Film-Tech

The information contained in this Adobe Acrobat pdf file is provided at your own risk and good judgment.

These manuals are designed to facilitate the exchange of information related to cinema projection and film handling, with no warranties nor obligations from the authors, for qualified field service engineers.

If you are not a qualified technician, please make no adjustments to anything you may read about in these Adobe manual downloads.

www.film-tech.com

KT-700 THEATRE SOUND PROCESSOR

INSTALLATION AND OPERATION

JULY 1986
Preliminary
Rev 1

THE KINTEK® KT-700 THEATRE SOUND PROCESSOR

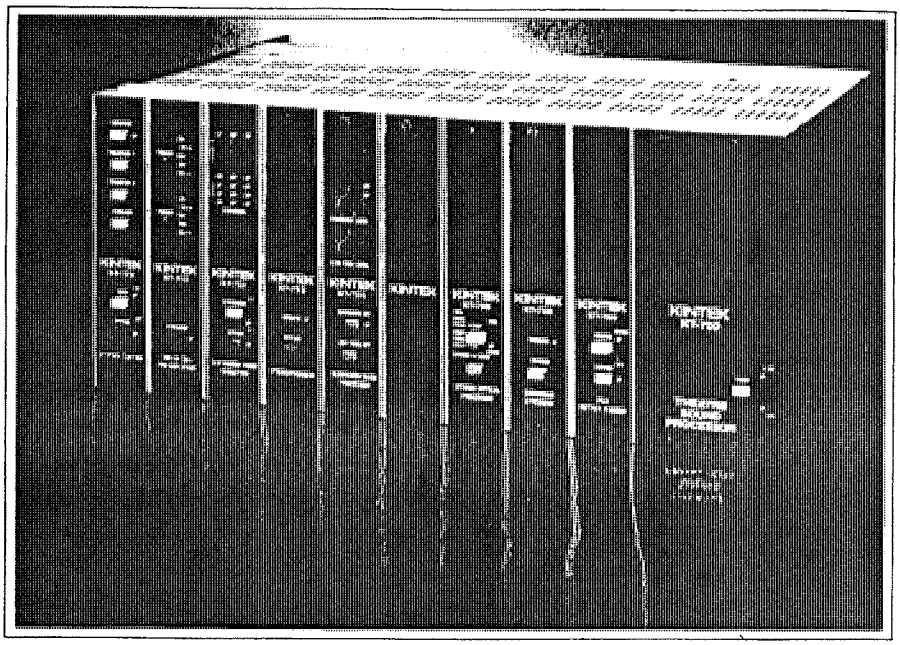
Kintek, the technological leader in motion picture sound and the originator of synthesized stereo for theatres, announces a breakthrough with the KT-700 Theatre Sound Processor. State-of-the-art microchips developed by Kintek engineers make the performance of this second generation stereo synthesizer faster, smoother, and quieter—with greater reliability. Installation is simple and serviceability is excellent.

With the KT-700 Kintek introduces two state-of-the-art options: The KT-725 Surround Extender and the KT-750 SVA Decoder. The Surround Extender module, a Kintek first, synthesizes the normally monaural surround channel into 3 separate channels with two separate delays. The effect creates an added spatialness and depth to the surround sound that audiences want to hear most. The SVA Decoder module decodes Dolby® stereo prints in true stereo. When used with the Surround Extender, the stereo decoded surround is synthesized into 3 channels—providing a unique added dimension to your stereo film bookings.

But even without the options, the standard features included in this remarkable new system are the most impressive in the industry:

◇ 5-channel, synthesized stereo from mono soundtracks, including surrounds and subharmonic synthesizer for bass enhancement provided by the KT-722 and KT-724 modules.

◇ 3 frequency-band, dynamic range expansion/noise reduction system provided by the KT-721 module.



◇ Dialog logic circuit for hard center dialog intelligibility and deessing circuit to control dialog "spitting."

◇ Adjustable surround delay.

◇ Adjustable above threshold limiter for surround amplifier protection.

◇ Full automation or manual operation with silent solid state switching and nonsync fade in and out provided by the KT-728 module.

◇ 2 pairs of stereo optical preamps with LED status indication for calibration, balance, and optical head alignment; switching for instant exchange of preamps in the event of failure provided with the KT-742 module.

◇ Preset structured gain between elements for fool proof installation and service.

◇ Interface and master fader capabilities for outside processors provided by the KT-744 module.

◇ State-of-the-art signal-to-noise ratio with surround channel equal to screen channels.

◇ Automatic failure indicators and emergency bypass function for each module, so operator can spot trouble and remove the failed circuit from the processing chain.

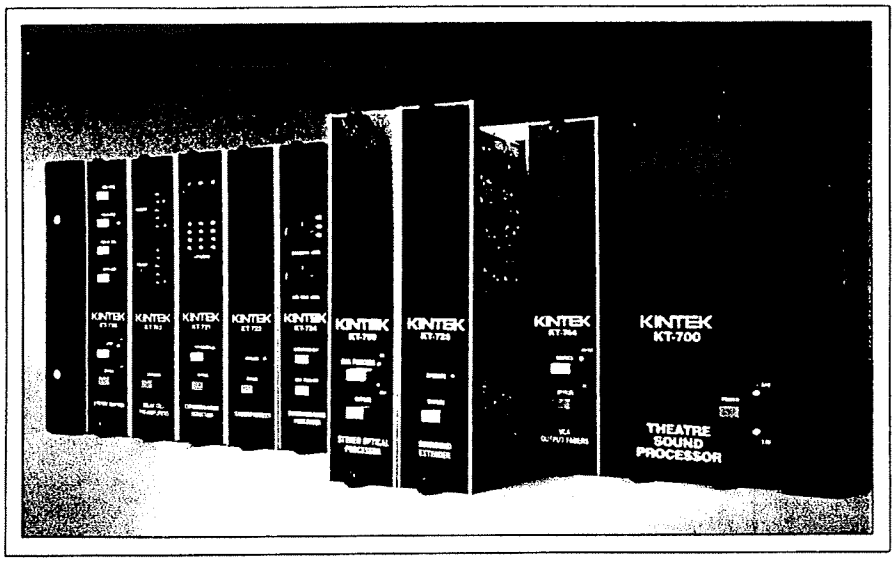
With the optional KT-725 and KT-750 installed, the KT-700 becomes the most sophisticated multichannel theatre sound processor available today—creating 7 channels of sound from standard mono prints and 7 channels from Dolby® stereo prints after proper 4 channel stereo decoding.

One demonstration of the KT-700 will convince you of the superiority of Kintek sound. And that superiority translates into more ticket sales for your theatres.

KINTEK
ALL STEREO

KINTEK, INC.
224 Calvary St.
Waltham, MA 02154
(617) 894-6111
1-800-343-4346

THE KT-750 STEREO OPTICAL PROCESSOR AND THE KT-725 SURROUND EXTENDER



Kintek®, the technological leader in motion picture theatre sound, is pleased to present a new level of realism in Dolby Stereo® film playback — 7 Channel Stereo.

The KT-750 Stereo Optical Processor module contains high-tech features that set it apart from all others:

◇ Non-level sensitive noise reduction never needs calibrating

◇ Automatic stereo film detection and processor activation

◇ Automatic master fader change from stereo synthesize to stereo decode

◇ Greater channel separation

◇ Dialog enhancement control

The KT-750 faithfully tracks the Dolby® Noise Reduction curve. The utilization of non-level sensitive noise reduction circuits to accomplish this results in never having to calibrate the noise reduction, and almost eliminates the need for "tweaking." Since 4 noise reduction circuits are used after matrixing occurs, greater channel separation results than with the standard 2 noise reduction circuits used ahead of matrixing. The KT-750 faithfully follows the matrix used for Dolby Stereo®, thus placing sounds precisely where and how the director intended.

The KT-750 Stereo Optical Processor can automatically detect the presence of a stereo film and activate, making the master fader level change between mono and stereo films as it does so. This eliminates one of the biggest problems that plagues today's automated projection booths.

To further enhance dialog intelligibility in certain acoustic situations, a dialog enhancement control is provided in the KT-750. Additionally, all 4 channels have separate bass and treble controls.

When used in conjunction with the KT-725 Surround Extender, a new definition of theatre stereo is born — 7 Channel Stereo.

The KT-725 contains these features:

◇ Turns mono surround channel into 3 separate channels for stereo and mono films

◇ Contains a second delay circuit for side surround speakers

◇ Enhances effects in stereo films

When used with mono films in the stereo synthesize mode, the KT-725 will increase the spatial quality of the surround presentation adding significantly to the realism of the sound for your audiences.

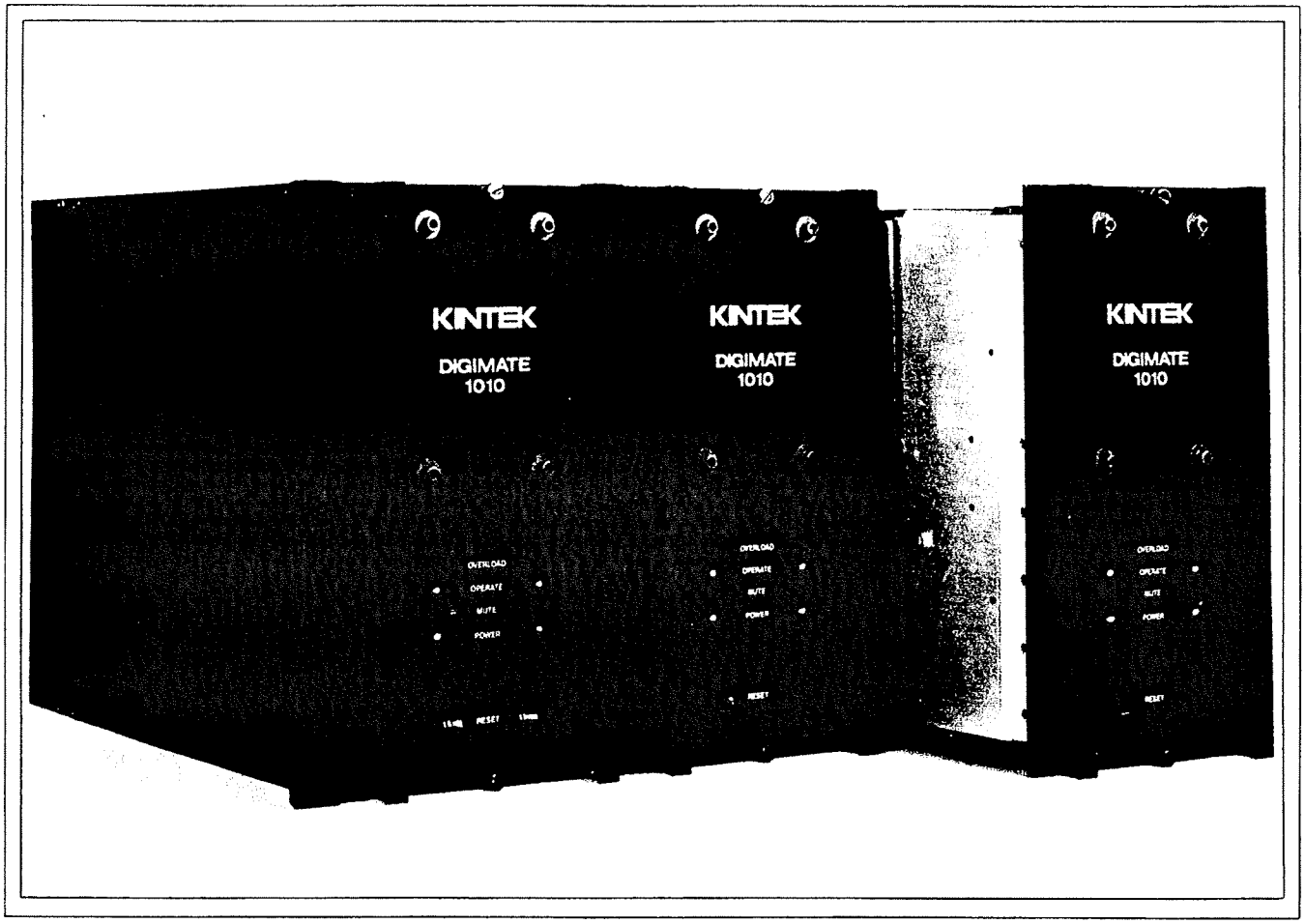
When used with stereo films it can enhance stereo effects. For example, if the stereo film has an effect coming strongly from the surrounds that also has an associated right channel effect, the right surround speakers will be emphasized and the left de-emphasized, thus smoothly extending the stereo action on the screen into the auditorium with movement in the surround system. This is truly the state-of-the-art in stereo film playback.

With the KT-750 and KT-725 added to the KT-700 Theatre Sound Processor you can advertise "KINTEK ALL STEREO." Your audiences will instantly appreciate the meaning of this phrase because KINTEK Sound puts them in the movies.

KINTEK
ALL STEREO

KINTEK, INC.,
224 Calvary St.
Waltham, MA 02154
(617) 894-6111

THE DIGIMATE 1010
Modular Stereo Power Amplifier



◇ **Modular Construction enables 6 channels per frame and instant interchangeability.**
◇ **Protection circuitry for each channel to limit amplifier's operation to Safe Operating Area (SOA) without interrupting program.**
◇ **Automatic DC offset correction.**
◇ **Anti-thump circuitry for speaker protection.**
◇ **Heat sink and transformer construction provides chimney-like convection cooling that keeps electronic components cool without fans.**
◇ **Power ratings are for Continuous Commercial Service (CCS). Each amplifier capable of transient peak power output of 900 watts into 4 ohms.**

Amplifiers for motion picture soundtracks face more severe operating conditions than most other services. The complex and dense texture of optical soundtracks can cause greater heating of power transformers and heat sinks than almost any other service.

Kintek has analyzed the demands of reproducing motion picture soundtracks reliably for today's audiences, and designed an amplifier in a modular package which can handle this service gracefully.

Our protection circuits are unique in that they measure the temperature, voltage, and current of the output transistors and limit operation to the Safe Operating Area (SOA) specified by the transistor manufacturer. This way each amplifier will only produce as much wattage as is safe under the operating conditions, and continue to operate. Other professional power amplifiers shut themselves off during a heat buildup or other fault, interrupting one or both channels of program in a stereo amplifier.

The SOA circuitry is so effective that the Digimate 1010 can even drive a short circuit without harming itself.

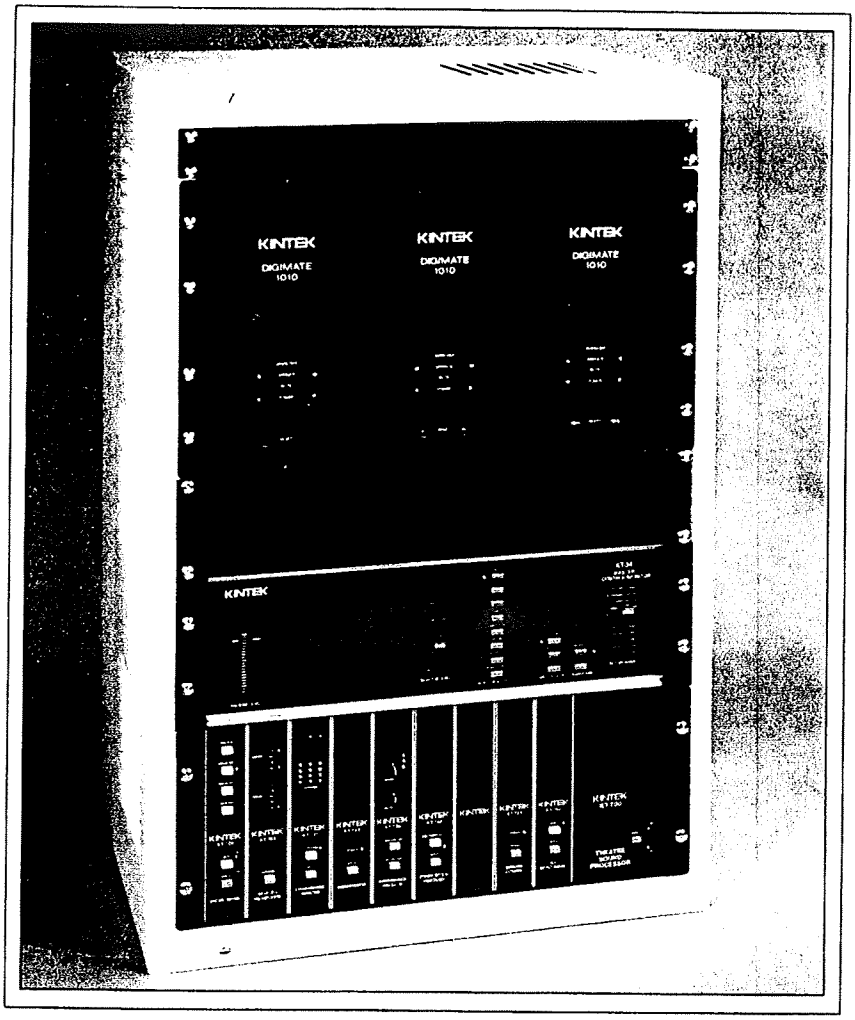
This is important because the load presented to an amplifier from a theatre loudspeaker at the end of a long run of wire can cause simultaneous high current peaks and high voltage peaks at the output transistors, which can cause failures in conventional professional power amplifiers with protection circuitry that limits peak current only.

Most failures in conventional power transformers are due to hot spots in the windings. Kintek's power transformers have unique thermal paths between the windings and heat sinks which sharply decrease hot spots, resulting in truly superior sustained high power perform-

KINTEK
ALL STEREO

KINTEK, INC.,
224 Calvary St.
Waltham, MA 02154
(617) 894-6111

KT-2755 THEATRE SOUND SYSTEM



◇ Completely modularized 7 Channel theatre sound system capable of All Stereo playback of stereo optical films and mono films.

◇ Prewired with the compact modular KT-700 Theatre Sound Processor including the KT-750 Stereo Optical Processor and KT-725 Surround Extender

◇ Equipped with 3 Digimate 1010 Modular Stereo Power Amplifiers to deliver the power for today's theatre sound requirements.

◇ Contains versatile KT-34 Master Control/Monitor unit

◇ Accommodates optional KT-43R or KT-43A Exciter Lamp Power Supply

As the most advanced of the KT-2000 Series of Complete Theatre Sound Systems, the Kintek KT-2755 provides a package that provides 7-Channel Stereo sound from all optical soundtracks in a completely modular package with ensured compatibility among individual components and greatest cost-effectiveness. Prewired and mounted in a 28" swingaway rack cabinet, the KT-2755 contains everything you need for the finest synthesized stereo of mono motion pictures and proper decoding of stereo optical pictures.

The heart of the sound system is the advanced KT-700 Theatre Sound Processor. This self-contained modular unit houses automation interface, preamplifiers, and output control in addition to the sound enhancement, stereo synthesizing, and stereo decoding modules. It's all made possible by micro-circuitry developed at Kintek, the technological leader in motion picture theatre sound.

The KT-2755 Theatre Sound System also contains the KT-750 Stereo Optical Processor for faithful reproduction of Dolby® stereo films, and the KT-725 Surround Extender for 3 channel stereo surrounds, making it the only system available that delivers 7 separate channels of sound to the auditorium.

Three Digimate 1010 Modular Stereo Power Amplifiers are supplied providing more than a kilowatt of continuous operating power with an equal or greater amount of power to surround speakers than screen speakers to better match speaker efficiencies.

The KT-34 Master Control/Monitor unit permits monitoring of the outputs of seven power amplifiers either separately or together. A built-in monitor amplifier powers the self-contained speaker, and a 60 dB LED bar graph meter indicates theatre levels.

The optional KT-43R or KT-43A Regulated Exciter Lamp Power Supply is mounted in the rear of the cabinet.

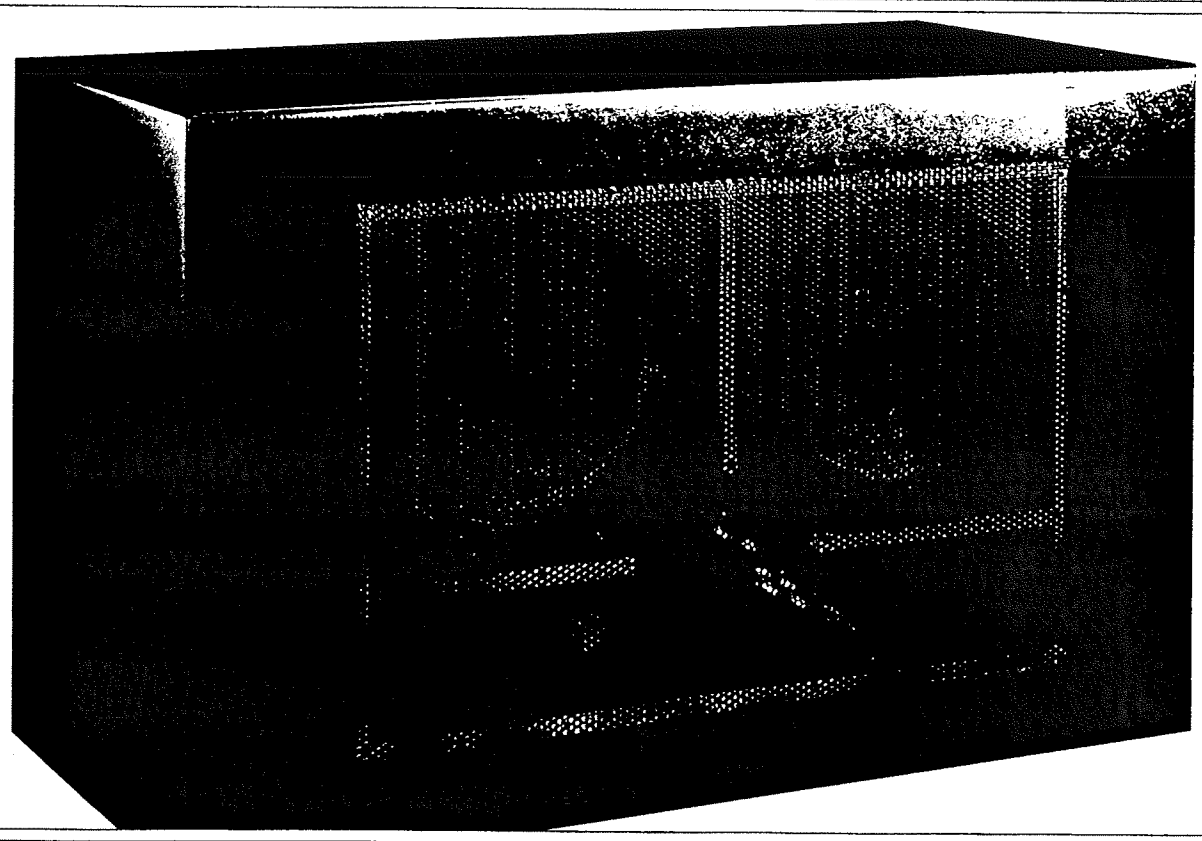
Many custom options are available on KT-2000 Series Theatre Sound Systems. Contact Kintek for details.

Whatever options you choose, Kintek sound systems arrive fully burned-in and tested as integrated systems. Installation requires only connection of AC power, solarcells, automation and speakers.

KINTEK
ALL STEREO

KINTEK, INC.,
224 Calvary St.
Waltham, MA 02154
(617) 894-6111

KT-90 SUB WOOFER SYSTEM



◇ **Clean bass down to 20Hz.**
◇ **Built-in 500-watt amplifier.**
◇ **Covers average theatre with ease.**
◇ **Units can be paralleled for very large theatres or intense effects.**
◇ **Works with all movie soundtracks.**

Most theatres can't give their audiences the deep vibrant sound that's such a vital part of today's films. That's because their sound systems just can't reproduce the deep, throaty bass that these films use in their spectacular special effects.

In the past, owners who wanted more bass would usually add more ordinary bass speakers; but this solution didn't work because the bass speakers themselves weren't up to the job. The result was invariably an over-emphasis in the mid-bass region (80Hz–200Hz) which muddied the dialogue without extending real low-frequency response.

Now, there is a theatre bass system which performs as it should. The KINTEK® KT-90. It uses the basic concept of the sub woofer—a system normally found in only the most sophisticated high-fidelity systems. Simply stated, the sub woofer is designed to reproduce *only the very low* frequencies.

The KT-90 uses two specially-crafted 15-inch low-frequency sound reproducers driven by their own 500-watt amplifier. All components in this system have been engineered to work as a team to produce the best deep bass possible. There are no compromises in the KT-90 system; it has one job to do—to produce that hard-to-get range from 20–100Hz.

The system requires AC power at the speaker location and a nominal 1.5 volt signal input to drive it to full rated output. In some cases it can also be driven by a center-stage horn line. A single KT-90 can easily handle auditoriums up to 500 seats. Extreme dramatic effects and larger halls can be accommodated by wiring two or more KT-90's in parallel. The system can be used with existing optical or magnetic sound reproduction systems and will provide high-precision, low-frequency reinforcement for your films.

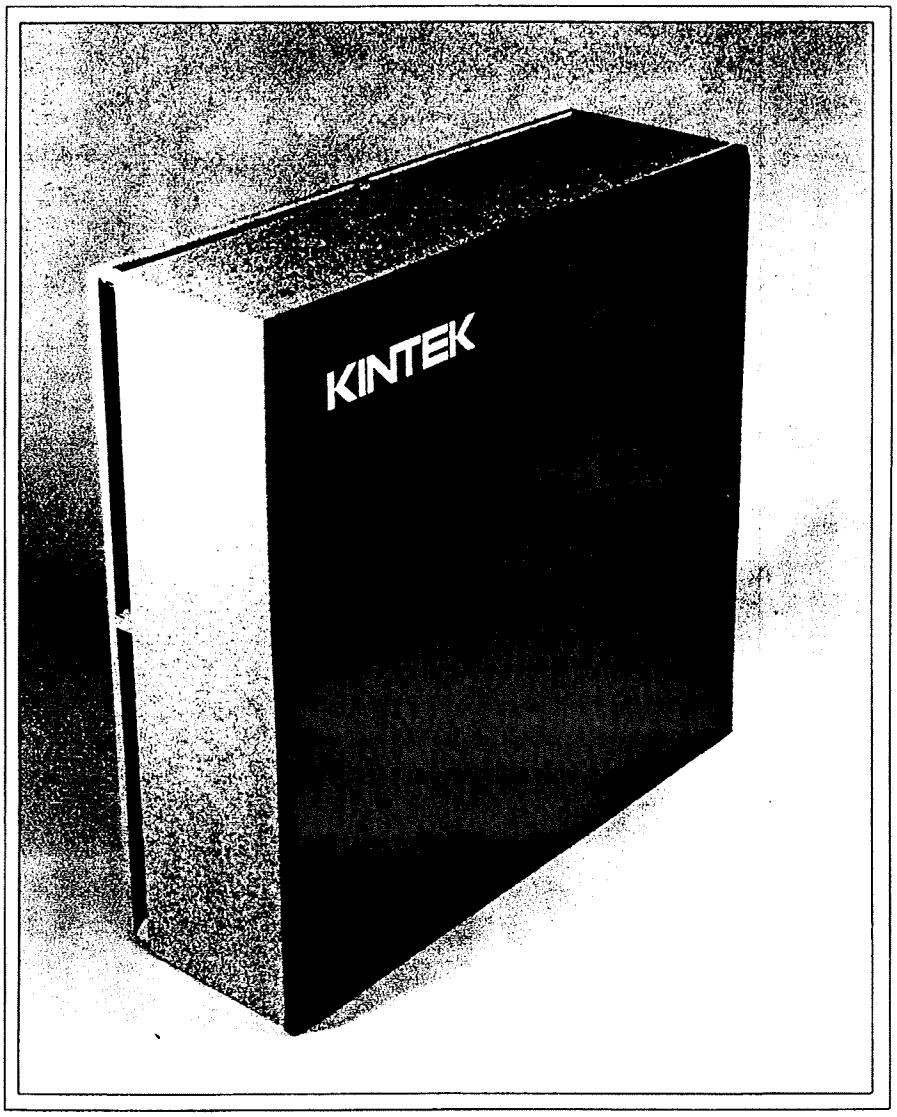
KT-90 Specifications

Frequency response: 24Hz–200Hz ± 3dB
Amplifier input level: 3.16mV–10V
Amplifier power output: 500 watts continuous
Crossover frequency (adjustable): Low: 20Hz, 25Hz, 32Hz, 40Hz High: 80Hz, 100Hz, 125Hz, 160Hz, 400Hz
Power requirements: 117 volts AC @ 1000 watts
Dimensions: 24"(D) × 47"(W) × 30"(H)
Weight: 275 lbs.

KINTEK
TOMORROW'S SOUND TODAY

KINTEK, INC., 224 Calvary St., Waltham, MA 02154 (617) 894-6111 Telex 948244

THE KT-360 SURROUND SPEAKER



◇ **High efficiency: 96 dB 1 watt, 1 meter**

◇ **Slim line surround speaker has aesthetically correct proportions for theatre walls and decor**

◇ **Unique Perimeter Slot Bass Coupler design for optimum bass dispersion**

◇ **High frequency roll off designed specifically for surround requirements**

◇ **Wire as many as 4 in parallel on a single amplifier**

The KT-360 Surround Speaker was designed with one purpose in mind — to be the most efficient speaker available for motion picture theatre surround arrays in its price range. That means the performance level for a given amount of amplifier power more closely approximates that of screen speakers, producing surround sound that is more exciting to your audiences.

Its unique Perimeter Slot Bass Coupler aids in the reproduction and dispersion of low frequencies flat to 50 Hz; and high frequency response is tailored perfectly to the requirements of optical surround. This dispersion pattern and frequency response eliminates possible specific source location of any surround speaker to any part of the audience.

The KT-360 is a 16 ohm speaker, so that 4 speakers can be wired in parallel on a single amplifier producing a 4 ohm load, thus utilizing most amplifiers to their greatest power ability. It also eliminates the need for series-parallel wiring to prevent ragged frequency response, and preserves the amplifier's ability to provide transient damping.

The slim line of the KT-360 Surround Speaker has aesthetically correct proportions that blend well with theatre walls and decor, and makes a statement about your commitment to quality stereo sound. The standard finish is marble grey with charcoal grill. For large orders, the KT-360 is available in several different marble colors.

The KT-360 Surround Speaker is the perfect complement to a Kintek® Sound System, and the price is surprisingly reasonable for the performance.

Excite your audiences by reproducing all the surround sound that a KT-700 Theatre Sound Processor produces with the KT-360 Surround Speaker from Kintek. It's the sound that puts them in the movies!

KT-360 Specifications

Efficiency: 96 dB 1 watt, 1 meter as mounted in theatres.
Frequency response: 50 Hz to 8000 Hz (High frequency rolled off at 3 dB per octave from 2000 Hz - 8000 Hz approximating standard Academy curve)
Impedance: 16 ohms
Power Handling: 80 watts
Dimensions: 24" (W) X 24" (H) X 8.5" (D)
Weight: 32 lbs.

KINTEK
ALL STEREO

KINTEK, INC.,
224 Calvary St.
Waltham, MA 02154
(617) 894-6111

---TABLE OF CONTENTS---

DIAGRAM MATERIAL

Figure

WARRANTY AND REPAIR.

Equipment manufactured by KINTEK carries a limited warranty against defects in material and workmanship for two years from date of purchase. KINTEK will, at its option, repair or replace defective components provided the unit is shipped to KINTEK or its authorized distirbutors with a Return Authorization(RA) number. Defects caused by modification, misuse or other damage caused by improper packing are not covered by this limited warranty.

In the event you have a problem, call your equipment dealer and list specifically the symptoms, it will help speed up the repair.

NOTE: KINTEK manufactures under one or more of the following patents: 3,681,618; 3,714,462; 4,101,849; 4,097,767; 4,589,129; 1,153,701(Canadian). Other patents pending.

KT-700 SYSTEM DESCRIPTION AND INSTALLATION
-refer to insert.

1.1 KT-728 SYSTEM CONTROL-position 1(left to right).

--Four momentary N.O. push button switches with **green** LED indication: NON-SYNC, PROJECTOR-1, PROJECTOR-2 and AUX

--Push-push switch with **yellow** LED--for AUTO ON/OFF (disables external automation commands).

--Push-push switch with **red** LED--BYPASS(bypass solar cell preamplifier outputs to switched MONO to operate KINTEK system).

--Flashing **red** LED--for malfunction indication when not in bypass.

--Fade-In/Fade-Out of NON-SYNC signal(NON-SYNC and AUX input system calibration adjustable +/115dB for a -5dBv level, 0.1 Volts to 3.16 Volts input).

--Terminal block inputs for external commands.

--Terminal block outputs for LED indication of commands, and for change over information(open collector transistor turned on to ground for Projector-2).

1.2 SOLAR CELL PREAMPLIFIERS-position 2.

--Two split solar cell preamplifiers(LEFT and RIGHT channels)--for Projector 1 and Projector 2.

--**Yellow** LED--indicator for preamplifier CALIBRATION .

--**Green** LED--indicator for operating preamplifier ON.

--**Red Flashing** LED--for malfunction indication.

--**Red** LED--for SOS indication(service Optical Sound).

--**Yellow** LED--for BALANCE indication(Left and Right split cell in balance).

--Push-Push exchange switch with **yellow** LED--indication of exchange.

--Internal Switch--for MONO operation(wire solar cell to right inputs for projector-1 and projector-2).

--Slit Loss Correction(sineX/X) controls for four preamplifiers.

--Terminal block inputs--for L/R split cells for projector-1 and projector-2.

--Terminal block L/R outputs--to interface with external systems.

--Six pin connector of L/R outputs and +/-24 Volt power for future expansion.

1.3 KT-721 EXPANSION/NOISE REDUCTION-position 3.

--Three band expander with three **red/yellow** LED displays.

--Push-push switch for expansion ratio selection:

Green LED--1.2:1 ratio
Yellow LED--1.1:1 ratio
Bypass--1:1

--High frequency band level adjustment and low frequency band level adjustment for EQ.

--KT-724 operated Dialog Dresser.

--**Flashing red** bypass LED for malfunction indication.

1.4 KT-722 STEREOPHONIZER-position 4.

--**Green** LED--operate indication.

--Input signal from KT-721.

--KT-724 control of center channel dialog boost.

--**Stereo Variable Area**(SVA) I & II AUTO/MAN of Left/Center/Right.

--Push/push switch--bypass input to Left/Center/Right output with the option not to bypass to Left and Right output.

--**Red flashing** bypass LED--for malfunction.

1.5 KT-724 SURROUND/BASS PROCESSOR-position 5.

--**Red/Yellow** LED--display indicating output **gain** of **surround**.

--Companded delay circuit for better signal to noise ratio; typically 80dB.

--Compressed SURROUND I output to be used with KT-725 SURROUND EXTENDER.

--Internal adjustable delay with range switch; 40 to 100 Ms and, 60 to 150 MS.

--Front panel +/- 3dB output level adjust.

--**Flashing red** LED--for surround **off** malfunction indication.

--Push-push switch--for surround **off** with **red** LED indication.

--Sub-harmonic level adjust with **green** LED indication on front panel.

--**Flashing red** LED--low frequency **off** LED for malfunction indication.

--Push-push switch with **red** LED--low frequency **off** indication.

1.6 KT-750 STEREO OPTICAL PROCESSOR-position 6.

--Decodes Dolby **Stereo Variable Area**(SVA) soundtracks with **surround steering** enhancement when used with the KT-725.

--In normal position module automatically changes from MONO to SVA.

--Overrides Left/Center/Right stereo KINTEK mode when in auto or manual.

--Push-push AUTO/MANUEL switch with **green** and **yellow** LED indication.

--**Flashing red** bypass LED--for malfunction indication.

--Push-push bypass switch to force system into KINTEK mode.

1.7 KT-725 SURROUND EXTENDER-position 8.

--Two-thirds delay tap STEREOPHONIZED--for enhanced SURROUND I.

--SURROUND II(normal surround) with additional one-third delay used for extra large theatres.

--VCA fader sections for SURROUND I(left) and SURROUND I(right).

--Fader control same as for KT-744 VCA faders.

--Terminal block provisions for external SURROUND LEFT, SURROUND RIGHT, SURROUND STEERING and LOW FREQUENCY.

--Internal switch to select EXTERNAL LOW FREQUENCY or or KINTEK LOW FREQUENCY when switching for KINTEK to EXTERNAL SYSTEM.

--AC ON/OFF anti-thump circuits--for SURROUND LEFT and SURROUND RIGHT.

--Bypass SURROUND II to SURROUND LEFT and SURROUND RIGHT when in KINTEK and EXTERNAL SYSTEM.

--**Flashing red** bypass LED--for malfunction indication.

--Push/push bypass switch with **green**--ON indication and **red**--BYPASS LED indication.

1.8 KT-744 VCA OUTPUT FADERS-position 9.

--Five VCA FADER CONTROL circuits.

--A.C. ON/OFF antithump circuits for five outputs.

--Push/push SOURCE switch with LED indication of KINTEK or EXTERNAL.

--Bypass to preset levels for both KINTEK and EXTERNAL.

--Remote SOURCE control when in KINTEK mode via terminal block.

--Remote FADER control for both KT-744 and KT-725 via terminal block.

--Internal switch--select non-operation of KINTEK low frequency when commanding EXTERNAL SOURCE.

--Above threshold limiter for SURROUND II output, adjustable from -8dBv to +10dBv.

--**Flashing red** bypass LED--malfunction indication.

--Push/push bypass switch with **red** LED indication.

1.9 KT-707 POWER SUPPLY-position 10.

--A.C. input selectable to four line voltages: 100, 120, 220 and 240 Volts.

--Push/push power ON/OFF switch with +/-24 Volt LED indicators.

--LED indication of +/-24 Volt--indicates low line voltage, overload, or faulty filter capacitors when LEDs **off**.

--Unregulated +/-24 Volt supplies rated at one ampere.

--AUX connectors for +/-24 volt on main frame board.

--Power supply replaceable through front panel by removal of four thumb screws.

--Extender card for system modules stored behind power supply front panel.

--CORCOM A.C. connector uses one ampere slow-blow fuse and contains switching card for A.C. line voltage selection--both accessories form the back of power supply.

--Spare 1/4 ampere slow-blow fuse below CORCOM connector on back of power supply.

--All system modules use fusable +/-15 volt regulators.

--System operation is useful from 95 volts to 130 volts--AC line.

--**Differential** inputs are used throughout(no input transformers are used in the KT-700.

**see appendix pg 42, Figure for KT-707 schematic.

1.10 INTERFACE.

--All **Input/Output** signals and command controls are via plugable barrier terminal strips which use a signal screw clamp onto a simple stripped wire.

1.11 KT-716 DOLBY INTERFACE.

When interfacing a KT-700 with a DOLBY CP50 or CP200, the KINTEK preamp is placed in series with the DOLBY solar cell inputs(refer to appendix for diagram of solar cell). The Kintek input is very low impedance and does not interfere with the solar cell signal going to the DOLBY. If the power should fail of the KINTEK preamp card(KT-742), the KT-716 automatically shorts out the input of the KT-742, thus providing uninterrupted signal to the DOLBY preamps. If the the DOLBY preamps should fail their input transformer provides sufficient current path for the KINTEK to continue to operate.

1.12 GLOSSARY OF TERMINAL BLOCK CONNECTIONS

--refer to appendix Figure 3, pg 43.

PIN--MOTHER BOARD GRAPHIC		FUNCTION
TB1		
1	GND	Ground
2	SP	Spare(no connection)
3	R/F+	Remote fader top
4	R/F W	Remote fader wiper
5	R/F-	Remote fader bottom
6	EXT CMD	Ground remote puts system in external when source is in KINTEK position.
TB2		
1	SP	Spare(no connection)
2	SP	Spare(no connection)
3	LF RTN	Low frequency out-balanced low
4	LF +	Low frequency out-balanced high
5	GND	Ground
6	S	Surround center output
7	GND	Ground
8	R	Right output
9	GND	Ground
10	C	Center output
11	GND	Ground
12	L	Left output
TB3		
1	SP	Spare(no connection)
2	E/LF+	Low frequency balanced dif. amp input high
3	E/LF-	Low frequency balanced dif. amp input low
4	GND	Ground
5	E/S	Surround
6	GND	Ground
7	E/R	Right
8	GND	Ground
9	E/C	Center
10	GND	Ground
11	E/L	Left
12	GND	Ground

TB4

1	SP	Spare NC
2	GND	Ground
3	E/SR	External surround right input
4	GND	Ground
5	E/SL	External surround left input
6	GND	Ground
7	E/S ST	External surround steering
8	GND	Ground
9	S/R OUT	Surround right output
10	GND	Ground
11	S/L OUT	Surround left output
12	GND	Ground

TB5

1	PJ1/L	Projector 1 solar cell left input
2	PJ1/R	Projector 1 solar cell right input
3	GND	Ground
4	PJ2/L	Projector 2 solar cell left input
5	PJ2/R	Projector 2 solar cell right input
6	GND	Ground
7	PA/L OUT	Preamps left output
8	PA/R OUT	Preamps right output
9	GND	Ground
10	SP	Spare NC
11	SP	Spare NC
12	SP	Spare NC

TB6

1	GND	Ground
2	N/S	Remote LED's nonsync
3	P/1	Remote LED's proj. 1
4	P/2	Remote LED's proj. 2
5	AUX	Remote LED's auxiliary
6	P/GND	Power ground
7	GND	Signal ground
8	N/S+	Nonsync balanced dif amp input high
9	N/S-	Nonsync balanced dif amp input low
10	GND	Signal ground
11	AUX+	Auxiliary balanced dif amp input high
12	AUX-	Auxiliary balanced dif amp input low

TB7		
1	SP	Spare NC
2	N/S	Nonsync external commands (ext commands momentary switch or latched switch, manual or automated.
3	PJ/1	Proj. 1 external commands
4	PJ/2	Proj. 2 external commands
5	AUX	Auxiliary external commands
6	P/GND	Ground
7	C/O INFO	Change over info from CP50
8	GND	Ground
9	SP	Spare NC
10	SP	Spare NC
11	SP	Spare NC
12	SP	Spare NC

J11& J12	AUX PW	Power for auxiliary external appliances
J13	ACCESS	Power for auxiliary external appliances associated with the solar cell preamp only

1.13.0 KINTEK KT-2050 SYSTEM CONNECTIONS.

--refer to appendix Figure 5, pg 45.

1.13.1 GENERAL NOTES.

The KT-2050 is interfaced with a DOLBY CP50 or CP55 processor. Connections are made via plug-in terminal blocks which accept bare wire ends.

Follow this procedure when removing terminals:

1. Loosen screw above terminal block connector.
2. Rotate the "D" shaped washer away from the terminal.
3. Retighten screw
4. Remove terminal connector by grasping both top and bottom ends and pull straight off the mother board. **Damage can result if the block is not pulled off connector pins in a straight line.**

1.13.2 SOLAR CELL PREAMP CONNECTIONS.
--refer to appendix Figs. 7 & 8, pgs. 47 & 48.

Use 3 conductor shielded cable with foil wrapping. Make sure no capacitors or resistors are used in the solar cell/preamp circuit. Insulate the cable shield from the projector chassis. The KT-716 Dolby interface plugs onto the Mother Board(figure 1) at **J13**, next to **TB5**. The 5-pin molex makes the connection from **TB5** to the KT-716.

1.13.3 AUTOMATION CONNECTIONS

A switch closure to ground is required for each mode to be selected(this can be either momentary or continuous).

To select NONSYNC--close **TB7-2** to **TB7-6**.
To select PROJECTOR 1--close **TB7-3** to **TB7-6**.
To select PROJECTOR 2--close **TB7-4** to **TB7-6**.
To select AUX--close **TB7-5** to **TB7-6**.

It is possible to control the KINTEK/DOLBY mode selection by remote command. Mode switch on KT-744 should be in KINTEK position. Close **TB1-6** to ground to change the system over to external, in this case DOLBY. A continuous contact is required to remain in external mode.

1.13.4 NON/SYNC--AUX INPUT CONNECTIONS.

Use 2-conductor shielded cable with foil wrapping to wire the KT-700 end of the NON/SYNC cable:

-connect RED to **TB6-8**
-connect BLACK to **TB6-9**
-DO NOT CONNECT SHIELD AT THIS END.

For an unbalanced source, wire the shield and BLACK wire together and connect to source ground. Connect RED to source output. For a balanced source, wire BLACK to LOW, RED to HIGH and SHIELD to GROUND.

The same instructions apply for an AUX source except the KT-700 mother board connections are BLACK to **TB6-12** and RED to **TB6-11**.

1.13.5 DOLBY CONNECTIONS TO KINTEK.

Outputs form the DOLBY unit are wired to **TB3**. From each cable(LEFT, RIGHT, SURROUND) connect the RED wire to the corresponding input channel, as marked on the mother board at

the right of **TB3**. Connect the BLACK wire from each cable to the associated ground terminal. The low frequency cable is connected RED to **TB3-2**, BLACK to **TB3-3**. DO NOT CONNECT THE CABLE SHIELD AT THIS END.

At the DOLBY end, connect a RED wire to each output, wire BLACK and shield together and connect to ground.

The external surround left and external surround right inputs are wired as follows: connect a single piece of hookup wire from both **TB4-5** and **TB4-3** to **TB3-5**.

1.13.6 KINTEK OUTPUT CONNECTIONS.

The **LEFT**, **CENTER**, **RIGHT**, and **SURROUND** outputs are single ended, and the low frequency output is balanced. Use 2 conductor shielded cable with foil wrapping. Output connections are made at **TB2**. From each cable, connect the RED wire to the corresponding output terminal as marked on the mother board at the left of **TB2**. Connect the shield and Black wire to the associated ground terminal.

The low frequency cable is connected:

RED to **TB2-4**
BLACK to **TB2-3**
Shield to **TB2-5**

1.13.7 CONNECTIONS TO POWER AMPS.

Use 2 conductor shielded cable with foil wrapping. When connecting to balanced amplifiers, connect RED wire to high input and the BLACK to the low. **Do not connect the shield at this end.**

Before connecting the speakers to the power amps, measure the resistance of the speaker lines to ground, to detect any possible installation problems. Connect the speakers at the power amps, **not at the KT-34 monitor**. Run a #12 ground wire from all minus side amp outputs to the KT-700 signal ground.

1.13.8 KT-34 MASTER CONTROL/MONITOR CONNECTIONS.

The master fader terminals are at **TB1** on the KT-34. Connect a RED wire to 3, Green to 4, and Black to 5. Wire this cable to KT-700 **TB1**:

RED to 3
GREEN to 4
BLACK to 5

Sense line connections, use 2 conductor shielded cable with foil wrapping. For each power amp output channel connect:

RED to high
BLACK and shield to low

(use ring lugs on these connections). At the KT-34 end, connect each cable's RED wire the the corresponding input terminal at **TB3** and **TB4**. Connect each cable's BLACK wire to a nearby ground terminal. **Do not connect the shields at this end. Do not bundle the sense lines together with the power amp input or AC power lines. Connect only the plus side of the low frequency sense line at the KT-34.**

1.14 KINTEK KT-2255 SYSTEM.

Follow same procedure as for KT-2050(refer to Figure 6, pg 46).

2.1 KT-700 INTERNAL CONTROL LOCATION & DEFINITION.

2.1.1 KT-728 SYSTEM CONTROL--Figure 9, pg 49.

NON-INPUT LEVEL SET

-**R90**, sets gain of input from NON/SYNC source at **TB6**(Mother Board:

7--gnd
8--high
9--low

Factory Setting: unity gain, variable +12dB and -18dB.

AUXILIARY INPUT SET

-**R95**, sets gain of input from auxiliary source at **TB6**:

10--gnd
11--high
12--low

Factory Setting: unity gain, variable +12dB and -18dB.

FILM LEVEL SET

-**R160**, sets gain from KT-742 preamps into processing chain. Factory Setting: at -18dBV with pink noise loop. One red LED should light in high frequency band of the KT-721.

2.1.2 KT-742 SOLAR CELL PREAMPS--Figs. 10 &11, pgs 50 & 51.

SPLIT LOSS CORRECTION

-dual pots connected by a metal strip. Looking down at top edge card, turning dual potentiometer clockwise increases high frequency of both preamp channels simultaneously.

R91 & R92--Project-1 & preamp-1
R111 & R112--Project-2 & preamp-2
S2--Project-1 mono or stereo solar cell selection switch.
S3--Project-2 mono or stereo solar cell selection switch.

--switch in down position for stereo solar cell(toward S).

Factory Setting: Slit Loss Projector 1 & 2--flat, adjust for projector slit loss. Stereo/Mono Cell Proj 1 & 2--stereo, adjust for solar cell in use.

NOTE: If wiring for mono, wire mono solar cell to right input **only**. Stereo solar cell is wired to LEFT & RIGHT inputs at **TB5**:

Projector-1--1(left), 2(right), 3(gnd)
Projector-2--4(left), 5(right), 6(gnd)

2.1.3 KT-721 EXPANSION/NOISE REDUCTION-figure 12, pg 52.

HIGH FREQUENCY ADJUST	-**R145**, tone control; flat position is at index, clockwise rotation raises high frequency. Range is +6dB, -4dB. Adjust for theatre acoustics.
LOW FREQUENCY ADJUST	-**R150**, tone control; flat position is at index, clockwise rotation raises low frequency. Range is +5dB, -4dB. Adjust for theatre acoustics.

2.1.4 KT-722 STEREOPHONIZE--figure 13, pg 53.

LEFT & RIGHT MONO BYPASS SWITCH	-**S2**, left/right mono bypass switch; ON, down position, places mono signal into left & right channels; OFF, up position mono plays only through center channel.

2.1.5 KT-724 SURROUND/BASS PROCESSOR-figs. 14 & 15, pgs 54 & 55.

DELAY RANGE SELECT SWITCH	-**S3**, UP position: long delay range(60-150 milliseconds); DOWN position: short delay range(40-110 milliseconds)-adjust for theatre.
DELAY RANGE	-**R5**, delay increases as potentiometer is turned clockwise(1/3 clockwise rotation = 90MS). Adjustment based on length of theatre from back wall to screen, in feet.

2.1.6 KT-750 STEREO OPTICAL PROCESSOR.

This unit automatically detects a stereo optical film when it passes through the projector and will change over to SVA process without operator assistance. The **green** LED will indicate that the KT-750 is operating. Once in operation the KT-700 must be switched to NONSYNC, automatically or manually, to back to stereo synthesize. This can also be accomplished by pushing the **Bypass Button** on the KT-750, which removes it from the processing change. The **Operate Button** overrides the automatic operate function and locks the KT-750 into the SVA Process Mode--the **yellow** & **green** LED's will both light to indicate this function.

TONE CONTROLS	-LEFT, CENTER, RIGHT, and SURROUND--adjust for frequency boost and cut: clockwise turn increases, counter clockwise decreases. Factory Setting: flat
DIALOG BOOST	-clockwise turn increases level of dialog relative to music & effects, to enhance dialog.

NOTE: Once the KT-700 setup instructions are followed and completed the KT-750 will automatically be set to operate. The tone controls can be adjusted if desired. The level change that always accompanies a stereo print after a mono print is made automatically by the KT-750. If a greater or lesser automatic level change is desired, raising or lowering the film level set ,**R160**, on the KT-728 card will effect the level difference between stereo synthesize and stereo process.

2.1.7 KT-725 SURROUND EXTENDER-figure 16, pg 56.

EXTERNAL LOW FREQUENCY LEVEL SET	-**R117**, used when power amps are fed from an external low frequency processor, such as the DOLBY cat 160 card.
EXTERNAL LOW FREQUENCY SELECTION SWITCH	-**S2**, ON is up, OFF is down. When ON, if external mode is selected of the KT-744, the external low frequency processor is allowed to pass the subwoofers. When OFF, KINTEK low frequency enhancement is fed to subwoofers when external mode selected(provided that **S3** on the KT-744 card is on).

SURROUND LEVEL SET

-**R164**, controls output to surround right power amps. **R167**, controls output to surround left power amps. Both controls are active only in operate mode; in bypass, left and right surrounds are fed from rear surround output.
- -32dBv(.025V)RMS output with pink noise loop in projector with master fader set at "8"; adjust to get proper levels in theatre.

2.1.9 KT-744 OUTPUT FADERS-figure 17, pg 57.

OUTPUT LEVEL ADJUST

-**R61**, Center channel;
R21, Right channel;
R81, Surround channel;
R1, Left channel;
R41, Low frequency.

NOTE: These controls provide trim adjustments for setting channel levels relative to one another for tuning the system in the theatre. They are all separate VCA's(voltage controlled amplifiers) that operate from one master 10K potentiometer, usually located on the KT-34 or KT-35R.

ABOVE THRESHOLD LIMITER

-**R144**, controls amount of maximum signal allowed to be sent to Surround Rear Channel Output for protection of Surround Amplifier against clipping. Counter clockwise turn decreases the amount of limiting and increases the volume. Clockwise turn increases the amount of limiting and decreases the volume.

Factory Setting: .707 volts RMS(-3dBv) to match full output of the power amplifier. Consult KINTEK when using an amplifier which requires a different input voltage of maximum output.

BYPASS LEVEL ADJUST

-**R12**, Left channel;
R72, Center channel;
R32, Right channel;
R92, Surround channel.
Set these so that when Master Fader is set at **7** there is minimal level shift when bypass switch on KT-744 is activated while playing a pink noise loop(low frequency is switched off when in bypass). If the KT-744 card fails these levels will assure a normal level for program material in the auditorium.

LOW FREQUENCY OFF SWITCH

-**S3C**, ON-right or OFF-left. When OFF allow KINTEK Low Frequency Enhancement to play when KT-744 is in External Mode. When ON, Low Frequency Enhancement is turned off in External Mode.
For KT-744/745, when set at "0", provides External low frequency instead of KINTEK low frequency in External Mode.

SET UP PROCEDURE FOR THE KT-700

Each KT-700 is carefully adjusted at the factory to the levels that occur in the majority of today's movie theatres. Thus, the system should perform satisfactorily with only the preamplifier adjustment necessary. What follows is the fine tuning procedure which requires:

-Test Film
-Real Time Analyzer
-Sound Pressure Level Meter

If the KT-700 is to be used in conjunction with a DOLBY or external processor, the output levels on the KT-744 VCA Fader Card must be adjusted for KINTEK first. However, setting the DOLBY "A" Chain before proceeding with the KINTEK set-up is wise, as the KINTEK preamplifier alignment will be easier. The extender board used to set-up the KT-700 is located in it's storage slot behind the power supply front panel(refer to figure 14).

3.1 Step 1: Turn on power to the KT-700 and the Projector Exciter Lamp. The NONSYNC function automatically comes up when the KT-700 is turned on. Select PROJECTOR-1 before making any adjustments, and be sure there is no film in the projector sound head. On the KT-742 Preamp card, adjust the top screw driver adjustment until the CAL LED lights up. Next, adjust the bottom screwdriver adjustments until the **Balance** LED lights up. If the Service Optical Sound(SOS) LED lights up, you must adjust the projector optics using SMPTE Buzz Track for Lateral Guide Alignment and Pink Noise(DOLBY cat. 69) for focus and azimuth to obtain maximum high frequency output. **Make sure you set the Balance potentiometer on the KT-742 in the physical center of it's travel before adjusting the projector optics.** If a two projector system is used, repeat above steps for Preamp-2.

TYPO TP 1

3.2 Step 2: Connect the positive lead of a Real Time Analyzer to **TB1** on the Mother Board back plane and the negative to ground. Place the KT-742 card on the Extender Board and adjust the Slit Loss Correlation potentiometer to obtain the flattest line possible(to 10kHz). Although not necessary, if measurements of separate left and right preamps are desired, use **pins 21 & 22** of the card edge connector labeled Left Preamp and Right Preamp on the Mother Board Diagram. If using a Dual Projector system, repeat above steps for Preamp-2 and Projector-2. When using a single projector, place the Slit Loss Correlation potentiometer on Preamp-2 in the same position as Preamp-1 for emergency exchange matching characteristics.

**it may be helpful to refer to Mother Board diagram, pg 7.

3.3 Step 3: Run a Pink Noise Loop in the projector with emulsion facing away form the screen and make sure that on the KT-721 one **red** LED in the High Frequency Band is lit. The Mid Frequency Band should show one **yellow** LED and the Low Frequency Band should show one or two **yellow** LED's. If not, place the KT-728 card on the Extender board and adjust the film level pot. until this display is seen. The level at **TB1** should read .125 Volts RMS or -18dBv or -16dBv.

3.4 Step 4: Remove KT-724 card and set delay. The delay switch supplies two ranges of delay. In the **down** position, the range is 40-110 milliseconds. In the **up** position, the range is 60-150 milliseconds. For most theatres the **up** position should be used and the pot. adjusted for a approximation of the distance between the screen and the back wall(or furthest back surround speaker). For example, 105 milliseconds is exactly half of the range and the pot. would be placed exactly halfway between minimum and maximum settings. Most of today's new theatres require about 75 to 80 milliseconds of delay, which is 1/3 of a turn on the potentiometer--some theatres like to add ten milliseconds to this distance and set the delay accordingly. To test the delay level, short **TP2** to ground. This defeats the Dialog Detection circuit and allows the dialog to play through the surrounds. Make sure that the first arrival of dialog comes form the screen and there is not a noticeable echo of dialog in the surrounds. Be careful not to place too much delay in the surrounds for people sitting closer to the screen.

3.5 Step 5: Place the KT-744 card of the Extender Board. On the KT-724, place the Surround and Low Frequency Level controls on the front panel in the 12 o'clock position and push the Surround and the Low Frequency OFF buttons, so neither is outputting signal.

3.6 Step 6: Set the Master Fader on KT-34 or KT-35R to "8" on the scale of "10". These units each use a 10k slide potentiometer although any good quality 10k pot. can be used. The Master Fader controls the levels of all channels with Voltage Controlled Amplifiers(VCA) in the KT-744 module. On a scale between "5" and "10" on the pot. there is 30dB of gain change in linear decibels; "8" is about half-way on this scale. Below "5" the pot. fades more rapidly to infinity. With the Pink Noise Loop running adjust the output of each stage channel individually to register 70.5 dBc on a SPL meter, standing two-thirds of the way back from the screen in the auditorium. Only one screen channel at a time should be turned on when these measurements are made. There is an option of raising the center channel 1 or 2 dB for dialog clarity, however, this diminishes the stereo effect and should not be necessary as the processor automatically boosts the center channel during dialog.

3.7 Step 7: Now turn on all screen channels simultaneously, you should read 75dBc on the SPL meter. Push on the surround button on the KT-724. The level should increase to 77.5 dBc. Adjust the Surround Output Level on the KT-744 until this happens. If desired, the surrounds can be adjusted without the stage channels for 71dBc.

3.8 Step 8: When these levels are set, turn OFF all amplifiers except the Subwoofer Amp. and push ON the Low Frequency button on the KT-724. Adjust the low frequency output on the KT-744 card for 75dBc.

3.9 Step 9: Turn off Low Frequency and reset Master Fader for "7". Using the LED Theatre Level Meter on the KT-34 and the monitor/speaker(as a listening guide), adjust each bypass level on the KT-744 card so that a minimum amount of level change is detected when the KT-744 card is switched between bypass and operate.

3.10 Step 10: Run a well recorded academy print, other than a trailer. If equalization adjustments are deemed necessary, place the KT-721 card on the extender board and adjust the bass and treble controls accordingly. They have been set for "flat" at the factory and will usually not need adjusting.

KT-700 FRONT PANEL CONTROLS

Each module contained in the KT-700 is equipped with a sensing device that tells the operator if a failure has occured. The **red** LED next to the Bypass switches will flash until the operator places the defective module into bypass. On the KT-742 Preamp module the **red** LED next to "MALFUNCTION" will flash prompting the operator to press "EXCHANGE" to bring the spare preamp on-line.

4.1 KT-728 SYSTEM CONTROL.

Manual Program Selection Switches for NONSYNC, Projector-1, Projector-2, and Auxiliary--when used with automation the "Auto." switch must be left ON. To override automation the "Auto" switch must be OFF. "Bypass" places both projector preamps in the ON position and removes the KT-728 circuitry from the chain.

4.2 KT-742 SOLAR CELL PREAMPS.

Screwdriver adjustments for calibrating and balancing preamps without film in projector and exciter lamp turned ON. EXCHANGE switch is used in a emergency to switch Preamp-2 to the operating projector. Preamp-2 automatically takes over the calibration of Preamp-1 when in the exchange mode. In two-projector systems, use the EXCHANGE switch as the sound change over until service can be obtained.

4.3 KT-721 EXPANSION/NOISE REDUCTION.

EXCHANGE switch controls the amount of expansion added to the original soundtrack--1.2:1(20%) is the best overall setting for film sound. However, if dialog is recorded very softly and music and effects very loudly, 1.1:1(10%) is a better setting. "Bypass" removes circuitry from the processing chain. "Display" indicates upward expansion and downward expansion(noise reduction) in Low, Mid, and High Frequency bands. Zero expansion occurs at the highest row of **yellow** LED's.

4.4 KT-722 STEREOPHONIZER.

The BYPASS switch renders the stage channels mono and removes the circuitry from the processing chain. An internal switch on this card allows for center only or three-channel mono in Bypass mode.

4.5 SURROUND/LOW FREQUENCY PROCESSOR.

Surround Level allows for a 1.5dB louder or softer surround level in the auditorium for fine tuning purposes. leaving the level set at 12 o'clock will provide a satisfactory level for all films. The display indicates surround output. During dialog all or most **yellow** LED's should be lit.

The **Low Frequency Adjust** regulates the amount of subharmonic synthesis that is fed to the subwoofer. In the minimum position, only the original low frequencies contained on the soundtrack are sent to the subwoofer. In the 12 o'clock position, an equal mixture of original low frequency and subharmonic frequencies are sent to the subwoofer-there is 5dB more subharmonic level than original at maximum. The green LED indicates the operation of the subharmonic synthesizer(the brighter it flashes, the more synthesis taking place). The switches turn the surrounds and **low** frequency off.

4.6 KT-750 STEREO OPTICAL PROCESSOR.

This unit automatically detects a Stereo Optical film when it passes through the projector, and will change over to SVA Process without operator assistance. The green LED will indicate that the KT-750 is operating. Once in operation, the KT-700 must be switched to NONSYNC, either automatically or manually, to change back to stereo synthesize. This can also be accomplished by pushing the BYPASS switch on the KT-750, removing it from the processing chain. The OPERATE switch, when activated, overrides the automatic operate function and locks the KT-750 into SVA Process Mode. The **yellow** & **green** LED'S will light to indicate this function.

4.7 KT-725 SURROUND EXTENDER.

The BYPASS switch removes the stereo surround synthesizer circuitry from the processing chain and allows surrounds to be played monaurally.

4.8 KT-744 VCA OUTPUT FADERS.

The EXTERNAL switch allows switches to an external source as a Dolby processor. The BYPASS switch removes VCA's from the processing chain. The theatre level will not be able to be raised or lowered from predetermined bypass level settings.

4.9 POWER SWITCH.

The power should be switched OFF whenever removing or inserting card modules.

DIGIMATE 1010 AMPLIFIER

5.1 Introduction.

The Kintek Digimate 1010 Amplifier is a two-channel amplifier designed to fit into a rack. The dedicated 1010 rack can hold up to three of these amplifiers, for a total capacity of six individual channels. Each amplifier has its own power supply. Each amplifier power supply has dual rectifiers and filters. The amplifiers are fitted with male connectors on the rear panel which mate into rack mounted mating connectors. All connectors to input equipment and loudspeakers are made through barrier-type terminal strips mounted on the rack, so the amplifiers can be removed or installed in the rack in a matter of a few seconds. Interchangeability and rapid replacement have been one of the design criteria in this system design.

The 1010 amplifier has been field proven as a reliable, continuous output, high power workhorse. Its installation requirements should be carefully noted and observed. Ambient temperature and free availability of air supply should be considered in the proper placement of this unit. Normal good housekeeping standards should be observed especially in regards to dust and airborne dirt.

In the event there is a problem with an amplifier, remember that the unit is warranted for a period of two years from the date of purchase: call your Equipment Dealer. It will be inspected for damage, repaired and returned to you promptly.

The Digimate 1010 amplifier has been designed for convection cooling. Many amplifier designs have used forced air blowers to carry off the generated heat. With forced air, the failure of the blower fans results in the amplifier shut down or catastrophic amplifier failure in those units not having thermal protection systems. If the 1010 amplifier is installed following the instruction in section 3 of this manual, the amplifier should operate trouble free at full power for many years.

5.2 Circuit Description.

The 1010 amplifier is straightforward. It is a fixed gain amplifier. It has a high impedance DC coupled input circuit, balanced to ground. Its common mode rejection with balanced mode input will aid in maintaining hum free circuits, especially if there is a long run from the driving amplifier. It can be operated as a single ended input, however, the common mode rejection feature will be eliminated and greater care will have to be exercised to keep induced hum levels down.

The output circuit is unique; it is possible to overload the output without damage to the power stages. The amplifier is designed to operate without destroying itself, because of its Signalgard circuit. The Signalgard circuit monitors those amplifiers operating parameters that determine the Safe Operating Area for the amplifier. The Signalgard circuit responds instantaneously to prevent excess currents from destroying the output stage. It inhibits the output current during those signal periods that would exceed the SOA(Safe Operating Area). This circuit, while more costly than switches or "crow bars" does not cut off the output signal as in those systems which protect by signal cutoff. **The result is an amplifier that can be overdriven or overloaded without losing the output signal**. The amplifier will always remain on and within the SOA.

5.2.1 The Power Supply.

The 1010 has dual power supply rectifiers, regulators, and filters. This means that if a rectifier, regulator or filter fails, the second channel's supply will continue uninterrupted. The power transformer is generally the last component to fail. The power supply has been designed into the SOA loop and will not be exceeded if the amplifier is installed using the recommended drive, load parameters and environmental conditions.

The power transformer is unique; it has been designed to operate at high temperatures, and to transfer the internally generated heat to the heat sinks. Heat conducting epoxy has been used for potting this transformer. The bobbins for the coils will withstand high temperatures up to 200 degrees C.

The AC line voltage for the power transformer is 110 Volts or 220 Volts. The unit is normally set up for 110 Volt operation at the factory. If it is necessary to change the line voltage refer to Figure 1 and Table 1 for the appropriate jumpers to make the change.

5.2.2 Circuit Breaker.

The amplifier has circuit breakers on the input windings. These replace the fuses found on most amplifiers. To reset in the event a circuit has opened, push the button up to reset; the amplifier should then operate normally.

5.2.3 Mute Switch.

A mute switch is on the front panel. It permits muting the channel on the side of the amplifier on which it is located; left breaker for the left channel and right breaker for the right channel. When the red LED, situated beside the mute switch, is lit, that channel is muted, otherwise the green LED, labeled "OPERATE" will be lit.

5.2.4 DC Offset Correction.

The input circuit is DC coupled, any DC input will tend to drive the power amplifier off its center quiescent point. Internal to the 1010 is a servo loop to remove this DC offset from the output of the power amplifier. If the DC offset on the output exceeds +/-6 Volts, the amplifier will shut down. This is done to protect the loudspeaker loading the amplifier.

5.2.5 Anti-Thump Circuit.

To prevent a sharp start up or burn off pulse transient from potentially damaging the loudspeaker, the loudspeaker load connection through a relay is delayed by a timer circuit. The anti-thump, DC offset correction and the mute circuit are all interrelated to this speaker protection system.

5.2.6 Overload Indicator.

On the front of the amplifier is an LED marked "OVERLOAD". If the output stage of the 1010 is driven into circuit limiting this LED will light up. If this occurs, the reason for the overload should be determined and eliminated.

5.3 Installation.

5.3.0 Mechanical Installation.

The Digimate 1010 amplifier installation is generally mounted in the dedicated rack for three units. This rack has a large perforated bottom and cover plate. This is for the convection cooling, primarily for the heat generated in the output stage. It is important that the rack in which these amplifiers are installed has adequate venting below the amplifiers to allow a sufficient supply of cool fresh air. The top of the rack should have an open area for venting the hot air through the top surface. The area for relieving the heat above the amplifier should be screened with a mesh and should have an effective open area of at least 175 square inches. The input area below the amplifier should have a similar input area available for a cool air supply. The inlet areas can be in the side walls or in the front panel to allow fresh, cool air into the amplifier cooling fins. In a small enclosed room adequate venting of the room is also important to prevent excessive heat build up.

The amplifier rack is a standard 19" wide rack panel, 10 1/2 " high. It should be mounted in a rack deep enough to give it some clearance in the rear connectors and the rear inside of the rack.

5.3.1 Power Connections.

The AC power connections for each of the three amplifiers are connected to the back of the rack frame(refer to Figure 18. At peak output the amplifier can draw as much as 6 1/2 amps; the AC feed should be capable of delivering approximately 7 amps for each amplifiers, or 20 amps for the three amplifiers. Each amplifier has its own circuit breaker so that the AC input to the amplifier needs only a single fuse for the entire system. For a reasonable safety margin the rack wiring and fuse should be sized for at least 20 Amps, although 30 Ampere capacity is desirable.

5.3.2 Signal Input Connections-Balanced Input.

All input connections are located on the terminal block on the left rear panel(refer to Fig. 18). They are numbered 1 through 18. Table #1 lists the proper connections for the inputs. The input polarity should be observed because any

polarity reversals can reduce the loudspeakers acoustical output field. The input leads should be shielded with the shield tied to the appropriate terminal provided on the terminal block.

5.3.2.1 Signal Input Connections-Unbalanced Input.

The amplifiers can be driven with unbalanced input signals. To feed the amplifier in the unbalanced mode, the negative input should be grounded with a short jumper wire; the signal should then be fed into the proper + input terminal. The shield should be grounded at the drive point and can be left floating at the amplifier end.

Feeding the amplifier in the unbalanced mode will increase the system's sensitivity to hum; the common mode rejection feature will be eliminated.

5.3.3 Output Connections.

The output connections available on the terminal block are shown in Table 2. The amplifier is capable of high power output and since the load may be located some distance from the amplifier the wire size should be at least #16 for 8 ohm loudspeakers. If the loudspeakers load is 4 Ohms #14 wire size should be used to reduce the losses in the leads.

Table 1 lists alternate outputs and inputs on the AJ1 and BJ1 connectors. These are parallel to the input main output connectors on these connectors. For more information on the internal function of these connections refer also to the circuit diagram, Figure 2.

5.3.3.1 Bridge "T" Output Connections.

The 1010 amplifier can be connected for bridge "T" output. For bridged output the ground leads need not be changed. The loudspeaker load is connected to the left and right "+" outputs. The inputs are connected in difference mode, that is, the left "+" is connected to the right "-" and the right "+" is connected to the left "-". It is recommended to load the amplifier output in bridging mode with at least 8 ohms. In this mode the system is capable of delivering 360 Watts output.

***Tables 1 & 2 may be found in the appendix, pgs 59 & 60.

5.4 Operation.

The Digimate 1010 amplifier has protective circuits to eliminate transient thumps and spikes during start up and shut down. No special start-up precautions need to be taken. The gain of the amplifier is fixed. It will reach full output with 1.6V on the input. Amplification gain control should be located prior to the amplifier. If more than one amplifier is driven, it is important to keep all the inputs properly phased; reversed phasing will reduce the acoustical output although the electrical output is operating at capacity.

Internal electronic circuit monitors assure that the amplifiers alway operate in the Safe Operating Area(SOA). If the amplifier currents reach a level which approaches the limit of the SOA, the internal Signalgard monitors will reduce the gain of the system to prevent exceeding the SOA. This is one of the internal safeguards to assure safe amplifier operation without shutting down the output signal. Thermal rises that approach exceeding the SOA will likewise reduce the operating load and keep the system for entering a failure phase.

The indicating LED's are self explanatory. The power LED's indicate the power on; they will not light if the primary power has been interrupted. The MUTE LED's will come on when the mute switch has been engaged. "SIGNAL ON" LED indicates the circuits are set to pass amplified signals. "OVERLOAD" indicates that the control circuits have reduced the amplifiers gain because of the system's exceeding the SOA.

When operating the Digimate 1010, it is desirable to have the load appear as resistive as possible to the output stage. The amplifier will operate into reactive loads, however, it is most efficient in transfering electrical energy into acoustical energy when the loudspeaker system appears resistive.

Each amplifier has a separate "MUTE" switch. It will turn off or on the amplifiers signal path without introducing a thump or transient into the signal path. This allows the operator to select loads or distribution in multiple amplifier installations.

REGULATED D.C. EXCITER LAMP POWER SUPPIES

Three Exciter Supplies are available through Kintek: KT-43A, KT-43R and KT-1043.

KT-43A is designed for single projector operation.

KT-43R is designed for dual projector operation.

KT-1043 is a modular unit designed for single projector operation.

Please refer to the appropriate section for installation and operation.

KT-43A REGULATED DC EXCITER LAMP POWER SUPPLY

6.1 INTRODUCTION.

The KT-43A Exciter Lamp Supply provides the necessary current to run one Exciter Lamp.

6.1.2 REAR PANEL--refer to Figure 21, pg 61

--DC Voltage Output Adjust: adjusts the voltage for the Exciter Lamp.

--Emergency Power Switch: this is a two position toggle switch(Normal(DC)-down or AC Voltage-up). If the DC Power Supply should fail, a backup AC power supply is available; the voltage is set to 5 VAC.

--Barrier Strip: refer to section 6.1.5.

--Fuses: Primary, 1 amp 250 Volt Slow Blow; Secondary, 8 amp, 32 Volt.

6.1.3 SPECIFICATIONS.

Output Voltage: Variable 3 to 9 Volts DC.
Output Current: 5 Amps.
Power Requirements: 120 VAC, 50 or 60 Hz, 150 Watts max. Consult factory for other line voltages.
Dimensions: 7" x 17" x 4 1/4" (HxWxD).
Weight: 8 pounds.

6.1.4 INSTALLATION.

6.1.4.1 UNPACKING AND MOUNTING.

Remove the unit from the shipping carton, we suggest saving the shipping carton and packing material for safe transportation in the future. Mount the KT-43A in the equipment rack.

6.1.4.2 PRECAUTIONS.

When locating any electronic equipment near heat sources, provide adequate clearance for ventilation. Excessive heat shortens the of any electronic component. Avoid humidity and water.

Mount electronic equipment and connecting cables as far away from motors and large power transformers as possible to lessen the possibility of 60 Hz hum.

6.1.5 CONNECTIONS.

--Barrier Strip(found of the back panel): Run a 2-conductor wire from the barrier strip, labeled VOLTAGE OUTPUT and GROUND, to the corresponding connections on the projector. Use 14 AWG or heavier wire for lengths up to 10 feet and 12 AWG or heavier for lengths 10 to 30 feet.

--AC Power: The unit can be connect to the switched AC outlet in an equipment rack or accessory outlet on adjacent sound equipment. The KT-43A draws a maximum of 60 Watts.

6.1.6 SYSTEM ALIGNMENT.

--Verify that the Emergency Power Switch, on the back panel of the unit, is in the down position, NORMAL(DC).

--Adjust the DC VOLTAGE OUTPUT ADJUST for the proper level to run the projector. Run lamps about 15% below the nominal rating to increase their life expectancy.

KT-43R REGULATED DC EXCITER LAMP POWER SUPPLY

6.2 INTRODUCTION.

The KT-43R Exciter Lamp Supply is designed for a two projector operation and is designed to be rack mounted.

6.2.2 REAR PANEL--refer to Figure 24, pg 64.

--DC Voltage Output Adjust: adjusts the voltage for the Exciter Lamps.

--Emergency Power Switch: this is a two position toggles switch(Normal(DC)-down or AC Voltage-up). If the DC Power Supply should fail, a backup AC power supply is available; the voltage is set to 5 VAC.

--Barrier Strip: refer to section 6.2.5.

--Fuses: Primary, 4 amp 120 Volt or 2 amp 240 Volt Slow Blow; Secondary, 30 amp, 32 Volt.

6.2.3 SPECIFICATIONS.

Output Voltage: Variable 5 to 9 Volts DC.
Output Current: 10 Amps.
Power Requirements: 120 VAC, 50 or 60 Hz, 150 Watts max. Consult factory for other line voltages.
Dimensions: 7" x 19" x 4 1/4" (HxWxD).
Weight: 16 1/2 pounds.

6.2.4 INSTALLATION.

6.2.4.1 UNPACKING AND MOUNTING.

Remove the unit from the shipping carton, we suggest saving the shipping carton and packing material for safe transportation in the future. Mount the KT-43R in the equipment rack.

6.2.4.2 PRECAUTIONS.

When locating any electronic equipment near heat sources, provide adequate clearance for ventilation. Excessive heat shortens the of any electronic component. Avoid humidity and water.

Mount electronic equipment and connecting cables as far away from motors and large power transformers as possible to lessen the possibility of 60 Hz hum.

6.2.5 CONNECTIONS.

--Barrier Strip(found of the back panel):

This unit may be used with or without an Exciter Lamp Changeover. In either case use 14 AWG or heavier wire for lengths up to 10 feet and 12 AWG or heavier for lengths 10 to 30 feet.

For Exciter Lamp Changeover: Use the separate voltage outputs for the two projectors, VOLTAGE OUTPUT(PROJ 1) and VOLTAGE OUTPUT(PROJ 2), and a ground(GND) terminal.

When Changeover is not Used: Run the 2-conductor from both projectors to the top two terminals, VOLTAGE OUTPUT(2 PROJECTORS) and GND.

If a Programmer is Used: The control signal from the programmer should be connected to the bottom terminal, CONTROL SIGNAL INPUT. Use a 22 AWG or heavier wire.

--AC Power: The unit can be connect to the switched AC outlet in an equipment rack or accessory outlet on adjacent sound equipment. The KT-43R draws a maximum of 150 Watts.

The emergency AC Lamp voltage is set at the factory to 5 Volts AC. If 7.5 VAC operation is desired, the unit may be modified in the field. Please call the Customer Service Department, KINTEK Inc. for instructions.

6.2.6 SYSTEM ALIGNMENT.

--Verify that the Emergency Power Switch, on the back panel of the unit, is in the down position, NORMAL(DC).

--Adjust the DC VOLTAGE OUTPUT ADJUST for the proper level to run the projector. Run lamps about 15% below the nominal rating to increase their life expectancy.

--Test the Exciter Lamp Changeover, if used.

--Test the Programmer Control, if used.

KT-1043 DC REGULATED EXCITER LAMP SUPPLY

6.3 INTRODUCTION.

The KT-1043 Exciter Lamp Supply provides the necessary current to run one Exciter Lamp. It can deliver up to 6 amps of regulated direct current with voltage adjustable from 3.5 to 9.5 volts. The 1043 is a modular unit designed to be mounted in a Model 1010 frame.

6.3.2 INSTALLATION.

The 1043 is supplied 110 volts AC power through **CJ2--pin 4**(low), **pin 16**(high). The output to the exciter lamp is through **BJ1--pin 9**(ground), **pin 10**(positive).

6.3.3 FRONT PANEL.

Three LED's indicate the output status of the 1043:

green--Normal DC output.

yellow--Unit has switched to emergency status, and is powering the exciter supply with 5 volts AC(result of loss of direct current supply).

red--"SHORT", the current limit of 6 amps has been exceeded; low or no voltage on the output.

6.3.4 OPERATION.

The current limit has been preset at the Factory. The voltage can be adjusted through the rear of the 1010 frame with the 1043 plugged in, using the one potentiometer that can be seen mounted on the 1043 module rear panel. There are two fuses mounted in clips at the top edge of the circuit board of the module. The one closest to the rear of the unit in the primary coil or the input transformer is a slow blow 1 amp, 250 volt. The second fuse, located closer to the front panel between the transformer secondary and the DC rectifier, in a slow blow 8 amp, 32 volt(removal of the 8 amp fuse will result in the unit switching itself to AC operation).

**refer to appendix Figure 28, pg 68 for schmetic.

THE KT-90 SUBWOOFER SYSTEM

8.1 INTRODUCTION.

The KT-90 Subwoofer System is specially designed to reproduce bass information from 20Hz to 200Hz, as generated by the sub-harmonic synthesizer in the KT-700 Processor, or other bass enhancement systems. The KT-90 contains a 500-watt power amplifier that is carefully matched to the characteristics of speaker drivers and the cabinet.

Specific features of the KT-90 include: thermal protection of electronics and speakers, over-travel protection of speaker cones, compressor to prevent clipping and distortion under high-signal conditions, and custom-designed 15-inch speakers with 6-pound ceramic magnets contained in heavy-duty frames.

The KT-90 is designed for the reproduction of the low-frequency sounds in music and special effects which is typically missing from sound tracks--KT-90's can create intense earthquake and cannon effects.

8.2 SPECIFICATIONS.

AMPLIFIER--Input Impedance-20 Kilohms balanced
Input Level-3.16 mV to .10V
Power Output-500 watts RMS
Filters-Variable, low frequency cutoff(Hz): 20, 25, 32, 40, out; high frequency cutoff(Hz): 80, 100, 125, 160, out.

TRANSDUCER--2 15-inch speaker drivers with 6-pound ceramic magnets.

GENERAL-Frequency response 20 Hz to 200Hz, +/-3dB. Output level 1-V input signal produces 40V at the output of the power amplifier when the unit is in the "CAL" mode.

POWER REQUIREMENTS--120 VAC, 50 or 60Hz, 1000 watts maximum consumption. Consult the factory for operation with other line voltages.

DIMENSIONS--30" X 47" X 24"(HxWxD)
76.2cm X 119.4cm X 61cm

WEIGHT--240lbs(109.1 kilograms)

8.3 PLACEMENT.

The KT-90 should be placed in the front of the theatre, as this location assists in the balance of low frequencies and upper front information. The area in front of the KT-90 should be free of solid obstructions. The unit may be placed behind movie screens and most stage curtains without noticeable muting. Placing the KT-90 in a corner, or where two or more planes meet, reinforces the bass response of the unit. Installation with multiple KT-90's can benefit form mutual radiation effects when the units are lined up next to each other.

The rear control panel of the KT-90 should be accessible to allow for future adjustments.

CAUTION: Avoid placing the KT-90 near heat sources, high humidity or water.

8.4 REAR PANEL

SENSITIVITY CONTROL--adjusts the level of the KT-90. The calibration switch defeats the sensitivity control and sets the gain so a 1-V input signal produces 40V at the power amplifier.

LOW-FREQUENCY CUTOFF--determines the low-frequency range of the KT-90.

HIGH-FREQUENCY CUTOFF--the filter restricts the high-frequency limit of the unit.

8.5 CONNECTION TO AMPLIFIER.

Run an appropriate length of 2-conductor shielded cable between the KT-90 and KT-700; 22-gauge wire with foil wrapping is recommended. Connect two leads to the adjacent high and low terminals on the KT-700 terminal block marked TB2 LF+ and LF RTN. Attach the shield to the ground terminal(refer to fig 3, Mother Board, pg 43).

The KT-90's power amplifier input requires an XLR connector of the female jack on the rear panel.(refer to fig. 29,pg. 69 for pin assignment) Wire the male XLR connector by following the same code. **Do not wire the metal connector case and input ground together.**

NOTE: In case of multiple KT-90's, inputs should be wired in parallel using the output of the KT-700.

The KT-90's power amplifier can accept a balanced or unbalanced signal ranging from 316mV to 10V for full power output. Make all connections between the units with the AC power off.

8.6 AC POWER CONNECTION.

The KT-90 should be powered from its own line that is separate from the power lines for projectors, curtain motors, etc. A 3-wire or grounded AC line should be used. **Do not use 3-to-2 adapter plugs to defeat the ground wire on the KT-90 power cord.**

A 15-amp slow blow fuse or 15-amp circuit breaker should be used to feed the KT-90's circuit.

CAUTION: THE KT-90 SHOULD NEVER BE OPENED WHILE THE AC POWER IS ON, THAT IS, WHEN THE INTERLOCK IS DEFEATED. THIS UNIT IS LINE OPERATED--EXPOSED INSIDE WIRING HAS 120VAC POTENTIAL WITH RESPECT TO OUTSIDE GROUNDS.

8.7.1 SYSTEM ALIGNMENT.

Adjust projector optics, guide roller, and azimuth.

8.7.2 LOW- AND HIGH-FREQUENCY ADJUSTMENT.

Although the KT-90 is designed to reproduce from 20Hz to 200Hz, typical installations require the high-frequency control to be set at "100" and the low-frequency control at "OUT". If necessary, different cutoffs can be set after the level of the KT-90 has been adjusted. However, it is not recommended that during KINTEK processing frequencies above 125Hz be allowed to pass through the KT-90 because of potential problems with dialog cross-talk. The frequency response of the system can be changed by playing a pink-noise loop and switching the controls to achieve a better balance with the other speakers.

NOTE: see appendix pgs 70-76 for flow chart, schematics, and board layout.

KT-360 SURROUND SPEAKER

9.0 INTRODUCTION.

--High efficiency -96dB 1 watt, 1 meter.

--Slim line surround speaker has aesthetically correct proportions for theatre walls and decor.

--Perimeter Slot Bass Coupler design for optimum bass dispersion, flat to 50Hz.

--High frequency roll off designed specifically for surround requirements.

--Wire as many as 4 in parallel on a single amplifier.

9.1 SPECIFICATION.

EFFICIENCY--96dB 1 watt, 1 meter as mounted in theatres.

FREQUENCY RESPONSE--50Hz to 8000Hz(high frequency rolled off at 3dB per octave from 2000Hz-8000Hz approximating standard Academy curve).

IMPEDENCE--16 ohms.

POWER HANDLING--80 watts.

DIMENSIONS--24"x 24"x 8.5"(WxHxD).

WEIGHT--32lbs.

DIAGRAM MATERIAL

Figure

1	FLOW CHART KT-700
2	SCHMETIC KT-707 PWR SUPPLY
3	MOTHER BOARD
4	BLOCK DIAGRAM KT-2755
5	BLOCK DIAGRAM KT-2050
6	BLOCK DIAGRAM KT-2255
7	SOLAR CELL INPUT CP200
8	SOLAR CELL INPUT CP50
9	KT-728 PC BOARD
10	KT-742 PC BOARD #1
11	KT-742 PC BOARD #2
12	KT-721 PC BOARD
13	KT-722 PC BOARD
14	KT-724 PC BOARD #1
15	KT-724 PC BOARD #2
16	KT-725 PC BOARD
17	KT-744 PC BOARD
18	DIGIMATE 1010 REAR VIEW
19	DIGIMATE 1010 TABLE 1
20	DIGIMATE 1010 TABLE 2
21	KT-43A REAR PANEL
22	KT-43A FLOW CHART
23	KT-43A SCHEMATIC
24	KT-43R REAR PANEL
25	KT-43R FLOW CHART
26	KT-43R SCHEMATIC
27	KT-43R BOARD LAYOUT
28	KT-1043 SCHEMATIC
29	KT-90 PIN ASSIGNMENT
30	KT-90 FLOW CHART
31	KT-90 SCHEMATIC
32	KT-90 SCHEMATIC
33	KT-90 SCHEMATIC
34	KT-90 SCHMETIC
35	KT-90 PC BOARDS
36	KT-90 PC BOARDS

WARRANTY AND REPAIR.

Equipment manufactured by KINTEK carries a limited warranty against defects in material and workmanship for two years from date of purchase. KINTEK will, at its option, repair or replace defective components provided the unit is shipped to KINTEK or its authorized distributors with a Return Autorization(RA) number. Defects caused by modification, misuse or other damage caused by improper packing are not covered by this limited warranty.

In the event you have a problem, call your equipment dealer and list specifically the symptoms; it will often speed up the repair.

NOTE: KINTEK are manufactured under one or more of the follow US patents: 3,681,618; 3,714,462; 4,101,849; 4,097,767. Other patents pending.

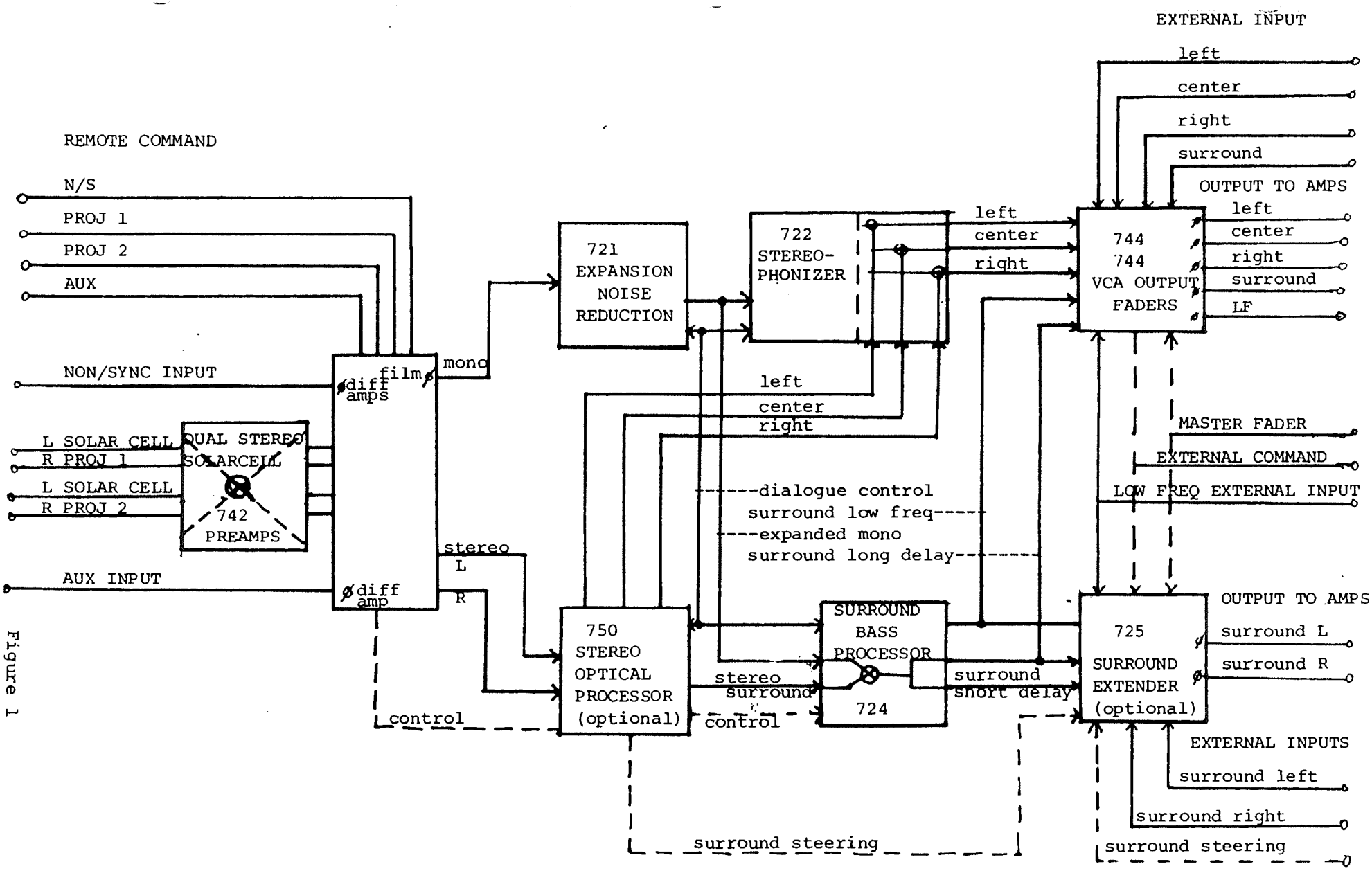
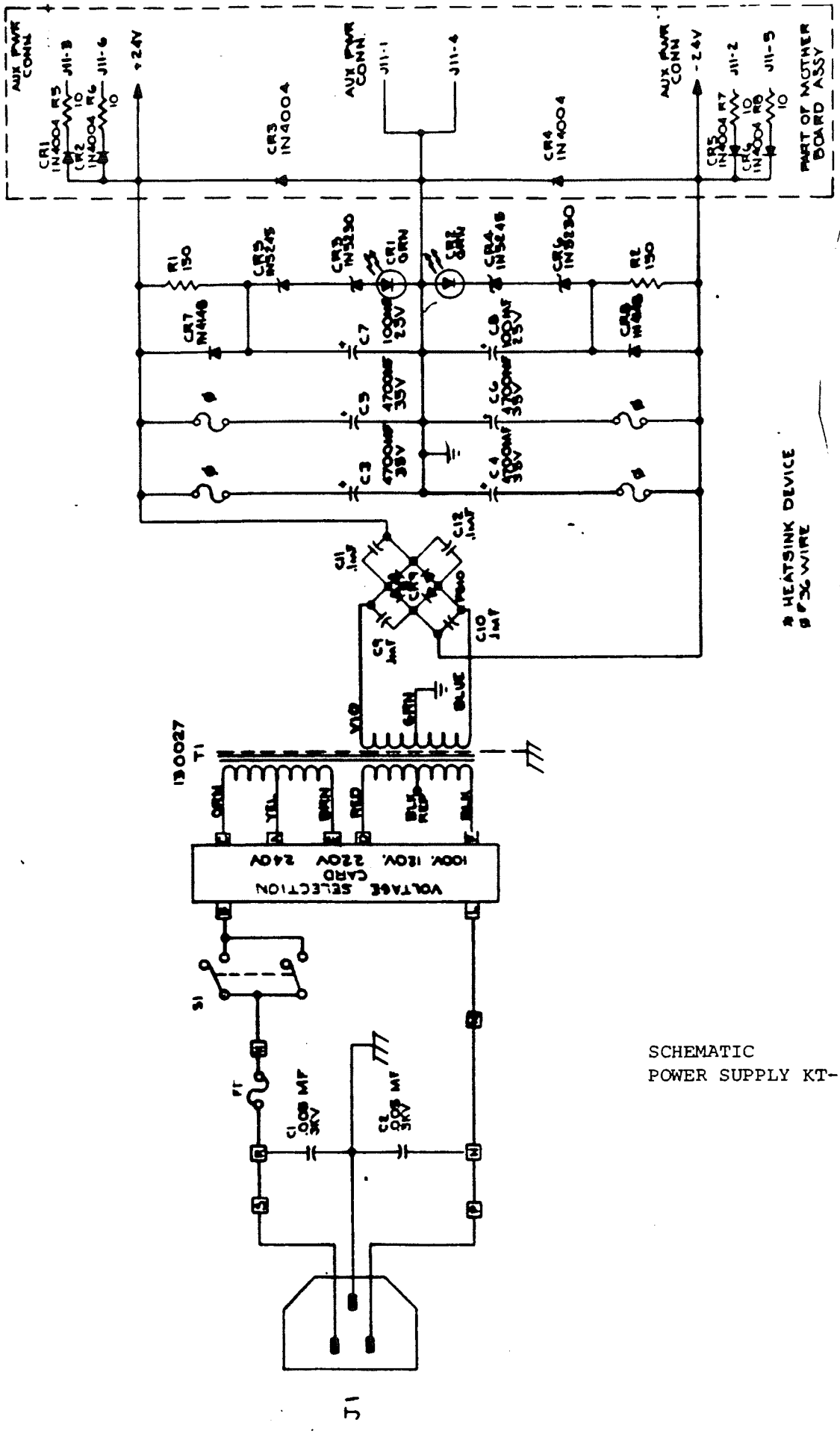


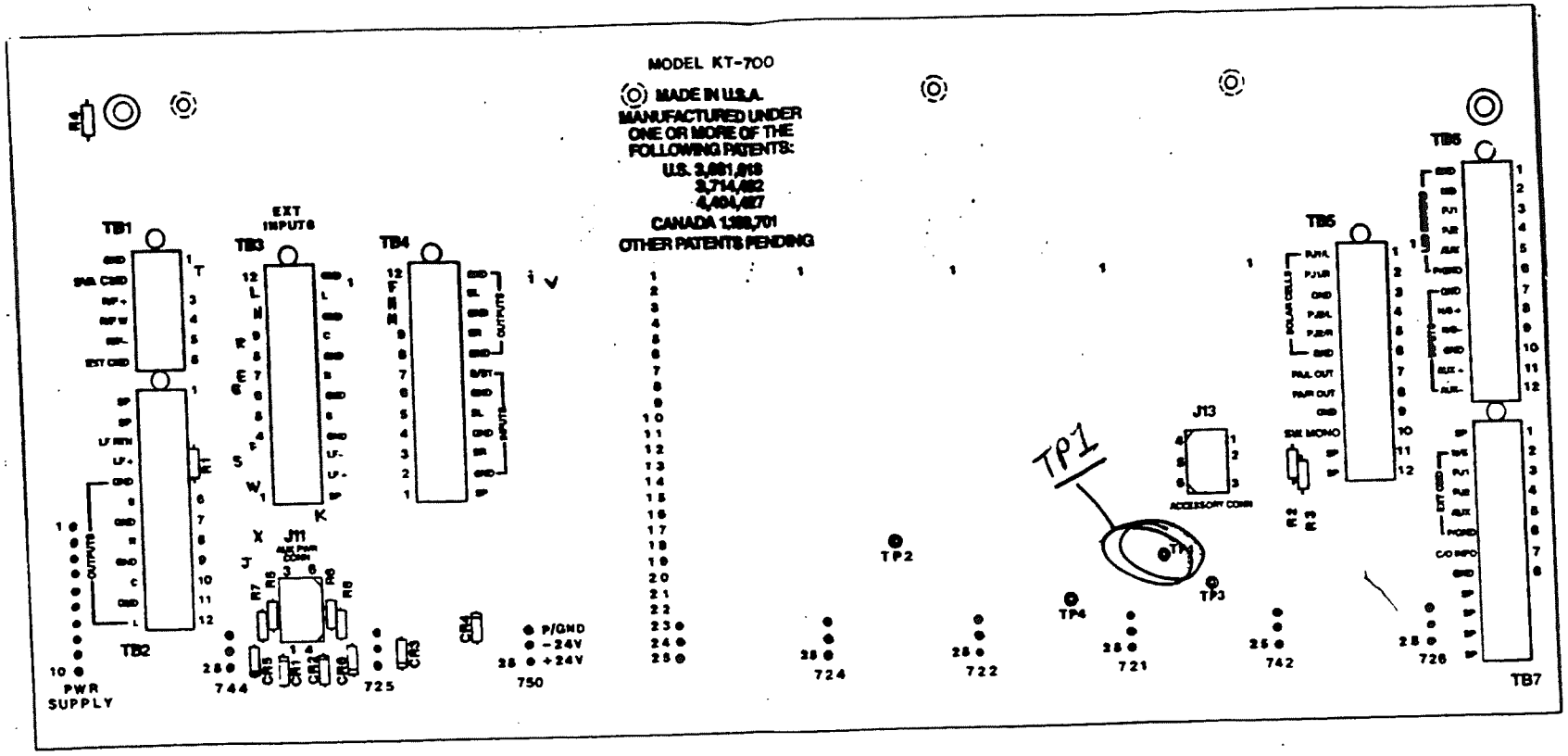
Figure 1

KT-700 FLOW CHART



SCHEMATIC
POWER SUPPLY KT-707

Figure 2



MOTHER BOARD
KT-700

Figure 3

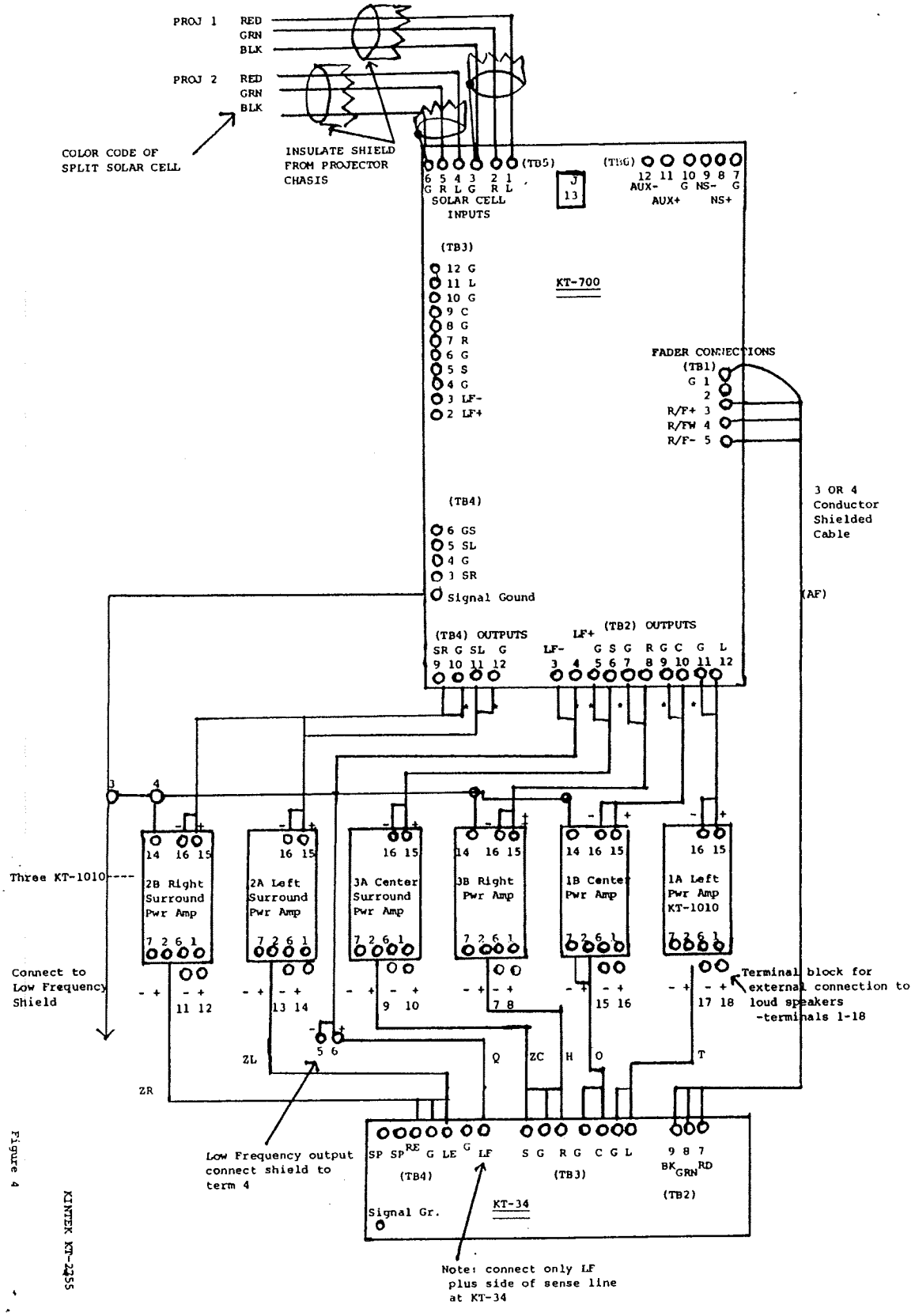
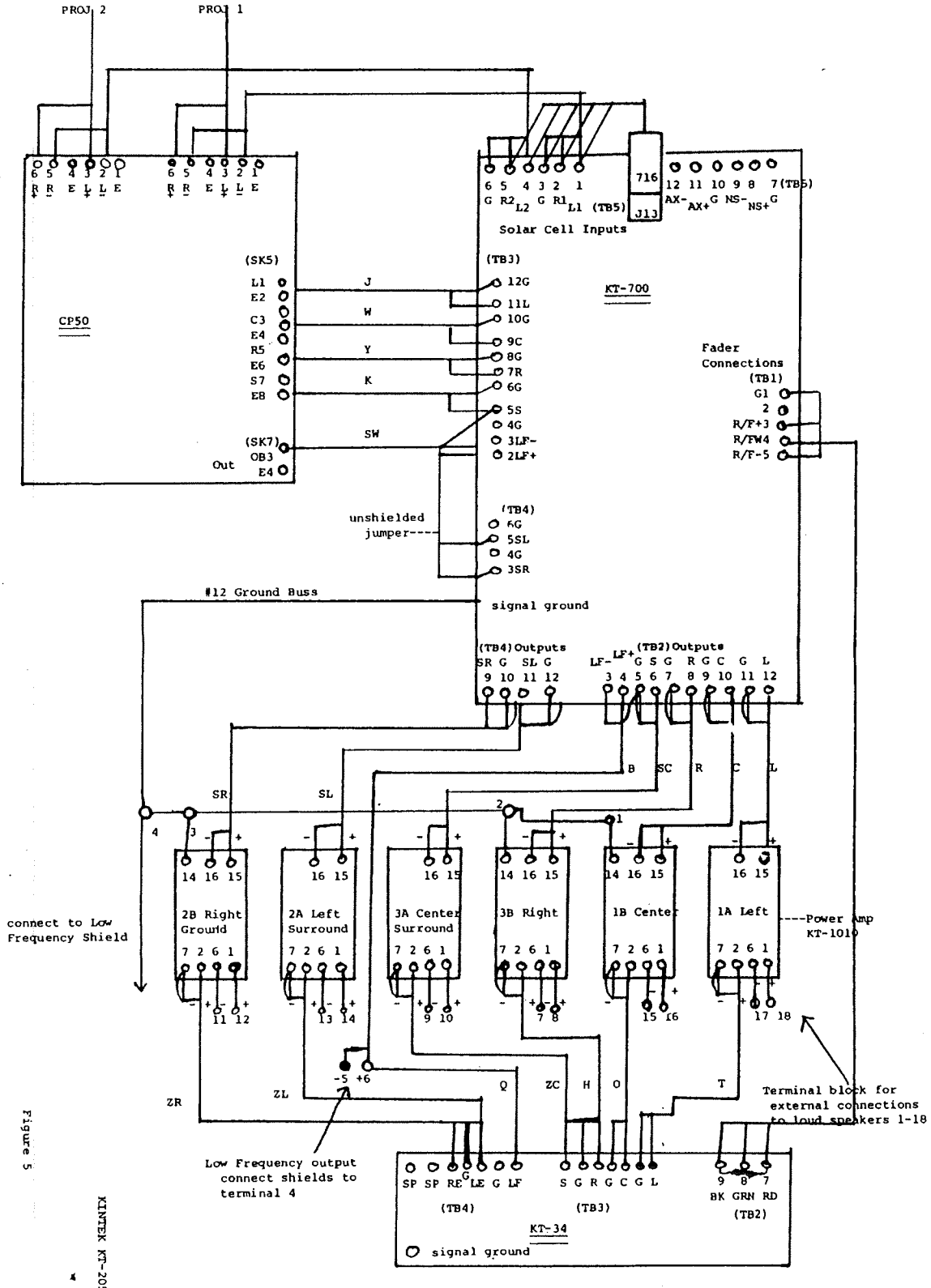


Figure 4

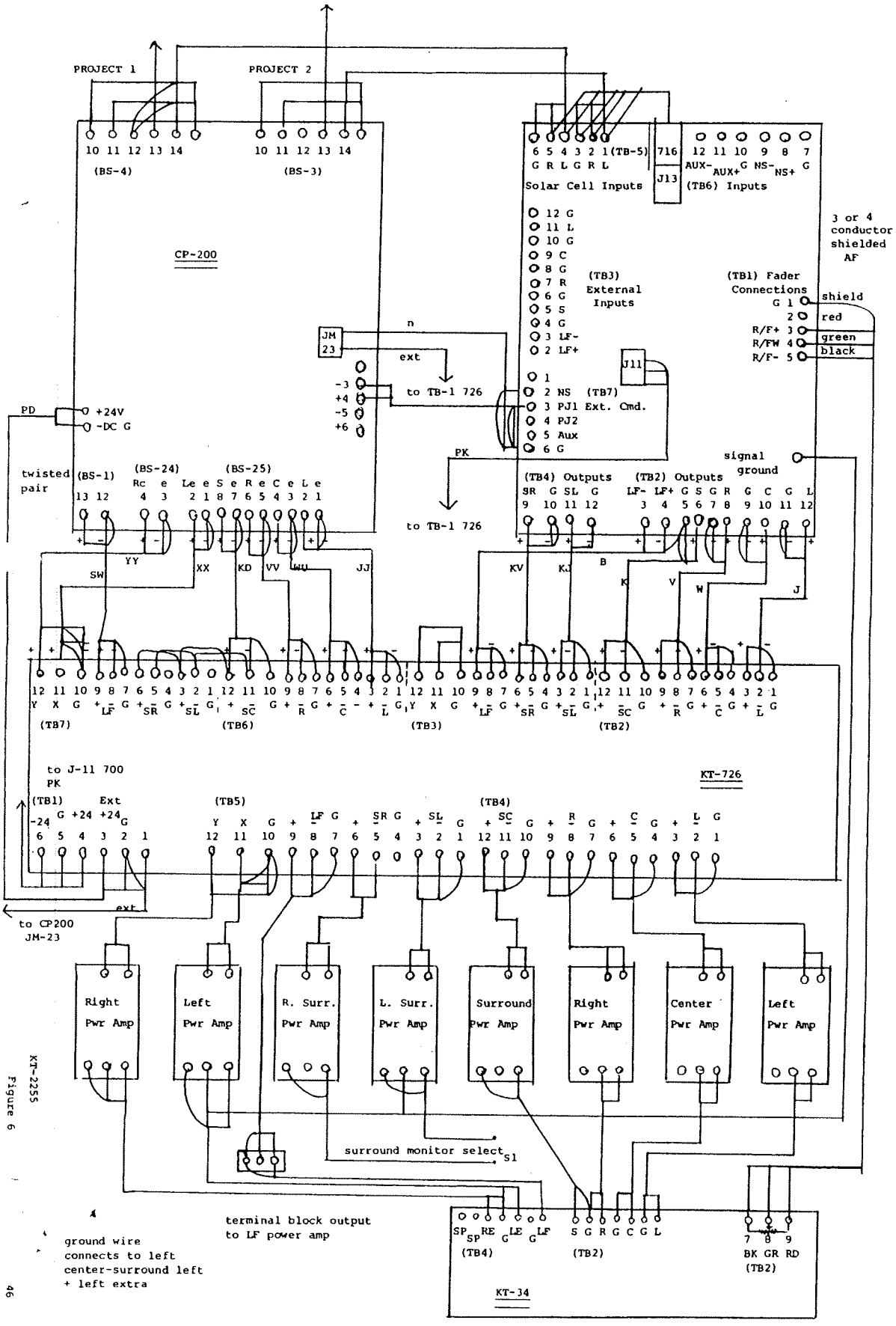
KINTEK KT-2255



NOTE: connect only LF+ side of sense line at KT-34

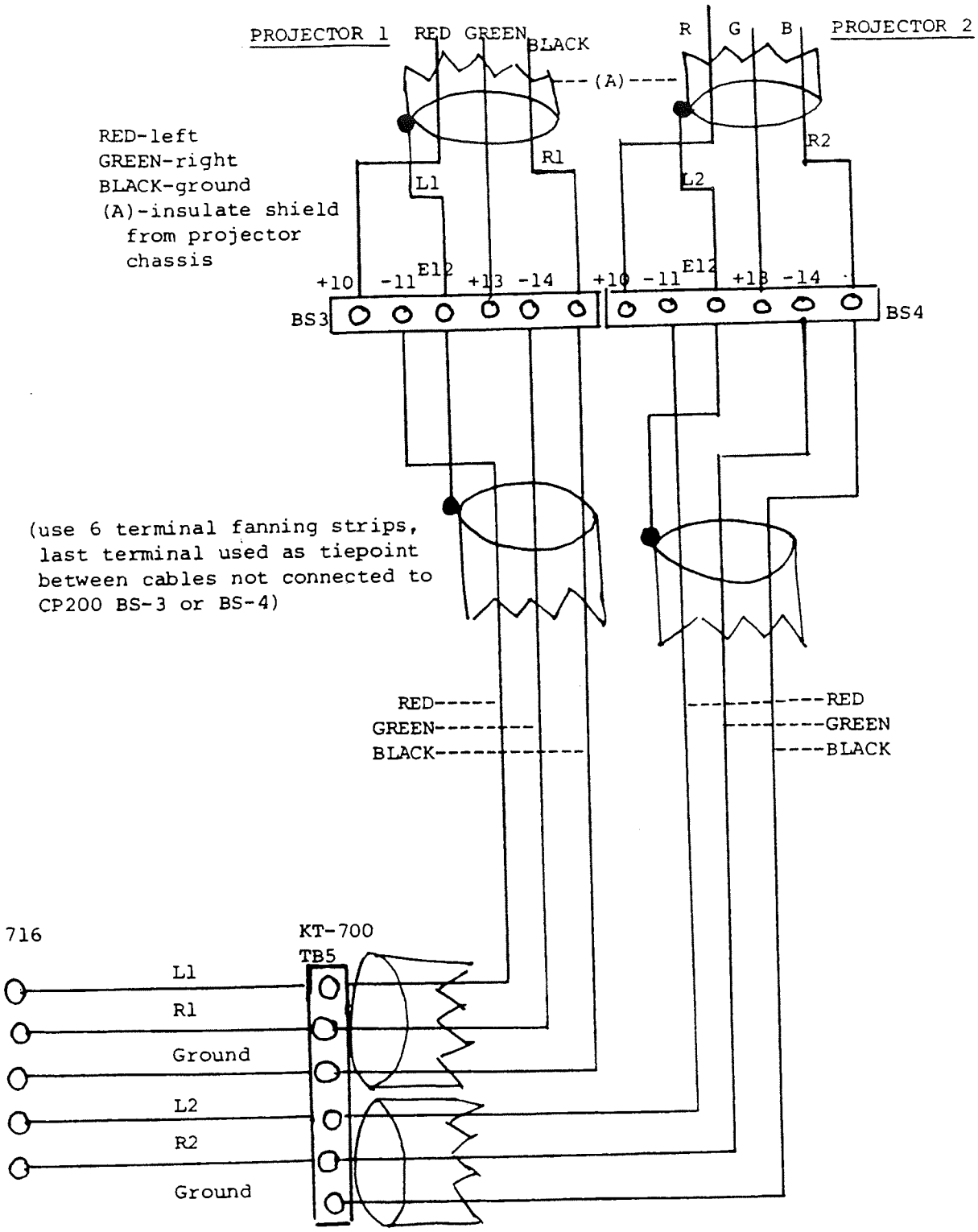
Figure 5

KINTEK KT-2050



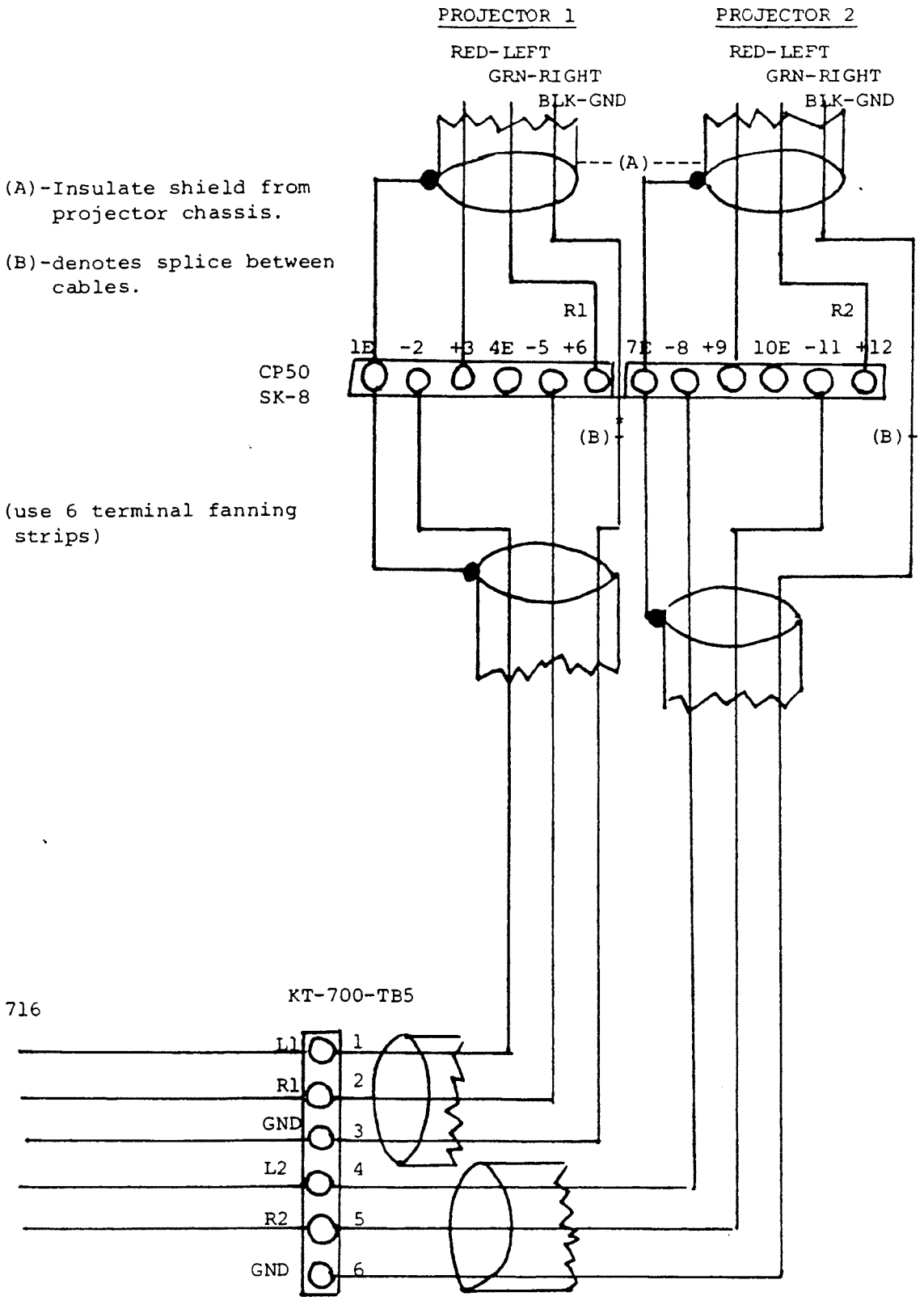
KT-2255

Figure 6



WIRING DIAGRAM OF SOLAR CELL INPUT
KT-700/CP200

Figure 7



WIRING DIAGRAM OF SOLARCELL INPUT--KT-700/CP50

Figure 8

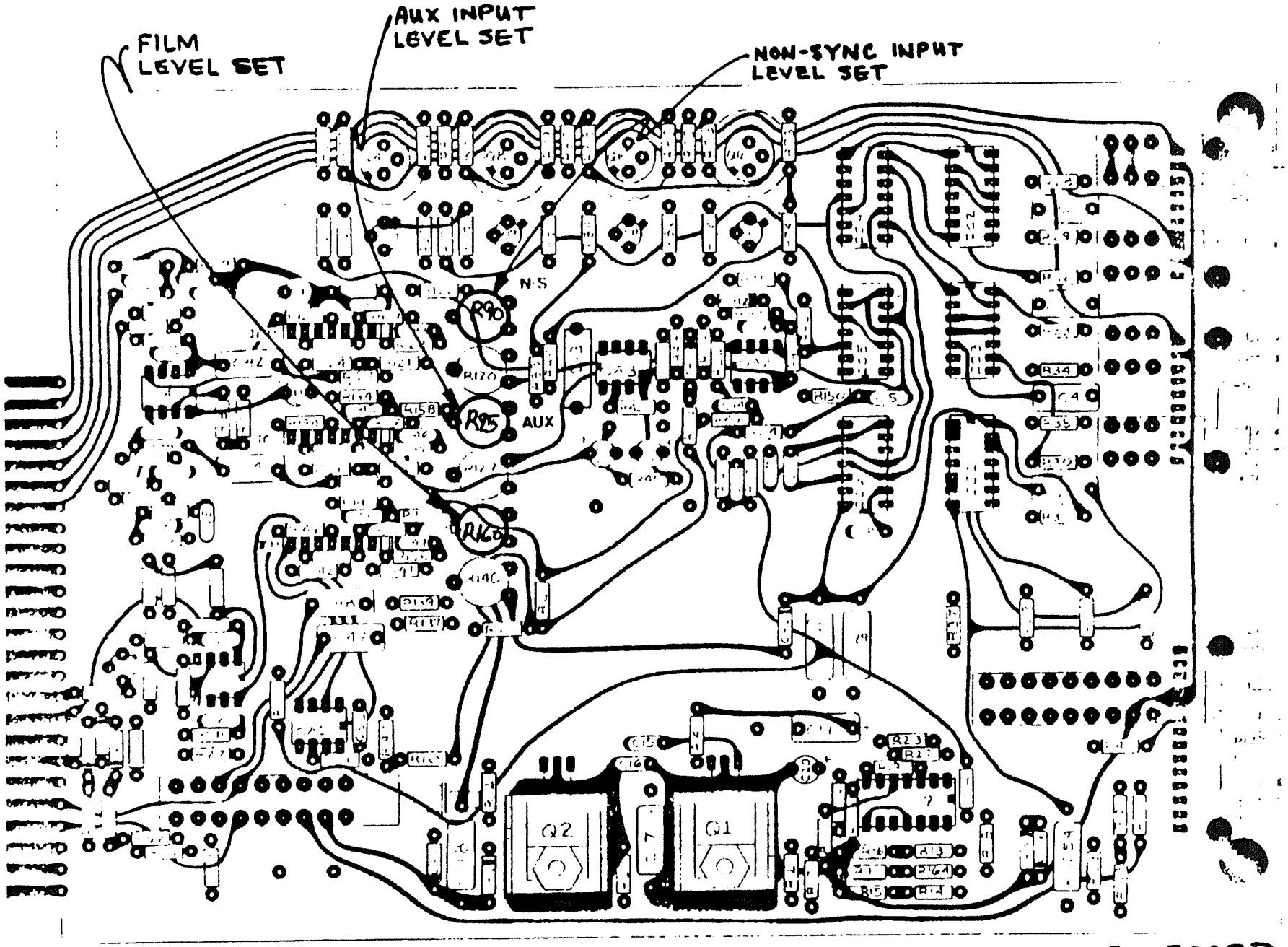
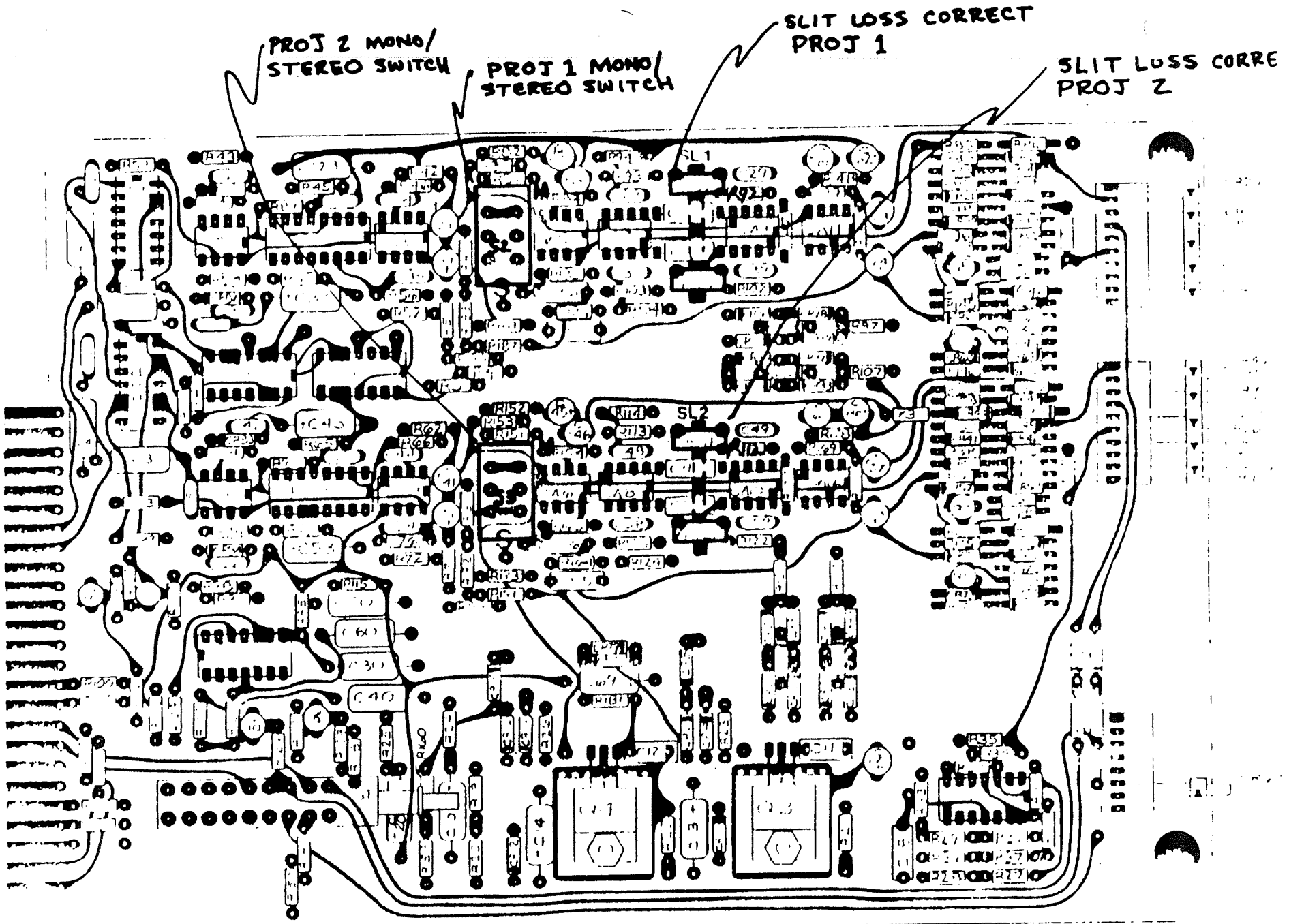

FILM
LEVEL SET
AUX INPUT
LEVEL SET
NON-SYNC INPUT
LEVEL SET
N-S
R90
R120
R95
AUX
R100
Q2
Q1
KT-728 P.C. BOARD
SYSTEM CONTROL
USER CONTROLS

Figure 9



KT-742 P.C. BOARD
SOLAR CELL PREAMPLIFIE
USER CONTROLS

Figure 10

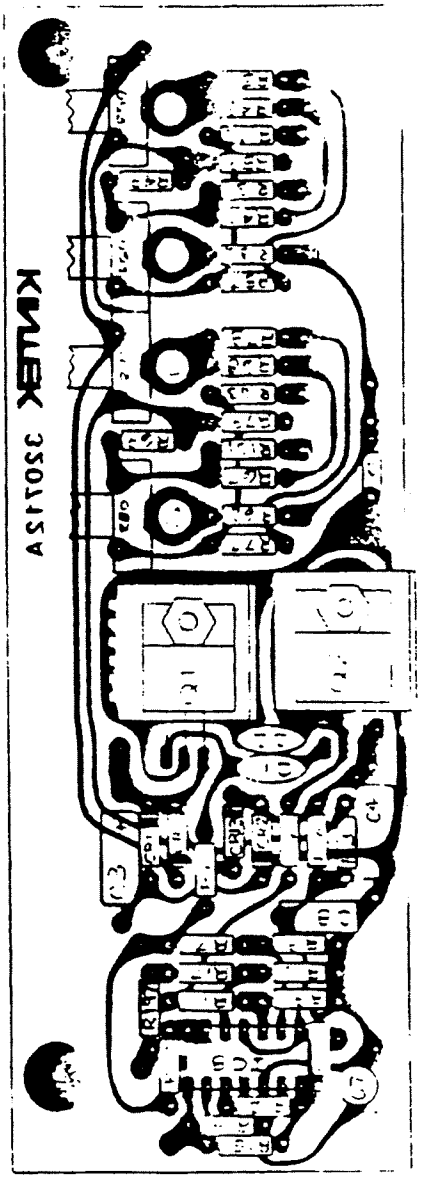
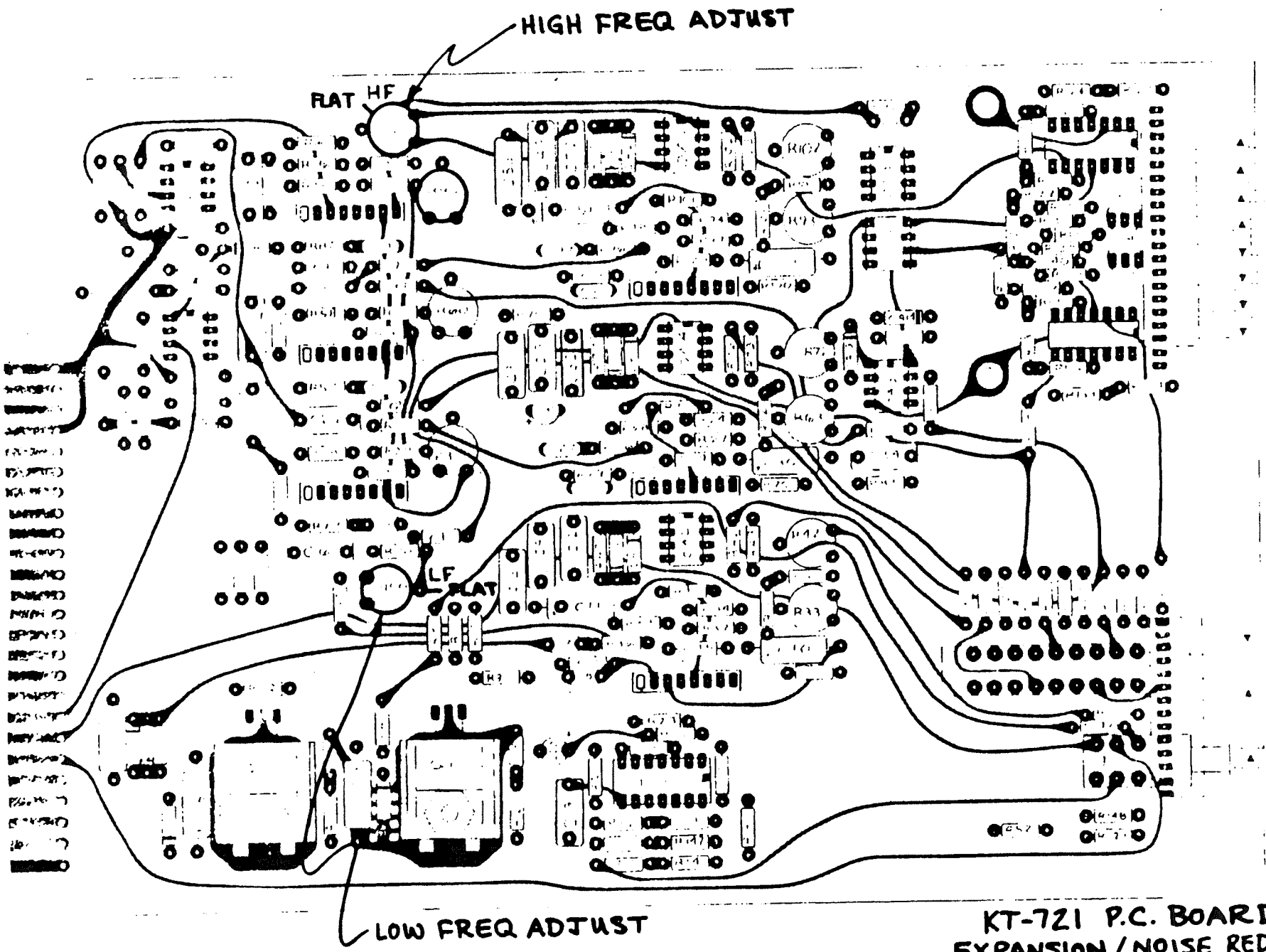
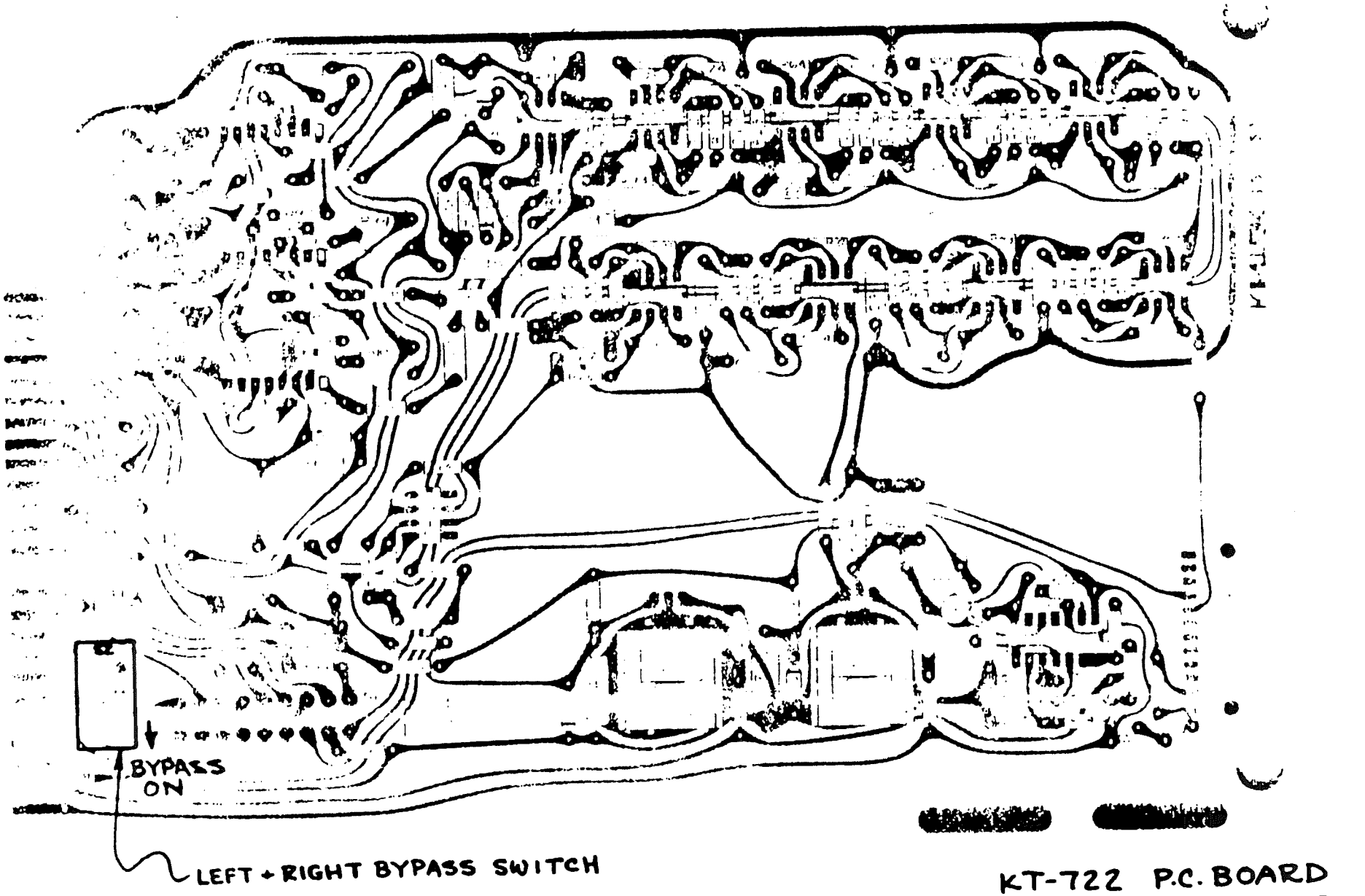


Figure 11



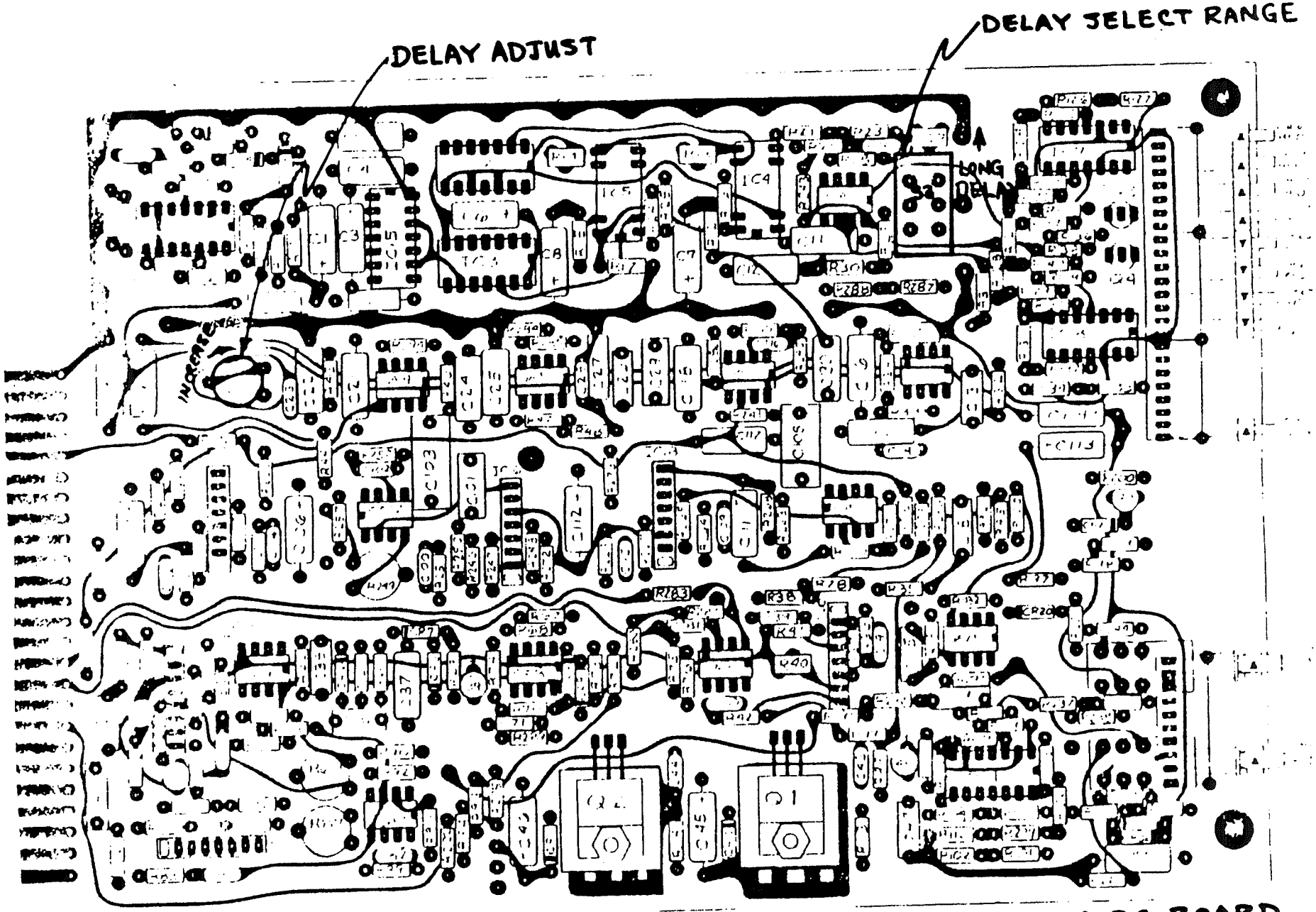
KT-721 P.C. BOARD
EXPANSION / NOISE REDUCTION
USER CONTROLS

Figure 12



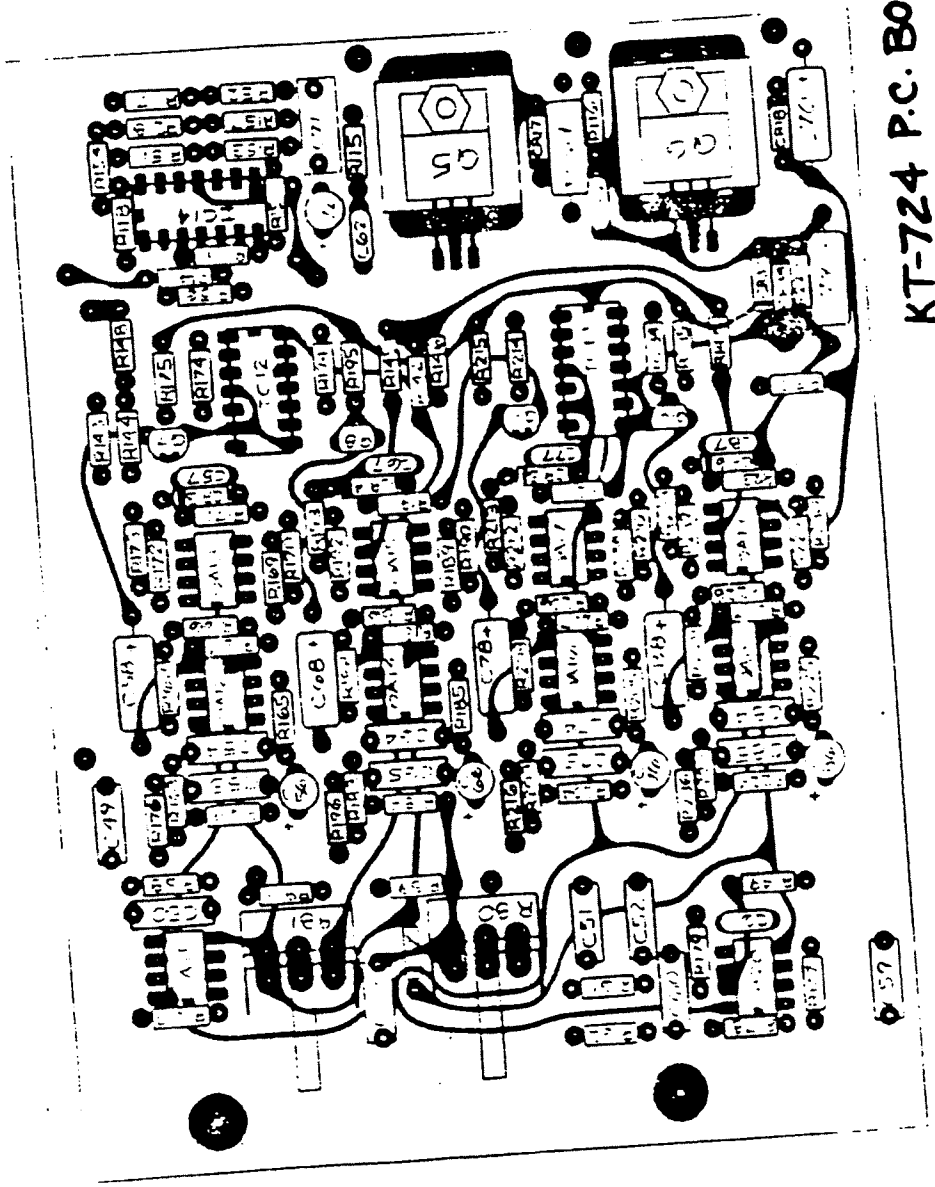
KT-722 P.C. BOARD
STEREOPHONIZER
USER CONTROLS

Figure 13



KT-724 P.C. BOARD
SURROUND/BASS PROCESSOR
USER CONTROLS

Figure 14



KT-724 P.C. BOARD # 2
BASS CONTROL CKT
SURROUND / BASS PROCESSOR

Figure 15

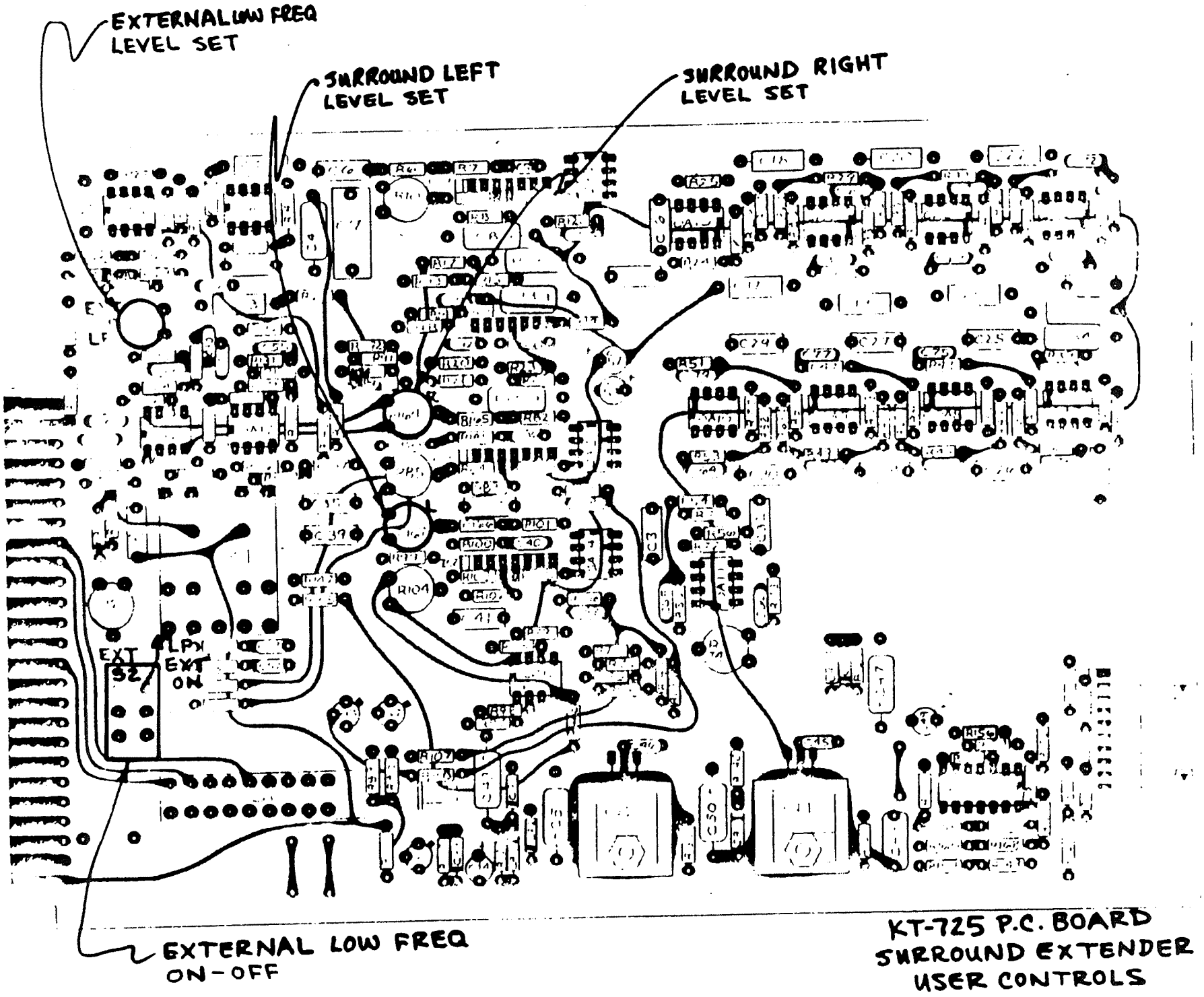

EXTERNAL LOW FREQ
LEVEL SET
SURROUND LEFT
LEVEL SET
SURROUND RIGHT
LEVEL SET
EXT LPN
EXT
ON
S2
EXTERNAL LOW FREQ
ON-OFF
KT-725 P.C. BOARD
SURROUND EXTENDER
USER CONTROLS

Figure 16

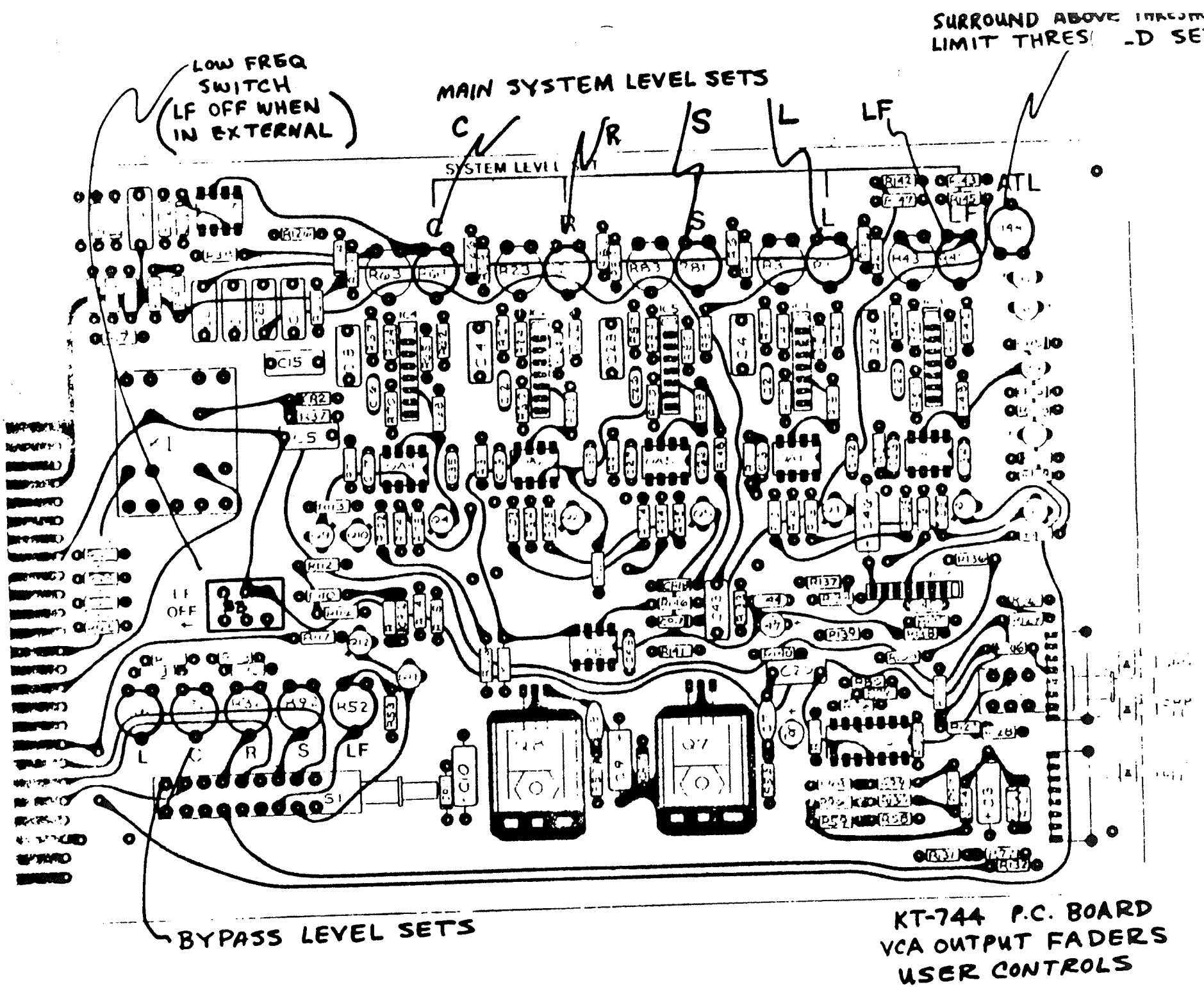
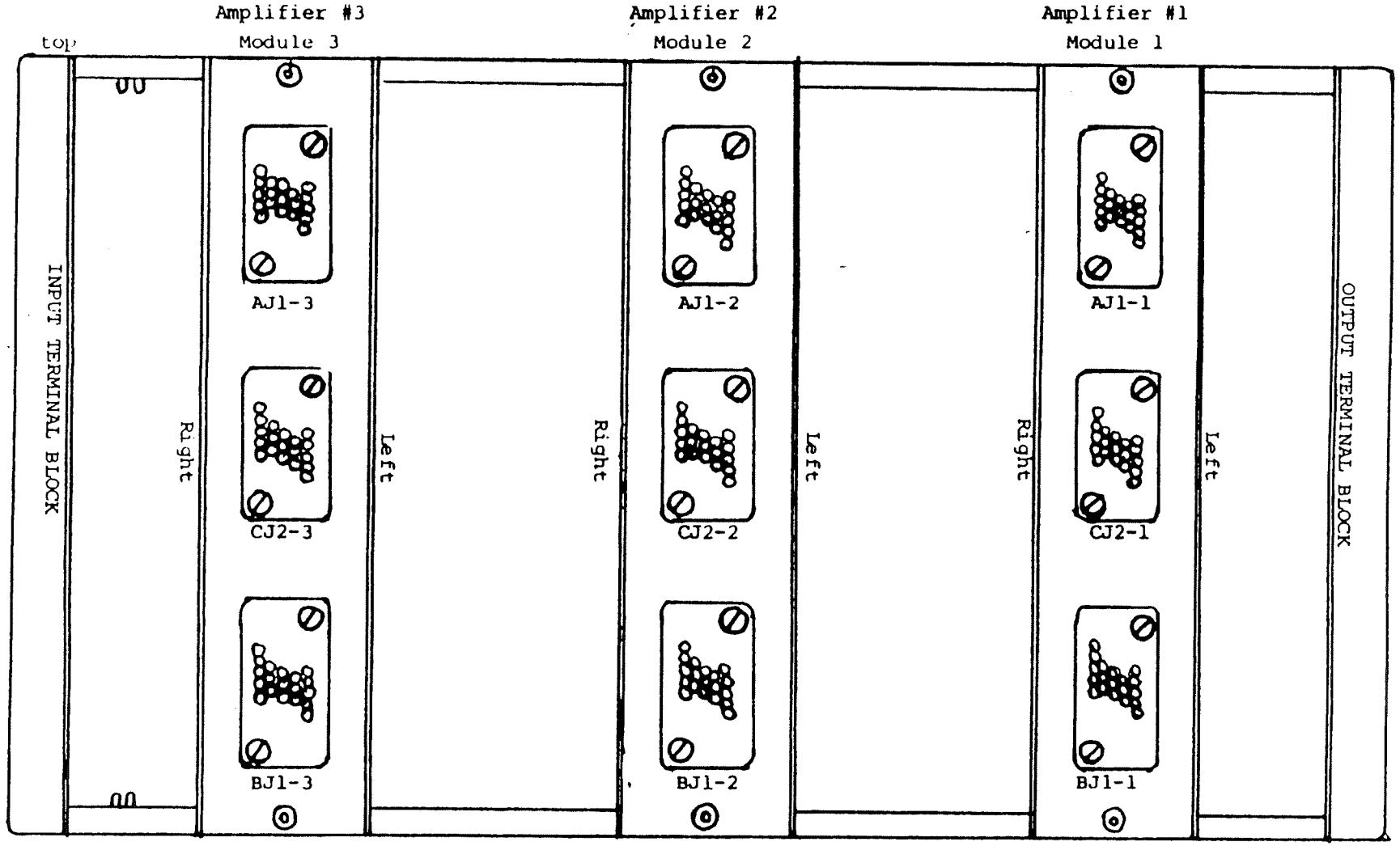

SURROUND ABOVE THRESHOLD
LIMIT THRES -D SET
LOW FREQ SWITCH (LF OFF WHEN IN EXTERNAL)
MAIN SYSTEM LEVEL SETS
C
R
S
L
LF
SYSTEM LEVEL SET
ATL
LF OFF
L
C
R
S
LF
BYPASS LEVEL SETS
KT-744 P.C. BOARD
VCA OUTPUT FADERS
USER CONTROLS

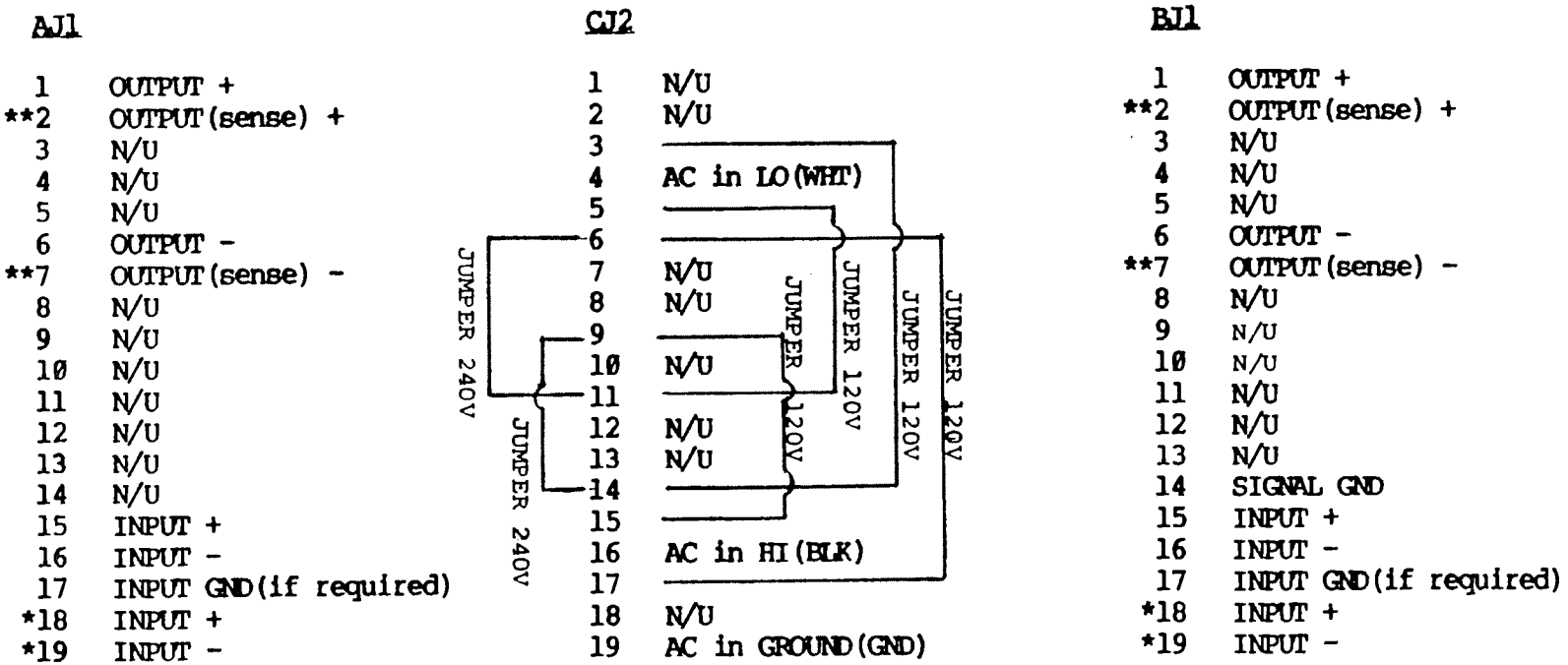
Figure 17



Rear View Model 1010
Connector alignment

Figure 19

DIGIMATE 1010 POWER AMPLIFIER MODULE
CONNECTOR DESIGNATIONS



*ALTERNATE INPUTS
**ALTERNATE OUTPUTS

RECOMMENDED WIRE SIZES—OUTPUTS: 14 TO 16 gauge stranded, INPUTS: 20 to 22 gauge standed

Figure 19

TERMINAL BLOCK DESIGNATIONS FOR
THE DIGIMATE 1010 FRAME

INPUT TERMINAL TERMINAL BLOCK—left side of the rack.

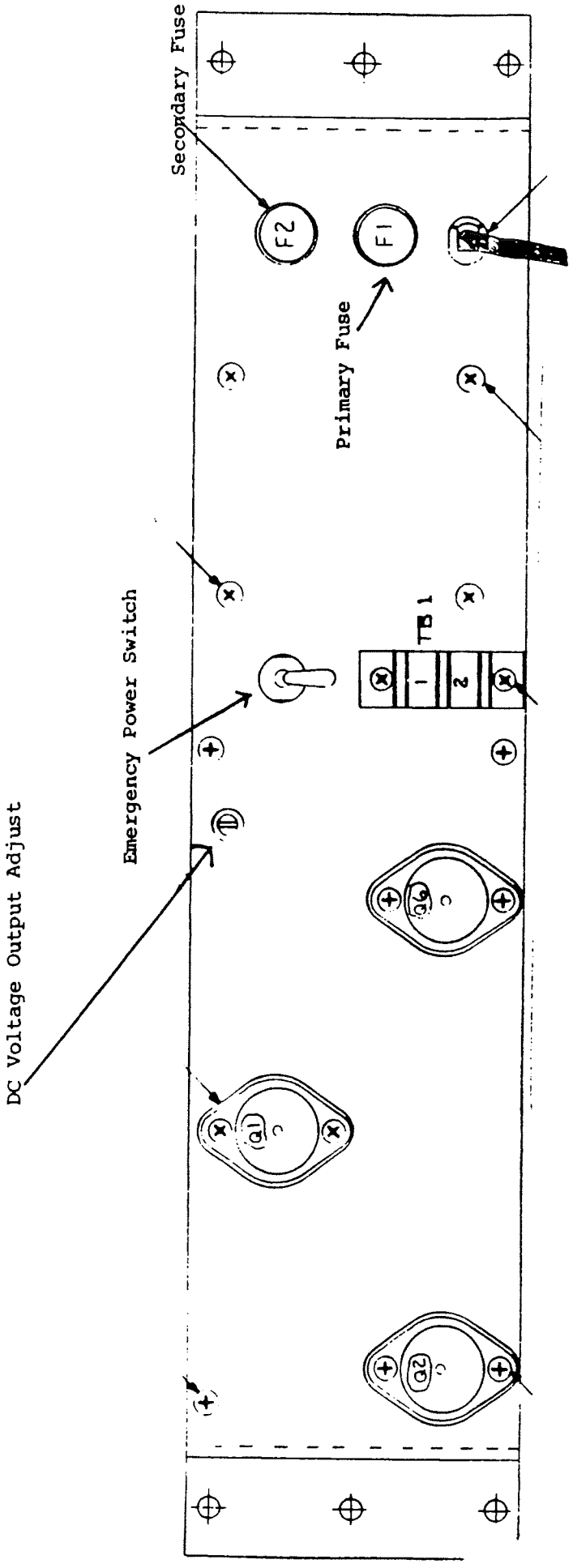
1	LEFT	+	
2	LEFT	-	
3	LEFT	GND	
4	RIGHT	+	AMPLIFIER #1
5	RIGHT	-	
6	RIGHT	GND	
7	LEFT	+	
8	LEFT	-	
9	LEFT	GND	
10	RIGHT	+	AMPLIFIER #2
11	RIGHT	-	
12	RIGHT	GND	
13	LEFT	+	
14	LEFT	-	
15	LEFT	GND	
16	RIGHT	+	AMPLIFIER #3
17	RIGHT	-	
18	RIGHT	GND	

OUTPUT TERMINAL BLOCK—right side of rack

18	LEFT	+	
17	LEFT	-	
16	RIGHT	+	AMPLIFIER #1
15	RIGHT	-	
14	LEFT	+	
13	LEFT	-	
12	RIGHT	+	AMPLIFIER #2
11	RIGHT	-	
10	LEFT	+	
9	LEFT	-	
8	RIGHT	+	AMPLIFIER #3
7	RIGHT	-	
6			
5			
4		GND	
3		GND	
2		GND	
1		GND	

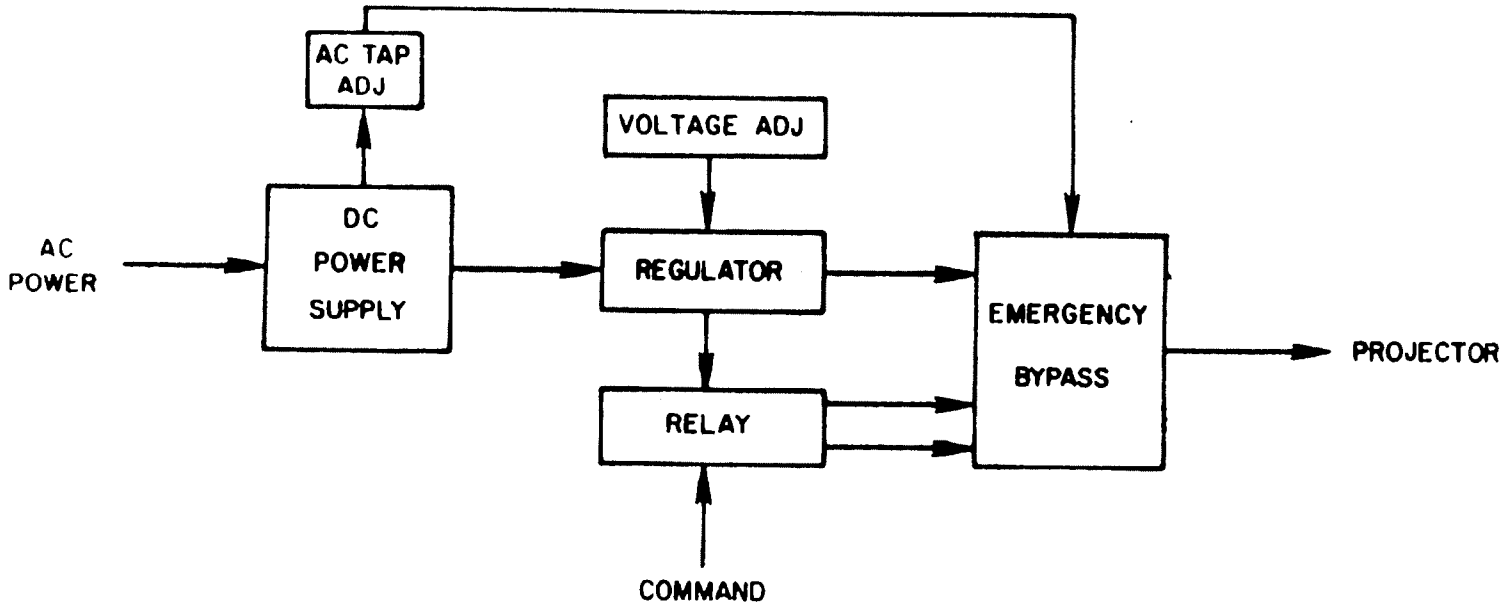
TABLE 2

Figure 30



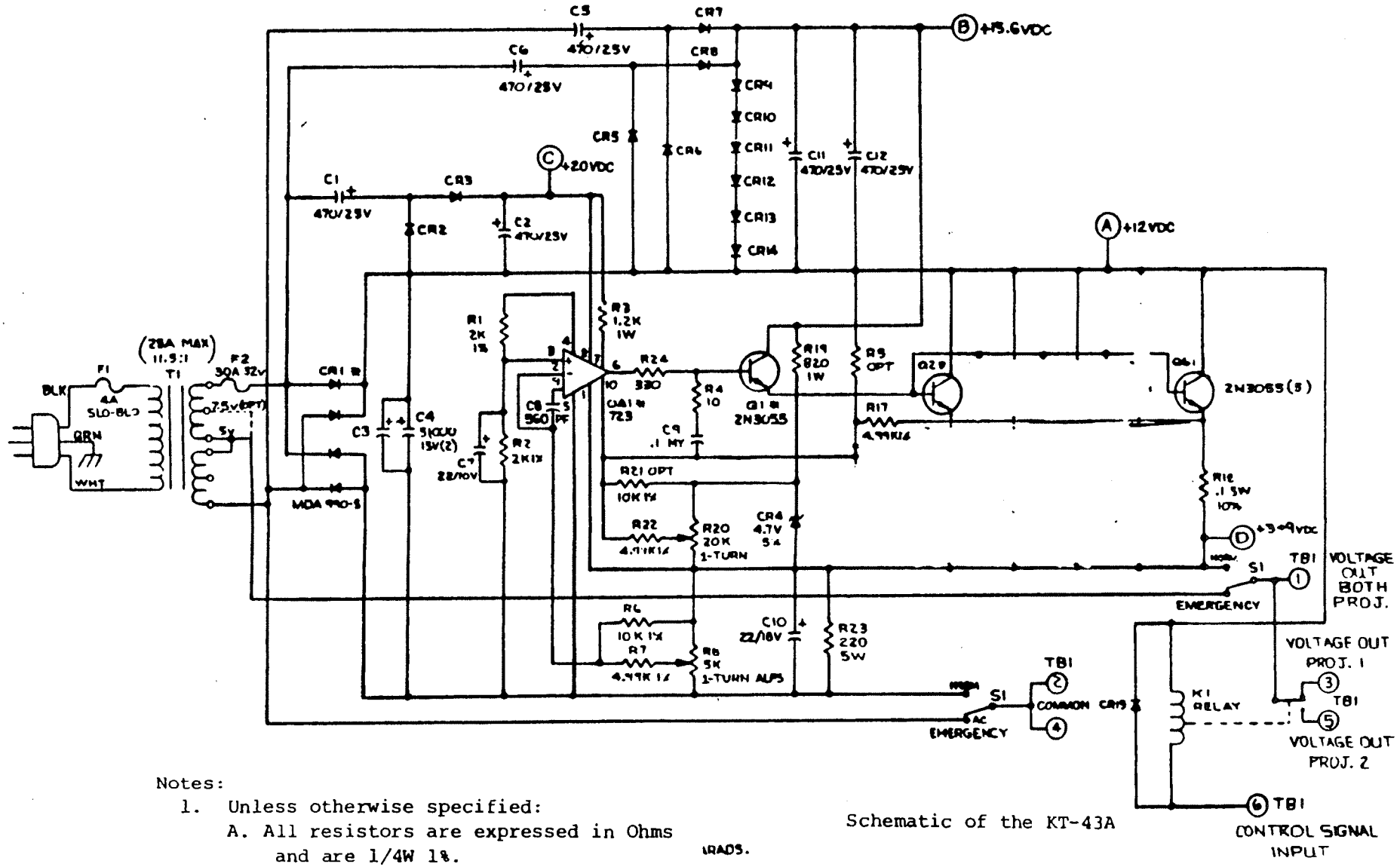
Rear Panel of the KT-43A

Figure 21



Flow Chart for the KT-43A

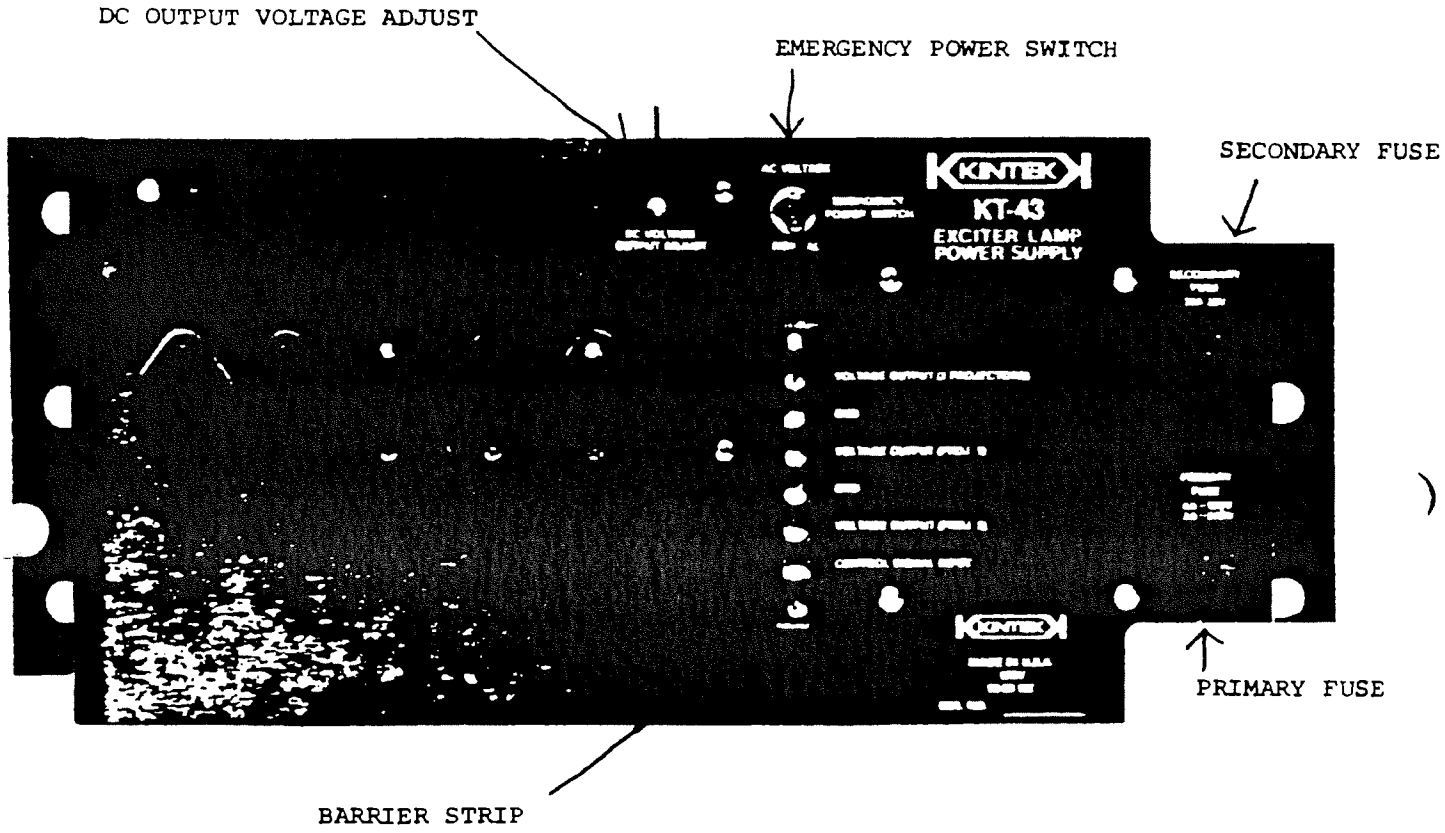
Figure 22



Notes:

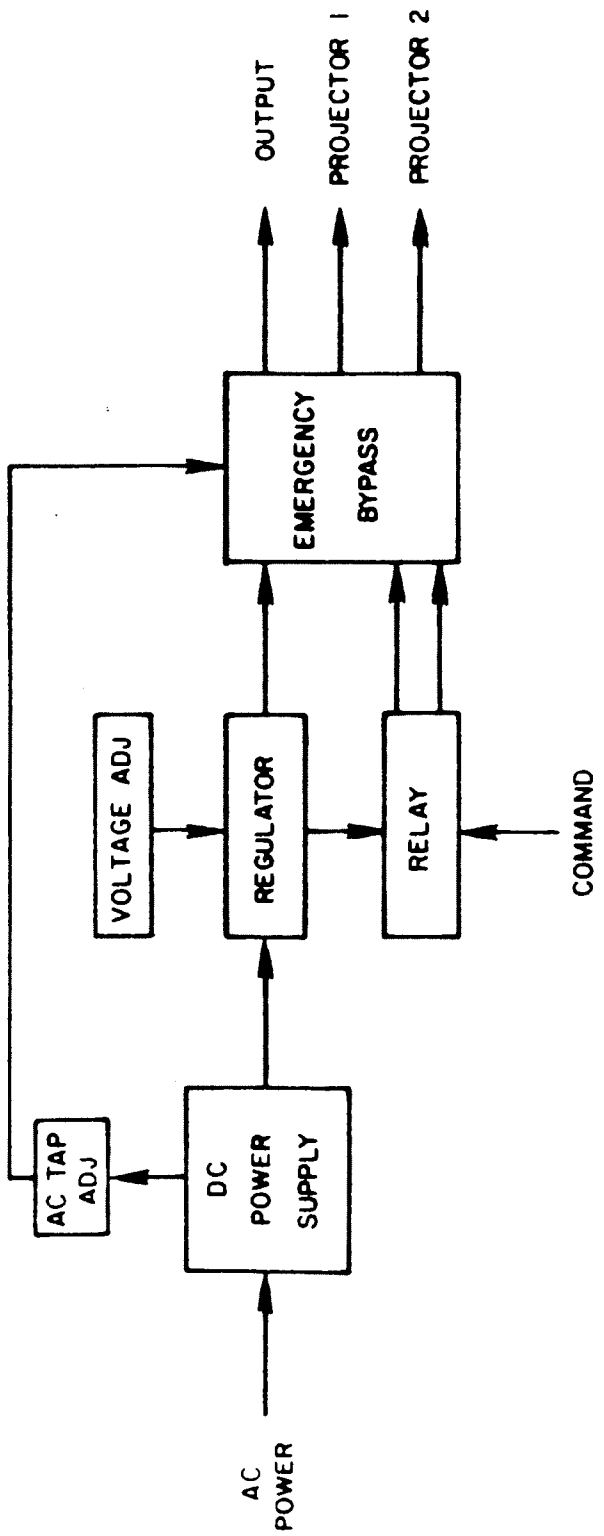
1. Unless otherwise specified:
   A. All resistors are expressed in Ohms and are 1/4W 1%.
   B. All capacitors are express in microfarads.
   C. All diodes are IN4003.
2. * indicates heatsink on device.
3. K1 relay shown de-engerized.

Figure 23 Schematic of the KT-43A



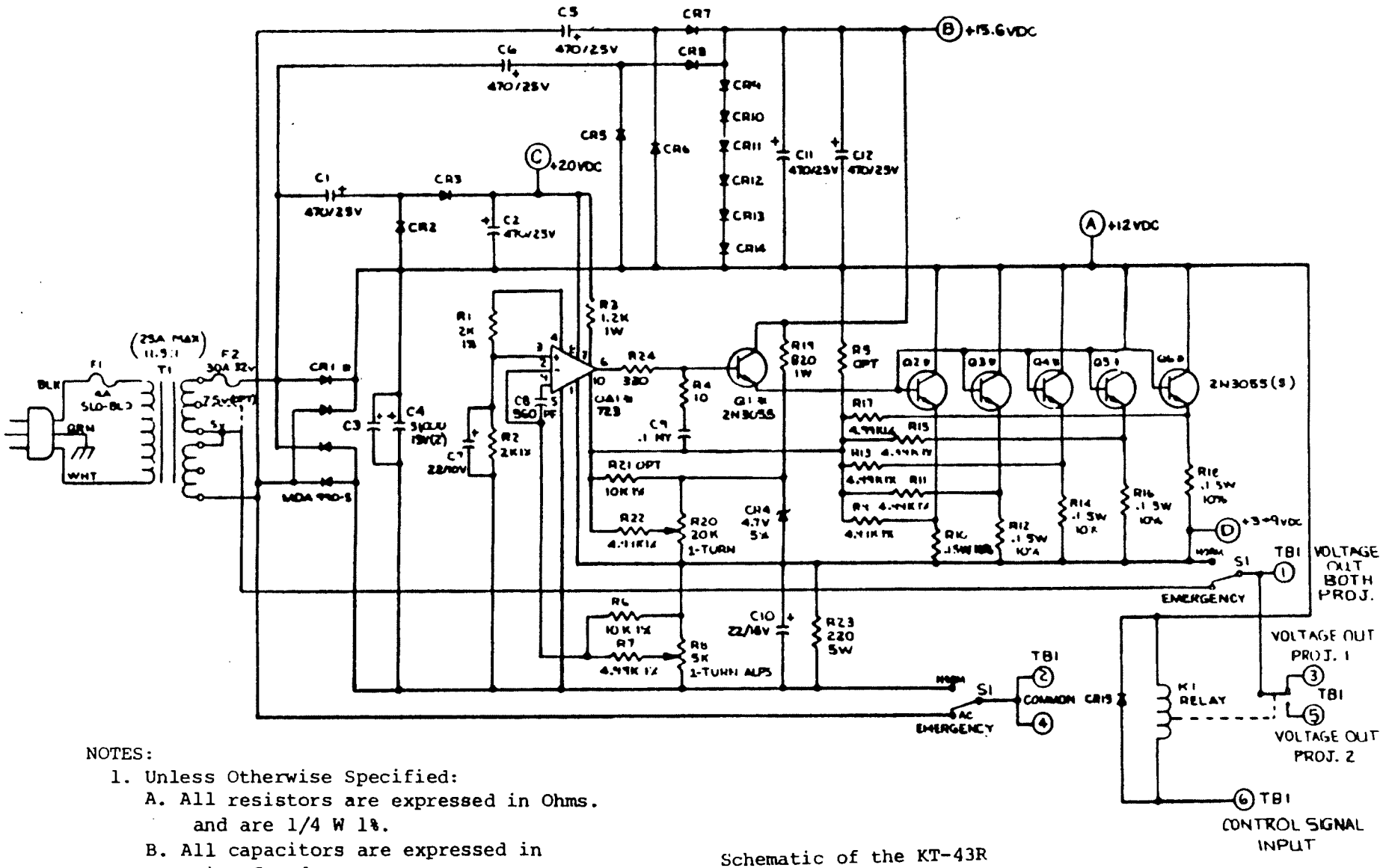
KT-43R Rear Panel

Figure 24



Flow Chart of the KT-43R

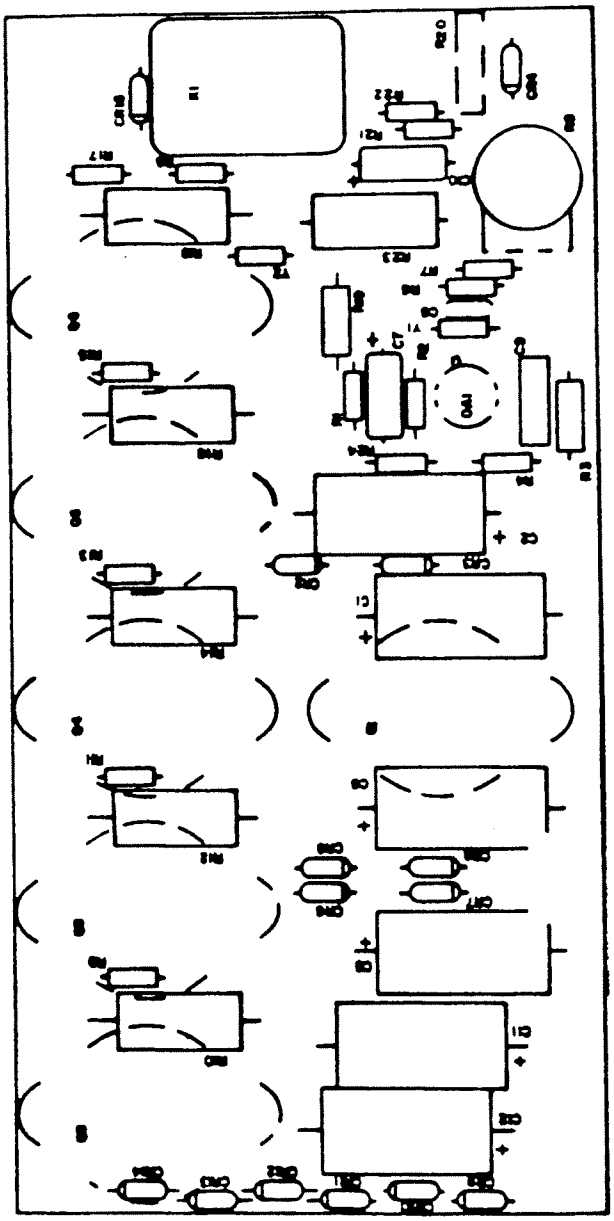
Figure 25



Schematic of the KT-43R

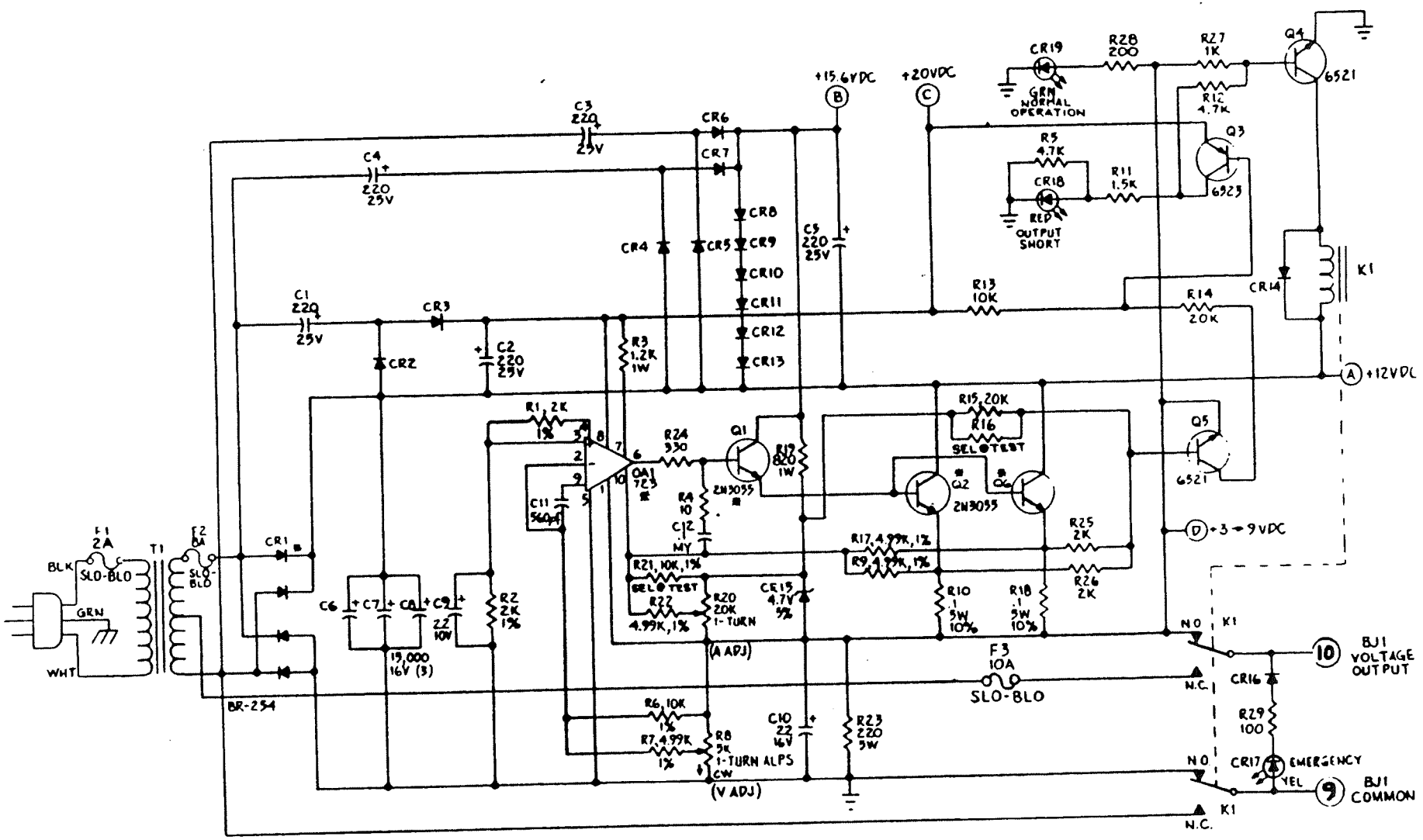
NOTES:

1. Unless Otherwise Specified:
   A. All resistors are expressed in Ohms. and are 1/4 W 1%.
   B. All capacitors are expressed in microfarads.
   c. All diodes are IN4003.
2. * indicates heatsink on device.
3. K1 relay shown de-energized.



Board Layout of the KT-43R

Figure 27



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   A. ALL RESISTORS ARE EXPRESSED IN OHMS AND ARE 1/4W 1%.
   B. ALL CAPACITORS ARE EXPRESSED IN MICROFARADS.
   C. ALL DIODES ARE IN4003.
2. * INDICATES HEATSINK ON DEVICE.
3. K1 RELAY SHOWN DE-ENERGIZED

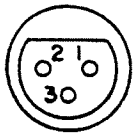
SCHEMATIC
EXCITER LAMP POWER SUPPLY, MODEL 1043

Figure 28

PIN 1 = GROUND = SHIELD

PIN 2 = LOW

PIN 3 = HIGH



FEMALE JACK

KT-90 Pin Assignment

Figure 29

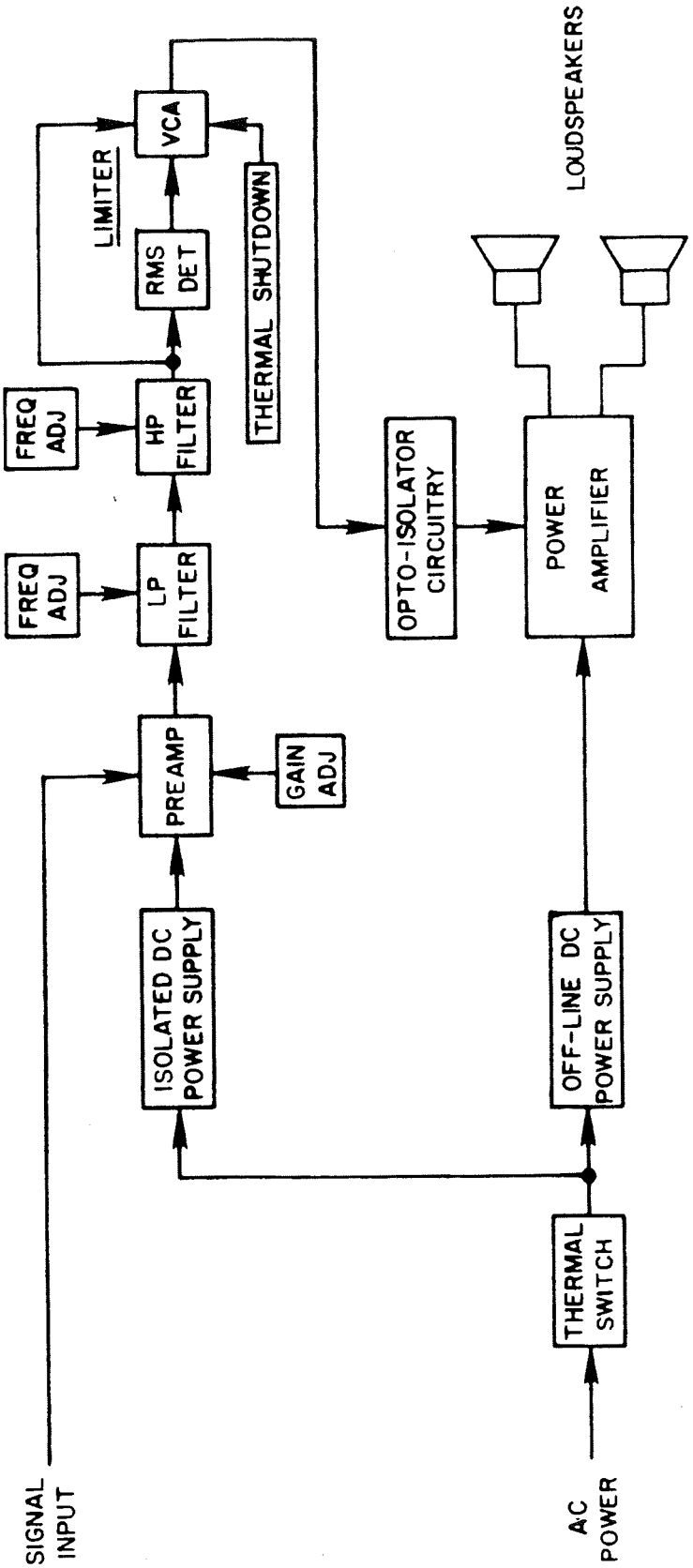
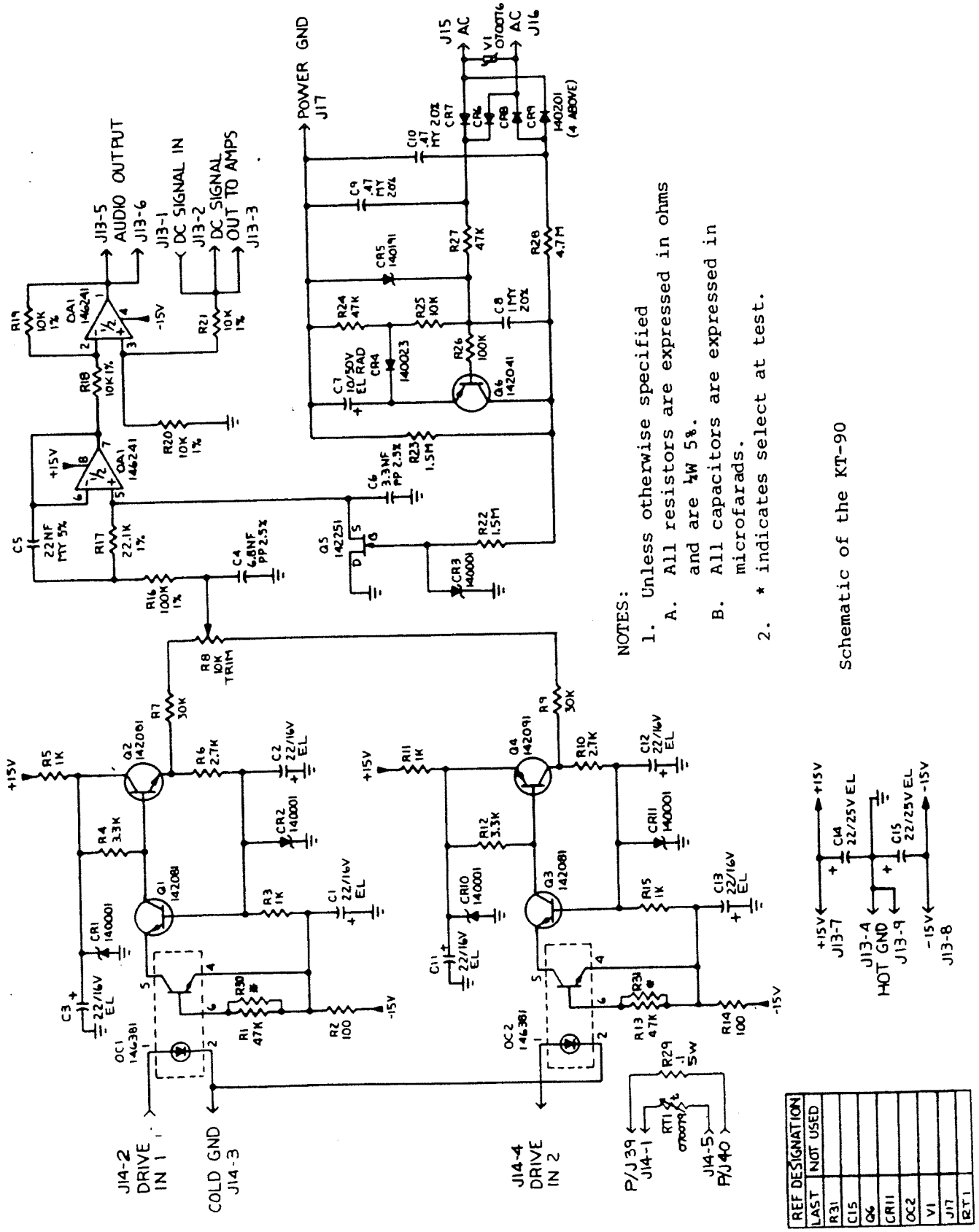


Figure 30

Flow Chart of the KT-90



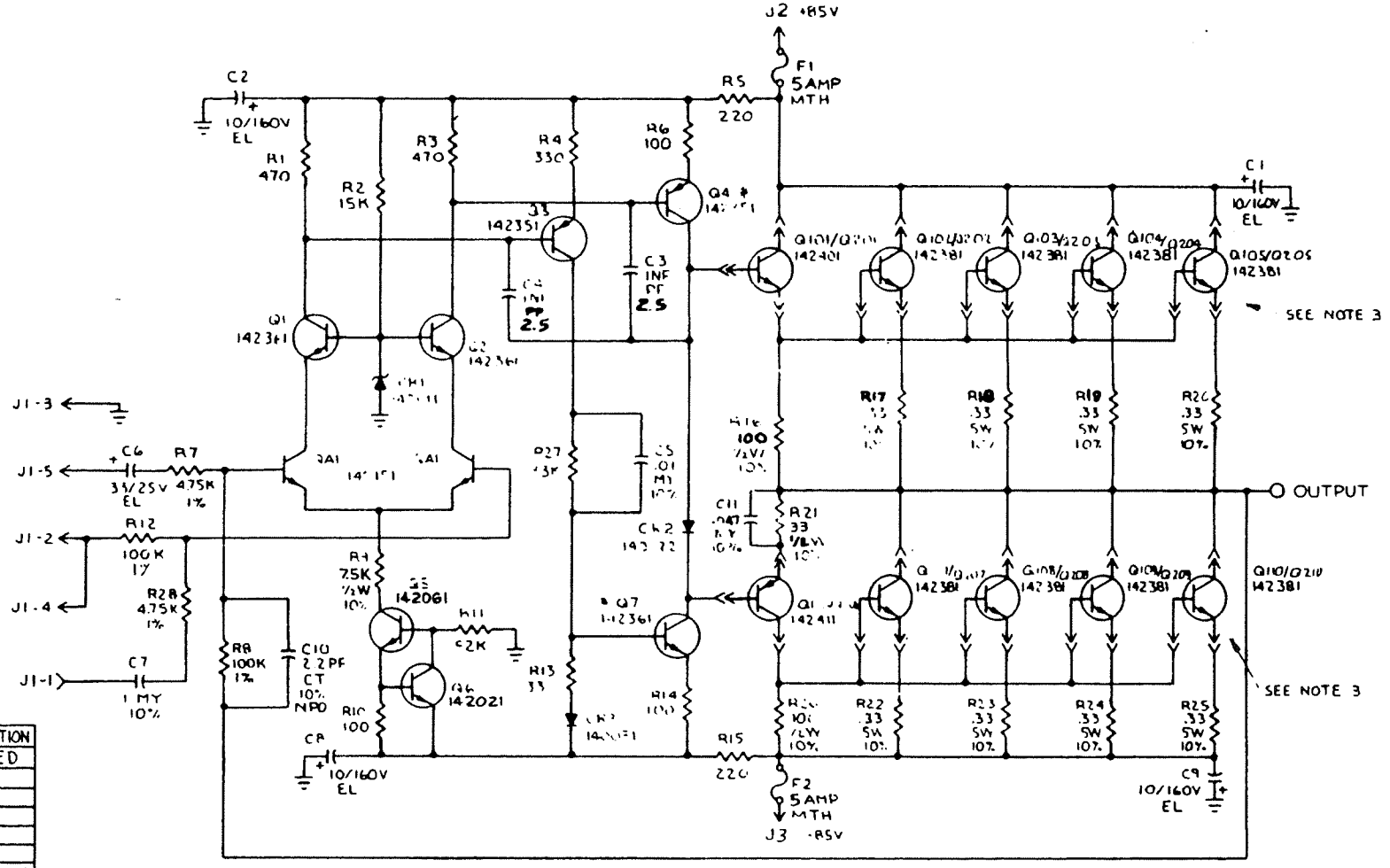
NOTES:

1. Unless otherwise specified
   A. All resistors are expressed in ohms and are ¼W 5%.
   B. All capacitors are expressed in microfarads.
2. * indicates select at test.

Schematic of the KT-90

REF DESIGNATION	
LAST	NOT USED
R31	
C15	
Q6	
CR11	
OC2	
V1	
J17	
RT1	

Figure 31



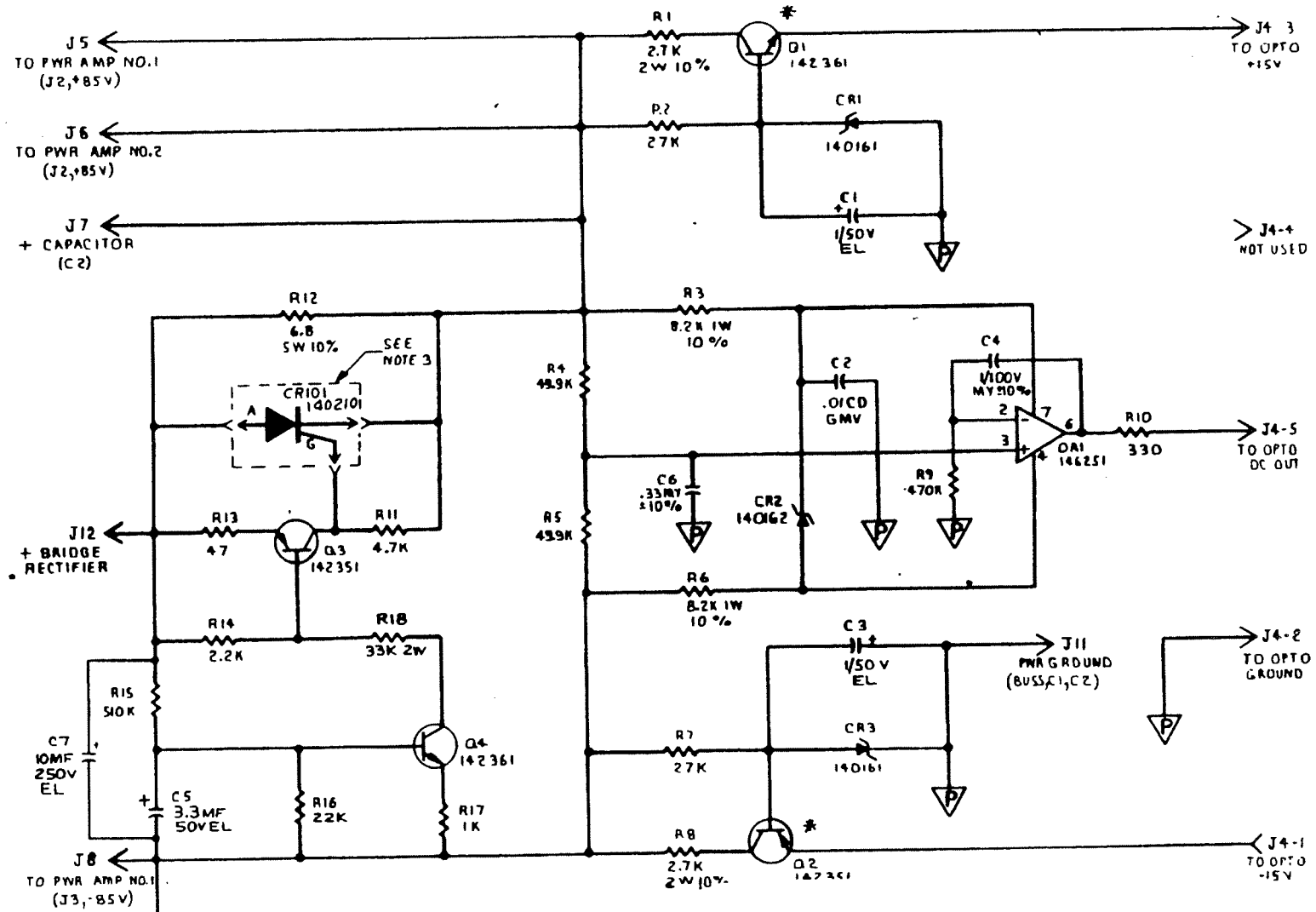
REF DESIGNATION	
LAST	NOT USED
R28	
C11	
Q7	
CR3	
QA1	
F2	
J3	
Q110	
Q210	

NOTES:

1. Unless otherwise specified:
   A. All resistors are expressed in ohms and are ½W 5%.
   B. All capacitors are expressed in microfarads.
2. * denotes heatsink on device.
3. Enclosed component areas mounted on tuning port, ref. assy# 380093 ref des used on right side of port for power amp board# 1, will be Q101 thru Q110. Ref des used on left side of port, for power amp board# 2, will be Q201 thru Q210.

Figure 32

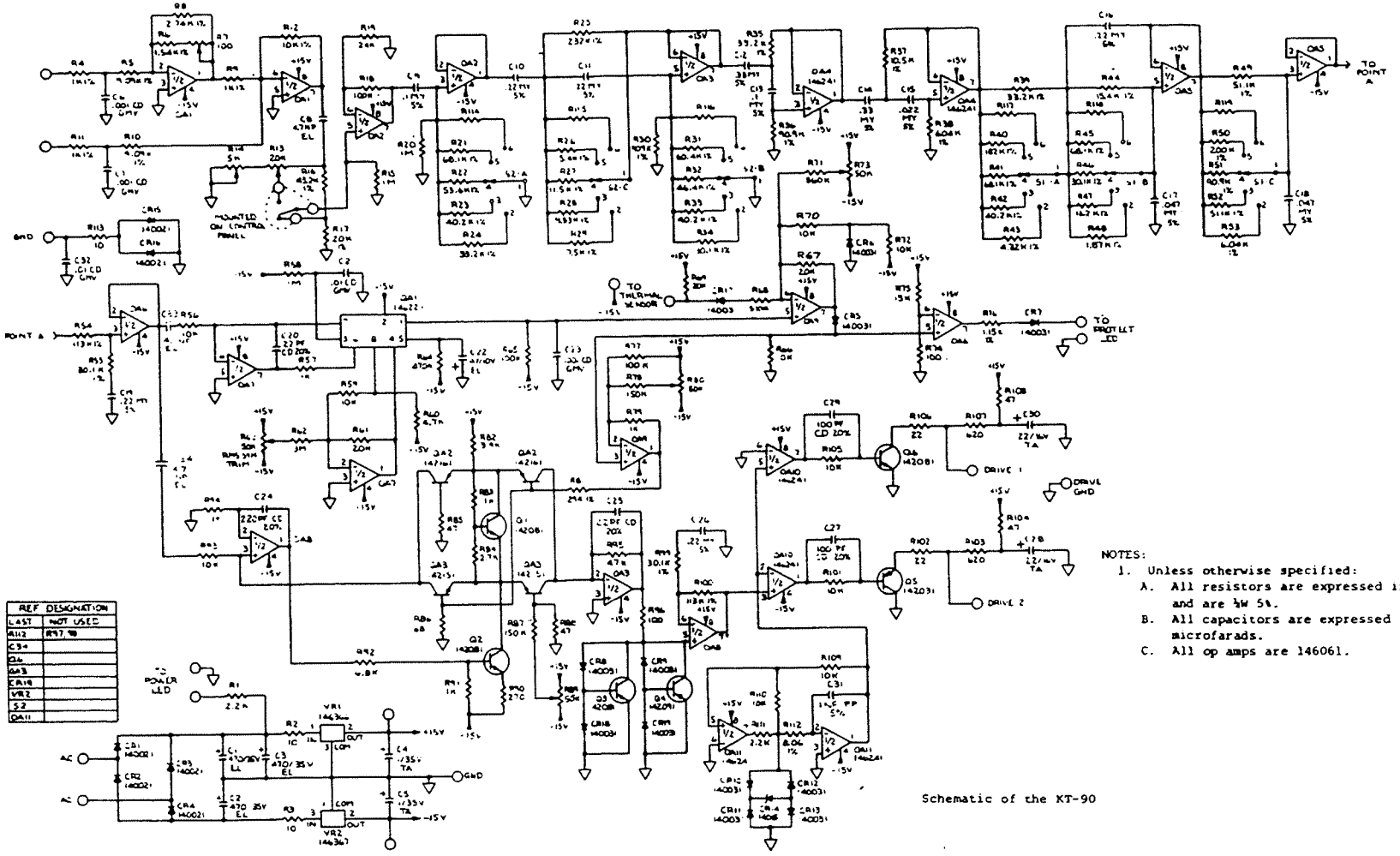
Schematic of the KT-90



NOTES:

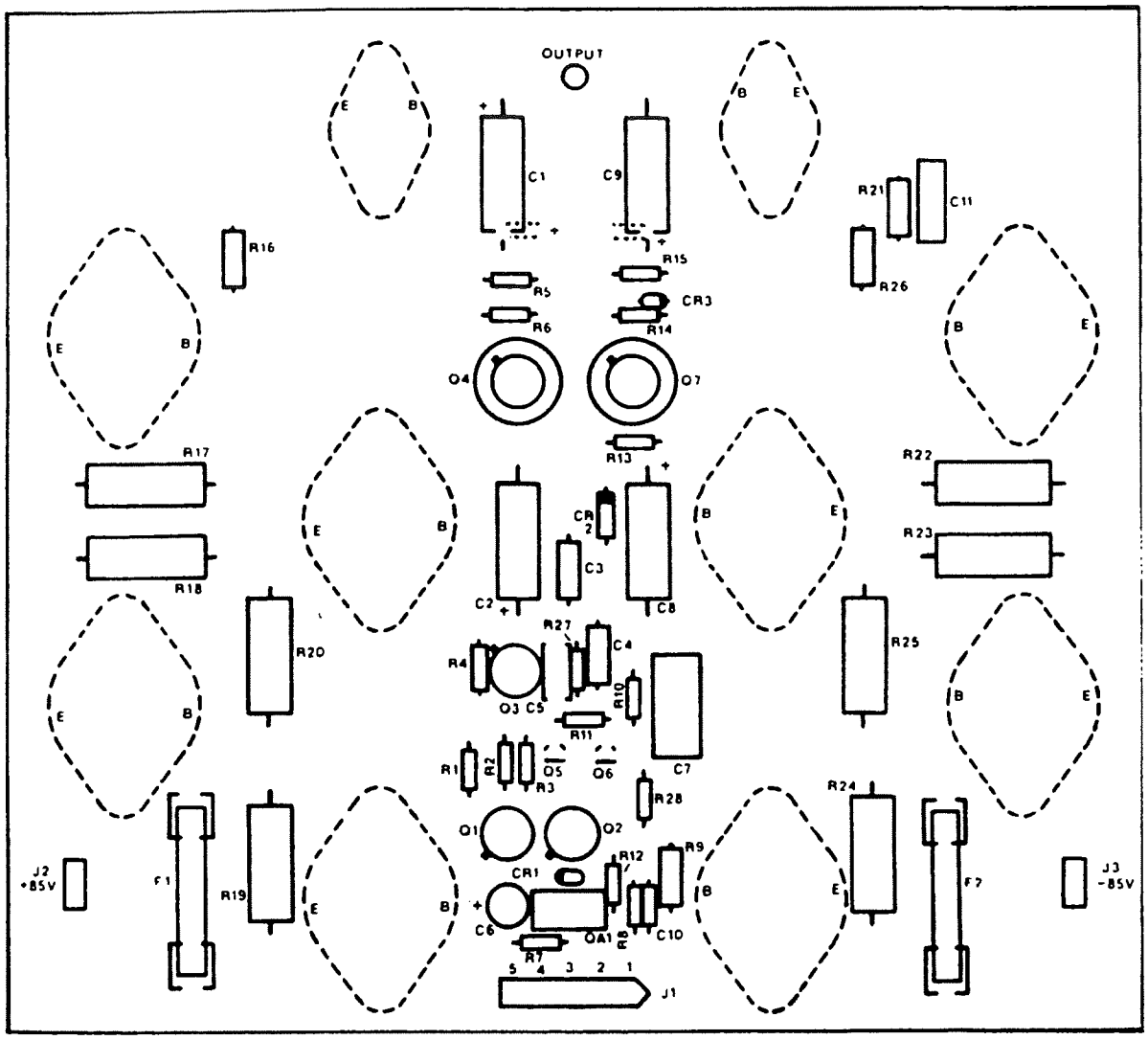
1. Unless otherwise specified:
   A. All resistors are expressed in ohms and are ¼W 5%.
   B. All capacitors are expressed in microfards.
2. *indicates heatsink on device.
3. Enclosed component(CR101) mounted on right side of tuning port.
   ref assy 380093

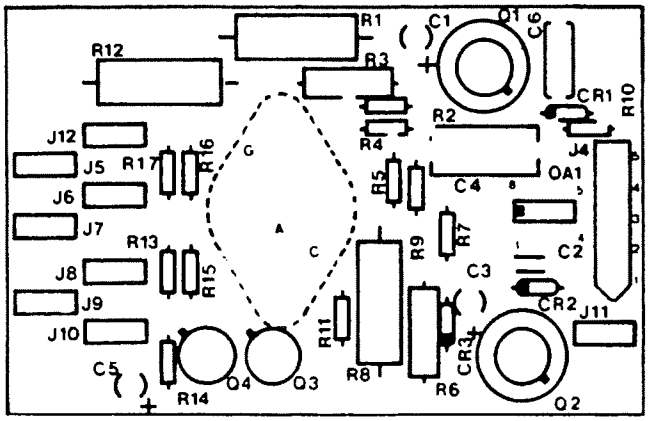
Figure 33 Schematic of the KT-90



Schematic of the KT-90

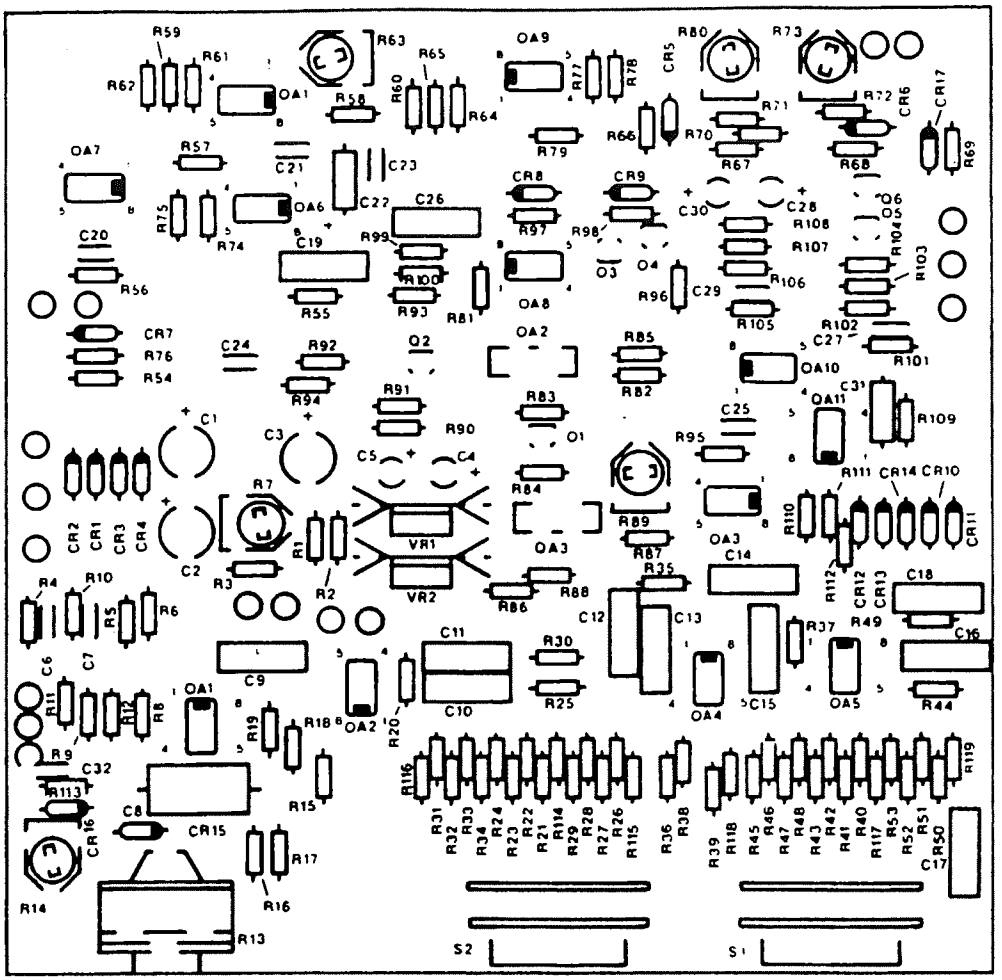
Figure 34

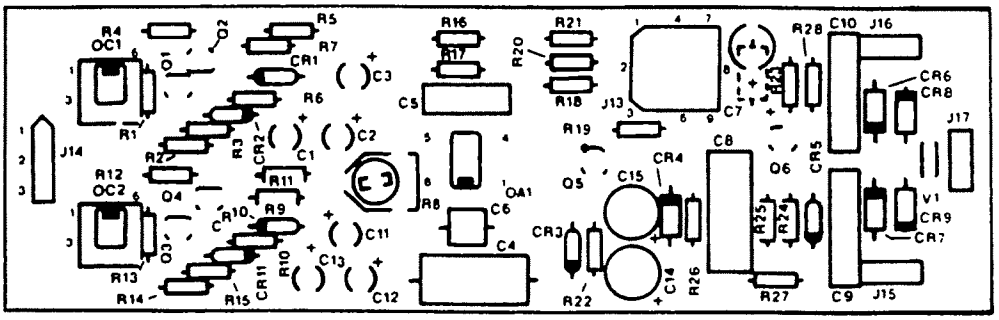




Board Layout of the KT-90

Figure 35





Board Layout of the KT-90