

**TECHRON®**

**TECHNICAL MANUAL**  
INCLUDES SERVICE INFORMATION

**5507**  
**POWER SUPPLY AMPLIFIER**

Techron division of Crown International, Inc. 1718 W. Mishawaka Road, Elkhart, IN 46517

**TECHRON  
LIMITED ONE-YEAR WARRANTY**

**SUMMARY OF WARRANTY**

CROWN INTERNATIONAL, INC., 1781 West Mishawaka Road, Elkhart, Indiana 46517 (Warrantor) warrants to the ORIGINAL COMMERCIAL PURCHASER ONLY of each NEW TECHRON product, for a period of one (1) year from the date of purchase by the original purchaser (warranty period) that the product is free of defects in materials or workmanship and will meet or exceed all advertised specifications for such a product. This warranty does not extend to any subsequent purchaser or user, and automatically terminates upon your sale or other disposition of our product.

**ITEMS EXCLUDED FROM WARRANTY**

We are not responsible for product failure caused by misuse, accident or neglect. This warranty does not extend to any product on which the serial number has been defaced, altered or removed. It does not cover damage to speakers or any other products or accessories resulting from Techron product failure. It does not cover defects or damage caused by your use of unauthorized modifications, accessories, parts, or service.

**WHAT WE WILL DO**

We will remedy any defect in materials or workmanship by repair, replacement, or refunds. If a refund is elected, then you must make the defective or malfunctioning component available to us free and clear of all liens or other encumbrances. The refund will be equal to the actual purchase price, not including interest, insurance, closing costs, and other finance charges less a reasonable depreciation on the product from the date of original purchase. Warranty work can only be performed at our authorized service centers or at our factory. All expenses in remedying the defect including one way shipping costs in the United States, will be borne by Crown. (Purchaser must bear the expense of shipping the product between any foreign county and the port of entry in the United States and all taxes, duties, and other custom's fee for such foreign shipments.)

**HOW TO OBTAIN WARRANTY SERVICE**

You must notify us of your need for warranty service not later than ninety (90) days after expiration of the warranty period. We will give you an authorization to return it to us for service. All components must be shipped in a factory pack or equivalent which, if needed, may be obtained from us for a nominal charge. Corrective actions will be taken within a reasonable time of the date of receipt of the defective product by us. If the repairs made by us are not satisfactory, notify us immediately.

**DISCLAIMER OF CONSEQUENTIAL AND INCIDENTAL DAMAGES**

**YOU ARE NOT ENTITLED TO RECOVER FROM US ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES RESULTING FROM ANY DEFECT IN OUR PRODUCT. THIS INCLUDES ANY DAMAGE TO ANOTHER PRODUCT OR PRODUCTS RESULTING FROM SUCH A DEFECT.**

**WARRANTY ALTERATIONS**

**NO PERSON HAS THE AUTHORITY TO ENLARGE, AMEND, OR MODIFY THIS WARRANTY. THE WARRANTY IS NOT EXTENDED BY THE LENGTH OF TIME WHICH YOU ARE DEPRIVED OF THE USE OF THE PRODUCT. REPAIRS AND REPLACEMENTS PARTS PROVIDED UNDER THE TERMS OF THIS WARRANTY SHALL CARRY ONLY THE UNEXPIRED PORTION OF THIS WARRANTY.**

**DESIGN CHANGES**

We reserve the right to change the design of any product from time to time without notice and with no obligation to make corresponding changes in products previously manufactured.

**LEGAL REMEDIES OF PURCHASER**

There is no warranty which extends beyond the terms hereof. This written warranty is give in lieu of any oral or implied warranties not contained herein. WE DISCLAIM ALL IMPLIED WARRANTIES, INCLUDING WITHOUT Limitation ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No action to enforce this Warranty shall be commenced later than ninety (90) days after expiration of the warranty period.

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**TECHRON  
MODEL 5507 POWER SUPPLY AMPLIFIER**

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**TECHRON  
MODEL 5507 POWER SUPPLY AMPLIFIER  
INSTRUCTION MANUAL**

**SECTION 1: GENERAL INFORMATION**

**1-1 Introduction**

The TECHRON Model 5507 is a compact, single or dual channel power supply amplifier designed for use in medium power systems which demand high accuracy and dependability. To become familiar with its many features study this manual thoroughly.

Model 5507 provides precision amplification of frequencies from 20Hz to 20KHz with minimum distortion. Output capability is 45 watts per channel minimum RMS into a 4 ohm load. When the amplifier is bridged and operating as a mono channel unit, output power reaches 95 watts minimum RMS into an 8 ohm load.

**1-2 General Operation**

The rotary power switch activates an ON lamp.

The output transistors operate in the CROWN-designed AB + B configuration where quiescent current is carried by the driver stages until the output transistors are summoned by a large current demand. (TECHRON is a division of CROWN International, Inc.) Dependable V-I current limiting provides protection against damage from shorted and low impedance loads, as well as damage from overloaded power supplies, input overload, and high frequency overloads.

Conventional BNC connectors provide input signal path to the unit. Standard MDP "banana" jacks provide connection of output signal.

An external mono/dual slide switch provides quick and easy conversion for either single or dual channel operation.

**1-3 Service Policies**

Due to the sophisticated circuitry of Model 5507, have only qualified and fully trained technicians perform service work, or return to the factory in original packing for service. Replacement packing is obtainable from TECHRON. When returning Model 5507, enclose a brief letter explaining as completely as possible the problem or problems. For any service performed outside the TECHRON factory, be sure to read, understand and follow instructions in this manual.

**1-4 Accessories Supplied**

Model 5507 comes complete with user's manual and four screws for rack mounting. See Section 3-2 for proper rack clearance.

## SECTION 2: SPECIFICATIONS AND PERFORMANCE

## 2-1 General Specifications

**Hum and Noise:** From 20Hz - 20KHz the hum and noise level is below 175 microvolts and 106dB below rated output.

**Phase Response:** +10 [0], -15 [0] 20K at 1 watt.

**Input Impedance:**  
(BNC) 25,000 ohms +/- 30%

**Amplifier Output Protection:** Total protection against shorted, mismatched, or open outputs. Volt-ampere limiting circuitry acts instantaneously with no annoying thumps or cutouts.

**Overall Protection:** AC line fused. The controlled slewing rate of the voltage amplifiers protects the overall amplifier against RF burnout. Input overload protection is furnished by an internal resistor at the amplifier's inputs.

**DC Output Offset:** (shorted input) +/- 10 millivolts.

**Turn On:** Instantaneous, with minimum thumps and no program delay.

**Power Supply:** Specially designed low profile transformer, two regulated supplies for complete isolation and stability, plus computer grade filter capacitors.

**Power Requirements:** AC voltages of 100, 120, 200, 220 and 240 volts +/- 10% at a line-frequency between 50 and 400Hz may be used.

**Power Consumption:** 15 watts at idle, 120 watts at full rated output.

**Heatsinking:** The entire amplifier is used as a heatsink. Front panel extrusion acts as a heatsink along with the chassis covers.

**Chassis:** Aluminum-chassis construction for maximum heat conduction and minimum weight.

**Controls:** Two input-level controls and a power switch on the front panel. A mono-stereo switch, located next to the input jacks on the rear panel.

**Indicators:** 2 IOC indicators (red)  
2 signal-presence indicators (green)  
1 power indicator (amber)

**Connectors, Input:** BNC jack.

**Ground Link:** A means for isolating or uniting chassis-ground from or with electrical ground is provided on the rear panel. The grounds are always connected internally by 2.7 ohms.

**Output:** Color-coded binding posts with a 1/4" 3-conductor output monitor jack on the front panel.

**Dimensions:** 19" long, 9" deep, and 1-3/4" high (8-1/2" deep from mounting surface.) Standard 19" rack-mounting system is provided.

**Weight:** 10 pounds net weight.

**Finish:** Polyurethane with Lexan insert front panel.

**Displays:**  
POWER (amber) - indicates power on.  
SIGNAL PRESENCE (green)- indicates complete signal path from input to output.  
IOC (red) - indicates amplifier overload conditions for either channel.

**Maximum AC Current Draw:** 2 amp fuse.

**2-2 Dual Channel Specifications**

**Output Power (4 ohm):** 45 watts per channel minimum RMS (both channels operating) into a 4 ohm load over a bandwidth of 20Hz-20KHz at a rated RMS sum total harmonic distortion of 0.05% of the fundamental output voltage.

**Output Power (8 ohm):** 35 watts per channel minimum RMS (both channels operating) into an 8 ohm load over a bandwidth of 20Hz-20KHz at a rated RMS sum total harmonic distortion of .05% of the fundamental output voltage.

**Frequency Response:** +/-0.1dB 20Hz-20KHz at 1 watt into 8 ohms; +/-1.2dB 5Hz - 100KHz at 1 watt into 8 ohms.

**1KHZ Power:** 40 watts RMS into 8 ohms, per channel, both channels operating, 0.1% total harmonic distortion; 55 watts RMS into 4 ohms, per channel, both channels operating, 0.1% total harmonic distortion.

**Harmonic Distortion:** Less than 0.001% from 20Hz - 400Hz and increasing linearly to 0.05% at 20KHz at 35 watts RMS per channel into 8 ohms.

**I.M. Distortion (60Hz-7KHz 4:1):** Less than 0.05% from 0.01 watts to 0.25 watts, and less than 0.01% from 0.25 watts to 35 watts into 8 ohms per channel.

**Slewing Rate:** 6 volts per microsecond.

**Damping Factor:** Greater than 400, DC-400Hz into 8 ohms.

**Output Impedance:** Less than 15 milliohms in series with less than 3 microhenries.

**Load Impedance:** Rated for 8 and 4 ohm usage; safely drives any load including completely reactive loads without damaging the amplifier.

**Voltage Gain:** 20.6 +/- 2% or 26.3 +/- .2dB at maximum gain.

**Input Sensitivity:** .812V +/- 2% for 35 watts into 8 ohms.

**Output Signal:** Unbalanced, dual channel.

**2-3 Mono Channel Specifications**

**Output Power (8 ohms):** 95 watts minimum RMS into an 8 ohm load over a bandwidth of 20Hz - 20KHz at a rated RMS sum total harmonic distortion of 0.05% of the fundamental output voltage.

**Output Power (16 ohm):** 70 watts minimum RMS into a 16 ohm load over a bandwidth of 20Hz - 20KHz at a rated RMS sum total harmonic distortion of 0.05% of the fundamental output voltage.

**Frequency Response:** +/- 0.2dB 20Hz - 20KHz, 1 watt, 16 ohms.  
+/- 1dB 6Hz - 50KHz, 1 watt, 16 ohms.

**1KHz Power:** 80 watts RMS into 16 ohms; 110 watts RMS into 8 ohms, (0.1% Total Harmonic Distortion)

**Harmonic Distortion:** Less than 0.001% from 20Hz - 400Hz and increasing linearly to 0.05% at 20KHz at 70 watts into 16 ohms.

**I.M. Distortion:** Less than 0.05% from 0.01 watts to 0.25 watts, and less than 0.01% from 0.25 watts to 70 watts into 16 ohms.

**Slewing Rate:** 12 volts per microsecond.

**Damping Factor:** Greater than 400, DC-400Hz into 16 ohms.

**Output Impedance:** Less than 30 milliohms in series with less than 6 microhenries.

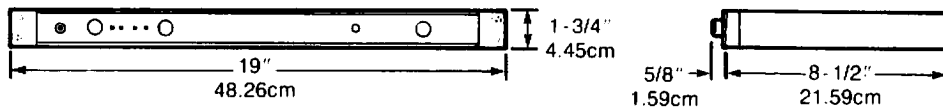
**Load Impedance:** Rated for 8 and 16 ohm usage; safely drives any load including completely reactive loads without damaging the amplifier.

**Voltage Gain:** 41.2 +/-2% (or 32.3 +/-0.2dB) at maximum gain.

**Input Sensitivity:** .812 volts +/-2% for 70 watts into 16 ohms.

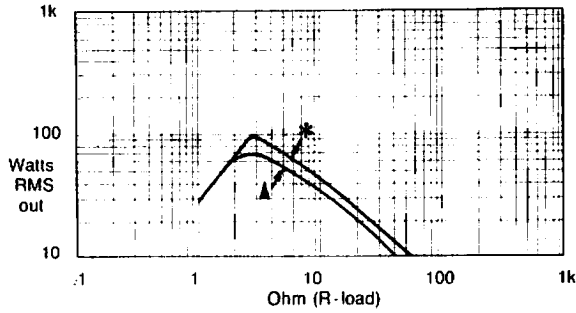
**Output Signal:** Balanced, mono channel. Channel 1 controls are active, Channel 2 is inactive, but not disabled.

**Input Sensitivity:** .812 volts +/-2% for 35 watts into 8 ohms.



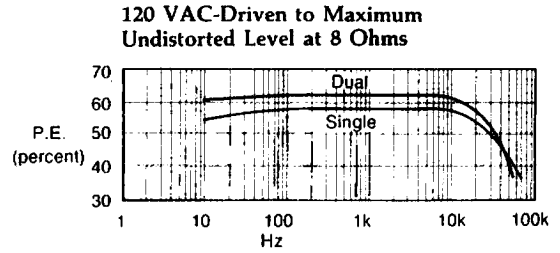
**Illustration 2-1  
Mounting Dimensions**



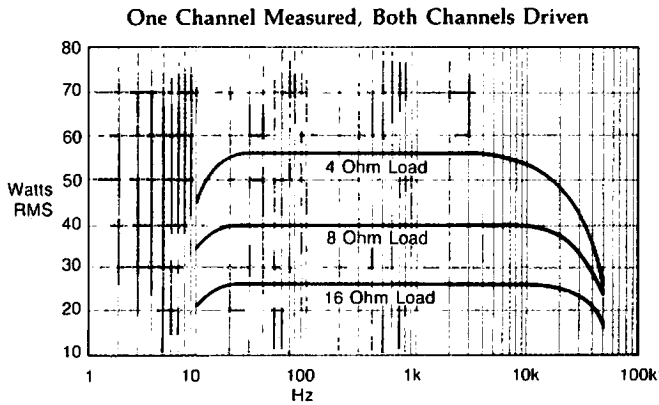


Notes:  
 1. \* —1 Channel Driven  
 2. ▲ —1 Channel, Both Channels Driven

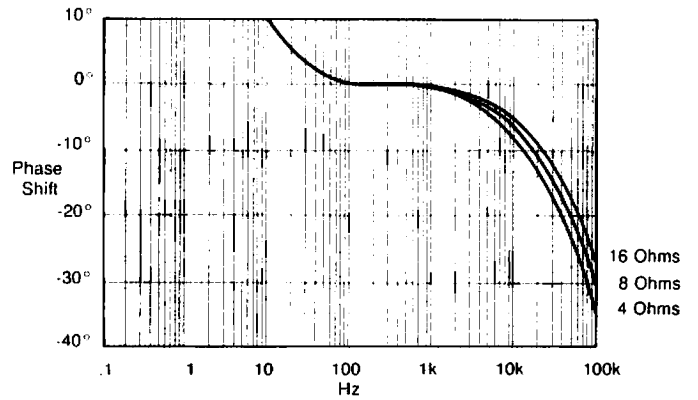
**Illustration 2-2**  
 Output vs. Load at 1KHz



**Illustration 2-4**  
 Typical Power Efficiency



**Illustration 2-3**  
 Typical Power Output at Clip Point



**Illustration 2-5**  
 Phase Response

**SECTION 3: INSTALLATION AND OPERATION**

**3-1 Unpacking**

Every TECHRON Model 5507 is carefully inspected and tested prior to leaving the factory. Carefully unpack and inspect the unit for damage in shipment. If damage is found, notify the transportation company immediately. Save the shipping carton and packing materials as evidence of damage for the shipper's inspection. TECHRON will cooperate fully in the case of any shipping damage investigation.

In any event, save the packing materials for later use in transporting or shipping the unit. Replacement packing materials are available from TECHRON. Never ship this unit without proper packing.

**3-2 Mounting**

Model 5507 may be mounted in a standard 19" rack. Use mounting washers and screws supplied with unit whenever possible. For proper cooling, allow a rack clearance of 1-3/4" above and below the unit, along with adequate ventilation in the mounting rack area. If two or more Model 5507 amplifiers are mounted above one another, allow 1-3/4" clearance below the bottom amplifier, 1-3/4" above the top amplifier and 1-3/4" between amplifiers.

**CAUTION**

Do not operate Model 5507 in a small sealed chamber of any kind. Improper operation and overheating will result.

**3-3 Operating Precautions**

1. Use care in making connections, selecting signal sources, and controlling output level. Model 5507 is capable of causing serious damage to improper loads or through improper connections. See Section 3-10 for information on Load Protection.

2. Never directly parallel the output of Model 5507 with any other amplifier's output. This connection may cause serious damage to the amplifier and/or load and will not result in increased power output.

Note: By following specific procedures, the two channels of Model 5507 may be operated in parallel. See Section 4-2-2. Follow instructions exactly.

3. Do not short the ground lead of an output cable to the input signal ground. Oscillations may result.

4. Never connect the output to a power supply output, battery, or power main. These connections will cause serious damage to the amplifier.

5. Do not permit unqualified personnel to tamper with circuitry. Do not make unauthorized circuit modifications. Serious damage to the amplifier and/or safety hazards may result.

6. Follow all instructions for proper amplifier operation.

**WARNING**

**NEVER OPERATE MODEL 5507 WITH COVER PANELS REMOVED. SEE SECTION 6 FOR PROPER SERVICE PROCEDURES INCLUDING SERVICE OPERATIONS WITH COVERS REMOVED.**

**3-4 Connecting Output Lines**

Model 5507 output connectors are located at the rear of the amplifier as shown in Illustration 3-1. While making connections, follow this procedure:

1. Turn unit power off.
2. Turn input level controls fully counterclockwise.

**CAUTION**

TECHRON is not liable for damage to any transducer due to overpowering.

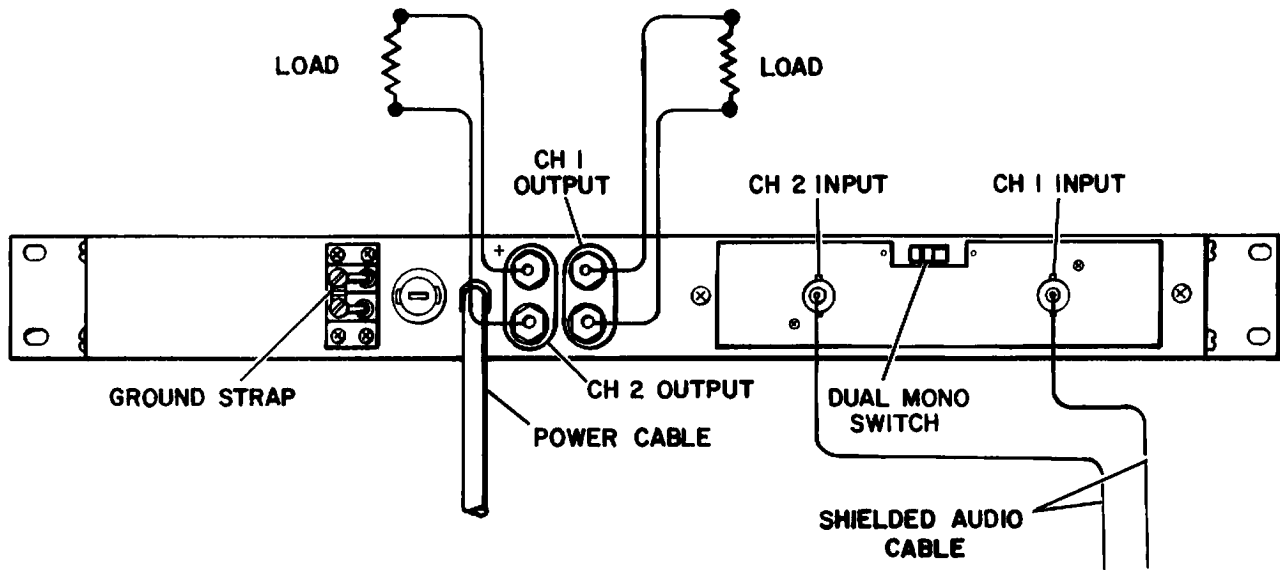


Illustration 3-1  
Rear Panel Connections: Dual Channel Operation

3. Use dual banana (MDP) plug output connector(s).
4. To prevent spurious oscillations and undesired feedback, carefully lace output cables together. For the same reasons, never route output cables with input cables.
5. Do not join amplifier input and output grounds externally to the unit.
6. In installations where the output and input signals area attached to AC-powered devices, it may be necessary to low-pass filter the amplifier input in order to eliminate capacitive coupling via AC mains.

### 3-5 Connecting Input Lines

Model 5507 incorporates BNC type connectors for input. When connecting input lines observe the following precautions:

1. To avoid "ground loops" or undesirable circulating currents in the grounding circuit, tie input cables together along their length, keeping them away from power supply lines and from output cables.
2. To protect against feedback oscillation from load current flowing in a loop, provide proper grounding and isolation of input from devices using the same AC supply line as the amplifier.

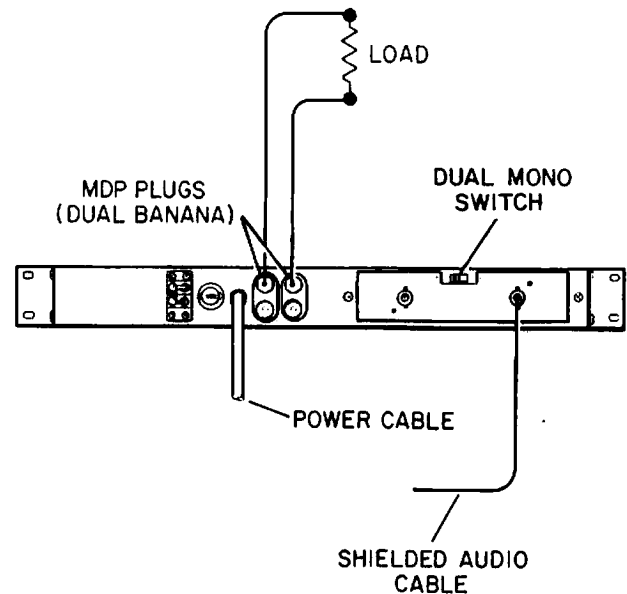
### 3-6 Mono Channel Operation

A mono-dual slide switch on the rear panel below input jacks allows Model 5507 to operate in either dual channel or mono channel configuration, with no internal modification. Switching to the mono position alters input circuitry of Model 5507 so that the two internal amplifiers work as a push-pull team for balanced mono channel output. Follow this procedure for mono channel operation:

1. Connect input line to channel 1 input connector. Adjust level with channel 1 input level control only.
2. Disconnect any input from channel 2 and turn channel 2 input level control (front panel) fully counterclockwise.

**Note:** In mono channel operation, channel 2 input jack and level control are not defeated but may not be used. Adding channel 2 input to channel 1 input will result in distortion, while channel 2 input alone will result in low power output.

3. Connect output lines as shown in Illustration 3-2, connecting positive terminals of both channels 1 and 2 to positive and negative terminals of load.



**Illustration 3-2**  
**Mono Channel Output Connections**

**Note:** Mono channel output is balanced and is isolated from the chassis and from the input grounds. Thus, both output leads are connected to the red or "hot" connectors only.

#### CAUTION

Be certain that all equipment (meters, switches, etc.) connected to the mono output lines is ungrounded. Both sides of the line must be totally isolated from the input grounds to Model 5507. Failure to observe this precaution will result in severe oscillation.

**Note:** Use of ungrounded test equipment may violate local codes.

**3-7 Connecting Power**

**3-7-1 AC Connector**

Model 5507 uses a three-wire AC line system. At times, the third wire ground may introduce a ground loop into the system. If ground loop is present, remove ground shorting strap located on the rear panel. See Illustration 3-1.

Note: Operating amplifier with ground strap removed may violate local codes.

**CAUTION**

Power supply must be at 50-400Hz AC. (60Hz maximum with optional cooling fan package.)

Model 5507 may be operated at various line voltages. The serial plate indicates factory voltage wiring. To convert from one voltage to another, see Section 3-7-2.

**CAUTION**

Only a competent technician should attempt to convert from one voltage to another. Follow instructions given in Section 3-7-2 thoroughly.

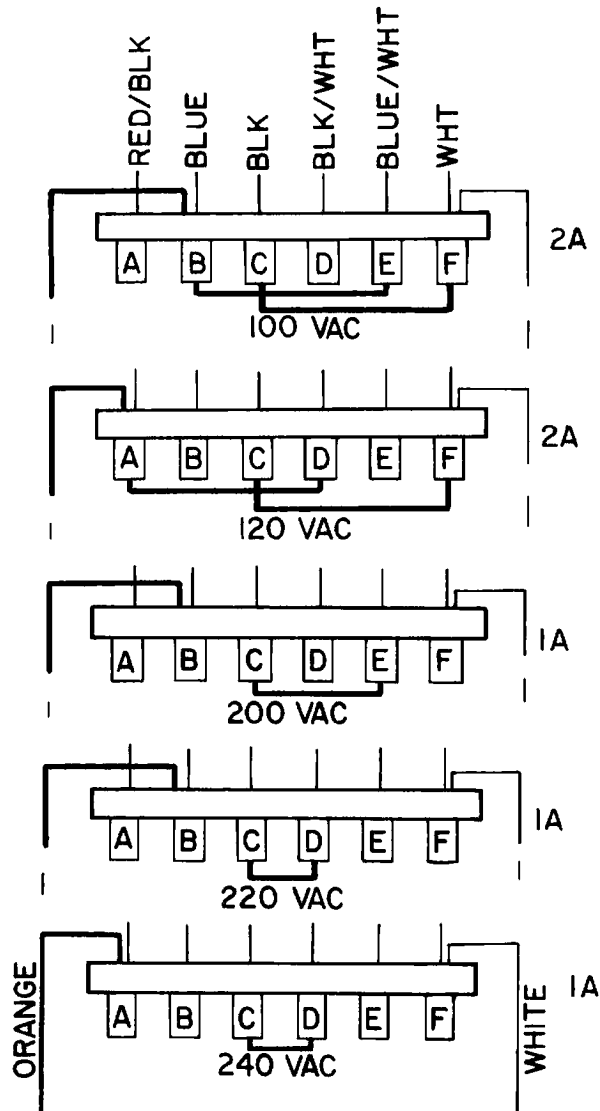
**3-7-2 Line Voltage Conversion**

Model 5507 may be operated at various line voltages. The serial plate indicates factory voltage wiring.

**CAUTION**

Only a competent technician should attempt to convert from one voltage to another. Follow instructions thoroughly.

1. Make appropriate change in jumpers for the desired operation voltage. See Illustration 3-3.
2. Replace the 2 amp line fuse with a 1 amp type 3AG fuse, for all connections 200V and above.
3. Change the line cord tag to read the correct voltage.



**Table 3-1**  
**Line Voltage Conversion Table**

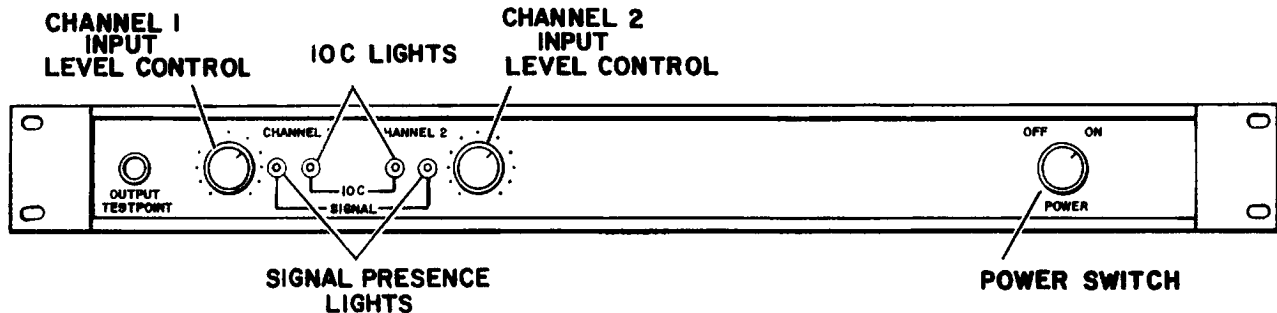


Illustration 3-3  
Front Panel Controls

### 3-8 Controls and Adjustments

Model 5507 front panel controls include an AC power switch, a channel 1 input level control, a channel 2 input level control, and an output monitor jack. LEDs inform the operator of the operating status of the amplifier. (See Illustration 3-3).

#### 3-8-1 Front Panel Controls

**AC Power Switch:** Rotary On/Off control. When AC Power Switch is ON, power indicator light should be on unless power is disconnected or an internal problem is present.

**Level Controls (Channel One, Channel Two):** Controls for input levels, each channel.

**SIGNAL PRESENCE Indicators:** Indicate complete signal path from input to output.

**IOC (Input/Output Comparator) Indicators:** Will light at times of excessively high input level, improper load impedance, or when amplifier develops internal problem. May flash occasionally during normal operation and just after turn-on or turn-off.

#### 3-8-2 Rear Panel Connections and Controls

**Standard Input Connectors:** BNC connectors provide for easy connection and disconnection of input signals. (See Illustration 3-1)

**Mono/Dual Slide Switch:** Determines dual channel or mono channel operation. See Sections 3-4 and 3-5 for proper input/output connection.

**Main Output Jack:** Model 5507 includes standard MDP "dual-banana" type output jacks.

**Fuse:** Replace fuse whenever AC voltage conversion is made (see Section 3-7-2), or when it has blown due to excessive voltage applied to the unit.

**AC Line Cord:** Model 5507 is furnished with a three-wire, heavy-duty plug as standard equipment. Follow instructions in Section 3-7 for connecting power.

### **3-9 Protection Mechanisms**

#### **3-9-1 Circuitry Protection**

Model 5507 is well-protected against hazards common to high power amplifiers, including shorted, open, or mismatched loads, overloaded power supplies, chain destruction phenomena, input overload damage, and high frequency overload damage.

The CROWN-developed SPACE (Signal Programmed Automatic Current Executor) control circuit protects the amplifier against shorted and low impedance loads. It functions as an automatic current limiter at audio frequencies and as a V-I limiter at subaudio frequencies. The threshold of current limiting depends on the history of the signal, yet the no-signal threshold of current limiting is high enough to allow full power tone bursting at 4 ohms and higher. (With very low impedance loads, full power tone bursting is possible, but initial cycles in each burst are limited.) The net result is total amplifier protection with a maximum of output power. (TECHRON is a division of CROWN International, Inc.)

All of the amplifier's voltage-amplifier circuitry is designed to be inherently current limited. If any output device should fail, no damage will occur to the rest of the stages.

A series limiting resistor protects the input stage against overdrive damage should the input signal level become excessive.

A controlled slewing rate, coupled with the SPACE controller, protects the amplifier from blowups when fed large RF input signals.

#### **3-9-2 Fuse**

The fuse protects the power supplies against overload.

Use correct fuse size (2 amp) for proper amplifier operation and protection. See Section 3-7-2 for proper fuse size for 200V and above.

**WARNING**  
**TURN POWER OFF BEFORE CHANGING FUSES.**

### **3-10 Load Protection Methods**

The most common method of load protection is a fuse in series with the load. A single fuse may be used, or multiple fuses may be used in the case of multiple phase loads. Ordinary fuses will help prevent damage due to a prolonged overload. To protect against large transients, use high-speed instrument fuses such as Littlefuse 361000 in series. If the load is susceptible to damage by overheating, use a fuse or circuit breaker having the same slow thermal response as the load, for example, a slow-blow fuse.

#### **CAUTION**

**Whenever an OVERLOAD condition is known to be present, take the following steps as applicable to protect amplifier and load.**

- 1. Reduce or limit input level.**
- 2. Disconnect load from amplifier.**

### **3-11 Optional Accessories**

**Cooling Fan (55C01):** Provides extra cooling in areas of poor air circulation and enables continuous high powered operation with reduced risk of overheating. Fan package comes with complete instructions for easy installation.



## SECTION 4: APPLICATIONS

## 4-1 Amplifier Capability

Model 5507 is a well-built power supply amplifier. It is capable of delivering precision power levels in a wide range of demands and with a variety of loads.

When protection circuitry shuts unit down, normal operation will resume immediately when the excessive demand or other problem is removed.

There is never any danger to the amplifier when protection circuitry is activated.

When demands exceed the limits there are several ways to increase the capability of the amplifier to handle them. Section 4-2 describes special operating modes for increased output capability. If these special operating modes are still unable to meet the needed power capability, contact TECHRON engineering, and/or consider using a Tecron model or models with higher power handling capacity.

## 4-2 Special Operation Modes for Increased Output

Model 5507 may be operated in the usual, dual-channel mode, or in one of two special modes.

## 4-2-1 Push-Pull Operation for Increased Voltage

Switching the "Dual-Mono" switch to the "Mono" position automatically places Model 5507 in the Push-Pull configuration. The load will be balanced in reference to ground. Connect the load across both red ("hot") terminals when using the Mono mode. See Section 3-6 for complete instructions on Mono operation.

## 4-2-2 Paralleling Channels for Increased Current

Ordinarily, the two channels of dual-channel amplifier may not be operated in parallel. However, parallel operation of the two channels of Model 5507 is possible if the following steps are taken:

1. Connect a .1 to .25 ohm, 50 watt, 1% resistor to the (+) output of each channel.
2. Connect (+) outputs, after resistors, together, and then to (+) terminal of load.
3. Connect (-) outputs together, and then to (-) terminal of load.
4. Connect input to input filter, if any is used, and then to the input of each channel.
5. Adjust channel 1 input knob to the "3 o'clock" position.
6. Carefully adjust channel 2 input knob to achieve equal output from each channel, using channel 1 as the reference value.

**Note:** This adjustment will be very fine and may be quite difficult to achieve. It is possible, however, with care and patience.

## 7. Note changes in value:

V (voltage) remains the same as with one amplifier.

I (current) is multiplied by two.

Z (impedance) equals the number of amplifiers times the R value of the load, plus the numerical value of the added resistor.

Illustration 4-1 shows proper connections and formulas for value changes.

**CAUTION**

Never attempt to operate more than ONE dual-channel amplifier in parallel. The absence of an interlock circuit exposes amplifiers to severe damage from such operation.

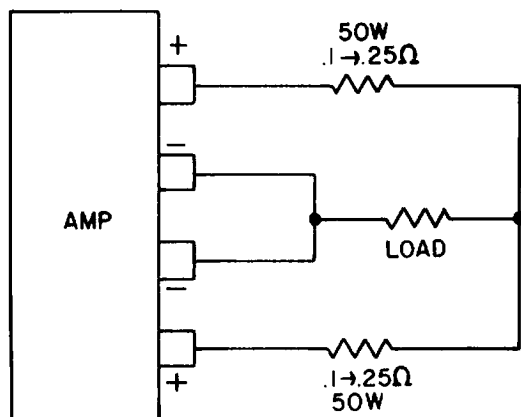
**4-3 Cooling Needs**

Model 5507 uses convection cooling which will be ample in nearly every instance. If overheating proves to be a problem, select one or more of the following or similar methods for improved cooling:

1. In crowded rack mountings, a vent tube to the outside of the rack is often helpful.
2. A fan mounted in a crowded rack will add to air circulation.
3. Locate Model 5507 away from other heat-producing devices whenever possible.

**CAUTION**

When the optional fan package is installed, AC current must be at 50-60Hz.



**Illustration 4-1**  
**Parallel Channel Operation**

Note: Recommended resistor for outputs as described above: Dale brand, Model NH50. Other resistors of equal value and precision are perfectly acceptable.

## SECTION 5: THEORY OF OPERATION

### 5-1 General Information

Refer to Illustration 7-8 for schematic diagram of the circuits described in this section. Channels 1 and 2 are essentially identical. Channel 1 is described here.

### 5-2 Input Circuitry

#### 5-2-1 Input Operational Amplifier

The input op amp U1 is a low noise, large gain bandwidth integrated circuit. It acts as an input voltage amplifier producing extremely low distortion by means of several feedback paths. The gain determining components for this stage are two voltage dividing resistors, R103 and R108. Note that they act as a feedback path from the output of U1 (pin 6) to the inverting input of U1 (pin 2). Both signals entering U1 at pins 2 and 3 will be in phase with each other because of this feedback path and will thus produce an output (pin 6) of almost zero. The small amount of output signal that is present is there because of the slight difference in ohmic value (with respect to gain) of the voltage divider, R108 and R103.

The IC op amp will always try to keep a zero potential difference between both inputs. Any type of non-linearity will cause the op amp to produce a large output, and therefore a substantial size correction signal in order to retain the small output level.

#### 5-2-2 Signal Translator

The operation of Model 5507 front-end circuitry (IC op amp through Q102) is to provide voltage amplification. However, the signal translator transistor (Q100) provides no voltage amplification itself, but instead converts the ground-referenced input signal to a signal with a reference to the negative supply. The result is higher voltage swing capability from Q102, the final voltage amplifier.

### 5-3 LVA, LVA Current Source, and Bias Servo Circuits

#### 5-3-1 Last Voltage Amplifier

The Last Voltage Amplifier transistor Q102 is the main voltage amplification stage. All signal voltage that appears at the output is developed here. R114, connected to the base circuit of Q102, serves two purposes, namely, providing collector current for Q100 and providing bias voltage as well as signal for Q102.

As the collector current of Q100 varies at the frequency and amplitude of the incoming signal, this same variation is placed across the Final Voltage Amplifier transistor base bias resistor and is impressed upon the base of Q102.

#### 5-3-2 Bias

Basically, the output of the Last Voltage Amplifier provides the signal drive to the predriver (Q110, Q107), driver (Q111, Q108), and output transistors (Q112, Q109), in order to amplify the current for final output power. The correct bias supply (bias transistor Q103) voltage of 2.1VDC is distributed throughout the current amplification stages in the following manner:

1. Base to Emitter junction of Q107 positive predriver (Q107) is .6V.
2. Base to Emitter junction of Q108 positive driver is .6V (negative driver Q111 and output transistor Q112 have fixed base-emitter bias).
3. Base to Emitter junction of Q109, positive output transistor is .314V (biased to sub turn-on state).

As the amplifier, under loaded operating conditions, increases in temperature, the bias sensing transistor Q103 temperature increases proportionally. This condition reduces the base to emitter bias voltage produced by the bias supply, which results in prevention of thermal runaway.

#### **5-4 Output Circuitry**

The output stage of Model 5507 is designed in the Class AB+B mode of operation in which the driver transistors Q108, Q111 carry the bias current while the output transistors Q109, Q112 serve only as boosters. The output transistors sense when the driver transistors are developing significant current draw from the load and thus take over and deliver the needed current.

The output stage is of a quasi-complementary format using no bias current into the output transistors themselves. The result is maximum efficiency with minimum crossover notch distortion and idling amplifier heat. Also, since the output stage is not temperature-tolerance critical, there is no bias current adjustment.

#### **5-5 Protection Circuitry**

##### **5-5-1 V-I Limiting**

Model 5507 utilizes Voltage-Current limiting for protection of the output stages. V-I limiting is superior to most other forms of protection because it directly senses the overload condition and instantly reacts to relieve the overload, and acts only as long as the overload exists.

Should the output current become dangerously high, the voltage induced in the current limiting sense resistors R128 and R129 is fed to the limiting transistors Q104 and Q105. The protection circuitry will then limit the signal whenever it threatens to push the output stage beyond its capabilities. The limit point is determined by a combination of the predriver plus limiter current equaling the available current source on the main board. In other words, the signal drive that is fed to the predrivers is limited.

##### **5-5-2 IOC**

The front-panel IOC display is actually a window comparator circuit using two operational amplifiers U3C, U3D, and an LED indicator, LED102.

Any small nonlinearity in the amplifier causes an error in the feedback loop to appear at the inverted input of the main IC op amp, U1. This means that the main IC output (pin 6) will rise above its normal value in an attempt to correct the problem. This signal is then responsible for raising the bias voltage on U3 and, in turn, activates Q114, which illuminates LED102.

##### **5-5-3 Signal Presence Indicator**

LED101 is the green front panel indicator which illuminates any time the output voltage reaches 1 volt peak-peak or above. R131, R132, D107, and Q115 are the components directly involved.

**SECTION 6: MAINTENANCE AND CHECKOUT****6-1 Introduction**

This section contains technical information which will guide the technician through effective service and checkout of Model 5507. It includes disassembly and reassembly procedures, lists of required test equipment and checkout procedures. Along with this section, consult schematic/board layout diagrams, parts lists, and exploded view drawings. See Section 7 for parts lists and drawings.

**Note:** Model 5507 includes many stock electrical and electronic parts, which are available from electronic supply houses. However, some electronic parts that appear to be standard are actually special. Order parts from TECHRON to assure acceptable replacement and reliable operation.

Structural items, covers, and panels are available from TECHRON only.

**6-2 Required Test Equipment**

Most service and repair procedures for Model 5507 require only limited test equipment. However, in order to return the unit to its factory new specifications, use the equipment listed in the table below. When the "suggested supplier and model" is not available, use "requirements" to determine a proper substitute.

**CAUTION**

To avoid ground loops in test equipment, do not connect output ground to input ground. This is especially important when measuring distortion.

<b>CROWN AUTHORIZED SERVICE CENTER: RECOMMENDED TEST EQUIPMENT LIST</b>	
<b><u>ITEM</u></b>	<b><u>RECOMMENDED</u></b>
1. Oscilloscope Dual Channel Vert. Sensitivity-2mv/div Vert. Frequency DC-15MHz Ext. Sync DC-25MHz	Tektronix SC501, 2213A Hewlett-Packard 1740A Phillips PM3207
2. Audio Signal Generator Sine/Square 10Hz-100Khz Output+3V into 600 ohm load 1% THD	Wavetek 131A, 180 Series Krohn-Hite 1000, 1200
3. AC Voltmeter 20Hz-4MHz Sensitivity-100 microvolt FS +1% Accuracy 20-20KHz	Hewlett-Packard 400F Amber 3501 Sound Technology 170B/1710A
4. Digital Multimeter (DMM) AC/DC Volts-1 mv-100v Range AC/DC amps-10 MA- 10 A Range OHMS-.1 ohm-10 M ohms	Data Precision 248/1350, 1351 Fluke 70 series, 8020B series Fluke 8060 series
6. Intermodulation Distortion Analyzer or THD Analyzer IMA capable of .003% readings 60Hz/7Khz THD capable of .01% readings 20Hz to 20 KHz	Amber 3501 Technology 17701A, 1700 series Hewlett-Packard 339A
7. Variac, Autotransformer 0-140 V 20 Amp Cap	Various Gen. Rad. Models Superior Electric Models or equivalent
9. Peak Equivalent Line Voltage Monitor 0-200 V Scale	See Schematic 6-7 for details on circuit construction
10. Band pass Filter 20-20 KHz 18 db/octave rolloff	Sound Technology 170 or equivalent
11. Resistive Loads-2 for stereo 1-250W @8 ohms 1-500W @4 ohms Bridging for 500 W @16 ohms Bridging for 1000 W @ 8 ohms	4 Dale 8 ohms @250 per channel

Table 6-1

**6-3 Disassembly and Discharge****WARNING**

**MODEL 5507 CONTAINS POSSIBLY HARMFUL OR FATAL ELECTRIC CHARGES EVEN WHEN POWER SUPPLY IS DISCONNECTED. DISCHARGE CAPACITORS WHENEVER COVERS ARE REMOVED. FOLLOW DISCHARGE INSTRUCTIONS EXACTLY. SEE SECTION 6-3-8.**

**6-3-1 Visual Inspection**

Visually inspect Model 5507 regularly during normal operation and at the beginning of any troubleshooting procedure. For a complete yet efficient visual inspection, follow these instructions:

1. Check all external screws. Be sure these are tight and that none are missing.
2. Check fuse.
3. Check switches, knobs, jacks, and other connections. Be sure these operate smoothly and properly and that none are loose.
4. Inspect line cord for possible damage to cap, jacket, and conductors.
5. Remove top and bottom covers as outlined in Sections 6-3-2 and 6-3-3.
6. Check all attaching parts for internal circuits. Be sure these are tight and that none are missing.
7. Inspect wiring and internal components for evidence of charring or discoloration. These may indicate previous overheating.
8. Check all electrical connections, including wire terminals, screw and stud type terminals, and all soldered connections.
9. Check for obvious destruction of internal structural parts.

**Note:** The interior of Model 5507 normally looks very neat and orderly. Physical distortion or disorder of wiring or other components may indicate damage from severe shock, from being dropped, or from previous improper repair procedures.

**6-3-2 Top Cover Removal**

**Note:** Cover screws are not uniform in size. Be sure to note proper location of screws.

1. Remove phillips head mounting screws from each side of top cover (6 in all).
2. Gently lift cover and remove.

**Top Cover Installation**

3. Set cover in place, slide front edge under lip of front panel, and align mounting screw holes.
4. Install 3 phillips head mounting screws on each side of top cover (6 in all).

**6-3-3 Bottom Cover Removal**

**Note:** Cover screws are not uniform in size. Be sure to note proper location of screws.

1. Remove 9 phillips head mounting screws from bottom cover.
2. Lift cover and remove.

**Bottom Cover Installation**

3. Set bottom cover in place, aligning mounting screw holes.
4. Install 9 phillips head mounting screws.

**6-3-4 Rack Mounting Bracket Removal**

Use allen driver to remove two mounting screws from each rack mounting bracket.

**Rack Mounting Bracket Installation**

Use allen driver to install two mounting screws in each rack mounting bracket.

**6-3-5 Main Board Removal**

1. Remove 4 mounting screws and fiber spacers located on the top side of the board.
2. Gently rock the board up and down until it becomes free.

**Note:** Location of wires before disassembly. Wire locations are not color-coded.

3. Unsolder and remove the wires.
4. Use standard PC board procedures for service to main board.

**Main Board Installation**

5. Solder wires in place.
6. Gently press board onto connectors.
7. Install four mounting screws and fiber spacers.
8. Do not overtighten screws.

**6-3-6 Output Module Removal or Repair**

**Note:** Normally, components on and around the output module will be serviced individually without removing the output module itself. Follow these instructions for individual component service and for removal of the output module.

**6-3-7 Front Panel Parts Replacement**

1. Remove top cover as described in Section 6-3-2.
2. Remove rack mounting brackets as described in Section 6-3-4.
3. Follow instructions below for individual part to be serviced.

**Input Level Control Removal**

1. Use allen driver to loosen set screw and remove aluminum control knobs.
2. Remove level control mounting nut.
3. Pull input level pot towards inside of unit and remove.
4. Unsolder wires, noting location, for complete removal.

**Input Level Control Installation**

5. If wires have been unsoldered, reconnect to noted locations.
6. Place pot in position.
7. Attach and tighten mounting nut.
8. Attach control knob noting knob position.

**IOC and Signal LED Removal**

**CAUTION**  
Handle LEDs very carefully.

1. Unsolder leads of LED to be replaced.
2. Use needle-nose pliers to remove black support ring located behind LED.
3. Carefully pull faulty LED straight back and remove from the rear.

**IOC and Signal LED Installation**

4. Orient new LED for correct polarity, preparing for later soldering.
5. Set new LED in place.
6. Install black support ring behind LED.

**Note:** If desired, use 1/4" nut driver to press black support ring into place. Allow LED leads to enter the middle of the nut driver, using socket of nut driver to press black support ring into place.

7. Solder LED leads.

**On/Off Switch Removal**

1. Use allen driver to loosen knob set screw, and remove aluminum on/off knob.
2. Remove associated knob mounting hardware and push switch back until solder lugs are exposed.
3. Remove wire from switch solder lugs.
4. Slide switch to the right and out the end of the front panel channel.

**On/Off Switch Installation**

5. Slide new switch in front panel channel to switch mounting hole.
6. Solder wires into place.
7. Insert switch through mounting hole.
8. Secure with mounting hardware.
9. Install aluminum on/off knob, using care to set knob in correct indicating position.



**Neon "On/Off" Indicator Removal**

1. Remove top panel. See Section 6-3-2.
2. Use needle-nose pliers to "pop" mounting panel out of channel in front panel.
3. Neon bulb rests in clip. Service as needed.

**Neon "On/Off" Indicator Installation**

4. Be sure neon bulb is clipped in place.
5. "Pop" mounting panel into place in channels of front panel.

**Note:** If "pop" maneuver is not desired, neon indicator mounting panel will slide out the end of front panel channels after the front panel controls have been removed.

**6-3-8 Power Supply Capacitor Removal****WARNING**

**CAPACITOR CARRIES POTENTIALLY HARMFUL ELECTRIC CHARGES EVEN WHEN POWER IS OFF. BEFORE SERVICING CAPACITOR OR NEARBY COMPONENTS, DISCHARGE CAPACITOR BY PLACING A 50 OHM/10 WATT RESISTOR ACROSS THE POSITIVE AND NEGATIVE TERMINALS OF THE CAPACITOR FOR AT LEAST 5 SECONDS. DO NOT TOUCH CAPACITOR TERMINALS OR RESISTOR LEADS DURING DISCHARGE PROCEDURE.**

1. To provide access to capacitor mounting screws, loosen main board, following instructions in Section 6-3-5.

**Note:** Main board does not need to be removed completely.

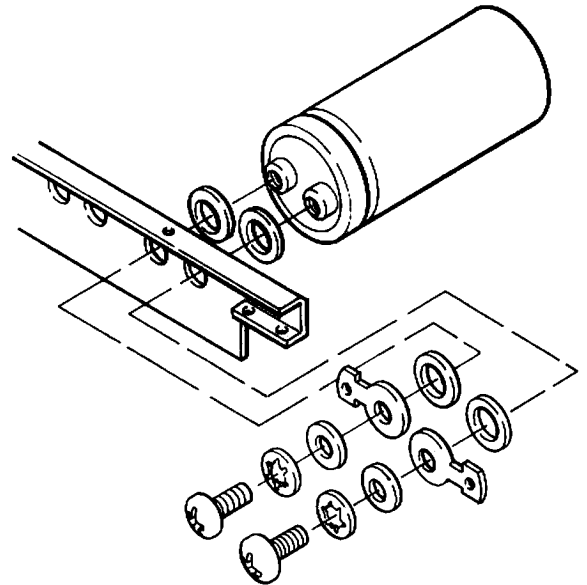
2. Remove capacitor mounting screws, taking care not to lose the several washers, solder lug, and shoulder washer attached to each screw.

**Note:** Each mounting screw includes the following:

screw, star washer, plain washer, solder lug, fiber washer, frame part, fiber shoulder washer. See Illustration 6-1 for mounting details and Illustration 7-5 for Output Exploded View.

**Power Supply Capacitor Installation**

3. Secure capacitor in place using mounting screws taking care that the following appear in this order on the screw: screw, star washer, plain washer, solder lug, fiber washer, frame member, fiber shoulder washer, capacitor.



**Illustration 6-1**  
**Detail, Capacitor Mounting Screw**

4. Use care to attach wires to proper terminals on capacitor. Blue on negative, red on positive. Capacitor is labeled for polarity.

**WARNING**

**BE SURE TO USE SHOULDER WASHERS AND FIBER WASHERS ON OPPOSITE SIDES OF FRAME MEMBER. FAILURE TO DO SO MAY CAUSE ELECTRICAL SHORTING AND POSSIBLE ELECTRICAL SHOCKS.**

**6-3-9 Power Supply Transformer Removal**

1. Note transformer wire color and location for reconnection to new transformer.
2. Disconnect wires from transformer.

Note: Wires must be traced to terminals away from transformer.

3. Disengage speed nut from bottom of nylon transformer mounting pins near front of amplifier.
4. Remove round head mounting screws from end of transformer near rear of unit.

Note: Save rubber feet from bottom of back and transformer for reuse in new transformer.

**Transformer Installation**

5. Set new transformer in place.
6. Install shoulder washers and mounting screws at rear of transformer.
7. Install front nylon transformer pins.
8. Attach speed nuts to bottom of nylon pins.
9. Connect transformer wires to previously noted locations. See Illustration 6-2 for mounting details and Illustration 7-4 for Front Panel Exploded View.

**6-3-10 Back Panel Components**

All component parts located on the back panel of Model 5507 are standard parts mounted in standard ways. Service according to standard procedures.

**6-3-11 Special Service Advice**

Contact TECHRON Service Department for special information or when questions arise.

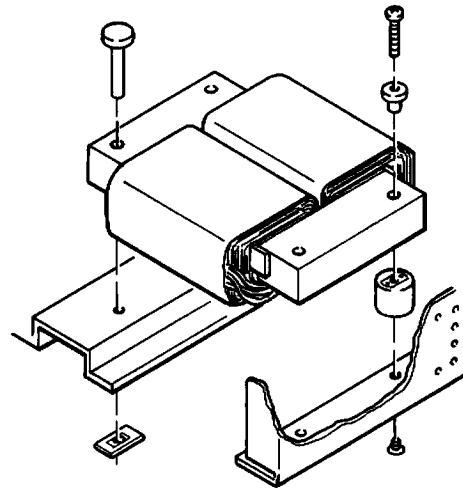


Illustration 6-2  
Transformer Mounting

**6-4 CHECKOUT PROCEDURES**

This section describes procedures for testing proper amplifier operation. Follow these procedures after any repair involving amplifier circuitry, or to help identify the cause of a particular problem.

**6-4-1 Bias Level Check and Adjustment****PROCEDURE:**

1. Remove top cover. See Section 6-3-2.
2. Turn on AC power and allow amplifier to warm up fully (at least 15 minutes).
3. Measure voltage across R116. Correct reading is between 310 and 345mV. If voltage is outside this range, adjust R112.

**6-4-2 Test 1KHz Operation Without Load****PROCEDURE:**

1. Monitor output with an oscilloscope and an accurate AC voltmeter. Monitor at the output terminals and not along the output cables.
2. Connect an 1KHz 1V RMS sine wave to the input. Turn up the level of the channel being tested.

**CORRECT OPERATION:**

The output should clip above 20 volts. Waveform should be clean throughout the test, and clipping should be even and symmetrical with no ringing or other distortion.

**6-4-3 Test 1KHz Operation with Load****PROCEDURE:**

1. Connect an 8-ohm resistive load, having less than 10% reactive components at any frequency up to five times the highest test frequency, to the output.
2. Monitor output with an oscilloscope and an accurate AC voltmeter. Monitor at the output terminals, and not along the output cables.
3. Connect an 1KHz sine wave, 1V to the input. Turn up the level of the channel being tested.

**CORRECT OPERATION:**

The output should clip at over 35 watts or 16V RMS. Waveform should be clean throughout the test, and clipping should be even and symmetrical with no ringing or other distortion.

**6-4-4 1KHz Clip Test****PROCEDURE:**

This test is similar to previous test 6-4-5, but with different load and output values.

1. Connect a 4 ohm resistive load, having less than 10% reactive components at any frequency up to five times the highest test frequency, to the output.

2. Monitor output with an oscilloscope and an accurate AC voltmeter. Monitor at the output terminals, and not along the output cables.

3. Connect an 1KHz 1V sine wave to the input. Turn up the level of the channel being tested.

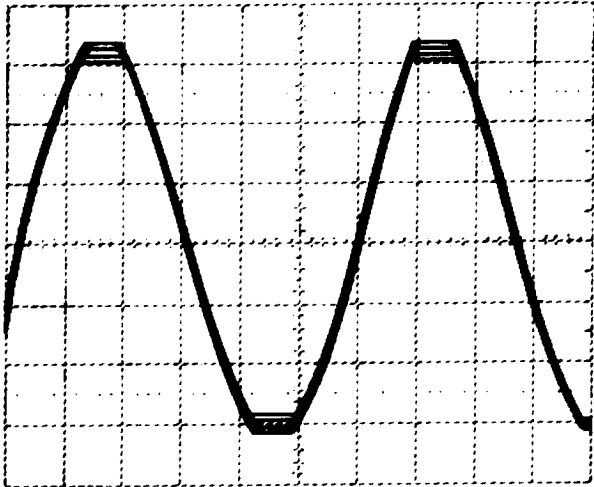
**CORRECT OPERATION:**

The output should clip at approximately 45 watts or 13V RMS. Wave form should look like Illustration 6-3.

**6-4-5 Test Limiting Portion of Protection Circuit****PROCEDURE:**

1. Set amplifier output at approximately 35V.
2. Switch load to 2 ohms.
3. Slow oscilloscope tract to look for power supply ripple at the clip level. If present, this indicates that power supply sag is causing clipping rather than the protection circuit. If power supply appears to be causing clipping, continue:
4. Switch load to 1 ohm. If oscilloscope still shows only power supply clipping, protection circuitry is defective.
5. The waveform should look sharp and clean with no oscillations. See Illustration 6-4.

*NEGATIVE LIMITING CH. 2  
ONLY SHOWS UP AT 1Ω.  
THIS IS NORMAL!!!*



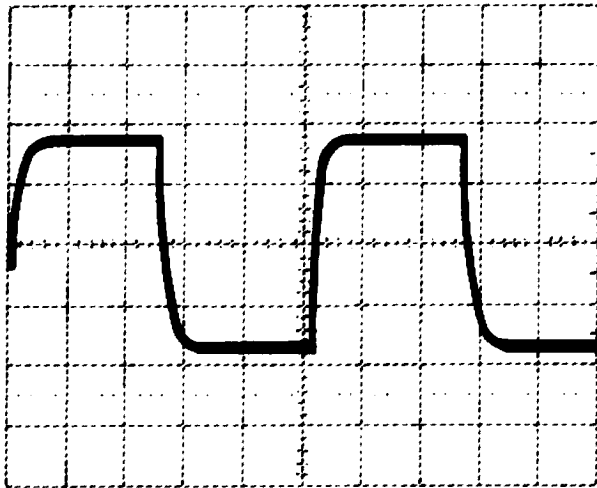
**Illustration 6-3**  
**Clip Test Waveform**



**Illustration 6-4**  
**Test Limiting Waveform**

**6-4-6 Test 10KHz Square Wave Operation****PROCEDURE:**

1. Connect 10KHz square wave, 1 volt to the input.
2. Connect 8 ohm load to output.
3. Monitor output with oscilloscope.
4. Turn input level up until it reaches 25V, peak to peak.
5. See Illustration 6-5 for proper waveform.



**Illustration 6-5  
Correct Square Wave Operation**

**6-4-7 Test 20KHz Operation****PROCEDURE:**

1. Connect 20KHz sine wave, 1 volt to the input.
2. Connect 8 ohm load to the output.
3. Monitor output with oscilloscope.
4. Turn input level up until clipping occurs. Clipping must occur at over 45 watts or 19V RMS.
5. Waveform must not distort anywhere before clipping.

**6-4-8 IM (Inter-modulation) Distortion Test****PROCEDURE:**

1. Use the distortion test setup shown in your IM analyzer manual.
2. Calibrate the distortion analyzer and set up the IM input signal at 60-7KHz, 4:1 ratio.
3. Connect an 8 ohm load to the output of the amplifier.
4. Measure the IM distortion at 5dB intervals from 35 watts output to 10mW as shown below.

**6-4-9 20-20KHz Hum and Noise Test****PROCEDURE:**

1. Use the noise test set-up shown in Illustration 6-6.
2. Remove inputs from the amplifier.
3. Set level controls at minimum level.
4. Measure the noise level relative to 35 watts. The hum and noise level must be 106dB or more below the full 35 watt output power. A typical value is -108dB.

<b>DB OF ATTENUATION</b>	<b>WATTS AT OUTPUT</b>	<b>AMPLIFIER OUTPUT IN VOLTS</b>	<b>MAXIMUM DISTORTION</b>
0 DB	35W	16.7V	.004%
- 5	11.1	9.4	.01
-10	3.5	5.3	.01
-15	1.1	2.9	.01
-20	0.35	1.6	.01
-25	0.11	0.94	.01
-30	0.03	0.53	.03
-35	0.01	0.29	.03

**Table 6-2  
IM Distortion Measurement**

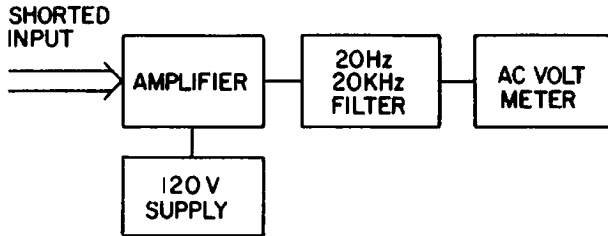


Illustration 6-6  
Noise Test Setup

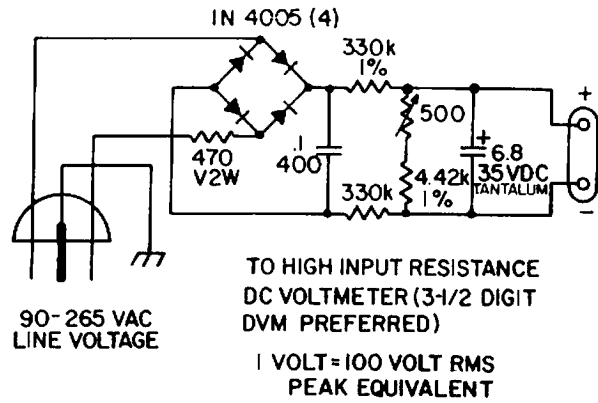


Illustration 6-7  
Peak Equivalent Line Voltage Monitor

**SECTION 7  
ILLUSTRATED PARTS LIST****7-1 General Information**

Section 7 contains illustrations and parts lists for the 5507. This information should be used with the service, repair and adjustment procedure in Section 6.

Most of the mechanical and structural type parts are illustrated and indexed on exploded view drawings. Electrical and electronic parts on these illustrations are also identified by the circuit schematic designation next to the illustration. Both the index number and the schematic designation are included in the parts list in separate columns. The schematic designations correspond to those shown in schematic diagrams in the Review Section.

Electrical and electronic parts located on printed circuit boards are illustrated by schematic symbols on the component side. Schematic designations also appear on these diagrams.

**7-2 Standard and Special Parts**

Many electrical and electronic parts used in the 5507 are standard items stocked by and available from electronic supply houses. However, some electronic parts that appear to be standard, are actually special. A part ordered from Techron will assure an acceptable replacement. Structural items, covers and panels are available from Techron only.

**7-3 Ordering Parts**

When ordering parts, be sure to give the model and serial number and include the part description and Techron Part Number from the parts list. Price quotes are available upon request.

**7-4 Shipment**

1. Shipment will be made by UPS or best method unless you specify a preferred method.
2. Shipments are made F.O.B. Elkhart, Indiana only.
3. Established Techron accounts will be freight prepaid and billed unless shipped by truck or air freight.
4. All others will be shipped freight collect.

**7-5 Terms**

**Note:** Part prices are subject to change without notice.

1. Normal terms are C.O.D. unless the order is prepaid.
2. Net 30 days terms apply only to those firms who have an established line of credit with Techron.
3. If prepaying please add an amount for the freight charge. \$2.50 is average for an order under one pound.
4. New parts returned for credit are subject to a 10% restocking charge.
5. You must receive authorization from the Parts Dept. before returning parts for credit.
6. We are not a general parts warehouse! Parts are available for servicing Techron products only.



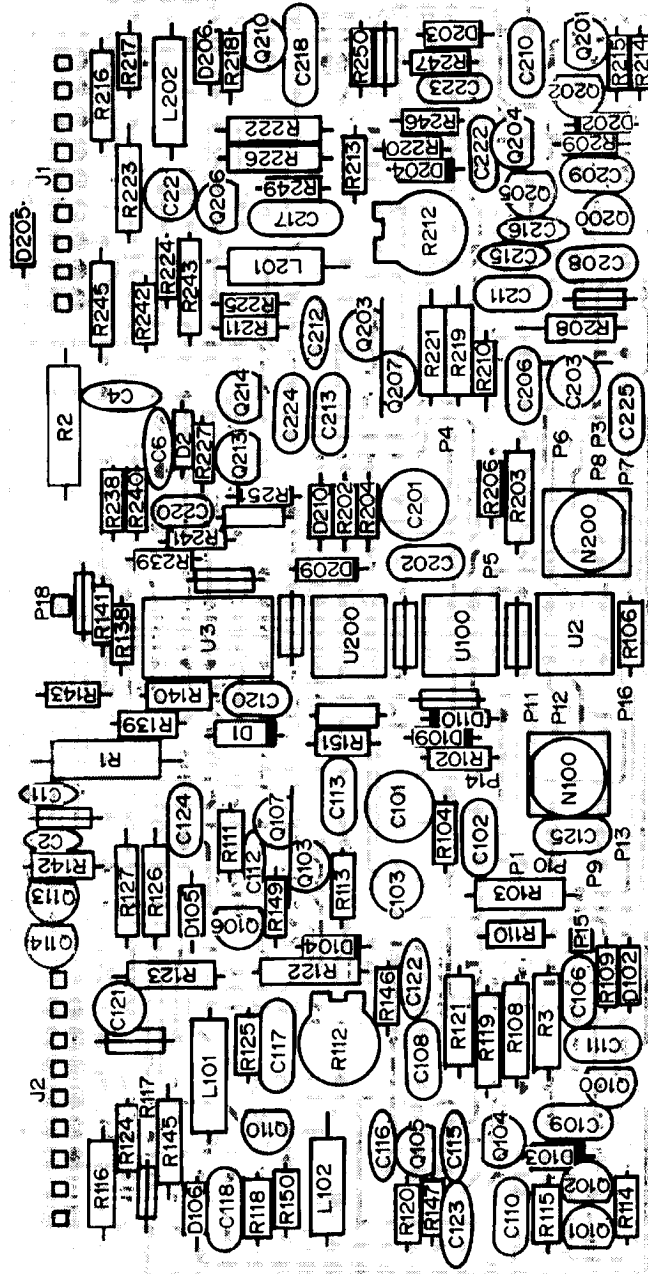


Illustration 7-1  
PC Board Component Side

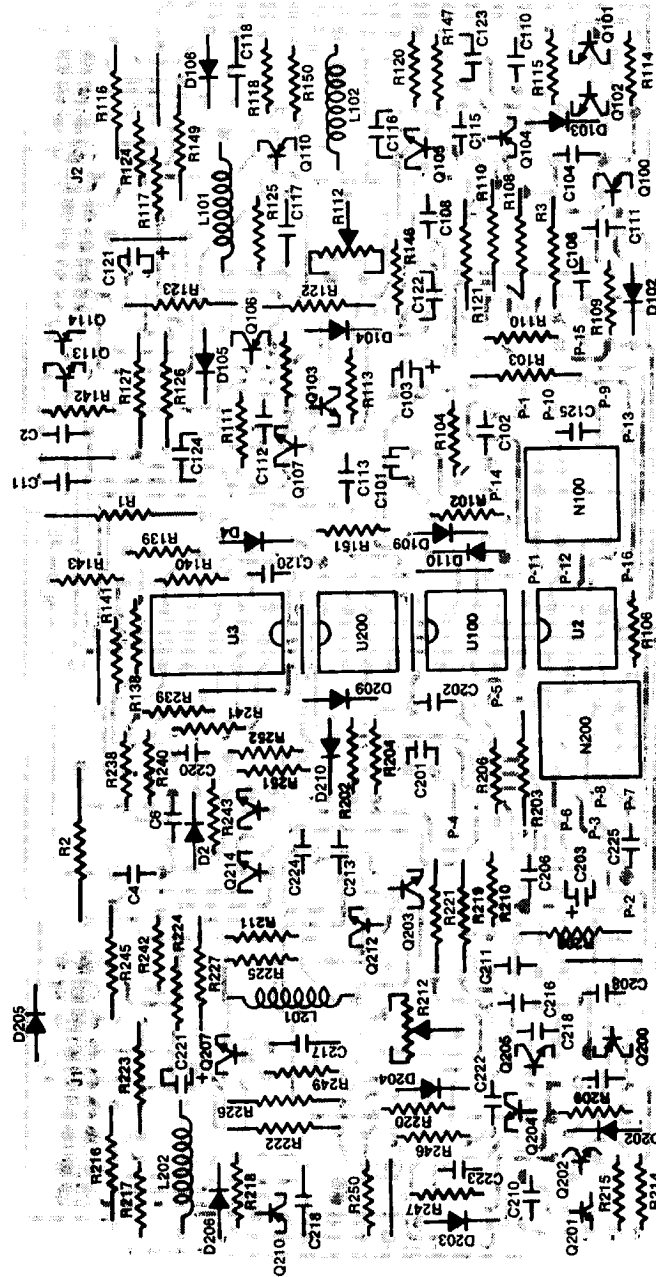


Illustration 7-2  
PC Board Foil Side

## 5507 MAIN BOARD MODULE

Location #	Description	Part #
<i>CAPACITORS</i>		
C2	.01MF Disc	C 1751-4
C4	.01MF Disc	C 1751-4
C6	.01MF Disc	C 1751-4
C7		
C11	.01MF Disc	C 1751-4
C13	.01MF Disc	C 1751-4
C101	22MF 50V N-P Vert	C 5311-3
C102	200PF Mica	C 3411-3
C103	100MF 16V Vert	C 3729-8
C106	27PF Mica	C 2342-1
C108	120PF Mica	C 3290-1
C109	120PF Mica	C 3290-1
C110	200PF Mica	C 3411-3
C111	5PF Mica	C 2820-6
C112	.01MF Disc	C 1751-4
C113	120PF Mica	C 3290-1
C115	.01MF Disc	C 1751-4
C116	.01MF Disc	C 1751-4
C117	.0082MF 200V Film	C 3063-2
C118	.0027MF 200V Film	C 3481-6
C120	.1MF 63V Disc	C 5639-7
C121	10MF 50V Vert	C 3728-0
C122	.1MF 63V Disc	C 5639-7
C123	.1MF 63V Disc	C 5639-7
C124	82PF Mica	C 3627-4
C125	82PF Mica	C 3627-4
C201	22MF 50V N-P Vert	C 5311-3
C202	200PF Mica	C 3411-3
C203	100MF 16V Vert	C 3729-8
C206	27PF Mica	C 2342-1
C208	120PF Mica	C 3290-1

## 5507 MAIN BOARD MODULE (cont'd)

Location #	Description	Part #
<i>CAPACITORS (cont'd)</i>		
C209	120PF Mica	C 3290-1
C210	200PF Mica	C 3411-3
C211	5PF Mica	C 2820-6
C212	.01MF Disc	C 1751-4
C213	120PF Mica	C 3290-1
C215	.01MF Disc	C 1751-4
C216	.01MF Disc	C 1751-4
C217	.0082MF 200V Film	C 3063-2
C218	.0027MF 200V Film	C 3481-6
C220	.1MF 63V Disc	C 5639-7
C221	10MF 50V Vert	C 3728-0
C222	.1MF 63V Disc	C 5639-7
C223	.1MF 63V Disc	C 5639-7
C224	82PF Mica	C 3627-4
C225	82PF Mica	C 3627-4
<i>DIODES</i>		
D1	1N 961 B 10V Zener	C 3549-0
D2	1N 961 B 10V Zener	C 3549-0
D102	1N 4148	C 3181-2
D103	1N 270	D 6212-1
D104	1N 4148	C 3181-2
D105	1N 4004	C 2851-1
D106	1N 4004	C 2851-1
D109	1N 4148	C 3181-2
D110	1N 4181	C 3181-2
D202	1N 4148	C 3181-2
D203	1N 270	D 6212-1
D204	1N 4148	C 3181-2
D205	1N 4004	C 2851-1
D206	1N 4004	C 2851-1
D209	1N 4148	C 3181-2
D210	1N 4148	C 3181-2

## 5507 MAIN BOARD MODULE (cont'd)

Location #	Description	Part #
<i>INTEGRATED CIRCUITS</i>		
U2	RC4558 Dual Op Amp	C 3919-5
U3	LM339N Volt Comparator	C 4345-2
U100	LF357H Op Amp	<del>C 6527-3</del>
U200	LF357H Op Amp	<del>C 6527-3</del> C 7621-3
<i>COILS</i>		
L101	.5 Microhenry Axial Grn	C 3510-2
L102	.5 Microhenry Axial Grn	C 3510-2
L201	.5 Microhenry Axial Grn	C 3510-2
L202	.5 Microhenry Axial Grn	C 3510-2
<i>TRANSISTORS</i>		
Q100	PN 4250 A PNP	C 3786-8
Q101	2N 3859 A NPN	D 2961-7
Q102	2N 3859 A NPN	D 2961-7
Q103	2N 3859 A NPN	D 2961-7
Q104	2N 4125 PNP	C 3625-8
Q105	2N 3859 A NPN	D 2961-7
Q106	2N 4125 PNP	C 3625-8
Q107	MPS A06 NPN	C 3528-4
Q110	MPS A56 PNP	C 3954-2
Q113	2N 3859 A NPN	D 2961-7
Q114	2N 3859 A NPN	D 2961-7
Q200	2N 4250 A PNP	C 3786-8
Q201	2N 3859 A NPN	D 2961-7
Q202	2N 3859 A NPN	D 2961-7
Q203	2N 3859 A NPN	D 2961-7
Q204	2N 4125 PNP	C 3625-8
Q205	2N 3859 A NPN	D 2961-7
Q206	2N 4125 PNP	C 3625-8
Q207	MPS A06 NPN	C 3528-4
Q210	MPS A56 PNP	C 3954-2
Q213	2N 3859 A NPN	D 2961-7
Q214	2N 3859 A NPN	D 2961-7

## 5507 MAIN BOARD MODULE (cont'd)

Location #	Description	Part #
<i>RESISTORS</i>		
R1	820 ohm 1W 5% Comp	C 3648-0
R2	820 ohm 1W 5% Comp	C 3648-0
R3	10K ohm .5W 1% MF	C 2343-9
R102	1K ohm .25W 5%	C 2627-5
R103	511 ohm .5W 1% MF	C 3304-0
R104	10K ohm .25W 5%	C 2631-7
R106	22K ohm .25W 5%	C 3302-4
R108	10K ohm .5W 1% MF	C 2343-9
R109	56K ohm .25W 5%	C 2882-6
R110	3.9K ohm .25W 5%	C 2630-9
R111	2.2K ohm .25W 5%	C 2628-3
R112	500 ohm Pot	C 6048-2
R113	750 ohm .25W 5%	C 3803-1
R114	820 ohm .25W 5%	C 3301-6
R115	56 ohm .25W 5%	C 3511-0
R116	5.6 ohm .5W 5%	C 3299-2
R117	180 ohm .25W 5%	C 2873-5
R118	100 ohm .25W 5%	C 2872-7
R119	10K ohm .5W 1% MF	C 2343-9
R120	120 ohm .25W 5%	C 4723-0
R121	10K ohm .5W 1% MF	C 2343-9
R122	120 ohm .5W 5%	C 3837-9
R123	5.6K ohm .5W 5%	C 3299-2
R124	180 ohm .25W 5%	C 2873-5
R125	47 ohm .25W 5%	C 1011-3
R126	4.7K ohm .5W 5%	C 1640-9
R127	4.7K ohm .5W 5%	C 1640-9
R138	33K ohm .25W 5%	C 4346-0
R139	150K ohm .25W 5%	C 4216-5
R140	33K ohm .25W 5%	C 4346-0
R141	150K ohm .25W 5%	C 4216-5
R142	15K ohm .25W 5%	C 2632-5
R143	4.7K ohm .25W 5%	C 3939-3

## 5507 MAIN BOARD MODULE (cont'd)

Location #	Description	Part #
<i>RESISTORS (cont'd)</i>		
R145	1.5K ohm .5W 5%	C 1076-6
R146	1K ohm .25W 5%	C 2627-5
R147	470 ohm .25W 5%	C 2626-7
R202	1K ohm .25W 5%	C 2627-5
R203	511 ohm .5W 1% MF	C 3304-0
R204	10K ohm .25W 5%	C 2631-7
R206	22K ohm .25W 5%	C 3302-4
R208	10K ohm .5W 1% MF	C 2343-9
R209	56K ohm .25W 5%	C 2882-6
R210	3.9K ohm .25W 5%	C 2630-9
R211	2.2K ohm .25W 5%	C 2628-3
R212	500 ohm Pot	C 6048-2
R213	750 ohm .25W 5%	C 3803-1
R214	820 ohm .25W 5%	C 3301-6
R215	56 ohm .25W 5%	C 3511-0
R216	5.6 ohm .5W 5%	C 3299-2
R217	180 ohm .25W 5%	C 2873-5
R218	100 ohm .25W 5%	C 2872-7
R219	10K ohm .5W 1% MF	C 2343-9
R220	120 ohm .25W 5%	C 4723-0
R221	10K ohm .5W 1% MF	C 2343-9
R222	120 ohm .5W 5%	C 3837-9
R223	5.6 ohm .5W 5%	C 3299-2
R224	180 ohm .25W 5%	C 2873-5
R225	47 ohm .25W 5%	C 1011-3
R226	4.7K ohm .5W 5%	C 1640-9
R227	4.7K ohm .5W 5%	C 1640-9
R238	33K ohm .25W 5%	C 4346-0
R239	150K ohm .25W 5%	C 4216-5
R240	33K ohm .25W 5%	C 4346-0
R241	150K ohm .25W 5%	C 4216-5
R242	15K ohm .25W 5%	C 2632-5
R243	4.7K ohm .25W 5%	C 3939-3
R245	1.5K ohm .5W 5%	C 1076-6
R246	1K ohm .25W 5%	C 2627-5

**5507 MAIN BOARD MODULE (cont'd)**

<b>Location #</b>	<b>Description</b>	<b>Part #</b>
<i>RESISTORS (cont'd)</i>		
R247	470 ohm .25W 5%	C 2626-7
RN100	Bal. Input Trimmer	D 4669-4
RN200	Bal. Input Trimmer	D 4669-4
<i>MISCELLANEOUS</i>		
	14 Pin IC Socket	C 3450-1
	8 Pin IC Socket	C 3451
	Dual TO 92 Cooler	C 3493-1
	9 Pin Header	C 4730-5
	PC Mount Recept	C 4731-3
	0.0 ohm .25 Wire Jump	C 5868-2



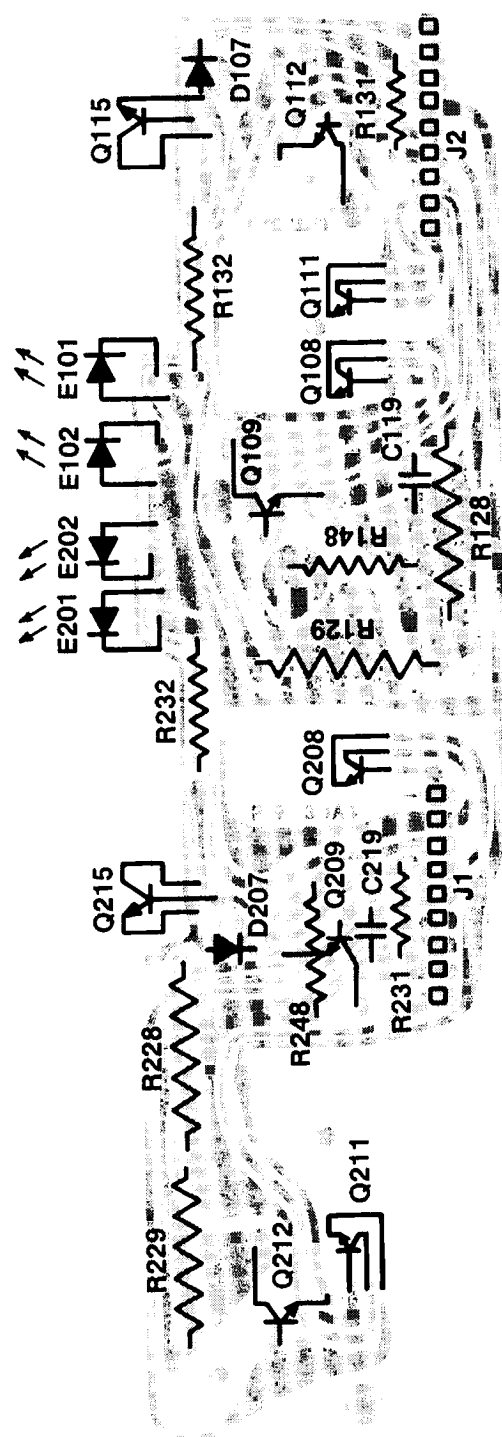


Illustration 7-3  
Output Board

## OUTPUT BOARD

Location #	Description	Part #
C1	4.7MF 100V	C 5050-7
C5	4.7MF 100V	C 5050-7
C116	.01MF Disc	C 1751-4
C119	.1MF 200V Film	C 2938-6
C216	.01MF Disc	C 1751-4
C219	.1MF 200V Film	C 2938-6
D107	1N 4148	C 3181-2
D207	1N 4148	C 3181-2
E101	Green LED	C 4430A0
E102	Red LED	C 4341-1
E201	Green LED	C 4430A0
E202	Red LED	C 4341-1
II	Neon Lamp	C 2500-4
Q108	T1P47 NPN	C 4647-1
Q109	C 4751-1 NPN	C 4751-1
Q111	T1P47	C 4647-1
Q112	C 4751-1 NPN	C 4751-1
Q115	2961 NPN	D 2961-7
Q208	T1P47	C 4647-1
Q209	C 4751-1 NPN	C 4751-1
Q211	T1P47	C 4647-1
Q212	C 4751-1 NPN	C 4751-1
Q215	2961 NPN	D 2961-7
R128	.1 ohm 5W	C 3291-9
R129	.1 ohm 5W	C 3291-9
R131	3.3K ohm .25W	C 1051-9
R132	560 ohm 2W	C 4724-8
R148	2.7 ohm 1W	C 1001-4
R228	.1 ohm 5W	C 3291-9
R229	.1 ohm 5W	C 3291-9
R231	3.3K ohm .25W	C 1051-9
R232	560 ohm 2W	C 4724-8
R248	2.7 ohm 1W	C 1001-4

## MISCELLANEOUS ELECTRICAL PARTS NOT INCLUDED ON PC BOARDS

Location #	Description	Part #	Reference
C8	10,000MF 40V	C 4250-4	
C9	10,000MF 40V	C 4250-4	
C12	.01MF 100V Film	C 3161-4	
D3	VH148 6A Rectifier	C 3062-4	
R5	27K ohm .5W	C 1056-8	
R6	2.7 ohm .5W	C 2857-8	
R7	1 ohm .5W	C 3612-6	
R101	25K ohm Log	D 4688-4	Ch. 1 Level Control
R201	25K ohm Log	D 4688-4	Ch. 2 Level Control
L103	3 Microhenry Output Coil	M43209-2	
L203	3 Microhenry Output Coil	M43208-4	
T1	Transformer	D 4668-6	
S1	Mono Switch	C 4110-0	
S2	On/Off Switch	D 3492-2	
F1	3AG 2A SB	C 5829-4	for 120VAC Units
	3AG 1A	C 4875-8	for 200-240VAC Units

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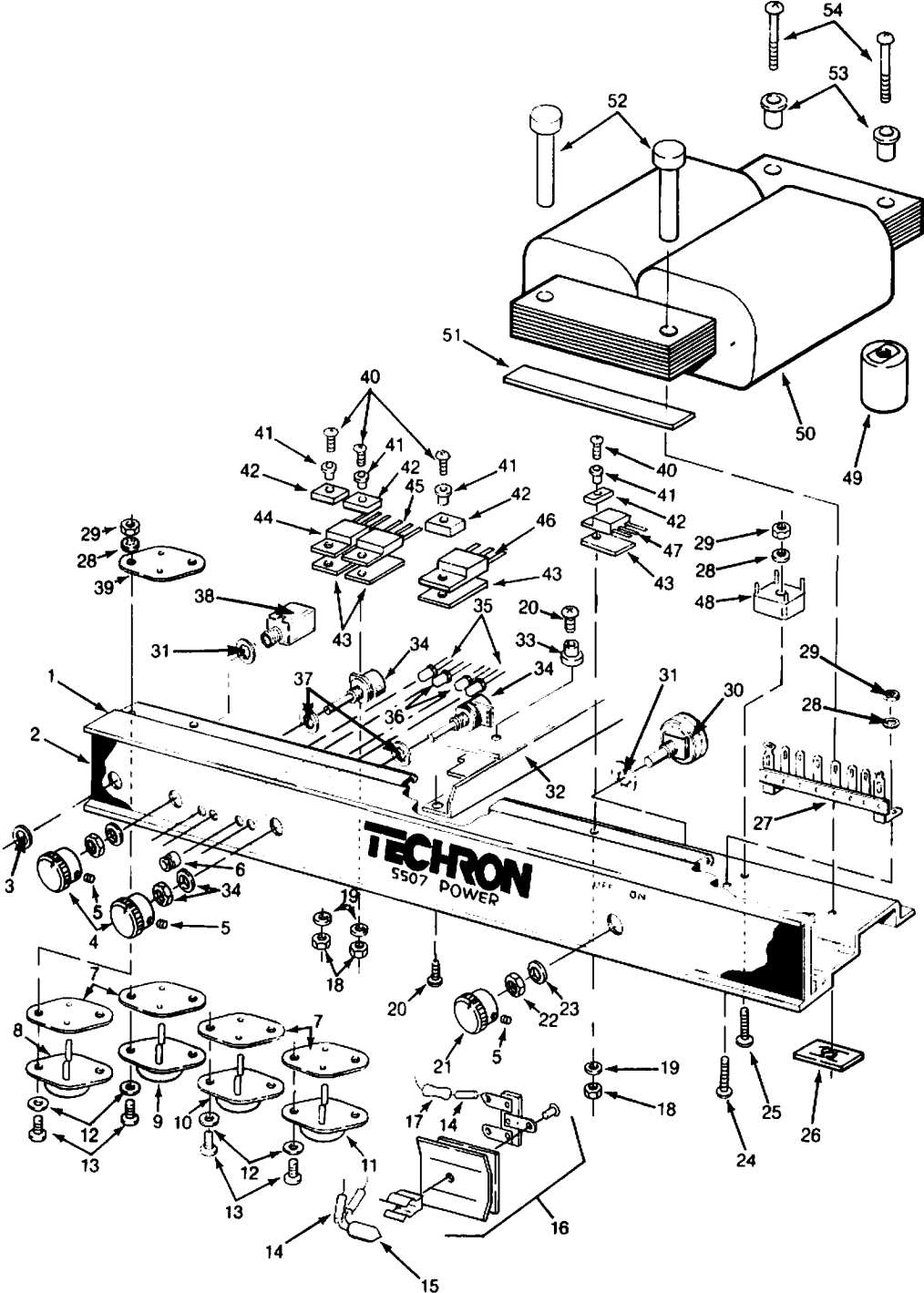


Illustration 7-4  
Front Panel Exploded View

## FRONT PANEL ASSEMBLY (refer to Illustration 7-4)

Item #	Description	Part #	Reference
1	Front Panel	M20259J3	
2	Front Panel Overlay	F10302A0	
3	.375 Knurled Nut	C 3495B2	
4	Level Knob	<del>D 4076J1</del> F11838J3	set screw needed C 6005-0 (C 6775-8)
5	Set Screw	<del>C 6775-8</del>	C 6005-0
6	Spacer, Included With LED		
7	TO-3 Insulating Wafer	C 4039-1	
8	Output Transistor	C 4751-1	Q112
9	Output Transistor	C 4751-1	Q109
10	Output Transistor	C 4751-1	Q209
11	Output Transistor	C 4751-1	Q212
12	#6 Star Washer	1823	
13	6-32 x .62 Screw	C 3879-1	
14	.042 Clear Tubing	B 1363-9	specify length
15	Neon Lamp	C 2500-4	I1
16	Neon Assembly	M43201-9	includes neon & resistor
17	27K ohm 1/2W	C 1056-8	R5
18	4-40 Hex Nut	C 1938-7	
19	#4 Lock Washer	C 1824-9	
20	4-40 x .375 Tap Screw	C 5961-5	
21	On/Off Knob	<del>D 4075J3</del> F11852J4	set screw needed (C 6775-8) C 6005-0
22	.375 x .32 Hex Nut	C 1288-7	
23	.375 Flat Washer	C 1289-6	
24	6-32 x .375 Screw	C 6077-9	
25	6-32 x .62 Screw	C 3879-1	
26	Speed Nut	C 3558-1	
27	Terminal Strap	D 1273-8	
28	#6 Lockwasher	C 5594-4	
29	6-32 Hex Nut	C 1889-2	
30	Power Switch	D 3492-2	
31	.375 Int Lock Washer	C 2188-8	
32	Filter Cap Bracket	F10104-2	
33	Shoulder Washer	C 6051-4	
34	25K Level Control	D 4688-4	R101, R201
35	Green LED	C 4430A0	E101, E201

## FRONT PANEL ASSEMBLY (cont'd)

Item #	Description	Part #	Reference
36	Red LED	C 4341-1	E102, E202
37	.25 Int Lock Washer	C 2365-2	
38	3 Cond Monitor Jack	C 3507-8	
39	TO3 Insulator	D 4071-3	
40	4-40 x .37 Screw	C 1844-7	
41	TO220 Insulator Shoulder Washer	C 6051-4	
42	TO220 Torque Spreader	C 6541-4	
43	TO220 Mica Insulator	C 6052-2	
44	TIP47 NPN	C 4647-1	Q111
45	TIP47 NPN	C 4647-1	Q108
46	TIP47 NPN	C 4647-1	Q208
47	TIP47 NPN	C 4647-1	Q211
48	6A Rectifier Bridge	C 3062-4	D3
49	Rubber Mount	C 3556-5	
50	Power Transformer	D 4668-6	T1
51	Foam Tape	S 1152-8	specify length
52	Nylon Transformer Pin	D 3557-2	
53	Nylon Shoulder Washer	C 4251-2	
54	8-32 x .875 Screw	C 4252-0	

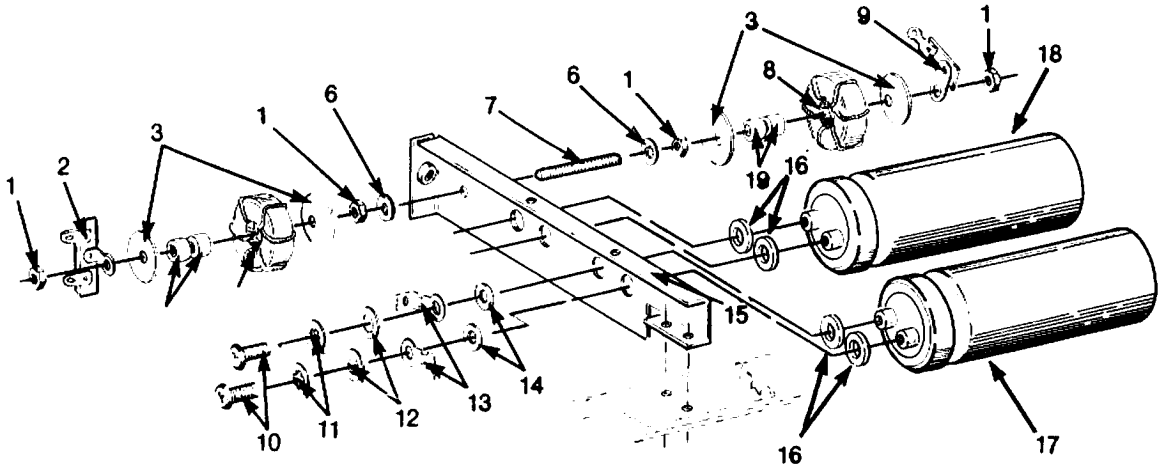


Illustration 7-5  
Output Exploded View

### OUTPUT ASSEMBLY

Item #	Description	Part #	Reference
1	8-32 Hex nut	C 1986-6	
2	3 AUA Terminal Strip	D 4725-4	
3	.87 x .18 Fiber Washer	D 3609-1	
4	.37 x .20 x .25 Nylon Spacer	C 2762A8	
5	Output Coil ASM	M43209-2	L103
6	#8 Star Washer	C 1951-0	
7	8-32 x 1.125 Stud	C 4738-8	
8	Output Coil ASM	M43208-4	L203
9	2 ALUE Terminal Strip	D 3504-4	
10	10-32 x .5 Screw	C 2049-2	
11	#10 Star Washer	C 2279-5	
12	.43 x .20 Flat Washer	C 3830-4	
13	.218 Solder Lug	D 2934-4	
14	.50 x .19 Fiber Washer	C 3575-5	
15	Filter Cap Bracket	F10104-2	
16	.25 Fiber Shoulder Washer	C 1648-2	
17	10,000MF 40V	C 4250-4	C9
18	10,000MF 40V	C 4250-4	C8



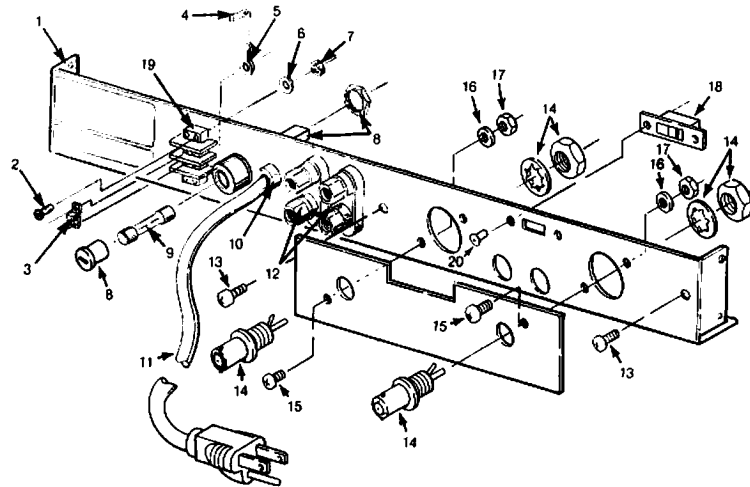


Illustration 7-6  
Back Panel Exploded View

#### BACK PANEL ASSEMBLY

Item #	Description	Part #	Reference
1	Back Panel	F 9734-9	
2	6-32 x .5 Screw	C 2176-3	
3	Barrier Block Jumper	C 4726-3	
4	2.7 ohm 1/2W	C 2857-8	R6
5	#8 Solder Lug	D 2935-1	
6	#6 Lock Washer	C 5594-4	
7	6-32 Hex Nut	C 1889-2	
8	Fuse Holder	C 5597A5	
9	3AG2A SB Fuse	C 5829-4	for 100-120 VAC units
	3AG1A	C 4875-8	for 200-240 VAC units
10	Power Cord Strain Relief	<del>C 4896-4</del>	A10214-1
11	3-18 Power Cord	H41962-4	
12	Dual Binding Post	C 2823-0	
13	8-32 x .25 Screw	C 5962-3	
14	BNC Connector	C 6011-8	
15	4-40 x .37 Screw	C 1844-7	
16	#4 Lock Washer	C 1824-9	
17	4-40 Hex Nut	C 1938-7	
18	DPDT Slide Switch	C 4110-0	
19	2-140-Y Barrier Block	C 3489-9	
20	Eyelet	C 3529-2	

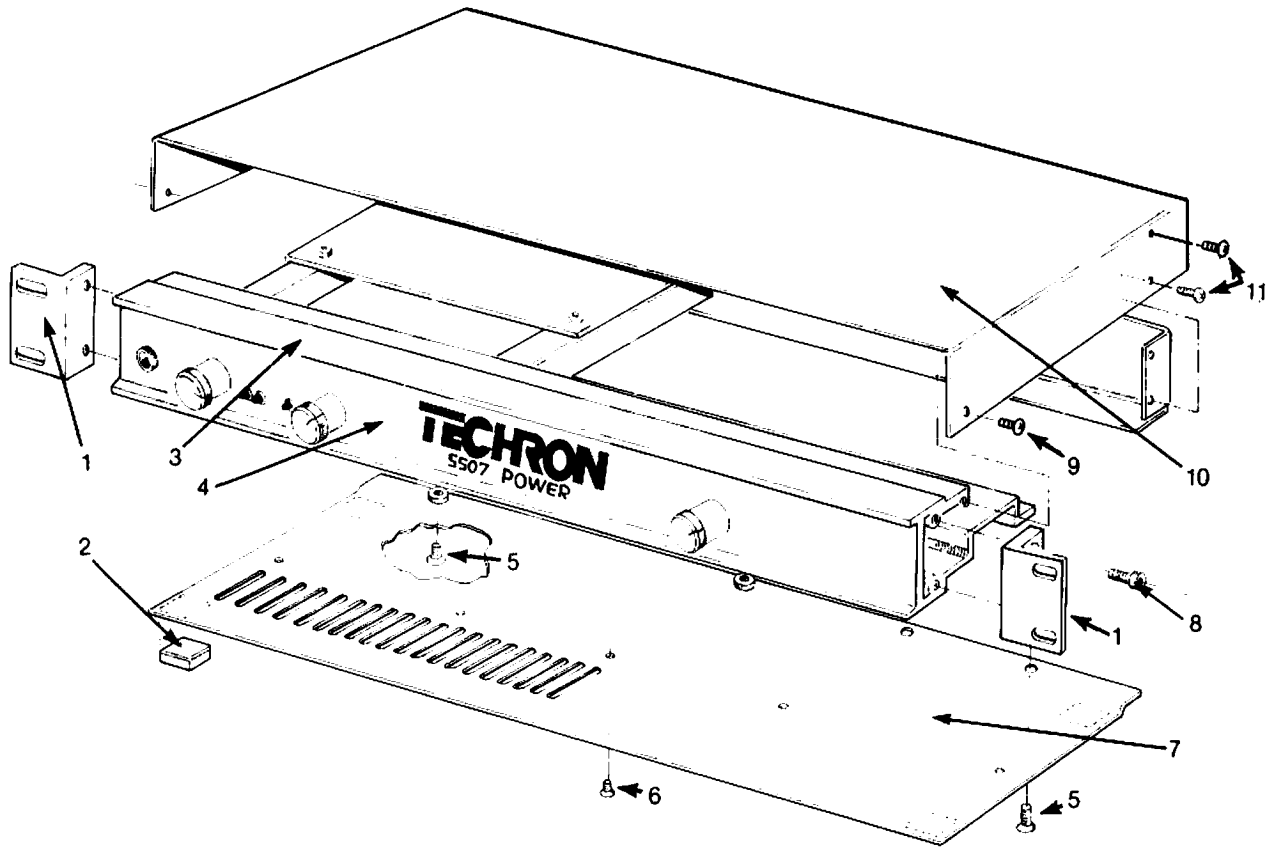


Illustration 7-7  
Final Assembly

FINAL ASSEMBLY

Item #	Description	Part #
1	1.75 Rack Mount	D 5964J7
2	Feet	C 3342-0
3	Front Panel	M20259J3
4	Overlay	F10302A0
5	8-32 x .25 Screw	C 2136-7
6	6-32 x .25 Screw	C 2436-1
7	Bottom Cover	M20073K5
8	6-32 x .75 Socket Cap Screw	C 1858-7
9	6-32 x .37 Screw	C 4329-6
10	Top Cover	F10015K6
11	8-18 x .375 Screw	C 6457-3