degrees C.
  3. Verify that thermal shutdown occurs after an extended period of time.
  4. When thermal shutdown occurs, verify AC idle current of less that 1.0 amperes.

- CM TEST
  1. Select an 8 ohm load and confirm that the amplifier is producing rated power.
  2. Check the Common Mode of the amplifier by inserting a 1/4" input jack halfway into each channel and observe about 6 dB of output power reduction. There will also be a 180 degree phase inversion at the output of the amplifier under test.

- OUTPUT NOISE
    1. Select an 8 ohm load and set the amplifier gain controls all the way up, with a 1kHz 1.00Vrms sinewave input signal. Note the output level (0dBr).
    2. Remove the input signal connector from the amplifier and measure the residual noise level produced into the load by the amplifier. The noise signal should be 100 dB down from the full output power point measured. A signal to noise ratio should be better than or equal to 100dB. Check both channels.

- FINAL CHECK

    This completes the amplifier test procedure for this model. Inspect the amplifier for mechanical defects. Inspect the solder connections. Reassemble the amplifier and verify the amplifier's operation before returning the product to service.

PowerLight 1.4 Test Procedure

- SET-UP
    1. Connect the load bank to the output terminals of the amplifier.
    2. Make sure the Stereo / Bridge switch is set to the Stereo position.
    3. Connect a distortion analyzer with a resolution of 0.05%, 20-20kHz (or better) to the output terminals of the amplifier. Enable the 80kHz low pass filter.
    4. Connect a dual-channel oscilloscope to the following test points:

        Ch1 - a 10X (vertical sensitivity - 2V/cm) scope probe to the channel speaker output.
        Ch2 - a 1X scope probe (vertical sensitivity - 0.1V/cm) to the distortion analyzer output.
    5. Set amp gain pots fully clockwise and turn on power switch.
    6. Connect the output of the signal generator to the input terminals of the amplifier and select an output of 1.00 VRMS, 1kHz sine wave.
    7. Plug the amplifier in to a variac and set up an AC line current monitor.

- POWER UP & MUTE DELAY TEST
    1. Slowly raise the variac voltage and watch for excessive current draw (Line current greater than 0.5A a.c. at 60 VAC). *This is slightly less for 240V.* Pause at 90VAC *(200VAC European)* for three seconds until the mute / protect circuit disengages. Continue to 120VAC *(240VAC European).*
    2. Turn the power switch off and on a few times to verify the 1 - 3 second power-up muting delay.

- CHANNEL OUTPUT
    1. Look for amplified signal at CH1's speaker output. Switch the input signal and scope to channel 2 and repeat output test. Check for noisy / contaminated gain pots by observing general instability on the distortion waveform while adjusting the gain control knob.
    2. Select an 8 ohm load and confirm that the amplifier is producing 325 watts at 1kHz just beyond the point of clipping (1.0% THD+N).
    3. Repeat output test for CH2.

- BRIDGE MODE
    1. Turn the power switch off.
    2. Move the bridge switch on the amp from the Stereo to Bridge position. Ensure that CH2 gain is fully clockwise (on) and remove the input plug from CH2.
    3. Connect the load bank between the red output binding posts. Select an 8 ohm load.
    4. Apply a 1VRMS, 1kHz sinewave input to CH1 of the amplifier. Check the power and verify that the output does not collapse.
    5. Turn power switch off and place the amplifier under test back into the Stereo mode with output loads connected to each channel. Reinsert CH2 input plug and turn both gain controls fully up.

- BIAS ADJUSTMENT
    1. Let the amplifier cool down to room temperature.
    2. Select an 8 ohm load, turn the power switch on, and monitor CH1's distortion output.
    3. With an input amplitude of 1Vrms, increase the input frequency to 20kHz. Reduce the input signal 20dB (80%) from full output. Now, adjust the crossover trimpot VR500 for about a 400mVpk-pk crossover spike protruding from the noise trace on the oscilloscope. It will be necessary to have the oscilloscope measure unfiltered distortion from the amplifier in order to see the crossover spike. It is necessary to disable the 80kHz lowpass filter on the analyzer for this test. Further trim VR500 so that the total distortion for that channel is at about 0.1% THD+N. It may be necessary to enable the 80kHz lowpass filter to obtain this setting. If bias is not adjustable, see the bias description and troubleshooting section of this manual.
    4. If a distortion analyzer is not available, a less accurate crossover distortion and bias adjustment can be made by monitoring the driver transistor (Q510, Q511, Q512, Q513) bias current. With the amplifier at room temperature, and with no input signal plugged into the amplifier, measure the DC voltage across the emitter resistors of Q510, Q511, Q512, & Q513 (R535, R536, R537, R538). Adjust VR500 to obtain about 80mV d.c. across one of these resistors.
    5. With no signal plugged into the amplifier and with an 8 ohm load, verify that the AC idle current from the AC service is no more than 1.2A ac.
    6. Let the amplifier cool down and repeat test for CH2.

- SHORT CIRCUIT CURRENT
    1. Select a 2 ohm load and apply a 1.0Vrms sinewave (1kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up. Note- The output power into a 2 ohm load can only be sustained for a short time interval. Use a gated input signal generator to over come this when adjusting current limits.
    2. While the amplifier is producing power into the loads, apply a short to the output binding posts of each channel. In other words, apply a jumper between the red and black binding posts of each channel. Once this is done, combined AC line current draw for both channels should be about **7.0A - 8.0A** ac. This is with a 120 volt AC service to the amplifier. Current may be higher if AC line voltage is lower.
    3. While the amplifier is driving a short, observe the lowest main supply rail voltages. Ideally, they will be no more than 3 volts from each other.
    4. Remove the short from each channel and verify that the channels recover into 2 ohm loads. The output should not experience any hang up and a full sinewave should be present just as it was before a short was applied for this test.
    5. If the amplifier does not pass any of the above steps, follow the proceeding steps below. If steps 2, 3, and 4 above pass, continue to the next test FREQUENCY RESPONSE.

Setting Short Circuit Current Limits

a. Select a 2 ohm load and apply a 1.2Vrms sinewave (1kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up.

b. Turn gain controls on CH2 fully down. CH1 should be producing max power into the 2 ohm load. It will be necessary to trim CH1's gain control as excessive clipping will be present.

c. While trimming CH1's gain, scale the output level back until either the positive or negative portion of the sinewave reaches the point of clipping.

d. If one polarity clips before the other, adjust the current limit for that polarity (I +, VR502 or I -, VR501) until both polarities clip at the same time. To reach the best possible current limit setting, adjust one polarity of the output sinewave until there is no further clip level adjustment. Stop the trim adjustment there. On the other polarity, adjust the level of clipping out just until there is no clip limit adjustment left on the sinewave. These output polarities should now clip evenly.

e. While CH1 is delivering max power into the load, apply a short across CH1's binding posts. Verify that the A.C. current draw is **4.5 to 5.5** amps A.C. If there is excessive, or low, current draw, repeat step d. above until the correct amount of current limiting is set.

f. Once the correct AC current draw is set, remove the short from the output. When this is done, the output power should recover back into the 2 ohm load. If it does not, the current limits are set too low.

g. Once the output recovers into the 2 ohm load, verify that both polarities of the output sinewave are clipping at the same time. If one polarity clips before the other, adjust the current limit for that polarity (I + or I -) until both polarities clip at the same time and that the limits are fully extended.

h. After the short circuit current is set and even clipping is achieved, reapply the short to the output to reconfirm AC line current. If the current draw is not within the range specified, again balance the current limit trimpots until even clipping and the correct AC current draw is met.

i. Remove the input signal from CH1 and calibrate CH2. It is important to calibrate only one channel at a time.

- FREQUENCY RESPONSE
  1. Select an 8 ohm load and scale the input generator to gain 1 watt of power from the amplifier on each channel. Gain controls on the amplifier should be fully up.
  2. Check frequency response from 20Hz to 20kHz (+/- 0.15dB) by sweeping random frequencies between these extremes. This is done by verifying the same voltage amplitude at each of the frequencies selected (within 20Hz to 20kHz). Check both channels.

- POWER vs. DISTORTION TEST
  1. Check to ensure that both channels will produce rated power at 20Hz, 2KHz, and 20kHz. into an 8 ohm load.
  2. While verifying rated power, check that at all frequencies the distortion measurement is less than or equal to 0.1%.

- THERMAL TEST
  1. Set input frequency to 1KHz and short both channels while they are producing power into a load.

2. AC line current draw should be about **7.0 - 8.0** amps for both channels. As the amplifier gets hot, there will be some current drift upwards. This is not a problem as long as the case temperature on the output transistors does not exceed 105 degrees C.
3. Verify that the PTC circuit causes thermal shutdown after an extended period.
4. When thermal shutdown occurs, verify AC idle current of less that 0.90 amperes.

- CM TEST
  1. Select an 8 ohm load and confirm that this amplifier is producing rated power. While this amplifier is producing power, proceed to the next step of this test.
  2. Check the Common Mode of the amplifier by inserting a 1/4" input jack halfway into each channel and observe about 6 dB of output power reduction. There will also be a 180 degree phase inversion at the output of the amplifier under test.

- OUTPUT NOISE
  1. Set the amplifier gain controls all the way up, with a 1kHz 1.00Vrms sinewave input signal. Note the output level.
  2. Remove the input signal connector from the amplifier and measure the residual noise level produced into the load by the amplifier. The noise signal should be 100 dB down from the full output power point measured. A signal to noise ratio should be better than or equal to 100dB. Check both channels.

- FINAL CHECK

  This completes the amplifier test procedure for this model. Inspect the amplifier for mechanical defects. Inspect the solder connections. Reassemble the amplifier and verify the amplifier's operation before returning the product to service.

PowerLight 1.8 Test Procedure

- SET-UP
  1. Connect the load bank to the output terminals of the amplifier.
  2. Make sure the Stereo / Bridge switch is set to the Stereo position.
  3. Connect a distortion analyzer with a resolution of 0.05%, 20-20kHz (or better) to the output terminals of the amplifier. Enable the 80kHz low pass filter.
  4. Connect a dual-channel oscilloscope to the following test points:

     Ch1 - a 10X (vertical sensitivity - 2V/cm) scope probe to the channel speaker output.
     Ch2 - a 1X scope probe (vertical sensitivity - 0.1V/cm) to the distortion analyzer output.
  5. Set amp gain pots fully clockwise and turn on power switch.
  6. Connect the output of the signal generator to the input terminals of the amplifier and select an output of 1.00 VRMS, 1kHz sine wave.
  7. Plug the amplifier in to a variac and set up an AC line current monitor.

- POWER UP & MUTE DELAY TEST
  1. Slowly raise the variac voltage and watch for excessive current draw (Line current greater than 0.5A a.c. at 60 VAC). *This is slightly less for 240V.* Pause at 90VAC *(200VAC European)* for three seconds until the mute / protect circuit disengages. Continue to 120VAC *(240VAC European).*

2. Turn the power switch off and on a few times to verify the 1 - 3 second power-up muting delay.

- CHANNEL OUTPUT
  1. Look for amplified signal at CH1's speaker output. Switch the input signal and scope to channel 2 and repeat output test. Check for noisy / contaminated gain pots by observing general instability on the distortion waveform while adjusting the gain control knob.
  2. Select an 8 ohm load and confirm that the amplifier is producing 450 watts at 1kHz just beyond the point of clipping (1.0% THD+N).
  3. Repeat output test for CH2.

- BRIDGE MODE
  1. Turn the power switch off.
  2. Move the bridge switch on the amp from the Stereo to Bridge position. Ensure that CH2 gain is fully clockwise (on) and remove the input plug from CH2.
  3. Connect the load bank between the red output binding posts. Select an 8 ohm load.
  4. Apply a 1VRMS, 1kHz sinewave input to CH1 of the amplifier. Check the power and verify that the output does not collapse.
  5. Turn power switch off and place the amplifier under test back into the Stereo mode with output loads connected to each channel. Reinsert CH2 input plug and turn both gain controls fully up.

- BIAS ADJUSTMENT
  1. Let the amplifier cool down to room temperature.
  2. Select an 8 ohm load, turn the power switch on, and monitor CH1's distortion output.
  3. With an input amplitude of 1Vrms, increase the input frequency to 20kHz. Reduce the input signal 20dB (80%) from full output. Now, adjust the crossover trimpot VR500 for about a 400mVpk-pk crossover spike protruding from the noise trace on the oscilloscope. It will be necessary to have the oscilloscope measure unfiltered distortion from the amplifier in order to see the crossover spike. It is necessary to disable the 80kHz lowpass filter on the analyzer for this test. Further trim VR500 so that the total distortion for that channel is at about 0.1% THD+N. It may be necessary to enable the 80kHz lowpass filter to obtain this setting. If bias is not adjustable, see the bias description and troubleshooting section of this manual.
  4. If a distortion analyzer is not available, a less accurate crossover distortion and bias adjustment can be made by monitoring the driver transistor (Q510, Q511, Q512, Q513) bias current. With the amplifier at room temperature, and with no input signal plugged into the amplifier, measure the DC voltage across the emitter resistors of Q510, Q511, Q512, & Q513 (R535, R536, R537, R538). Adjust VR500 to obtain about 80mV d.c. across one of these resistors.
  5. With no signal plugged into the amplifier and with an 8 ohm load, verify that the AC idle current from the AC service is no more than 1.2A ac.
  6. Let the amplifier cool down and repeat test for CH2.

- SHORT CIRCUIT CURRENT
  1. Select a 2 ohm load and apply a 1.0Vrms sinewave (1kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up. Note- The output power into a 2 ohm load can only be sustained for a short time interval. Use a gated input signal generator to over come this when adjusting current limits.
  2. While the amplifier is producing power into the loads, apply a short to the output binding posts of each channel. In other words, apply a jumper between the red and black binding posts of each channel. Once this is done, combined AC line current draw for both channels should be

about **7.0A - 8.0A** ac. This is with a 120 volt AC service to the amplifier. Current may be higher if AC line voltage is lower.

3. While the amplifier is driving a short, observe the lowest main supply rail voltages. Ideally, they will be no more than 3 volts from each other.
4. Remove the short from each channel and verify that the channels recover into 2 ohm loads. The output should not experience any hang up and a full sinewave should be present just as it was before a short was applied for this test.
5. If the amplifier does not pass any of the above steps, follow the proceeding steps below. If steps 2, 3, and 4 above pass, continue to the next test FREQUENCY RESPONSE.

Setting Short Circuit Current Limits

a. Select a 2 ohm load and apply a 1.2Vrms sinewave (1kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up.
b. Turn gain controls on CH2 fully down. CH1 should be producing max power into the 2 ohm load. It will be necessary to trim CH1's gain control as excessive clipping will be present.
c. While trimming CH1's gain, scale the output level back until either the positive or negative portion of the sinewave reaches the point of clipping.
d. If one polarity clips before the other, adjust the current limit for that polarity (I +, VR502 or I -, VR501) until both polarities clip at the same time. To reach the best possible current limit setting, adjust one polarity of the output sinewave until there is no further clip level adjustment. Stop the trim adjustment there. On the other polarity, adjust the level of clipping out just until there is no clip limit adjustment left on the sinewave. These output polarities should now clip evenly.
e. While CH1 is delivering max power into the load, apply a short across CH1's binding posts. Verify that the A.C. current draw is **4.5 to 5.5** amps A.C. If there is excessive, or low, current draw, repeat step d. above until the correct amount of current limiting is set.
f. Once the correct AC current draw is set, remove the short from the output. When this is done, the output power should recover back into the 2 ohm load. If it does not, the current limits are set too low.
g. Once the output recovers into the 2 ohm load, verify that both polarities of the output sinewave are clipping at the same time. If one polarity clips before the other, adjust the current limit for that polarity (I + or I -) until both polarities clip at the same time and that the limits are fully extended.
h. After the short circuit current is set and even clipping is achieved, reapply the short to the output to reconfirm AC line current. If the current draw is not within the range specified, again balance the current limit trimpots until even clipping and the correct AC current draw is met.
i. Remove the input signal from CH1 and calibrate CH2. It is important to calibrate only one channel at a time.

- FREQUENCY RESPONSE

1. Select an 8 ohm load and scale the input generator to gain 1 watt of power from the amplifier on each channel. Gain controls on the amplifier should be fully up.
2. Check frequency response from 20Hz to 20kHz (+/- 0.15dB) by sweeping random frequencies between these extremes. This is done by verifying the same voltage amplitude at each of the frequencies selected (within 20Hz to 20kHz). Check both channels.

- POWER vs. DISTORTION TEST
  1. Check to ensure that both channels will produce rated power at 20Hz, 2KHz, and 20kHz. into an 8 ohm load.
  2. While verifying rated power, check that at all frequencies the distortion measurement is less than or equal to 0.1%.

- THERMAL TEST
  1. Set input frequency to 1KHz and short both channels while they are producing power into a load.
  2. AC line current draw should be about **7.0** - **8.0** amps for both channels. As the amplifier gets hot, there will be some current drift upwards. This is not a problem as long as the case temperature on the output transistors do not exceed 105 degrees C.
  3. Verify that the PTC circuit causes thermal shutdown after an extended period.
  4. When thermal shutdown occurs, verify AC idle current of less that 0.90 amperes.

- CM TEST
  1. Select an 8 ohm load and confirm that this amplifier is producing rated power. While this amplifier is producing power, proceed to the next step of this test.
  2. Check the Common Mode of the amplifier by inserting a 1/4" input jack halfway into each channel and observe about 6 dB of output power reduction. There will also be a 180 degree phase inversion at the output of the amplifier under test.

- OUTPUT NOISE
  1. Set the amplifier gain controls all the way up, with a 1kHz 1.00Vrms sinewave input signal. Note the output level.
  2. Remove the input signal connector from the amplifier and measure the residual noise level produced into the load by the amplifier. The noise signal should be 100 dB down from the full output power point measured. A signal to noise ratio should be better than or equal to 100dB. Check both channels.

- FINAL CHECK

  This completes the amplifier test procedure for this model. Inspect the amplifier for mechanical defects. Inspect the solder connections. Reassemble the amplifier and verify the amplifier's operation before returning the product to service.

PowerLight 2.0^{HV} Test Procedure

- SET-UP
  1. Connect the load bank to the output terminals of the amplifier.
  2. Make sure the Stereo / Bridge switch is set to the Stereo position.
  3. Connect a distortion analyzer with a resolution of 0.05%, 20-20kHz (or better) to the output terminals of the amplifier. Enable the 80kHz low pass filter.
  4. Connect a dual-channel oscilloscope to the following test points:

     Ch1 - a 10X (vertical sensitivity - 2V/cm) scope probe to the channel speaker output.
     Ch2 - a 1X scope probe (vertical sensitivity - 0.1V/cm) to the distortion analyzer output.
  5. Set amp gain pots fully clockwise and turn on power switch.

6. Connect the output of the signal generator to the input terminals of the amplifier and select an output of 1.00 VRMS, 1kHz sine wave.
7. Plug the amplifier in to a variac and set up an AC line current monitor.

- POWER UP & MUTE DELAY TEST
  1. Slowly raise the variac voltage and watch for excessive current draw (Line current greater than 0.5A a.c. at 60 VAC). *This is slightly less for 240V.* Pause at 90VAC *(200VAC European)* for three seconds until the mute / protect circuit disengages. Continue to 120VAC *(240VAC European).*
  2. Turn the power switch off and on a few times to verify the 1 - 3 second power-up muting delay.

- CHANNEL OUTPUT
  1. Look for amplified signal at CH1's speaker output. Switch the input signal and scope to channel 2 and repeat output test. Check for noisy / contaminated gain pots by observing general instability on the distortion waveform while adjusting the gain control knob.
  2. Select an 8 ohm load and confirm that the amplifier is producing 650 watts at 1kHz just beyond the point of clipping (1.0% THD+N).
  3. Repeat output test for CH2.

- BRIDGE MODE
  1. Turn the power switch off.
  2. Move the bridge switch on the amp from the Stereo to Bridge position. Ensure that CH2 gain is fully clockwise (on) and remove the input plug from CH2.
  3. Connect the load bank between the red output binding posts. Select an 8 ohm load.
  4. Apply a 1VRMS, 1kHz sinewave input to CH1 of the amplifier. Check the power and verify that the output does not collapse.
  5. Turn power switch off and place the amplifier under test back into the Stereo mode with output loads connected to each channel. Reinsert CH2 input plug and turn both gain controls fully up.

- BIAS ADJUSTMENT
  1. Let the amplifier cool down to room temperature.
  2. Select an 8 ohm load, turn the power switch on, and monitor CH1's distortion output.
  3. With an input amplitude of 1Vrms, increase the input frequency to 20kHz. Reduce the input signal 20dB (80%) from full output. Now, adjust the crossover trimpot VR500 for about a 400mVpk-pk crossover spike protruding from the noise trace on the oscilloscope. It will be necessary to have the oscilloscope measure unfiltered distortion from the amplifier in order to see the crossover spike. It is necessary to disable the 80kHz lowpass filter on the analyzer for this test. Further trim VR500 so that the total distortion for that channel is at about 0.1% THD+N. It may be necessary to enable the 80kHz lowpass filter to obtain this setting. If bias is not adjustable, see the bias description and troubleshooting section of this manual.
  4. If a distortion analyzer is not available, a less accurate crossover distortion and bias adjustment can be made by monitoring the driver transistor (Q510, Q511, Q512, Q513) bias current. With the amplifier at room temperature, and with no input signal plugged into the amplifier, measure the DC voltage across the emitter resistors of Q510, Q511, Q512, & Q513 (R535, R536, R537, R538). Adjust VR500 to obtain about 80mV d.c. across one of these resistors.
  5. With no signal plugged into the amplifier and with an 8 ohm load, verify that the AC idle current from the AC service is no more than 1.2A ac.

6. Connect the output of the signal generator to the input terminals of the amplifier and select an output of 1.00 VRMS, 1kHz sine wave.
7. Plug the amplifier in to a variac and set up an AC line current monitor.

- POWER UP & MUTE DELAY TEST
  1. Slowly raise the variac voltage and watch for excessive current draw (Line current greater than 0.5A a.c. at 60 VAC). *This is slightly less for 240V.* Pause at 90VAC *(200VAC European)* for three seconds until the mute / protect circuit disengages. Continue to 120VAC *(240VAC European).*
  2. Turn the power switch off and on a few times to verify the 1 - 3 second power-up muting delay.

- CHANNEL OUTPUT
  1. Look for amplified signal at CH1's speaker output. Switch the input signal and scope to channel 2 and repeat output test. Check for noisy / contaminated gain pots by observing general instability on the distortion waveform while adjusting the gain control knob.
  2. Select an 8 ohm load and confirm that the amplifier is producing 650 watts at 1kHz just beyond the point of clipping (1.0% THD+N).
  3. Repeat output test for CH2.

- BRIDGE MODE
  1. Turn the power switch off.
  2. Move the bridge switch on the amp from the Stereo to Bridge position. Ensure that CH2 gain is fully clockwise (on) and remove the input plug from CH2.
  3. Connect the load bank between the red output binding posts. Select an 8 ohm load.
  4. Apply a 1VRMS, 1kHz sinewave input to CH1 of the amplifier. Check the power and verify that the output does not collapse.
  5. Turn power switch off and place the amplifier under test back into the Stereo mode with output loads connected to each channel. Reinsert CH2 input plug and turn both gain controls fully up.

- BIAS ADJUSTMENT
  1. Let the amplifier cool down to room temperature.
  2. Select an 8 ohm load, turn the power switch on, and monitor CH1's distortion output.
  3. With an input amplitude of 1Vrms, increase the input frequency to 20kHz. Reduce the input signal 20dB (80%) from full output. Now, adjust the crossover trimpot VR500 for about a 400mVpk-pk crossover spike protruding from the noise trace on the oscilloscope. It will be necessary to have the oscilloscope measure unfiltered distortion from the amplifier in order to see the crossover spike. It is necessary to disable the 80kHz lowpass filter on the analyzer for this test. Further trim VR500 so that the total distortion for that channel is at about 0.1% THD+N. It may be necessary to enable the 80kHz lowpass filter to obtain this setting. If bias is not adjustable, see the bias description and troubleshooting section of this manual.
  4. If a distortion analyzer is not available, a less accurate crossover distortion and bias adjustment can be made by monitoring the driver transistor (Q510, Q511, Q512, Q513) bias current. With the amplifier at room temperature, and with no input signal plugged into the amplifier, measure the DC voltage across the emitter resistors of Q510, Q511, Q512, & Q513 (R535, R536, R537, R538). Adjust VR500 to obtain about 80mV d.c. across one of these resistors.
  5. With no signal plugged into the amplifier and with an 8 ohm load, verify that the AC idle current from the AC service is no more than 1.2A ac.

6. Let the amplifier cool down and repeat test for CH2.

- SHORT CIRCUIT CURRENT
  1. Select a 4 ohm load and apply a 1.0Vrms sinewave (1kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up. Note- The output power into a 4 ohm load can only be sustained for a short time interval. Use a gated input signal generator to over come this when adjusting current limits.
  2. While the amplifier is producing power into the loads, apply a short to the output binding posts of each channel. In other words, apply a jumper between the red and black binding posts of each channel. Once this is done, combined AC line current draw for both channels should be about **7.0A - 8.0A** ac. This is with a 120 volt AC service to the amplifier. Current may be higher if AC line voltage is lower.
  3. While the amplifier is driving a short, observe the lowest main supply rail voltages. Ideally, they will be no more than 3 volts from each other.
  4. Remove the short from each channel and verify that the channels recover into 4 ohm loads. The output should not experience any hang up and a full sinewave should be present just as it was before a short was applied for this test.
  5. If the amplifier does not pass any of the above steps, follow the proceeding steps below. If steps 2, 3, and 4 above pass, continue to the next test FREQUENCY RESPONSE.

Setting Short Circuit Current Limits

a. Select a 4 ohm load and apply a 1.2Vrms sinewave (1kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up.

b. Turn gain controls on CH2 fully down. CH1 should be producing max power into the 4 ohm load. It will be necessary to trim CH1's gain control as excessive clipping will be present.

c. While trimming CH1's gain, scale the output level back until either the positive or negative portion of the sinewave reaches the point of clipping.

d. If one polarity clips before the other, adjust the current limit for that polarity (I +, VR502 or I -, VR501) until both polarities clip at the same time. To reach the best possible current limit setting, adjust one polarity of the output sinewave until there is no further clip level adjustment. Stop the trim adjustment there. On the other polarity, adjust the level of clipping out just until there is no clip limit adjustment left on the sinewave. These output polarities should now clip evenly.

e. While CH1 is delivering max power into the load, apply a short across CH1's binding posts. Verify that the A.C. current draw is **4.5 to 5.5** amps A.C. If there is excessive, or low, current draw, repeat step d. above until the correct amount of current limiting is set.

f. Once the correct AC current draw is set, remove the short from the output. When this is done, the output power should recover back into the 4 ohm load. If it does not, the current limits are set too low.

g. Once the output recovers into the 4 ohm load, verify that both polarities of the output sinewave are clipping at the same time. If one polarity clips before the other, adjust the current limit for that polarity (I + or I -) until both polarities clip at the same time and that the limits are fully extended.

h. After the short circuit current is set and even clipping is achieved, reapply the short to the output to reconfirm AC line current. If the current draw is not within the range specified, again balance the current limit trimpots until even clipping and the correct AC current draw is met.

i. Remove the input signal from CH1 and calibrate CH2. It is important to calibrate only one channel at a time.

- FREQUENCY RESPONSE
  1. Select an 8 ohm load and scale the input generator to gain 1 watt of power from the amplifier on each channel. Gain controls on the amplifier should be fully up.
  2. Check frequency response from 20Hz to 20kHz (+/- 0.15dB) by sweeping random frequencies between these extremes. This is done by verifying the same voltage amplitude at each of the frequencies selected (within 20Hz to 20kHz). Check both channels.

- POWER vs. DISTORTION TEST
  1. Check to ensure that both channels will produce rated power at 20Hz, 2KHz, and 20kHz. into an 8 ohm load.
  2. While verifying rated power, check that at all frequencies the distortion measurement is less than or equal to 0.1%.

- THERMAL TEST
  1. Set input frequency to 1KHz and short both channels while they are producing power into a load.
  2. AC line current draw should be about **7.0 - 8.0** amps for both channels. As the amplifier gets hot, there will be some current drift upwards. This is not a problem as long as the case temperature on the output transistors do not exceed 105 degrees C.
  3. Verify that the PTC circuit causes thermal shutdown after an extended period.
  4. When thermal shutdown occurs, verify AC idle current of less that 0.90 amperes.

- CM TEST
  1. Select an 8 ohm load and confirm that this amplifier is producing rated power. While this amplifier is producing power, proceed to the next step of this test.
  2. Check the Common Mode of the amplifier by inserting a 1/4" input jack halfway into each channel and observe about 6 dB of output power reduction. There will also be a 180 degree phase inversion at the output of the amplifier under test.

- OUTPUT NOISE
  1. Set the amplifier gain controls all the way up, with a 1kHz 1.00Vrms sinewave input signal. Note the output level.
  2. Remove the input signal connector from the amplifier and measure the residual noise level produced into the load by the amplifier. The noise signal should be 100 dB down from the full output power point measured. A signal to noise ratio should be better than or equal to 100dB. Check both channels.

- FINAL CHECK

  This completes the amplifier test procedure for this model. Inspect the amplifier for mechanical defects. Inspect the solder connections. Reassemble the amplifier and verify the amplifier's operation before returning the product to service.

PowerLight 3.4 Test Procedure

- SET-UP
  1. Connect the load bank to the output terminals of the amplifier.
  2. Make sure the Stereo / Bridge switch is set to the Stereo position.
  3. Connect a distortion analyzer with a resolution of 0.05%, 20-20kHz (or better) to the output terminals of the amplifier. Enable the 80kHz low pass filter.
  4. Connect a dual-channel oscilloscope to the following test points:
     Ch1 - a 10X (vertical sensitivity - 2V/cm) scope probe to the channel speaker output.
     Ch2 - a 1X scope probe (vertical sensitivity - 0.1V/cm) to the distortion analyzer output.
  5. Set amp gain pots fully clockwise and turn on power switch.
  6. Connect the output of the signal generator to the input terminals of the amplifier and select an output of 1.00 VRMS, 1kHz sine wave.
  7. Plug the amplifier in to a variac and set up an AC line current monitor.

- POWER UP & MUTE DELAY TEST
  1. Slowly raise the variac voltage and watch for excessive current draw (Line current greater than 0.5A a.c. at 60 VAC). *This is slightly less for 240V.* Pause at 90VAC *(200VAC European)* for three seconds until the mute / protect circuit disengages. Continue to 120VAC *(240VAC European).*
  2. Turn the power switch off and on a few times to verify the 1 - 3 second power-up muting delay.

- CHANNEL OUTPUT
  1. Look for amplified signal at CH1's speaker output. Switch the input signal and scope to channel 2 and repeat output test. Check for noisy / contaminated gain pots by observing general instability on the distortion waveform while adjusting the gain control knob.
  2. Select an 8 ohm load and confirm that the amplifier is producing 725 watts at 1kHz just beyond the point of clipping (1.0% THD+N).
  3. Repeat output test for CH2.

- BRIDGE MODE
  1. Turn the power switch off.
  2. Move the bridge switch on the amp from the Stereo to Bridge position. Ensure that CH2 gain is fully clockwise (on) and remove the input plug from CH2.
  3. Connect the load bank between the red output binding posts. Select an 8 ohm load.
  4. Apply a 1VRMS, 1kHz sinewave input to CH1 of the amplifier. Check the power and verify that the output does not collapse.
  5. Turn power switch off and place the amplifier under test back into the Stereo mode with output loads connected to each channel. Reinsert CH2 input plug and turn both gain controls fully up.

- BIAS ADJUSTMENT
  1. Let the amplifier cool down to room temperature.
  2. With an input amplitude of 1Vrms, increase the input frequency to 20kHz. Reduce the input signal 20dB (80%) from full output. Now, adjust the cross-over trimpot VR902 for about a 400mVpk-pk crossover spike protruding from the noise trace on the oscilloscope. It will be

necessary to have the oscilloscope measure unfiltered distortion from the amplifier in order to see the crossover spike. It is necessary to disable the 80kHz lowpass filter on the analyzer for this test. Further trim VR902 so that the total distortion for that channel is at about 0.1% THD+N. If bias is not adjustable, see the bias description and troubleshooting section of this manual.

3. If a distortion analyzer is not available, a less accurate crossover distortion and bias adjustment can be made by monitoring the driver transistor (Q908, Q911, Q918, and Q930) bias current. With the amplifier at room temperature, and with no input signal plugged into the amplifier, measure the DC voltage across the emitter resistors of Q908, Q911, Q918, and Q930 (R928, R920, R972, and R966). Adjust VR902 to obtain about 80mV d.c. across one of these resistors.
4. With no signal plugged into the amplifier and with an 8 ohm load, verify that the AC idle current from the AC service is no more than 1.2 amps a.c.
5. Let the amplifier cool down and check channel 2.

- SHORT CIRCUIT CURRENT
  1. Select a 2 ohm load and apply a 1.0Vrms sinewave (1kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up. Note- The output power into a 2 ohm load can only be sustained for a short time interval. Use a gated input signal generator to over come this when adjusting current limits.
  2. While the amplifier is producing power into the loads, apply a short to the output binding posts of each channel. In other words, apply a jumper between the red and black binding posts of each channel. Once this is done, combined AC line current draw for both channels should be about **13A - 14A** ac. This is with a 120 volt AC service to the amplifier. Current may be higher if AC line voltage is lower.
  3. While the amplifier is driving a short, observe the lowest main supply rail voltages. Ideally, they will be no more than 3 volts from each other.
  4. Remove the short from each channel and verify that the channels recover into 2 ohm loads. The output should not experience any hang up and a full sinewave should be present just as it was before a short was applied for this test.
  5. If the amplifier does not pass any of the above steps, follow the proceeding steps below. If steps 2, 3, and 4 above pass, continue to the next test FREQUENCY RESPONSE.

     Setting Short Circuit Current Limits

     a. Select a 2 ohm load and apply a 1.2Vrms sinewave (1kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up.
     b. Turn gain controls on CH2 fully down. CH1 should be producing max power into the 2 ohm load. It will be necessary to trim CH1's gain control as excessive clipping will be present.
     c. While trimming CH1's gain, scale the output level back until either the positive or negative portion of the sinewave reaches the point of clipping.
     d. If one polarity clips before the other, adjust the current limit for that polarity (I +, VR903 or I -, VR901) until both polarities clip at the same time. To reach the best possible current limit setting, adjust one polarity of the output sinewave until there is no further clip level adjustment. Stop the trim adjustment there. On the other polarity, adjust the level of clipping out just until there is no clip limit adjustment left on the sinewave. These output polarities should now clip evenly.
     e. While CH1 is delivering max power into the load, apply a short across CH1's binding posts. Verify that the A.C. current draw is **7.5 to 8.5** amps A.C. If there is excessive, or low, current draw, repeat step d. above until the correct amount of current limiting is set.

f. Once the correct AC current draw is set, remove the short from the output. When this is done, the output power should recover back into the 2 ohm load. If it does not, the current limits are set too low.
g. Once the output recovers into the 2 ohm load, verify that both polarities of the output sinewave are clipping at the same time. If one polarity clips before the other, adjust the current limit for that polarity (I + or I -) until both polarities clip at the same time and that the limits are fully extended.
h. After the short circuit current is set and even clipping is achieved, reapply the short to the output to reconfirm AC line current. If the current draw is not within the range specified, again balance the current limit trimpots until even clipping and the correct AC current draw is met.
i. Remove the input signal from CH1 and calibrate CH2. It is important to calibrate only one channel at a time.

- FREQUENCY RESPONSE
  1. Select an 8 ohm load and scale the input generator to gain 1 watt of power from the amplifier on each channel. Gain controls on the amplifier should be fully up.
  2. Check frequency response from 20Hz to 20kHz (+/- 0.15dB) by sweeping random frequencies between these extremes. This is done by verifying the same voltage amplitude at each of the frequencies selected (within 20Hz to 20kHz). Check both channels.

- POWER vs. DISTORTION TEST
  1. Check to ensure that both channels will produce rated power at 20Hz, 2KHz, and 20kHz. into an 8 ohm load.
  2. While verifying rated power, check that at all frequencies the distortion measurement is less than or equal to 0.1%.

- THERMAL TEST
  1. Set input frequency to 1KHz and short both channels while they are producing power into a load.
  2. AC line current draw should be about **13A - 14A** amps for both channels. As the amplifier gets hot, there will be some current drift upwards. This is not a problem as long as the case temperature on the output transistors do not exceed 105 degrees C.
  3. Verify that the PTC circuit causes thermal shutdown after an extended period.
  4. When thermal shutdown occurs, verify AC idle current of less that 0.90 amperes.

- CM TEST
  1. Select an 8 ohm load and confirm that this amplifier is producing rated power. While this amplifier is producing power, proceed to the next step of this test.
  2. Check the Common Mode of the amplifier by inserting a 1/4" input jack halfway into each channel and observe about 6 dB of output power reduction. There will also be a 180 degree phase inversion at the output of the amplifier under test.

- OUTPUT NOISE
  1. Set the amplifier gain controls all the way up, with a 1kHz 1.00Vrms sinewave input signal. Note the output level.
  2. Remove the input signal connector from the amplifier and measure the residual noise level produced into the load by the amplifier. The noise signal should be 100 dB down from the full output power point measured. A signal to noise ratio should be better than or equal to 100dB. Check both channels.

- FINAL CHECK

  This completes the amplifier test procedure for this model. Inspect the amplifier for mechanical defects. Inspect the solder connections. Reassemble the amplifier and verify the amplifier's operation before returning the product to service.

PowerLight 4.0 Test Procedure

- SET-UP
  1. Connect the load bank to the output terminals of the amplifier.
  2. Make sure the Stereo / Bridge switch is set to the Stereo position.
  3. Connect a distortion analyzer with a resolution of 0.05%, 20-20kHz (or better) to the output terminals of the amplifier. Enable the 80kHz low pass filter.
  4. Connect a dual-channel oscilloscope to the following test points:

     Ch1 - a 10X (vertical sensitivity - 2V/cm) scope probe to the channel speaker output.
     Ch2 - a 1X scope probe (vertical sensitivity - 0.1V/cm) to the distortion analyzer output.
  5. Set amp gain pots fully clockwise and turn on power switch.
  6. Connect the output of the signal generator to the input terminals of the amplifier and select an output of 1.00 VRMS, 1kHz sine wave.
  7. Plug the amplifier in to a variac and set up an AC line current monitor.

- POWER UP & MUTE DELAY TEST
  1. Slowly raise the variac voltage and watch for excessive current draw (Line current greater than 0.5A a.c. at 60 VAC). *This is slightly less for 240V.* Pause at 90VAC *(200VAC European)* for three seconds until the mute / protect circuit disengages. Continue to 120VAC *(240VAC European).*
  2. Turn the power switch off and on a few times to verify the 1 - 3 second power-up muting delay.

- CHANNEL OUTPUT
  1. Look for amplified signal at CH1's speaker output. Switch the input signal and scope to channel 2 and repeat output test. Check for noisy / contaminated gain pots by observing general instability on the distortion waveform while adjusting the gain control knob.
  2. Select an 8 ohm load and confirm that the amplifier is producing 900 watts at 1kHz just beyond the point of clipping (1.0% THD+N).
  3. Repeat output test for CH2.

- BRIDGE MODE
  1. Turn the power switch off.
  2. Move the bridge switch on the amp from the Stereo to Bridge position. Ensure that CH2 gain is fully clockwise (on) and remove the input plug from CH2.
  3. Connect the load bank between the red output binding posts. Select an 8 ohm load.
  4. Apply a 1VRMS, 1kHz sinewave input to CH1 of the amplifier. Check the power and verify that the output does not collapse.
  5. Turn power switch off and place the amplifier under test back into the Stereo mode with output loads connected to each channel. Reinsert CH2 input plug and turn both gain controls fully up.

- BIAS ADJUSTMENT
  1. Let the amplifier cool down to room temperature.
  2. With an input amplitude of 1Vrms, increase the input frequency to 20kHz. Reduce the input signal 20dB (80%) from full output. Now, adjust the cross-over trimpot VR902 for about a 400mVpk-pk crossover spike protruding from the noise trace on the oscilloscope. It will be necessary to have the oscilloscope measure unfiltered distortion from the amplifier in order to see the crossover spike. It is necessary to disable the 80kHz lowpass filter on the analyzer for this test. Further trim VR902 so that the total distortion for that channel is at about 0.1% THD+N. If bias is not adjustable, see the bias description and troubleshooting section of this manual.
  3. If a distortion analyzer is not available, a less accurate crossover distortion and bias adjustment can be made by monitoring the driver transistor (Q908, Q911, Q918, and Q930) bias current. With the amplifier at room temperature, and with no input signal plugged into the amplifier, measure the DC voltage across the emitter resistors of Q908, Q911, Q918, and Q930 (R928, R920, R972, and R966). Adjust VR902 to obtain about 80mV d.c. across one of these resistors.
  4. With no signal plugged into the amplifier and with an 8 ohm load, verify that the AC idle current from the AC service is no more than 1.2 amps a.c.
  5. Let the amplifier cool down and check channel 2.

- SHORT CIRCUIT CURRENT
  1. Select a 2 ohm load and apply a 1.0Vrms sinewave (1kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up. Note- The output power into a 2 ohm load can only be sustained for a short time interval. Use a gated input signal generator to over come this when adjusting current limits.
  2. While the amplifier is producing power into the loads, apply a short to the output binding posts of each channel. In other words, apply a jumper between the red and black binding posts of each channel. Once this is done, combined AC line current draw for both channels should be about **13A - 14A** ac. This is with a 120 volt AC service to the amplifier. Current may be higher if AC line voltage is lower.
  3. While the amplifier is driving a short, observe the lowest main supply rail voltages. Ideally, they will be no more than 3 volts from each other.
  4. Remove the short from each channel and verify that the channels recover into 2 ohm loads. The output should not experience any hang up and a full sinewave should be present just as it was before a short was applied for this test.
  5. If the amplifier does not pass any of the above steps, follow the proceeding steps below. If steps 2, 3, and 4 above pass, continue to the next test FREQUENCY RESPONSE.

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     a. Select a 2 ohm load and apply a 1.2Vrms sinewave (1kHz) input signal to both channels of the amplifier. Ensure that power is on and that the gain controls are fully up.
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     c. While trimming CH1's gain, scale the output level back until either the positive or negative portion of the sinewave reaches the point of clipping.
     d. If one polarity clips before the other, adjust the current limit for that polarity (I +, VR903 or I -, VR901) until both polarities clip at the same time. To reach the best possible current limit setting, adjust one polarity of the output sinewave until there is no further clip level adjustment. Stop the trim adjustment there. On the other

polarity, adjust the level of clipping out just until there is no clip limit adjustment left on the sinewave. These output polarities should now clip evenly.

e. While CH1 is delivering max power into the load, apply a short across CH1's binding posts. Verify that the A.C. current draw is **7.5 to 8.5** amps A.C. If there is excessive, or low, current draw, repeat step d. above until the correct amount of current limiting is set.

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  1. Set input frequency to 1KHz and short both channels while they are producing power into a load.
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    1. Set the amplifier gain controls all the way up, with a 1kHz 1.00Vrms sinewave input signal. Note the output level.
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- FINAL CHECK

  This completes the amplifier test procedure for this model. Inspect the amplifier for mechanical defects. Inspect the solder connections. Reassemble the amplifier and verify the amplifier's operation before returning the product to service.

T r o u b l e s h o o t i n g

PowerLight 1.0 • PowerLight 1.4 • PowerLight 1.8 • PowerLight 2.0^{HV}

Current Draw

(Circuit breakers and fuses blow. Burning smell or smoke)

Symptoms:

- Fuses immediately blow
- Amplifier quickly gets very hot
- Line circuit breakers tripping upon turn on
- Amplifier emits smoke
- A burning smell is emanating from the amplifier

Possible Causes:

• EXCESSIVE CURRENT WITHOUT SIGNAL PRESENT

The amplifier draws high current when the AC supply voltage is first applied. This symptom may mean that there is a short in the power stages of the circuit.
This could also be a misadjusted bias setting. See calibration procedures in this manual for setting bias.

• FAST CURRENT DRAW (increases rapidly at only a few volts AC):

1. Reversed or shorted main bridge rectifier BR701. Check BR701 by setting DVM to diode mode. To verify a good BR701, connect the negative lead to BR701+ and check for 0.4 to 0.6v at both AC terminals. Connect positive lead to BR701- and check for 0.4 to 0.6v at both AC terminals.
2. Both supply clamping diodes D902, D929 reversed or shorted.
3. Output transistors or both drivers shorted.
4. IGBT devices Q701, Q702 shorted.
5. Shorted or reversed D702 or D704.
6. Shorted or reversed C707, 701, 702, 703, 704, 705, 706
7. Shorted or incorrect D721, D722, D723, D725
8. Shorted D501, D502

• MEDIUM CURRENT DRAW (increases slowly, can go to 30 VAC before current becomes excessive.):

1. Single polarity driver or output short.
2. Open or missing bias diodes D514, D515 or bias trim pot VF500.

• SLOW CURRENT DRAW (above 60 volts AC before current begins to increase, amp may pass signal):

1. Severely misadjusted bias circuit or defective bias diodes D514, D515.
2. Severe oscillation causing current drain.

• RUNAWAY CURRENT DRAW (30-40V AC before current begins to increase or runaway):

1. A reversed filter capacitor: caution, may vent explosively.

Protection, Standby, and Power Up.

(The amplifier locks up or does not startup and shut off correctly)

Symptoms:

- Amplifier does not come out of protect
- Amplifier does not come out of standby
- No thermal shutdown
- D.C. protection problems
- No status board LED lights
- Fan doesn't work

Possible Causes:

- AMPLIFIER DOES NOT COME OUT OF PROTECT

1. Check for wrong switching frequency. Failures of this sort could be related to the wrong switching frequency being produced within the switching section of the amplifier. The switching frequency must be 115kHz and may vary by several hundred Hz. An incorrect frequency above 116kHz is a dangerous situation that could cause the IGBTs (Q701, 702) to explode if the test is continued.
   A failure from an incorrect switching frequency is caused by the section containing U702, 703, and 704. U704 (PWM chip) has a built-in oscillator that is normally synchronized to the signal at U702-3. Even with a proper sync signal at U702-3, if oscillator timing components are the wrong value (C731, R715, R716), the oscillator will not sync and run at a different frequency. C731 may be a primay cause for this. Even if the removed cap reads ok on a capacitance meter, replace it anyway. The sync signal at U702-3 should look like narrow high going (+5 to +6v) pulses of 230.4kHz. Pulses going negative should be limited to -1.8v by D720. U703-1 TP706) should have a 7.3728Mhz signal on it, and U704-5 (TP704) should have a 230kHz square wave.
2. Check for open PTC (R569).
3. Check TP707, or D741 anode for a high (+5v). If this is pulsing low (+3v or less), the unit is cycling through DC protect. This condition can imitate an overcurrent shutdown, with bursts of pulses at U702-11,14. If some VUs of only one channel flash, this can indicate the bad channel. Check both speaker outputs for a pulsing dc voltage (2 to over 30v) of either polarity. DC protect is detected by BR500, Q509. Because this causes the power supply to cycle, it can be difficult to tell what is causing it. To defeat DC protect, add jumpers across R516, to keep the power supply on. Check +/-7.5v VL (at J501:1&2). Check +/- switched busses (at J501:6&8) for about +/- 34v (soft start) or +/- 48v (hard start) for a PL-1.8.
4. Missing +/-15V supplies. R585 & R586 open.
5. Check U503-1,7 for DC offset (0mVdc +/-20mV).
6. Check for folded op amp pins at socket pins 8 and 4.
7. Check for shorted driver Q510, Q512.
8. Check for defective U500, U501 step drivers. Sometimes these step drivers will have cracked or burned semi-conductors.
9. VR500, 501, 502 wrong part or swapped.
10. Output transistors shorted.
11. R559 or R560 open.
12. RN51 wrong value.
13. R59, 56, C52 open or wrong value.

- AMPLIFIER DOES NOT COME OUT OF STANDBY
    1. Q703 shorted collector-emitter.
    2. Q705 shorted collector-emitter.
    3. Q706 shorted collector-emitter.
    4. Excessive DC voltage or subsonic frequencies (<5Hz) on speaker line.
    5. Solder bridge causing TP707 or pin 9 of U702 to remain low at 0Vdc.
    6. Excessive AC line voltage (>150VAC).

- NO THERMAL SHUTDOWN
    1. PTC R569 lifted from output transistor clamps.
    2. R561 open or wrong value.
    3. D517, D519 wrong sex, mistuffed, or open.
    4. R65 open, D54 or D55 open.
    5. Defective Q53.

- D.C. PROTECTION PROBLEMS

    DC FAULT WITHOUT CURRENT DRAW. In most cases, shorts in the output circuit will cause current draw, but certain shorts will only cause DC offset in the output. In both cases, measure the various circuit voltages and look for abnormal values to help trace the fault which can be a solder or component short (zero volts), reversed zener or diode (.6V), reversed electrolytic (several volts), or wrong value parts (abnormal voltage). Look at the following points in the circuit to identify causes of dc protection.

    1. Shorted IC rail, sometimes both shorted together.
    2. R585 or R586 open. Also check for shorted C539, C540.
    3. Collector-base short on driver (rare without further damage).
    4. Sometimes IC forces the rest of the circuit into DC due to shorts in the feedback network, etc. To check this, remove U503, check for balanced rail voltages, and balanced voltages in the drivers and outputs. If so, output stage is probably OK. Look for problems in IC or its associated parts.
    5. Defective or reversed U503. Pull and check voltages.

- NO STATUS BOARD LED LIGHTS
    1. Check LED voltage. If over +2V, LED is defective. If 0V (meaning no positive voltage to LED), check for solder short.
    2. Check to ensure J705 is properly seated.
    3. Check Q4, Q5.

- FAN DOESN'T WORK
    1. Always operate at high speed: LD50 open, or check shorted BC junction of Q52, 51, and Q50.
    2. Always operate at low speed: check RN50:2.
    3. Doesn't operate: check shorted BE junction of Q52, Q51, Q50.
    4. R52 open.

Faults with Signal Present

(The amplifier passes a signal but is not running correctly)

Symptoms:

- Output power "breaking up"
- 'Ringing' sound with no input to amplifier
- Output collapses into a 8, 4, or 2 ohm load
- Voltage rails ok without signal
- Amplifier gets too hot without load
- One channel clips prematurely

Possible Causes:

- OUTPUT POWER "BREAKING UP" (*Output distorted*)
  1. R523, 524, 525, 526, 527 open.
  2. Defective C512, C521, C524.
  3. Check for continuity between speaker ground, input ground and ac ground.
  4. R535, R537 open.
  5. Current limits out of adjustment.
  6. Defective gain control.

- "RINGING' SOUND WITH NO INPUT TO AMPLIFIER
  1. C528, C529, C535, C532 open or wrong value.
  2. R542, R568, R547 open or wrong value.
  3. Defective op amp U503.
  4. Unstable driver transistors Q510, Q512, or output transistors.

- OUTPUT COLLAPSES INTO A LOAD
  1. D521, D518, D520 wrong value or open.
  2. Misadjusted current limits VR501, VR502.
  3. Defective op amp U503.

- VOLTAGE RAILS OK WITHOUT SIGNAL *(Collapses with a signal)*
  1. C539, C540 leaky or not holding a charge.
  2. Check for capacitance value of C533.

- AMPLIFIER GETS TOO HOT WITHOUT LOAD
  1. Bias trimpot VR500 misadjusted, opened or burned.
  2. Incorrect bias diodes D514, 515 should be 1N4934.
  3. R517, R539 open or has drifted in value.
  4. Defective op amp U503.

- ONE CHANNEL CLIPS PREMATURELY
  1. R517, R539, R535, R537 may be open or drifted in value.
  2. Misadjusted current limits VR501, VR502.
  3. Open bias diode D514, D515.
  4. Check for open R559, R582, R584, R560, R583.
  5. 10k ohm chargeback resistor R521 may be open.

Instability

(Gain problems, spurious noises, and oscillations)

All Models

- General Output Distortion
- Excessive or unbalanced crossover
- Output waveform appears "fuzzy"

Possible Causes:

First, distinguish between instability (fuzziness), "ringing" which is momentary instability after a transition, "step" distortion, crossover distortion (both often show ringing), or general distortion.

- GENERAL OUTPUT DISTORTION

  SEVERE:

  All loads, often with current draw: often associated with feed back components U503, C533, C528, C529, C530, C535, C532. Check resistor values on R563, R567, R562, R540, R541, R564.

  LOW GAIN:

  Suspect open circuit in feedback shunt R567 and C533. Check for broken circuit trace. Substitute U503 and check U503 socket for contamination.

- EXCESSIVE OR UNBALANCED CROSSOVER (*Excess notch or ringing at zero crossing*)
  1. Severe: shorted bias diode D514, D515.
  2. Moderate: Out-of-spec bias diodes.
  3. Defective bias trimmer components VR500, R572.
  4. Check for open base resistors R517, 539 on output devices.

- OUTPUT WAVEFORM APPEARS "FUZZY"
  1. Check main heatsink ground continuity with chassis ground.
  2. High frequency snubbers defective R523, R524, R526, R527, C512, C521.
  3. Check capacitors on speaker output board.

Power Supply and Voltage Rail Balancing

(Uneven rails and power supply problems)

Symptoms:

- Current limiting wrong
- Current limiting too high into a short
- IC rail too high into a short
- Current limiting too low into a short
- Uneven voltage rails

Possible Causes:

- CURRENT LIMITING WRONG

  Current limits should remain high down to 2 ohms, and collapse to a lower value for short circuits. This is caused by the +/- VL rails going from normal 7.5 volts to about 3 volts. Current limit trimmers VR501 & VR 502 permits adjustment of each channel to a specified range. See Test & Calibration Procedures for correct adjustment of current limiting.

- CURRENT LIMITING TOO HIGH INTO SHORT *(IC rails check normal 5-6 volts)*
  1. Shorted Q517, Q518.
  2. Shorted bias diode D514, D515 (also shows severe crossover).

- +/- VL RAIL TOO HIGH INTO SHORT *(Should be 3 Volts)*
  1. Check Q523, Q924, R518, R519, R597, R598.

- CURRENT LIMITING TOO LOW INTO SHORT AND 2 OHM LOAD
  1. Bias resistor R559, R560 high.
  2. Very low gain driver transistors.
  3. Missing connection or open emitter resistors in some of the paralleled output transistors.

- CURRENT LIMITING TOO LOW INTO SHORT ONLY *(OK into normal loads)*
  1. Low gain Q517, Q518.

- OK INTO SHORT BUT LOW INTO 2 OHMS: *(Usually on one side only)*
  1. +/- VL RAIL LOW: Check replenishing resistor 521 (R621).
  2. +/- VL RAIL OK: (until clipping starts) usually indicates low output section gain caused by weak driver, open output devices, or open emitter resistors. Also check value of driver emitter resistors R535, R537.

- UNBALANCED RAIL VOLTAGES:
  1. Shorted Q501, Q502.
  2. Defective U500, U501.
  3. Open R502, R504.
  4. Open Q517, Q518.

T r o u b l e s h o o t i n g

PowerLight 3.4 • PowerLight 4.0

Current Draw

(Circuit breakers and fuses blow. Burning smell or smoke)

Symptoms:

- Fuses immediately blow
- Amplifier quickly gets very hot
- Line circuit breakers tripping upon turn on
- Amplifier emits smoke
- A burning smell is emanating from the amplifier

Possible Causes:

- EXCESSIVE CURRENT WITHOUT SIGNAL PRESENT

  The amplifier draws high current when the AC supply voltage is first applied. This symptom may mean that there is a short in the power stages of the circuit.
  This could also be a misadjusted bias setting. See calibration procedures in this manual for setting bias.

- FAST CURRENT DRAW (increases rapidly at only a few volts AC):
  1. Reversed or shorted main bridge rectifier BR701. Check BR701 by setting DVM to diode mode. To verify a good BR701, connect the negative lead to BR701+ and check for 0.4 to 0.6v at both AC terminals. Connect positive lead to BR701- and check for 0.4 to 0.6v at both AC terminals.
  2. Both supply clamping diodes D902, D929 reversed or shorted.
  3. Output transistors or both drivers shorted.
  4. IGBT devices Q701, Q702 shorted.
  5. Shorted or reversed D702 or D704.
  6. Shorted or reversed C777, 703, 704, 705, 708, 712, 713
  7. Shorted or incorrect D721, D719, D724, D717, D720, D718
  8. Shorted D706, D712, D722, D733

- MEDIUM CURRENT DRAW (increases slowly, can go to 30 VAC before current becomes excessive.):
  1. Single polarity driver or output short.
  2. Open or missing bias diodes D910, D912 or bias trim pot VR902.

- SLOW CURRENT DRAW (above 60 volts AC before current begins to increase, amp may pass signal):
  1. Severely misadjusted bias circuit or defective bias diodes D910, D912.
  2. Severe oscillation causing current drain.

- RUNAWAY CURRENT DRAW (30-40V AC before current begins to increase or runaway):
  1. A reversed filter capacitor: caution, may vent explosively.

Protection, Standby, and Power Up.

(The amplifier locks up or does not startup and shut off correctly)

Symptoms:

- Amplifier does not come out of protect
- Amplifier does not come out of standby
- No thermal shutdown
- D.C. protection problems
- No status board LED lights
- Fan doesn't work

Possible Causes:

- AMPLIFIER DOES NOT COME OUT OF PROTECT

1. Check for wrong switching frequency. Failures of this sort could be related to the wrong switching frequency being produced within the switching section of the amplifier. The switching frequency must be 115kHz and may vary by several hundred Hz. An incorrect frequency above 116kHz is a dangerous situation that could cause the IGBTs (Q701, 702) to explode if the test is continued.
   A failure from an incorrect switching frequency is caused by the section containing U702, 703, and 704. U704 (PWM chip) has a built-in oscillator that is normally synchronized to the signal at U702-3. Even with a proper sync signal at U702-3, if oscillator timing components are the wrong value (C748, R721, R723), the oscillator will not sync and run at a different frequency. C748 may be a primay cause for this. Even if the removed cap reads ok on a capacitance meter, replace it anyway. The sync signal at U702-3 should look like narrow high going (+5 to +6v) pulses of 230.4kHz. Pulses going negative should be limited to -1.8v by D723. U703-1 TP706) should have a 7.3728Mhz signal on it, and U704-5 (TP704) should have a 230kHz square wave.
2. Check for open PTC (R970).
3. Check TP707, or D739 anode for a high (+5v). If this is pulsing low (+3v or less), the unit is cycling through DC protect. This condition can imitate an overcurrent shutdown, with bursts of pulses at U702-11,14. If some VUs of only one channel flash, this can indicate the bad channel. Check both speaker outputs for a pulsing dc voltage (2 to over 30v) of either polarity. DC protect is detected by D915, D916, D917, D918, Q916. Because this causes the power supply to cycle, it can be difficult to tell what is causing it. To defeat DC protect, add jumpers across R965, to keep the power supply on. Check +/-7.5v VL (at J903:1&2). Check +/- switched busses (at J903:6&8) for about +/- 34v (soft start) or +/- 48v (hard start) for a PL-1.8.
4. Missing +/-15V supplies. R936 & R939 open.
5. Check U907-1,7 for DC offset (0mVdc +/-20mV).
6. Check for folded op amp pins at socket pins 8 and 4.
7. Check for shorted driver Q908, Q918.
8. Check for defective U901, U902, U903, U904 step drivers. Sometimes these step drivers will have cracked or burned semi-conductors.
9. VR902, 901, 903 wrong part or swapped.
10. Output transistors shorted.
11. R1011 or R1012 open.
12. RN903 wrong value.
13. R993, 992, C948 open or wrong value.

- AMPLIFIER DOES NOT COME OUT OF STANDBY
    1. Q709 shorted collector-emitter.
    2. Q714 shorted collector-emitter.
    3. Q713 shorted collector-emitter.
    4. Excessive DC voltage or subsonic frequencies (<5Hz) on speaker line.
    5. Solder bridge causing TP707 or pin 9 of U702 to remain low at 0Vdc.
    6. Excessive AC line voltage (>150VAC).

- NO THERMAL SHUTDOWN
    1. PTC R970 lifted from output transistor clamps.
    2. R968 open or wrong value.
    3. D921, D924 wrong sex, mistuffed, or open.
    4. R998 open, D930 or D936 open.
    5. Defective Q961.

- D.C. PROTECTION PROBLEMS

  DC FAULT WITHOUT CURRENT DRAW. In most cases, shorts in the output circuit will cause current draw, but certain shorts will only cause DC offset in the output. In both cases, measure the various circuit voltages and look for abnormal values to help trace the fault which can be a solder or component short (zero volts), reversed zener or diode (.6V), reversed electrolytic (several volts), or wrong value parts (abnormal voltage). Look at the following points in the circuit to identify causes of dc protection.
    1. Shorted IC rail, sometimes both shorted together.
    2. R936 or R939 open. Also check for shorted C935, C936.
    3. Collector-base short on driver (rare without further damage).
    4. Sometimes IC forces the rest of the circuit into DC due to shorts in the feedback network, etc. To check this, remove U907, check for balanced rail voltages, and balanced voltages in the drivers and outputs. If so, output stage is probably OK. Look for problems in IC or its associated parts.
    5. Defective or reversed U907. Pull and check voltages.

- NO STATUS BOARD LED LIGHTS
    1. Check LED voltage. If over +2V, LED is defective. If 0V (meaning no positive voltage to LED), check for solder short.
    2. Check to ensure J705 is properly seated.
    3. Check Q4, Q5.

- FAN DOESN'T WORK
    1. Always operate at high speed: LD901 open, or check shorted BC junction of Q902, 901, and Q904.
    2. Always operate at low speed: check RN901:2.
    3. Doesn't operate: check shorted BE junction of Q902, Q901, Q904.
    4. R902 open.

Faults with Signal Present

(The amplifier passes a signal but is not running correctly)

Symptoms:

- Output power "breaking up"
- 'Ringing' sound with no input to amplifier
- Output collapses into a 8, 4, or 2 ohm load
- Voltage rails ok without signal
- Amplifier gets too hot without load
- One channel clips prematurely

Possible Causes:

- OUTPUT POWER "BREAKING UP" (*Output distorted*)
  1. R931, 934, 946, 948, 947 open.
  2. Defective C911, C915, C924.
  3. Check for continuity between speaker ground, input ground and ac ground.
  4. R928, R972 open.
  5. Current limits out of adjustment.
  6. Defective gain control.

- "RINGING' SOUND WITH NO INPUT TO AMPLIFIER
  1. C933, C937, C944, open or wrong value.
  2. R969, R967, R977 open or wrong value.
  3. Defective op amp U907.
  4. Unstable driver transistors Q908, Q918, or output transistors.

- OUTPUT COLLAPSES INTO A LOAD
  1. D938, D945, D939, D946 wrong value or open.
  2. Misadjusted current limits VR901, VR903.
  3. Defective op amp U907.

- VOLTAGE RAILS OK WITHOUT SIGNAL *(Collapses with a signal)*
  1. C935, C936 leaky or not holding a charge.
  2. Check for capacitance value of C932.

- AMPLIFIER GETS TOO HOT WITHOUT LOAD
  1. Bias trimpot VR500 misadjusted, opened or burned.
  2. Incorrect bias diodes D514, 515 should be 1N4934.
  3. R911, 981 open or has drifted in value.
  4. Defective op amp U907.

- ONE CHANNEL CLIPS PREMATURELY
  1. R911, R981, R928, R972 may be open or drifted in value.
  2. Misadjusted current limits VR901, VR903.
  3. Open bias diode D910, D912.
  4. Check for open R1010, R1011, R1012, R1013, R1014.
  5. 10k ohm chargeback resistor R945 may be open.

Instability

(Gain problems, spurious noises, and oscillations)

All Models

- General Output Distortion
- Excessive or unbalanced crossover
- Output waveform appears "fuzzy"

Possible Causes:

First, distinguish between instability (fuzziness), "ringing" which is momentary instability after a transition, "step" distortion, crossover distortion (both often show ringing), or general distortion.

- GENERAL OUTPUT DISTORTION

  SEVERE:

  All loads, often with current draw: often associated with feed back components U907, C932, C934, C933, C937, C944, C941. Check resistor values on R973, R971, R967, R969, R977, R974.

  LOW GAIN:

  Suspect open circuit in feedback shunt R971d C932. Check for broken circuit trace. Substitute U907 and check U907 socket for contamination.

- EXCESSIVE OR UNBALANCED CROSSOVER (*Excess notch or ringing at zero crossing*)
  1. Severe: shorted bias diode D910, D912.
  2. Moderate: Out-of-spec bias diodes.
  3. Defective bias trimmer components VR902, R944.
  4. Check for open base resistors R911, 981 on output devices.

- OUTPUT WAVEFORM APPEARS "FUZZY"
  1. Check main heatsink ground continuity with chassis ground.
  2. High frequency snubbers defective R948, R946, R931, R934, R947, C924, C911, C915.
  3. Check capacitors on speaker output board.

Power Supply and Voltage Rail Balancing

(Uneven rails and power supply problems)

Symptoms:

- Current limiting wrong
- Current limiting too high into a short
- IC rail too high into a short
- Current limiting too low into a short
- Uneven voltage rails

Possible Causes:

- CURRENT LIMITING WRONG

  Current limits should remain high down to 2 ohms, and collapse to a lower value for short circuits. This is caused by the +/- VL rails going from normal 7.5 volts to about 3 volts. Current limit trimmers VR901 & VR903 permits adjustment of each channel to a specified range. See Test & Calibration Procedures for correct adjustment of current limiting.

- CURRENT LIMITING TOO HIGH INTO SHORT *(IC rails check normal 5-6 volts)*
  1. Shorted Q935, Q936.
  2. Shorted bias diode D910, D912 (also shows severe crossover).

- +/- VL RAIL TOO HIGH INTO SHORT *(Should be 3 Volts)*
  1. Check Q933, Q934, R999, R984, R1002, R1004.

- CURRENT LIMITING TOO LOW INTO SHORT AND 2 OHM LOAD
  1. Bias resistor R1011, R1012 high.
  2. Very low gain driver transistors.
  3. Missing connection or open emitter resistors in some of the paralleled output transistors.

- CURRENT LIMITING TOO LOW INTO SHORT ONLY *(OK into normal loads)*
  1. Low gain Q935, Q936.

- OK INTO SHORT BUT LOW INTO 2 OHMS: *(Usually on one side only)*
  1. +/- VL RAIL LOW: Check replenishing resistor R945.
  2. +/- VL RAIL OK: (until clipping starts) usually indicates low output section gain caused by weak driver, open output devices, or open emitter resistors. Also check value of driver emitter resistors R928, R972.

- UNBALANCED RAIL VOLTAGES:
  1. Shorted Q703, Q704, Q705, Q706, Q707, Q708, Q710, Q711.
  2. Defective U901, U902, U904, U905.
  3. Open R710, R711, R713, R714, R727, R726, R732, R731.
  4. Open Q935, Q936.

PowerLight 2RU Input Board Assy.

PowerLight 1.0, 1.4, 1.8, and 2.0

Part Number	Description	Reference
CA-122001-10	CAP CER 220PF 10% 100V	C301,302, C401,402
CA-410004-10	CAP CER .1UF 20% 50V	C403,404
CA-710001-10	CAP LYTIC RL 100UF 20% 35V	C32,33
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	C31
CO-000005-BS	5 POSITION BARRIER STRIP	J31
CO-000086-00	CONN VERT COMBO XLR/JACK	J301,401
CO-000098-00	HEADER 26-PIN LOCKING	J32
HW-060040-PS	#6-32 X 4 PEM STUD	
HW-060120-SO	STANDOFF,1/4" HEX AL 6-32X3/4"	
IC-005532-OP	IC LIN DUAL OP AMP 5532 EX/MPA	U301,401
PC-000148-00	PCB INPUT PL 1.8 DP	
QD-001340-LR	LED RED T-1 3/4 VOLTAGE REF	LD31,32
QD-004148-DX	DIODE SWITCH DO35 75V 75MA	D31
RE-001001-10	RES MF 10 1% 1/3W	R34
RE-004751-BM	RES MF 47.5 1% 1/4W	R31
RE-010005-BC	RES CF 100 5% 1/4W	R38,39
RE-016501-BM	RES MF 165 1% 1/4W	R37
RE-030101-BM	RES MF 301 1% 1/4W	R36
RE-043201-BM	RES MF 432 1% 1/4W	R35
RE-056201-BM	RES MF 562 1% 1/4W	R32
RE-110001-10	RES MF 1.00K 1% 1/3W	R302,308, R33,402, R408
RE-120001-10	RES MF 2.00K 0.1% 1/8W 25PPM	R304,305, R306,310, R404,405, R406,410
RE-190901-BM	RES MF 9.09K 1% 1/4W	R303,309, R403,409
RE-220001-10	RES MF 20.0K 1% 1/3W	R301,307, R401,407
SW-000043-00	SWITCH SLIDE 4P3T VERT PC MNT	SW31
WC-000064-00	WIRE ASSY,#8 RING TONGUE	E2
WP-000198-00	PCB ASSY, HD15	

PowerLight 3RU Input Board Assy.

PowerLight 3.4 and 4.0

Part Number	Description	Reference
CA-122001-10	CAP CER 220PF 10% 100V	C301,302, C401,402
CA-410004-10	CAP CER .1UF 20% 50V	C403,404
CA-710001-10	CAP LYTIC RL 100UF 20% 35V	C32,33
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	C31
CO-000005-BS	5 POSITION BARRIER STRIP	J31
CO-000086-00	CONN VERT COMBO XLR/JACK	J301,401
CO-000098-00	HEADER 26-PIN LOCKING	J32
HW-060040-PS	#6-32 X 4 PEM STUD	
HW-060120-SO	STANDOFF,1/4" HEX AL 6-32X3/4"	
IC-005532-OP	IC LIN DUAL OP AMP 5532 EX/MPA	U301,401
PC-000199-00	PCB INPUT PL 3.4/4.0	
QD-000134-LR	LED RED T-1 3/4	LD31,32
QD-004148-DX	DIODE SWITCH DO35 75V 75MA	D31
RE-001001-10	RES MF 10 1% 1/3W	R34
RE-003305-BC	RES CF 33 5% 1/4W	R32

PowerLight 3RU Input Board Assy (con't).

PowerLight 3.4 and 4.0

Part Number	Description	Reference
RE-004751-10	RES MF 47.5 1% 1/3W	R31
RE-010005-BC	RES CF 100 5% 1/4W	R38,39
RE-069801-10	RES MF 698 1% 1/4W	R35
RE-110001-10	RES MF 1.00K 1% 1/3W	R302,308, R33,402, R408
RE-120001-10	RES MF 2.00K 0.1% 1/8W 25PPM	R304,305, R306,310, R404,405, R406,410
RE-190901-BM	RES MF 9.09K 1% 1/4W	R303,309, R403,409
RE-220001-10	RES MF 20.0K 1% 1/3W	R301,307, R401,407
SW-000043-00	SWITCH SLIDE 4P3T VERT PC MNT	SW31
WC-000064-00	WIRE ASSY,#8 RING TONGUE	
WP-000198-00	PCB ASSY, HD15	

PowerLight Display Board Assy.

Part Number	Description	Reference
CA-410004-10	CAP CER .1UF 20% 50V	C106,206, C6,7,8
CA-422001-10	CAP MYLAR .22UF 5% 50V	C103,203
CA-547002-10	4.7UF,16V,20% RADIAL NON-POLAR	C107,207
CA-610002-10	10UF,35V,20%,RADIAL ELECT	C104,205, C204
CA-647003-10	CAP LYTIC RL NP 47UF 10% 10V	C4,5,105, C1,2
CA-710035-BE	CAP LYTIC RL 100UF 20% 35V	C10,11
CA-722003-00	CAP 220UF 25V 20% LYTIC RL	C3,9
CO-000043-CO	HEADER PCB 2 X 13 .1 X .1 BOX	J1
CO-000092-00	HEADER PCB 2 X 8 .1 X .1 BOX	J101,201
IC-000001-IC	IC LIN LED VU MTR DRVR BA6124	U102,202
IC-000031-00	IC LIN OPTO-ISO 4N30	U103,203
IC-000037-00	IC LIN DUAL OP AMP TRANSCOND	U2
IC-005532-OP	IC LIN DUAL OP AMP 5532 EX/MPA	U101,201
PC-000149-00	PCB DISPLAY PL 1.8 DP	
PL-000060-00	SPACER LED T-1 0.42"L	
PT-310000-CR	RES VAR IT 10K 20% 0.2W W/DET	VR101,201
QD-000045-00	DIODE BRIDGE RECT DIP 200V 1A	BR101,201
QD-000052-00	LED GRN T-1	LD1,101, LD201
QD-000053-00	LED YEL T-1	LD102,202, LD103,203, LD3
QD-000054-00	LED RED T-1	LD2,104, LD204,205
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5W	Q2-6,103, Q203
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5W	Q101,102, Q201,202,
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5W	Q204,205
QD-004148-DX	DIODE SWITCH DO35 75V 75MA	D101,201
RE-004751-BM	RES MF 47.5 1% 1/4W	R1,2,11,12
RE-007505-BC	RES CF 75 5% 1/4W	R109,209

PowerLight Display Board Assy (con't).

Part Number	Description	Reference
RE-010005-BC	RES CF 100 5% 1/4W	R104,204, R124,125, R224,225
RE-020001-BM	RES MF 200 1% 1/4W	R110,210
RE-027005-BC	RES CF 270 5% 1/4W	R23
RE-053601-BM	RES MF 536 1% 1/4W	R120,220
RE-064901-BM	RES MF 649 1% 1/4W	R107,207
RE-110005-BC	RES CF 1K 5% 1/4W	R101,17, R19,20, R202,22
RE-116201-BM	RES MF 1.62K 1% 1/4W	R203
RE-120001-BM	RES MF 2.00K 1% 1/4W	R112,212,3
RE-135701-BM	RES MF 3.57K 1% 1/4W	R108,208, R218,13,14 R4,5,118,
RE-139005-BC	RES CF 3.9K 5% 1/4W	R114,214
RE-147005-BC	RES CF 4.7K 5% 1/4W	R201,21,26
RE-156201-BM	RES MF 5.62K 1% 1/4W	R116,123, R128,223, R228
RE-197601-BM	RES MF 9.76K 1% 1/4W	R102
RE-210001-BM	RES MF 10.0K 1% 1/4W	R18,105, R205,117, R217,121, R219,8 R221,119,
RE-212401-10	RES MF 12.4K 1% 1/4W	R103
RE-213001-BM	RES MF 13.0K 1% 1/4W	R115
RE-220001-BM	RES MF 20.0K 1% 1/4W	R111,211, R122,222, R24,25 R6,7,9,28,
RE-234801-BM	RES MF 34.8K 1% 1/4W	R126,226
RE-339005-BC	RES CF 390K 5% 1/4W	R106,113, R206,213
SW-000042-00	SWITCH PUSH-LOCK DPDT	SW1,2
WC-003078-00	CABLE ASSY 5 COND. FLAT	J2

PowerLight Output Board Assy.

Part Number	Description	Reference
CA-410003-10	CAP MET POLY .1UF 10% 250V	C1,2
CA-447004-10	CAP MET POLY .47UF 5% 100V	C3,4
PC-000160-00	PCB OUTPUT CAPACITOR PWRLIGHT	
WC-000064-00	WIRE ASSY,#8 RING TONGUE	

PowerLight 2RU ACPCB Assy (100V)

PowerLight 1.0, 1.4, 1.8, and 2.0

Part Number	Description	Reference
CA-215001-00	CAP CER Y .0015UF 20% 125VAC	C807,808, C810
CA-233002-00	CAP CER .0033UF 20% 125VAC	C805,806
CA-410001-00	CAP MET POLY X.1UF 20% 250VAC	C804
CA-410004-10	CAP CER .1UF 20% 50V	C811
CA-447001-00	CAP MET POLY X.47UF 20% 250VAC	C803,809

PowerLight 2RU ACPCB Assy (100V) con't

Part Number	Description	Reference
CO-000045-CO	HEADER PCB .156 4-POS	J808
CO-000079-00	BARRIER STRIP,RT ANGLE 3/8" CT	J809
HW-000001-FC	FUSE CLIPS	
HW-000630-HW	BRACKET, RIGHT ANGLE, ZIERECK	J809
HW-060040-PS	#6-32 X 4 PEM STUD	J809
NW-060010-SL	#6 SPLIT TOOTH LOCKWASHER	J809
NW-060400-HN	#6-32 X 1/4" HEX NUT	J809
PC-000155-00	PCB,AC LINE FLTR,PWRLIGHT 1.8	
RE-000150-NR	THERMISTOR NTC 30A CUR LIM	R802
RE-375005-BM	RES MF 750K 5% 1/2W	R801
XF-000009-00	1.4MH CHOKE COMMON MODE	L801-L803
XF-000045-00	XFMR PWR PCB MNT DUAL 6.3V .4A	T801

PowerLight 2RU ACPCB Assy (120V)

PowerLight 1.0, 1.4, 1.8, and 2.0

Part Number	Description	Reference
CA-215001-00	CAP CER Y .0015UF 20% 125VAC	C807,808, C810
CA-233002-00	CAP CER .0033UF 20% 125VAC	C805,806
CA-410001-00	CAP MET POLY X.1UF 20% 250VAC	C804
CA-410004-10	CAP CER .1UF 20% 50V	C811
CA-447001-00	CAP MET POLY X.47UF 20% 250VAC	C803,809
CO-000045-CO	HEADER PCB .156 4-POS	J808
CO-000079-00	BARRIER STRIP,RT ANGLE 3/8" CT	J809
HW-000001-FC	FUSE CLIPS	
HW-000630-HW	BRACKET, RIGHT ANGLE, ZIERECK	J809
HW-060040-PS	#6-32 X 4 PEM STUD	J809
NW-060010-SL	#6 SPLIT TOOTH LOCKWASHER	J809
NW-060400-HN	#6-32 X 1/4" HEX NUT	J809
PC-000155-00	PCB,AC LINE FLTR,PWRLIGHT 1.8	
RE-000150-NR	THERMISTOR NTC 30A CUR LIM	R802
RE-375005-BM	RES MF 750K 5% 1/2W	R801
XF-000007-00	XFMR PWR PCB MNT DUAL 5V 0.5A	T801
XF-000009-00	1.4MH CHOKE COMMON MODE	L801-L803

PowerLight 2RU ACPCB Assy (230V)

PowerLight 1.0, 1.4, 1.8, and 2.0

Part Number	Description	Reference
CA-215001-00	CAP CER Y .0015UF 20% 125VAC	C805-808, C810
CA-410001-00	CAP MET POLY X.1UF 20% 250VAC	C804
CA-410004-10	CAP CER .1UF 20% 50V	C811
CA-447001-00	CAP MET POLY X.47UF 20% 250VAC	C803,809, C812
CO-000045-CO	HEADER PCB .156 4-POS	J808
CO-000079-00	BARRIER STRIP,RT ANGLE 3/8" CT	J809
CO-000080-00	SOCKET POWER INLET PCB MNT IE	J801
HW-000001-FC	FUSE CLIPS	
HW-000630-HW	BRACKET, RIGHT ANGLE, ZIERECK	J809
HW-060060-PS	STUD PEM 6-32 X 3/8"	J809 REF:J801,
NW-060400-HN	#6-32 X 1/4" HEX NUT	J809
NW-060410-ET	#6 EXTERNAL TOOTH LOCKWASHE	J809
NW-060500-KP	#6-32 KEPS NUT	J801

PowerLight 2RU ACPCB Assy (230V) con't

Part Number	Description	Reference
PC-000157-00	PCB,AC LINE FLTR(230V)PWRLIGHT	
RE-000170-NR	THERMISTOR NTC 30A CUR LIM	R802
RE-375005-BM	RES MF 750K 5% 1/2W	R801,803
WC-000065-00	WIRE ASSY IEC GROUND	
XF-000007-00	XFMR PWR PCB MNT DUAL 5V 0.5A	T801
XF-000019-00	2.2 MH CHOKE COMMON MODE	L801-803

PowerLight 3RU ACPCB Assy (100V)

PowerLight 3.4 and 4.0

Part Number	Description	Reference
CA-215001-00	CAP CER Y .0015UF 20% 125VAC	C805,806, C808
CA-233002-00	CAP CER .0033UF 20% 125VAC	C803,804
CA-410001-00	CAP MET POLY X.1UF 20% 250VAC	C802
CA-410004-10	CAP CER .1UF 20% 50V	C809
CA-447001-00	CAP MET POLY X.47UF 20% 250VAC	C801,807
CO-000045-CO	HEADER PCB .156 4-POS	J812
CO-000093-00	BARRIER STRIP 2-POS	J811
HW-000001-FC	FUSE CLIPS	
HW-000007-HW	5MM FUSE CLIP	
HW-080080-PS	STUD PEM 8-32 X 1/2"	
MS-000058-00	FUSE EXPORT 250V 1A 5X20MM	F3
MS-000086-00	FUSE 3AB 25A 125V	F1,2
NW-060000-PI	NUT PEM 6-32	
PC-000195-00	PCB AC FILTER PL 4.0	
PL-000072-00	INSULATOR, BARRIER STRIP	
RE-000150-NR	THERMISTOR NTC 30A CUR LIM	R803-R806
RE-375005-BM	RES MF 750K 5% 1/2W	R801,802
WC-0.3022-JW	.3" JUMPER, WHITE, 22 GA SLD	W1,2
XF-000023-00	CHOKE COMMON MODE	L801-L803
XF-000045-00	XFMR PWR PCB MNT DUAL 6.3V .4A	T801

PowerLight 3RU ACPCB Assy (120V)

PowerLight 3.4 and 4.0

Part Number	Description	Reference
CA-215001-00	CAP CER Y .0015UF 20% 125VAC	C805,806, C808
CA-233002-00	CAP CER .0033UF 20% 125VAC	C803,804
CA-410001-00	CAP MET POLY X.1UF 20% 250VAC	C802
CA-410004-10	CAP CER .1UF 20% 50V	C809
CA-447001-00	CAP MET POLY X.47UF 20% 250VAC	C801,807
CO-000045-CO	HEADER PCB .156 4-POS	J812
CO-000093-00	BARRIER STRIP 2-POS	J811
HW-000001-FC	FUSE CLIPS	
HW-000007-HW	5MM FUSE CLIP	
HW-080080-PS	STUD PEM 8-32 X 1/2"	
MS-000058-00	FUSE EXPORT 250V 1A 5X20MM	F3
MS-000086-00	FUSE 3AB 25A 125V	F1,2
NW-060000-PI	NUT PEM 6-32	
PC-000195-00	PCB AC FILTER PL 4.0	
PL-000072-00	INSULATOR, BARRIER STRIP	
RE-000150-NR	THERMISTOR NTC 30A CUR LIM	R803-R806
RE-375005-BM	RES MF 750K 5% 1/2W	R801,802
WC-0.3022-JW	.3" JUMPER, WHITE, 22 GA SLD	W1,2
XF-000007-00	XFMR PWR PCB MNT DUAL 5V 0.5A	T801
XF-000023-00	CHOKE COMMON MODE	L801-L803

PowerLight 3RU ACPCB Assy (230V)

PowerLight 3.4 and 4.0

Part Number	Description	Reference
CA-215001-00	CAP CER Y .0015UF 20% 125VAC	C803-806, C808
CA-410001-00	CAP MET POLY X.1UF 20% 250VAC	C802
CA-410004-10	CAP CER .1UF 20% 50V	C809
CA-447001-00	CAP MET POLY X.47UF 20% 250VAC	C801,807, C810
CO-000045-CO	HEADER PCB .156 4-POS	J812
CO-000093-00	BARRIER STRIP 2-POS	J811
HW-000001-FC	FUSE CLIPS	
HW-000007-HW	5MM FUSE CLIP	
HW-080080-PS	STUD PEM 8-32 X 1/2"	
MS-000060-00	FUSE 0.5A 250V 5X20MM	F3
MS-150250-FU	15A, 250V, FUSE	F1,2
NW-060000-PI	NUT PEM 6-32	
PC-000195-00	PCB AC FILTER PL 4.0	
PL-000072-00	INSULATOR, BARRIER STRIP	
RE-000180-NR	THERMISTOR NTC 18A CUR LIM	R803-806
RE-375005-BM	RES MF 750K 5% 1/2W	R801,802
WC-0.3022-JW	.3" JUMPER, WHITE, 22 GA SLD	W3
XF-000007-00	XFMR PWR PCB MNT DUAL 5V 0.5A	T801
XF-000023-00	CHOKE COMMON MODE	L802,803
XF-000026-00	CHOKE, 18UH	L801,804

PowerLight 1.0 Main Board Assy

120V / 230VAC

Part Number	Description	Reference
CA-018001-10	CAP SM 18PF 5% 500V	C528,531, C628,631
CA-047001-10	CAP CER 47PF 10% 100V NPO	C530,519, C630,619
CA-110001-10	CAP SM 100PF, 5%, 500V	C710,711
CA-122001-10	CAP CER 220PF 10% 100V	C508,608 C537,637, C750,751,
CA-133001-10	CAP SM 330PF 5% 500V	C535,635
CA-147001-10	CAP CER 470PF 10% 100V	C732,636
CA-210002-10	CAP MYLAR .001UF 5% 100V	C536,715, C731
CA-222001-10	CAP MYLAR .0022UF 5% 50V	C514,614
CA-222002-10	.0022UF,200V,10%,MYLAR	C513,613, C529,629
CA-233001-10	CAP MYLAR .0033UF 10% 100V	C700
CA-310001-10	CAP MYLAR .01UF 10% 100V	C509,525, C609,625
CA-410001-00	CAP MET POLY X.1UF 20% 250VAC	C707
CA-410003-10	CAP MET POLY .1UF 10% 250V	C512,521, C612,621 C720,735, C738,761,
CA-410004-10	CAP CER .1UF 20% 50V	C516,53, C54,55,56, C542,641, C611,616, C617,716, C642

PowerLight 1.0 Main Board Assy (con't)

Part Number	Description	Reference
		C729,742,
		C743,745,
		C746,752,
		C753,754,
		C755,765,
		C766,541,
CA-422001-10	CAP MYLAR .22UF 5% 50V	C532,632
CA-447003-00	CAP POLYP .47UF 10% 400V	C708
CA-510001-10	CAP CER 1UF 20% 50V	C713,714,
		C730
CA-520200-CO	CAP POLYPROP 2UF 5% 200V	C705,706
CA-547002-10	4.7UF,16V,20% RADIAL NON-POLAR	C52
CA-610002-10	10UF,35V,20%,RADIAL ELECT	C728,744,
		C749,764
CA-647001-10	CAP LYTIC RL 47UF 10% 10V NP	C518,533,
		C618,633
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	C510,515,
		C520,523,
		C610,615,
		C620,623
CA-710001-10	CAP LYTIC RL 100UF 20% 35V	C50,51,
		C522,622
CA-722001-10	CAP LYTIC RL 220UF 20% 10V NP	C507,607
CA-722002-10	CAP LYTIC RL 220UF 20% 25V	C539,540,
		C639,640
CA-733025-AE	330UF,25V,ELEC. RADIAL, 20%	C747,748
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	C526,527,
		C626,627
CA-747003-00	CAP LYTIC RL 470UF 20% 25V	C511,517,
CA-747003-00	CAP LYTIC RL 470UF 20% 25V	C717,762,
		C763
CA-747063-AE	CAP LYTIC RL 470UF 20% 63V	C718,719,
		C721,722,
		C725,726,
		C733,734,
		C736,737,
		C739,740,
		C756,757,
		C759,760
CA-822200-AE	CAP LYTIC RL 2200UF 20% 200V	C701-704
CH-000011-00	CLAMP BR/TO3	
CH-000022-00	HEATSINK,EXTRU. HOLLOW	
CH-000624-AX	CLAMP TO-3 PL 6 FINGER	
CH-400003-00	CLAMP TO-220 6 FINGER	
CO-000008-IC	8 PIN IC SOCKET	REF:U502,
		U503,602,
		U603
CO-000033-CO	4 PIN HEADER,METER	J50
CO-000045-CO	HEADER PCB .156 4-POS	J704
CO-000049-CO	HEADER 1 X 5 VERT	J705
CO-000056-CO	HDR LATCHING BOX 16-PIN	J500,600
CO-000074-00	HEADER POLARIZED 8-POS	J501,601
IC-000023-00	IC CMOS 7-STG RIPPLE 74HC4024N	U703
IC-000024-00	IC REG PWM 40V 0.1A SG3525A	U702
IC-000025-00	IC MOSFET DUAL NON-INV DRVR	U701
IC-000026-00	IC LIN DUAL COMP LM 393N	U705
IC-000028-00	OSC CMOS 7.3728 MHZ 14 PIN-DIP	U704

PowerLight 1.0 Main Board Assy (con't)

Part Number	Description	Reference
IC-005532-OP	IC LIN DUAL OP AMP 5532 EX/MPA	U502,503,
		U602,603
MS-000057-00	CLIP HEATSINK TO220	Q513,610,
		Q613,50
		REF:Q510,
MS-000061-00	HEATSINK TO-220	Q513,610,
		Q613,50
		REF: Q510,
PC-000144-00	PCB PL 1.8 DP MAIN	
PL-000059-00	INSULATOR MICA 1.125" X 2.000	Q702
		REF:Q701,
PL-000061-00	INSUL TO-220 18-POS SILPAD	
PL-000063-00	INSULATOR,HEATSINK,SLS,PLATFRM	
PL-000077-00	INSULATOR TO-218 .725 X .950	Q513,610,
		Q613,50
		REF:Q510,
PL-903125-SP	SPACER,ROUND,NYLON,0.125"L	
PL-905156-SP	SPACER,ROUND,NYLON,#6,0.155"L	
PT-110000-AT	RES VAR IT 100 20% 0.15W CARB	VR500,600
PT-220000-AT	RES VAR IT 2K 20% 0.15W CARB	VR501,502,
		VR601,602
QD-000021-QD	1N4740 10V ZENER 1W	D510,52,
		D610
QD-000022-QD	DIODE ZNR 18V 5% 1W 1N4746A	D50,712,
		D732
QD-000024-QD	DIODE ZNR 6.2V 5% TESTED	D55
QD-000040-00	DIODE BRIDGE RECT 400V 40A	BR701
QD-000042-00	DIODE RECT ULTRAFAST 400V 3A	D702,704,
		D705,710
QD-000045-00	DIODE BRIDGE RECT DIP 200V 1A	BR500,600
QD-000051-10	XISTOR PNP TO-92 30V 1A	Q57
QD-000061-00	XISTOR, IGBT TO-247AC 600V 60A	Q701,702
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5W	Q509,52,
		Q518,519,
		Q521,523,
		Q526,618,
		Q54,609,
		Q60,61,
		Q619,621,
		Q623,626
		Q704,706,
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5W	Q51,516,
		Q517,520,
		Q522,524,
		Q525
		Q55,56,59,
		Q616,703,
		Q620,622,
		Q624,625,
		Q705,617,
QD-000065-10	XISTOR PNP TO-92 200V .5A 1.5W	Q515,615
QD-000066-10	XISTOR NPN TO-92 30V 1A 1W	Q58
QD-000075-10	XISTOR NPN TO-92 400V .3A 1.5W	Q514,614
QD-000076-00	XISTOR NPN TO-220 250V	Q510,610
QD-000077-00	XISTOR PNP TO-220 250V	Q513,613
QD-000078-10	XISTOR NPN TO-92 MPSA13	Q53
QD-000079-00	DIOD RECT TO-220 400V 8A UFAST	D714-717,

PowerLight 1.0 Main Board Assy (con't)

Part Number	Description	Reference
		D723-726
QD-000092-00	XISTOR NPN TO-220 100V 3A 40W	Q50
QD-000134-LG	LED GRN T-1 3/4	LD50
QD-0007.5-ZT	DIODE ZNR 7.5V TESTED	D507,607,
		D512,513,
		D612,613
		D737,57,
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q503-505,
		Q603-605
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q506-508,
		Q606-608
QD-004004-DX	DIODE RECT DO41 400V 1A	D506,51,
		D519,523,
		D524,606,
		D619,623,
		D624,713,
		D727,731,
		D733,734,
		D735,736,
		D740
QD-004148-DX	DIODE SWITCH DO35 75V 75MA	D517,617,
		D518,53,
		D521,522,
		D525,526,
		D527
		D54,56,
		D618,701,
		D622,625,
		D626,627,
		D703,711,
		D720,728,
		D729,730,
		D738,739,
		D741,621,
QD-004934-DX	DIODE RECT DO41 FAST 100V 1A	D509,511,
QD-004934-DX	DIODE RECT DO41 FAST 100V 1A	D609,611,
		D706,707,
		D708,709
QD-004934-VP	DIODE RECT DO41 FAST 100V 1AVF	D514,515,
		D614,615
QD-005402-DX	DIODE RECT DO27 200V 3A	D503,508,
		D603,608
RE-.00102-00	RES .01 1% 5W 4-WIRE	R520,620
RE-.02210-FW	RES WW 0.22 10% 3W VERT MNT	R505-510,
		R605-610
RE-.47005-DM	RES MOFP 4.7 5% 1W	R535,538,
		R635,638
RE-.56005-BC	RES CF 5.6 5% 1/4W	R704,707,
		R713,723
RE-.56005-EM	RES MOFP 5.6 5% 2W	R525,625
RE-.68005-DM	RES MOFP 6.8 5% 1W	R571,671
RE-000006-VP	RES PTC 60C 0.1K MAX COLD VP	R569,669
RE-000009-PT	RES PTC 90C 0.1K MAX COLD	R710
RE-000050-NR	THERMISTOR NTC 50 OHM	R572,672
RE-001005-EM	RES MOFP 10 5% 2W	R523,524,
		R526,527,
		R623,624,

PowerLight 1.0 Main Board Assy (con't)

Part Number	Description	Reference
		R626,627
RE-001505-CC	RES CF 15 5% 1/2W	R736
RE-001505-DM	RES MOFP 15 5% 1W	R702,705
RE-002205-DM	RES MOFP 22 5% 1W	R517,539,
		R617,639,
		R708
RE-003305-BC	RES CF 33 5% 1/4W	R522,622
		R57,58,
RE-004751-BM	RES MF 47.5 1% 1/4W	R556,578,
		R579,656,
		R585,586,
		R685,686
RE-005605-EM	56 OHM 2W 5% MET OXIDE	R735
RE-005621-AM	RES MF 56.2 1% 1/8W	R541,641
RE-007505-BC	RES CF 75 5% 1/4W	R543,643,
		R715,730
RE-010001-BM	RES MF 100 1% 1/4W	R559,560,
		R659,660
RE-015005-BC	RES CF 150 5% 1/4W	R518,519,
		R544,644
		R618,619,
RE-018005-CC	RES CF 180 5% 1/2W	R709
RE-027005-CC	RES CF 270 5% 1/2W	R53
RE-028001-BM	RES MF 280 1% 1/4W	R1001,718,
		R546,646,
		R554,654,
		R719,721
RE-047501-BM	RES MF 475 1% 1/4W	R557,567,
		R596,695,
		R657,667,
		R662
		R696,562,
		R717,595,
RE-053601-BM	RES MF 536 1% 1/4W	R553,653
RE-095301-BM	RES MF 953 1% 1/4W	R51,726,
		R545,549,
		R587,588,
		R645,649,
RE-095301-BM	RES MF 953 1% 1/4W	R687,688,
		R727,732
RE-116201-BM	RES MF 1.62K 1% 1/4W	R50,593,
		R594,693,
		R616
		R694,516,
RE-122101-BM	RES MF 2.21K 1% 1/4W	R583,682,
		R60,714,
		R683
		R733,582,
RE-134801-BM	RES MF 3.48K 1% 1/4W	R542,551,
		R555,642,
		R651,655
RE-145301-10	RES MF 4.53K 1% 1/8W	R533,548,
		R568,668
		R633,648,
RE-159001-BM	RES MF 5.90K 1% 1/4W	R529,532,
		R534,566,
		R629,632

PowerLight 1.0 Main Board Assy (con't)

Part Number	Description	Reference
		R634,666,
RE-171501-10	RES MF 7.15K 1% 1/8W	R716
RE-193101-BM	RES MF 9.31K 1% 1/4W	R563,663
RE-210001-BM	RES MF 10.0K 1% 1/4W	R577,677
		R61,68,
		R65,703,
		R706,728,
		R729,734,
RE-210005-EM	RES MOFP 10K 5% 2W	R528,628,
		R711,712
RE-210502-10	RES MF 10.5K 1% 1/2W	R540,558,
		R640,658
RE-212101-BM	RES MF 12.1K 1% 1/4W	R52,684,
		R584,589,
		R590,689,
		R690
RE-213003-00	RES MOFP 13K 5% 1W	R521,621
RE-215001-BM	RES MF 15.0K 1% 1/4W	R565
		R597,598,
		R697,698,
RE-220001-BM	RES MF 20.0K 1% 1/4W	R650,66
		R665,550,
RE-227005-BC	RES CF 27K 5% 1/4W	R720
RE-239201-BM	RES MF 39.2K 1% 1/4W	R547,564,
		R647,664,
		R731
RE-247005-DM	RES MOFP 47K 5% 1W	R573,673
		R700,701,
RE-253601-BM	RES MF 53.6K 1% 1/4W	R552,652,
		R725,62
RE-268001-10	68K OHM, 1/4W, 5%, CARBON FILM	R55,67
RE-275001-BM	RES MF 75.0K 1% 1/4W	R530,531,
		R630,631
RE-297601-BM	RES MF 97.6K 1% 1/4W	R591,592,
		R691,692
RE-312005-BC	RES CF 120K 5% 1/4W	R724
RE-318005-BC	RES CF 180K 5% 1/4W	R59
RE-333005-BC	RES CF 330K 5% 1/4W	R54,561,
		R661
RE-339005-BC	RES CF 390K 5% 1/4W	R56,64,722
RN-110002-BM	RES NTWK 8-PIN SIP 1K 2% 4R	RN500,600
RN-122002-BM	RES NTWK 8-PIN SIP 2.2K 2% 4R	RN701
RN-147002-BM	RES NTWK 8-PIN SIP 4.7K 2% 4R	RN50
RN-210002-BM	RES NTWK 8-PIN SIP 10K 1% 4R	RN702
RN-247002-BM	RES NTWK 8-PIN SIP 47K 2% 4R	RN51
SC-082060-PP	#8-18X3/8""B"TYPE1 XRECESSZINC	
SC-100121-PS	#10-32 X 3/4" P/P SEMS BLACK	BR701
WC-0.1020-JW	WIRE JMPR SO 0.1"	Q502,601,
		Q602
		REF:Q501,
WC-000089-00	JMPR TEFLON INS 2.5"16GA SOLID	BETWEEN,
		Q503 & 608
		REF:
WC-001102-SQ	INSUL. SLEEVE QSC 1102,.6",CLR	
WC-1.2518-JW	1.25" JUMPER, WHITE 18 GA, SLD	W1,2
WC-2.0016-JW	JMPR INS 2.0" 16AWG SOLID	REF:T701
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L701,702

PowerLight 1.0 Main Board Assy (con't)

Part Number	Description	Reference
		L707,710,
XF-000006-00	XFMR GATE DRIVE PCB MNT	T702
XF-000008-00	INDUCTOR CUR SENSE PCB MNT	T701
XF-000012-00	LOW POWER XFMR 96KHZ	T703
XF-000015-00	*XFMR PL 1.0 DP (100V)*	
XF-000034-00	INDUCTOR 1.9UH	L700
XF-200014-CR	INDUCTOR 2UH 14AWG VERT MNT	L500,600

PowerLight 1.0 Chassis Assy

Part Number	Description	Reference
CH-000014-00	TOP COVER, SLS PLATFORM	
CH-000016-00	RACK EAR, SLS PLATFORM	
CH-000024-00	SHIELD,AC FILTER,SLS PLATFORM	
CH-000069-00	CHASSIS PWRLT DP	
CH-000070-00	REAR EAR PL DP	
CO-000011-00	CONN DUAL 5-WAY BIND RD/BLK R	
CO-000012-00	CONN DUAL 5-WAY BIND RD/BLK L	
HW-060090-SO	#6-32 X 9/16" HEX STANDOFF	
LB-000054-00	LABEL, WARNING, TOP COVER	
LB-000060-00	LABEL,FACEPLATE,LT,PWRLGHT 1.0	
LB-000077-00	LABEL,WARNING,HIGH ENERGY	
LB-000139-00	LBL,INPUT/OUTPUT PL 2 SP DP	
LB-000148-00	LBL, FACEPLATE, PL 1.0 DP	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	
LB-160226-04	LABEL, FUSE, UL CAUT. 20A 250V	
MS-000050-MS	FUSE, 20A, 250V	
MS-000071-00	MPA 2 SPACE FAN GUARD	
NW-080001-NW	#8 EXT TOOTH LOCKWASHER, ZINC	
NW-080002-00	WASHER,#8 FLAT .049 TH,SS,BLK	
NW-080500-KP	#8-32 KEPS NUT	
NW-100710-NW	#10EXT LOCKWASHER, NICKEL PLTD	
PL-000000-AF	ADHESIVE FEET	
PL-000003-CP	AC CORD PROTECTOR	
PL-000007-EP	EXPORT BINDING POST PLUG	
PL-000040-PL	POT COVERS	
PL-000054-00	KNOB FAB.	
PL-000062-00	SHROUD, FAN	
PL-000064-00	INSULATOR,AC FILTER PCB	
PL-000065-00	INSULATOR, MAIN PCB	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-000067-00	GROMMET FLEX STRIP.052 MAX WHT	
SC-030000-SC	3mm x 8mm,P/P,TYPE 1,BLK. OX.	
SC-040041-PP	#4-40 X 1/4" P/P BLACK	
SC-060042-PP	#6-32 X 1/4" P/P BLACK,SEMS,IT	
SC-060081-PP	#6-32 X 1/2" P/P BLACK	
SC-061081-PP	#6 X 3/8" "B" P/P ZINC	
SC-080051-PL	SCREW 8-32X5/16" P/P BLK NYLOK	
SC-080051-PS	#8-32 X 5/16" P/P SEMS BLACK	
SC-080051-PU	SCREW 8-32X5/16" FH BLK NYLOK	
SC-081101-SP	#8-18 X 5/8", TYPE 1 P/P BLACK	
SC-082051-PL	SCREW,TAP,PAN PH#8X5/16" "B"BK	
SC-083061-PU	SCREW 8-18 X 3/8" FLAT HD BLK	
SW-000037-00	SWITCH, POWER DOUBLE-POLE	
WC-000016-01	CABLE ASSY 16 COND RBN,(5"LG)	
WC-000016-03	CABLE ASSY 16 COND RBN (15"LG)	
WC-000026-01	CABLE ASSY 26 COND RIB. 23" LG	

PowerLight 1.0 Chassis Assy

Part Number	Description	Reference
WC-000037-00	WIRE ASSY, AC SWITCH	
WC-000044-00	WIRE ASSY, BLACK, 8"	
WC-000049-00	AC PWR CORD ASSY POWERLIGHT 18	
WC-000051-00	CABLE ASSY, SECONDARY	
WC-000055-00	WIRE ASSY,14GA BLK, 6.5"L	
WC-000073-00	WIRE ASSY, OUTPUT	
WC-001048-TQ	WIRE ASSY,BLACK,5.75" L.	
WP-000049-00	FAN ASSY, SINGLE 2 SP DC	
WP-000147-00	PCB ASSY PL 1.0 DP MAIN	
WP-000148-00	PCB ASSY INPUT PWRLT DP	
WP-000149-00	PCB ASSY DISPLAY PL 1.8 DP	
WP-000155-00	PCB ASSY AC POWERLIGHT (120V)	
WP-000160-00	PCB ASSY OUTPUT CAPACITOR	

PowerLight 1.4 Main Board Assy

120V / 230VAC

Part Number	Description	Reference
CA-018001-10	CAP SM 18PF 5% 500V	C528,531, C628,631
CA-047001-10	CAP CER 47PF 10% 100V NPO	C530,519, C630,619
CA-110001-10	CAP SM 100PF, 5%, 500V	C710,711
CA-122001-10	CAP CER 220PF 10% 100V	C537,637, C750,751
CA-133001-10	CAP SM 330PF 5% 500V	C535,635
CA-147001-10	CAP CER 470PF 10% 100V	C508,608, C732,636
CA-210002-10	CAP MYLAR .001UF 5% 100V	C505,506, C536,605, C606,715, C731
CA-222001-10	CAP MYLAR .0022UF 5% 50V	C514,614
CA-222002-10	.0022UF,200V,10%,MYLAR	C513,613, C529,629
CA-233001-10	CAP MYLAR .0033UF 10% 100V	C700
CA-310001-10	CAP MYLAR .01UF 10% 100V	C509,525, C609,625
CA-410001-00	CAP MET POLY X.1UF 20% 250VAC	C707
CA-410002-10	CAP MYLAR .1UF 5% 100V	C501,502, C601,602
CA-410003-10	CAP MET POLY .1UF 10% 250V	C512,521, C612,621 C720,723, C727,735, C738,741, C758,761,
CA-410004-10	CAP CER .1UF 20% 50V	C516,53, C54,55,56, C542,641, C611,616, C617,716, C642 C729,742, C743,745, C746,752, C753,754,

PowerLight 1.4 Main Board Assy (con't)

Part Number	Description	Reference
		C755,765, C766,541,
CA-422001-10	CAP MYLAR .22UF 5% 50V	C532,632
CA-447003-00	CAP POLYP .47UF 10% 400V	C708
CA-510001-10	CAP CER 1UF 20% 50V	C713,714, C730
CA-520200-CO	CAP POLYPROP 2UF 5% 200V	C705,706
CA-547002-10	4.7UF,16V,20% RADIAL NON-POLAR	C52
CA-610002-10	10UF,35V,20%,RADIAL ELECT	C728,744, C749,764
CA-647001-10	CAP LYTIC RL 47UF 10% 10V NP	C518,533,
CA-647001-10	CAP LYTIC RL 47UF 10% 10V NP	C618,633
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	C504,510, C515,520, C523,604, C610,615, C620,623
CA-710001-10	CAP LYTIC RL 100UF 20% 35V	C50,51, C522,622
CA-722001-10	CAP LYTIC RL 220UF 20% 10V NP	C507,607
CA-722002-10	CAP LYTIC RL 220UF 20% 25V	C539,540, C639,640
CA-733025-AE	330UF,25V,ELEC. RADIAL, 20%	C747,748
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	C503,526, C527,603, C626,627
CA-747003-00	CAP LYTIC RL 470UF 20% 25V	C511,517, C717,762, C763
CA-747063-AE	CAP LYTIC RL 470UF 20% 63V	C718,719, C721,722, C725,726, C733,734, C736,737, C739,740, C756,757, C759,760
CA-822200-AE	CAP LYTIC RL 2200UF 20% 200V	C701-704
CH-000011-00	CLAMP BR/TO3	
CH-000022-00	HEATSINK,EXTRU. HOLLOW	
CH-000624-AX	CLAMP TO-3 PL 6 FINGER	
CH-400003-00	CLAMP TO-220 6 FINGER	
CO-000008-IC	8 PIN IC SOCKET	REF:U502, U503,602, U603
CO-000033-CO	4 PIN HEADER,METER	J50
CO-000045-CO	HEADER PCB .156 4-POS	J704
CO-000049-CO	HEADER 1 X 5 VERT	J705
CO-000056-CO	HDR LATCHING BOX 16-PIN	J500,600
CO-000074-00	HEADER POLARIZED 8-POS	J501,601
IC-000008-00	IC SMT POS STEP DRVR	U501,601
IC-000009-00	IC SMT NEG STEP DRVR	U500,600
IC-000023-00	IC CMOS 7-STG RIPPLE 74HC4024N	U703
IC-000024-00	IC REG PWM 40V 0.1A SG3525A	U702
IC-000025-00	IC MOSFET DUAL NON-INV DRVR	U701
IC-000026-00	IC LIN DUAL COMP LM 393N	U705
IC-000028-00	OSC CMOS 7.3728 MHZ 14 PIN-DIP	U704

PowerLight 1.4 Main Board Assy (con't)

Part Number	Description	Reference
IC-005532-OP	IC LIN DUAL OP AMP 5532 EX/MPA	U502,503, U602,603
MS-000056-00	HEATSINK TO220 BLK VERTMNT	D719,721, D722
MS-000057-00	CLIP HEATSINK TO220	REF:D718, D719,721, D722,Q510, Q513,610, Q613,50
MS-000061-00	HEATSINK TO-220	REF:D718, Q513,610, Q613,50
PC-000144-00	PCB PL 1.8 DP MAIN	REF: Q510,
PL-000059-00	INSULATOR MICA 1.125" X 2.000	Q702
PL-000061-00	INSUL TO-220 18-POS SILPAD	REF:Q701,
PL-000063-00	INSULATOR,HEATSINK,SLS,PLATFRM	
PL-000077-00	INSULATOR TO-218 .725 X .950	D718,719, D721,722 Q610,513, Q613,50,
PL-903125-SP	SPACER,ROUND,NYLON,0.125"L	REF:Q510,
PL-905156-SP	SPACER,ROUND,NYLON,#6,0.155"L	
PT-110000-AT	RES VAR IT 100 20% 0.15W CARB	VR500,600
PT-220000-AT	RES VAR IT 2K 20% 0.15W CARB	VR501,502, VR601,602
QD-000021-QD	1N4740 10V ZENER 1W	D510,52, D610
QD-000022-QD	DIODE ZNR 18V 5% 1W 1N4746A	D50,712, D732
QD-000024-QD	DIODE ZNR 6.2V 5% TESTED	D55
QD-000031-QD	FET NCHAN TO220 60V 50A	Q501,502, Q601,602
QD-000040-00	DIODE BRIDGE RECT 400V 40A	BR701
QD-000041-00	DIODE PWR 2X TO220 200V 16A CC	D718,721
QD-000042-00	DIODE RECT ULTRAFAST 400V 3A	D702,704, D705,710
QD-000044-00	DIODE PWR 2X TO220 200V 16A CA	D719,722
QD-000045-00	DIODE BRIDGE RECT DIP 200V 1A	BR500,600
QD-000051-10	XISTOR PNP TO-92 30V 1A	Q57
QD-000061-00	XISTOR, IGBT TO-247AC 600V 60A	Q701,702
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5W	Q509,52, Q518,519, Q521,523, Q526,618, Q54,609, Q60,61, Q619,621, Q623,626 Q704,706,
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5W	Q51,516, Q517,520, Q522,524, Q525

PowerLight 1.4 Main Board Assy (con't)

Part Number	Description	Reference
		Q55,56,59, Q616,703, Q620,622, Q624,625, Q705,617,
QD-000065-10	XISTOR PNP TO-92 200V .5A 1.5W	Q515,615
QD-000066-10	XISTOR NPN TO-92 30V 1A 1W	Q58
QD-000075-10	XISTOR NPN TO-92 400V .3A 1.5W	Q514,614
QD-000076-00	XISTOR NPN TO-220 250V	Q510,610
QD-000077-00	XISTOR PNP TO-220 250V	Q513,613
QD-000078-10	XISTOR NPN TO-92 MPSA13	Q53
QD-000079-00	DIOD RECT TO-220 400V 8A UFAST	D714-717, D723-726
QD-000092-00	XISTOR NPN TO-220 100V 3A 40W	Q50
QD-000134-LG	LED GRN T-1 3/4	LD50
QD-0007.5-ZT	DIODE ZNR 7.5V TESTED	D507,607, D512,513, D612,613
QD-0007.5-ZT	DIODE ZNR 7.5V TESTED	D737,57,
QD-000810-DX	DIODE RECT TO220 FAST 100V 8A	D501,502, D601,602
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q503-505, Q603-605
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q506-508, Q606-608
QD-004004-DX	DIODE RECT DO41 400V 1A	D506,51, D519,523, D524,606, D619,623, D624,713, D727,731, D733,734, D735,736, D740
QD-004148-DX	DIODE SWITCH DO35 75V 75MA	D517,617, D518,53, D521,522, D525,526, D527 D54,56, D618,701, D622,625, D626,627, D703,711, D720,728, D729,730, D738,739, D741,621,
QD-004744-ZA	DIODE ZNR 15V 5% 1W 1N4744A	D504,505, D604,605
QD-004934-DX	DIODE RECT DO41 FAST 100V 1A	D509,511, D609,611, D706,707, D708,709
QD-004934-VP	DIODE RECT DO41 FAST 100V 1AVF	D514,515, D614,615
QD-005402-DX	DIODE RECT DO27 200V 3A	D503,508,

PowerLight 1.4 Main Board Assy (con't)

Part Number	Description	Reference
		D603,608
RE-.00102-00	RES .01 1% 5W 4-WIRE	R520,620
RE-.02210-FW	RES WW 0.22 10% 3W VERT MNT	R505-510,
		R605-610
RE-.27005-EM	RESISTOR,METAL FLM, 2.7 5% 2W	R501,503,
		R601,603
RE-.33005-DM	RES MOFP 3.3 5% 1W	R535,538,
		R635,638
RE-.56005-BC	RES CF 5.6 5% 1/4W	R704,707,
		R713,723
RE-.56005-EM	RES MOFP 5.6 5% 2W	R525,625
RE-.68005-DM	RES MOFP 6.8 5% 1W	R571,671
RE-000006-VP	RES PTC 60C 0.1K MAX COLD VP	1R569,669
RE-000009-PT	RES PTC 90C 0.1K MAX COLD	R710
RE-000050-NR	THERMISTOR NTC 50 OHM	R572,672
RE-001005-EM	RES MOFP 10 5% 2W	R523,524,
		R526,527,
		R623,624,
		R626,627
RE-001505-CC	RES CF 15 5% 1/2W	R708,736
RE-001505-DM	RES MOFP 15 5% 1W	R702,705
RE-002205-DM	RES MOFP 22 5% 1W	R502,504,
		R517,539,
		R602,604,
		R617,639
RE-003305-BC	RES CF 33 5% 1/4W	R522,622
		R57,58,
RE-004751-BM	RES MF 47.5 1% 1/4W	R556,578,
		R579,656,
		R585,586,
		R685,686
RE-005605-EM	56 OHM 2W 5% MET OXIDE	R735
RE-005621-AM	RES MF 56.2 1% 1/8W	R541,641
RE-007505-BC	RES CF 75 5% 1/4W	R543,643,
		R715,730
RE-010001-BM	RES MF 100 1% 1/4W	R559,560,
		R659,660
RE-015005-BC	RES CF 150 5% 1/4W	R518,519,
		R544,644
		R618,619,
RE-018005-CC	RES CF 180 5% 1/2W	R709
RE-027005-CC	RES CF 270 5% 1/2W	R53
RE-028001-BM	RES MF 280 1% 1/4W	R1001,718,
		R546,646,
		R554,654,
		R719,721
RE-047501-BM	RES MF 475 1% 1/4W	R557,567,
		R596,695,
		R657,667,
		R662
		R696,562,
		R717,595,
RE-053601-BM	RES MF 536 1% 1/4W	R553,653
RE-095301-BM	RES MF 953 1% 1/4W	R51,726,
		R545,549,
		R580,680
		R587,588,

PowerLight 1.4 Main Board Assy (con't)

Part Number	Description	Reference
		R645,649,
		R687,688,
		R727,732,
RE-116201-BM	RES MF 1.62K 1% 1/4W	R50,593,
		R594,693,
		R616
		R694,516,
RE-122101-BM	RES MF 2.21K 1% 1/4W	R583,682,
		R60,714,
		R683
		R733,582,
RE-130005-EM	RES MOFP 3K 5% 2W	R511,512,
		R611,612
RE-134801-BM	RES MF 3.48K 1% 1/4W	R529,532,
		R542,551,
		R555,642,
		R629,632
		R651,655,
RE-145301-10	RES MF 4.53K 1% 1/8W	R533,548,
		R568,668
		R633,648,
RE-159001-BM	RES MF 5.90K 1% 1/4W	R534,566,
		R634,666
RE-171501-10	RES MF 7.15K 1% 1/8W	R716
RE-193101-BM	RES MF 9.31K 1% 1/4W	R563,663
RE-210001-BM	RES MF 10.0K 1% 1/4W	R577,677
		R61,68,
		R65,703,
		R706,728,
		R729,734,
RE-210005-EM	RES MOFP 10K 5% 2W	R528,628,
		R711,712
RE-212101-BM	RES MF 12.1K 1% 1/4W	R514,613,
		R52,513,
		R584,589,
		R590,689,
		R614,684,
		R690
RE-213002-10	RES MF 13.0K 1% 1/2W	R540,558,
		R640,658
RE-215001-BM	RES MF 15.0K 1% 1/4W	R565
		R597,598,
		R697,698,
RE-218002-00	RES MOFP 18K 5% 1W	R521,621
RE-220001-BM	RES MF 20.0K 1% 1/4W	R650,66
		R665,550,
RE-222006-BM	RES MOFP 22K 5% 1W	R515,615
RE-227005-BC	RES CF 27K 5% 1/4W	R720
RE-239201-BM	RES MF 39.2K 1% 1/4W	R547,564,
		R647,664,
		R731
RE-247005-DM	RES MOFP 47K 5% 1W	R700,701
RE-253601-BM	RES MF 53.6K 1% 1/4W	R530,531,
		R552,652,
		R630,631
		R725,62
RE-268001-10	68K OHM, 1/4W, 5%, CARBON FILM	R55,67

PowerLight 1.4 Main Board Assy (con't)

Part Number	Description	Reference
RE-297601-BM	RES MF 97.6K 1% 1/4W	R581,681, R591,592, R691,692
RE-312005-BC	RES CF 120K 5% 1/4W	R724
RE-318005-BC	RES CF 180K 5% 1/4W	R59
RE-333005-BC	RES CF 330K 5% 1/4W	R54,561, R661
RE-339005-BC	RES CF 390K 5% 1/4W	R56,64,722
RN-110002-BM	RES NTWK 8-PIN SIP 1K 2% 4R	RN500,600
RN-122002-BM	RES NTWK 8-PIN SIP 2.2K 2% 4R	RN701
RN-147002-BM	RES NTWK 8-PIN SIP 4.7K 2% 4R	RN50
RN-210002-BM	RES NTWK 8-PIN SIP 10K 1% 4R	RN702
RN-247002-BM	RES NTWK 8-PIN SIP 47K 2% 4R	RN51
SC-082060-PP	#8-18X3/8""B"TYPE1 XRECESSZINC	
SC-100121-PS	#10-32 X 3/4" P/P SEMS BLACK	BR701
WC-000089-00	JMPR TEFLON INS 2.5"16GA SOLID	BETWEEN, Q503 & 608 REF:
WC-001102-SQ	INSUL. SLEEVE QSC 1102,.6",CLR	
WC-1.2518-JW	1.25" JUMPER, WHITE 18 GA, SLD	W1,2
WC-2.0016-JW	JMPR INS 2.0" 16AWG SOLID	REF:T701
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L701-704, L706,707, L708,710
XF-000006-00	XFMR GATE DRIVE PCB MNT	T702
XF-000008-00	INDUCTOR CUR SENSE PCB MNT	T701
XF-000011-00	MEDIUM POWER XFMR 96KHZ	T703
XF-000014-00	*XFMR PL 1.4 DP (100V)*	
XF-000034-00	INDUCTOR 1.9UH	L700
XF-200014-CR	INDUCTOR 2UH 14AWG VERT MNT	L500,600

PowerLight 1.4 Chassis Assy

Part Number	Description	Reference
CH-000014-00	TOP COVER, SLS PLATFORM	
CH-000016-00	RACK EAR, SLS PLATFORM	
CH-000024-00	SHIELD,AC FILTER,SLS PLATFORM	
CH-000069-00	CHASSIS PWRLT DP	
CH-000070-00	REAR EAR PL DP	
CO-000011-00	CONN DUAL 5-WAY BIND RD/BLK R	
CO-000012-00	CONN DUAL 5-WAY BIND RD/BLK L	
HW-060090-SO	#6-32 X 9/16" HEX STANDOFF	
LB-000054-00	LABEL, WARNING, TOP COVER	
LB-000058-00	LABEL,FACEPLATE,LT,PWRLGHT 1.4	
LB-000077-00	LABEL,WARNING,HIGH ENERGY	
LB-000139-00	LBL,INPUT/OUTPUT PL 2 SP DP	
LB-000146-00	LBL, PWRLT 1.8 DP GAIN	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	
LB-160226-04	LABEL, FUSE, UL CAUT. 20A 250V	
MS-000050-MS	FUSE, 20A, 250V	
MS-000071-00	MPA 2 SPACE FAN GUARD	
NW-080001-NW	#8 EXT TOOTH LOCKWASHER, ZINC	
NW-080002-00	WASHER,#8 FLAT .049 TH,SS,BLK	
NW-080500-KP	#8-32 KEPS NUT	
NW-100710-NW	#10EXT LOCKWASHER, NICKEL PLTD	
PL-000000-AF	ADHESIVE FEET	
PL-000003-CP	AC CORD PROTECTOR	
PL-000007-EP	EXPORT BINDING POST PLUG	

PowerLight 1.4 Chassis Assy (con't)

Part Number	Description	Reference
PL-000040-PL	POT COVERS	
PL-000054-00	KNOB FAB.	
PL-000062-00	SHROUD, FAN	
PL-000064-00	INSULATOR,AC FILTER PCB	
PL-000065-00	INSULATOR, MAIN PCB	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-000067-00	GROMMET FLEX STRIP.052 MAX WHT	
SC-030000-SC	3mm x 8mm,P/P,TYPE 1,BLK. OX.	
SC-040041-PP	#4-40 X 1/4" P/P BLACK	
SC-060042-PP	#6-32 X 1/4" P/P BLACK,SEMS,IT	
SC-060081-PP	#6-32 X 1/2" P/P BLACK	
SC-061081-PP	#6 X 3/8" "B" P/P ZINC	
SC-080051-PL	SCREW 8-32X5/16" P/P BLK NYLOK	
SC-080051-PS	#8-32 X 5/16" P/P SEMS BLACK	
SC-080051-PU	SCREW 8-32X5/16" FH BLK NYLOK	
SC-081101-SP	#8-18 X 5/8", TYPE 1 P/P BLACK	
SC-082051-PL	SCREW,TAP,PAN PH#8X5/16" "B"BK	
SC-083061-PU	SCREW 8-18 X 3/8" FLAT HD BLK	
SW-000037-00	SWITCH, POWER DOUBLE-POLE	
WC-000016-01	CABLE ASSY 16 COND RBN,(5"LG)	
WC-000016-03	CABLE ASSY 16 COND RBN (15"LG)	
WC-000026-01	CABLE ASSY 26 COND RIB. 23" LG	
WC-000037-00	WIRE ASSY, AC SWITCH	
WC-000044-00	WIRE ASSY, BLACK, 8"	
WC-000049-00	AC PWR CORD ASSY POWERLIGHT 18	
WC-000051-00	CABLE ASSY, SECONDARY	
WC-000055-00	WIRE ASSY,14GA BLK, 6.5"L	
WC-000073-00	WIRE ASSY, OUTPUT	
WC-001048-TQ	WIRE ASSY,BLACK,5.75" L.	
WP-000049-00	FAN ASSY, SINGLE 2 SP DC	
WP-000146-00	PCB ASSY PL 1.4 DP MAIN	
WP-000148-00	PCB ASSY INPUT PWRLT DP	
WP-000149-00	PCB ASSY DISPLAY PL 1.8 DP	
WP-000155-00	PCB ASSY AC POWERLIGHT (120V)	
WP-000160-00	PCB ASSY OUTPUT CAPACITOR	

PowerLight 1.8 Main Board Assy

Part Number	Description	Reference
CA-018001-10	CAP SM 18PF 5% 500V	C528,531, C628,631
CA-047001-10	CAP CER 47PF 10% 100V NPO	C530,519, C630,619
CA-110001-10	CAP SM 100PF, 5%, 500V	C710,711
CA-122001-10	CAP CER 220PF 10% 100V	C537,637, C750,751
CA-133001-10	CAP SM 330PF 5% 500V	C535,635
CA-147001-10	CAP CER 470PF 10% 100V	C508,608, C732,636
CA-210002-10	CAP MYLAR .001UF 5% 100V	C505,506, C536,605, C606,715, C731
CA-222001-10	CAP MYLAR .0022UF 5% 50V	C514,614
CA-222002-10	.0022UF,200V,10%,MYLAR	C513,613, C529,629
CA-233001-10	CAP MYLAR .0033UF 10% 100V	C700

PowerLight 1.8 Main Board Assy (con't)

Part Number	Description	Reference
CA-310001-10	CAP MYLAR .01UF 10% 100V	C509,525, C609,625
CA-410001-00	CAP MET POLY X.1UF 20% 250VAC	C707
CA-410002-10	CAP MYLAR .1UF 5% 100V	C501,502, C601,602
CA-410003-10	CAP MET POLY .1UF 10% 250V	C512,521, C612,621 C720,723, C727,735, C738,741, C758,761,
CA-410004-10	CAP CER .1UF 20% 50V	C516,53, C54,55,56, C542,641, C611,616, C617,716, C642 C729,742, C743,745, C746,752,
CA-410004-10	CAP CER .1UF 20% 50V	C753,754, C755,765, C766,541,
CA-422001-10	CAP MYLAR .22UF 5% 50V	C532,632
CA-447003-00	CAP POLYP .47UF 10% 400V	C708
CA-510001-10	CAP CER 1UF 20% 50V	C713,714, C730
CA-520200-CO	CAP POLYPROP 2UF 5% 200V	C705,706
CA-547002-10	4.7UF,16V,20% RADIAL NON-POLAR	C52
CA-610002-10	10UF,35V,20%,RADIAL ELECT	C728,744, C749,764
CA-647001-10	CAP LYTIC RL 47UF 10% 10V NP	C518,533, C618,633
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	C504,510, C515,520, C523,604, C610,615, C620,623
CA-710001-10	CAP LYTIC RL 100UF 20% 35V	C50,51, C522,622
CA-722001-10	CAP LYTIC RL 220UF 20% 10V NP	C507,607
CA-722002-10	CAP LYTIC RL 220UF 20% 25V	C539,540, C639,640
CA-733025-AE	330UF,25V,ELEC. RADIAL, 20%	C747,748
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	C503,526, C527,603, C626,627
CA-747003-00	CAP LYTIC RL 470UF 20% 25V	C511,517, C717,762, C763
CA-747063-AE	CAP LYTIC RL 470UF 20% 63V	C718,719, C721,722, C725,726, C733,734, C736,737, C739,740, C756,757,

PowerLight 1.8 Main Board Assy (con't)

Part Number	Description	Reference
		C759,760
CA-822200-AE	.	C701-704
CH-000011-00	CLAMP BR/TO3	
CH-000022-00	HEATSINK,EXTRU. HOLLOW	
CH-000624-AX	CLAMP TO-3 PL 6 FINGER	
CH-400003-00	CLAMP TO-220 6 FINGER	
CO-000008-IC	8 PIN IC SOCKET	REF:U502, U503,602, U603
CO-000033-CO	4 PIN HEADER,METER	J50
CO-000045-CO	HEADER PCB .156 4-POS	J704
CO-000049-CO	HEADER 1 X 5 VERT	J705
CO-000056-CO	HDR LATCHING BOX 16-PIN	J500,600
CO-000074-00	HEADER POLARIZED 8-POS	J501,601
IC-000008-00	IC SMT POS STEP DRVR	U501,601
IC-000009-00	IC SMT NEG STEP DRVR	U500,600
IC-000023-00	IC CMOS 7-STG RIPPLE 74HC4024N	U703
IC-000024-00	IC REG PWM 40V 0.1A SG3525A	U702
IC-000025-00	IC MOSFET DUAL NON-INV DRVR	U701
IC-000026-00	IC LIN DUAL COMP LM 393N	U705
IC-000028-00	OSC CMOS 7.3728 MHZ 14 PIN-DIP	U704
IC-005532-OP	IC LIN DUAL OP AMP 5532 EX/MPA	U502,503, U602,603
MS-000056-00	HEATSINK TO220 BLK VERTMNT	D719,721, D722
MS-000057-00	CLIP HEATSINK TO220	REF:D718, D719,721, D722,Q510, Q513,610, Q613,50
MS-000061-00	HEATSINK TO-220	REF:D718, Q513,610, Q613,50
PC-000144-00	PCB PL 1.8 DP MAIN	REF: Q510,
PL-000059-00	INSULATOR MICA 1.125" X 2.000	Q702
PL-000061-00	INSUL TO-220 18-POS SILPAD	REF:Q701,
PL-000063-00	INSULATOR,HEATSINK,SLS,PLATFRM	
PL-000077-00	INSULATOR TO-218 .725 X .950	D718,719, D721,722 Q610,513, Q613,50,
PL-903125-SP	SPACER,ROUND,NYLON,0.125"L	REF:Q510,
PL-905156-SP	SPACER,ROUND,NYLON,#6,0.155"L	
PT-110000-AT	RES VAR IT 100 20% 0.15W CARB	VR500,600
PT-220000-AT	RES VAR IT 2K 20% 0.15W CARB	VR501,502, VR601,602
QD-000021-QD	1N4740 10V ZENER 1W	D510,52, D610
QD-000022-QD	DIODE ZNR 18V 5% 1W 1N4746A	D50,712, D732
QD-000024-QD	DIODE ZNR 6.2V 5% TESTED	D55
QD-000031-QD	FET NCHAN TO220 60V 50A	Q501,502, Q601,602
QD-000040-00	DIODE BRIDGE RECT 400V 40A	BR701

PowerLight 1.8 Main Board Assy (con't)

Part Number	Description	Reference
QD-000041-00	DIODE PWR 2X TO220 200V 16A CC	D718,721
QD-000042-00	DIODE RECT ULTRAFAST 400V 3A	D702,704, D705,710
QD-000044-00	DIODE PWR 2X TO220 200V 16A CA	D719,722
QD-000045-00	DIODE BRIDGE RECT DIP 200V 1A	BR500,600
QD-000051-10	XISTOR PNP TO-92 30V 1A	Q57
QD-000061-00	XISTOR, IGBT TO-247AC 600V 60A	Q701,702
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5W	Q509,52, Q518,519, Q521,523, Q526,618, Q54,609, Q60,61, Q619,621, Q623,626 Q704,706,
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5W	Q51,516, Q517,520, Q522,524, Q525 Q55,56,59, Q616,703, Q620,622, Q624,625, Q705,617,
QD-000065-10	XISTOR PNP TO-92 200V .5A 1.5W	Q515,615
QD-000066-10	XISTOR NPN TO-92 30V 1A 1W	Q58
QD-000075-10	XISTOR NPN TO-92 400V .3A 1.5W 1	Q514,614
QD-000076-00	XISTOR NPN TO-220 250V	Q510,610
QD-000077-00	XISTOR PNP TO-220 250V	Q513,613
QD-000078-10	XISTOR NPN TO-92 MPSA13	Q53
QD-000079-00	DIOD RECT TO-220 400V 8A UFAST	D714-717, D723-726
QD-000092-00	XISTOR NPN TO-220 100V 3A 40W	Q50
QD-000134-LG	LED GRN T-1 3/4	LD50
QD-0007.5-ZT	DIODE ZNR 7.5V TESTED	D507,607, D512,513, D612,613 D737,57,
QD-000810-DX	DIODE RECT TO220 FAST 100V 8A	D501,502, D601,602
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q503-505, Q603-605
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q506-508, Q606-608
QD-004004-DX	DIODE RECT DO41 400V 1A	D506,51, D519,523, D524,606, D619,623, D624,713, D727,731, D733,734, D735,736, D740
QD-004148-DX	DIODE SWITCH DO35 75V 75MA 1	D517,617, D518,53, D521,522,

PowerLight 1.8 Main Board Assy (con't)

Part Number	Description	Reference
		D525,526, D527 D54,56, D618,701, D622,625, D626,627, D703,711, D720,728, D729,730, D738,739, D741,621,
QD-004744-ZA	DIODE ZNR 15V 5% 1W 1N4744A	D504,505, D604,605
QD-004934-DX	DIODE RECT DO41 FAST 100V 1A	D509,511, D609,611, D706,707, D708,709
QD-004934-VP	DIODE RECT DO41 FAST 100V 1AVF	D514,515, D614,615
QD-005402-DX	DIODE RECT DO27 200V 3A	D503,508, D603,608
RE-.00102-00	RES .01 1% 5W 4-WIRE	R520,620
RE-.02210-FW	RES WW 0.22 10% 3W VERT MNT	R505-510, R605-610
RE-.27005-EM	RESISTOR,METAL FLM, 2.7 5% 2W	R501,503, R601,603
RE-.33005-DM	RES MOFP 3.3 5% 1W	R535,538, R635,638
RE-.56005-BC	RES CF 5.6 5% 1/4W	R704,707,
RE-.56005-BC	RES CF 5.6 5% 1/4W	R713,723
RE-.56005-EM	RES MOFP 5.6 5% 2W	R525,625
RE-.68005-DM	RES MOFP 6.8 5% 1W	R571,671
RE-000006-VP	RES PTC 60C 0.1K MAX COLD VP 1	R569,669
RE-000009-PT	RES PTC 90C 0.1K MAX COLD	R710
RE-000050-NR	THERMISTOR NTC 50 OHM	R572,672
RE-001005-EM	RES MOFP 10 5% 2W	R523,524, R526,527, R623,624, R626,627
RE-001505-CC	RES CF 15 5% 1/2W	R708,736
RE-001505-DM	RES MOFP 15 5% 1W	R702,705
RE-002205-DM	RES MOFP 22 5% 1W	R502,504, R517,539, R602,604, R617,639
RE-003305-BC	RES CF 33 5% 1/4W	R522,622 R57,58,
RE-004751-BM	RES MF 47.5 1% 1/4W	R556,578, R579,656, R585,586, R685,686
RE-005605-EM	56 OHM 2W 5% MET OXIDE	R735
RE-005621-AM	RES MF 56.2 1% 1/8W	R541,641
RE-007505-BC	RES CF 75 5% 1/4W	R543,643, R715,730
RE-010001-BM	RES MF 100 1% 1/4W	R559,560, R659,660

PowerLight 1.8 Main Board Assy (con't)

Part Number	Description	Reference
RE-015005-BC	RES CF 150 5% 1/4W	R518,519, R544,644 R618,619,
RE-018005-CC	RES CF 180 5% 1/2W	R709
RE-027005-CC	RES CF 270 5% 1/2W	R53
RE-028001-BM	RES MF 280 1% 1/4W	R1001,718, R546,646, R554,654, R719,721
RE-047501-BM	RES MF 475 1% 1/4W	R557,567, R596,695, R657,667, R662 R696,562, R717,595,
RE-053601-BM	RES MF 536 1% 1/4W	R553,653
RE-095301-BM	RES MF 953 1% 1/4W	R51,726, R545,549, R580,680 R587,588, R645,649, R687,688, R727,732,
RE-116201-BM	RES MF 1.62K 1% 1/4W	R50,593, R594,693, R616 R694,516,
RE-122101-BM	RES MF 2.21K 1% 1/4W	R583,682, R60,714, R683 R733,582,
RE-130005-EM	RES MOFP 3K 5% 2W	R511,512,
RE-130005-EM	RES MOFP 3K 5% 2W	R611,612
RE-130101-BM	RES MF 3.01K 1% 1/4W	R529,532, R629,632
RE-134801-BM	RES MF 3.48K 1% 1/4W	R542,551, R555,642, R651,655
RE-145301-10	RES MF 4.53K 1% 1/8W	R533,548, R568,668 R633,648,
RE-159001-BM	RES MF 5.90K 1% 1/4W	R534,566, R634,666
RE-171501-10	RES MF 7.15K 1% 1/8W	R716
RE-193101-BM	RES MF 9.31K 1% 1/4W	R563,663
RE-210001-BM	RES MF 10.0K 1% 1/4W	R577,677 R61,68, R65,703, R706,728, R729,734,
RE-210005-EM	RES MOFP 10K 5% 2W	R528,628, R711,712
RE-212101-BM	RES MF 12.1K 1% 1/4W	R514,613, R52,513, R584,589, R590,689, R614,684,

PowerLight 1.8 Main Board Assy (con't)

Part Number	Description	Reference
		R690
RE-213002-10	RES MF 13.0K 1% 1/2W	R540,558, R640,658
RE-215001-BM	RES MF 15.0K 1% 1/4W	R565 R597,598, R697,698,
RE-218002-00	RES MOFP 18K 5% 1W	R521,621
RE-220001-BM	RES MF 20.0K 1% 1/4W	R650,66 R665,550,
RE-222006-BM	RES MOFP 22K 5% 1W	R515,615
RE-227005-BC	RES CF 27K 5% 1/4W	R720
RE-239201-BM	RES MF 39.2K 1% 1/4W	R547,564, R647,664, R731
RE-247005-DM	RES MOFP 47K 5% 1W	R700,701
RE-253601-BM	RES MF 53.6K 1% 1/4W	R530,531, R552,652, R630,631, R725,62
RE-268001-10	68K OHM, 1/4W, 5%, CARBON FILM	R55,67
RE-297601-BM	RES MF 97.6K 1% 1/4W	R581,681, R591,592, R691,692
RE-312005-BC	RES CF 120K 5% 1/4W	R724
RE-318005-BC	RES CF 180K 5% 1/4W	R59
RE-333005-BC	RES CF 330K 5% 1/4W	R54,561, R661
RE-339005-BC	RES CF 390K 5% 1/4W	R56,64,722
RN-110002-BM	RES NTWK 8-PIN SIP 1K 2% 4R 1	RN500,600
RN-122002-BM	RES NTWK 8-PIN SIP 2.2K 2% 4R 1	RN701
RN-147002-BM	RES NTWK 8-PIN SIP 4.7K 2% 4R 1	RN50
RN-210002-BM	RES NTWK 8-PIN SIP 10K 1% 4R 1	RN702
RN-247002-BM	RES NTWK 8-PIN SIP 47K 2% 4R 1	RN51
SC-082060-PP	#8-18X3/8""B"TYPE1 XRECESSZINC 1	
SC-100121-PS	#10-32 X 3/4" P/P SEMS BLACK 1	BR701
WC-000089-00	JMPR TEFLON INS 2.5"16GA SOLID	BETWEEN, Q503 & 608 REF:
WC-001102-SQ	INSUL. SLEEVE QSC 1102,.6",CLR 1	
WC-1.2518-JW	1.25" JUMPER, WHITE 18 GA, SLD 1	W1,2
WC-2.0016-JW	JMPR INS 2.0" 16AWG SOLID	REF:T701
XF-000004-00	XFMR HIGH PWR 96KHz	T703
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L701-704, L706,707, L708,710
XF-000006-00	XFMR GATE DRIVE PCB MNT	T702
XF-000008-00	INDUCTOR CUR SENSE PCB MNT	T701
XF-000013-00	*XFMR PL 1.8 DP (100V)*	
XF-000034-00	INDUCTOR 1.9UH 2	L700
XF-200014-CR	INDUCTOR 2UH 14AWG VERT MNT	L500,600

PowerLight 1.8 Chassis Assy

Part Number	Description	Reference
CH-000014-00	TOP COVER, SLS PLATFORM	
CH-000016-00	RACK EAR, SLS PLATFORM	
CH-000024-00	SHIELD,AC FILTER,SLS PLATFORM	
CH-000069-00	CHASSIS PWRLT DP	
CH-000070-00	REAR EAR PL DP	
CO-000011-00	CONN DUAL 5-WAY BIND RD/BLK R	
CO-000012-00	CONN DUAL 5-WAY BIND RD/BLK L	
HW-060090-SO	#6-32 X 9/16" HEX STANDOFF	
LB-000045-00	LABEL,FACEPLATE,LT,PWRLGHT 1.8	
LB-000054-00	LABEL, WARNING, TOP COVER	
LB-000077-00	LABEL,WARNING,HIGH ENERGY	
LB-000139-00	LBL,INPUT/OUTPUT PL 2 SP DP	
LB-000146-00	LBL, PWRLT 1.8 DP GAIN	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	
LB-160226-05	LABEL, FUSE, UL CAUT. 25A 125V	
MS-000071-00	MPA 2 SPACE FAN GUARD	
MS-000086-00	FUSE 3AB 25A 125V	
NW-080001-NW	#8 EXT TOOTH LOCKWASHER, ZINC	
NW-080002-00	WASHER,#8 FLAT .049 TH,SS,BLK	
NW-080500-KP	#8-32 KEPS NUT	
NW-100710-NW	#10EXT LOCKWASHER, NICKEL PLTD	
PL-000000-AF	ADHESIVE FEET	
PL-000003-CP	AC CORD PROTECTOR	
PL-000007-EP	EXPORT BINDING POST PLUG	
PL-000040-PL	POT COVERS	
PL-000054-00	KNOB FAB.	
PL-000062-00	SHROUD, FAN	
PL-000064-00	INSULATOR,AC FILTER PCB	
PL-000065-00	INSULATOR, MAIN PCB	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-000067-00	GROMMET FLEX STRIP.052 MAX WHT	
SC-030000-SC	3mm x 8mm,P/P,TYPE 1,BLK. OX.	
SC-040041-PP	#4-40 X 1/4" P/P BLACK	
SC-060042-PP	#6-32 X 1/4" P/P BLACK,SEMS,IT	
SC-060081-PP	#6-32 X 1/2" P/P BLACK	
SC-061081-PP	#6 X 3/8" "B" P/P ZINC	
SC-080051-PL	SCREW 8-32X5/16" P/P BLK NYLOK	
SC-080051-PS	#8-32 X 5/16" P/P SEMS BLACK	
SC-080051-PU	SCREW 8-32X5/16" FH BLK NYLOK	
SC-081101-SP	#8-18 X 5/8", TYPE 1 P/P BLACK	
SC-082051-PL	SCREW,TAP,PAN PH#8X5/16" "B"BK	
SC-083061-PU	SCREW 8-18 X 3/8" FLAT HD BLK	
SW-000037-00	SWITCH, POWER DOUBLE-POLE	
WC-000016-01	CABLE ASSY 16 COND RBN,(5"LG)	J101
WC-000016-03	CABLE ASSY 16 COND RBN (15"LG)	J201
WC-000026-01	CABLE ASSY 26 COND RIB. 23" LG	
WC-000037-00	WIRE ASSY, AC SWITCH	
WC-000044-00	WIRE ASSY, BLACK, 8"	
WC-000049-00	AC PWR CORD ASSY POWERLIGHT 18	
WC-000051-00	CABLE ASSY, SECONDARY	
WC-000055-00	WIRE ASSY,14GA BLK, 6.5"L	
WC-000073-00	WIRE ASSY, OUTPUT	
WC-001048-TQ	WIRE ASSY,BLACK,5.75" L.	
WP-000139-00	ASSY, PAIRED FAN 2 SP DC	
WP-000144-00	MAIN AMP PCB PL 1.8 DP	
WP-000148-00	PCB ASSY INPUT PWRLT DP	

PowerLight 1.8 Chassis Assy (con't)

Part Number	Description	Reference
WP-000149-00	PCB ASSY DISPLAY PL 1.8 DP	
WP-000155-00	PCB ASSY AC POWERLIGHT (120V)	
WP-000160-00	PCB ASSY OUTPUT CAPACITOR	

PowerLight 2.0 Main Board Assy

Part Number	Description	Reference
CA-018001-10	CAP SM 18PF 5% 500V	C528,531, C628,631
CA-027001-10	CAP SM 27PF 10% 500V	C530,630
CA-047001-10	CAP CER 47PF 10% 100V NPO	C519,619
CA-110001-10	CAP SM 100PF, 5%, 500V	C710,711
CA-122001-10	CAP CER 220PF 10% 100V	C537,637, C750,751
CA-133001-10	CAP SM 330PF 5% 500V	C535,635
CA-147001-10	CAP CER 470PF 10% 100V	C508,608, C732,636
CA-210002-10	CAP MYLAR .001UF 5% 100V	C505,506, C536,605, C606,715, C731
CA-222001-10	CAP MYLAR .0022UF 5% 50V	C514,614
CA-222002-10	.0022UF,200V,10%,MYLAR	C513,613, C529,629
CA-233001-10	CAP MYLAR .0033UF 10% 100V	C700
CA-310001-10	CAP MYLAR .01UF 10% 100V	C509,525, C609,625
CA-410001-00	CAP MET POLY X.1UF 20% 250VAC	C707
CA-410002-10	CAP MYLAR .1UF 5% 100V	C501,502, C601,602
CA-410003-10	CAP MET POLY .1UF 10% 250V	C512,521, C612,621
CA-410004-10	CAP CER .1UF 20% 50V	C720,723, C727,735, C738,741, C758,761, C516,53, C54,55,56, C542,641, C611,616, C617,716, C642
CA-422001-10	CAP MYLAR .22UF 5% 50V	C532,632
CA-447003-00	CAP POLYP .47UF 10% 400V	C708
CA-510001-10	CAP CER 1UF 20% 50V	C713,714, C730
CA-520200-CO	CAP POLYPROP 2UF 5% 200V	C705,706
CA-547002-10	4.7UF,16V,20% RADIAL NON-POLAR	C52
CA-610002-10	10UF,35V,20%,RADIAL ELECT	C728,744, C749,764
CA-647001-10	CAP LYTIC RL 47UF 10% 10V NP	C518,533,

PowerLight 2.0 Main Board Assy (con't)

Part Number	Description	Reference
		C618,633
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	C504,510,
		C515,520,
		C523,604,
		C610,615,
		C620,623
CA-710001-10	CAP LYTIC RL 100UF 20% 35V	C50,51,
		C522,622
CA-722001-10	CAP LYTIC RL 220UF 20% 10V NP	C507,607
CA-722002-10	CAP LYTIC RL 220UF 20% 25V	C539,540,
		C639,640
CA-733025-AE	330UF,25V,ELEC. RADIAL, 20%	C747,748
CA-739001-00	CAP LYTIC RL 390UF 20% 80V	C718,719,
		C721,722,
		C725,726,
		C733,734,
		C736,737,
		C739,740,
		C756,757,
		C759,760
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	C503,526,
		C527,603,
		C626,627
CA-747003-00	CAP LYTIC RL 470UF 20% 25V	C511,517,
		C717,762,
		C763
CA-822200-AE	CAP LYTIC RL 2200UF 20% 200V	C701-704
CH-000011-00	CLAMP BR/TO3	
CH-000022-00	HEATSINK,EXTRU. HOLLOW	
CH-000624-AX	CLAMP TO-3 PL 6 FINGER	
CH-400003-00	CLAMP TO-220 6 FINGER	
CO-000008-IC	8 PIN IC SOCKET	REF:U502,
		U503,602,
		U603
CO-000033-CO	4 PIN HEADER,METER	J50
CO-000045-CO	HEADER PCB .156 4-POS	J704
CO-000049-CO	HEADER 1 X 5 VERT	J705
CO-000056-CO	HDR LATCHING BOX 16-PIN	J500,600
CO-000074-00	HEADER POLARIZED 8-POS	J501,601
IC-000008-00	IC SMT POS STEP DRVR	U501,601
IC-000009-00	IC SMT NEG STEP DRVR	U500,600
IC-000023-00	IC CMOS 7-STG RIPPLE 74HC4024N	U703
IC-000024-00	IC REG PWM 40V 0.1A SG3525A	U702
IC-000025-00	IC MOSFET DUAL NON-INV DRVR	U701
IC-000026-00	IC LIN DUAL COMP LM 393N	U705
IC-000028-00	OSC CMOS 7.3728 MHZ 14 PIN-DIP	U704
IC-005532-OP	IC LIN DUAL OP AMP 5532 EX/MPA	U502,503,
		U602,603
MS-000056-00	HEATSINK TO220 BLK VERTMNT	D719,721,
		D722
		REF:D718,
MS-000057-00	CLIP HEATSINK TO220	D719,721,
		D722,Q510,
		Q513,610,
		Q613,50
		REF:D718,
MS-000061-00	HEATSINK TO-220	Q513,610,

PowerLight 2.0 Main Board Assy (con't)

Part Number	Description	Reference
		Q613,50
		REF: Q510,
PC-000144-00	PCB PL 1.8 DP MAIN	
PL-000059-00	INSULATOR MICA 1.125" X 2.000	Q702
		REF:Q701,
PL-000061-00	INSUL TO-220 18-POS SILPAD	
PL-000063-00	INSULATOR,HEATSINK,SLS,PLATFRM	
PL-000077-00	INSULATOR TO-218 .725 X .950	D718,719,
		D721,722
		Q610,513,
		Q613,50,
		REF:Q510,
PL-903125-SP	SPACER,ROUND,NYLON,0.125"L	
PL-905156-SP	SPACER,ROUND,NYLON,#6,0.155"L	
PT-110000-AT	RES VAR IT 100 20% 0.15W CARB	VR500,600
PT-220000-AT	RES VAR IT 2K 20% 0.15W CARB	VR501,502,
		VR601,602
QD-000021-QD	1N4740 10V ZENER 1W	D510,52,
		D610
QD-000022-QD	DIODE ZNR 18V 5% 1W 1N4746A	D50,712,
		D732
QD-000024-QD	DIODE ZNR 6.2V 5% TESTED	D55
QD-000030-QD	FET NCHAN TO220 100V 25A	Q501,502,
		Q601,602
QD-000040-00	DIODE BRIDGE RECT 400V 40A	BR701
QD-000041-00	DIODE PWR 2X TO220 200V 16A CC	D718,721
QD-000042-00	DIODE RECT ULTRAFAST 400V 3A	D702,704,
		D705,710
QD-000044-00	DIODE PWR 2X TO220 200V 16A CA	D719,722
QD-000045-00	DIODE BRIDGE RECT DIP 200V 1A	BR500,600
QD-000051-10	XISTOR PNP TO-92 30V 1A	Q57
QD-000061-00	XISTOR, IGBT TO-247AC 600V 60A	Q701,702
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5W	Q509,52,
		Q518,519,
		Q521,523,
		Q526,618,
		Q54,609,
		Q60,61,
		Q619,621,
		Q623,626
		Q704,706,
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5W	Q51,516,
		Q517,520,
		Q522,524,
		Q525
		Q55,56,59,
		Q616,703,
		Q620,622,
		Q624,625,
		Q705,617,
QD-000065-10	XISTOR PNP TO-92 200V .5A 1.5W	Q515,615
QD-000066-10	XISTOR NPN TO-92 30V 1A 1W	Q58
QD-000075-10	XISTOR NPN TO-92 400V .3A 1.5W	Q514,614
QD-000076-00	XISTOR NPN TO-220 250V	Q510,610
QD-000077-00	XISTOR PNP TO-220 250V	Q513,613
QD-000078-10	XISTOR NPN TO-92 MPSA13	Q53
QD-000079-00	DIOD RECT TO-220 400V 8A UFAST	D714-717,

PowerLight 2.0 Main Board Assy (con't)

Part Number	Description	Reference
		D723-726
QD-000092-00	XISTOR NPN TO-220 100V 3A 40W	Q50
QD-000134-LG	LED GRN T-1 3/4	LD50
QD-0007.5-ZT	DIODE ZNR 7.5V TESTED	D507,607,
		D512,513,
		D612,613
		D737,57,
QD-000810-DX	DIODE RECT TO220 FAST 100V 8A	D501,502,
		D601,602
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q503-505,
		Q603-605
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q506-508,
		Q606-608
QD-004004-DX	DIODE RECT DO41 400V 1A	D506,51,
		D519,523,
		D524,606,
		D619,623,
		D624,713,
		D727,731,
		D733,734,
		D735,736,
		D740
QD-004148-DX	DIODE SWITCH DO35 75V 75MA	D517,617,
		D518,53,
		D521,522,
		D525,526,
		D527
		D54,56,
		D618,701,
		D622,625,
		D626,627,
		D703,711,
		D720,728,
		D729,730,
		D738,739,
		D741,621,
QD-004744-ZA	DIODE ZNR 15V 5% 1W 1N4744A	D504,505,
		D604,605
QD-004934-DX	DIODE RECT DO41 FAST 100V 1A	D509,511,
		D609,611,
		D706,707,
		D708,709
QD-004934-VP	DIODE RECT DO41 FAST 100V 1AVF	D514,515,
		D614,615
QD-005402-DX	DIODE RECT DO27 200V 3A	D503,508,
		D603,608
RE-.00102-00	RES .01 1% 5W 4-WIRE	R520,620
RE-.02210-FW	RES WW 0.22 10% 3W VERT MNT	R505-510,
		R605-610
RE-.27005-EM	RESISTOR,METAL FLM, 2.7 5% 2W	R501,503,
		R601,603
RE-.47005-DM	RES MOFP 4.7 5% 1W	R535,538,
		R635,638
RE-.56005-BC	RES CF 5.6 5% 1/4W	R704,707,
		R713,723
RE-.56005-EM	RES MOFP 5.6 5% 2W	R525,625
RE-.68005-DM	RES MOFP 6.8 5% 1W	R571,671

PowerLight 2.0 Main Board Assy (con't)

Part Number	Description	Reference
RE-000006-VP	RES PTC 60C 0.1K MAX COLD VP	R569,669
RE-000009-PT	RES PTC 90C 0.1K MAX COLD	R710
RE-000050-NR	THERMISTOR NTC 50 OHM	R572,672
RE-001005-EM	RES MOFP 10 5% 2W	R523,524,
		R526,527,
RE-001005-EM	RES MOFP 10 5% 2W	R623,624,
		R626,627
RE-001505-CC	RES CF 15 5% 1/2W	R708,736
RE-001505-DM	RES MOFP 15 5% 1W	R702,705
RE-002205-DM	RES MOFP 22 5% 1W	R502,504,
		R517,539,
		R602,604,
		R617,639
RE-003305-BC	RES CF 33 5% 1/4W	R522,622
		R57,58,
RE-004751-BM	RES MF 47.5 1% 1/4W	R556,578,
		R579,656,
		R585,586,
		R685,686
RE-005605-EM	56 OHM 2W 5% MET OXIDE	R735
RE-005621-AM	RES MF 56.2 1% 1/8W	R541,641
RE-007505-BC	RES CF 75 5% 1/4W	R543,643,
		R715,730
RE-010001-BM	RES MF 100 1% 1/4W	R559,560,
		R659,660
RE-015005-BC	RES CF 150 5% 1/4W	R518,519,
		R544,644
		R618,619,
RE-018005-CC	RES CF 180 5% 1/2W	R709
RE-027005-CC	RES CF 270 5% 1/2W	R53
RE-028001-BM	RES MF 280 1% 1/4W	R1001,718,
		R546,646,
		R554,654,
		R719,721
RE-047501-BM	RES MF 475 1% 1/4W	R557,567,
		R596,695,
		R657,667,
		R662
		R696,562,
		R717,595,
RE-053601-BM	RES MF 536 1% 1/4W	R553,653
RE-095301-BM	RES MF 953 1% 1/4W	R51,726,
		R545,549,
		R580,680
		R587,588,
		R645,649,
		R687,688,
		R727,732,
RE-116201-BM	RES MF 1.62K 1% 1/4W	R50,593,
		R594,693,
		R616
		R694,516,
RE-122101-BM	RES MF 2.21K 1% 1/4W	R583,682,
		R60,714,
		R683
		R733,582,
RE-130005-EM	RES MOFP 3K 5% 2W	R511,512,

PowerLight 2.0 Main Board Assy (con't)

Part Number	Description	Reference
		R611,612
RE-130101-BM	RES MF 3.01K 1% 1/4W	R529,532,
		R629,632
RE-134801-BM	RES MF 3.48K 1% 1/4W	R542,551,
		R555,642,
		R651,655
RE-145301-10	RES MF 4.53K 1% 1/8W	R533,548,
		R568,668
RE-145301-10	RES MF 4.53K 1% 1/8W	R633,648,
RE-159001-BM	RES MF 5.90K 1% 1/4W	R534,566,
		R634,666
RE-171501-10	RES MF 7.15K 1% 1/8W	R716
RE-193101-BM	RES MF 9.31K 1% 1/4W	R563,663
RE-210001-BM	RES MF 10.0K 1% 1/4W	R577,677
		R61,68,
		R65,703,
		R706,728,
		R729,734,
RE-210005-EM	RES MOFP 10K 5% 2W	R528,628,
		R711,712
RE-212101-BM	RES MF 12.1K 1% 1/4W	R514,613,
		R52,513,
		R584,589,
		R590,689,
		R614,684,
		R690
RE-215001-BM	RES MF 15.0K 1% 1/4W	R565
		R597,598,
		R697,698,
RE-216501-CM	RES MF 16.5K 1% 1/2W	R540,558,
		R640,658
RE-220001-BM	RES MF 20.0K 1% 1/4W	R650,66
		R665,550,
RE-222006-BM	RES MOFP 22K 5% 1W	R515,615,
		R521,621
RE-227005-BC	RES CF 27K 5% 1/4W	R720
RE-239201-BM	RES MF 39.2K 1% 1/4W	R547,564,
		R647,664,
		R731
RE-247005-DM	RES MOFP 47K 5% 1W	R700,701
RE-253601-BM	RES MF 53.6K 1% 1/4W	R552,652,
		R725,62
RE-268001-10	68K OHM, 1/4W, 5%, CARBON FILM	R55,67
RE-275001-BM	RES MF 75.0K 1% 1/4W	R530,531,
		R630,631
RE-297601-BM	RES MF 97.6K 1% 1/4W	R581,681,
		R591,592,
		R691,692
RE-312005-BC	RES CF 120K 5% 1/4W	R724
RE-318005-BC	RES CF 180K 5% 1/4W	R59
RE-333005-BC	RES CF 330K 5% 1/4W	R54,561,
		R661
RE-339005-BC	RES CF 390K 5% 1/4W	R56,64,722
RN-110002-BM	RES NTWK 8-PIN SIP 1K 2% 4R	RN500,600
RN-122002-BM	RES NTWK 8-PIN SIP 2.2K 2% 4R	RN701
RN-147002-BM	RES NTWK 8-PIN SIP 4.7K 2% 4R	RN50
RN-210002-BM	RES NTWK 8-PIN SIP 10K 1% 4R	RN702

PowerLight 2.0 Main Board Assy (con't)

Part Number	Description	Reference
RN-247002-BM	RES NTWK 8-PIN SIP 47K 2% 4R	RN51
SC-082060-PP	#8-18X3/8""B"TYPE1 XRECESSZINC	
SC-100121-PS	#10-32 X 3/4" P/P SEMS BLACK	BR701
WC-000089-00	JMPR TEFLON INS 2.5"16GA SOLID	BETWEEN,
		Q503 & 608
		REF:
WC-001102-SQ	INSUL. SLEEVE QSC 1102,.6",CLR	
WC-1.2518-JW	1.25" JUMPER, WHITE 18 GA, SLD	W1,2
WC-2.0016-JW	JMPR INS 2.0" 16AWG SOLID	REF:T701
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L701-704,
		L706,707,
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L708,710
XF-000006-00	XFMR GATE DRIVE PCB MNT	T702
XF-000008-00	INDUCTOR CUR SENSE PCB MNT	T701
XF-000029-00	XFMR PL 2.0 HV	T703
XF-000034-00	INDUCTOR 1.9UH	L700
XF-200014-CR	INDUCTOR 2UH 14AWG VERT MNT	L500,600

PowerLight 2.0 Chassis Assy

Part Number	Description	Reference
CH-000014-00	TOP COVER, SLS PLATFORM	
CH-000016-00	RACK EAR, SLS PLATFORM	
CH-000024-00	SHIELD,AC FILTER,SLS PLATFORM	
CH-000069-00	CHASSIS PWRLT DP	
CH-000070-00	REAR EAR PL DP	
CO-000011-00	CONN DUAL 5-WAY BIND RD/BLK R	
CO-000012-00	CONN DUAL 5-WAY BIND RD/BLK L	
HW-060090-SO	#6-32 X 9/16" HEX STANDOFF	
LB-000054-00	LABEL, WARNING, TOP COVER	
LB-000077-00	LABEL,WARNING,HIGH ENERGY	
LB-000139-00	LBL,INPUT/OUTPUT PL 2 SP DP	
LB-000163-00	LABEL,FACEPLT,LT,PL 2.0 HV DP	
LB-000164-00	LABEL,FACEPLT,RT,PL 2.0 HV DP	
LB-000165-00	LABEL,REAR,AC,PWRLT 2.0 HV DP	
LB-160226-05	LABEL, FUSE, UL CAUT. 25A 125V	
MS-000071-00	MPA 2 SPACE FAN GUARD	
MS-000086-00	FUSE 3AB 25A 125V	
NW-080001-NW	#8 EXT TOOTH LOCKWASHER, ZINC	
NW-080002-00	WASHER,#8 FLAT .049 TH,SS,BLK	
NW-080500-KP	#8-32 KEPS NUT	
NW-100710-NW	#10EXT LOCKWASHER, NICKEL PLTD	
PL-000000-AF	ADHESIVE FEET	
PL-000003-CP	AC CORD PROTECTOR	
PL-000007-EP	EXPORT BINDING POST PLUG	
PL-000040-PL	POT COVERS	
PL-000054-00	KNOB FAB.	
PL-000062-00	SHROUD, FAN	
PL-000064-00	INSULATOR,AC FILTER PCB	
PL-000065-00	INSULATOR, MAIN PCB	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-000067-00	GROMMET FLEX STRIP.052 MAX WHT	
SC-030000-SC	3mm x 8mm,P/P,TYPE 1,BLK. OX.	
SC-040041-PP	#4-40 X 1/4" P/P BLACK	
SC-060042-PP	#6-32 X 1/4" P/P BLACK,SEMS,IT	

PowerLight 2.0 Chassis Assy (con't)

Part Number	Description	Reference
SC-060081-PP	#6-32 X 1/2" P/P BLACK	
SC-061081-PP	#6 X 3/8" "B" P/P ZINC	
SC-080051-PL	SCREW 8-32X5/16" P/P BLK NYLOK	
SC-080051-PS	#8-32 X 5/16" P/P SEMS BLACK	
SC-080051-PU	SCREW 8-32X5/16" FH BLK NYLOK	
SC-081101-SP	#8-18 X 5/8", TYPE 1 P/P BLACK	
SC-082051-PL	SCREW,TAP,PAN PH#8X5/16" "B"BK	
SC-083061-PU	SCREW 8-18 X 3/8" FLAT HD BLK	
SW-000037-00	SWITCH, POWER DOUBLE-POLE	
WC-000016-01	CABLE ASSY 16 COND RBN,(5"LG)	J101
WC-000016-03	CABLE ASSY 16 COND RBN (15"LG)	J201
WC-000026-01	CABLE ASSY 26 COND RIB. 23" LG	
WC-000037-00	WIRE ASSY, AC SWITCH	
WC-000044-00	WIRE ASSY, BLACK, 8"	
WC-000049-00	AC PWR CORD ASSY POWERLIGHT	18
WC-000051-00	CABLE ASSY, SECONDARY	
WC-000055-00	WIRE ASSY,14GA BLK, 6.5"L	
WC-000073-00	WIRE ASSY, OUTPUT	
WC-001048-TQ	WIRE ASSY,BLACK,5.75" L.	
WP-000139-00	ASSY, PAIRED FAN 2 SP DC	
WP-000145-00	PCB ASSY PL 2.0 HV DP MAIN	
WP-000148-00	PCB ASSY INPUT PWRLT DP	
WP-000149-00	PCB ASSY DISPLAY PL 1.8 DP	
WP-000155-00	PCB ASSY AC POWERLIGHT (120V)	
WP-000160-00	PCB ASSY OUTPUT CAPACITOR	

PowerLight 3.4 Main Board Assy

Part Number	Description	Reference
CA-018001-10	CAP SM 18PF 5% 500V	C908,933,
		C939
CA-027001-10	CAP SM 27PF 10% 500V	C944
CA-047001-10	CAP CER 47PF 10% 100V NPO	C920
CA-110001-10	CAP SM 100PF, 5%, 500V	C711,714
CA-122001-10	CAP CER 220PF 10% 100V	C771,772,
		C942
CA-133001-10	CAP SM 330PF 5% 500V	C941
CA-147001-10	CAP CER 470PF 10% 100V	C749,913
CA-210002-10	CAP MYLAR .001UF 5% 100V	943
		C748,702,
CA-215002-10	CAP MYLAR .0015UF 5% 200V	C906,910
CA-222001-10	CAP MYLAR .0022UF 5% 50V	C916
CA-222002-10	.0022UF,200V,10%,MYLAR	C928,937
CA-233001-10	CAP MYLAR .0033UF 10% 100V	C701
CA-310001-10	CAP MYLAR .01UF 10% 100V	C918,929
CA-410001-00	CAP MET POLY X.1UF 20% 250VAC	C777
CA-410003-10	CAP MET POLY .1UF 10% 250V	C718,723,
		C725,726,
		C746,747,
		C752,766,
		C911,924
CA-410004-10	CAP CER .1UF 20% 50V	C737,753,
		C757,758,
		C762,953,
		C767,769,
		C770,773,
		C774,775,

PowerLight 3.4 Main Board Assy (con't)

Part Number	Description	Reference
		C907,909,
CA-410004-10	CAP CER .1UF 20% 50V	C917,931,
		C946,947,
		C950,729,
		C954,949
CA-422001-10	CAP MYLAR .22UF 5% 50V	C938
CA-447003-00	CAP POLYP .47UF 10% 400V	C709
CA-510001-10	CAP CER 1UF 20% 50V	C724,727,
		C741
CA-520200-CO	CAP POLYPROP 2UF 5% 200V	C703,708
CA-547002-10	4.7UF,16V,20% RADIAL NON-POLAR	C948,934
CA-547004-00	4.7UF 160V 10% METALIZED POLY	C732,736,
		C738,740
CA-610002-10	10UF,35V,20%,RADIAL ELECT	C739,763,
		C764,776
CA-647001-10	CAP LYTIC RL 47UF 10% 10V NP	C921,932
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	C901,902,
		C919,922,
		C923,926,
		C927
CA-710001-10	CAP LYTIC RL 100UF 20% 35V	C945,903
CA-722001-10	CAP LYTIC RL 220UF 20% 10V NP	C925
CA-722002-10	CAP LYTIC RL 220UF 20% 25V	C935,936
CA-733025-AE	330UF,25V,ELEC. RADIAL, 20%	C754,759
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	C904,905,
		C951,952
CA-747003-00	CAP LYTIC RL 470UF 20% 25V	C730
		C765,768,
		C912,914,
CA-747063-AE	CAP LYTIC RL 470UF 20% 63V	C716,717,
		C719-722,
		C733,734,
		C735,742,
		C743,744,
		C750,751,
		C755,756,
		C760,761
CA-822200-AE	CAP LYTIC RL 2200UF 20% 200V	C704,705,
		C712,713
CH-000011-00	CLAMP BR/TO3	
CH-000050-00	HEATSINK EXTRU 3.5 X 2.186	
CH-000624-AX	CLAMP TO-3 PL 6 FINGER	
CH-400003-00	CLAMP TO-220 6 FINGER	
CO-000008-IC	8 PIN IC SOCKET	REF:U903,
		U906,907
CO-000033-CO	4 PIN HEADER,METER	J901
CO-000045-CO	HEADER PCB .156 4-POS	J704
CO-000049-CO	HEADER 1 X 5 VERT	J705
CO-000056-CO	HDR LATCHING BOX 16-PIN	J906
CO-000074-00	HEADER POLARIZED 8-POS	J903
IC-000008-00	IC SMT POS STEP DRVR	U901,902
IC-000009-00	IC SMT NEG STEP DRVR	U904,905
IC-000023-00	IC CMOS 7-STG RIPPLE 74HC4024N	U703
IC-000024-00	IC REG PWM 40V 0.1A SG3525A	U702
IC-000025-00	IC MOSFET DUAL NON-INV DRVR	U701
IC-000026-00	IC LIN DUAL COMP LM 393N	U705
IC-000028-00	OSC CMOS 7.3728 MHZ 14 PIN-DIP	U704

PowerLight 3.4 Main Board Assy (con't)

Part Number	Description	Reference
IC-005532-OP	IC LIN DUAL OP AMP 5532 EX/MPA	U903,906, U907
MS-000056-00	HEATSINK TO220 BLK VERTMNT	D719,721, D724
MS-000056-00	HEATSINK TO220 BLK VERTMNT	REF:D717,
MS-000057-00	CLIP HEATSINK TO220	D719,721, D724,Q908, Q918,904
MS-000061-00	HEATSINK TO-220	REF:D717, Q918,904
PC-000191-00	PCB MAIN PL 4.0	REF: Q908,
PL-000059-00	INSULATOR MICA 1.125" X 2.000	
PL-000061-00	INSUL TO-220 18-POS SILPAD	
PL-000070-00	INSULATOR HEATSINK 3RU	
PL-000077-00	INSULATOR TO-218 .725 X .950	D719,721, D724,Q908, Q918,904
PL-903125-SP	SPACER,ROUND,NYLON,0.125"L	REF: D717, REF:R944
PL-905156-SP	SPACER,ROUND,NYLON,#6,0.155"L	LD901
PT-110000-AT	RES VAR IT 100 20% 0.15W CARB	REF:L901, VR902
PT-220000-AT	RES VAR IT 2K 20% 0.15W CARB	VR901,903
QD-000014-QD	DIODE TO220 ULTRAFAST 100V 15/	D706,712, D722,733
QD-000021-QD	1N4740 10V ZENER 1W	D919,937
QD-000022-QD	DIODE ZNR 18V 5% 1W 1N4746A	D715,731, D901
QD-000024-QD	DIODE ZNR 6.2V 5% TESTED	D930
QD-000031-QD	FET NCHAN TO220 60V 50A	Q703-708, Q710,711
QD-000040-00	DIODE BRIDGE RECT 400V 40A	BR701
QD-000041-00	DIODE PWR 2X TO220 200V 16A CC	D719
QD-000042-00	DIODE RECT ULTRAFAST 400V 3A	D702,704, D705,707
QD-000043-00	XISTOR IGBT TO-247AC 600V 55A	Q701,702
QD-000044-00	DIODE PWR 2X TO220 200V 16A CA	D721
QD-000051-10	XISTOR PNP TO-92 30V 1A	Q924
QD-000057-00	DIODE PWR 2X TO220 250V 16A CC	D717
QD-000058-00	DIODE PWR 2X TO220 250V 16A CA	D724
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5W	Q712,714, Q902,916, Q925,931, Q933,936, Q937,938, Q941
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5W	Q709,713, Q901,912, Q922,926, Q927,932, Q934,935, Q939,940
QD-000065-10	XISTOR PNP TO-92 200V .5A 1.5W	Q913
QD-000066-10	XISTOR NPN TO-92 30V 1A 1W	Q928
QD-000074-00	DIODE RECT TO220 UFAST 400V	D713,714, D718,720

PowerLight 3.4 Main Board Assy (con't)

Part Number	Description	Reference
QD-000075-10	XISTOR NPN TO-92 400V .3A 1.5W	Q914
QD-000076-00	XISTOR NPN TO-220 250V	Q908
QD-000077-00	XISTOR PNP TO-220 250V	Q918
QD-000078-10	XISTOR NPN TO-92 MPSA13	Q921
QD-000092-00	XISTOR NPN TO-220 100V 3A 40W	Q904
QD-000134-LG	LED GRN T-1 3/4	LD901
QD-0007.5-ZT	DIODE ZNR 7.5V TESTED	D913,736,
QD-0007.5-ZT	DIODE ZNR 7.5V TESTED	D939 D947,938,
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q903,905, Q906,909, Q910,911
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q915,919, Q920,923, Q929,930
QD-004004-DX	DIODE RECT DO41 400V 1A	D716,725, D726,727, D728,729, D732,738, D920,923, D924,927, D928
QD-004148-DX	DIODE SWITCH DO35 75V 75MA	D701,703, D723,730, D734,735, D737,739, D740,741, D915,916, D917,918, D921,931, D933,936, D940-943, D945,946
QD-004744-ZA	DIODE ZNR 15V 5% 1W 1N4744A	D903,904
QD-004934-DX	DIODE RECT DO41 FAST 100V 1A	D708-711, D906,910, D912,914, D934,935
QD-005402-DX	DIODE RECT DO27 200V 3A	D902,929
RE-.00101-00	RES WW 4-WIRE .01 1% 10W	R952
RE-.02205-FW	RES WW 0.22 10% 3W	R901,908, R915,917, R933,935, R957,961, R975,978, R989,994
RE-.27005-EM	RESISTOR,METAL FLM, 2.7 5% 2W	R709,712, R730,744
RE-.33005-DM	RES MOFP 3.3 5% 1W	R928,972
RE-.39005-EM	RES MOFP 3.9 5% 2W	R947
RE-.56005-BC	RES CF 5.6 5% 1/4W	R706,707, R743,718
RE-.68005-DM	RES MOFP 6.8 5% 1W	R1000
RE-000006-VP	RES PTC 60C 0.1K MAX COLD VP	R970
RE-000009-PT	RES PTC 90C 0.1K MAX COLD	R715
RE-000050-NR	THERMISTOR NTC 50 OHM	R944
RE-001005-EM	RES MOFP 10 5% 2W	R931,934,

PowerLight 3.4 Main Board Assy (con't)

Part Number	Description	Reference
		R946,948
RE-001505-CC	RES CF 15 5% 1/2W	R716,749, R983,986
RE-001505-DM	RES MOFP 15 5% 1W	R703,705
RE-002205-DM	RES MOFP 22 5% 1W	R710,711, R713,714, R726,727, R731,732, R911,981
RE-003305-BC	RES CF 33 5% 1/4W	R943
RE-004751-10	RES MF 47.5 1% 1/3W	R919,922, R936,939, R959
RE-005605-EM	56 OHM 2W 5% MET OXIDE	R700
RE-005621-AM	RES MF 56.2 1% 1/8W	R977
RE-007505-BC	RES CF 75 5% 1/4W	R721,950, R748
RE-010001-BM	RES MF 100 1% 1/4W	R1011,1012
RE-015005-BC	RES CF 150 5% 1/4W	R1024
RE-018005-CC	RES CF 180 5% 1/2W	R984,999, R747
RE-023701-BM	RES MF 237 1% 1/4W	R1005,1006
RE-027005-CC	RES CF 270 5% 1/2W	R906
RE-028001-BM	RES MF 280 1% 1/4W	R1001
RE-046401-BM	RES MF 464 1% 1/4W	R725,728, R737,940, R960,724, R969
RE-047501-BM	RES MF 475 1% 1/4W	R985,971
RE-053601-BM	RES MF 536 1% 1/4W	R913,964
RE-095301-BM	RES MF 953 1% 1/4W	R1018,907, R1022,734, R735,738
RE-116201-BM	RES MF 1.62K 1% 1/4W	R942,938, R1019,965
RE-120005-EM	RES MOFP 2K 5% 2W	R903,1015, R925
RE-122101-BM	RES MF 2.21K 1% 1/4W	R1013,720, R1014,740, R995
RE-130005-EM	RES MOFP 3K 5% 2W	R921,927
RE-134801-BM	RES MF 3.48K 1% 1/4W	R918,958 R926,930, R962,963,
RE-145301-10	RES MF 4.53K 1% 1/8W	R937,949, R973
RE-147005-DM	RES MOFP 4.7K 5% 1W	R717
RE-159001-BM	RES MF 5.90K 1% 1/4W	R1007 R954,987,
RE-171501-10	RES MF 7.15K 1% 1/8W	R723
RE-186601-BM	RES MF 8.66K 1% 1/4W	R912,916
RE-193101-BM	RES MF 9.31K 1% 1/4W	R976
RE-210001-BM	RES MF 10.0K 1% 1/4W	R1023 R704,708, R736,739, R742,979,

PowerLight 3.4 Main Board Assy (con't)

Part Number	Description	Reference
		R980,998,
RE-210005-EM	RES MOFP 10K 5% 2W	R719,945, R955
RE-212101-BM	RES MF 12.1K 1% 1/4W	R1002,1004 R1016, R1020, R902,1010,
RE-218002-00	RES MOFP 18K 5% 1W	R904
RE-221001-CM	RES MF 21.0K 1% 1/2W	R967,982, R988
RE-222005-BC	RES CF 22K 5% 1/4W	R953,996
RE-222006-BM	RES MOFP 22K 5% 1W	R905
RE-227005-BC	RES CF 27K 5% 1/4W	R729
RE-239201-BM	RES MF 39.2K 1% 1/4W	R733 R974,951,
RE-247005-BC	RES CF 47K 5% 1/4W	R746,914, R997
RE-247005-DM	RES MOFP 47K 5% 1W	R701,702, R909,910, R923,924
RE-268001-10	68K OHM, 1/4W, 5%, CARBON FILM	R990,1003
RE-293101-BM	RES MF 93.1K 1% 1/4W	R929,932
RE-297601-BM	RES MF 97.6K 1% 1/4W	R1017,956, R1021
RE-310001-00	RES MOFP 100K 5% 1W	R941
RE-312005-BC	RES CF 120K 5% 1/4W	R745
RE-318005-BC	RES CF 180K 5% 1/4W	R993
RE-333005-BC	RES CF 330K 5% 1/4W	R968,1009
RE-339005-BC	RES CF 390K 5% 1/4W	R741,991, R992
RN-110002-BM	RES NTWK 8-PIN SIP 1K 2% 4R	RN902
RN-122002-BM	RES NTWK 8-PIN SIP 2.2K 2% 4R	RN701
RN-147002-BM	RES NTWK 8-PIN SIP 4.7K 2% 4R	RN901
RN-210002-BM	RES NTWK 8-PIN SIP 10K 1% 4R	RN702
RN-247002-BM	RES NTWK 8-PIN SIP 47K 2% 4R	RN903
SC-082060-PP	#8-18X3/8""B"TYPE1 XRECESSZINC	
SC-100121-PS	#10-32 X 3/4" P/P SEMS BLACK	
WC-0.5018-JW	.5" JUMPER, WHT., 18 GA, SOLID	W701,702
WC-001102-SQ	INSUL. SLEEVE QSC 1102,.6",CLR	D910,912 L701-708,
WC-1.2518-JW	1.25" JUMPER, WHITE 18 GA, SLD	W703
WC-2.0016-JW	JMPR INS 2.0" 16AWG SOLID	REF:T701
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L701-706
XF-000006-00	XFMR GATE DRIVE PCB MNT	T702
XF-000008-00	INDUCTOR CUR SENSE PCB MNT	T701
XF-000034-00	INDUCTOR 1.9UH	L700
XF-000046-00	XFMR, PWR PL 3.4	T703
XF-200014-CR	INDUCTOR 2UH 14AWG VERT MNT	L901

PowerLight 3.4 Chassis Assy

Part Number	Description	Reference
CH-000049-00	CHAS PAN PL 4.0	
CH-000051-00	CHASSIS, TOP COVER PL 4.0	
CH-000052-00	RACK EAR, PL 4.0	
CH-000053-00	REAR EAR, PL 4.0	
CH-000054-00	CHASSIS, PL 4.0	
CH-000061-00	SHIELD, AC FILTER	
CO-000011-00	CONN DUAL 5-WAY BIND RD/BLK R	
CO-000012-00	CONN DUAL 5-WAY BIND RD/BLK L	
HW-060090-SO	#6-32 X 9/16" HEX STANDOFF	
LB-000054-00	LABEL, WARNING, TOP COVER	
LB-000077-00	LABEL,WARNING,HIGH ENERGY	
LB-000151-00	LBL, FACEPLATE, PL 4.0 DP	
LB-000152-00	LABEL, REAR, IN/OUT PL 4.0DP	
LB-000172-00	LABEL,FACEPLATE,LT,PL 3.4	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	
LB-160226-05	LABEL, FUSE, UL CAUT. 25A 125V	
MS-000004-AF	3X3/8 X 1/32 BLK ADHESIVE FELT	
MS-000072-00	GUARD FAN 4.55" WIRE BLK	
NW-060410-ET	#6 EXTERNAL TOOTH LOCKWASHER	
NW-062010-FW	#6 FLT WSHR,SAE,ZINC,3/64 THK	
NW-080001-NW	#8 EXT TOOTH LOCKWASHER, ZINC	
NW-080002-00	WASHER,#8 FLAT .049 TH,SS,BLK	
NW-080500-KP	#8-32 KEPS NUT	
NW-100710-NW	#10EXT LOCKWASHER, NICKEL PLTD	
PL-000000-AF	ADHESIVE FEET	
PL-000003-CP	AC CORD PROTECTOR	
PL-000040-PL	POT COVERS	
PL-000045-PL	RIVET, PLASTIC, SCREW TYPE	
PL-000054-00	KNOB FAB.	
PL-000065-00	INSULATOR, MAIN PCB	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-000071-00	INSULATOR, AC FILTER 3 RU	
PL-000073-00	FAN SHROUD	
SC-030060-SC	3mm x 8mm,P/P,TYPE 1,BLK. OX.	
SC-040041-PP	#4-40 X 1/4" P/P BLACK	
SC-060042-PP	#6-32 X 1/4" P/P BLACK,SEMS,IT	
SC-060061-PP	#6-32 X 3/8" P/P BLACK	
SC-060081-PP	#6-32 X 1/2" P/P BLACK	
SC-060101-PP	SCREW 6-32 X 5/8" P/P BLK	
SC-080051-PL	SCREW 8-32X5/16" P/P BLK NYLOK	
SC-080051-PS	#8-32 X 5/16" P/P SEMS BLACK	
SC-080051-PU	SCREW 8-32X5/16" FH BLK NYLOK	
SC-081101-SP	#8-18 X 5/8", TYPE 1 P/P BLACK	
SC-082051-PL	SCREW,TAP,PAN PH#8X5/16" "B"BK	
SC-082081-PP	SCREW 8-18X1/2" BLK STL BP PH	
SW-000037-00	SWITCH, POWER DOUBLE-POLE	
WC-000016-01	CABLE ASSY 16 COND RBN,(5"LG)	
WC-000016-02	CABLE ASSY 16 COND RBN (8"LG)	
WC-000026-01	CABLE ASSY 26 COND RIB. 23" LG	
WC-000044-00	WIRE ASSY, BLACK, 8"	
WC-000055-00	WIRE ASSY,14GA BLK, 6.5"L	
WC-000066-00	CABLE ASSY, SECONDARY	
WC-000067-00	CABLE ASSY, OUTPUT	
WC-000068-00	CABLE ASSY, AC SWITCH/FILTER	
WC-000090-00	AC CORD ASSY PL 3.4	
WP-000149-00	PCB ASSY DISPLAY PL 1.8 DP	
WP-000160-00	PCB ASSY OUTPUT CAPACITOR	

PowerLight 3.4 Chassis Assy

Part Number	Description	Reference
WP-000194-00	PCB ASSY AC PL 4.0 (120V)	
WP-000199-00	PCB ASSY INPUT PL 3.4/4.0	
WP-000291-00	PCB ASSY, MAIN, PL 3.4	
WP-000946-00	FAN ASSY, CX6(T)/12(T)/PL 4.0	

PowerLight 4.0 Main Board Assy

Part Number	Description	Reference
CA-018001-10	CAP SM 18PF 5% 500V	C908,933, C939
CA-027001-10	CAP SM 27PF 10% 500V	C944
CA-047001-10	CAP CER 47PF 10% 100V NPO	C920
CA-110001-10	CAP SM 100PF, 5%, 500V	C711,714
CA-122001-10	CAP CER 220PF 10% 100V	C771,772, C942
CA-133001-10	CAP SM 330PF 5% 500V	C941
CA-147001-10	CAP CER 470PF 10% 100V	C749,913
CA-210002-10	CAP MYLAR .001UF 5% 100V	943 C748,702,
CA-215002-10	CAP MYLAR .0015UF 5% 200V	C906,910
CA-222001-10	CAP MYLAR .0022UF 5% 50V	C916
CA-222002-10	.0022UF,200V,10%,MYLAR	C928,937
CA-233001-10	CAP MYLAR .0033UF 10% 100V	C701
CA-310001-10	CAP MYLAR .01UF 10% 100V	C918,929
CA-410001-00	CAP MET POLY X.1UF 20% 250VAC	C777
CA-410003-10	CAP MET POLY .1UF 10% 250V	C718,723, C725,726, C746,747, C752,766, C911,924
CA-410004-10	CAP CER .1UF 20% 50V	C737,753, C757,758, C762,953, C767,769, C770,773, C774,775, C907,909, C917,931, C946,947, C950,729, C954,949
CA-422001-10	CAP MYLAR .22UF 5% 50V	C938
CA-447003-00	CAP POLYP .47UF 10% 400V	C709
CA-510001-10	CAP CER 1UF 20% 50V	C724,727, C741
CA-520200-CO	CAP POLYPROP 2UF 5% 200V	C703,708
CA-547002-10	4.7UF,16V,20% RADIAL NON-POLAR	C948,934
CA-547004-00	4.7UF 160V 10% METALIZED POLY	C732,736, C738,740
CA-610002-10	10UF,35V,20%,RADIAL ELECT	C739,763, C764,776
CA-647001-10	CAP LYTIC RL 47UF 10% 10V NP	C921,932
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	C901,902, C919,922,
CA-647002-10	CAP LYTIC RL 47UF 20% 50V	C923,926, C927
CA-710001-10	CAP LYTIC RL 100UF 20% 35V	C945,903

PowerLight 4.0 Main Board Assy (con't)

Part Number	Description	Reference
CA-722001-10	CAP LYTIC RL 220UF 20% 10V NP	C925
CA-722002-10	CAP LYTIC RL 220UF 20% 25V	C935,936
CA-733025-AE	330UF,25V,ELEC. RADIAL, 20%	C754,759
CA-747001-10	CAP LYTIC RL 470UF 20% 16V	C904,905,
		C951,952
CA-747003-00	CAP LYTIC RL 470UF 20% 25V	C730
		C765,768,
		C912,914,
CA-747063-AE	CAP LYTIC RL 470UF 20% 63V	C716,717,
		C719-722,
		C733,734,
		C735,742,
		C743,744,
		C750,751,
		C755,756,
		C760,761
CA-822200-AE	CAP LYTIC RL 2200UF 20% 200V	C704,705,
		C712,713
CH-000011-00	CLAMP BR/TO3	
CH-000050-00	HEATSINK EXTRU 3.5 X 2.186	
CH-000624-AX	CLAMP TO-3 PL 6 FINGER	
CH-400003-00	CLAMP TO-220 6 FINGER	
CO-000008-IC	8 PIN IC SOCKET	REF:U903,
		U906,907
CO-000033-CO	4 PIN HEADER,METER	J901
CO-000045-CO	HEADER PCB .156 4-POS	J704
CO-000049-CO	HEADER 1 X 5 VERT	J705
CO-000056-CO	HDR LATCHING BOX 16-PIN	J906
CO-000074-00	HEADER POLARIZED 8-POS	J903
IC-000008-00	IC SMT POS STEP DRVR	U901,902
IC-000009-00	IC SMT NEG STEP DRVR	U904,905
IC-000023-00	IC CMOS 7-STG RIPPLE 74HC4024N	U703
IC-000024-00	IC REG PWM 40V 0.1A SG3525A	U702
IC-000025-00	IC MOSFET DUAL NON-INV DRVR	U701
IC-000026-00	IC LIN DUAL COMP LM 393N	U705
IC-000028-00	OSC CMOS 7.3728 MHZ 14 PIN-DIP	U704
IC-005532-OP	IC LIN DUAL OP AMP 5532 EX/MPA	U903,906,
		U907
MS-000056-00	HEATSINK TO220 BLK VERTMNT	D719,721,
		D724
		REF:D717,
MS-000057-00	CLIP HEATSINK TO220	D719,721,
		D724,Q908,
		Q918,904
		REF:D717,
MS-000061-00	HEATSINK TO-220	Q918,904
		REF: Q908,
PC-000191-00	PCB MAIN PL 4.0	
PL-000059-00	INSULATOR MICA 1.125" X 2.000	Q702
		REF:Q701,
PL-000061-00	INSUL TO-220 18-POS SILPAD	
PL-000070-00	INSULATOR HEATSINK 3RU	
PL-000077-00	INSULATOR TO-218 .725 X .950	D719,721,
		D724,Q908,
		Q918,904
		REF:D717,
PL-903125-SP	SPACER,ROUND,NYLON,0.125"L	REF:R944

PowerLight 4.0 Main Board Assy (con't)

Part Number	Description	Reference
PL-905156-SP	SPACER,ROUND,NYLON,#6,0.155"L	LD901
		REF:L901,
PT-110000-AT	RES VAR IT 100 20% 0.15W CARB	VR902
PT-220000-AT	RES VAR IT 2K 20% 0.15W CARB	VR901,903
QD-000014-QD	DIODE TO220 ULTRAFAST 100V 15/	D706,712,
		D722,733
QD-000021-QD	1N4740 10V ZENER 1W	D919,937
QD-000022-QD	DIODE ZNR 18V 5% 1W 1N4746A	D715,731,
		D901
QD-000024-QD	DIODE ZNR 6.2V 5% TESTED	D930
QD-000031-QD	FET NCHAN TO220 60V 50A	Q703-708,
		Q710,711
QD-000040-00	DIODE BRIDGE RECT 400V 40A	BR701
QD-000041-00	DIODE PWR 2X TO220 200V 16A CC	D719
QD-000042-00	DIODE RECT ULTRAFAST 400V 3A	D702,704,
		D705,707
QD-000043-00	XISTOR IGBT TO-247AC 600V 55A	Q701,702
QD-000044-00	DIODE PWR 2X TO220 200V 16A CA	D721
QD-000051-10	XISTOR PNP TO-92 30V 1A	Q924
QD-000057-00	DIODE PWR 2X TO220 250V 16A CC	D717
QD-000058-00	DIODE PWR 2X TO220 250V 16A CA	D724
QD-000062-10	XISTOR NPN TO-92 40V 0.2A 1.5W	Q712,714,
		Q902,916,
		Q925,931,
		Q933,936,
		Q937,938,
		Q941
QD-000063-10	XISTOR PNP TO-92 40V 0.2A 1.5W	Q709,713,
		Q901,912,
		Q922,926,
		Q927,932,
		Q934,935,
		Q939,940
QD-000065-10	XISTOR PNP TO-92 200V .5A 1.5W	Q913
QD-000066-10	XISTOR NPN TO-92 30V 1A 1W	Q928
QD-000074-00	DIODE RECT TO220 UFAST 400V	D713,714,
		D718,720
QD-000075-10	XISTOR NPN TO-92 400V .3A 1.5W	Q914
QD-000076-00	XISTOR NPN TO-220 250V	Q908
QD-000077-00	XISTOR PNP TO-220 250V	Q918
QD-000078-10	XISTOR NPN TO-92 MPSA13	Q921
QD-000092-00	XISTOR NPN TO-220 100V 3A 40W	Q904
QD-000134-LG	LED GRN T-1 3/4	LD901
QD-0007.5-ZT	DIODE ZNR 7.5V TESTED	D913,736,
		D939
		D947,938,
QD-001302-PN	XISTOR PNP TO-3P 200V 15A	Q903,905,
		Q906,909,
		Q910,911
QD-003281-NP	XISTOR NPN TO-3P 200V 15A	Q915,919,
		Q920,923,
		Q929,930
QD-004004-DX	DIODE RECT DO41 400V 1A	D716,725,
		D726,727,
		D728,729,
		D732,738,
		D920,923,

PowerLight 4.0 Main Board Assy (con't)

Part Number	Description	Reference
		D924,927,
		D928
QD-004148-DX	DIODE SWITCH DO35 75V 75MA	D701,703,
QD-004148-DX	DIODE SWITCH DO35 75V 75MA	D723,730,
		D734,735,
		D737,739,
		D740,741,
		D915,916,
		D917,918,
		D921,931,
		D933,936,
		D940-943,
		D945,946
QD-004744-ZA	DIODE ZNR 15V 5% 1W 1N4744A	D903,904
QD-004934-DX	DIODE RECT DO41 FAST 100V 1A	D708-711,
		D906,910,
		D912,914,
		D934,935
QD-005402-DX	DIODE RECT DO27 200V 3A	D902,929
RE-.00101-00	RES WW 4-WIRE .01 1% 10W	R952
RE-.02205-FW	RES WW 0.22 10% 3W	R901,908,
		R915,917,
		R933,935,
		R957,961,
		R975,978,
		R989,994
RE-.27005-EM	RESISTOR,METAL FLM, 2.7 5% 2W	R709,712,
		R730,744
RE-.33005-DM	RES MOFP 3.3 5% 1W	R928,972
RE-.39005-EM	RES MOFP 3.9 5% 2W	R947
RE-.56005-BC	RES CF 5.6 5% 1/4W	R706,707,
		R743,718
RE-.68005-DM	RES MOFP 6.8 5% 1W	R1000
RE-000006-VP	RES PTC 60C 0.1K MAX COLD VP	R970
RE-000009-PT	RES PTC 90C 0.1K MAX COLD	R715
RE-000050-NR	THERMISTOR NTC 50 OHM	R944
RE-001005-EM	RES MOFP 10 5% 2W	R931,934,
		R946,948
RE-001505-CC	RES CF 15 5% 1/2W	R716,749,
		R983,986
RE-001505-DM	RES MOFP 15 5% 1W	R703,705
RE-002205-DM	RES MOFP 22 5% 1W	R710,711,
		R713,714,
		R726,727,
		R731,732,
		R911,981
RE-003305-BC	RES CF 33 5% 1/4W	R943
RE-004751-10	RES MF 47.5 1% 1/3W	R919,922,
		R936,939,
		R959
RE-005605-EM	56 OHM 2W 5% MET OXIDE	R700
RE-005621-AM	RES MF 56.2 1% 1/8W	R977
RE-007505-BC	RES CF 75 5% 1/4W	R721,950,
		R748
RE-010001-BM	RES MF 100 1% 1/4W	R1011,1012
RE-015005-BC	RES CF 150 5% 1/4W	R1024
		R984,999,

PowerLight 4.0 Main Board Assy (con't)

Part Number	Description	Reference
RE-018005-CC	RES CF 180 5% 1/2W	R747
RE-023701-BM	RES MF 237 1% 1/4W	R1005,1006
RE-027005-CC	RES CF 270 5% 1/2W	R906
RE-028001-BM	RES MF 280 1% 1/4W	R1001
		R725,728,
		R737,940,
RE-046401-BM	RES MF 464 1% 1/4W	R960,724,
		R969
RE-047501-BM	RES MF 475 1% 1/4W	R985,971
RE-053601-BM	RES MF 536 1% 1/4W	R913,964
RE-095301-BM	RES MF 953 1% 1/4W	R1018,734,
		R1022,735,
		R738,907
		R942,938,
RE-116201-BM	RES MF 1.62K 1% 1/4W	R1019,965
		R903,1015,
RE-122101-BM	RES MF 2.21K 1% 1/4W	R1013,720,
		R1014,740,
		R995
RE-130005-EM	RES MOFP 3K 5% 2W	R921,925,
		R927
RE-134801-BM	RES MF 3.48K 1% 1/4W	R918,958
		R926,930,
		R962,963,
RE-145301-10	RES MF 4.53K 1% 1/8W	R937,949,
		R973
RE-147005-DM	RES MOFP 4.7K 5% 1W	R717
RE-159001-BM	RES MF 5.90K 1% 1/4W	R1007
		R954,987,
RE-171501-10	RES MF 7.15K 1% 1/8W	R723
RE-186601-BM	RES MF 8.66K 1% 1/4W	R912,916
RE-193101-BM	RES MF 9.31K 1% 1/4W	R976
RE-210001-BM	RES MF 10.0K 1% 1/4W	R1023
		R704,708,
		R736,739,
		R742,979,
		R980,998,
RE-210005-EM	RES MOFP 10K 5% 2W	R719,945,
		R955
RE-212101-BM	RES MF 12.1K 1% 1/4W	R1002,1004
		R1016,
		R1020,
		R902,1010,
RE-221001-CM	RES MF 21.0K 1% 1/2W	R967,982,
		R988
RE-222005-BC	RES CF 22K 5% 1/4W	R953,996
RE-222006-BM	RES MOFP 22K 5% 1W	R904,905
RE-227005-BC	RES CF 27K 5% 1/4W	R729
RE-239201-BM	RES MF 39.2K 1% 1/4W	R733
		R974,951,
RE-247005-BC	RES CF 47K 5% 1/4W	R746,914,
		R997
RE-247005-DM	RES MOFP 47K 5% 1W	R701,702,
		R909,910,
		R923,924
RE-268001-10	68K OHM, 1/4W, 5%, CARBON FILM	R990,1003
RE-293101-BM	RES MF 93.1K 1% 1/4W	R929,932

PowerLight 4.0 Main Board Assy (con't)

Part Number	Description	Reference
RE-297601-BM	RES MF 97.6K 1% 1/4W	R1017,956, R1021
RE-312005-BC	RES CF 120K 5% 1/4W	R745
RE-318005-BC	RES CF 180K 5% 1/4W	R993
RE-333005-BC	RES CF 330K 5% 1/4W	R968,1009
RE-339005-BC	RES CF 390K 5% 1/4W	R741,991, R992
RN-110002-BM	RES NTWK 8-PIN SIP 1K 2% 4R	RN902
RN-122002-BM	RES NTWK 8-PIN SIP 2.2K 2% 4R	RN701
RN-147002-BM	RES NTWK 8-PIN SIP 4.7K 2% 4R	RN901
RN-210002-BM	RES NTWK 8-PIN SIP 10K 1% 4R	RN702
RN-247002-BM	RES NTWK 8-PIN SIP 47K 2% 4R	RN903
SC-082060-PP	#8-18X3/8""B"TYPE1 XRECESSZINC	
SC-100121-PS	#10-32 X 3/4" P/P SEMS BLACK	
WC-0.5018-JW	.5" JUMPER, WHT., 18 GA, SOLID	W701,702
WC-001102-SQ	INSUL. SLEEVE QSC 1102,.6",CLR	D910,912, L701-706, R715
WC-1.2518-JW	1.25" JUMPER, WHITE 18 GA, SLD	W703
WC-2.0016-JW	JMPR INS 2.0" 16AWG SOLID	REF:T701
XF-000005-00	BEAD FERRITE W/20AWG LEAD	L701-706
XF-000006-00	XFMR GATE DRIVE PCB MNT	T702
XF-000008-00	INDUCTOR CUR SENSE PCB MNT	T701
XF-000033-00	XFMR 700W PL 4.0	T703
XF-000034-00	INDUCTOR 1.9UH	L700
XF-000035-00	*XFMR PL 4.0 (100V)*	
XF-200014-CR	INDUCTOR 2UH 14AWG VERT MNT	L901

PowerLight 4.0 Chassis Assy

Part Number	Description	Reference
CH-000049-00	CHAS PAN PL 4.0	
CH-000051-00	CHASSIS, TOP COVER PL 4.0	
CH-000052-00	RACK EAR, PL 4.0	
CH-000053-00	REAR EAR, PL 4.0	
CH-000054-00	CHASSIS, PL 4.0	
CH-000061-00	SHIELD, AC FILTER	
CO-000011-00	CONN DUAL 5-WAY BIND RD/BLK R	
CO-000012-00	CONN DUAL 5-WAY BIND RD/BLK L	
HW-060090-SO	#6-32 X 9/16" HEX STANDOFF	
LB-000054-00	LABEL, WARNING, TOP COVER	
LB-000077-00	LABEL,WARNING,HIGH ENERGY	
LB-000109-00	LABEL, FACEPLATE,LT, PL 4.0	
LB-000151-00	LBL, FACEPLATE, PL 4.0 DP	
LB-000152-00	LABEL, REAR, IN/OUT PL 4.0DP	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	
LB-160226-05	LABEL, FUSE, UL CAUT. 25A 125V	
MS-000004-AF	3X3/8 X 1/32 BLK ADHESIVE FELT	
MS-000072-00	GUARD FAN 4.55" WIRE BLK	
NW-000021-03	WASHER FLAT AL BLK ANODIZED	
NW-060410-ET	#6 EXTERNAL TOOTH LOCKWASHER	
NW-062010-FW	#6 FLT WSHR,SAE,ZINC,3/64 THK	
NW-080001-NW	#8 EXT TOOTH LOCKWASHER, ZINC	
NW-080002-00	WASHER,#8 FLAT .049 TH,SS,BLK	
NW-080500-KP	#8-32 KEPS NUT	
NW-100710-NW	#10EXT LOCKWASHER, NICKEL PLTD	
PL-000000-AF	ADHESIVE FEET	

PowerLight 4.0 Chassis Assy

Part Number	Description	Reference
PL-000040-PL	POT COVERS	
PL-000045-PL	RIVET, PLASTIC, SCREW TYPE	
PL-000054-00	KNOB FAB.	
PL-000065-00	INSULATOR, MAIN PCB	
PL-000066-00	CLIP XMAS-TREE SLG HEAD FASTEX	
PL-000071-00	INSULATOR, AC FILTER 3 RU	
PL-000073-00	FAN SHROUD	
SC-030000-SC	3mm x 8mm,P/P,TYPE 1,BLK. OX.	
SC-040041-PP	#4-40 X 1/4" P/P BLACK	
SC-060042-PP	#6-32 X 1/4" P/P BLACK,SEMS,IT	
SC-060061-PP	#6-32 X 3/8" P/P BLACK	
SC-060081-PP	#6-32 X 1/2" P/P BLACK	
SC-060101-PP	SCREW 6-32 X 5/8" P/P BLK	
SC-080051-PL	SCREW 8-32X5/16" P/P BLK NYLOK	
SC-080051-PS	#8-32 X 5/16" P/P SEMS BLACK	
SC-080051-PU	SCREW 8-32X5/16" FH BLK NYLOK	
SC-081101-SP	#8-18 X 5/8", TYPE 1 P/P BLACK	
SC-082051-PL	SCREW,TAP,PAN PH#8X5/16" "B"BK	
SC-082081-PP	SCREW 8-18X1/2" BLK STL BP PH	
SW-000037-00	SWITCH, POWER DOUBLE-POLE	
WC-000016-01	CABLE ASSY 16 COND RBN,(5"LG)	
WC-000016-02	CABLE ASSY 16 COND RBN (8"LG)	
WC-000026-01	CABLE ASSY 26 COND RIB. 23" LG	
WC-000044-00	WIRE ASSY, BLACK, 8"	
WC-000055-00	WIRE ASSY,14GA BLK, 6.5"L	
WC-000056-00	POWER CORD 10GA	
WC-000066-00	CABLE ASSY, SECONDARY	
WC-000067-00	CABLE ASSY, OUTPUT	
WC-000068-00	CABLE ASSY, AC SWITCH/FILTER	
WP-000149-00	PCB ASSY DISPLAY PL 1.8 DP	
WP-000160-00	PCB ASSY OUTPUT CAPACITOR	
WP-000191-00	PCB ASSY MN AMP PL 4.0	
WP-000193-00	SOB-PCB ASSY INPUT PL 4.0	
WP-000194-00	PCB ASSY AC PL 4.0 (120V)	
WP-000946-00	FAN ASSY, CX6(T)/12(T)/PL 4.0	

PowerLight 1.0 Voltage Conversion (120V)

230VAC to 120VAC

Part Number	Description	Reference
WP-000155-00	PCB ASSY AC POWERLIGHT (120V)	
WC-000049-00	AC PWR CORD ASSY POWERLIGHT 18	
MS-000050-MS	FUSE, 20A, 250V	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	

PowerLight 1.0 Voltage Conversion (230V)

120VAC to 230VAC

Part Number	Description	Reference
WP-000156-00	AC PCB POWERLIGHT (230V)	
WC-000054-00	CORDSET 3-COND 220-230 VAC 10A	
PL-000055-00	EXPORT BINDING POST PLUG(RED)	
PL-000056-00	EXPORT BINDING POST PLUG(BLK)	
MS-150250-FU	15A, 250V, FUSE	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	

PowerLight 1.0 Voltage Conversion (100V)

120VAC or 230VAC to 100VAC

Part Number	Description	Reference
	Not Available	

PowerLight 1.4 Voltage Conversion (120V)

230VAC to 120VAC

Part Number	Description	Reference
WP-000155-00	PCB ASSY AC POWERLIGHT (120V)	
WC-000049-00	AC PWR CORD ASSY POWERLIGHT 18	
MS-000050-MS	FUSE, 20A, 250V	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	

PowerLight 1.4 Voltage Conversion (230V)

120VAC to 230VAC

Part Number	Description	Reference
WP-000156-00	AC PCB POWERLIGHT (230V)	
WC-000054-00	CORDSET 3-COND 220-230 VAC 10A	
PL-000055-00	EXPORT BINDING POST PLUG(RED)	
PL-000056-00	EXPORT BINDING POST PLUG(BLK)	
MS-150250-FU	15A, 250V, FUSE	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	

PowerLight 1.4 Voltage Conversion (100V)

120VAC or 230VAC to 100VAC

Part Number	Description	Reference
	Not Available	

PowerLight 1.8 Voltage Conversion (120V)

230VAC to 120VAC

Part Number	Description	Reference
WP-000155-00	PCB ASSY AC POWERLIGHT (120V)	
WC-000049-00	AC PWR CORD ASSY POWERLIGHT 18	
MS-000086-00	FUSE 3AB 25A 125V	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	

PowerLight 1.8 Voltage Conversion (230V)

120VAC to 230VAC

Part Number	Description	Reference
WP-000156-00	AC PCB POWERLIGHT (230V)	
WC-000054-00	CORDSET 3-COND 220-230 VAC 10A	
PL-000055-00	EXPORT BINDING POST PLUG(RED)	
PL-000056-00	EXPORT BINDING POST PLUG(BLK)	
MS-150250-FU	15A, 250V, FUSE	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	

PowerLight 1.8 Voltage Conversion (100V)

120VAC or 230VAC to 100VAC

Part Number	Description	Reference
	Not Available	

PowerLight 2.0 Voltage Conversion (120V)

230VAC to 120VAC

Part Number	Description	Reference
WP-000155-00	PCB ASSY AC POWERLIGHT (120V)	
WC-000049-00	AC PWR CORD ASSY POWERLIGHT 18	
MS-000086-00	FUSE 3AB 25A 125V	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	

PowerLight 2.0 Voltage Conversion (230V)

120VAC to 230VAC

Part Number	Description	Reference
WP-000156-00	AC PCB POWERLIGHT (230V)	
WC-000054-00	CORDSET 3-COND 220-230 VAC 10A	
PL-000055-00	EXPORT BINDING POST PLUG(RED)	
PL-000056-00	EXPORT BINDING POST PLUG(BLK)	
MS-150250-FU	15A, 250V, FUSE	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	

PowerLight 2.0 Voltage Conversion (100V)

120VAC or 230VAC to 100VAC

Part Number	Description	Reference
	Not Available	

PowerLight 3.4 Voltage Conversion (120V)

100VAC or 230VAC to 120VAC

Part Number	Description	Reference
WP-000194-00	PCB ASSY AC PL 4.0 (120V)	
WC-000090-00	AC CORD ASSY PL 3.4	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	

PowerLight 3.4 Voltage Conversion (100V)

120VAC or 230VAC to 100VAC

Part Number	Description	Reference
	Not available	

PowerLight 4.0 Voltage Conversion (230V)

120VAC or 100VAC to 230VAC

Part Number	Description	Reference
WP-000194-02	PCB ASSY AC PL 4.0 (230V)	
WC-000021-00	CABLE ASSY, IEC/AC FILTER	
WC-000022-00	CORD SET 3 COND 16A 250VAC	
PL-000055-00	EXPORT BINDING POST PLUG(RED)	
PL-000056-00	EXPORT BINDING POST PLUG(BLK)	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	

PowerLight 3.4 Voltage Conversion (230V)

120VAC or 100VAC to 230VAC

Part Number	Description	Reference
WP-000194-02	PCB ASSY AC PL 4.0 (230V)	
WC-000021-00	CABLE ASSY, IEC/AC FILTER	
WC-000022-00	CORD SET 3 COND 16A 250VAC	
PL-000055-00	EXPORT BINDING POST PLUG(RED)	
PL-000056-00	EXPORT BINDING POST PLUG(BLK)	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	

PowerLight 4.0 Voltage Conversion (120V)

100VAC or 230VAC to 120VAC

Part Number	Description	Reference
WP-000194-00	PCB ASSY AC PL 4.0 (120V)	
WC-000056-00	POWER CORD 10GA	
LB-000174-00	LABEL,REAR,AC,5 MODELS PL DP	

PowerLight 4.0 Voltage Conversion (100V)

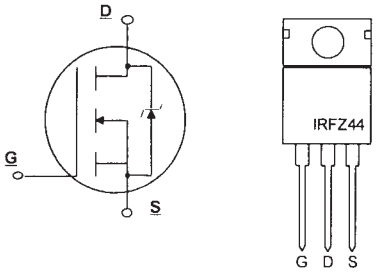
120VAC or 230VAC to 100VAC

Part Number	Description	Reference
	Not available	

PowerLight
Semiconductor Identification

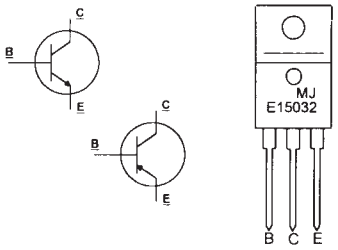
TMOS FET IRFZ44

TMOS Power Field Effect Transistor



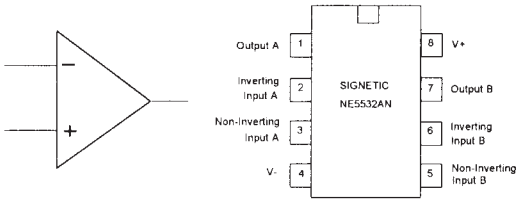
DRIVER TRANSISTORS

MJE15032 NPN / MJE15033 PNP



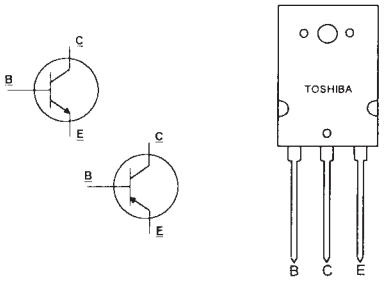
OP-AMP NE5532AN

Dual Operational Amplifier



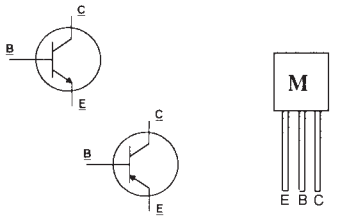
POWER TRANSISTORS

2SC3281 NPN / 2SA1302 PNP



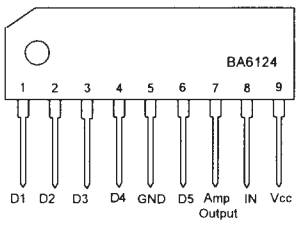
SMALL SIGNAL TRANSISTORS

2N4410 NPN / MPS8599 PNP



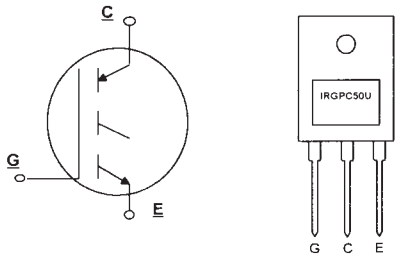
LED DRIVER BA6124

5 Point LED VU Level Meter Driver

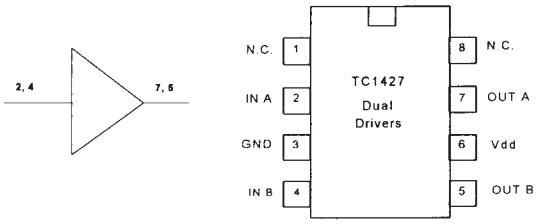


PowerLight
Semiconductor Identification

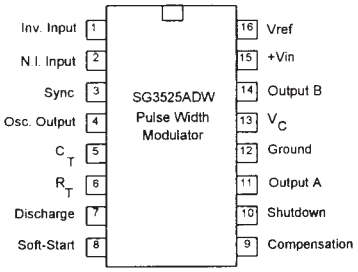
IGBT IRGPC50U
Insulated Gate Bipolar Transistor



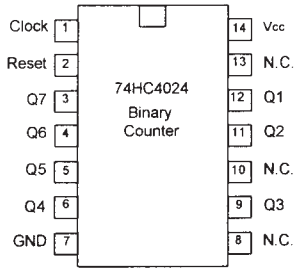
MOSFET DRIVER TC1427CPA
1.2a Dual High Speed Mosfet Drivers



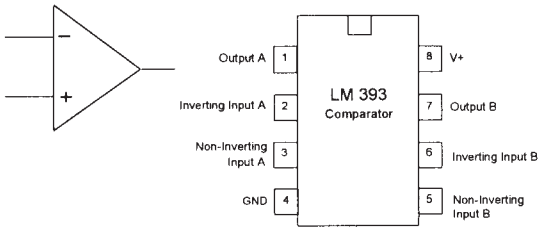
PWM SG3525AN
Regulating Pulse Width Modulator



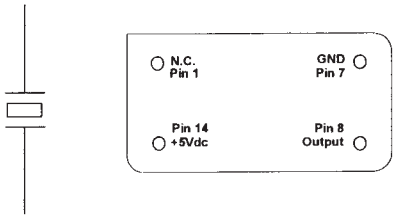
CMOS COUNTER 74HC4024
7-Stage Binary Ripple Counter

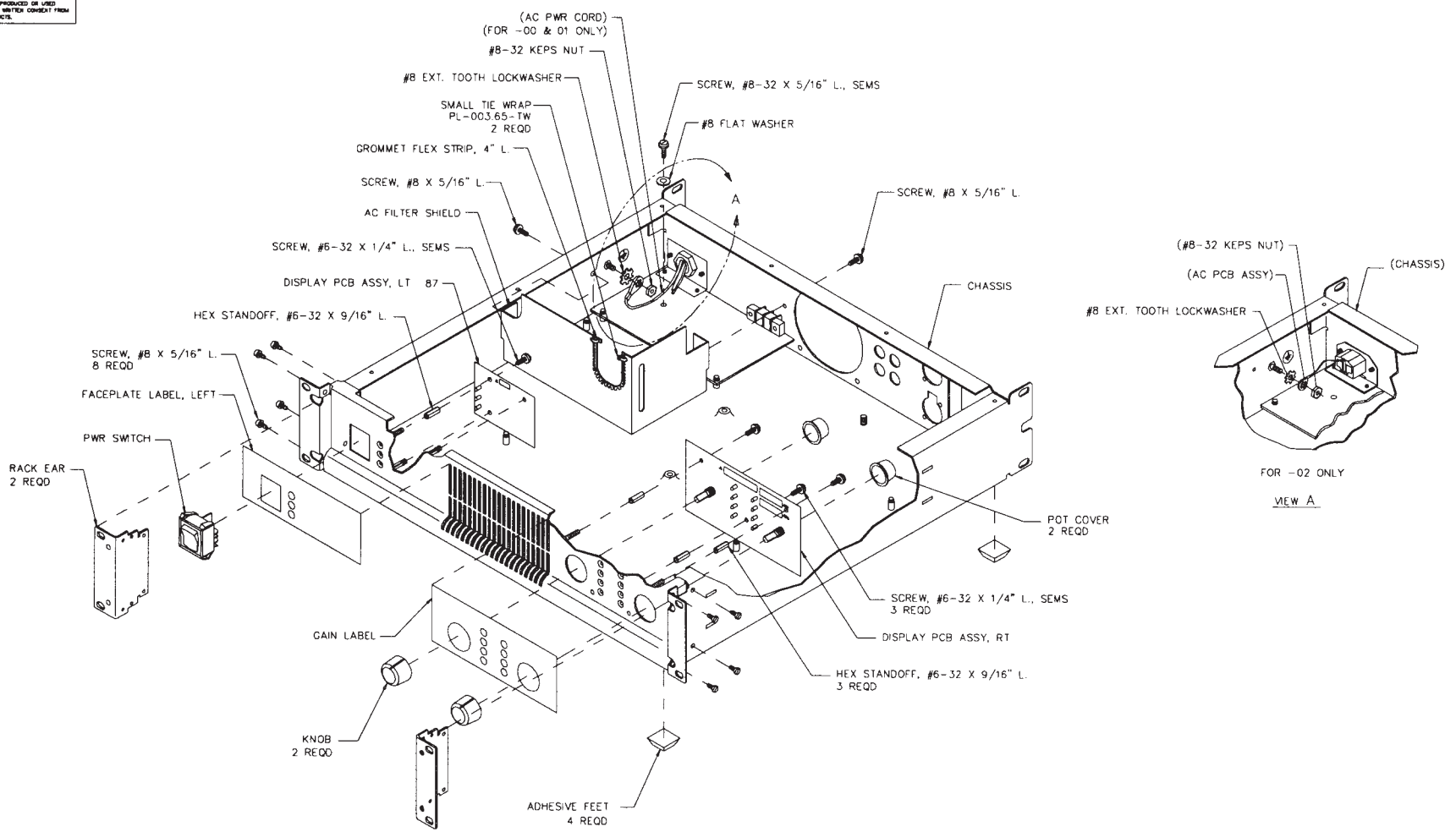


COMPARATOR LM393NE
Low Power Dual Comparators

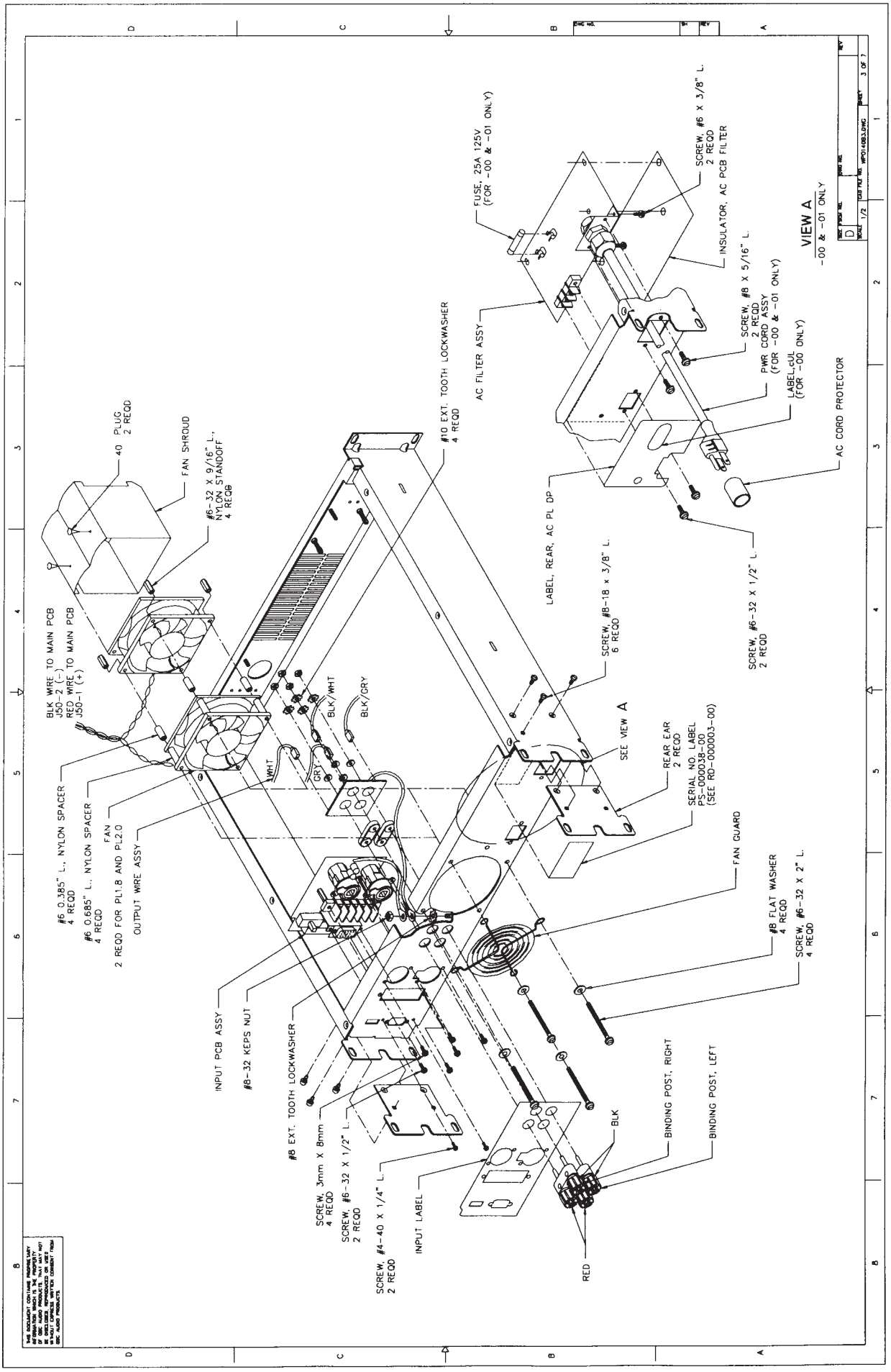


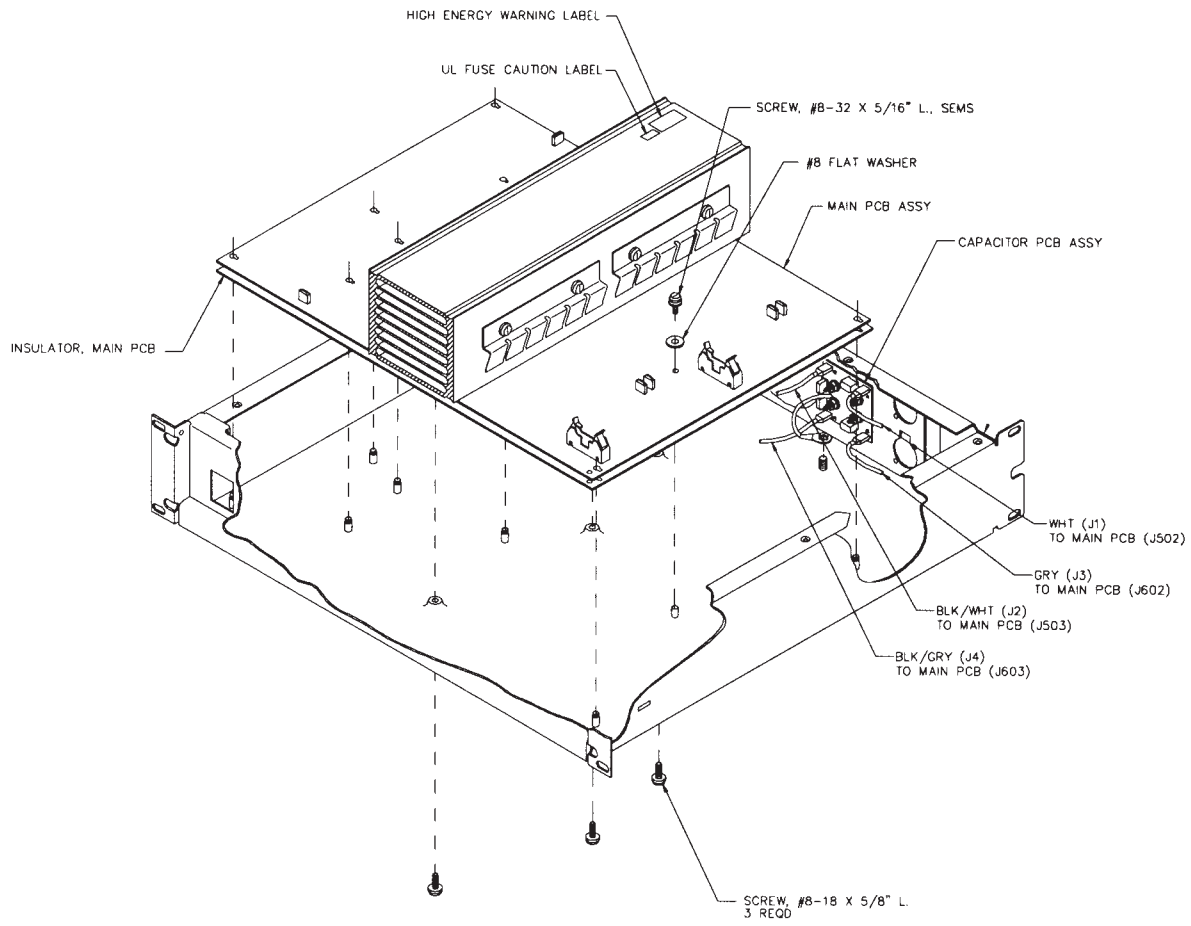
CMOS CRYSTAL 970H2B2A
6.144MHz Crystal Oscillator



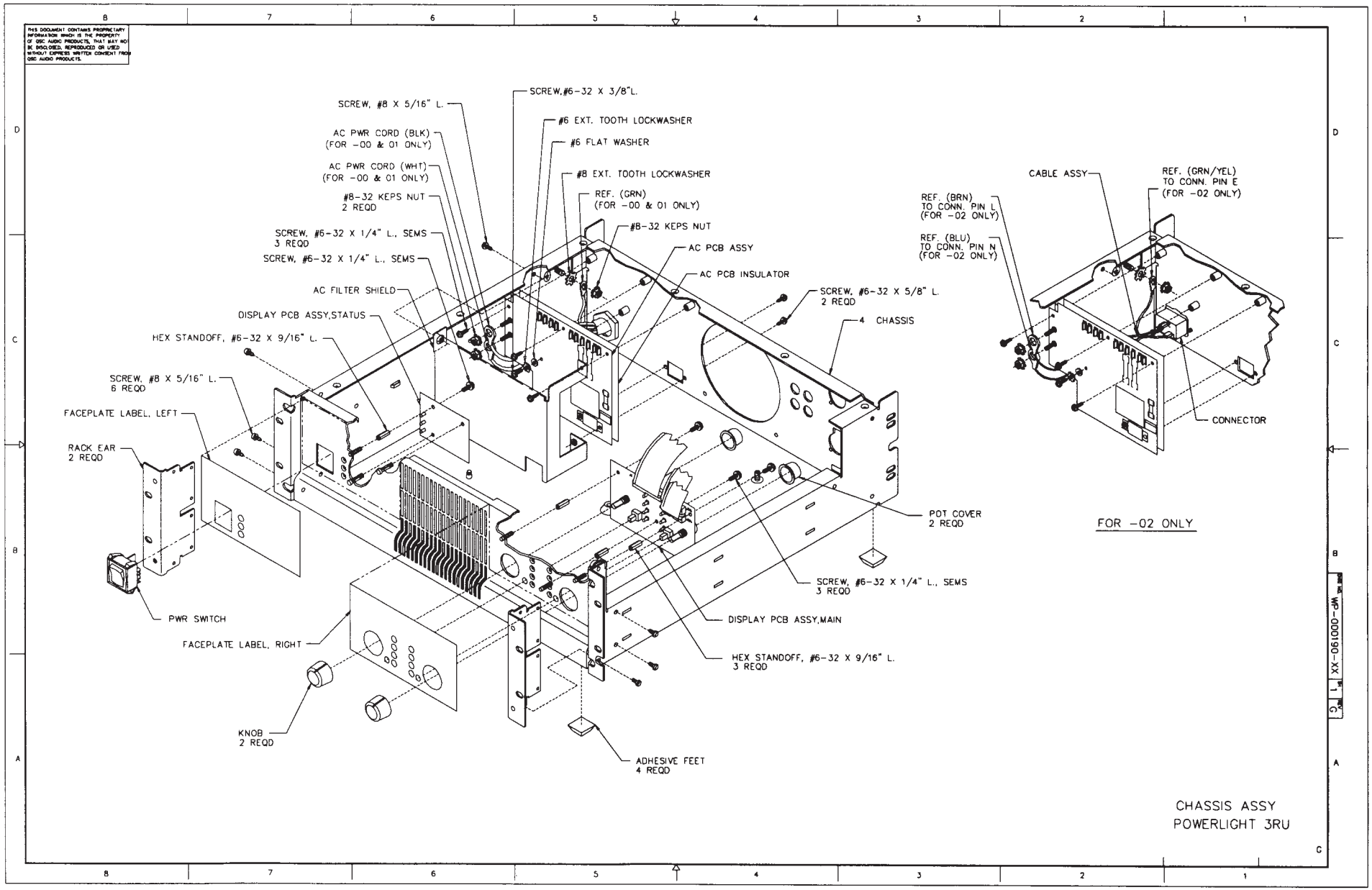


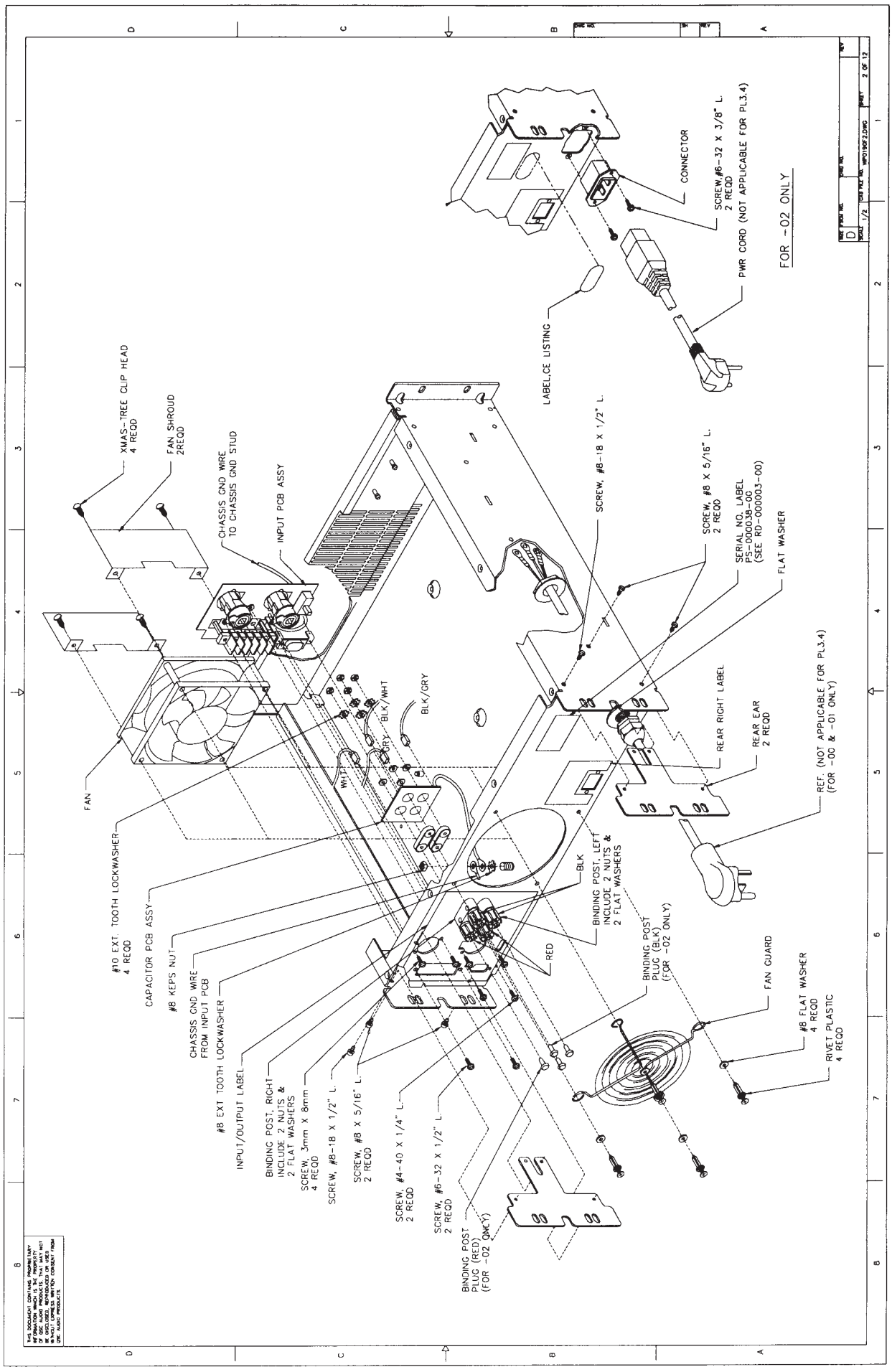
CHASSIS ASSY,
POWERLIGHT 2RU DP

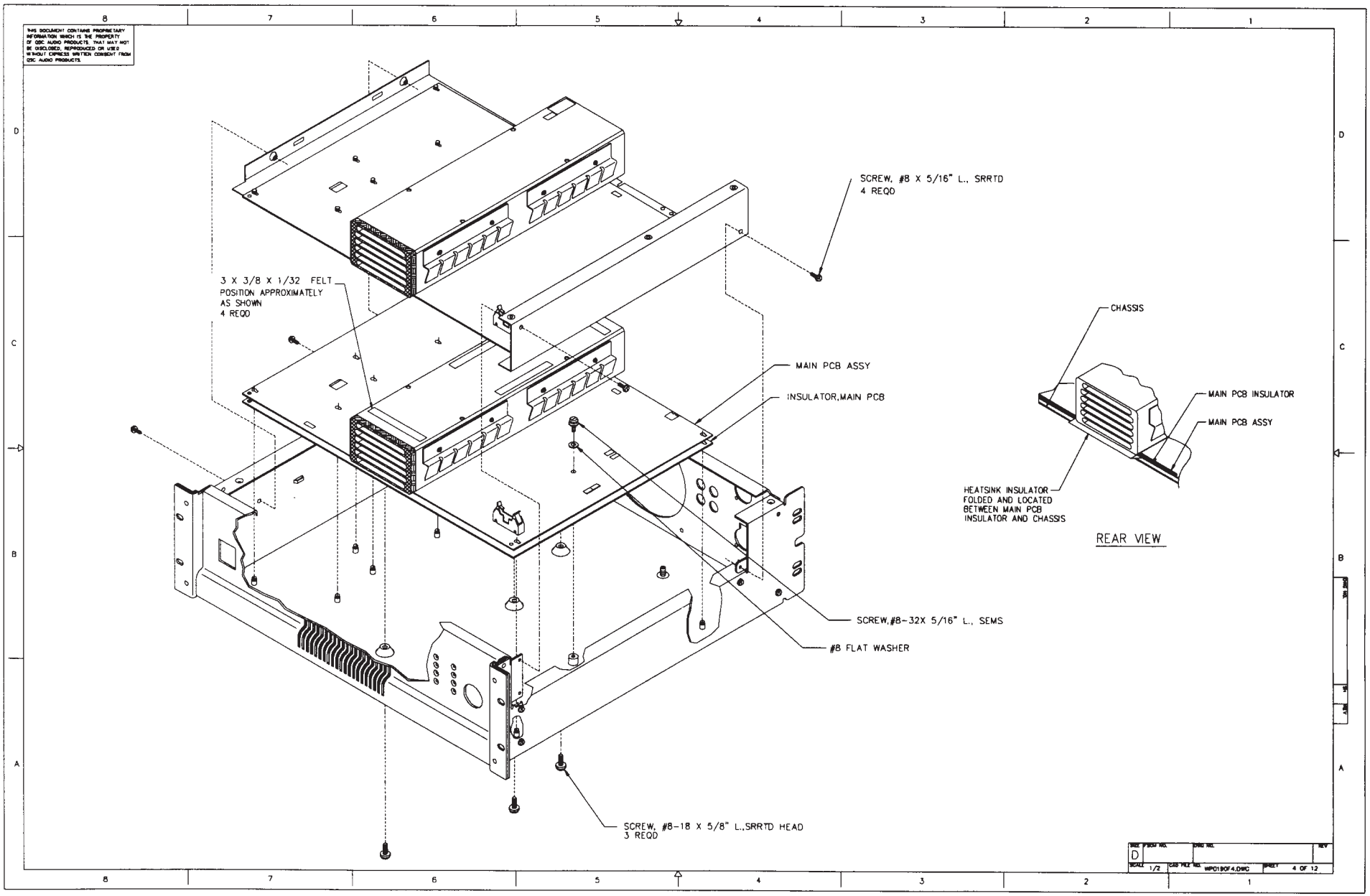

#6 0.385" L., NYLON SPACER
4 REQD
#6 0.685" L., NYLON SPACER
4 REQD
FAN
2 REQD FOR PL1.8 AND PL2.0
OUTPUT WIRE ASSY
BLK WIRE TO MAIN PCB
J50-2 (-)
RED WIRE TO MAIN PCB
J50-1 (+)
40 PLUG
2 REQD
FAN SHROUD
#6-32 X 9/16" L.,
NYLON STANDOFF
4 REQD
#10 EXT. TOOTH LOCKWASHER
4 REQD
AC FILTER ASSY
FUSE, 25A 125V
(FOR -00 & -01 ONLY)
SCREW, #6 X 3/8" L.
2 REQD
INSULATOR, AC PCB FILTER
SCREW, #8 X 5/16" L.
2 REQD
PWR CORD ASSY
(FOR -00 & -01 ONLY)
LABEL-cUL
(FOR -00 ONLY)
AC CORD PROTECTOR
VIEW A
-00 & -01 ONLY
LABEL, REAR, AC PL DP
SCREW, #6-32 X 1/2" L.
2 REQD
SCREW, #8-18 X 3/8" L.
6 REQD
SEE VIEW A
REAR EAR
2 REQD
SERIAL NO. LABEL
PER 000038-000
(SEE RD-000003-00)
FAN GUARD
#8 FLAT WASHER
4 REQD
SCREW, #6-32 X 2" L.
4 REQD
WHT
GRY
BLK/WHT
BLK/GRY
INPUT PCB ASSY
#8-32 KEPS NUT
#8 EXT. TOOTH LOCKWASHER
SCREW, 3mm X 8mm
4 REQD
SCREW, #6-32 X 1/2" L.
2 REQD
SCREW, #4-40 X 1/4" L.
2 REQD
INPUT LABEL
RED
BLK
BINDING POST, RIGHT
BINDING POST, LEFT

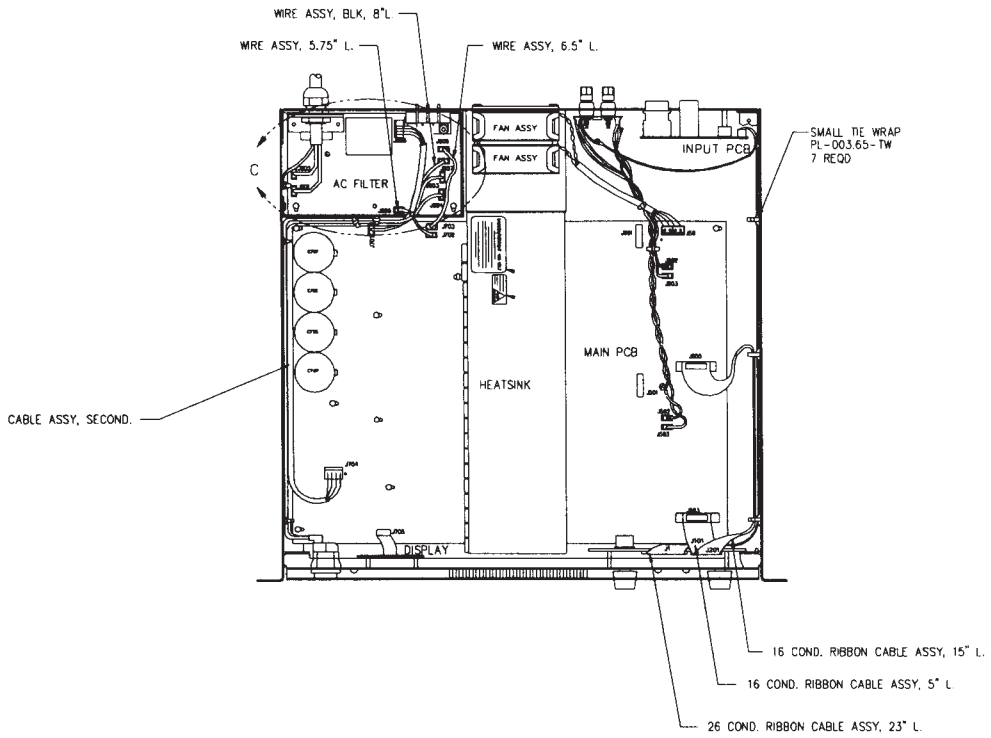


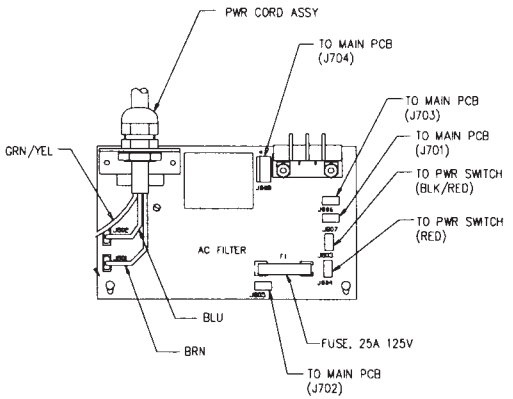
SIZE	SCH NO.	DWG NO.	REV
D			
SCALE 1/2	CAD FILE NO. WP0140B2.DWG	SHEET 2 OF 7	


SCREW, #8 X 5/16" L.
SCREW,#6-32 X 3/8"L.
#6 EXT. TOOTH LOCKWASHER
AC PWR CORD (BLK) (FOR -00 & 01 ONLY)
#6 FLAT WASHER
AC PWR CORD (WHT) (FOR -00 & 01 ONLY)
#8 EXT. TOOTH LOCKWASHER
#8-32 KEPS NUT 2 REQD
REF. (GRN) (FOR -00 & 01 ONLY)
#8-32 KEPS NUT
SCREW, #6-32 X 1/4" L., SEMS 3 REQD
AC PCB ASSY
SCREW, #6-32 X 1/4" L., SEMS
AC PCB INSULATOR
AC FILTER SHIELD
SCREW, #6-32 X 5/8" L. 2 REQD
DISPLAY PCB ASSY,STATUS
4 CHASSIS
HEX STANDOFF, #6-32 X 9/16" L.
SCREW, #8 X 5/16" L. 6 REQD
FACEPLATE LABEL, LEFT
RACK EAR 2 REQD
POT COVER 2 REQD
SCREW, #6-32 X 1/4" L., SEMS 3 REQD
PWR SWITCH
DISPLAY PCB ASSY,MAIN
FACEPLATE LABEL, RIGHT
HEX STANDOFF, #6-32 X 9/16" L. 3 REQD
KNOB 2 REQD
ADHESIVE FEET 4 REQD
CABLE ASSY
REF. (GRN/YEL) TO CONN. PIN E (FOR -02 ONLY)
REF. (BRN) TO CONN. PIN L (FOR -02 ONLY)
REF. (BLU) TO CONN. PIN N (FOR -02 ONLY)
CONNECTOR
FOR -02 ONLY
CHASSIS ASSY
POWERLIGHT 3RU
MP-061000-XX
G


XMAS-TREE CLIP HEAD
4 REQD
FAN SHROUD
2REQD
CHASSIS GND WIRE
TO CHASSIS GND STUD
INPUT PCB ASSY
LABEL,CE LISTING
CONNECTOR
SCREW,#6-32 X 3/8" L.
2 REQD
PWR CORD (NOT APPLICABLE FOR PL3.4)
FOR -02 ONLY
SCREW, #8-18 X 1/2" L.
SCREW, #8 X 5/16" L.
2 REQD
SERIAL NO. LABEL
PS-000038-00
(SEE RD-000003-00)
FLAT WASHER
FAN
BLK/WHT
BLK/GRY
REAR RIGHT LABEL
REAR EAR
2 REQD
REF. (NOT APPLICABLE FOR PL3.4)
(FOR -00 & -01 ONLY)
#10 EXT. TOOTH LOCKWASHER
4 REQD
CAPACITOR PCB ASSY
#8 KEPS NUT
CHASSIS GND WIRE
FROM INPUT PCB
#8 EXT TOOTH LOCKWASHER
INPUT/OUTPUT LABEL
BINDING POST, RIGHT
INCLUDE 2 NUTS &
2 FLAT WASHERS
SCREW, 3mm X 8mm
4 REQD
SCREW, #8-18 X 1/2" L.
SCREW, #8 X 5/16" L.
2 REQD
SCREW, #4-40 X 1/4" L
2 REQD
SCREW, #6-32 X 1/2" L
2 REQD
BINDING POST
PLUG (RED)
(FOR -02 ONLY)
BLK
RED
BINDING POST, LEFT
INCLUDE 2 NUTS &
2 FLAT WASHERS
BINDING POST
PLUG (BLK)
(FOR -02 ONLY)
FAN GUARD
#8 FLAT WASHER
4 REQD
RIVET PLASTIC
4 REQD

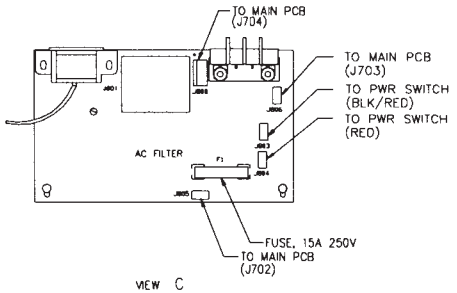

SCREW, #8 X 5/16" L., SRRTD
4 REQD
3 X 3/8 X 1/32 FELT
POSITION APPROXIMATELY
AS SHOWN
4 REQD
MAIN PCB ASSY
INSULATOR,MAIN PCB
SCREW,#8-32X 5/16" L., SEMS
#8 FLAT WASHER
SCREW, #8-18 X 5/8" L.,SRRTD HEAD
3 REQD
CHASSIS
MAIN PCB INSULATOR
MAIN PCB ASSY
HEATSINK INSULATOR
FOLDED AND LOCATED
BETWEEN MAIN PCB
INSULATOR AND CHASSIS
REAR VIEW





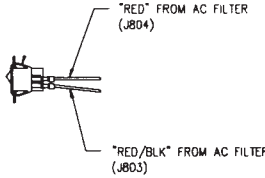
VIEW C

AC PCB ASSY FOR 120/100V
-00 & -01 ONLY

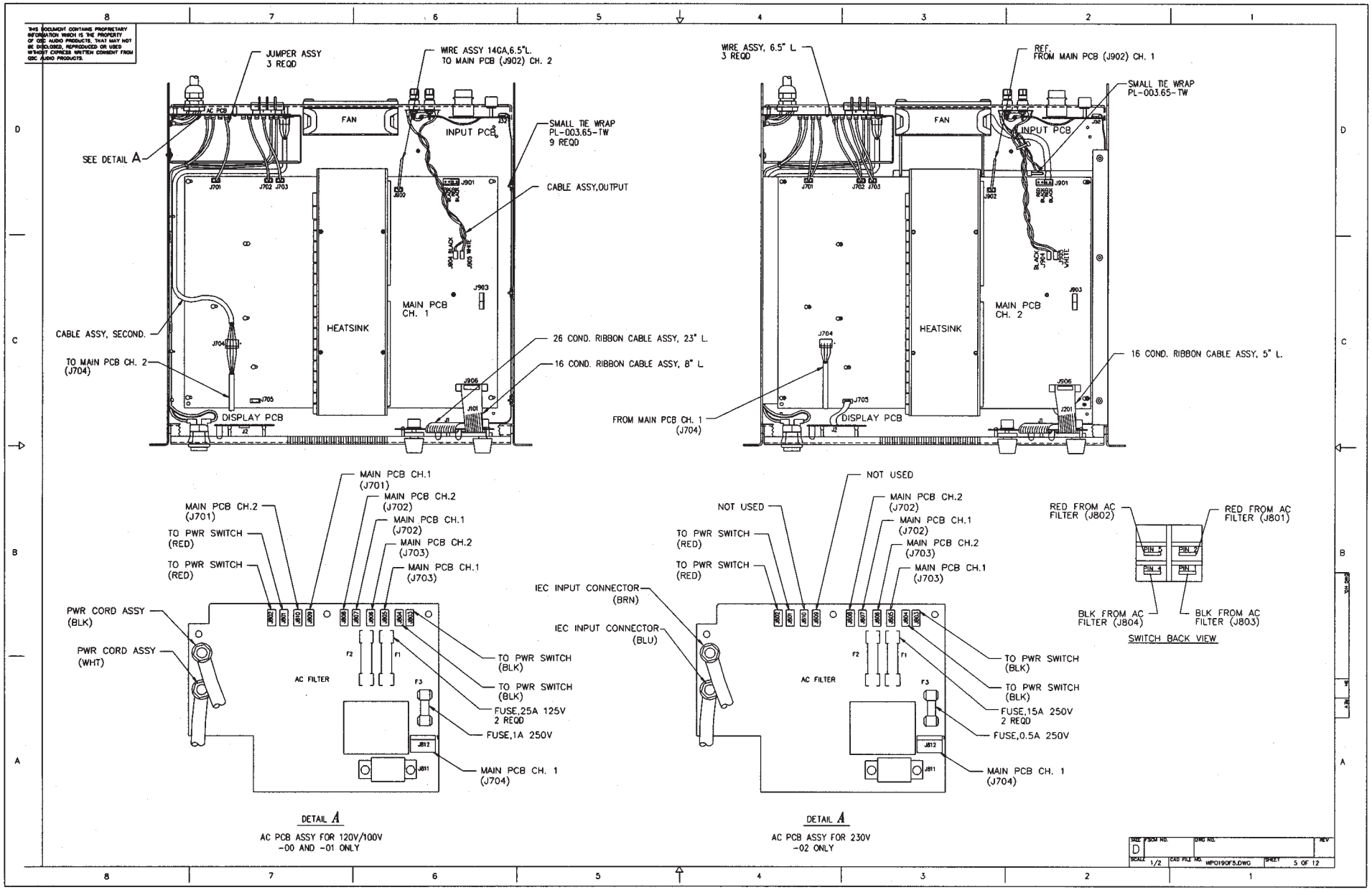


VIEW C

AC PCB ASSY FOR 230V
-02 ONLY



SIZE	FSCM NO.	DWG NO.	REV
D			
SCALE 1/2	CAD FILE NO. WPD140H4.DWG	SHEET 4 OF 11	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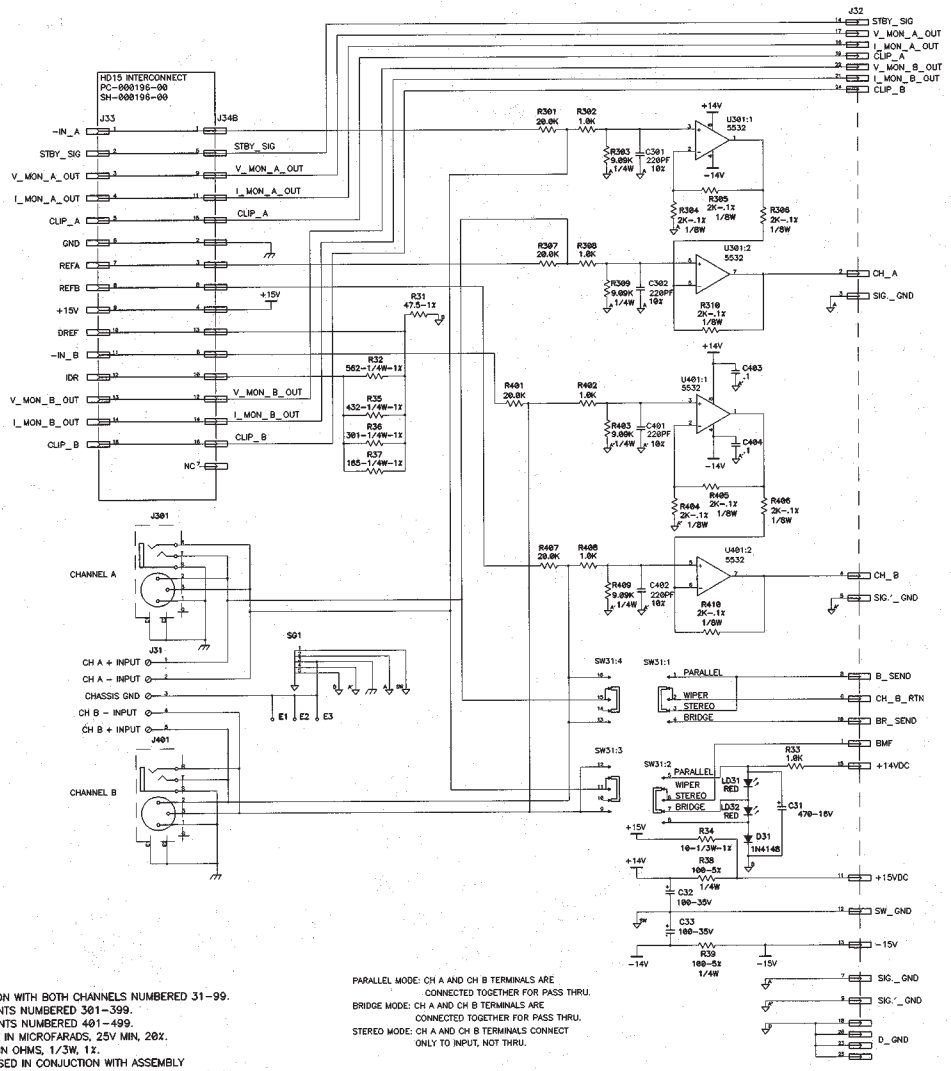
JUMPER ASSY 3 REQD
WIRE ASSY 14GA,6.5"L. TO MAIN PCB (J902) CH. 2
SMALL TIE WRAP PL-003.65-TW 9 REQD
CABLE ASSY,OUTPUT
SEE DETAIL A
CABLE ASSY, SECOND.
TO MAIN PCB CH. 2 (J704)
26 COND. RIBBON CABLE ASSY, 23" L.
16 COND. RIBBON CABLE ASSY, 8" L.
FAN
INPUT PCB
HEATSINK
MAIN PCB CH. 1
DISPLAY PCB
WIRE ASSY, 6.5" L 3 REQD
REF. FROM MAIN PCB (J902) CH. 1
SMALL TIE WRAP PL-003.65-TW
MAIN PCB CH. 2
16 COND. RIBBON CABLE ASSY, 5" L.
FROM MAIN PCB CH. 1 (J704)
MAIN PCB CH.1 (J701)
MAIN PCB CH.2 (J702)
MAIN PCB CH.2 (J701)
MAIN PCB CH.1 (J702)
TO PWR SWITCH (RED)
MAIN PCB CH.2 (J703)
TO PWR SWITCH (RED)
MAIN PCB CH.1 (J703)
PWR CORD ASSY (BLK)
PWR CORD ASSY (WHT)
AC FILTER
F1
F2
F3
TO PWR SWITCH (BLK)
TO PWR SWITCH (BLK)
FUSE,25A 125V 2 REQD
FUSE,1A 250V
MAIN PCB CH. 1 (J704)
DETAIL A
AC PCB ASSY FOR 120V/100V -00 AND -01 ONLY
NOT USED
NOT USED
MAIN PCB CH.2 (J702)
MAIN PCB CH.1 (J702)
MAIN PCB CH.2 (J703)
MAIN PCB CH.1 (J703)
IEC INPUT CONNECTOR (BRN)
IEC INPUT CONNECTOR (BLU)
TO PWR SWITCH (BLK)
TO PWR SWITCH (BLK)
FUSE,15A 250V 2 REQD
FUSE,0.5A 250V
MAIN PCB CH. 1 (J704)
DETAIL A
AC PCB ASSY FOR 230V -02 ONLY
RED FROM AC FILTER (J802)
RED FROM AC FILTER (J801)
BLK FROM AC FILTER (J804)
BLK FROM AC FILTER (J803)
SWITCH BACK VIEW
SIZE D
SCALE 1/2
CAD FILE NO. WP0190F5.DWG
SHEET 5 OF 12



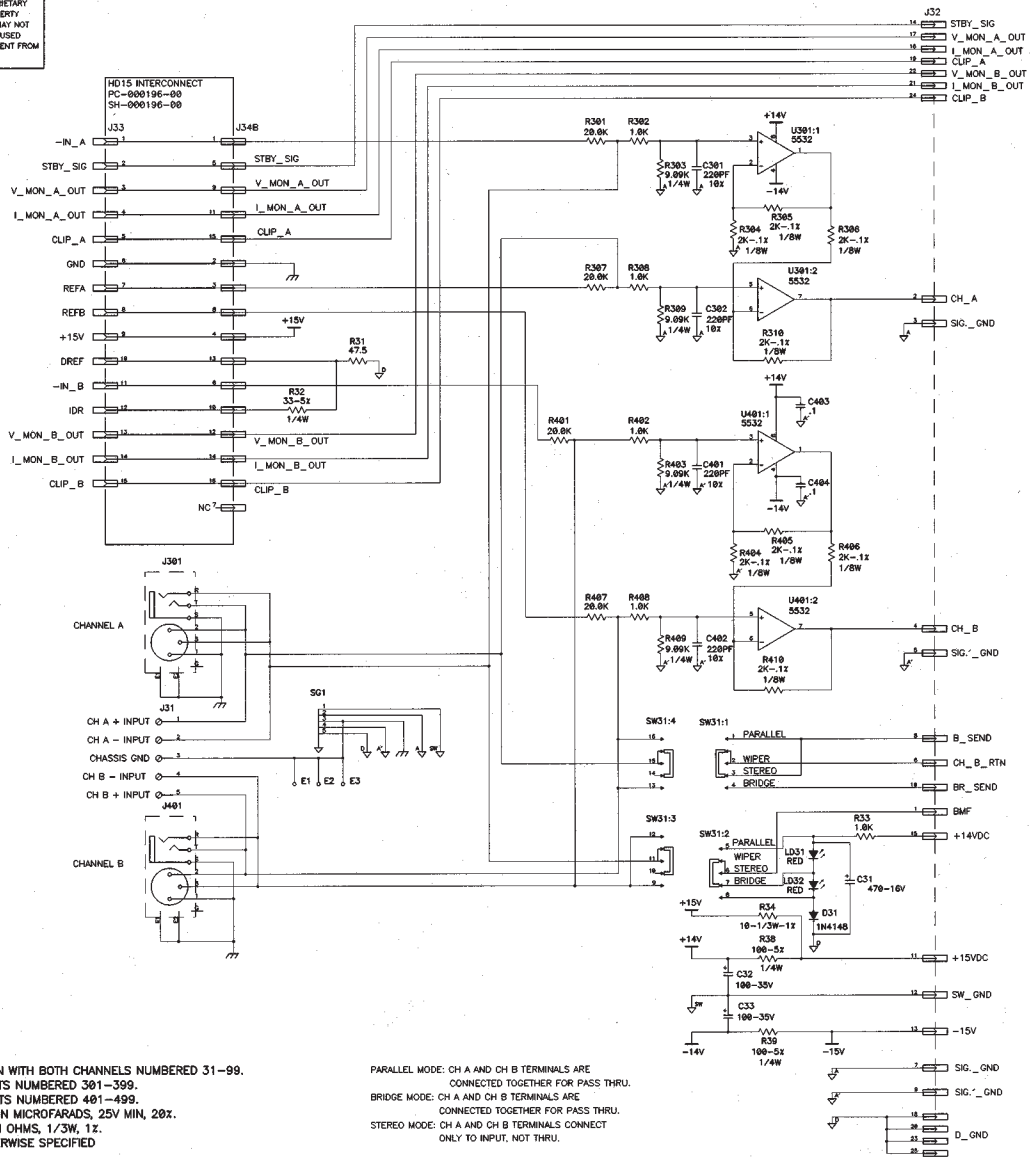
PARALLEL MODE: CH A AND CH B TERMINALS ARE CONNECTED TOGETHER FOR PASS THRU.
BRIDGE MODE: CH A AND CH B TERMINALS ARE CONNECTED TOGETHER FOR PASS THRU.
STEREO MODE: CH A AND CH B TERMINALS CONNECT ONLY TO INPUT, NOT THRU.

4. PARTS IN COMMON WITH BOTH CHANNELS NUMBERED 31-99.
   CH A COMPONENTS NUMBERED 301-399.
   CH B COMPONENTS NUMBERED 401-499.
3. CAPACITORS ARE IN MICROFARADS, 25V MIN, 20%.
2. RESISTORS ARE IN OHMS, 1/3W, 1%.
1. THIS DRAWING USED IN CONJUCTION WITH ASSEMBLY WP-000148-00 AND FABRICATION DRAWING PC-000148-00.

NOTES: UNLESS OTHERWISE SPECIFIED

SCHEMATIC DIAGRAM
INPUT, POWERLIGHT 2RU

SIZE	FSCM NO.	DWG NO.	REV
D		SH-000148-00	
SCALE	NONE	CAD FILE NO.	SHEET 1 OF 1



3. PARTS IN COMMON WITH BOTH CHANNELS NUMBERED 31-99.
   CH A COMPONENTS NUMBERED 301-399.
   CH B COMPONENTS NUMBERED 401-499.
2. CAPACITORS ARE IN MICROFARADS, 25V MIN, 20%.
1. RESISTORS ARE IN OHMS, 1/3W, 1%.

NOTES: UNLESS OTHERWISE SPECIFIED

PARALLEL MODE: CH A AND CH B TERMINALS ARE CONNECTED TOGETHER FOR PASS THRU.

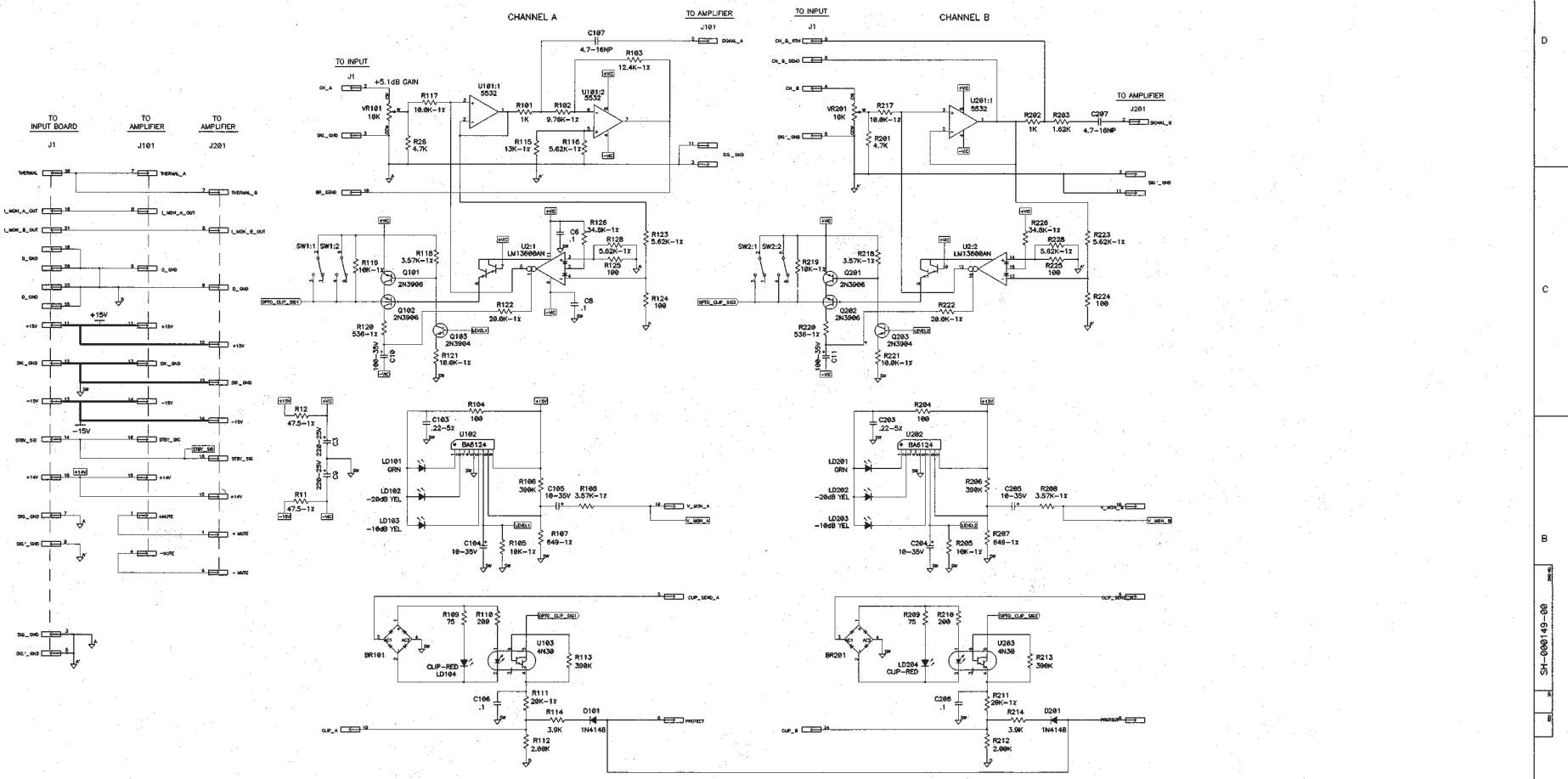
BRIDGE MODE: CH A AND CH B TERMINALS ARE CONNECTED TOGETHER FOR PASS THRU.

STEREO MODE: CH A AND CH B TERMINALS CONNECT ONLY TO INPUT, NOT THRU.

SCHEMATIC DIAGRAM
INPUT, POWERLIGHT 3RU

SIZE	FSCM NO.	DWG NO.	REV
D		SH-000193-00	
SCALE NONE	CAD FILE NO.	SHEET	

DWG NO. SH-000193-00 SH REV



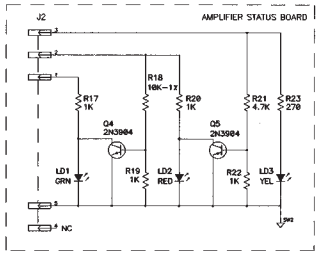
4. PARTS IN COMMON WITH BOTH CHANNELS NUMBERED 1-99.
   CH 1 COMPONENTS NUMBERED 101-199.
   CH 2 COMPONENTS NUMBERED 201-299.
3. CAPACITORS ARE IN MICROFARADS, 25V MIN.
2. RESISTORS ARE IN OHMS, 1/4W, 400, 5%.
1. THIS DRAWING USED IN CONJUCTION WITH ASSEMBLY
   WP-000149-00 AND FABRICATION DRAWING PC-000149-00.

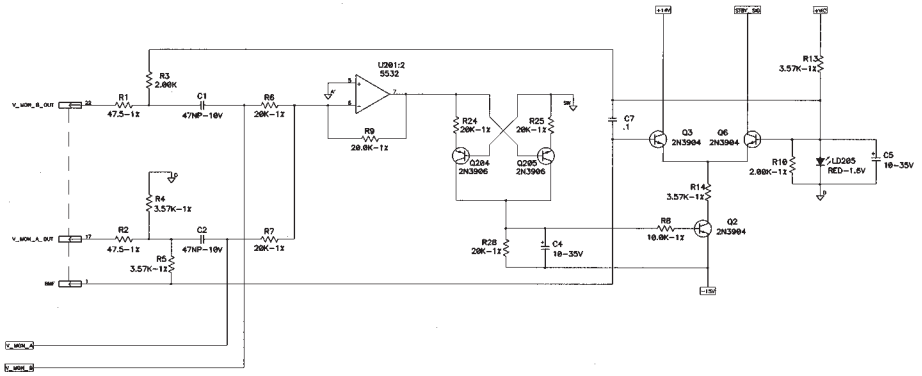
NOTES: UNLESS OTHERWISE SPECIFIED

SCHEMATIC DIAGRAM
DISPLAY, POWERLIGHT DP

SIZE	FSCM NO.	DWG NO.	REV
D		SH-000149-00	
SCALE NONE	CAD FILE NO.	SHEET	

SH-000149-00 REV

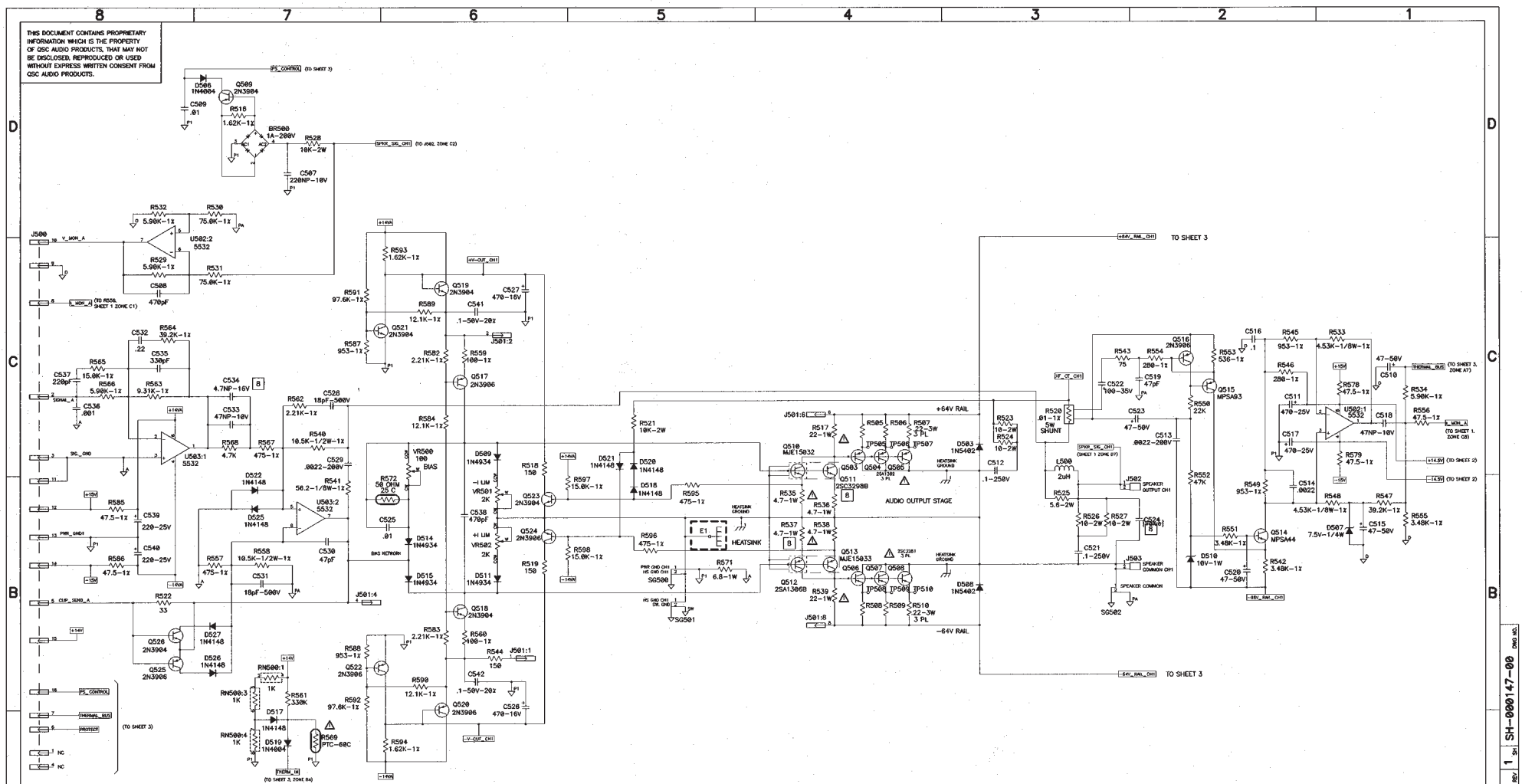




NOTES: UNLESS OTHERWISE SPECIFIED

SIZE	FSCM NO.	DWG NO.	REV
D		SH-000149-00	
SCALE: NONE	CAD FILE NO.	SHEET	

SH-000149-00



4. R569, 669 ARE POSITIVE TEMPERATURE COEFFICIENT RESISTORS MOUNTED TO HEAT SINK. RESISTANCE 100 OHM COLD, RISING AT 55C. QSC P/N RE-000006-VP. R710 IS MOUNTED TO SIDE OF T703. QSC P/N RE-000009-PT.
3. ALL CAPACITORS 100V. TOLERANCE 20% FOR ELECTROLYTIC TYPES, 10% ON OTHER TYPES.
2. ALL RESISTORS ARE 1/4-WATT, 5%.
1. THIS DRAWING USED IN CONJUNCTION WITH ASSEMBLY WP-000147-XX.

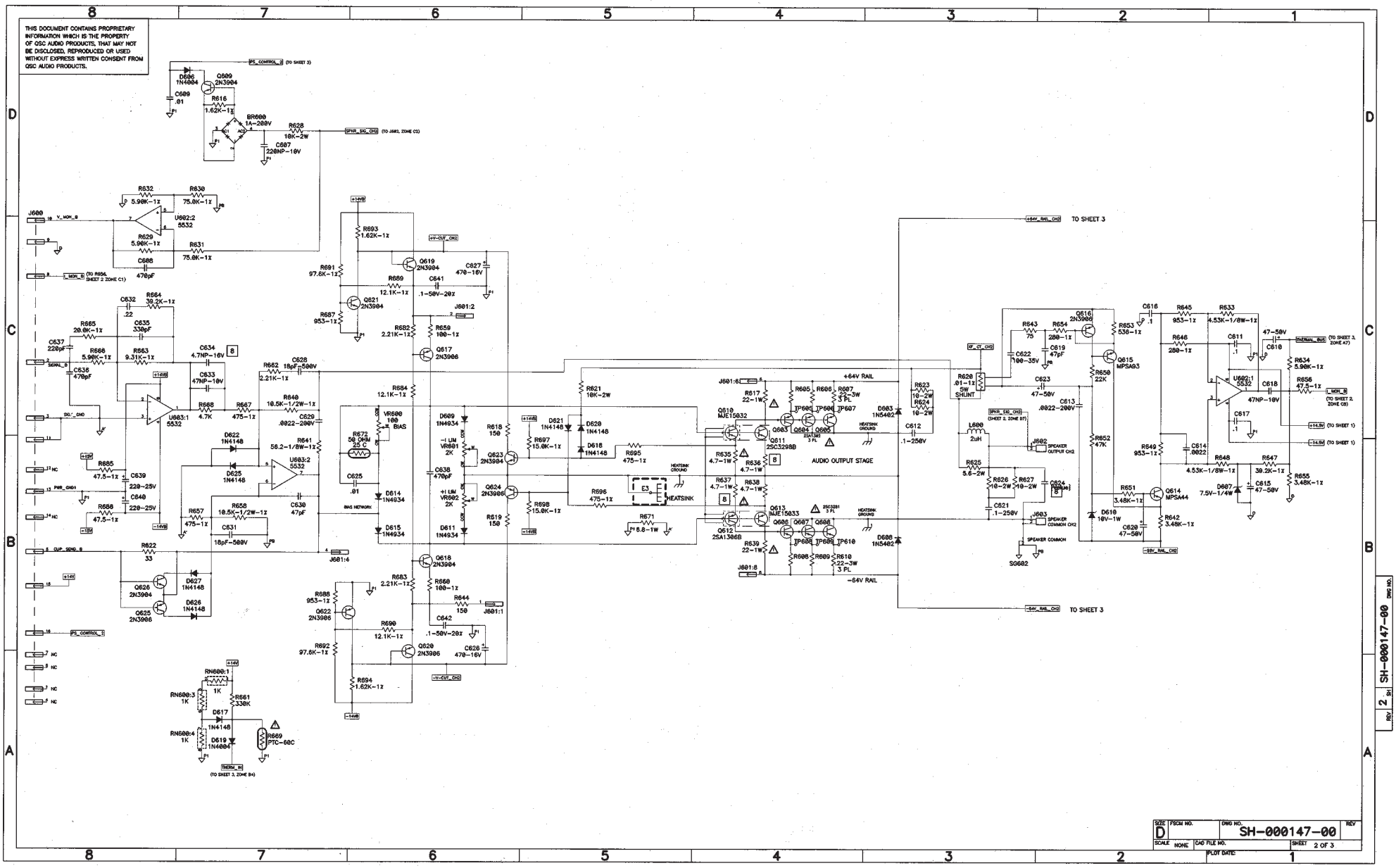
NOTES: UNLESS OTHERWISE SPECIFIED

[8] COMPONENTS C524, C624, C534, C634, Q511, Q512, Q611, Q612, R63, R536, R537, R636, R637 ARE SPARES AND ARE NOT LISTED IN THE BILL OF MATERIALS.
7. PARTS MARKED WITH TRIANGLE △ MUST BE REPLACED WITH EXACT TYPE ONLY.
6. ZENERS D507, 607 AND D737, MARKED 7.5V, LOW LEAKAGE, QSC P/N QD-0007.5-ZT. ZENER D55, MARKED 6.2V, LOW LEAKAGE, QSC P/N QD-000024-QD.

SCHEMATIC DIAGRAM
MAIN PCB, POWERLIGHT 1.0DP

SIZE	FSCM NO.	DWG NO.	REV
D		SH-000147-00	
SCALE NONE	CAD FILE NO.	SHEET 1 OF 3	
		PLOT DATE:	

DWG NO. SH-000147-00 REV 1 SH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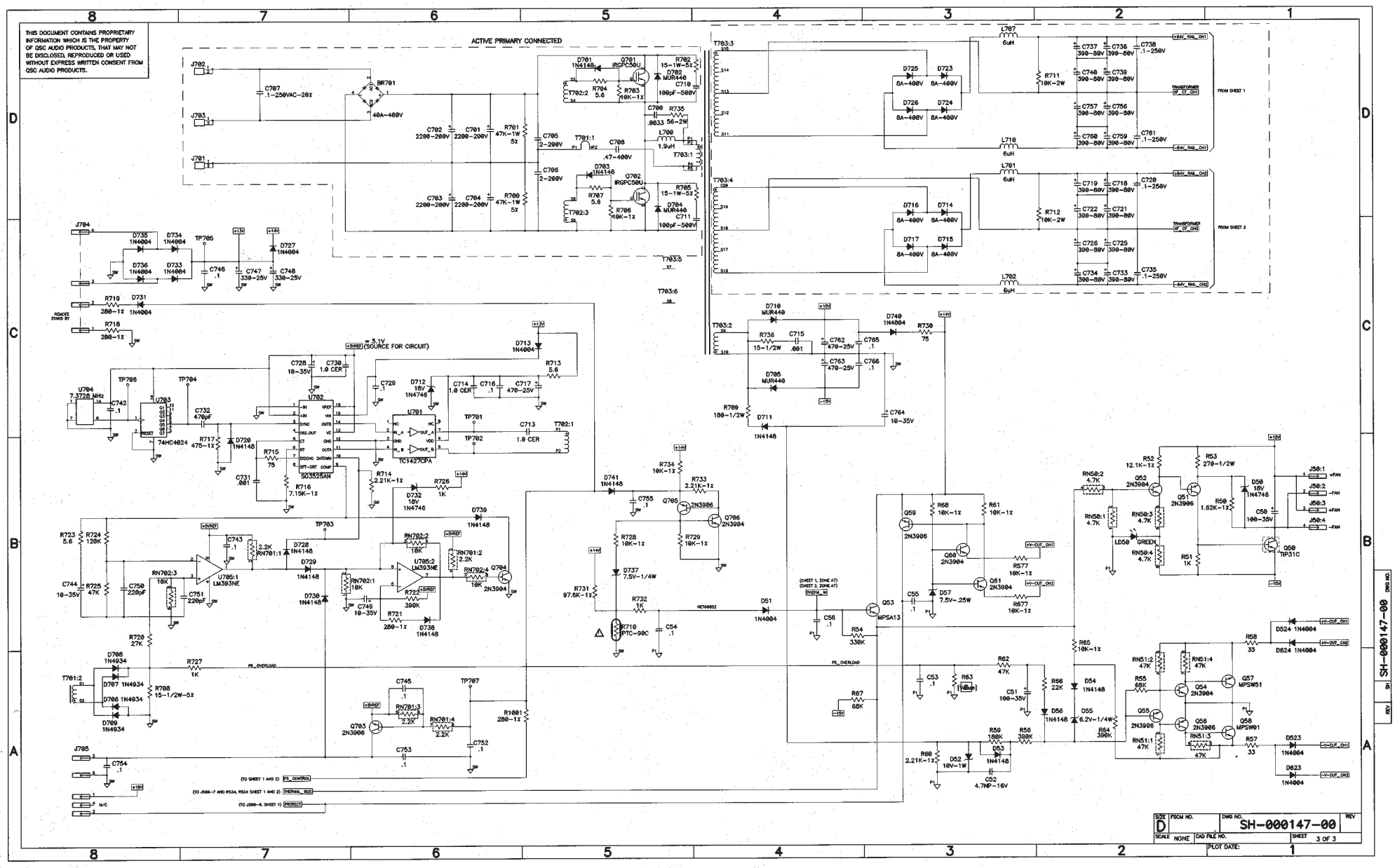
AUDIO OUTPUT STAGE
HEATSINK
TO SHEET 3
SIZE D
DWG NO. SH-000147-00
REV
SCALE NONE
SHEET 2 OF 3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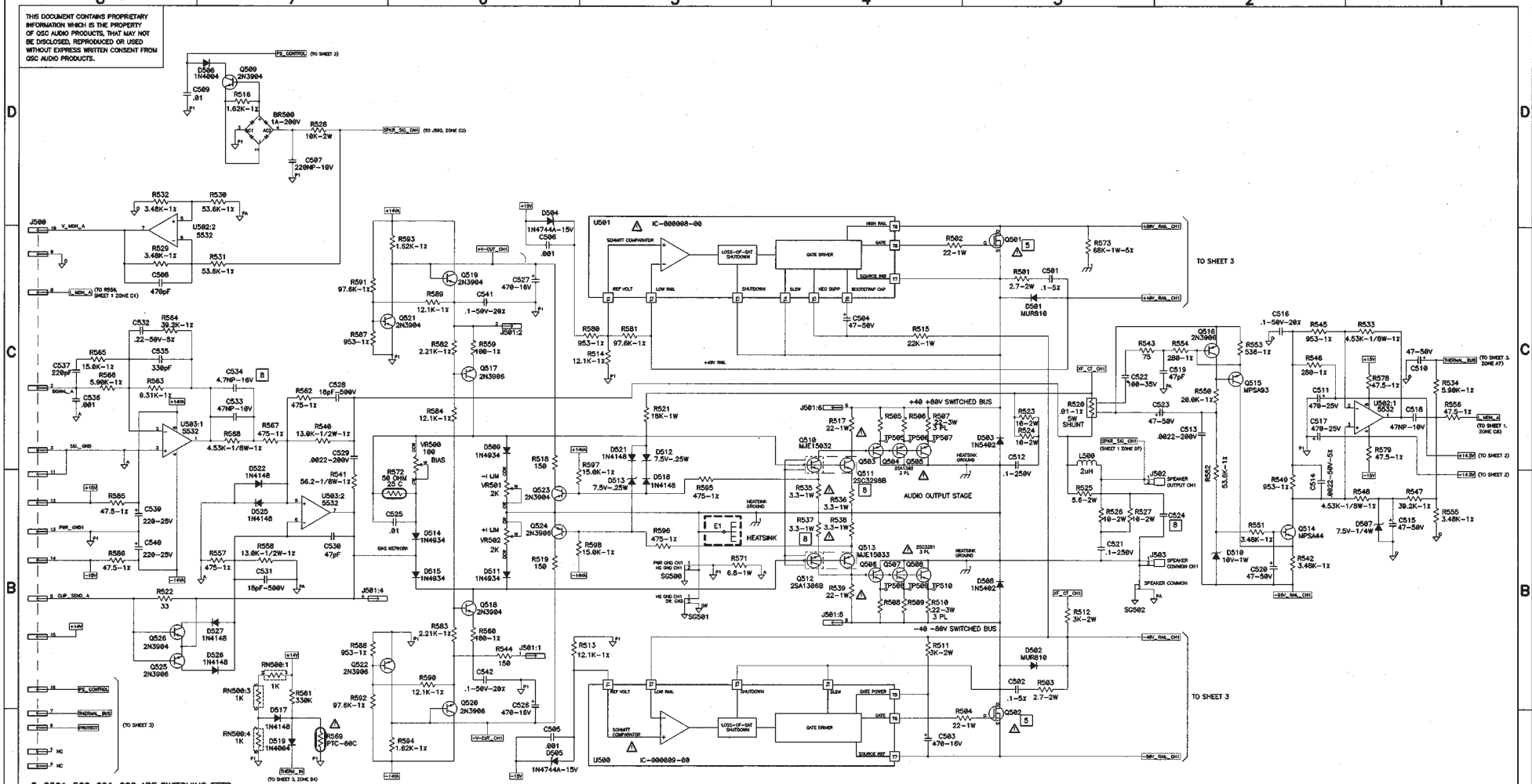
ACTIVE PRIMARY CONNECTED
SH-000147-00
SIZE D
SCALE NONE
SHEET 3 OF 3



5. Q501, 502, 601, 602 ARE SWITCHING FETS, QSC P/N QD-000031-QD, 125W, 60V MINIMUM, ON-RESISTANCE 0.030 OHMS MAX.
4. R569, 669 ARE POSITIVE TEMPERATURE COEFFICIENT RESISTORS MOUNTED TO HEAT SINK. RESISTANCE 100 OHM COLD, RISING AT 55C. QSC P/N RE-000005-VP. R710 IS MOUNTED TO SIDE OF T703. QSC P/N RE-000009-PT.
3. ALL CAPACITORS 100V. TOLERANCE 20% FOR ELECTROLYTIC TYPES, 10% ON OTHER TYPES.
2. ALL RESISTORS ARE 1/4-WATT, 5%.
1. THIS DRAWING USED IN CONJUNCTION WITH ASSEMBLY WP-000146-XX.

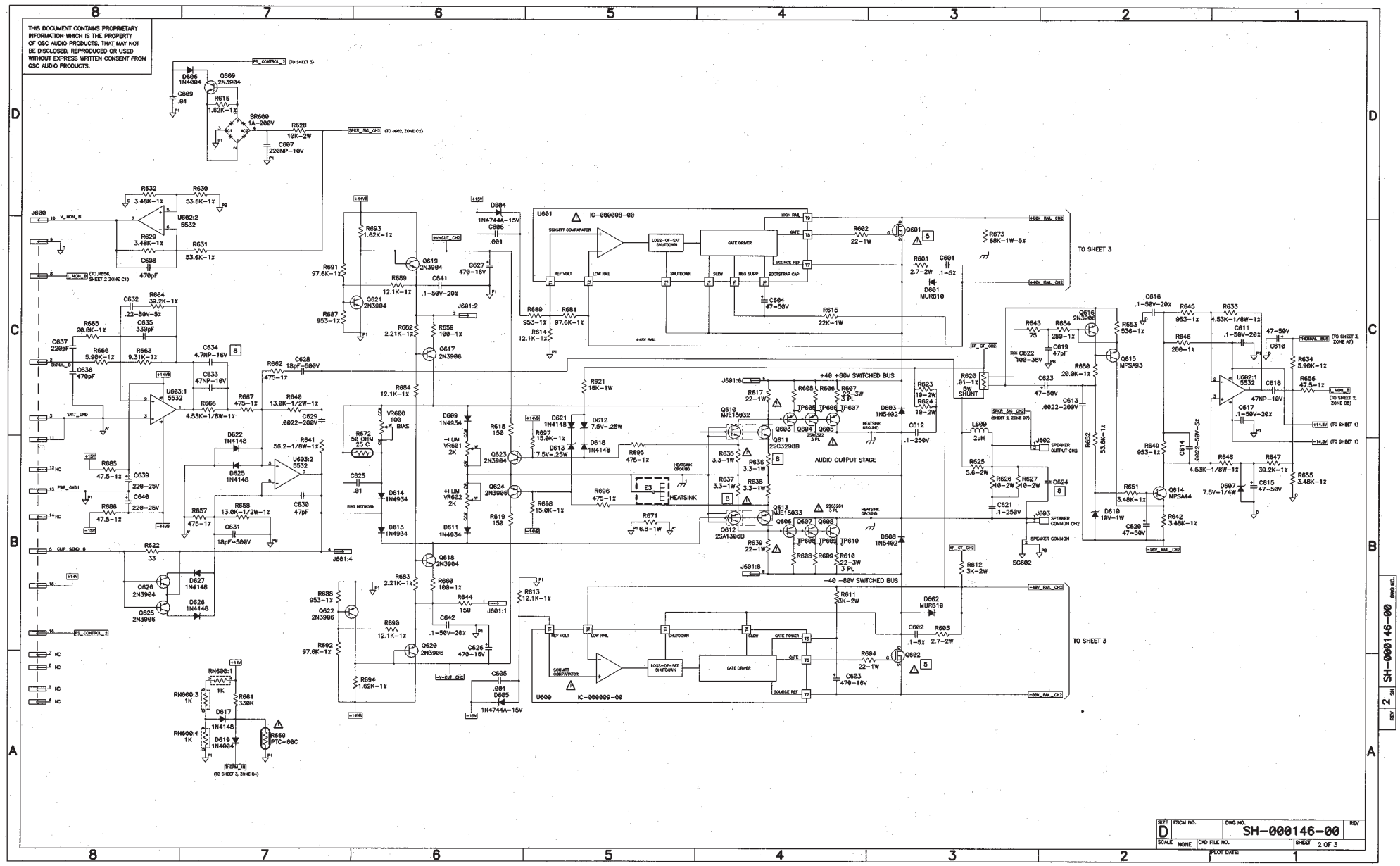
NOTES: UNLESS OTHERWISE SPECIFIED

[8] COMPONENTS C524, C624, C534, C634, Q511, Q512, Q611, Q612, R63, R536, R537, R636, R637 ARE SPARES AND ARE NOT LISTED IN THE BILL OF MATERIALS.
7. PARTS MARKED WITH TRIANGLE △ MUST BE REPLACED WITH EXACT TYPE ONLY.
6. ZENERS D507, 512, 513, 607, 612, 613 AND D737, MARKED 7.5V, LOW LEAKAGE, QSC P/N QD-0007.5-ZT. ZENER D55, MARKED 6.2V, LOW LEAKAGE, QSC P/N QD-000024-QD.

SCHEMATIC DIAGRAM
MAIN PCB, POWERLIGHT 1.4DP

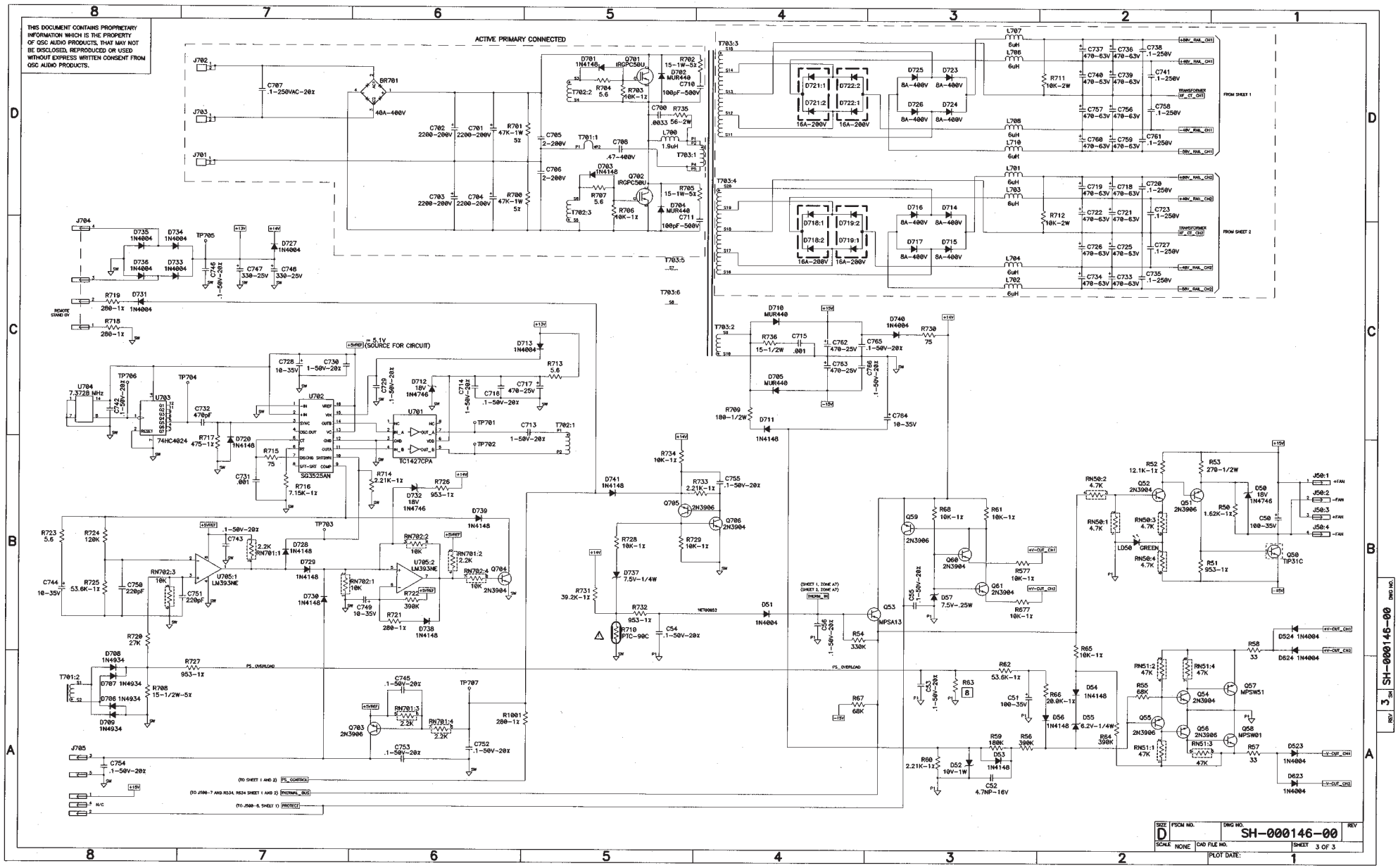
SIZE	FSCM NO.	DWG NO.	REV
D		SH-000146-00	
SCALE NONE	CAD FILE NO.	SHEET 1 OF 3	
		PLOT DATE:	

SH-000146-00 DWG NO. SH REV



SIZE	FSCM NO.	DWG NO.	REV
D		SH-000146-00	
SCALE NONE	CAD FILE NO.	SHEET 2 OF 3	
		PLOT DATE:	

SH-000146-00 DWG NO. | REV | 2 SH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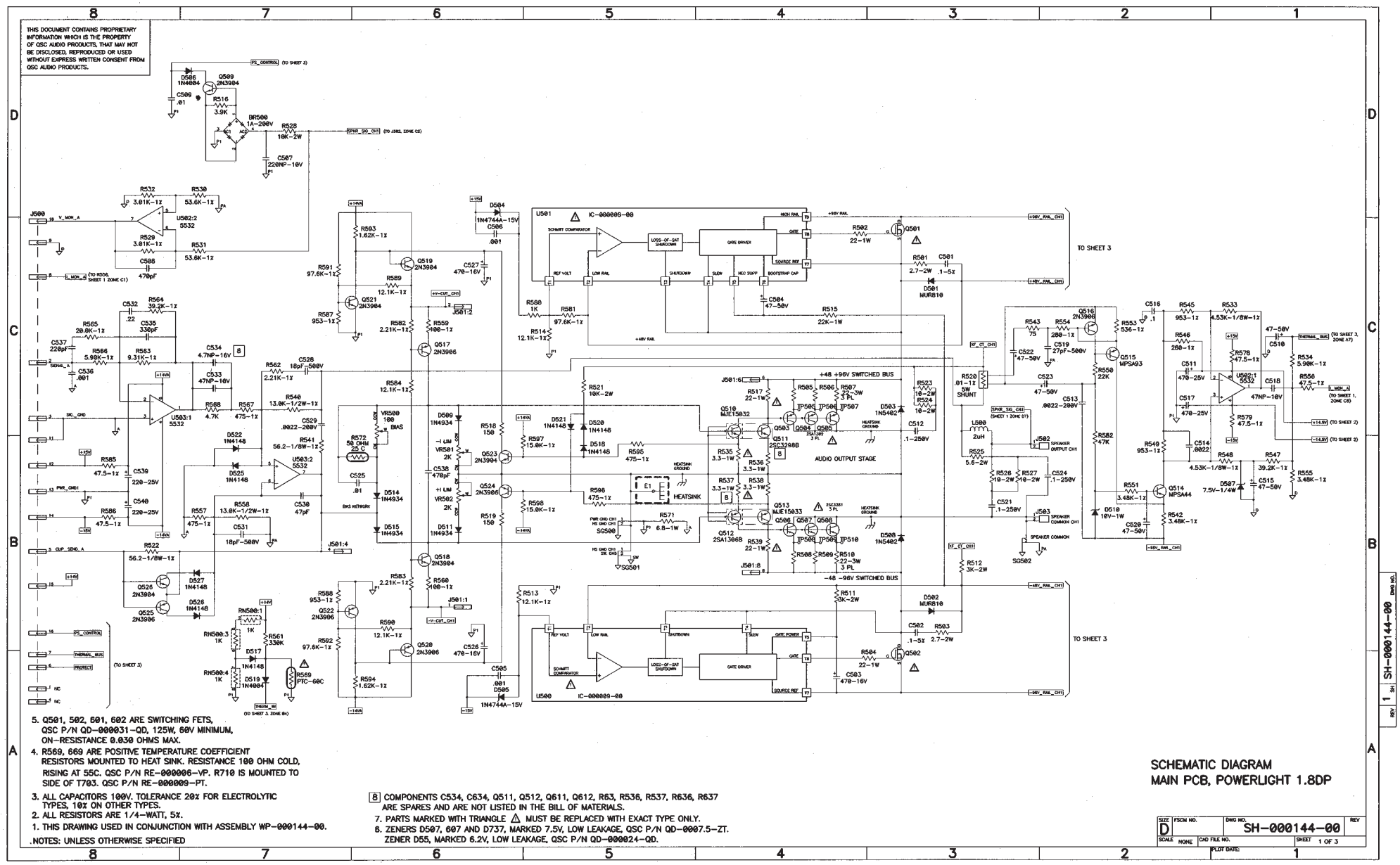
ACTIVE PRIMARY CONNECTED
FROM SHEET 1
FROM SHEET 2
= 5.1V (SOURCE FOR CIRCUIT)
SIZE D
FSCM NO.
DWG NO. SH-000146-00
REV
SCALE NONE
CAD FILE NO.
SHEET 3 OF 3
PLOT DATE:
DWG NO. SH-000146-00
REV 3

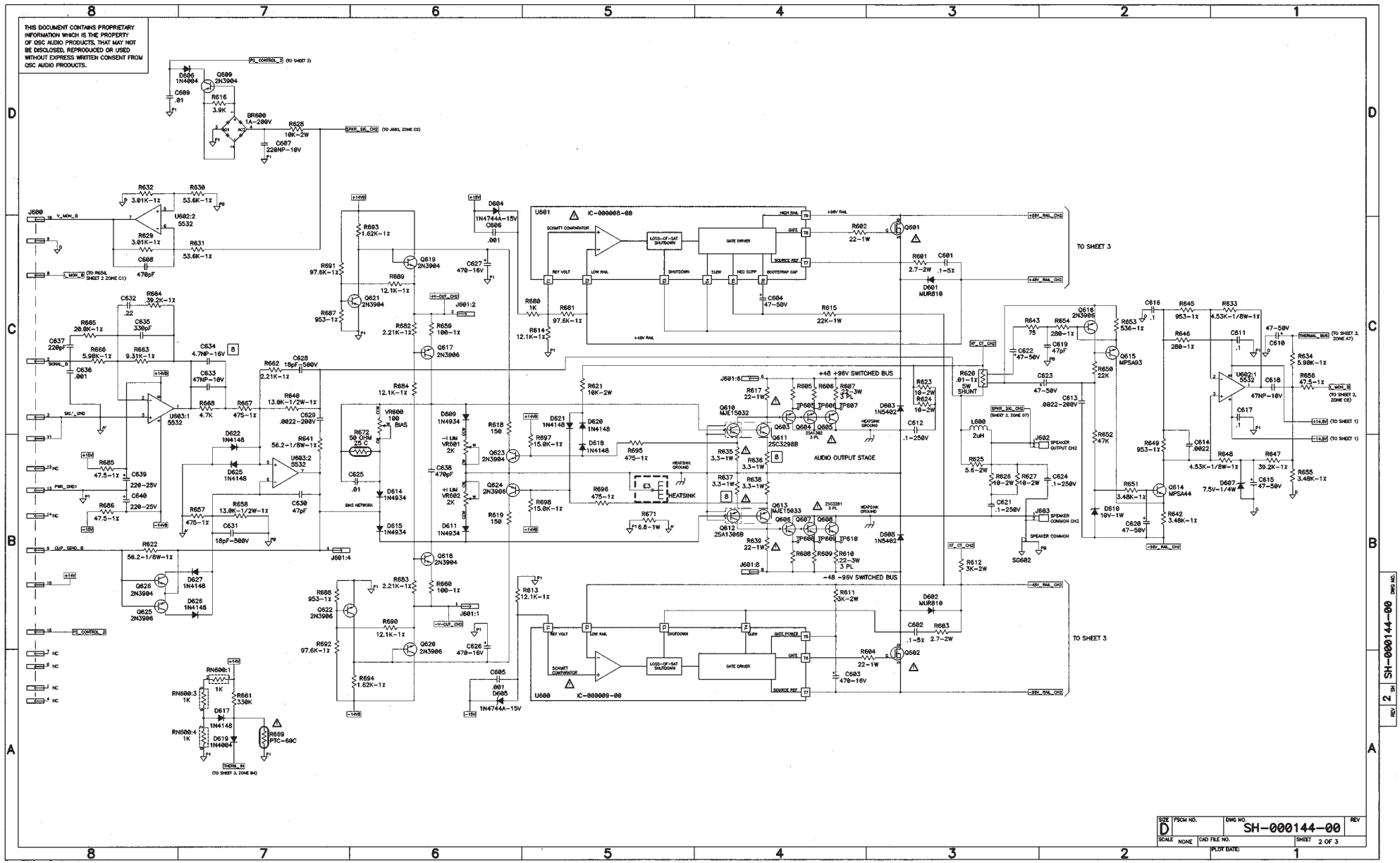


5. Q501, 502, 601, 602 ARE SWITCHING FETS, QSC P/N QD-000031-QD, 125W, 60V MINIMUM, ON-RESISTANCE 0.030 OHMS MAX.
4. R569, 669 ARE POSITIVE TEMPERATURE COEFFICIENT RESISTORS MOUNTED TO HEAT SINK. RESISTANCE 100 OHM COLD, RISING AT 55C. QSC P/N RE-000006-VP. R710 IS MOUNTED TO SIDE OF T703. QSC P/N RE-000009-PT.
3. ALL CAPACITORS 100V. TOLERANCE 20% FOR ELECTROLYTIC TYPES, 10% ON OTHER TYPES.
2. ALL RESISTORS ARE 1/4-WATT, 5%.
1. THIS DRAWING USED IN CONJUNCTION WITH ASSEMBLY WP-000144-00.
.NOTES: UNLESS OTHERWISE SPECIFIED

[8] COMPONENTS C534, C634, Q511, Q512, Q611, Q612, R63, R536, R537, R636, R637 ARE SPARES AND ARE NOT LISTED IN THE BILL OF MATERIALS.
7. PARTS MARKED WITH TRIANGLE △ MUST BE REPLACED WITH EXACT TYPE ONLY.
6. ZENERS D507, 607 AND D737, MARKED 7.5V, LOW LEAKAGE, QSC P/N QD-0007.5-ZT. ZENER D55, MARKED 6.2V, LOW LEAKAGE, QSC P/N QD-000024-QD.

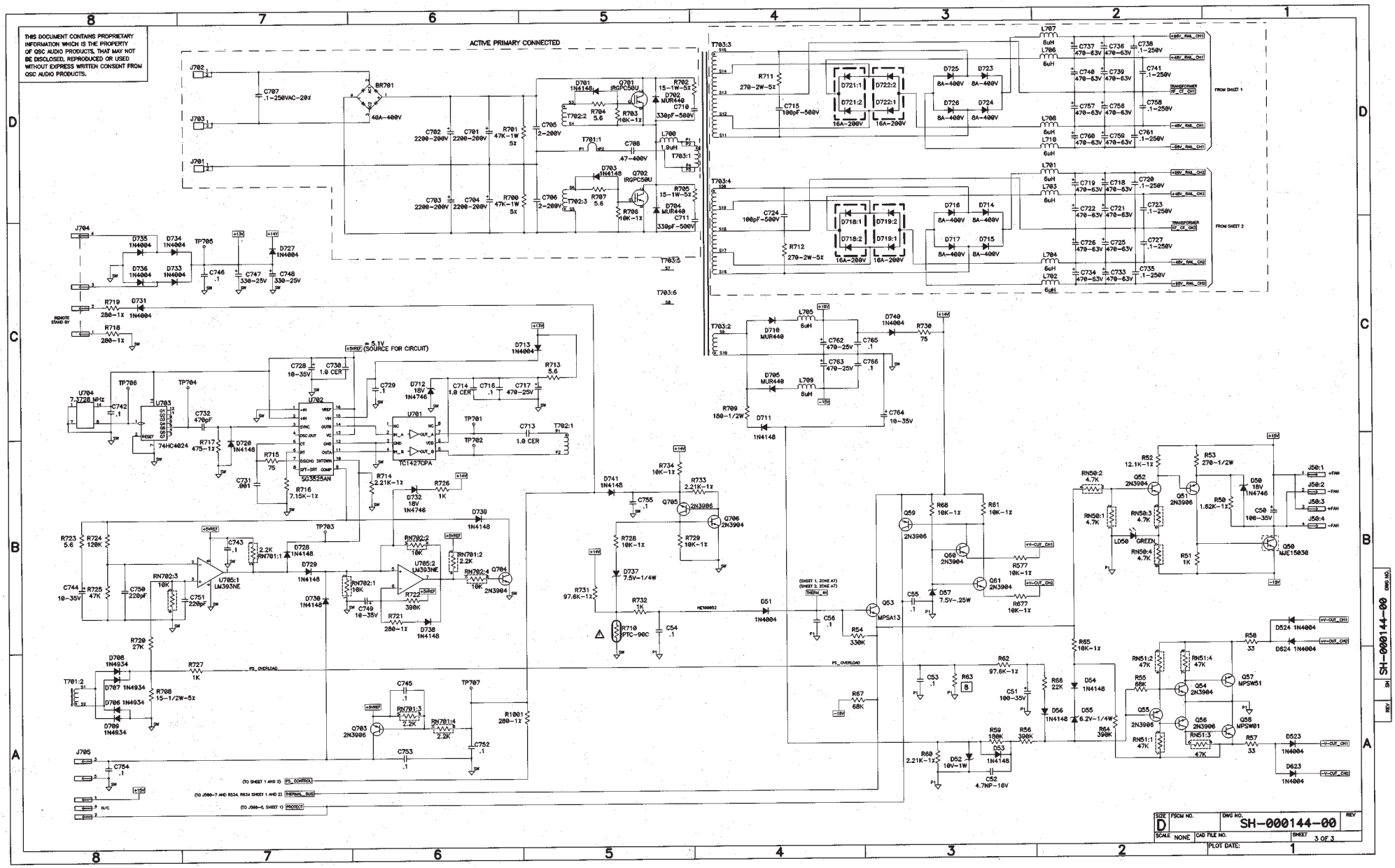
SIZE	FSCM NO.	DWG NO.	REV
D		SH-000144-00	
SCALE NONE	CAD FILE NO.	SHEET 1 OF 3	
	PLOT DATE:		

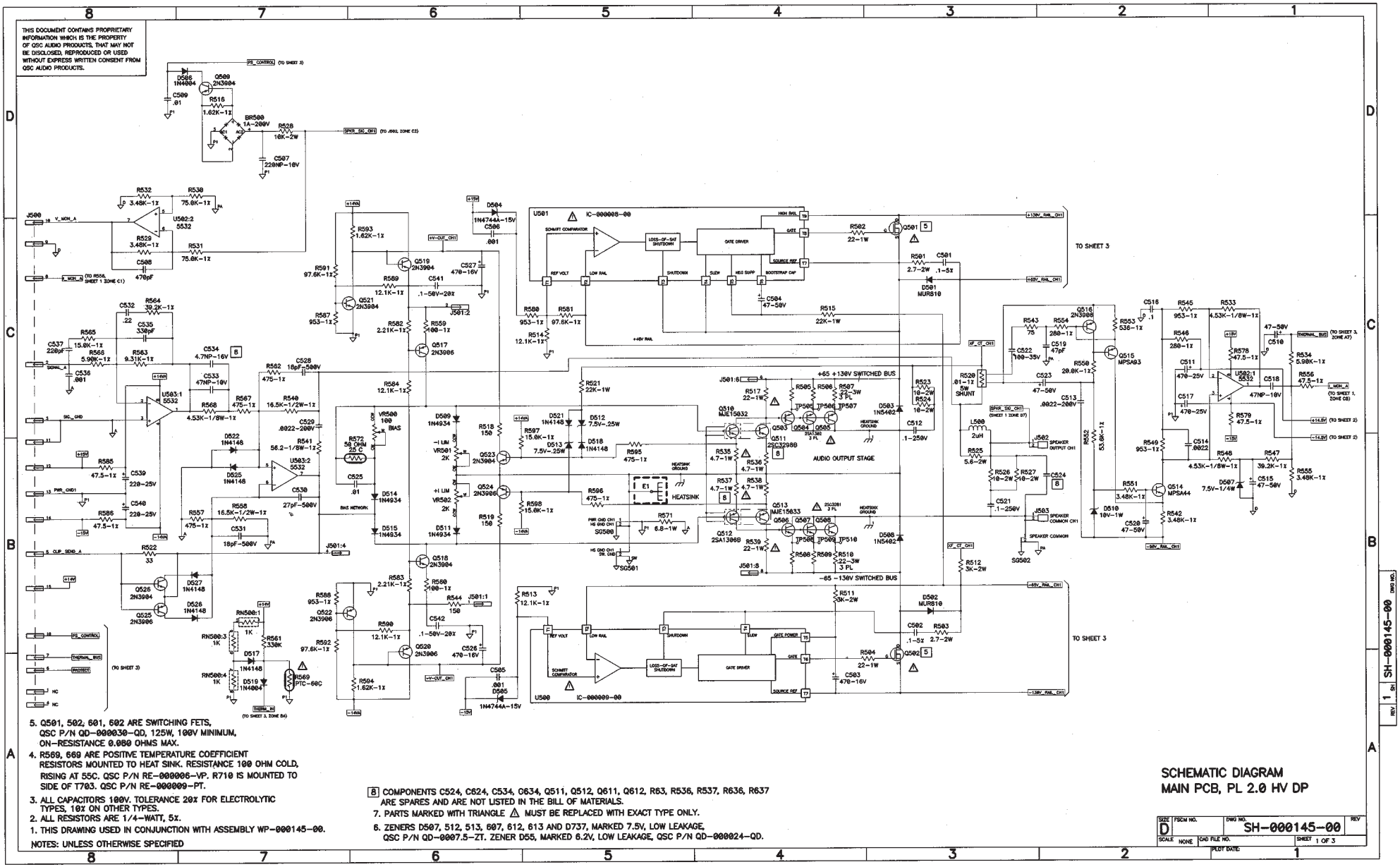
DWG NO. SH-000144-00 | SH 1 | REV



SIZE	FSCM NO.	DWG NO.	REV
D		SH-000144-00	
SCALE NONE	CAD FILE NO.	SHEET 2 OF 3	
		PLOT DATE:	

DWG NO. SH-000144-00 SH 2 REV



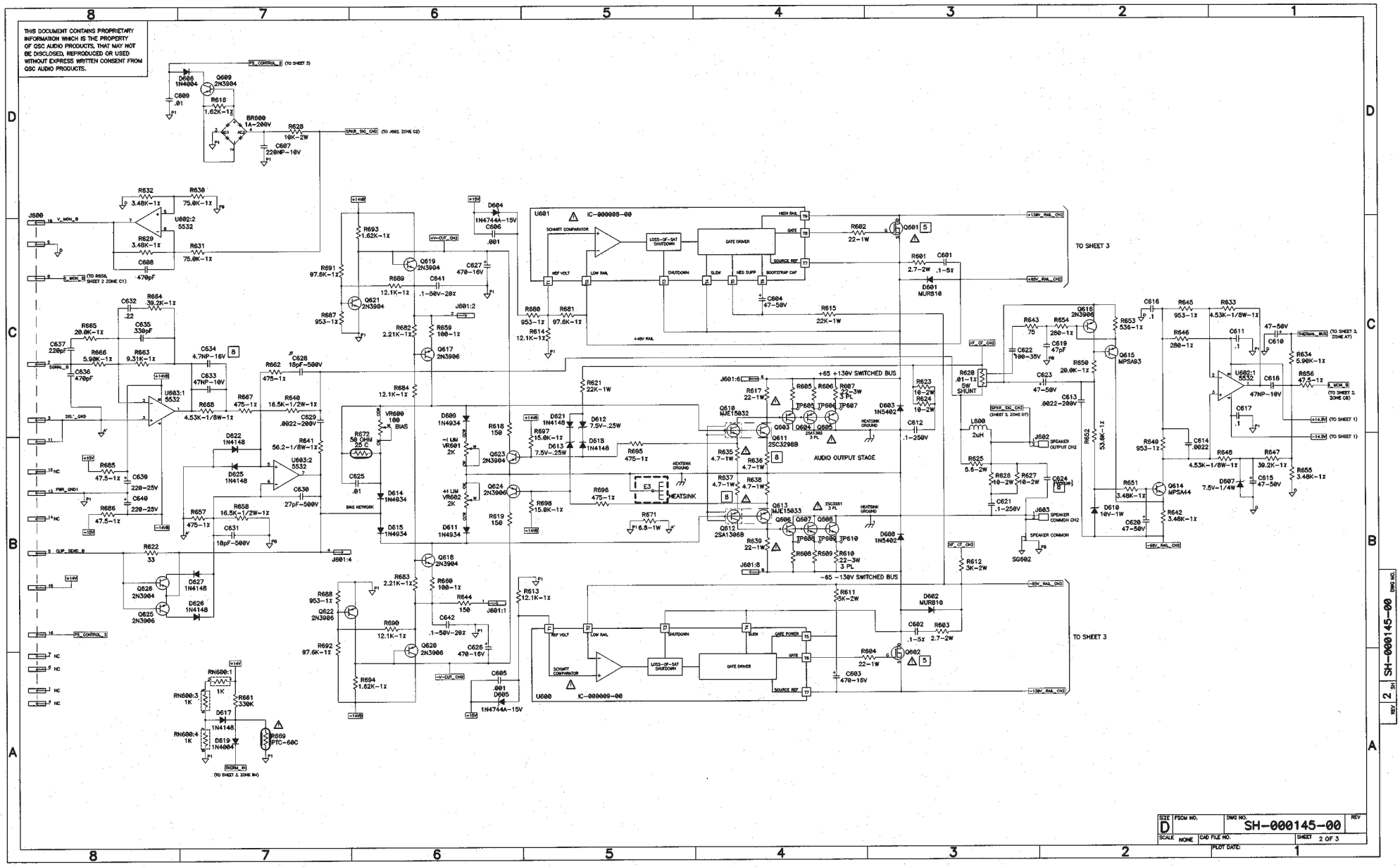


5. Q501, 502, 601, 602 ARE SWITCHING FETS, QSC P/N QD-000030-QD, 125W, 100V MINIMUM, ON-RESISTANCE 0.080 OHMS MAX.
4. R569, 669 ARE POSITIVE TEMPERATURE COEFFICIENT RESISTORS MOUNTED TO HEAT SINK. RESISTANCE 100 OHM COLD, RISING AT 55C. QSC P/N RE-000006-VP. R710 IS MOUNTED TO SIDE OF T703. QSC P/N RE-000009-PT.
3. ALL CAPACITORS 100V. TOLERANCE 20% FOR ELECTROLYTIC TYPES, 10% ON OTHER TYPES.
2. ALL RESISTORS ARE 1/4-WATT, 5%.
1. THIS DRAWING USED IN CONJUNCTION WITH ASSEMBLY WP-000145-00.

NOTES: UNLESS OTHERWISE SPECIFIED

[8] COMPONENTS C524, C624, C534, C634, Q511, Q512, Q611, Q612, R63, R536, R537, R636, R637 ARE SPARES AND ARE NOT LISTED IN THE BILL OF MATERIALS.
7. PARTS MARKED WITH TRIANGLE △ MUST BE REPLACED WITH EXACT TYPE ONLY.
6. ZENERS D507, 512, 513, 607, 612, 613 AND D737, MARKED 7.5V, LOW LEAKAGE, QSC P/N QD-0007.5-ZT. ZENER D55, MARKED 6.2V, LOW LEAKAGE, QSC P/N QD-000024-QD.

SIZE	FSCM NO.	DWG NO.	REV
D		SH-000145-00	
SCALE NONE	CAD FILE NO.	SHEET 1 OF 3	
		PLOT DATE:	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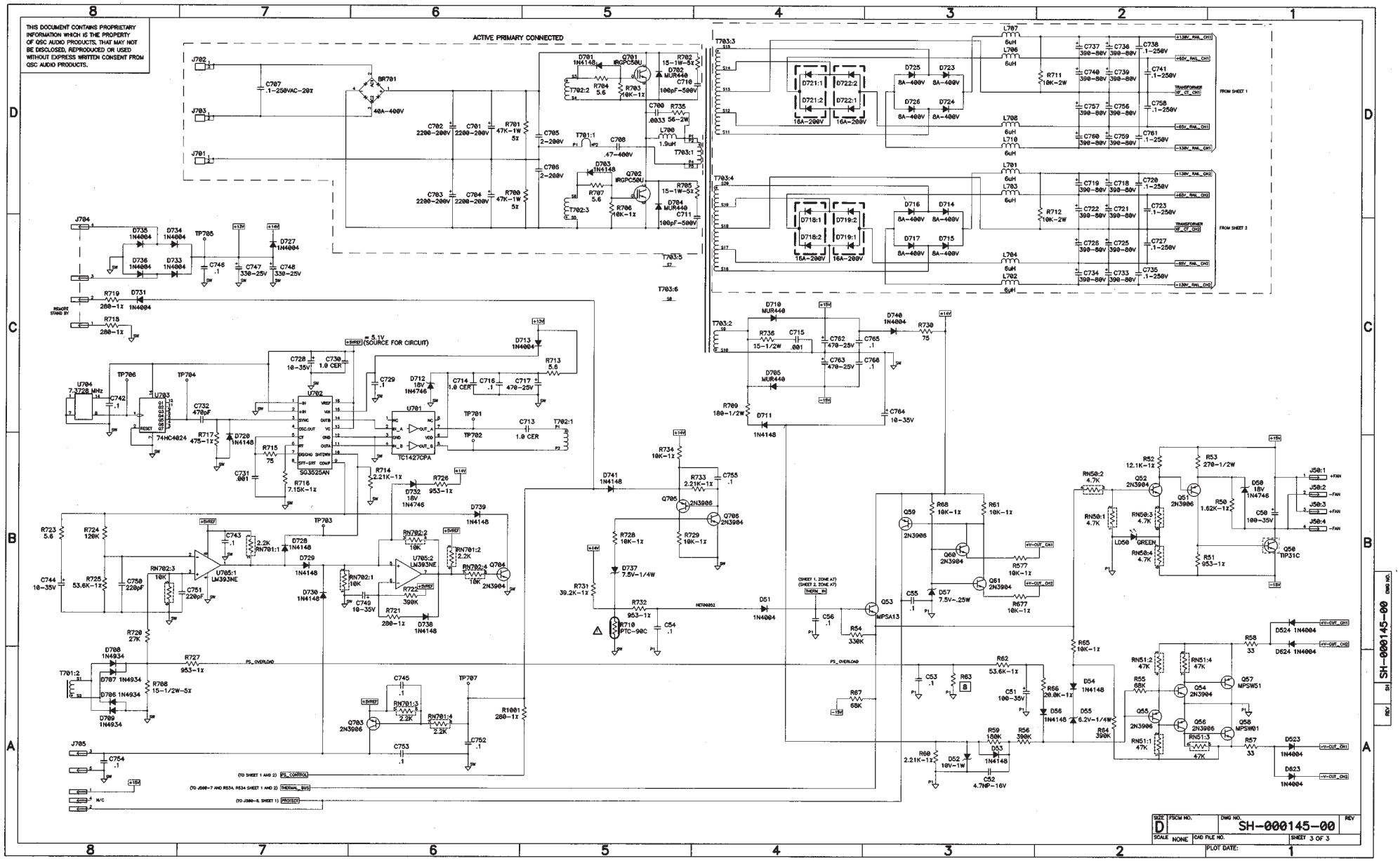
TO SHEET 3
+65 +130V SWITCHED BUS
-65 -130V SWITCHED BUS
AUDIO OUTPUT STAGE
HEATSINK
SPEAKER OUTPUT CH2
SPEAKER COMMON CH2
SPEAKER COMMON
SHUNT
BIAS NETWORK
IC-000005-00
IC-000009-00
SIZE D
FSCM NO.
DWG NO. SH-000145-00
REV
SCALE NONE
CAD FILE NO.
SHEET 2 OF 3
PLOT DATE:
DWG NO. SH-000145-00
REV 2
SH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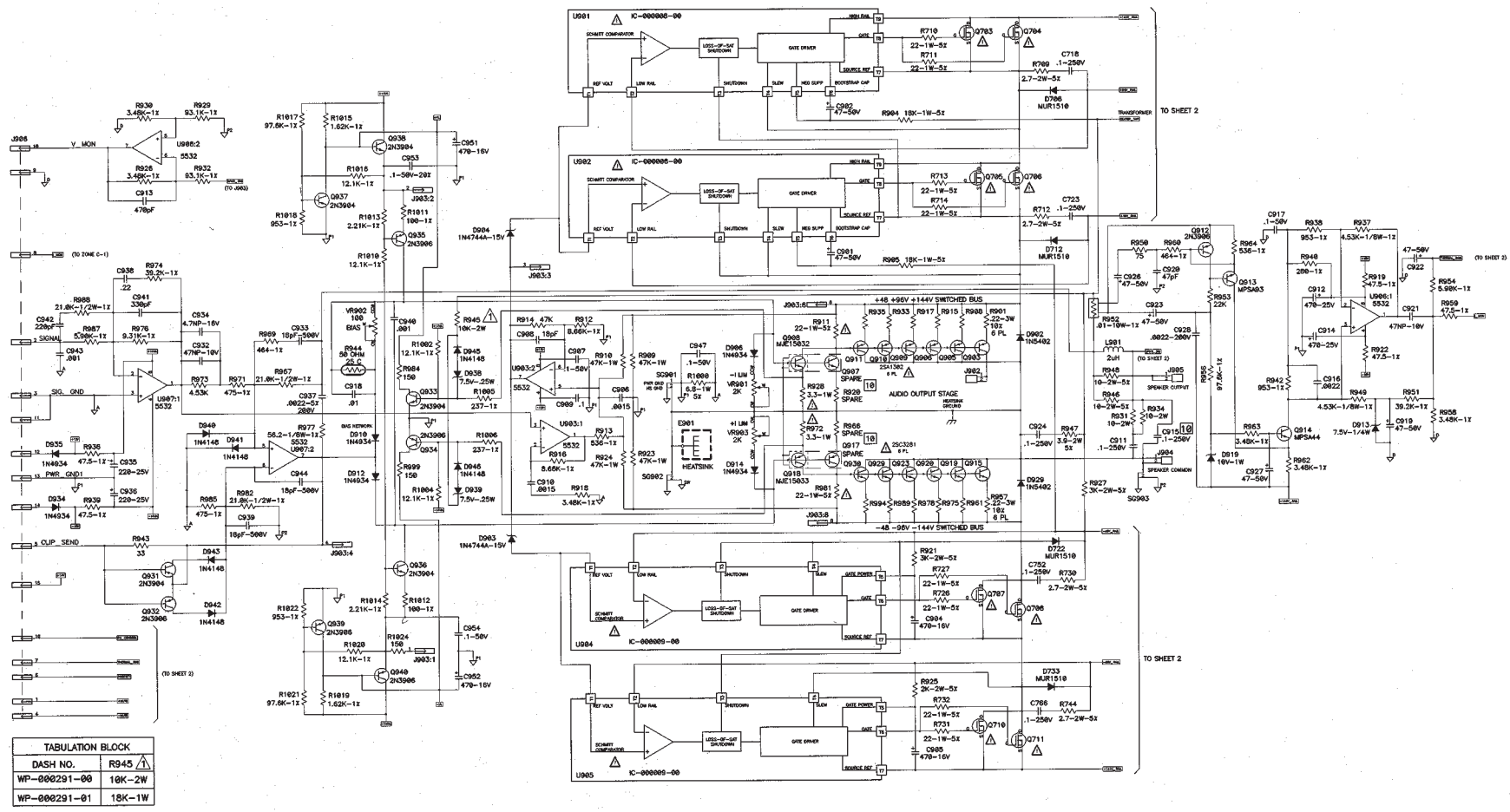
ACTIVE PRIMARY CONNECTED
SG3525AN
TC1427CPA
LM393NE
MPSA13
MPSW01
MPSW51
SIZE D
FSCM NO.
DWG NO. SH-000145-00
REV
SCALE NONE
CAD FILE NO.
SHEET 3 OF 3
PLOT DATE:



TABULATION BLOCK	
DASH NO.	R945 ⚠1
WP-000291-00	10K-2W
WP-000291-01	18K-1W

5. Q703-708, 710, 711 ARE SWITCHING FETS, QSC P/N QD-000031-QD, 125W, 60V MINIMUM, ON-RESISTANCE 0.030 OHMS MAX.
4. R715, 970 ARE POSITIVE TEMPERATURE COEFFICIENT RESISTORS MOUNTED TO HEAT SINK. RESISTANCE 100 OHM COLD, RISING AT 55C. QSC P/N RE-000006-VP.
3. ALL CAPACITORS 100V. TOLERANCE 20% FOR ELECTROLYTIC TYPES, 10% ON OTHER TYPES.
2. ALL RESISTORS ARE 1/4-WATT, 5%.
1. THIS DRAWING USED IN CONJUNCTION WITH PCB ASSEMBLY WP-000191-00.

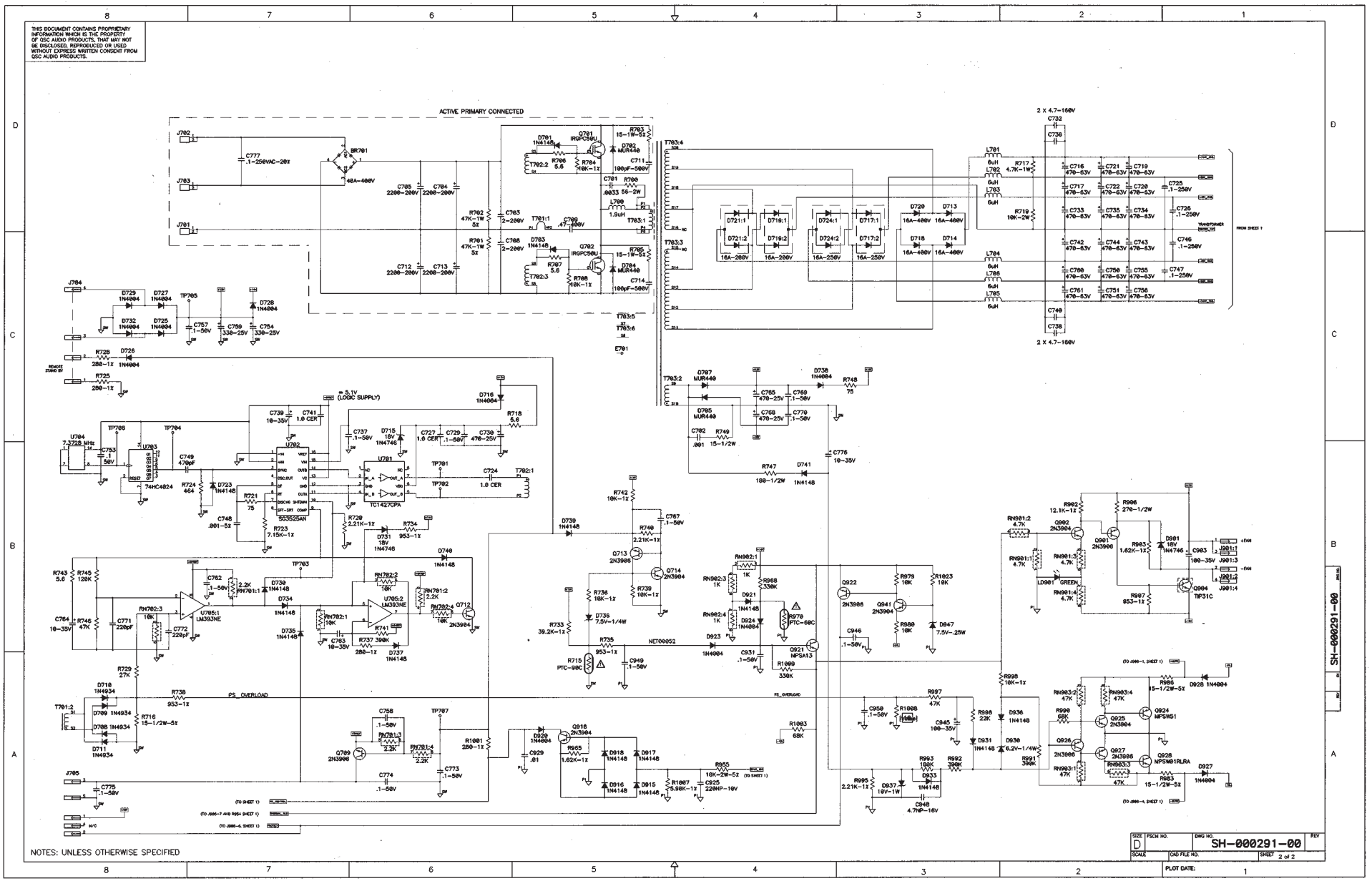
NOTES: UNLESS OTHERWISE SPECIFIED

10 COMPONENTS Q907, Q917, R920, R966, R1008 AND C915 ARE SPARES AND ARE NOT LISTED IN THE BILL OF MATERIALS.
9. TO-220 DIODES D713, 714 AND 724 ARE SELECTED FOR PEAK REVERSE VOLTAGE GREATER THAN 250V.
8. PARTS ENCLOSED WITHIN DOTTED OUTLINE _ _ HAVE VOLTAGES GREATER THAN 42V.
7. PARTS MARKED WITH TRIANGLE ⚠ MUST BE REPLACED WITH EXACT TYPE ONLY.
6. ZENERS D736, D947 AND D913, MARKED 7.5V, LOW LEAKAGE, QSC P/N QD-0007.5-ZT. ZENER D930, MARKED 6.2V, LOW LEAKAGE, QSC P/N QD-000024-QD.

SCHEMATIC DIAGRAM
MAIN PCB, POWERLIGHT 3.4

SH-000291-00

SIZE D | FSCM NO. | DWG NO. SH-000291-00 | REV
SCALE NONE | CAD FILE NO. | SHEET 1 of 2 | PLOT DATE: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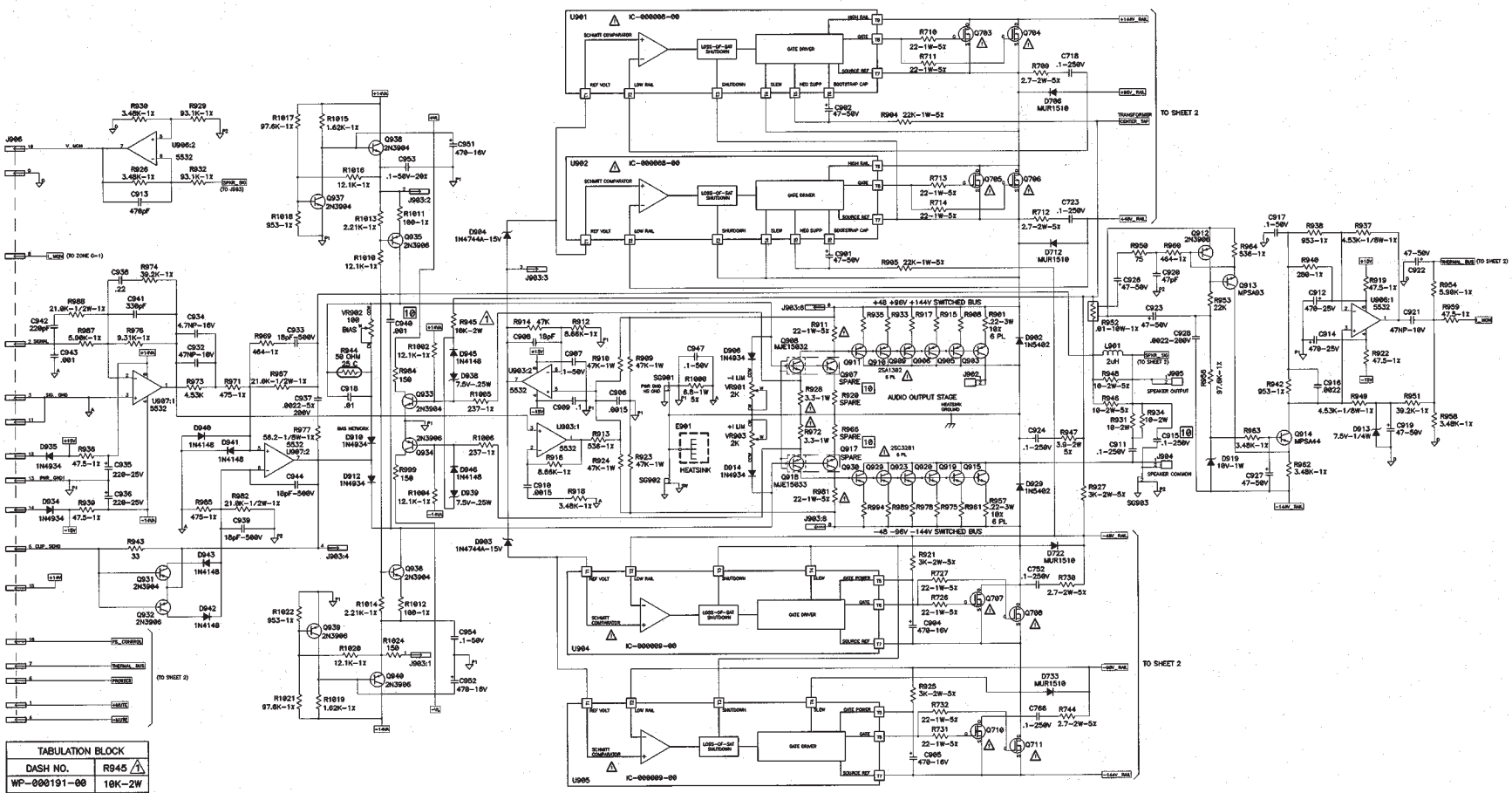
ACTIVE PRIMARY CONNECTED
NOTES: UNLESS OTHERWISE SPECIFIED
SIZE D
FSCM NO.
DWG NO. SH-000291-00
REV
SCALE
CAD FILE NO.
SHEET 2 of 2
PLOT DATE:
SH-000291-00



TABULATION BLOCK	
DASH NO.	R945 ⚠1
WP-000191-00	10K-2W
WP-000191-01	18K-1W

5. Q703-708, 710, 711 ARE SWITCHING FETS, QSC P/N QD-000031-QD, 125W, 60V MINIMUM, ON-RESISTANCE 0.030 OHMS MAX.
4. R715, 970 ARE POSITIVE TEMPERATURE COEFFICIENT RESISTORS MOUNTED TO HEAT SINK. RESISTANCE 100 OHM COLD, RISING AT 55C. QSC P/N RE-000006-VP.
3. ALL CAPACITORS 100V. TOLERANCE 20% FOR ELECTROLYTIC TYPES, 10% ON OTHER TYPES.
2. ALL RESISTORS ARE 1/4-WATT, 5%.
1. THIS DRAWING USED IN CONJUNCTION WITH PCB ASSEMBLY WP-000191-00.

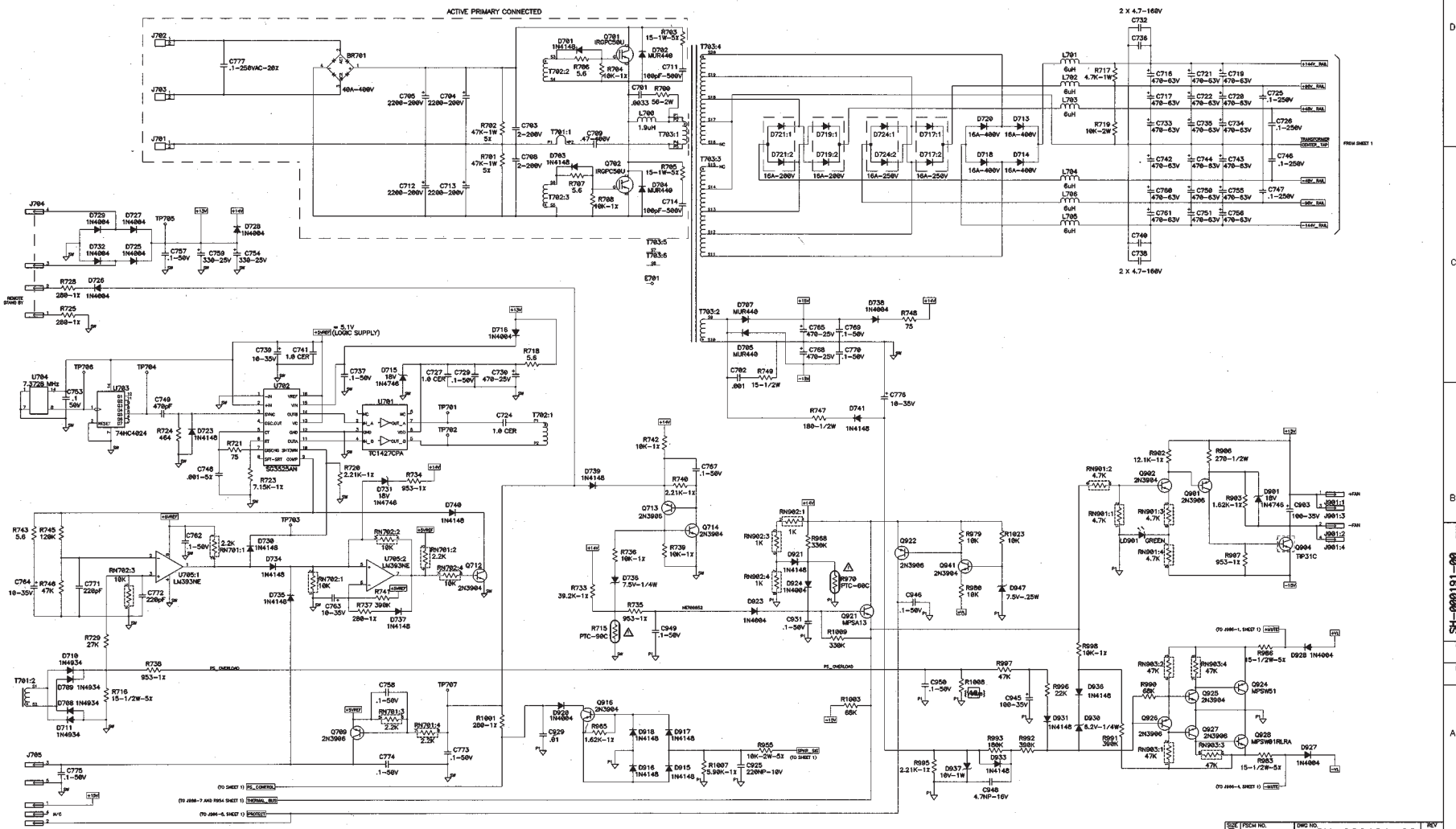
NOTES: UNLESS OTHERWISE SPECIFIED

⑩ COMPONENTS Q907, Q917, R920, R966, R1008, C940 AND C915 ARE SPARES AND ARE NOT LISTED IN THE BILL OF MATERIALS.
9. TO-220 DIODES D713, 714 AND 724 ARE SELECTED FOR PEAK REVERSE VOLTAGE GREATER THAN 250V.
8. PARTS ENCLOSED WITHIN DOTTED OUTLINE — — HAVE VOLTAGES GREATER THAN 42V.
7. PARTS MARKED WITH TRIANGLE ⚠ MUST BE REPLACED WITH EXACT TYPE ONLY.
6. ZENERS D736, D947 AND D913, MARKED 7.5V, LOW LEAKAGE, QSC P/N QD-0007.5-ZT. ZENER D930, MARKED 6.2V, LOW LEAKAGE, QSC P/N QD-000024-QD.

SCHEMATIC DIAGRAM
MAIN PCB, POWERLIGHT 4.0

SIZE D | FSCM NO. | DWG NO. SH-000191-00 | REV
SCALE NONE | CAD FILE NO. | SHEET 1 of 2
PLOT DATE:

SH-000191-00

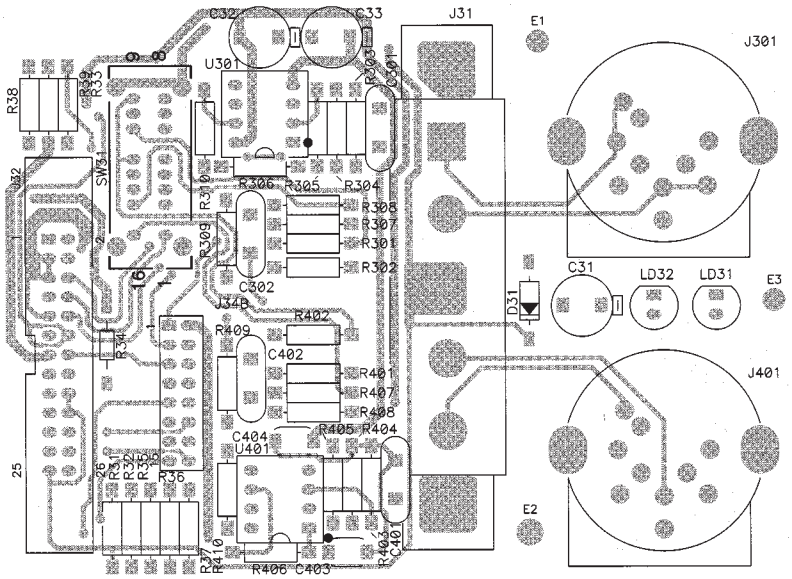


SIZE	FSCM NO.	DWG NO.	REV
D		SH-000191-00	
SCALE	CAD FILE NO.	SHEET 2 of 2	
		PLOT DATE:	

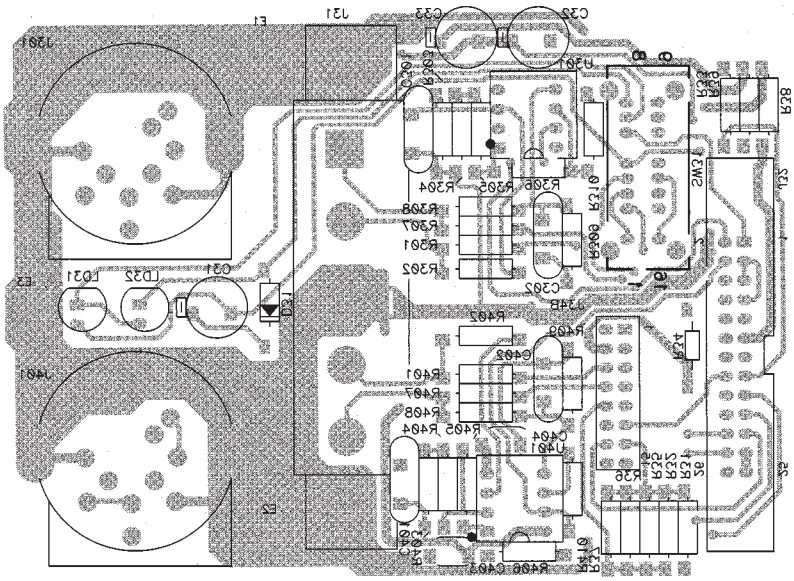
SH-000191-00

Input Board PCB

Component Side

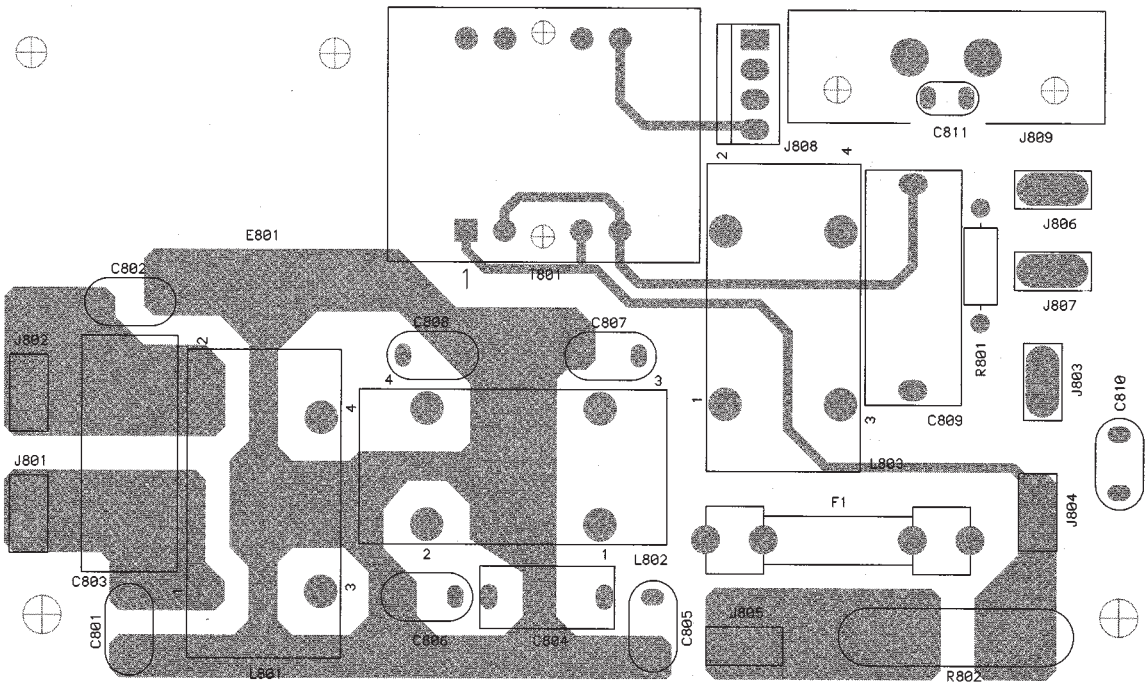


Solder Side

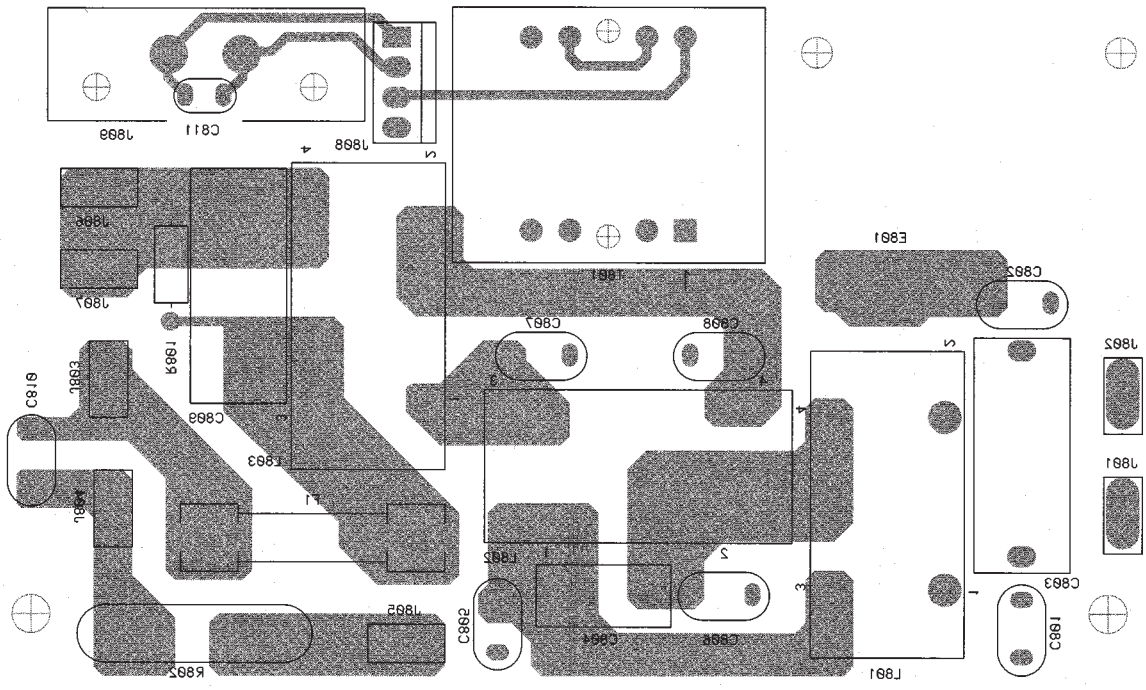


Voltage Board PCB 100 - 120V

Component Side

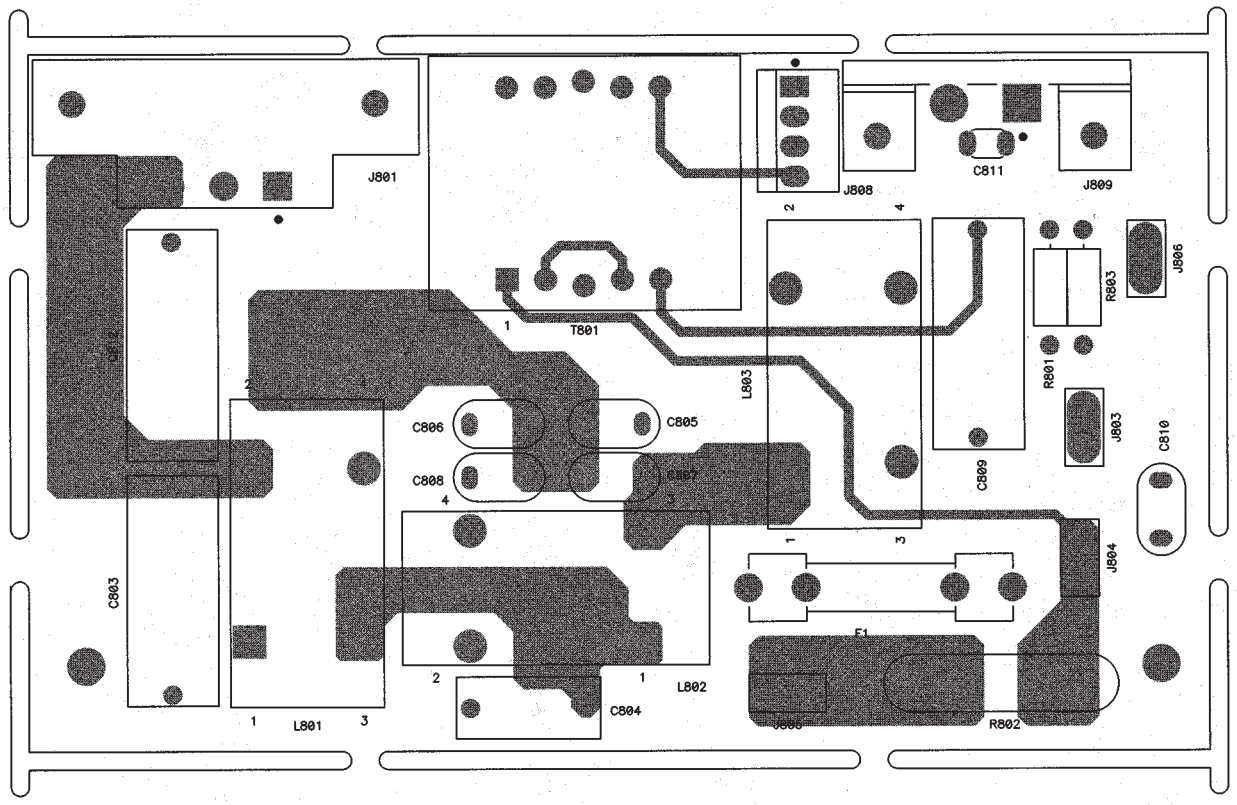


Solder Side

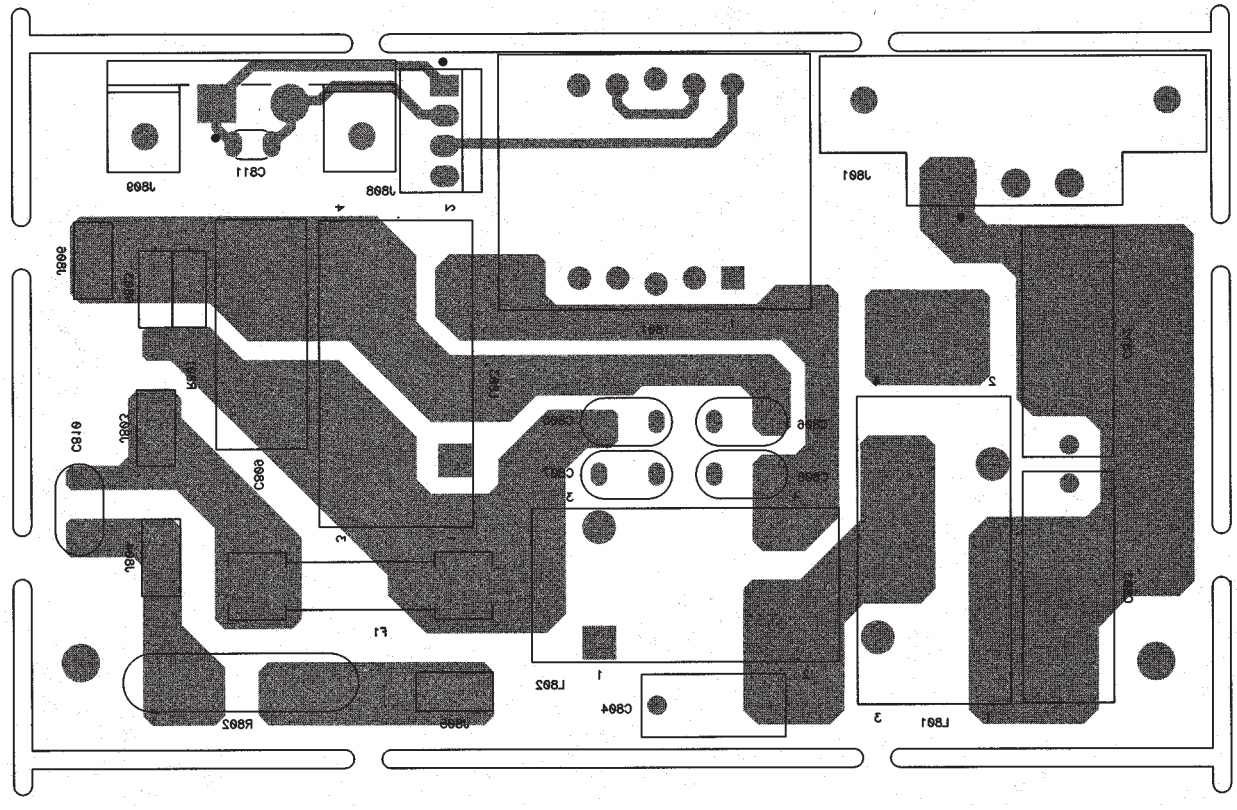


Voltage Board PCB 230V

Component Side

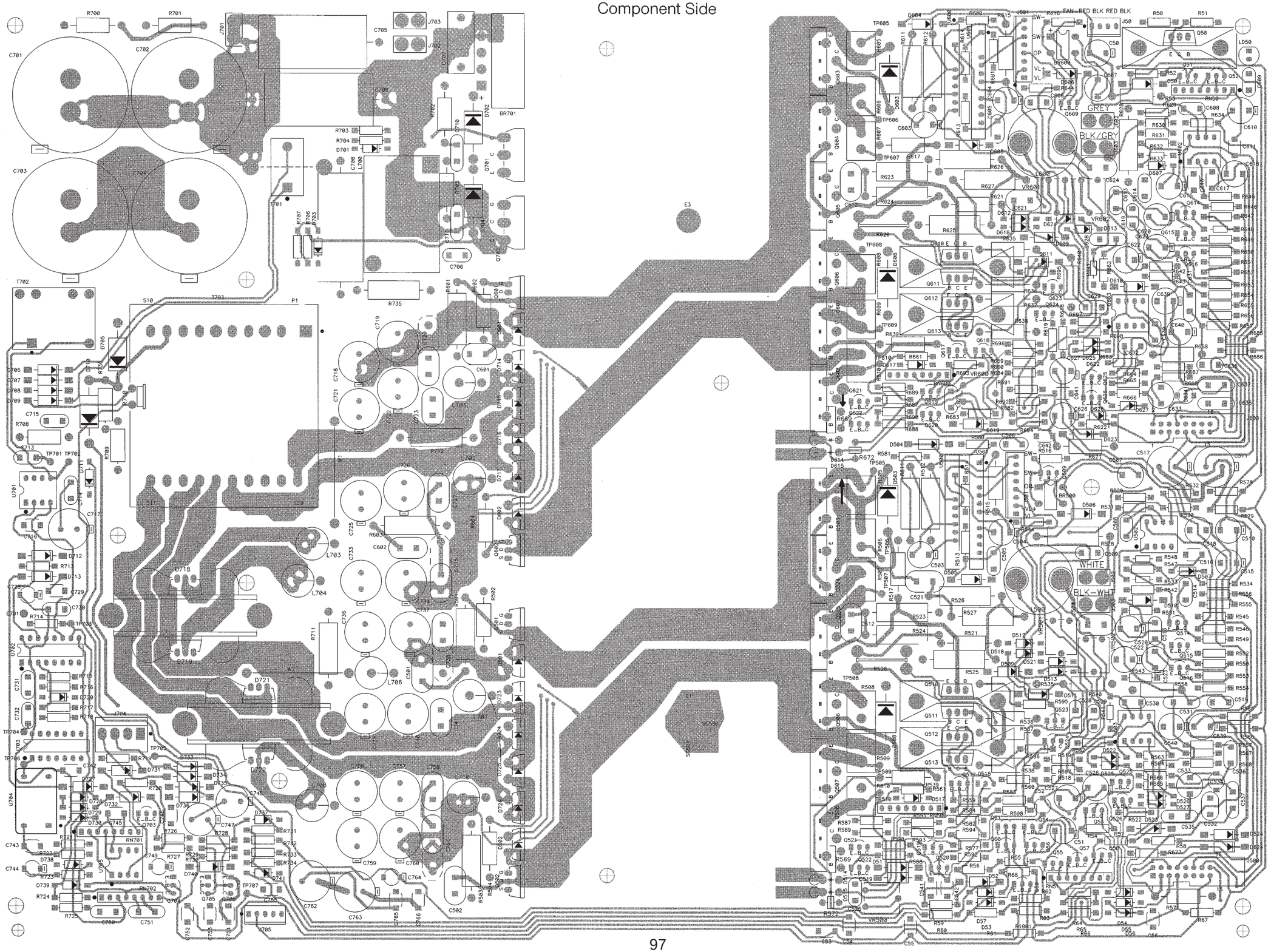


Solder Side



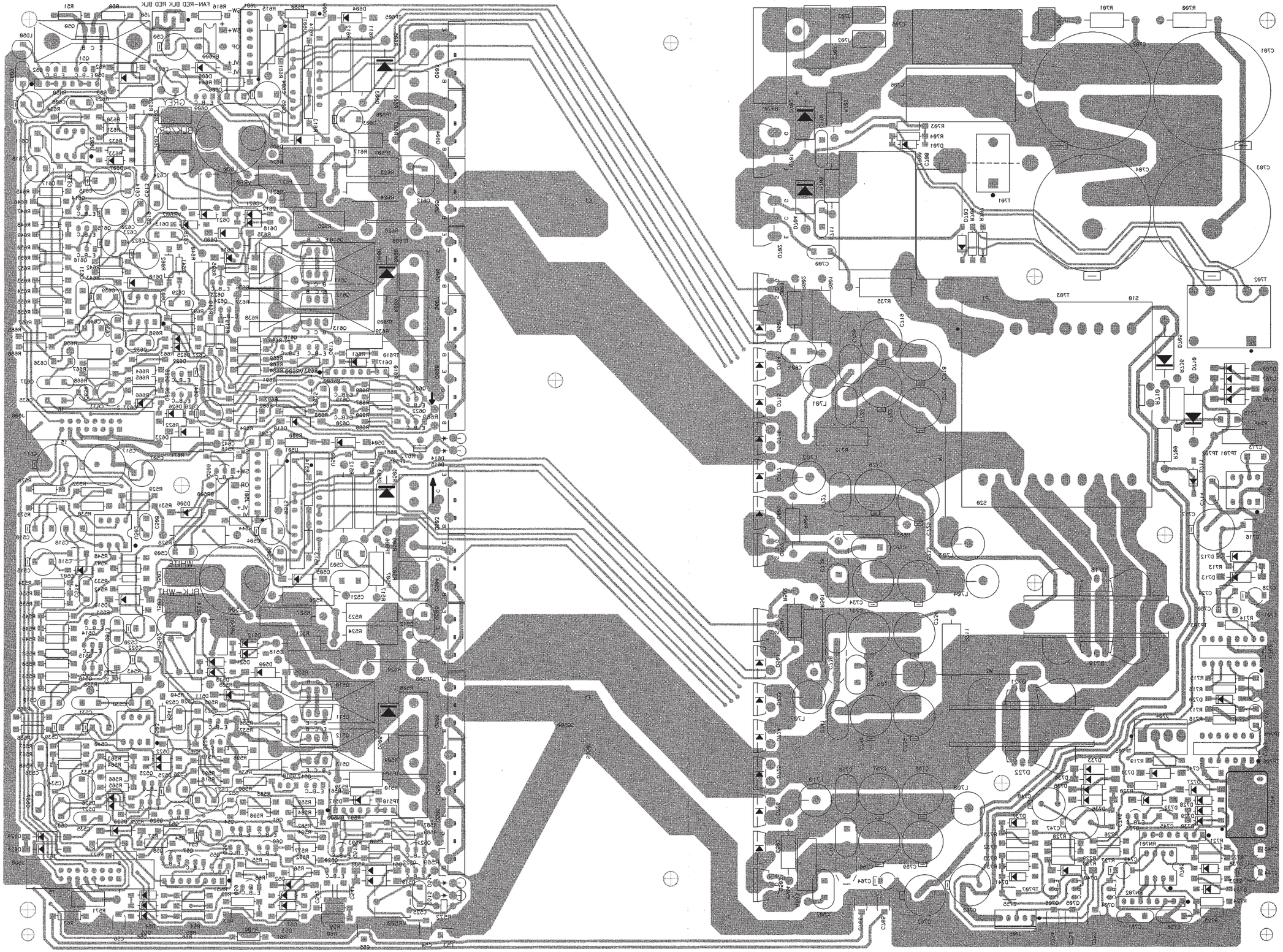
Main Board PCB

Component Side



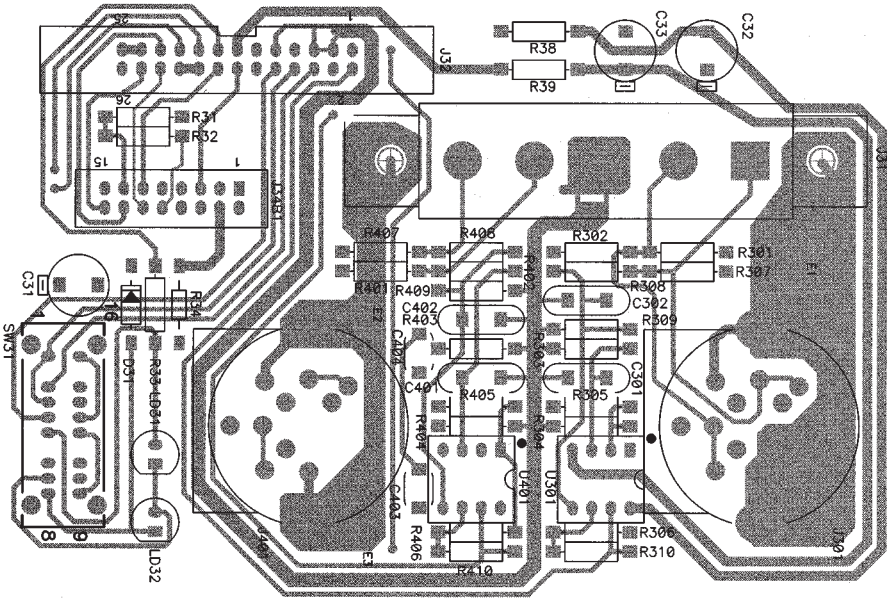
Main Board PCB

Solder Side

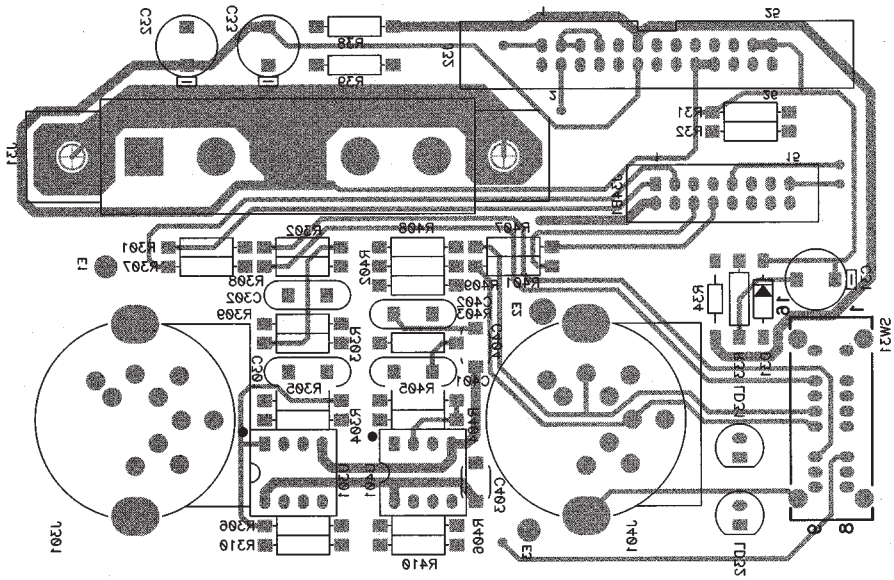


Input Board PCB

Component Side

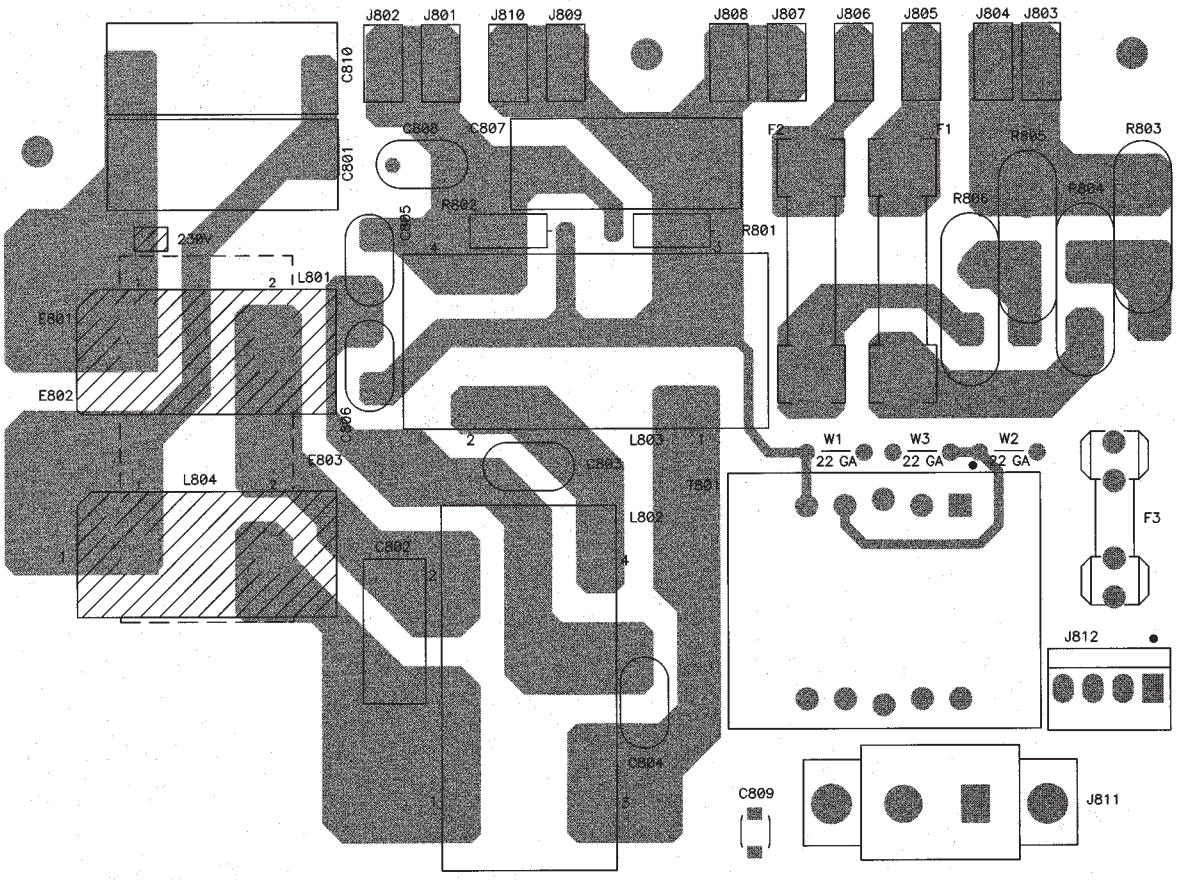


Solder Side

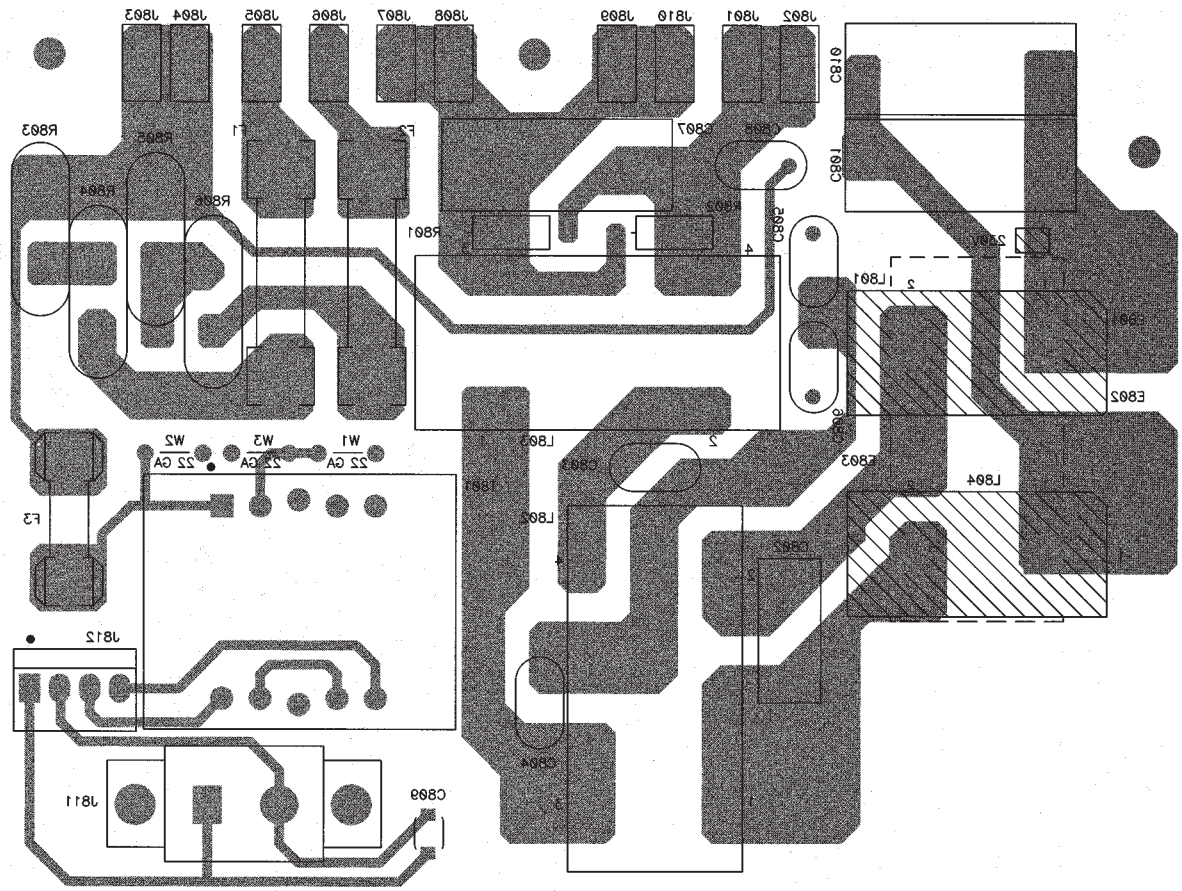


Voltage Board PCB

Component Side

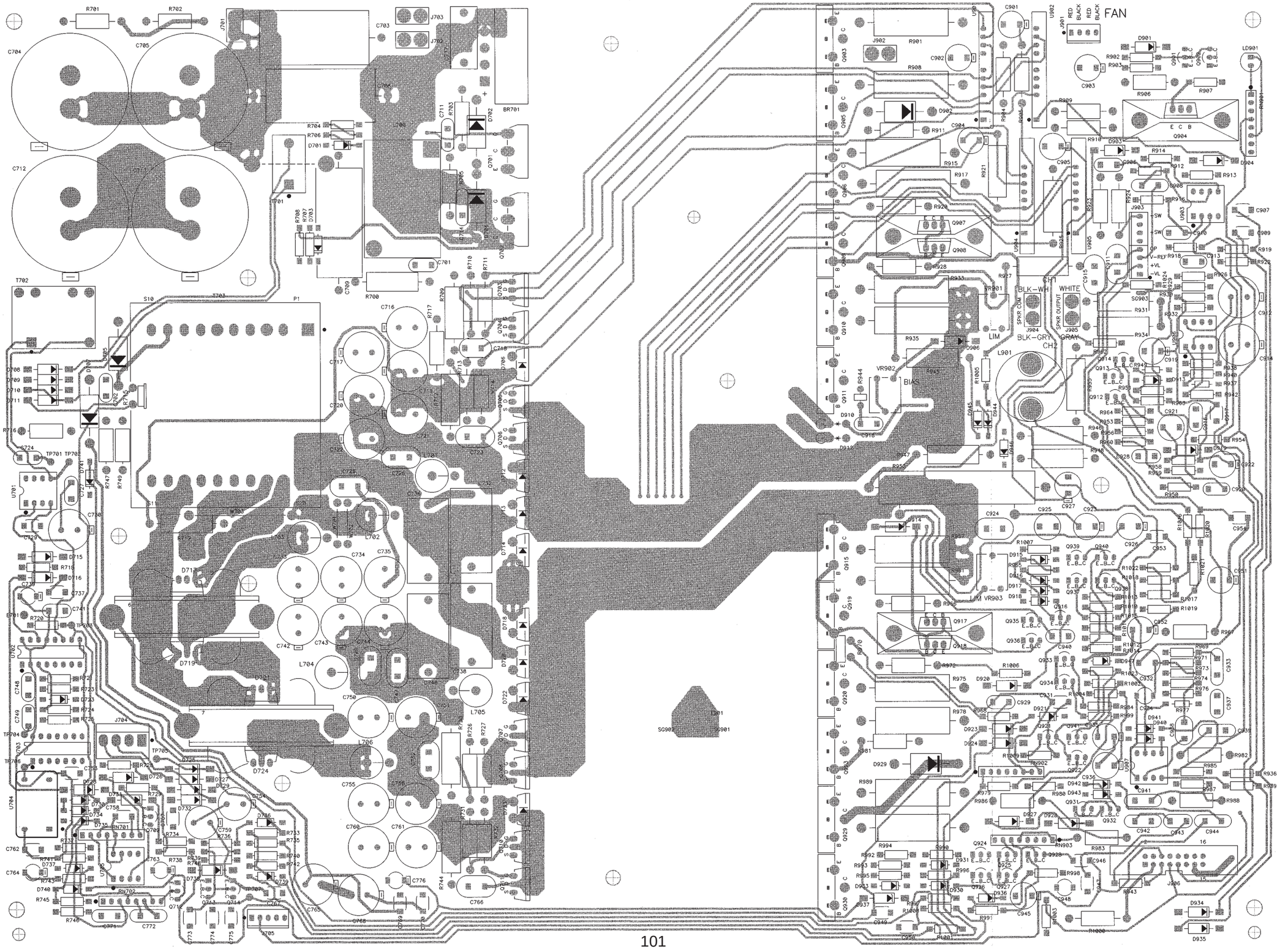


Solder Side



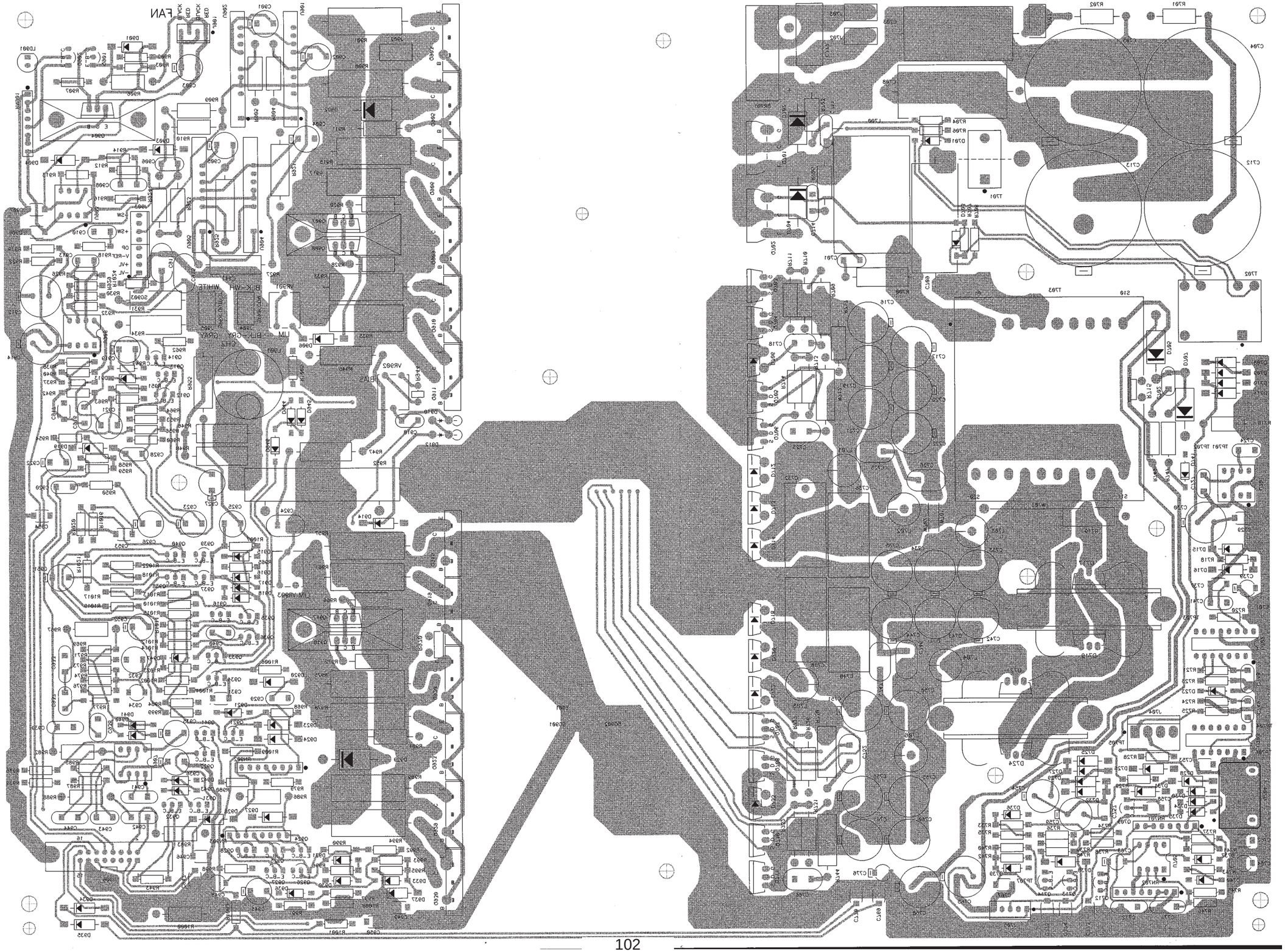
Main Board PCB

Component Side



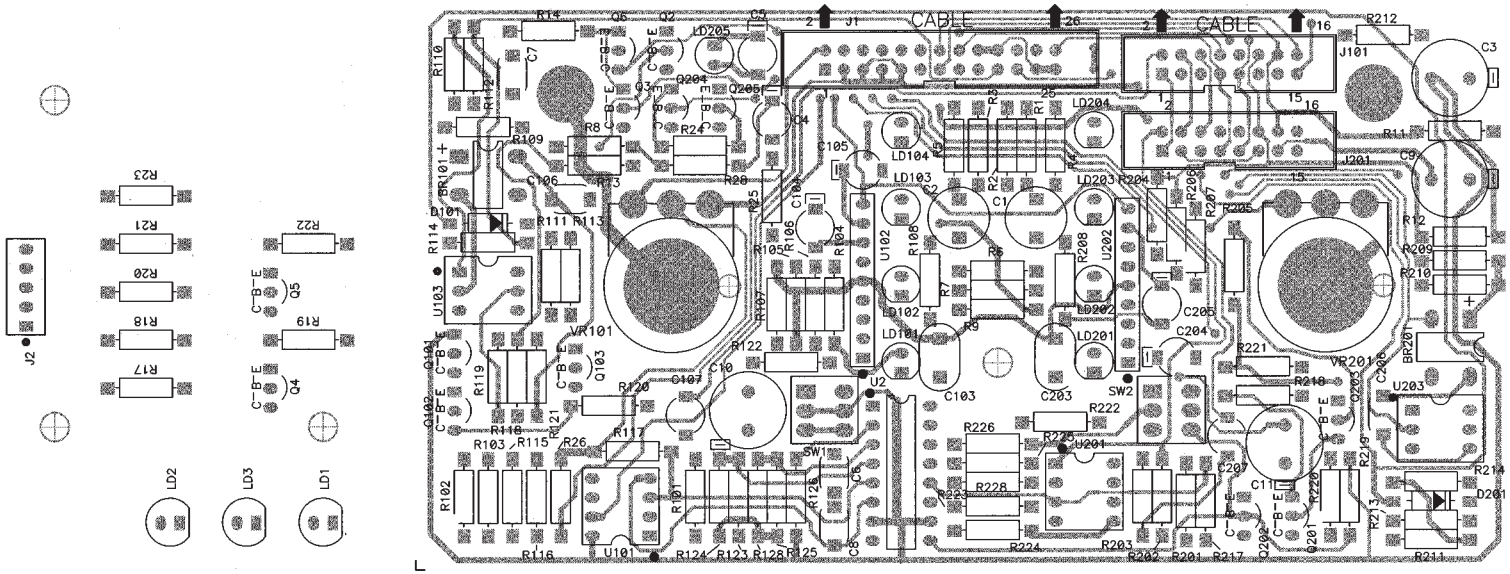
Main Board PCB

Solder Side



Power Status and Display Board PCB

Component Side



Power Status and Display Board PCB

Solder Side