



the sound of experience

1707C & 1715C Mixer/Power Amplifiers

Operating and Service Instructions

ALTEC LANSING CORPORATION

a **MARK IV** company

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Description

The 1707C and 1715C Mixer/Power Amplifiers offer a highly flexible integration of a user configurable six input mixer with a fully protected power amplifier in one convenient cost effective package.

The six input ports accept any of the several input modules or output module. The programmable input modules may have their muting circuitry configured in either "priority", "slave" mode, or may be set to ignore muting commands. When a module configured in the "Priority" mode is activated, modules in the "slave" mode

will be muted.

Circuitry is also provided to allow remote volume control of individual inputs.

Multiple mainframes may be dynamically linked together. Separate preamp-out and amplifier-in jacks allow the insertion of equalizers or other signal processing between the mixer and the power amplifier.

A multi-tone generator and a compressor/limiter are also provided.

Specifications

Continuous

Average Power:

1707C:	75 watts
1715C:	150 watts

Maximum Midband

Output Power:

(Reference 1 kHz at 1% THD)	
1707C:	100 watts
1715C:	175 watts

Power Bandwidth:

(Ref. 1 kHz at rated output power)	
Direct Output:	better than 20 Hz – 20 kHz
Transformer Output:	better than 50 Hz – 15 kHz

Frequency Response:

Direct Output:

±1 dB, 20 Hz – 20 kHz	
(Ref. 1 kHz, 1 watt output)	

Transformer Output:

±1.5 dB, 50 Hz – 15 kHz	
(Ref. 1 kHz, 1 watt output)	

Link Output:

±1dB, 20 Hz – 20 kHz	
(Ref. 1 kHz, 100 mVrms, 10 kΩ load)	

Preamp Output:

±1dB, 20 Hz – 20 kHz	
(Ref. 1 kHz, 0 dBm output, 600 Ω load)	

Total Harmonic Distortion (THD):

Direct Output:

<0.05%, 20 Hz – 20 kHz	
(Ref. 1 kHz, rated output power, 30 kHz low-pass filter)	

Transformer Output:

<1.0%, 50 – 100 Hz	
<0.1%, 100 Hz – 20 kHz	
(Ref. 1 kHz, rated output power, 30 kHz low-pass filter)	

Link Output:

<0.05%, 20 Hz – 20 kHz	
(Ref. 1 kHz, 100 mVrms output, 10 kΩ load, 30 kHz low-pass filter)	

Preamp Output:

<0.05%, 20 Hz – 20 kHz	
(Ref. 1 kHz, 0 dBm output, 600 Ω load, EQ flat, compressor/limiter off, 30 kHz low-pass filter)	

Intermodulation Distortion: (SMPTE 4:1)

Direct Output:

less than 0.1% at rated power)	
--------------------------------	--

Input Sensitivity / Input Impedance:

(For rated output power, Ref. 1 kHz, 0 dBu = 0.775 Vrms)

Using **1780A/1780AT**: 0.3 to 100 mVrms / 10 kΩ (-68 dBu to -18 dBu)

Using **1780A/1780AT**: 3 mVrms to 1 Vrms / 10 kΩ (-48 dBu to +2 dBu)

Using **1781A**: 0.3 to 100 mVrms / 10 kΩ (-68 dBu to -18 dBu)

Using **1781AT**: 0.1 to 30 mVrms / 600 Ω (-78 dBu to -28 dBu)

Using **1781A+1785A**: 0.1 to 30 mVrms / 600 Ω (-78 dBu to -28 dBu)

Input Sensitivity / Input Impedance:

Link Input:

100 mVrms / 10 kΩ

(unbalanced) (-18 dBu)

Amplifier Input:

0.775 Vrms / 10 kΩ

(unbalanced) (0 dBu)

Rated Output Level /

Minimum Load

(Reference 1 kHz)

Impedance:

Link Output (unbal):	100 mVrms (-18 dBu), 2 kΩ
Preamp Output (unbal):	0 dBm, 600 Ω min. load
Auxiliary Output (unbal):	0 dBm, 600 Ω min. load
Direct Output:	Unbalanced
1707C:	24.5 Vrms / 8 Ω min. load
1715C:	24.5 Vrms / 4 Ω min. load
Transformer Output:	Balanced
1707C:	17.4 Vrms / 4.0 Ω min load
	25.0 Vrms / 8.3 Ω min load
	70.7 Vrms / 66.6Ω min load
1715C:	25.0 Vrms / 4.2 Ω min load
	34.6 Vrms / 8.0 Ω min load
	70.7 Vrms / 33.3Ω min load

Damping Factor:

Direct Output: >40, 20 Hz – 1 kHz

Signal-to-Noise Ratio:

Direct Output: >105 dB below rated output power, A weighted.
(master at minimum)
Direct Output: >80 dB below rated output power, A weighted.
(master at maximum)
Link Output: >75 dB below 100 mVrms output, A weighted.
Preamp Output: >75 dB below 0.775 Vrms output, A weighted, EQ defeated, compressor / limiter off.

Protection Systems:

Amplifier:

- Short circuit current limiting.
- Over voltage limiting.
- Thermal Sensing.
- Spurious oscillatory protection.
- Low AC line sensing.
- Output DC detection.
- Subsonic detection.
- Turn-on/turn-off transients. (approx 3 seconds)

Load:

External DC Supply:

Mainframe:

Equalization:

Bass:

Treble:

- DC input fuses.
- AC line fuse.
- Shelving Type.
- ±12 dB at 100 Hz.
- ±12 dB at 10 kHz.

Note: 0 dBm into 600 Ω yields 0.775 Vrms.

Compressor / Limiter: Feedforward Topology
Threshold: -20 dB to +20 dB
Continuously variable.
(Ref. 100 mVrms on Link input.)

Compression Ratio: 1:1 to ∞ :1,
Continuously variable.

Release Time: 50 msec to 5 sec.
Continuously variable.

Tone Generator: Electronically produced
Tones: Buzzer, siren, single-tone
chime, and repeating tone
chime.

Control: All tones are initiated by
remote switch closures.
Rear panel.

Level adjustment: Rear panel.

Connectors:

Inputs:

Amplifier Input: 1 – RCA phono receptacle
Link input: 1 – RCA phono receptacle
Battery: 3-terminal barrier strip

Outputs:

Amplifier Output: 7-terminal barrier strip
Preamp Output: 1 – RCA phono receptacle
Link Output: 1 – RCA phono receptacle
Auxiliary Input: 1 – RCA phono receptacle

Control:

Mute and
Tone Generator: Screw Terminals (7)

Controls:

Front Panel:

Input: 6 Input Level adjust
Compressor/Limiter: 1 Release Time adjust
(screwdriver slotted)
1 Threshold adjust
(screwdriver slotted)
1 Compression Ratio adjust
(screwdriver slotted)
1 On/Off Switch

EQ Controls: 1 Bass adjust
1 Treble adjust
1 EQ In/Defeat switch

Output: 1 Master Level adjust
Miscellaneous: 1 AC Power switch

Rear Panel:

Tone Generator: 1 Output Level adjust
(screwdriver slotted)

Indicators:

Front Panel: 6 Green LED's, (Nominal
Input Level)
6 Red LED's, (Peak Input
Level)
1 Red LED, Main power
output CLIP)
1 AC Power ON

Microphone

Phantom Power: 48 VDC @ 200 milliamps
consumption
(Ref. 1 kHz, rated output
with no modules installed)

Power Requirements:

AC Mains:

1707C: 100, 120, 200, 220 or
240 VAC.
165 watts maximum.

1715C: 100, 120, 200, 220 or
240 VAC.
320 watts maximum.

Power Requirements:

Battery:

1707C: ± 48 VDC bipolar,
1.5 amps maximum.

1715C: ± 48 VDC bipolar,
3.0 amps maximum.

Power Consumption and Heat Produced:

1707C:

75 watts output: 165 watts consumed.
306 BTU/hour.

25 watts output: 130 watts consumed.
357 BTU/hour.

1715C:

150 watts output: 320 watts consumed.
578 BTU/hour.

50 watts output: 230 watts consumed.
612 BTU/hour.

Operating

Temperature Range: Up to 50°C (122°F)

Dimensions:

Width: 19 inches (48.3 cm)
Height: 5¼ inches (13.3 cm)
3 standard rack units.
Depth: 13 inches (33.0 cm)

Net Weight:

1707C: 25 lbs. (11.4 kg)
1715C: 32 lbs. (14.5 kg)

Finish Color:

Black

Included Accessories:

- 4 – Operating/Service Instruction documents. One each for the Mainframe, 1780A/AT, 1781A/AT, and 1783.
- 1 – Shorting Bar (Installed on Direct Output to OT in).
- 1 – "U" Shorting Bar (Installed on Preamp Out to Amp In).
- 4 – Rubber Feet (installed).
- 1 – System Configuration Label installed on top cover.
- 1 – International fuse.
- 1 – International 220/240 VAC voltage sticker.
- 1 – International Fuse sticker.
- 1 – Rack mount hardware kit.

Optional Input Output Accessory Modules:

- 1780A** Mic/Line Input Module.
- 1780AT** Mic/Line Input Module with 10 k Ω bridging transformer installed.
- 1781A** Programmable Input Module.
- 1781AT** Programmable Input Module with **1785A** 600 Ω to 10 k Ω isolation transformer installed.
- 1783** Line Output Module.
- 1785A** 600 Ω to 10 k Ω Input Isolation Transformer.
- 1786** 600 Ω to 600 Ω Output Isolation Transformer.
- 1791** Female XLR Connector.
- 1792** Male XLR Connector.
- 1793** Dual RCA Phono Connector.
- 1794** 5-Lug Screw Terminals.
- 8751A** Programmable 14 Band EQ Module.

Altec Lansing continually strives to improve their products and performance. Therefore, specifications are subject to change without notice.

ELECTRICAL CONNECTIONS FOR THE 1707C/1715C MIXER/POWER AMPLIFIERS

Power Connections (120 Volt, 50/60 Hz)

The mainframe configuration for both mixer/power amplifiers comes with the power transformer's primary line voltage strapped for 120-volt operation from the factory. Refer to Table I for exact strapping details and other voltage options.

Table I. AC Line Voltage Selection and Strapping Chart

Primary Line Voltage	Transformer Primary Lead Color				
	WHITE	YELLOW	RED	BLUE	ORANGE
100V	5	2	11	9	3
120V	2	5	11	3	9
200V	5	2	7	10	8
220V	5	2	7	8	10
240V	2	5	7	8	10

NOTE

Make sure the line voltage corresponds with the selected line voltage power rating BEFORE you connect the mainframe to the alternating current line.

Power Connections (100, 200, 220, or 240 Volt; 50/60 Hz)

You may change the mixer/power amplifier's 120-volt power connection to a 100—, 200—, 220—, or 240—volt power connection by re-strapping the power transformer's primary line voltage. Use the following procedure to change the factory strapping to another line voltage.

1. If you connected the mixer/power amplifier to an alternating current power source, disconnect it.
2. Remove and save the nine screws that secure the mixer/power amplifier's top cover. There are two screws near the bottom of each side, two screws on top near the rear edge of the front panel, and three screws at the top edge of the rear panel. Refer to Figure 1 for details.

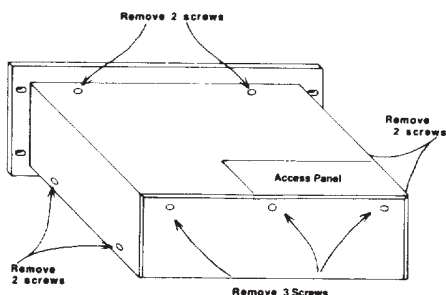


Figure 1. Top-Cover Removal

The numbers in Table I correspond to the numbered positions on the alternating current terminal block connector, which is adjacent to the power transformer. To select a line voltage, install the colored primary lead wires into the corresponding numbered positions on the terminal block.

3. Locate the voltage selection terminal block between the side of the chassis and the power transformer. Refer to Figure 2 for details.

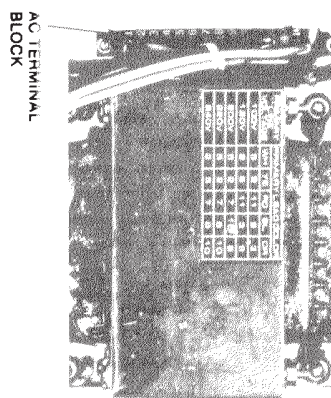


Figure 2. Location of Voltage Selection Terminal Block

4. While referring to Table I, disconnect the primary lead wires from the terminal block. Pull each wire firmly to disengage the push-on connector. Then reconnect each lead wire into its designated position on the terminal block that corresponds to the desired line voltage. Press each connector to snap into place.
5. Install the appropriate fuse value from Table II.

Table II. AC Fuse Selection Chart

AC Line Voltage	AC Line Fuse	
	1707C	1715C
100V	3.5 A/250 V	7.0 A/250 V
120 V	3.5 A/250 V	7.0 A/250 V
200V	2.0 A/250 V	4.0 A/250 V
220V	2.0 A/250 V	4.0 A/250 V
240 V	2.0 A/250 V	4.0 A/250 V

NOTE

Use of fuses other than those listed in Table II will VOID THE WARRANTY.

6. If you connected the power transformer's primary leads for 200—, 220—, or 240—volt operation, perform steps 7, 8, and 9 below to prevent future confusion and possible damage to the amplifier. Otherwise, proceed with step 10 below.
7. Affix the supplied 220/240 VAC label above the power cord and cover the 120 VAC silkscreened designation.
8. Affix the 2-amp fuse/1707C, (4-amp/1715C) label over the original 3.5 amp/1707C, (7-amp/1715C) silkscreened designation. Refer to Figure 3 for where to place the fuse label.

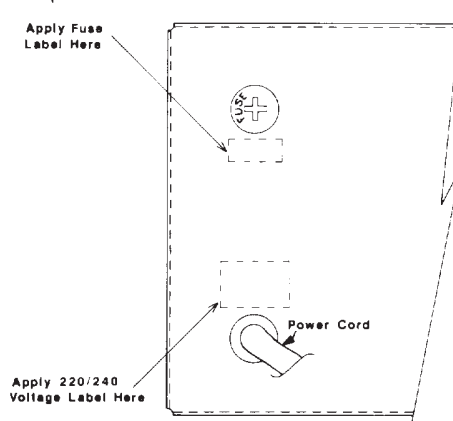


Figure 3. Application of International Stickers

9. Replace the standard AC line fuse with the 2-amp fuse/1707C, (4-amp/1715C) supplied. You should find the labels and the fuse enclosed in the plastic bag with this manual. Refer to Table II for an AC fuse selection chart.
10. If you are not installing additional modules in the mainframe right now, reinstall and secure the top cover with the nine screws previously removed in step 2 above.

NOTE

You can buy and install additional modules into the mixer/power amplifier, which has six ports that you can configure as input or output modules.

INSTALLING MODULES IN THE MAINFRAME

For detailed instructions on how to install additional input and output modules, you may order the following operating instruction manuals from our Order Entry Department:

P/N 42-02-027720 for the **1781A/AT** Mic/Line Input Modules
P/N 42-02-026653 for the **1780A/AT** Mic/Line Input Modules
P/N 42-02-027721 for the **1783** Line Out put Module.

1. Remove and save the two screws that secure the access panel to the top cover. Refer to figure 1 for details.
2. Plug the input or output module into one of the six channel positions with the controls facing the rear as shown in Figure 4. Secure the module with the two screws provided.

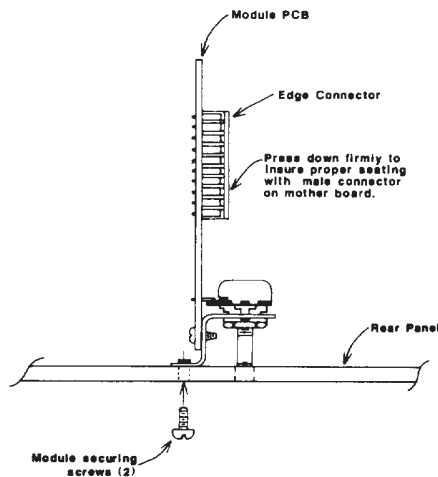


Figure 4. Module Installation

3. Remove the blank cover panel as shown in Figure 5. Install the selected connector assembly with the screws provided. Plug the pigtail connector (from the main connector assembly) onto its appropriate male mating connector on the module's printed circuit board.

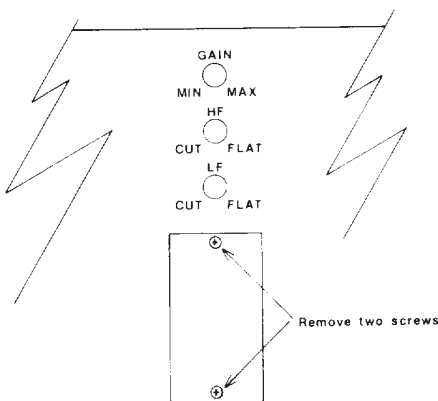


Figure 5. Removal of Blank Cover Panel

4. On the top cover is a System Configuration Label. Use it to indicate the module type, configuration, and any options for future reference. Write directly on the label with a permanent marker. Refer to Figure 6 for a display of this sample label.

NOTE

You may buy connector assemblies to use for installing additional input/output modules from ALTEC LANSING.

6	5	4	3	2	1
INPUT	INPUT	INPUT	INPUT	INPUT	INPUT
OUTPUT	OUTPUT	OUTPUT	OUTPUT	OUTPUT	OUTPUT
NONE	NONE	NONE	NONE	NONE	NONE
MUTE SLAVE	MUTE SLAVE	MUTE SLAVE	MUTE SLAVE	MUTE SLAVE	MUTE SLAVE
PRIORITY	PRIORITY	PRIORITY	PRIORITY	PRIORITY	PRIORITY
XFORMER	XFORMER	XFORMER	XFORMER	XFORMER	XFORMER
RVC	RVC	RVC	RVC	RVC	RVC
+4 dBm	0 dBm		Phantom Pwr		

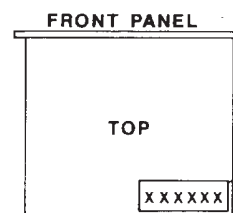


Figure 6. System Configuration Label

SHELF OR RACK MOUNTING THE 1707C/1715C MIXER/POWER AMPLIFIERS

You may shelf mount or rack mount the mainframe. For shelf or countertop applications, four rubber feet on the bottom of the chassis will protect resting surfaces and provide elevation for air flow underneath the unit. For rack or cabinet applications, remove the four rubber feet from the bottom of the chassis. Then install the unit in the rack with the screws and shoulder washers provided. The unit **must** have 1.75" of blank space both above and below it.

Ventilation

The mixer/power amplifier generates minimal heat during normal use. Although the amount of generated heat is low, make sure the mainframe is properly ventilated to prevent an excessive temperature rise. Because the output power devices (transistors) are sensitive to heat, you should not place the amplifier between other heat generating equipment or in areas where the ambient temperature exceeds 50°C (122°F).

If you mount the mainframe in an equipment rack or cabinet with other heat producing

equipment, provide adequate space between the units. Otherwise, the equipment may become too warm.

If a rack or cabinet contains several amplifiers, you may need to check the ambient air temperature. To determine the ambient air temperature, operate the system until the temperature stabilizes. Measure the ambient air with a bulb-type thermometer held at the bottom of the uppermost amplifier.

CAUTION

Don't let the thermometer bulb touch the metal chassis. The chassis might be hotter than the ambient air.

CAUTION

If the air temperature exceeds 60°C (140°F), place the equipment farther apart or **install a blower** to provide air movement within the cabinet. Make sure you don't block the air-intake holes located on the bottom of the chassis or the exhaust holes on the top cover.

CONFIGURING THE MAINFRAME

The Mainframe's Inner Workings

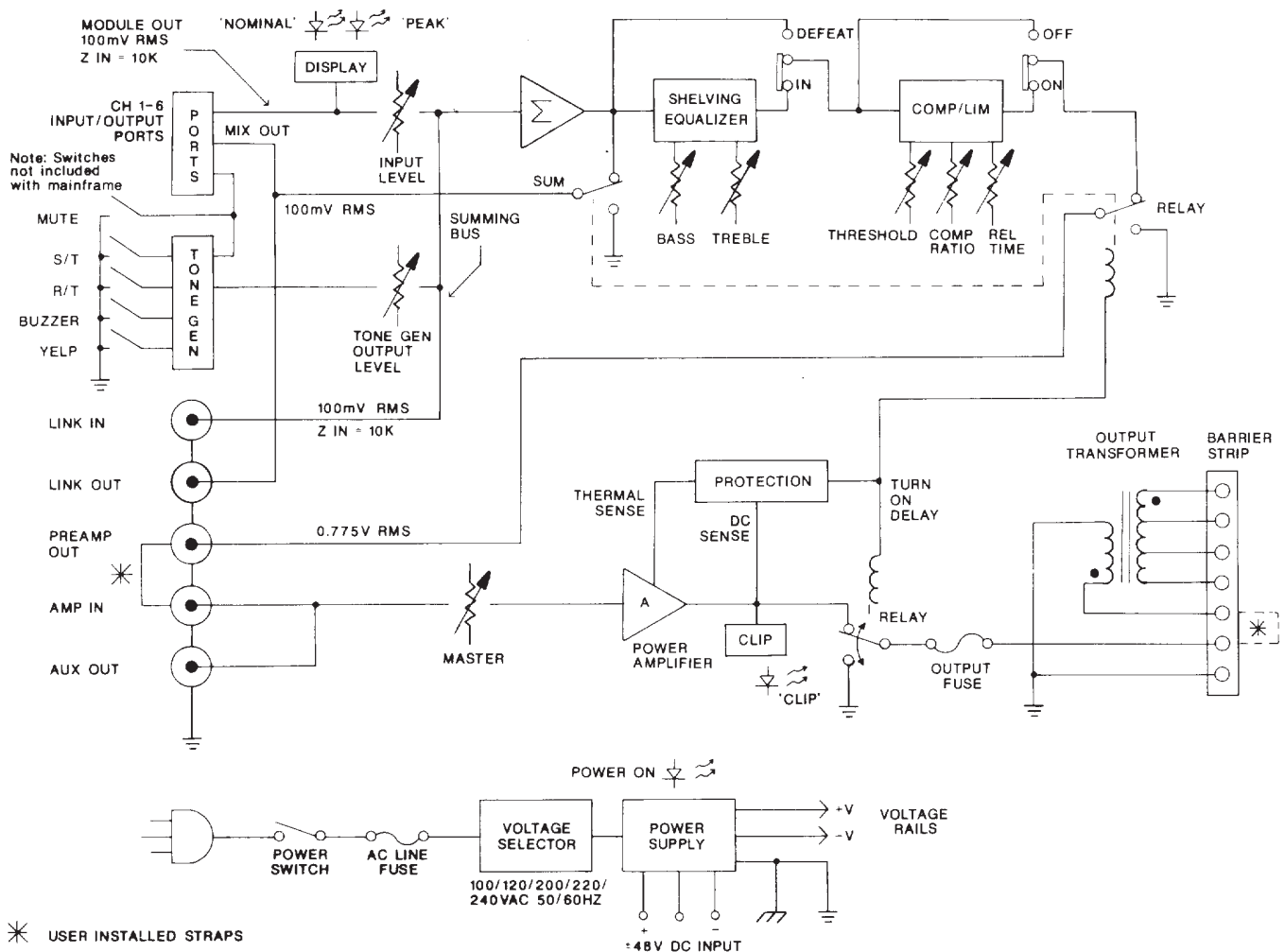


Figure 7. Block Diagram of 1707C/1715C Mixer/Power Amplifiers

Figure 7 above displays a block diagram of the mixer/power amplifier mainframe. Study it carefully. To use the system's full capabilities, you'll need a good understanding of the inner workings of the mainframe. Brief explanations of how the inside of the mainframe works follow in the text below.

The signal coming from each additional input module (like the **1781A**, **1781AT**, **1780A**, or **1780AT**) is simultaneously routed to the mixer/power amplifier's front-panel nominal/peak LED indicators and to the input channel level controls. The dual LED nominal/peak displays are pre-fader and designed to monitor the output level from the corresponding input module. The nominal (green) LED indicators have an approximate 10 dB window over which they will illuminate. This makes it easy to properly adjust the gain for each input module while efficiently using the rest of the system in terms of performance and headroom.

The mixer/power amplifier then sums the signal at the wiper of each input channel level control into a true virtual ground summing node or bus. The summing amplifier has eight input channels — input channels one through six on the front panel, tone generator output, and the link input or LINK IN on the rear panel. The summing amplifier's output signal drives the link output, or LINK OUT, located on the rear panel of the mainframe. The E.Q. and compressor/limiter sections are in series with each other, as shown in Figure 7. The compressor/limiter's output signal drives the preamplifier output, or PREAMP OUT, located on the rear panel which then provides the input signal to the main amplifier section.

The BASS and TREBLE E.Q. controls are ideally suited to make adjustments to the overall response of the mix. The low and high frequency shelving equalizers provide ± 12 dB of boost and cut with the maximum boost occurring at 100 Hz and 10 kHz, respectively.

The compressor/limiter section features variable release time, compression ratio, and threshold. The circuit uses a feed-forward topology that will minimize level differences for a more nearly constant output level. The compression ratio can approach $\infty:1$, and the attack time is fixed at approximately 10 ms.

The main amplifier section protects itself and the load against radio frequency interference, spurious oscillatory waveforms, excessive temperatures, direct current, turn-on/turn-off transients, and excess voltage/current phase shift due to reactive loading.

A signal overload circuit monitors the level at the output stage of the amplifier section. The front-panel CLIP LED indicator illuminates

when signal levels are high enough to cause significant output clipping.

A dual slope V-I limiter protects the output devices. It keeps the output devices operating within their SOA (safe operating area) as defined by the device manufacturer.

A special integrated circuit function block monitors the heatsink temperature, power-supply voltage, and the amplifier's output. When it detects a problem, it immediately disengages the output relay.

Output Connections

Make output connections to the seven-terminal barrier strip connector located on the lower-left side of the mainframe's rear panel.

The **1707C** main output connections include an 8 Ω direct output (24.5 vrms) and three transformer balanced outputs; 4 Ω (17.4 vrms), 25 vrms (8.3 Ω), and 70.7 vrms (66.6 Ω).

The **1715C** main output connections include a 4 Ω direct output (24.5 vrms) and a 25 vrms (4.2 Ω), an 8 Ω (34.6 vrms), and a 70.7 vrms (33.3 Ω) balanced transformer output.

Refer to Figure 8 for a display of the direct output connections and Figure 9 to see the transformer output connections.

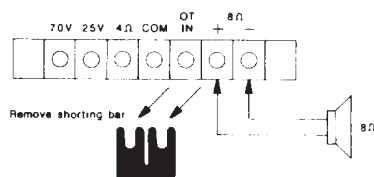


Figure 8. Direct Output Connections

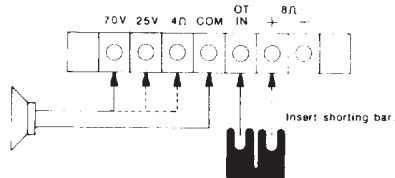


Figure 9. Transformer Output Connections

To use a transformer balanced output, install a U shorting bar between the direct (+) output and the output transformer's input (OT IN).

NOTE

When using the output transformer, you may use any combination of output connections as long as the total connected load does not consume more than 75 watts for the **1707C** or 150 watts for the **1715C**.

Output Fuse: A fuse in series with the output of the amplifier section protects the amplifier from excessive current consumption by a load. If this output fuse blows, replace it only with a fuse that matches the same type and rating as silkscreened on the rear panel of

the unit. If the fuse continues to blow, check the load to see if it shorted or is exceeding the rated power consumption. If the problem continues, have a qualified service technician service the unit.

Mute/Tone Generator Connections

The seven-lug screw terminal connector located on the mid-left rear of the mainframe provides access to the system mute and tone generator. For connection details, refer to Figure 10.

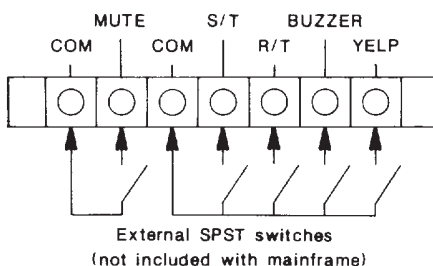


Figure 10. Mute/Tone Generator Switch Connections

A switch closure between the mute and common (COM) terminals will mute any input modules configured in the *slave* mode. You can use the remaining switches to select one of the following sounds:

- A single-tone chime (S/T),
- A repeating-tone chime (R/T),
- A buzzer, or
- A yelp (siren).

For the duration of a tone, the tone generator automatically mutes any input modules configured in the *slave* mode.

Output-Level Control: The tone generator's output-level control is conveniently located on the rear panel of the mainframe. To increase the tone generator's output level, rotate the screwdriver-slotted control shaft clockwise.

NOTE

Optional External Mute, (connected at the factory) allows external muting of the tone generator. If disconnected, the tone generator cannot be externally muted.

Resistance Effects of Long-Cable Runs on Mute/Tone Generator Circuits: Table III shows the maximum allowable cable resistance (total resistance) that the mixer/power amplifier can support. Resistances greater than these values, resulting from excessively long-cable runs or small gauge wire, may cause the mute or tone generator circuitry to fail to operate. Please make sure all cable resistances are less than the values shown in Table III.

Table III. Maximum Allowable Cable Resistances

Function	Resistance Ω	
S/T Chime	13	k Ω
R/T Chime	15.8	k Ω
Buzzer	8	k Ω
Yelp	8	k Ω
Mute	8	k Ω

LINK IN/LINK OUT Connections

The LINK IN/LINK OUT phono connectors on the mid-rear panel of the mainframe permit you to dynamically *link* two or more systems together. If you require more channels, the **1707C/1715C** mixer/power amplifiers are fully compatible with **1700C** mixer/preamplifier. For more information on the **1700C** mixer/preamplifier, you may order the operating instruction manual (P/N 42-02-029241) or the specification sheet (P/N 42-07-029242) from our Order Entry Department.

The signal appearing at the LINK OUT connector is the summation of all input channels as mixed by the input channel level controls. LINK IN is a direct input to a system's mixing amplifier; it's also a seventh input channel.

To link two units together, connect LINK OUT of system one to LINK IN of system two. System two will now control the mix of up to twelve input channels. Please refer to Figure 11 for typical linking connections.

NOTE

The LINK OUT signal is not affected by the compressor/limiter or the E.Q. circuits.

PREAMP OUT/AMP IN Connections

The PREAMP OUT signal is a mix of all input channels processed by the compressor/limiter and tone control circuits. Normally, you would insert a U shorting bar between the PREAMP OUT and AMP IN phono connectors on the rear panel. However, you can remove the shorting bar to patch in an external equalizer or other signal processing device with a proper level match of 0.775 vrms nominal. Figure 12 shows a typical application using an external equalizer or other signal processing device.

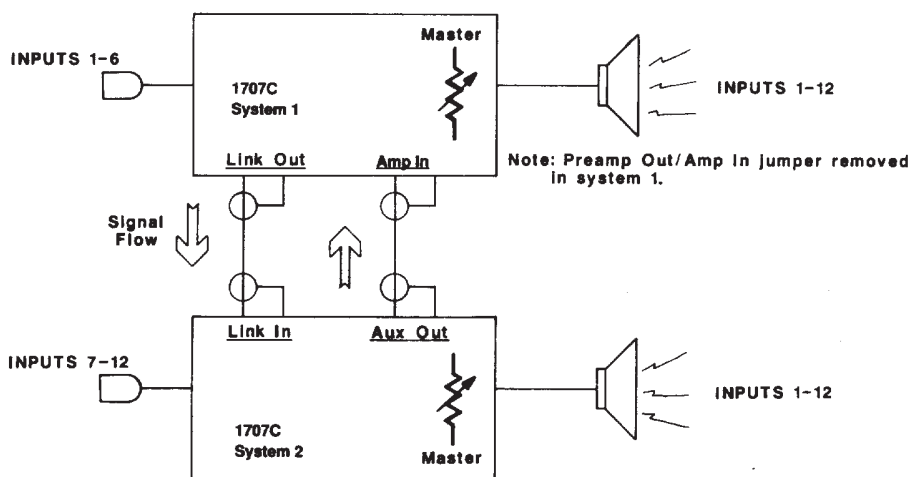
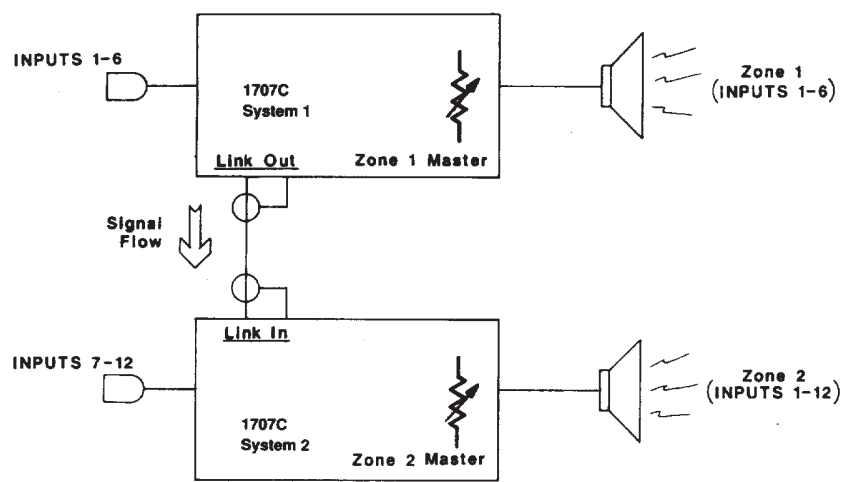


Figure 11. Typical Linking Connections

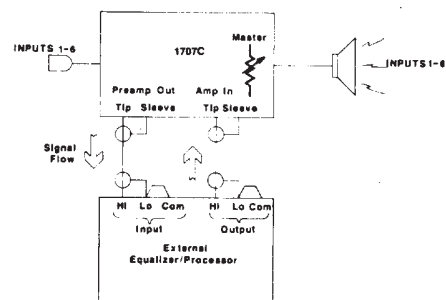


Figure 12. Patching an External Equalizer or Other Signal Processing Device

AUX OUT Connections

The auxiliary output (AUX OUT) phono connector on the rear panel is wired directly (internally) to the AMP IN phono connector. You can use it to drive a second amplifier or a tape recorder. Please refer to the 1707C/1715C mixer/power amplifier's block diagram shown in Figure 7.

Battery Input Connections

You can power a system from the battery input connector for auxiliary operation or standby switchover. The battery input connector is the three-terminal barrier strip located on the upper-left rear panel of the mainframe. The system requires two $\pm 48V$ DC battery power sources.

To connect the battery backup system to the three-terminal barrier strip, follow the three steps shown in Figure 13.

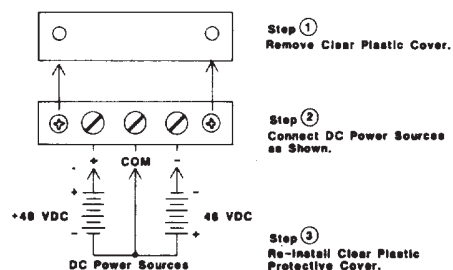
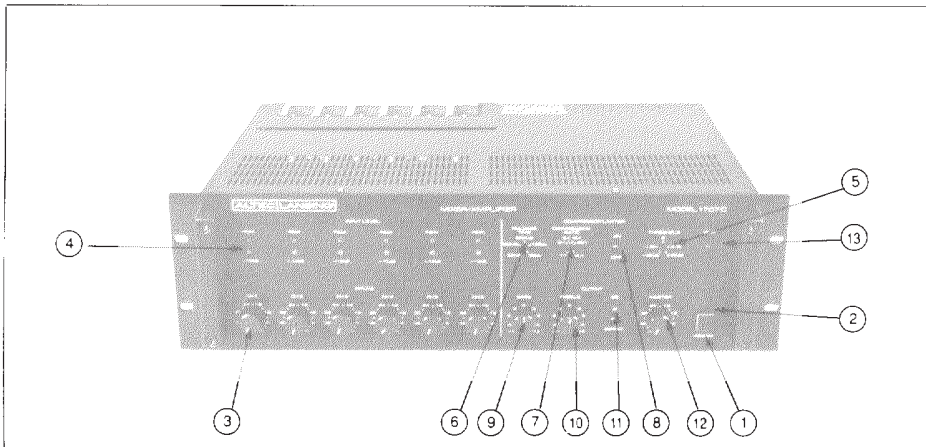


Figure 13. Battery Input Connections

FRONT/REAR-PANELS CONTROLS, SWITCHES, INDICATORS, AND CONNECTORS

Figure 14 below displays the front panel on the **1707C** mixer/power amplifier with numbers that point out each control, indicator, and switch. You can find the corresponding number and name/description of each control, switch, or indicator in the text below Figure 14. These controls, indicators, and switches are identical on the **1715C**.

Figure 14. Front-Panel Control, Switches, and Indicators for the 1707C



Item	Name	Function/Description
1	POWER Switch	Applies primary power. Two-position push-push switch for on/off mode.
2	ON LED Indicator	Illuminates red display on POWER switch when you turn on power.
3	CH 1-6 Controls	INPUTS Continuously variable potentiometers graduated from ∞ to 0 dB. You can increase or decrease level for each corresponding input channel. Rotate clockwise to increase level and counterclockwise to decrease level.
4	Green/Red Dual LED Indicators	INPUT LEVEL Displays nominal (green) and peak (red) indication for each channel.
5	THRESHOLD Control	COMPRESSOR/LIMITER Continuously variable potentiometer. Determines the level at which limiting begins.
6	RELEASE TIME Control	Continuously variable potentiometer. Determines the time required for the system to return to normal after signal falls below threshold.
7	COMPRESSION RATIO Control	Continuously variable potentiometer. Determines the amount of limiting that will occur when the input signal level exceeds the threshold, as set by the THRESHOLD control.
8	ON/OFF Switch	Places compressor/limiter circuit in or out of the signal path.
9	BASS Control	OUTPUT Continuously variable potentiometer. Provides boost or cut in bass response. You can obtain normal or flat response at a zero setting. Rotate clockwise to boost response or counterclockwise to cut response.
10	TREBLE Control	Continuously variable potentiometer. Provides boost or cut in treble response. You can obtain normal or flat response at a zero setting. Rotate clockwise to boost response or counterclockwise to cut response.
11	EQ IN/DEFEAT Switch	Two-position switch. DEFEAT position disconnects BASS and TREBLE controls when appropriate for application, such as Acoustics-Voicing. EQ IN connects the BASS and TREBLE controls.
12	MASTER Level Control	Continuously variable potentiometer graduated from ∞ to 0 dB. Use it to simultaneously increase or decrease all input channels. Rotate clockwise to increase level or counterclockwise to decrease level.
13	CLIP LED Indicator	Illuminates when an internal signal overload circuit detects high output signal levels that may cause output clipping.

INITIAL SETUP AND OPERATION OF MAINFRAME WITH MODULES INSTALLED

Initial Setup of an Input Module

You can buy and install the following input modules from ALTEC LANSING:

The **1781A** programmable input module. The **1781AT** programmable input module with **1785A** input isolation transformer, and The **1780A** and **1780AT** mic/line input modules.

To initially set up an input module, follow these steps:

1. Rotate the input module's gain control to the 12:00 o'clock (MID) position for planned microphone inputs or to the MIN (fully counterclockwise) position for line-level inputs. If the input type is unknown, rotate the gain control to the MIN position.
2. Rotate the high-cut (HF) filter to the FLAT position.
3. Rotate the low-cut (LF) filter to the FLAT position.

Initial Setup of an Output Module

You can buy the **1783** line output module from ALTEC LANSING. This module can be installed with or without the optional **1786** output isolation transformer (also available from Altec Lansing).

To initially set up an output module, rotate the output module's output level control (labeled GAIN on the rear panel) to the MIN position.

Initial Setup of the Mainframe

1. Rotate the **MASTER** output level control on the front panel of the mainframe to the ∞ position (fully counterclockwise).
2. Set the compressor/limiter **ON/OFF** switch to the OFF position.
3. Set the tone control **EQ IN/DEFEAT** switch to the DEFEAT position.

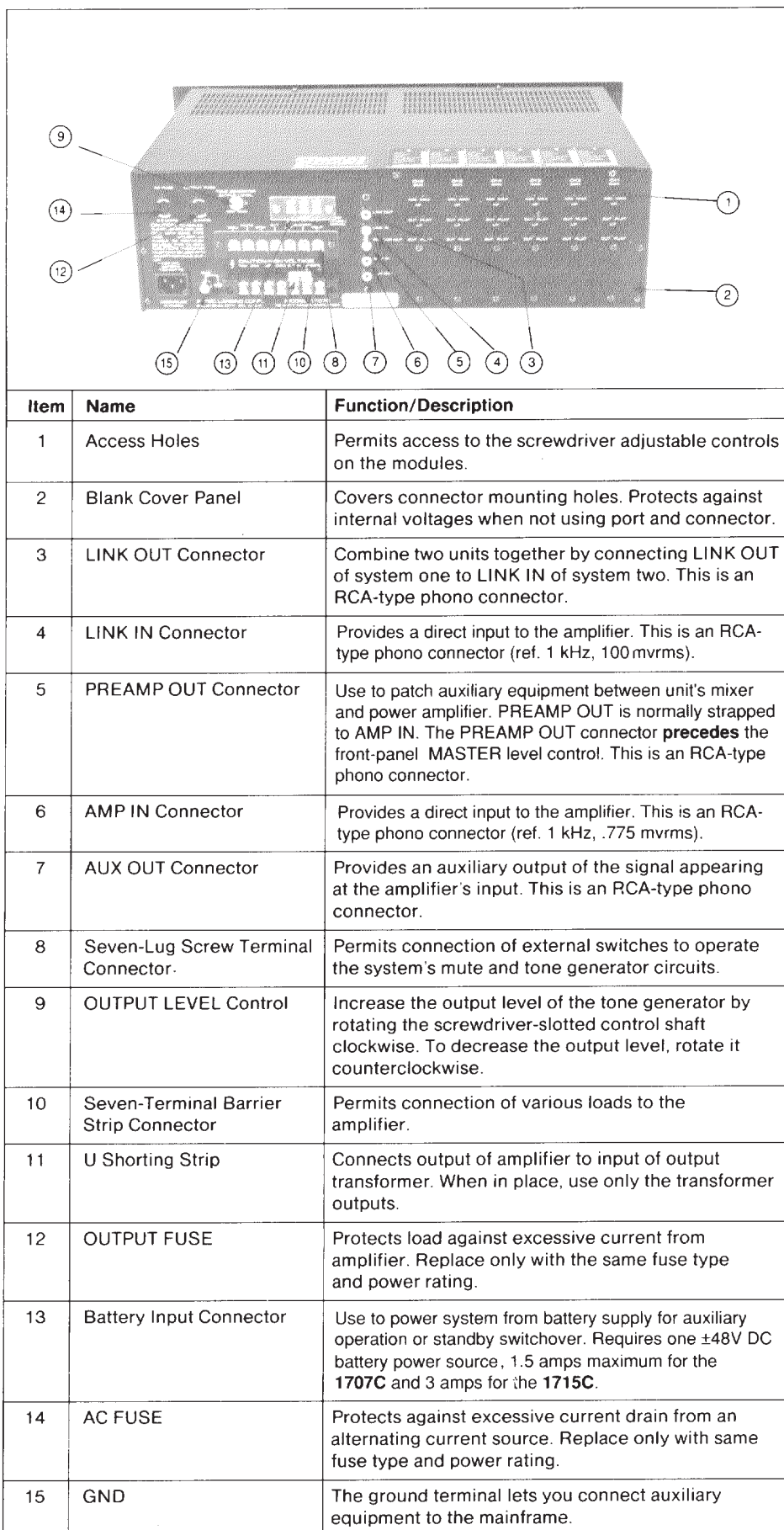
Operating the 1707C/1715C Mixer/Power Amplifiers

1. Connect a source representative of the type of input signal to one of the input module positions, if any. Slowly rotate the input module's gain control clockwise until the mixer/power amplifier's green LED display (-10 dB) on the input-level front-panel section fully illuminates. This is the nominal level for providing the most efficient performance and headroom.

The mixer/power amplifier's red LED display may briefly illuminate on signal peaks. This is permissible as long as it does not flash more than fifty percent of the time. If it does, reduce the gain of the input module by rotating its gain control counterclockwise or use an external pad.

Figure 15 below displays the rear panel on the **1707C** mixer/power amplifier with numbers that point out each connector or control. You can find the corresponding number and name/description of each connector or control in the text below Figure 15. These connectors and controls are identical on the **1715C**.

Figure 15. Rear-Panel Control and Connectors for the 1707C



NOTE

The LED display precedes each front-panel input-level control. As a result, it will always indicate the nominal and peak levels regardless of input channel settings. Please refer to the mainframe block diagram shown in Figure 7.

- Once the gain is set for each input module channel, rotate the front-panel input-level channel controls (CH 1-6) on the mixer/power amplifier to their 12:00 o'clock (MID) position. Slowly increase the **MASTER** output level control on the front of the mainframe until you hear a normal operating level through the loudspeaker system. Then readjust the input-level channel controls slightly for the desired mix or blend of signals.
- Adjust the high-cut (HF) and low-cut (LF) filters on the input module as needed for the desired response. The widest possible bandwidth occurs when you rotate both of these controls to the FLAT position. This is the best setting for music. However, in speech-only channels, you should limit the bandwidth to help reduce noise and system feedback.
- To use the mixer/power amplifier's output tone-control section, move the two-position **EQ IN/DEFEAT** slide switch to the EQ IN position. Then adjust the **BASS** and **TREBLE** controls for the desired response. From a center or 12:00 o'clock (MID) position, rotate either control clockwise to boost response or counterclockwise to cut response.

If using the tone-control section is inappropriate for current applications, such as Acousa-Voicing, move the **EQ IN/DEFEAT** slide switch to the DEFEAT position. This disconnects the **BASS** and **TREBLE** controls.

- To use the compressor/limiter section, follow this procedure:

Move the slide **ON/OFF** switch to the ON position.
 Rotate the **RELEASE TIME** control to its maximum position (full clockwise).
 Rotate the **COMPRESSION RATIO** control to minimum position (full counterclockwise).
 Rotate the **THRESHOLD** control to its 12:00 o'clock (MID) position.
 Begin increasing the compressor/limiter by rotating the **COMPRESSION RATIO** control clockwise until you achieve the desired amount of compression or limiting. Since the amount of compression or limiting depends on the incoming signal level, you may need to readjust the **THRESHOLD** control. To lower the triggering threshold, rotate the **THRESHOLD** control counterclockwise. If the system requires a higher incoming signal level to trigger the compressor/limiter, raise the threshold by rotating the **THRESHOLD** control clockwise.

NOTE

A high compression ratio and a low threshold setting may decrease the system's apparent loudness since peak signals and parts of the nominal signal may lie above the threshold. You can correct this by raising the threshold level; just rotate the **THRESHOLD** control clockwise.

NOTE

If you set the 1783's output level control at its MAX (full clockwise) level, the output level is +8dBm. However, this level only applies if you use a 100 mvrms reference level on the input of the output module from the mix output bus. It also only applies if you have a balanced 600 Ω load.

WARNING

Repair performed by other than authorized warranty stations (dealers) or qualified service personnel shall void the warranty period of this unit. To avoid loss of warranty, see your nearest ALTEC LANSING authorized dealer. You can also call ALTEC LANSING CUSTOMER SERVICE authorized dealer. You can also call ALTEC LANSING CUSTOMER SERVICE directly at 405/324-5311, FAX 405/324-8981, or write:

**10500 W. RENO
OKLAHOMA CITY, OK 73128 U.S.A.**

6. If you installed the **1783** line output module, adjust the output level control on the **1783** for the desired output level. The higher the output level, the better the signal-to-noise ratio. However, too high a level reduces the available headroom and may cause premature clipping.



the sound of experience

1707C/1715C
MIXER/POWER AMPLIFIERS

SERVICE INSTRUCTIONS

***** CAUTION *****

No user-serviceable parts are inside: you may encounter hazardous voltage within the chassis. Servicing information contained within this document is for use only by ALTEC LANSING Corp. authorized warranty stations and qualified service personnel. To avoid electric shock, DO NOT perform any servicing other than that contained in the Operating Instructions unless you're qualified to do so. Refer all servicing to qualified service personnel.

SERVICE INFORMATION

WARNING

ALTEC LANSING recommends that you do not modify its products. Such modifications shall be at the sole expense of the person(s) or company responsible. Any damage to persons or property resulting therefrom shall not be covered under warranty or otherwise.

Power Amplifier Bias Adjustment

NOTE

This adjustment requires a DC voltmeter.

Figure 16, shown on the gatefold, is the schematic of the mainframe. You'll need trimpot SVR102, provided in this system's package, to set the bias of the amplifier. You should set the bias current to approximately 20 milliamperes DC. To set the bias, use a battery-powered DC voltmeter capable of reading in the millivolt range and follow the procedures outlined below. If you must use an AC-powered voltmeter, float the AC ground wire using the appropriate adapter.

1. With the unit unplugged, remove the top cover from the unit to expose the main circuit board. See Figure 1 on page 5 for how to remove the top cover.
2. Connect the rated load impedance to the direct output of the mixer/power amplifier (8 Ω for the 1707C, 4 Ω for the 1715C).
3. Attach RED probe lead from the DC voltmeter to the junction of R130 (0.27 Ω emitter resistor) and the emitter of Q117. Refer to figure 16.
4. Attach the BLACK probe lead to the junction of R130 (0.27 Ω emitter resistor) and the anode of D403.
5. Locate SVR102 on the main circuit board. Apply power and adjust SVR102 for a reading of approximately 5.5 millivolts.

Power Amplifier DC Offset Adjustment

NOTE

This adjustment requires a DC voltmeter.

1. Set the **POWER** switch to the OFF position. Rotate the **MASTER** level control fully counterclockwise to the ∞ position.
2. Connect the rated load impedance for the unit to the direct output (8 Ω for the 1707C, 4 Ω for the 1715C). Connect the DC voltmeter across the load.
3. Locate SVR101 on the main circuit board. Apply power and adjust SVR101 for a reading of 0.00 VDC \pm 10mV DC.

Parts Ordering

To order replacement parts, refer to the parts list. If part is not included on parts list, note the component designator from the schematic (or printed circuit board) and the component's description. Then call 405/324-5311, FAX 405/324-8981, or write:

ALTEC LANSING Replacement
Electronic Parts
P.O. Box 26105
Oklahoma City, OK 73126-0105 U.S.A.

Factory Service

If the unit requires factory service, ship the unit **prepaid** in the original carton (or a well-packed carton) to the following address:

ALTEC LANSING Customer
Service/Repair
10500 W. Reno
Oklahoma City, OK 73128 U.S.A.

Please enclose a note that provides the following information:

Any details describing the problem, and the conditions under which the problem occurred, such as where used, how used, and so forth.

Failure to enclose any helpful information may delay the processing of your service order.

Technical Assistance

For applications assistance or other technical information, call 405-324-5311, FAX 405-324-8981, or write:

ALTEC LANSING Technical
Assistance
P.O. Box 26105
Oklahoma City, OK 73126-0105 U.S.A.

DESIGNATOR	ALTEC PART NUMBER	DESCRIPTION
IC 001	17-01-124804	TA 7317 P
IC 201	17-01-037408I	GD 74HC 368
IC 301, 501	17-01-027463	NJM 4558 DD
IC 605	17-01-037406I	SSM 2120
IC 602	17-01-037411I	TD 62507 P
IC 601	17-01-122833	NJM 5532 DD
IC 701	17-01-037412I	NJM 2068 DD
IC 603, 604	17-01-037407I	KIA 7359 P
Q114, 115 (1715C)	48-03-124821	NPN 2SC 3281 (1715C)
Q114, 115 (1707C)	48-03-037726I	NPN 2SD 718 (1707C)
Q116, Q117 (1715C)	48-03-124820	PNP 2SA 1302 (1715C)
Q116, 117 (1707C)	48-03-037727I	PNP 2SB 688 (1707C)
Q101-104, 107, 901	48-03-124824	NPN KTC 2240 BL
Q105, 106	48-03-037237I	PNP 2SA 965 Y
Q108, Q109	48-03-037436I	NPN 2SC 2235 Y
Q110	48-03-124822	NPN 2SC 2238 Y
Q111	48-03-037236I	PNP 2SA 968 Y
Q001, 408	48-03-037272I	NPN KTD 2058 Y
Q409	48-03-037273I	PNP KTB 1366 Y
Q403	48-03-037676I	NPN 2SD 1302 R
Q113, 301, 407	48-03-037275I	PNP KTA 1015 Y
Q002, 003, 112, 201-203, 302, 401, 402, 404-406, 902- 904	48-03-026624	NPN 2SC 1815 Y
D1	42-02-037565I	BRIDGE KBPC-25-04 LUG TYPE
D001, 002 (1715C)	48-01-037674I	6A2 (1715C)
D001, 002 (1707C)	48-01-037678I	1N 5402 (1707C)

DESIGNATOR	ALTEC PART NUMBER	DESCRIPTION
D003-007, 012, 104, 601	48-01-027300	1N 4006
D101, 102	48-01-125214U	1N 60
D103-108, 201, 202, 301, 401- 403, 602, 603, 901, 902	48-01-122601	1N 4148
D008, 009	48-01-037400I	ZENER UZ-24BM
D010, 001, 013	48-01-113386	ZENER UZ-18BM
D203	48-01-037680I	ZENER UZ-5.6BM
POWER LED	39-01-037681I	REC KLR 208 2x5 RED
D903	39-01-037402I	LED SLR-54GG R5 GRE ROHM
CLIP LED, D904	39-01-037403I	LED SLR-54UR R5 RED ROHM
RLY A	45-01-037682I	RELAY T90N1D12 12- 24
RLY B	45-01-037394I	RELAY RY 24W-K DC 24V
SWITCH	51-02-037683I	SLIDE SSJ622
THERMAL SWITCH	51-02-037442I	T105 ARIUI
F001, 002 (1715C)	51-04-037438I	NB 31.8 mm 4A/250V UL/CSA (1715C)
F1 (1715C)	51-04-037684I	NB 31.8 mm 6A/250V UL/CSA (1715C)
F1 (1707C)	51-04-037728I	SB 31.8mm 3A/250V UL/CSA (1707C)
F2 (1715C)	51-04-037685I	NB 31.8mm 7A/250V UL/CSA (1715C)
F2 (1707C)	51-04-037729I	NB 31.8mm 3.5A/250V UL/ CSA (1707C)
F001, 002 (1707C)	51-04-037734I	NB 31.8 mm 2A/250V UL/CSA (1707C)
SVR101, 102	47-06-037439I	SEMI 470B 10/5
SVR601	47-06-037399I	SEMI CS 100KB 10/5
VR901	47-06-037395I	Φ 16 K161 MOO-20KA

DESIGNATOR	ALTEC PART NUMBER	DESCRIPTION
VR501, 502	47-06-037396I	Φ 16 K161 MOO-100KB CC
VR503	47-06-037686I	Φ 16 K161 MOO-50KB
VR601	47-06-037397I	Φ 12 K121 LOO-10KA
VR602	47-06-037398I	Φ 12 K121 LOO-10KRD
VR603	47-06-037687I	Φ 12 K121 LOO-100KB CC
TONE LEVEL ADJUST	47-06-037688I	Φ 16 10KA×1
R127-130	47-01-124825	WW CE 0.27Ω 5W R
R000, 006	47-01-037201I	MO 10Ω 1W 5%
R131	47-02-037424I	MO 10Ω 3W W/COIL
R132	47-01-037248I	MO 4.7Ω 2W 5%
R010-012	47-01-037417I	WW CE 220Ω 5W R
R133	47-01-037690I	MO 270Ω 1W 5%
R015	47-01-037413I	MO 560Ω 2W 5%
R026, 213	47-01-037426I	MO 680Ω 1W 5%
R028	47-01-037414I	MO 1KΩ 2W 5%
R027	47-01-124803	MO 1.2KΩ 1W 5%
R601, 602	47-01-037691I	CF 33Ω 1/5W 5%
R623	47-01-037692I	CF 47Ω 1/5W 5%
R114	47-01-037422I	CF 68Ω 1/5W 5%
R331	47-01-037120I	CF 100Ω 1/5W 5%
R617, 619	47-01-037694I	CF 200Ω 1/5W 1%
R115, 116, 906	47-01-037252I	CF 220Ω 1/5W 5%
R118, 120 (1715C)	47-01-037210I	CF 470Ω 1/5W 5% (1715C)
R616	47-01-037695I	CF 1.00kΩ 1/5W 1%
R118, 120 (1707C)	47-01-037122I	CF 1.5 kΩ 1/5W 5% (1707C)
R107	47-01-037423I	CF 560Ω 1/5W 5%
R105, 106, 123-126, 404	47-01-037121I	CF 1kΩ 1/5W 5%
R606, 633	47-01-037371I	CF 1.2kΩ 1/5W 5%

DESIGNATOR	ALTEC PART NUMBER	DESCRIPTION
R101	47-01-037122I	CF 1.5kΩ 1/5W 5%
R029, 030, 413, 416, 505, 506, 607	47-01-037696I	CF 2.2kΩ 1/5W 5%
R909	47-01-037253I	CF 3kΩ 1/5W 5%
R618	47-03-037697I	CF 3.24kΩ 1/5W 1%
R415, 910, 911	47-01-037254I	CF 3.3kΩ 1/5W 5%
R008, 009, 402, 905	47-01-037166I	CF 4.7kΩ 1/5W 5%
R417, 305	47-01-037255I	CF 5.6kΩ 1/5W 5%
R627, 628, 308 Note: If Q302 is a KTC1815(Y), then R308 is:	47-01-037168I 47-01-037125I	CF 7.5kΩ 1/5W 5% CF 15kΩ 1/5W 5%
R319, 504	47-01-037256I	CF 8.2kΩ 1/5W 5%
R002, 003, 119, 110-113, 208, 608-611, 630, 631, 904	47-01-037169I	CF 10kΩ 1/5W 5%
R502, 702, 706, 912	47-01-037124I	CF 12kΩ 1/5W 5%
R017, 103, 104, 108, 212	47-01-037125I	CF 15kΩ 1/5W 5%
R621	47-03-037700I	CF15.0kΩ 1/5W 1%
R018	47-01-037171I	CF 18kΩ 1/5W 5%
R117	47-01-037172I	CF 20kΩ 1/5W 5%
R121, 122 (1715C)	47-01-037421I	CF 20 kΩ 1/5W 5% (1715C)
R620, 626	47-03-037701I	CF 30.1kΩ 1/5W 1%
R121, 122 (1707C)	47-01-037258I	CF 47kΩ 1/5W 5% (1707C)
R001, 022, 102, 403, 414	47-01-037257I	CF 22kΩ 1/5W 5%
R330	47-01-037357I	CF 27kΩ 1/5W 5%
R020, 204, 320,	47-01-037174I	CF 33kΩ 1/5W 5%
R615	47-03-037703I	CF 39.2kΩ 1/5W 1%
R908	47-01-037285I	CF 47kΩ 1/5W 5%

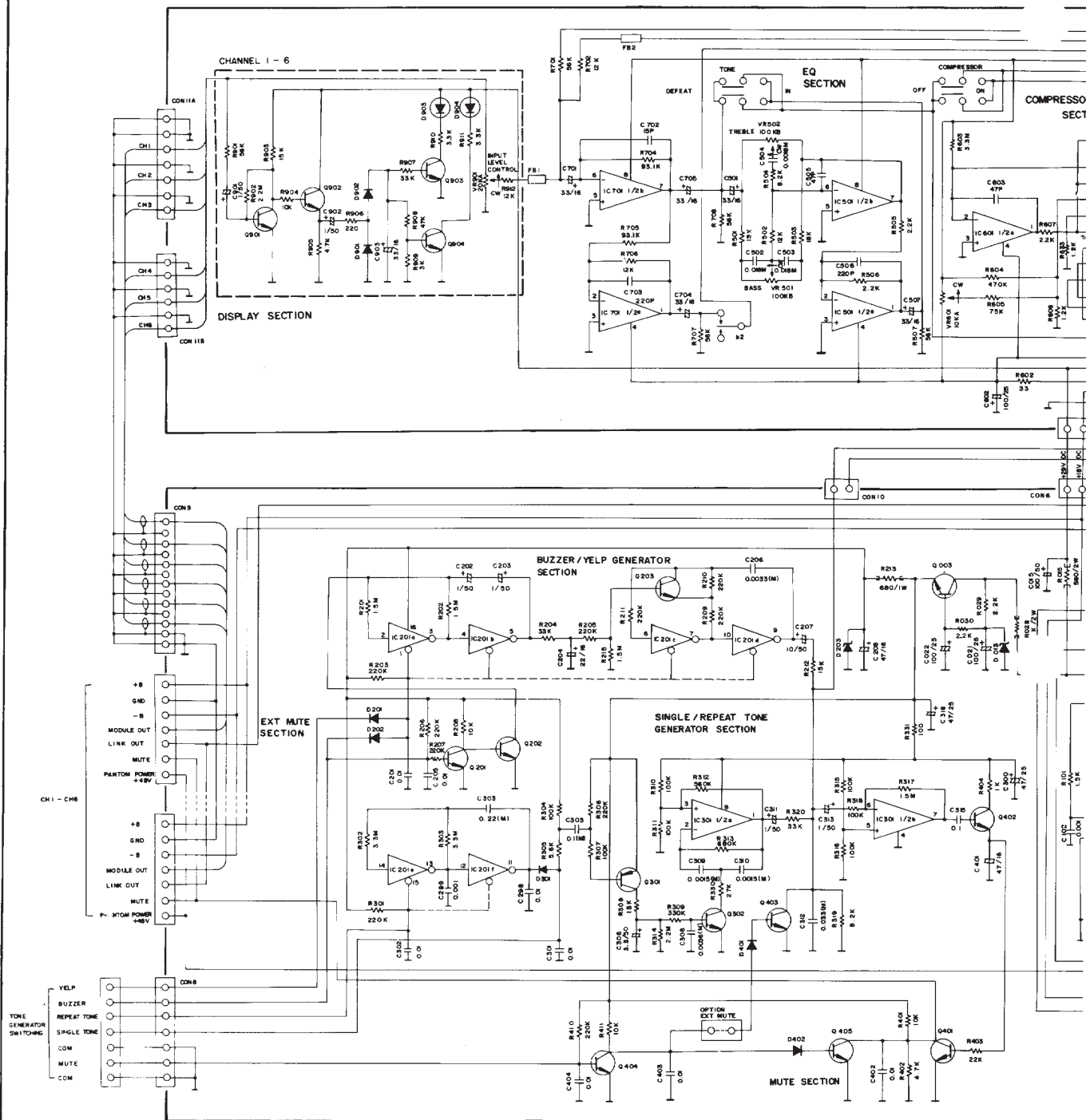
DESIGNATOR	ALTEC PART NUMBER	DESCRIPTION
R023, 109,	47-01-037258I	CF 47k Ω 1/5W 5%
R019, 024, 025, 507, 629, 632, 901, 707, 708, 701	47-01-037175I	CF 56k Ω 1/5W 5%
R605	47-01-037369I	CF 75K Ω 1/5W 5%
R704, 705	47-03-037704I	CF 93.1k Ω 1/5W 1%
R016, 304, 307, 310, 311, 315, 316, 318	47-01-037126I	CF 100k Ω 1/5W 5%
R412	47-01-037260I	CF 120k Ω 1/5W 5%
R624	47-03-037706I	CF 162k Ω 1/5W 1%
R021, 203, 209, 205-207, 210, 211, 301, 306, 410	47-01-037261I	CF 220k Ω 1/5W 5%
R612	47-03-037707I	CF 267k Ω 1/5W 1%
R625	47-03-037708I	CF 316k Ω 1/5W 1%
R309	47-01-037262I	CF 330k Ω 1/5W 5%
R613	47-03-037710I	CF 330k Ω 1/5W 5%
R604	47-01-037128I	CF 470k Ω 1/5W 5%
R312	47-01-037364I	CF 560k Ω 1/5W 5%
R313	47-01-037365I	CF 680k Ω 1/5W 5%
R201, 202, 215, 317	47-01-037363I	CF 1.5m Ω 1/5W 5%
R314, 902	47-01-037368I	CF 2.2m Ω 1/5W 5%
R302, 303, 603	47-01-037415I	CF 3.3m Ω 1/5W 5%
C017	15-01-037219I	AF RSA 0.47 μ F 50V
C016, 202, 203, 311, 313, 605, 901, 902	15-01-124507	AF RSA 1 μ F 50V
C306	15-01-037711I	AF RSA 3.3 μ F 50V
C609	15-01-037712I	AF RSA 4.7 μ F 25V
C607	15-01-037221I	AF RSA 4.7 μ F 50V
C101, 112, 606, 615	15-01-122935	AF RSA 10 μ F 35V

DESIGNATOR	ALTEC PART NUMBER	DESCRIPTION
C111, 112, 207, 409	15-01-037222I	AF RSA 10 μ F 50V
C204	15-01-037715I	AF RSA 22 μ F 16V
C018	15-01-037143I	AF RSA 22 μ F 25V
C501, 507, 612, 701, 704, 705, 903	15-01-037380I	AF RSA 33 μ F 16V
C019, 103, 105, 208, 401	15-01-037716I	AF RSA 47 μ F 16V
C300, 316	15-01-027327	AF RSA 47 μ F 25V
C110	15-01-026641	AF RSA 47 μ F 50V
C004, 005, 009, 010	15-01-037144I	AF RSA 47 μ F 63V
C000	15-01-037717I	AF NP 47 μ F 25V
C604, 614	15-01-037432I	AF RSA 100 μ F 16V
C011, 012, 021, 022, 601, 602	15-01-037225I	AF RSA 100 μ F 25V
C015	15-01-124503	AF RSA 100 μ F 50V
C003	15-01-124501	AF RSA 100 μ F 100V
C007	15-01-037427I	AF RSA 470 μ F 50V
C001, 002 (1715C)	15-01-037428I	AF HM 6800 μ F 63V (1715C)
C001, 002 (1707C)	15-01-037731I	AF HM 4700 μ F 63V (1707C)
C309, 310	15-02-037429I	M 0.0015 μ F 100V J
C504	15-06-037139I	M 0.0018 μ F 100V J
C206	15-06-037140I	M 0.0033 μ F 100V J
C308	15-06-037194I	M 0.0056 μ F 100V J
C502, 503	15-06-037285I	M 0.018 μ F 100V J
C312	15-06-037719I	M 0.033 μ F 100V J
C408	15-06-037213I	M 0.047 μ F 100V J
C305, 113	15-02-100109	M 0.1 μ F 100V J
C303	15-06-037432I	M 0.22 μ F 100V J
C702	15-02-100014	C 15pF 50V J

DESIGNATOR	ALTEC PART NUMBER	DESCRIPTION
C104, 505, 603, 613	15-02-107455	C 47pF 50V J
C106, 108, 109, 611	15-02-037205I	C 100pF 50V J
C506, 703	15-02-107470	C 220pF 50V J
C102, 107, 299, 608, 616	15-02-100304	C 0.001 μ F 50V Z
C201, 205, 298, 301, 302, 402-404	15-02-037179I	C 0.01 μ F 50V Z
C610	15-02-037164I	C 0.047 μ F 50V Z
C315	15-02-037165I	C 0.1 μ F 50V Z
C1	15-02-037724I	C 0.0047 μ F 400VAC
PT (1715C)	56-08-037441I	POWER TRANSFORMER (1715C)
PT (1707C)	56-08-037732I	POWER TRANSFORMER (1707C)
OPT (1715C)	56-07-037725I	OUTPUT TRANSFORMER (1715C)
OPT (1707C)	56-07-037733I	OUTPUT TRANSFORMER (1707C)

SCHEMATIC

SCHEMATIC



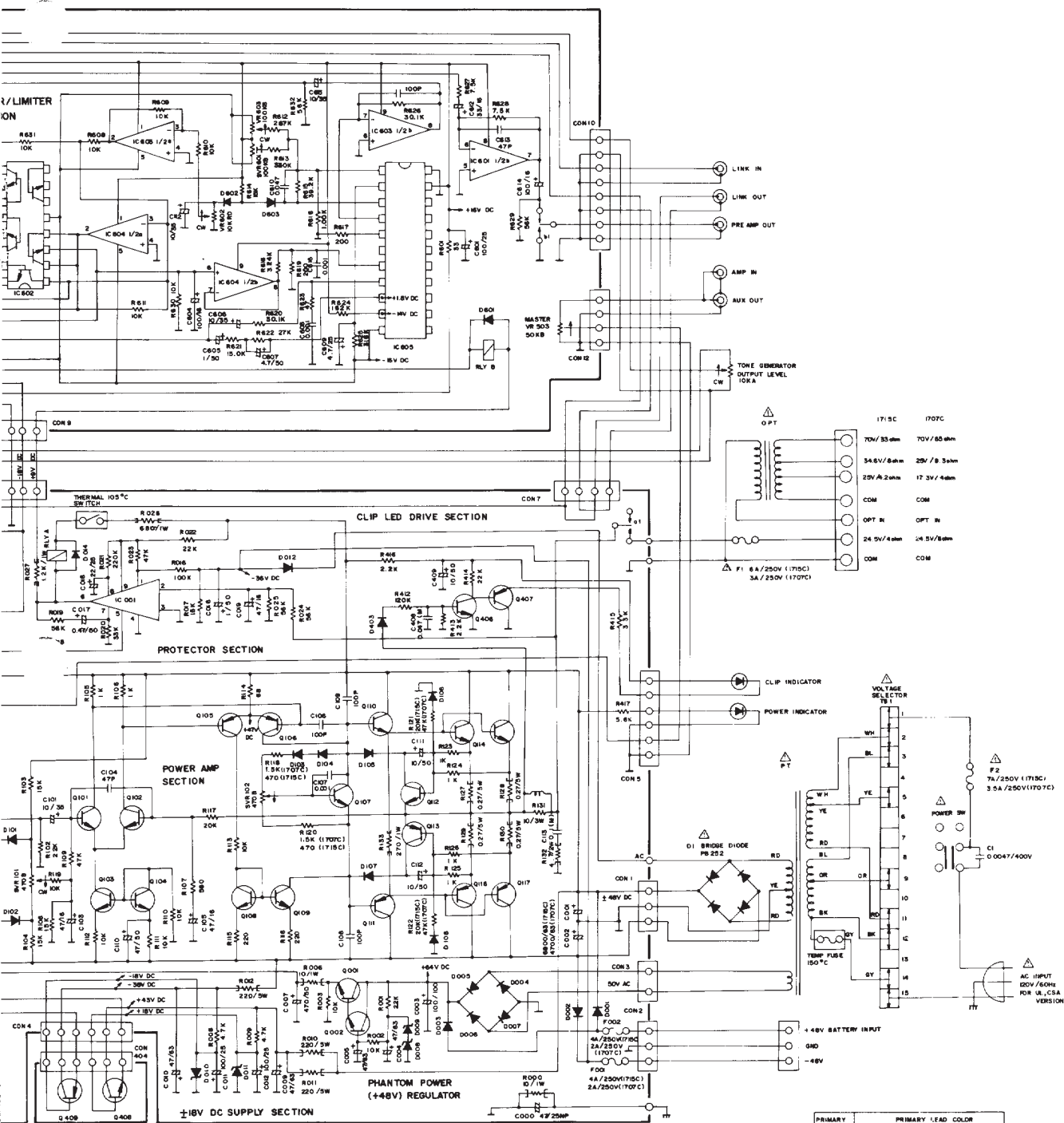
SERVICE INFORMATION

1. RESISTANCE VALUES ARE INDICATED IN OHMS UNLESS OTHERWISE SPECIFIED
(K = 1,000, M = 1,000,000)
2. CAPACITANCE VALUES ARE SHOWN IN MICROFARADS UNLESS OTHERWISE NOTED
(P = MICRO - MICROFARADS)
3. ALL VOLTAGES ARE REFERRED TO GROUND UNDER THE FOLLOWING CONDITIONS
DC - NO SIGNAL EXCEPT WHERE INDICATED
AC - RMS
4. PRECAUTION —
A) ALL COMPONENTS MARKED MUST BE REPLACED ONLY WITH ORIGINAL TYPE SPECIFIED BY THE MANUFACTURER, INTEL IN CORPORATION AND INSTALLED AS THE ORIGINAL SPACERS POSITIONED AWAY FROM ADJACENT COMPONENTS WHERE APPLICABLE
B) ALL SOLDERING MUST BE DONE IN A PROFESSIONAL MANNER USING SOLDER WITH ROBIN CORE ONLY.
C) ALL COVERS, SHIELD AND INSULATING SPACERS MUST BE REPLACED BEFORE RETURNING APPLIANCE TO CUSTOMER
D) A DAMAGED POWER SUPPLY CORD MUST BE REPLACED BEFORE RETURNING TO CUSTOMER
E) DIELECTRIC TEST CONSISTING OF 1200V AC 60HZ IS TO BE APPLIED BETWEEN BOTH BLADES OF THE POWER SUPPLY CORD ATTACHMENT PLUG AND THE EXPOSED CONDUCTIVE SURFACE OF THE APPLIANCE FOR A PERIOD OF NOT LESS THAN ONE SECOND BEFORE RETURNING APPLIANCE TO CUSTOMER
F) THE —3WV— MARKED RESISTORS ARE MOUNTED THE P.C.B ON SLEEVES

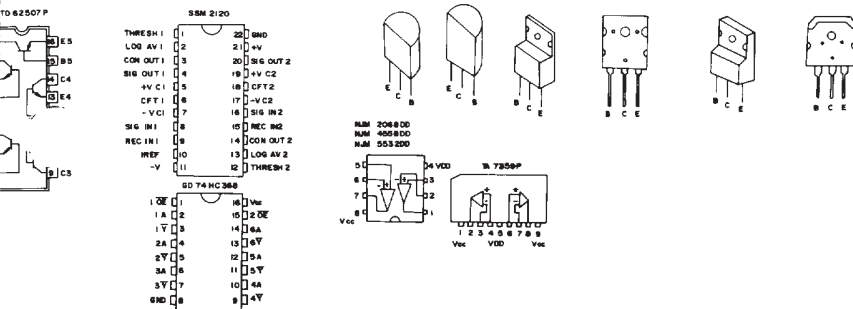
NOTE

- Q101 - Q104, Q107, Q108: KTC 2240 (BL)
Q105, Q106: KTA 965 (Y)
Q109, Q110: KTC 2258 (Y)
Q111: 25C 2258 (Y)
Q114, Q115: 25A 968 (Y)
Q116, Q117: 25C 324 (G) - 1715C
Q118, Q119: 25D 718 (G) - 1710C
Q120, Q121: 25A 1302 (G) - 1715C
Q122, Q123: 25B 688 (G) - 1710C
Q201, Q408: KTD 2056 (Y) (RES)
Q409: KTB 1568 (Y) (RES)
Q402, Q403, Q412, Q420: Q203, Q401, Q402, Q404 - 408, 302, 304, 302 - 1715C
Q408: KTD 1015 (Y)
Q1: 1N5402 - 1707C
D009, D002: 60V 1N4001
D101, D102: 1N40
D103, D104, D201, D202, D301, D401 - D403, D402, D403, D404, D405: 1N4148
D406, D407: 25C 1818
D203: 25C 5.6 1N4001
D008, D009: 25C 24 1N4001
IC 001: TA7317P
IC 201: 60V 1N4001
IC 301, 302: 1581 (DUAL OP AMP)
IC 701: 2068 (DUAL OP AMP)
IC 801: 5532 (DUAL OP AMP)
IC 603, 604: TA7350P
IC 602: TA7350P
IC 502: 5532 (DUAL OP AMP)
IC 501: 5532 (DUAL OP AMP)

DIAGRAM



PRIMARY LINE VOLTAGE	WHITE	YELLOW	RED	BLUE	ORANGE
100V	5	2	11	9	3
120V	2	5	11	3	9
200V	5	2	7	10	8
220V	5	2	7	8	10
240V	2	5	7	8	10



EQUIPMENT	MIXER / AMPLIFIER	MODEL	1715C (1707C)
DRAWN	CHECKED	APPROVED	DATE
			90.6.4
			9880192