

ADCOM[®]

details you can hear

GFA-4404

CAR AUDIO POWER AMPLIFIER

SERVICE MANUAL

For Qualified Service Personnel Only

Welcome To ADCOM Car Audio

The ADCOM GFA-4000 series car amplifiers offer the consumer a new level of sound quality in the mobile environment. Audiophile sound quality is now unleashed to the streets in what ADCOM calls "*The Ultimate Power Trip*".

In servicing the GFA-4000 series amplifiers you will see the straight forward, bare bones, high quality construction, and attention to detail that has been engineered into this line of power amplifiers. You will see that most repairs are very straight forward, and easily located.

Attention to the hook-up of these amplifiers is essential, as the amplifier will not perform optimally if not configured properly. The biggest difference you will find in hook-up of these amplifiers is the input configuration. The GFA-4000 series uses a **Balanced Input** configuration. As you know this reduces noise coming into the amplifier on the input. For more information on the hook-up, and on the theory behind the **Balanced Input** configuration, please refer to the **Technical Details Manual**.

The GFA-4404 is a 40 watt per channel RMS amplifier into a 4 Ω load. The amplifier can be configured to run in a bridged mode, and is stable into a 1 Ω load. The input to the amplifier consists of two (2) XLR connectors, in a **Balanced Configuration**. There is one (1) XLR connector for channels A & B and one for channels C & D. The pin configuration for the XLR connector is: Pin 1 - Ground; Pin 2 - "+" Right Ch; Pin 3 - "-" Right Ch; Pin 4 - "+" Left Ch; Pin 5 - "-" Left Ch. The amplifiers with XLR cables are more effectively utilized when used with the GFI-4400/ 4600, they allow polarity inversion to be done with a pin jumper, and provide a conversion from unbalanced RCA's to balanced XLR connectors. The GFI is also useful for configuring in Mono-Stereo set-up's. The GFI-4400 provides balance line conversion and polarity selection. The GFI-4600 provides all the features available in the GFI-4400, as well as the addition of a two way crossover. In lieu of a GFI unit, the GFY-3 and GFY-4 cables may be used to configure the unit as desired. The GFY-3 is used for Mono bridging, while the GFY-4 is used for stereo operation. Refer to the **Technical Details Manual** for further information.

The GFA-4404 provides level controls for the positive input, these should be set at full during testing. When bridging the amplifier, the input is applied to the negative input of one channel (i.e. - Ch A), and the positive channel of the other channel (i.e. - Ch B). The Speaker (or load) is then put across the positive speaker terminals of channels A & B (i.e. - from Ch A's "+" to Ch B's "+").

Service Notes:

- ◇ The enclosed schematics are version 1.4, and include all current updates to the original design. If you encounter changes in the circuit on a unit you are servicing, please call **ADCOM Service**, at (908)390-1130, to find out if the changes are factory authorized, if the unit was modified by a third party, or if the unit is from a production run prior to the implementation of the printed updates.
- ◇ When replacing parts in the GFA-4000 series amplifiers, always use the same type, and rating.
- ◇ When replacing the MOSFET devices, use only the same type of devices removed. The MOSFET devices also **MUST** be matched in the output stages, and front end circuits. Use care as these are static sensitive devices, and require all special handling precautions associated with static sensitive devices.

Remember that **ADCOM Service** is available from 9:00 am to 4:00 pm for Inquires, or you can fax us at (908)390-9152.

This is preliminary service literature, and may change at any time without notice.

model GFA-4404

ultimate fidelity power amplifier

140W x 4 ch @ 1 Ohm

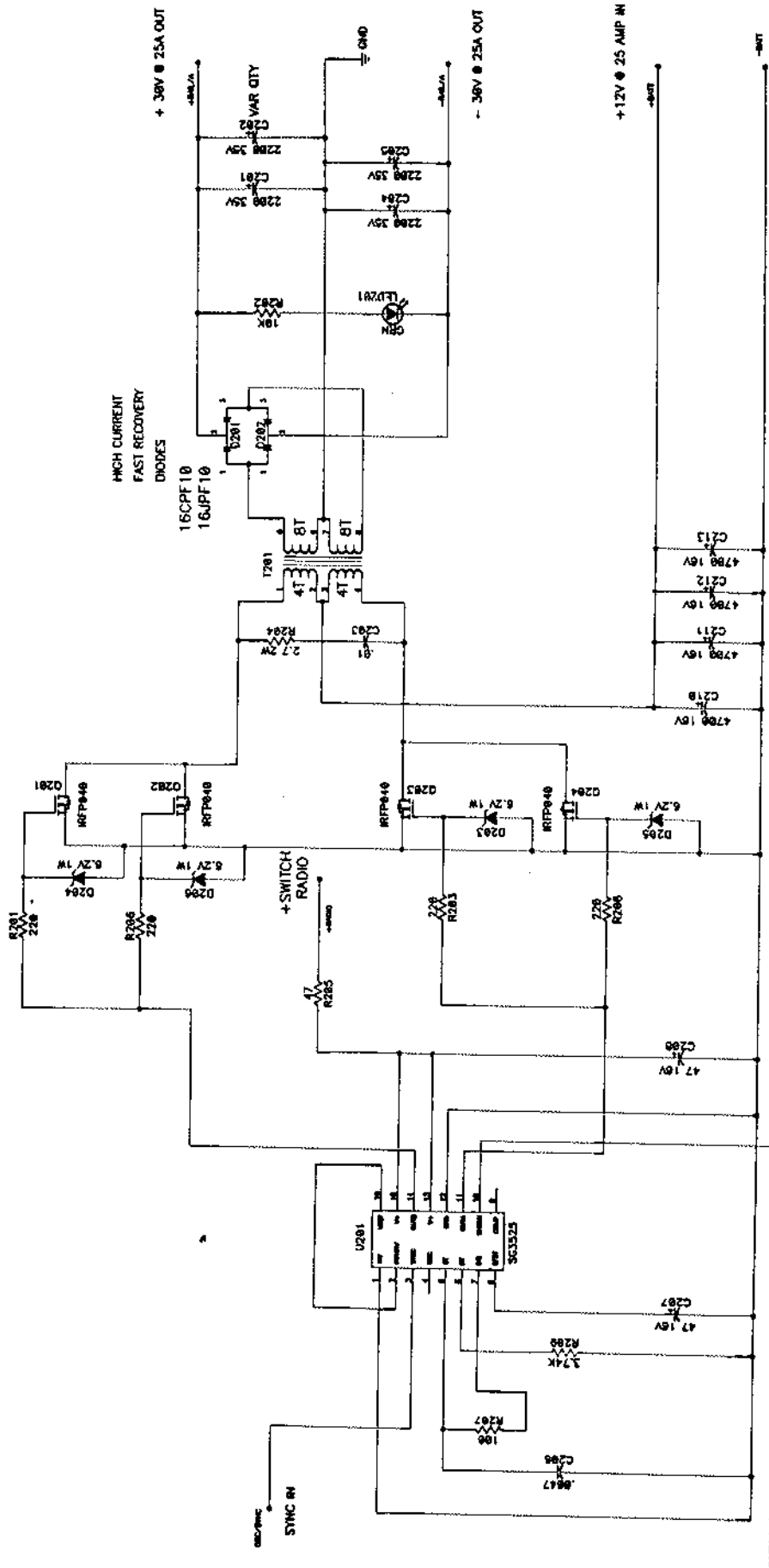
80W x 4 ch @ 2 Ohm @ .3% THD @ 1 kHz

40W x 4 ch @ 4 Ohm @ .1% THD @ 1 kHz

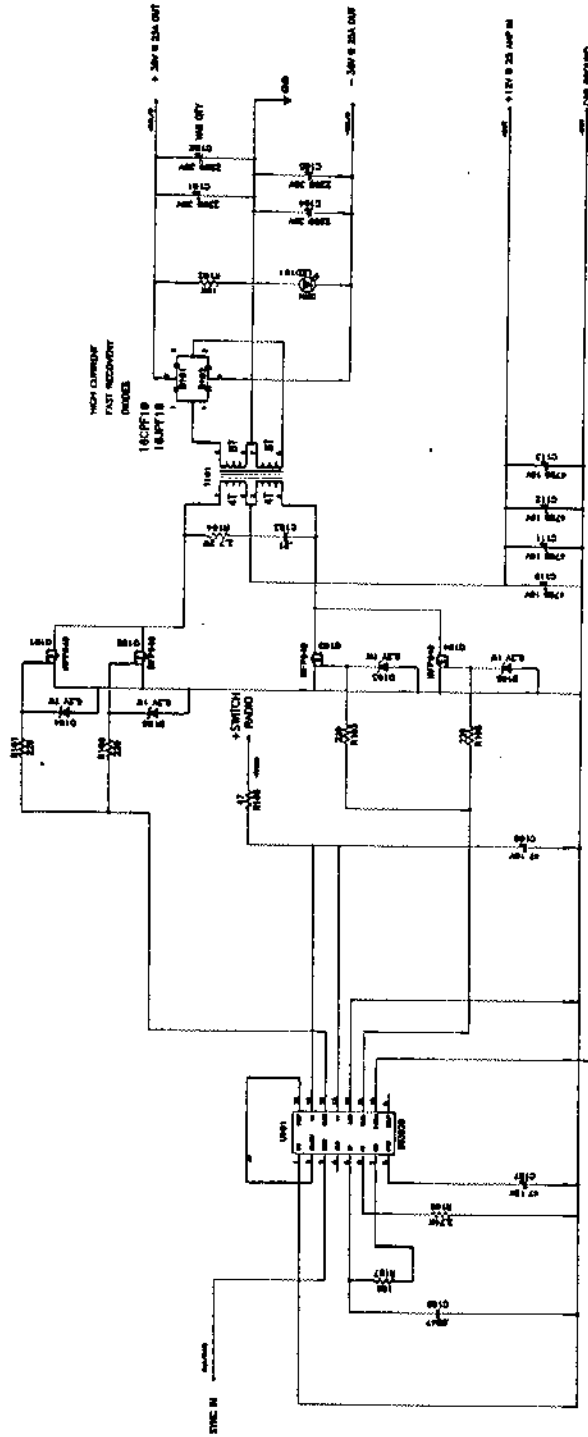
- 18 amps maximum output current
- Outputs: 16 - 150 watt MOSFET linear output devices with 6000 watts, 360 amps cumulative peak rating.
- Class A operation to MOSFETs. All gain stages up to the outputs are operated pure single ended (asymmetric) Class A, the purest operating mode.
- High bias output stages achieve greater linearity and smoother top end response without feedback.
- Completely discrete analog circuitry with pure MOSFET signal path. MOSFETs are preferred due to high overload trans-conductance characteristic, very high input impedance, and high speed, allowing for a circuitry design able to deliver very high currents at low distortion.
- MOSFETs used in the audio circuitry are completely characterized, with threshold characteristics matched to within <2% for output stage, and <1% for input stage devices.
- Ultra low feedback circuitry. Unlike most conventional designs, absolutely minimal gain circuitry is used for a direct and pure gain path, assuring rock solid performance under all conditions.
- Balanced inputs with professional XLR connectors.
- Thermostatically controlled fan cooling.
- Dual unregulated high current power supplies.
- 60,000µf power supply capacitance.
- 700 watt power transformers.
- Dimensions: 2.25"H x 9.75"W x 24.75"L

Common Amplifier Features:

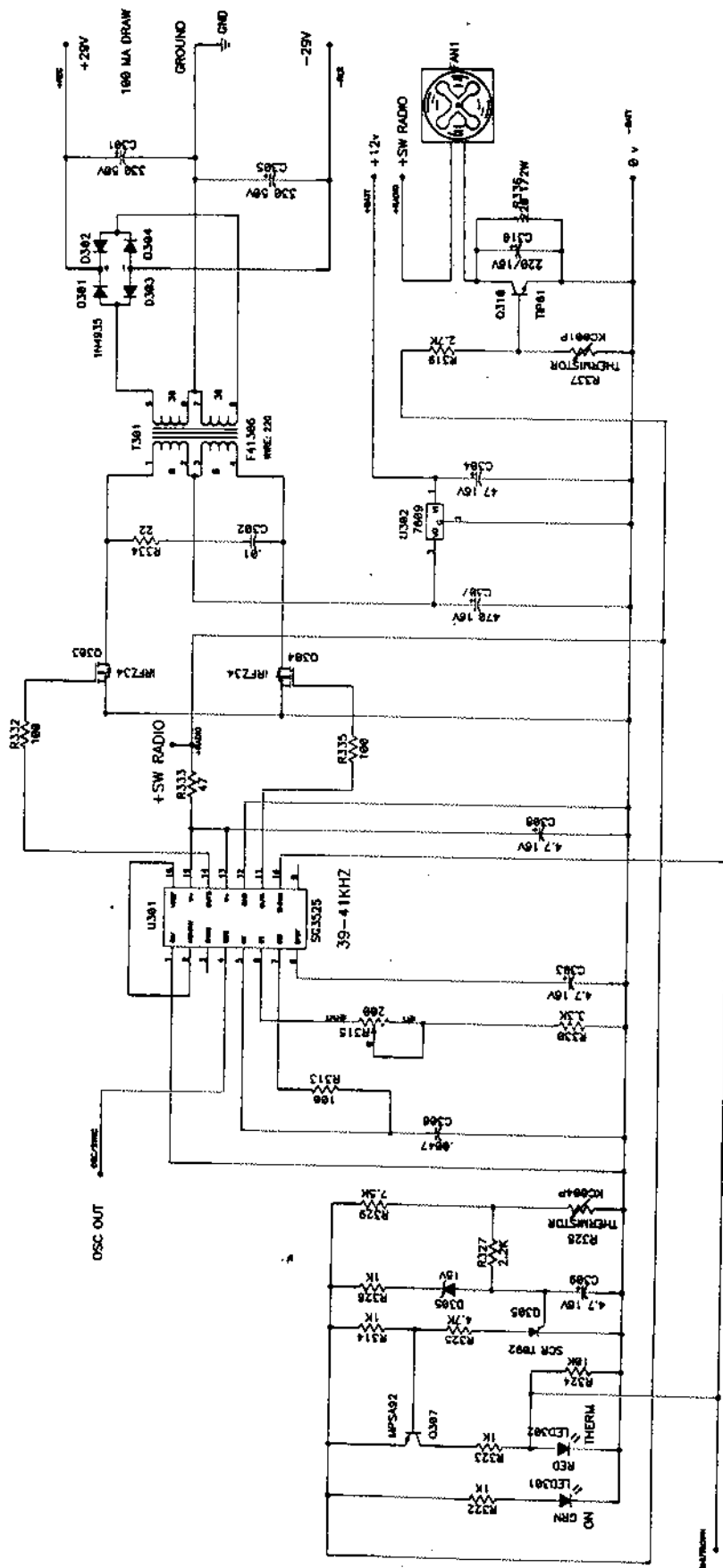
- **Balanced input option for greater noise rejection, music clarity.**
- **Easily configurable to mono/stereo (MoSt™) by inverting input and output signals.**
- **Segmented topology places power supplies and audio sections on opposite sides of the PC board to reduce radiated noise interference. The heat sink tunnel is mounted in the center of the PC board, presenting a physical barrier between power supplies and audio sections.**
- **Fan cooling through center tunnel heat sink provides excellent cooling, allows mounting in virtually any space.**
- **Perforated side panels (Free-Flow chassis) allow more efficient cooling of all components, not just those attached to the heat sink.**
- **Molded high temperature composite end panels isolate amplifier chassis from car ground, minimizing chance of ground loops, as well as capturing and insulating input and output connectors.**
- **All connections are along one end panel for ease of installation.**
- **Power supply switching frequency may be "tuned" to avoid interference with radio stations.**
- **Front end supplies are closely regulated for low distortion, while output supplies are "free running" for wide dynamic range.**
- **Oversized power connections accommodate up to 4AWG power and ground cable.**
- **Heavy duty speaker connections accommodate up to 8AWG speaker cable.**
- **Huge power supplies to allow for high current at impedances below 1 Ohm.**
- **All major chassis parts made of extruded aluminum for highest quality construction.**



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C	SUPPLY A (RAW)		
Filename	Drawn by	Sheet 1 of 7	

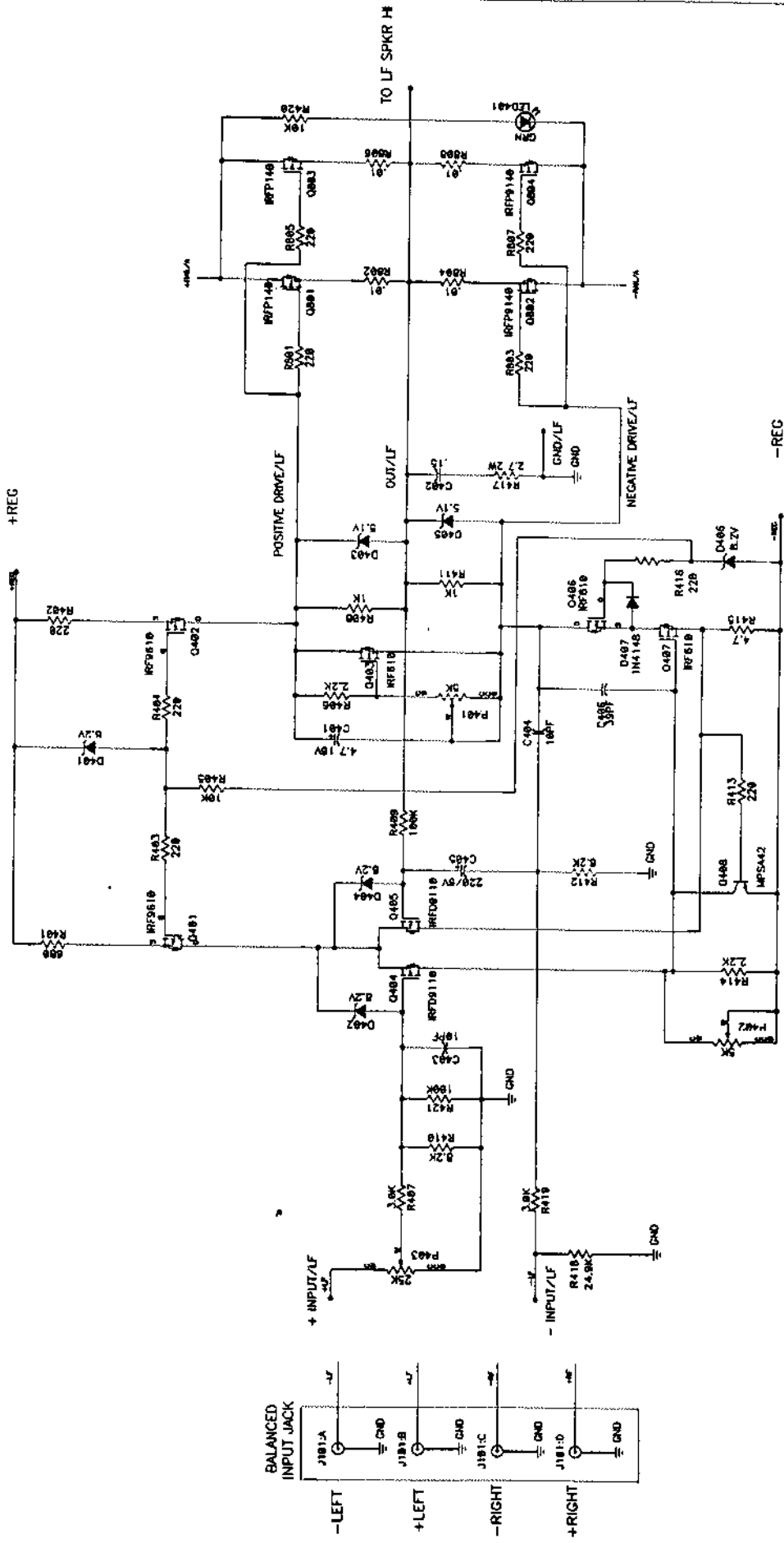


The MAIN SUPPLY B - 6FA-4401	
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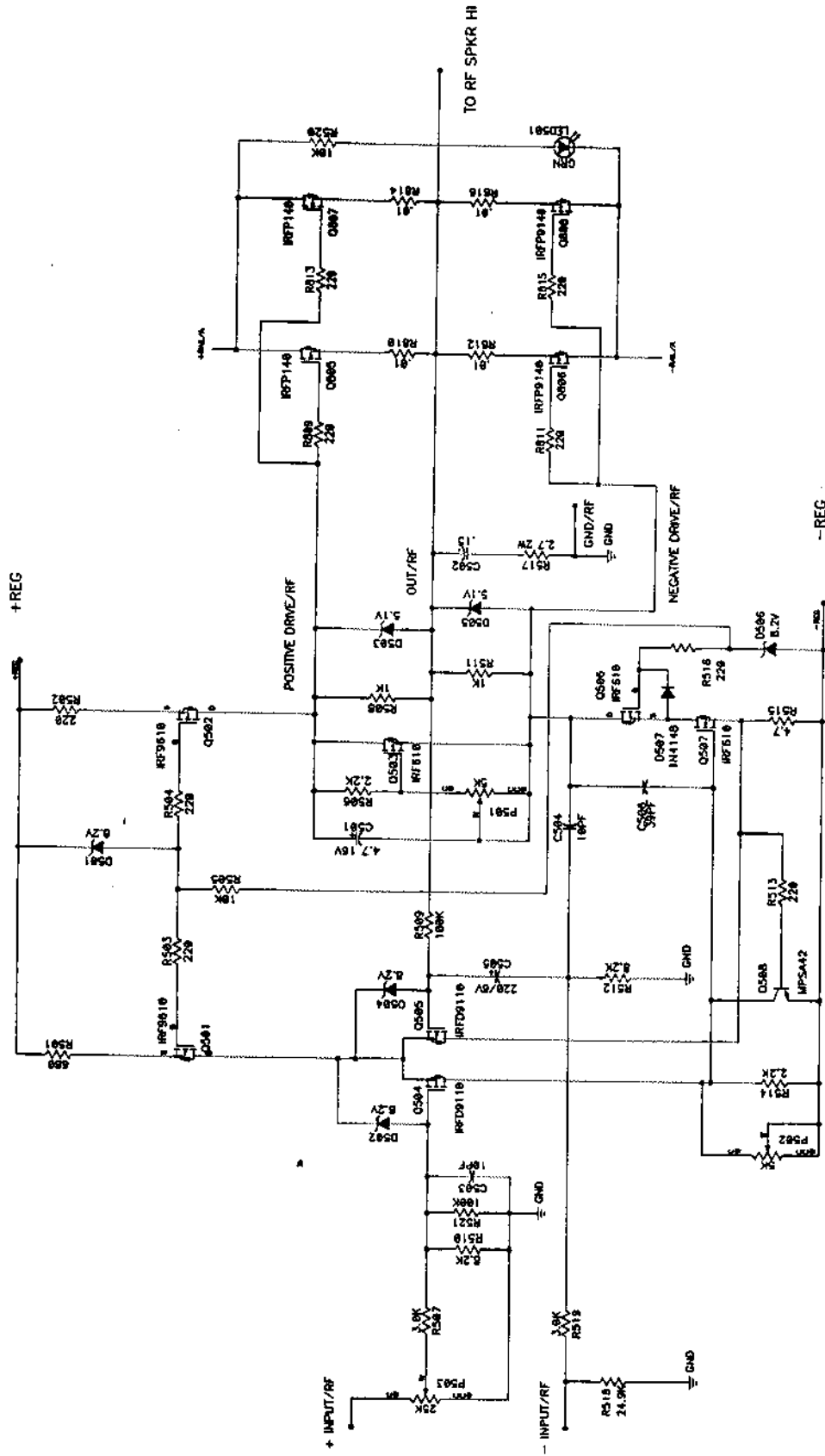


TO SHUTDOWN PINS OF
OTHER 3525 CHIPS

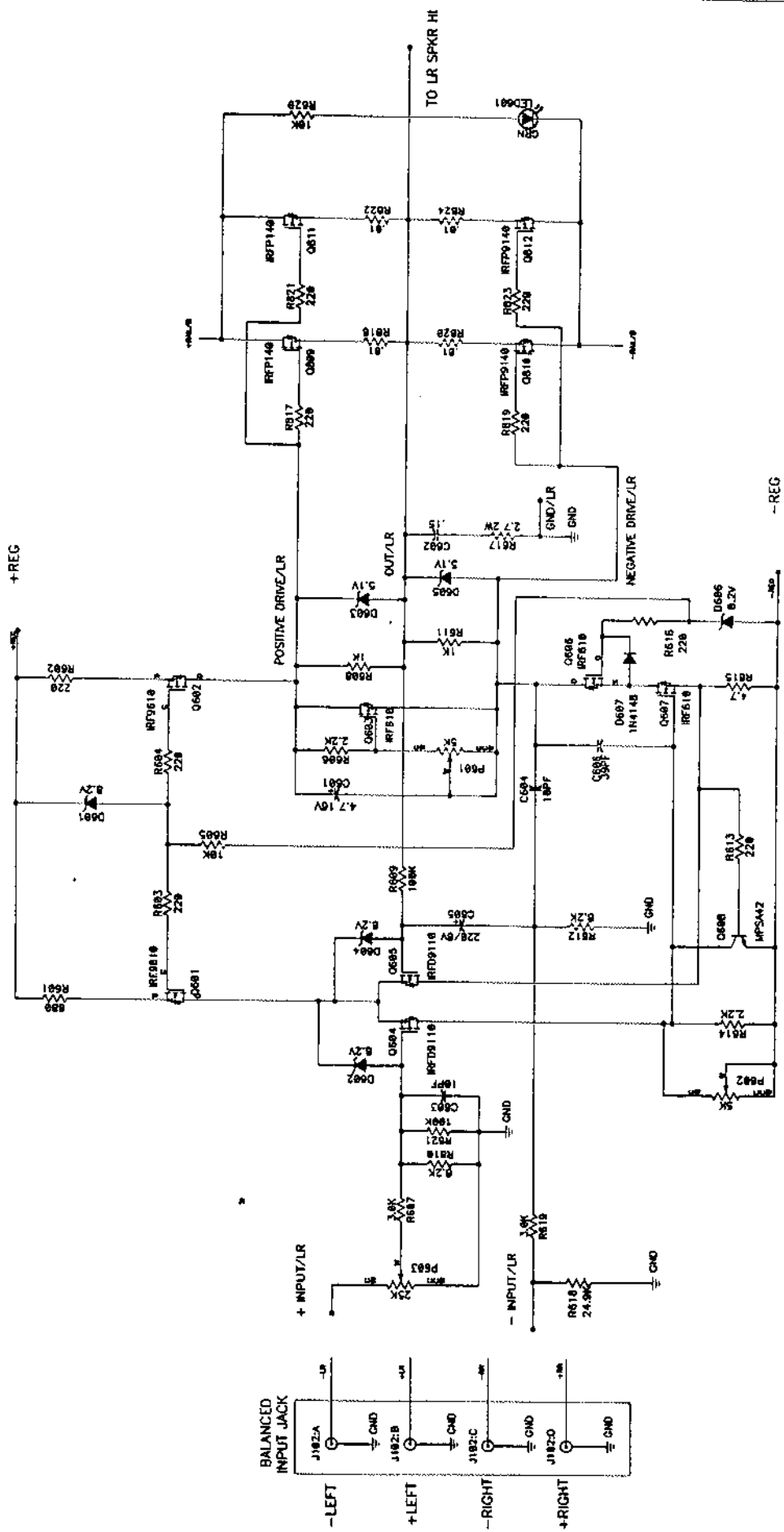
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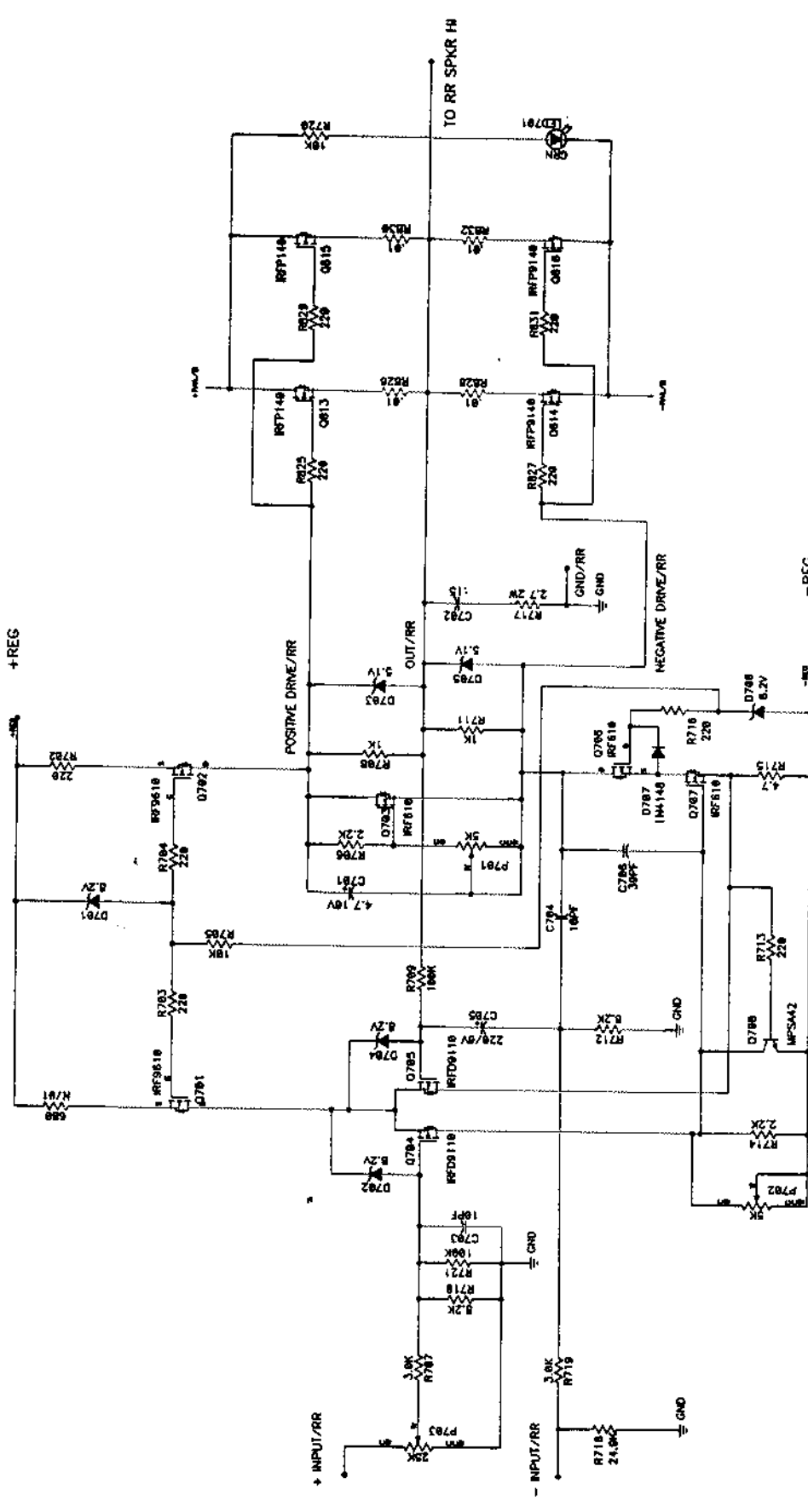
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Title		GFA-4404	
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C	CH B		(RIGHT FRONT)
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		Sheet 5 of 7	



Title		GFA-4404	
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Filename		Sheet 6 of 7	



Title		GFA-44404	
Size	Number	Date	Rev
C	C.H.D. (RIGHT REAR)		
Filename		Sheet 7 of 7	