



Table of Contents

Introduction 3

Important Notes on Servicing 3

Ordering Replacement Parts 3

Block Diagrams 4

Start up Procedure 5

Protection Modes and Indicators 6

Troubleshooting Guide 7

Output Transistors Testing and Replacement 8

Calibrations and Adjustments 9

Parts List 10

Updates 11

Fuses 12

Voltage Change 12

Remote Interface Information 13

Schematics 14

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Introduction

**Please read this manual carefully before commencing servicing!
Only qualified and authorized personnel should attempt to service this product.**



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions.

Classé has a global product support network. For product assistance or to order replacement parts please contact your nearest service center always quoting the unit serial number.

North America

Phone: (978) 664-2870 E-mail: classe@bwgroupusa.com

Europe

Phone: 44 (0) 1903 221 700 E-mail: classe@bwgroup.com

Asia

Phone: (852) 2790 8903 E-mail: classe@bwgroup.hk

Rest of the World

Phone: (514) 636-6384 E-mail: cservice@classeaudio.com

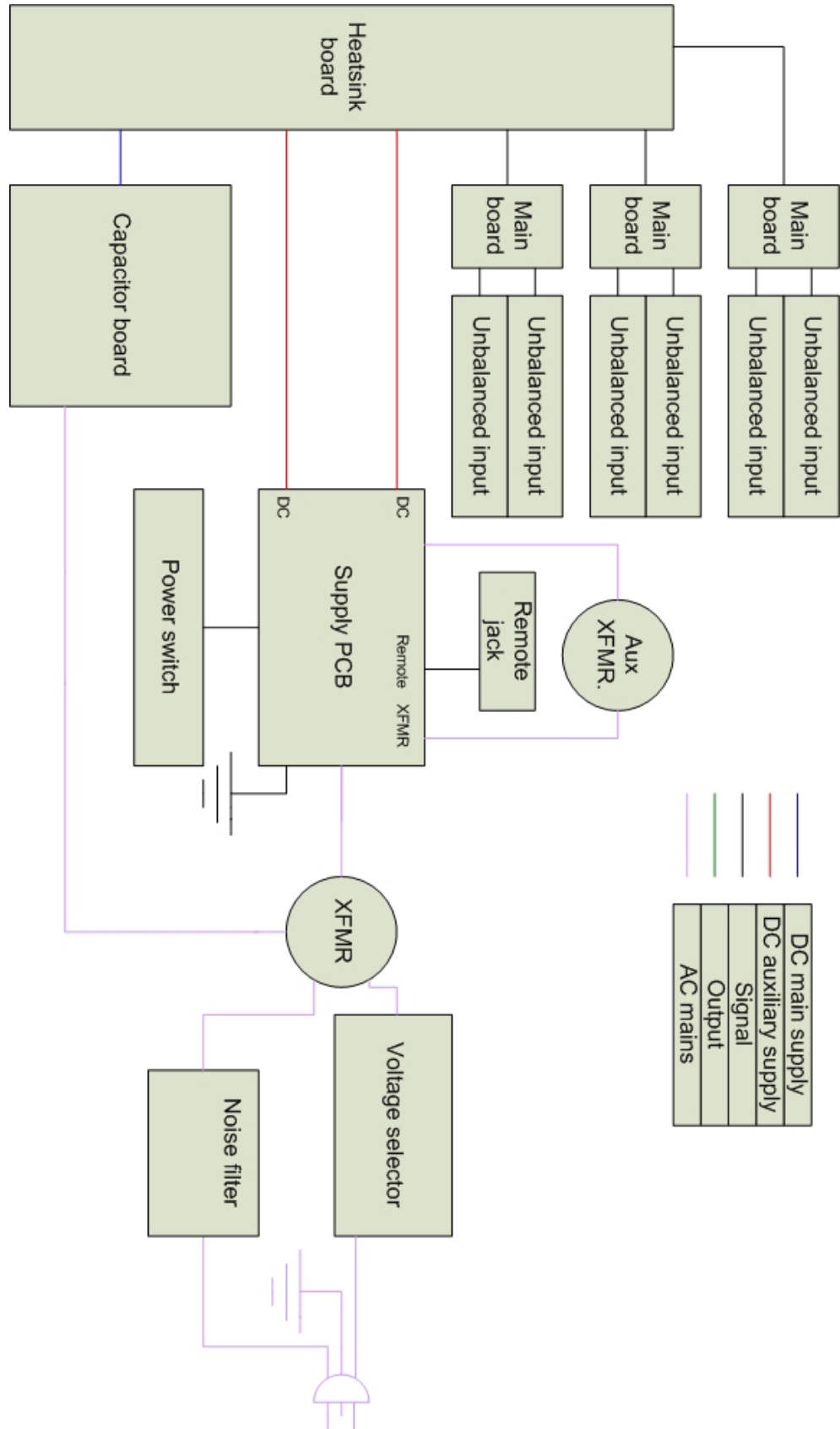
Important Notes on Servicing

1. ALWAYS observe ESD precautions when handling electronic modules or PCBAs.
2. NEVER exchange boards with a different revision number, unless authorized by Classé.
3. ALWAYS use Classé original replacement parts. The use of generic parts may void the warranty of the unit.

Ordering Replacement Parts

There may be a delay in processing incomplete requests. Please be sure to include all required information. Remember to quote the serial number of the unit on all replacement part orders and the Classé order number when returning defective parts for credit.

Block diagrams



Start Up Procedure

When receiving a unit, an assiduous visual inspection must be performed. Do not connect the unit without analysing the symptoms reported by the customer and the results of the inspection.

Using the troubleshooting guide, find the problem and proceed to the repair. Once this step is done, follow these steps, known as the start-up procedure, to ensure that everything in the unit is in working condition.

1. Proceed with a post repair visual inspection. Take the time to check if every wire is reconnected properly, every screw is bolted on, no soldering and/or metal residues lying in the unit, every fuse has been replaced, etc.
2. Turn the bias trim pots, counter clockwise for channels 2, 4, 6 and clockwise for channels 1, 3, 5, until a click is heard.
3. Since there is no soft-start sequence of the CAV-75, it is impossible to us a bypass to perform a slow start up.
4. Connect Main supply, and turn on the unit.
5. If one or more supply are not within specifications, return to the troubleshooting guide.
6. If every supply is within specifications, report to calibration and adjusments to adjust bias and DC offset. Note that bias can be adjusted to 14mV, and the following tests can be performed before the unit is send to the burn-in bench for a 24 hours warm-up.
7. Connect the unit to a load, and to a source using single ended inputs.
8. Perform a test with a 200Hz, a 2kHz and a 20kHz tone, both sinus wave and square wave. Check the output with a oscilloscope, on 4 ohms and 8 ohms loads. Take special cares about oscillation and phase correlation between channels.
9. Connect the unit to a small speaker, and short the input. Check for any noise.
10. Put the unit on a burn-in bench, and let it sit for 24 hours, then readjust bias. Let the unit on the burn-in bench for another 72 hours.
11. Redo steps 7 to 11 before shipping to the customer.

Protection Modes and Indicators

The front LED shows the status of the amplifier (ON or OFF). Unlike other Classé amplifiers, when starting up a CAV75, the front LED will not show a flashing pattern, since there is no soft start sequence. The only protection available on a CAV75 consists of rail and mosfet fuses. If there is a fault, one or more fuses will blow, showing a faulty component. The technician will first need to identify and cure the cause of failure (please report to troubleshooting guide). When the cause has been identified, disconnect the unit from the system including the AC power. Remove the top cover and look for damaged or burned components. If no other components than the fuses appear to be damaged, the technician can then replace the broken fuses with the same value and rating (please report to fuses section). The fuses are located on the capacitor board. When replacing fuses, please make sure that the fuse holder are holding the fuses very tightly. A loose fuse holder can translate into distortion on top of the signal.

Troubleshooting Guide

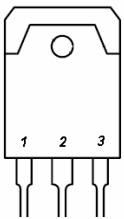
| Symptom | Possible cause |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit won't turn on | Check connections; Check fuses; Check relays; Check power supply circuits (positive rail, negative rail, Mosfet supply). |
| Smoked and/or burned components | Check for short between components and ground; Check output transistors; Check output relays; Check power supply circuits (positive rail, negative rail, Mosfet supply). |
| Blown fuses | Check for short between fuse and ground; Check power supply circuits (positive rail, negative rail, Mosfet supply). |
| No output | Check connexions; Check output relays; Check power supply circuits (positive rail, negative rail, Mosfet supply); Check output transistors. |
| Unit turn into protection | Check for smoked and/or burned components; Check power supply circuits (positive rail, negative rail, Mosfet supply); Check source and load; Check protection circuit; Check sensor wires between sensor PCB and control PCB; Check outputs transistors and Mosfet drivers. |
| Excessive buzz and/or hum | Check electrical lines; Check for a ground loop in the system. |
| Oscillation | Check source; Check capacitors on main board; Check 4.7Ω resistor. |
| Intermittent signal | Check connections; Replace shield wires. |

Output Transistors Testing and Replacement



PLEASE NOTE THAT THESE TESTS ARE ONLY EFFECTIVE ON BIPOLAR TRANSISTORS. DO NOT PERFORM THESE TESTS ON MOSFET DEVICES, AS THEY ARE LIKELY TO BECOME SHORT DURING THE TEST.

You should check all pin combinations, as there is a chance that only one side of the transistor is short. When replacing output transistors, the technician should first disconnect both outputs and main board to check if the blown outputs were caused by a faulty component on the amplifier's base. Blown output transistors should be replaced by kits, not individually. These kits contain matched transistors for both rails of one channel. When replacing blown output transistors, you must also replace positive and negative Mosfet drivers and bias transistor. Carefully inspect 4.7Ω resistor and replace if necessary. Replace any burnt component or board.



Pins : 1 Base
 2 Collector
 3 Emitter

You should have these results, if the transistor is good.

2SC3263 (NPN)

| Positive lead | Negative lead | Result |
|---------------|---------------|------------|
| B | C | Conductive |
| B | E | Conductive |
| C | B | Infinite |
| C | E | Infinite |
| E | B | Infinite |
| E | C | Infinite |

2SA1294 (PNP)

| Positive lead | Negative lead | Result |
|---------------|---------------|------------|
| B | C | Infinite |
| B | E | Infinite |
| C | B | Conductive |
| C | E | Infinite |
| E | B | Conductive |
| E | C | Infinite |

Calibrations and Adjustments

Bias adjustment:

Note: Bias adjustment should be made without any load connected to the amplifier's output, and no signal connected to the amplifier's input.

1. Since it is impossible to connect a multimeter to both emitter's resistors in order to measure and adjust bias without disassembling the heatsink from the chassis, we provided a test point to ease the bias procedure. It is located near the bias trimpot.
2. Connect the positive probe of a millivoltmeter to the test point and the negative probe to the positive speaker post of the channel to be adjusted.
3. Turn channel 2, 4, 6 trimpots counterclockwise and channel 1, 3, 5 trimpots clockwise until it reaches 0Ω . A click should be heard.
4. Turn on amplifier, and let it warm up for 15 minutes on idle.
5. Adjust trimpot to get a 14mV reading.
6. Let the amplifier warm up for a 24 hours period with signal and load.
7. Remove signal and load, and reconnect the multimeter.
8. Readjust to 20mV.

DC offset:

Note: DC offset adjustment should be made without any load connected to the amplifier's output, and no signal connected to the amplifier's input.

On these units, DC offset can't be adjusted. Measure DC offset using a voltmeter connected to the output posts, scale setted to mV. DC offset should be less than 10mV.

Parts List

This is not a detailed part list. It is a list of major chassis parts and PCBs. If you need to order a specific part, please contact Classe Audio with the part location, PCB number, and model and serial number of the unit. If you need a complete PCB, please replace the (x) in the Classe part number with the revision number printed on the board.

| Parts | Description | Classe part number |
|-------|----------------------------|--------------------|
| B01CX | Complete PCB, power switch | B01CXR(x) |
| B01GX | Complete PCB, filter | B01GXR(x) |
| B0D3X | Complete PCB, capacitor | B0D3XR(x) |
| B0D1X | Complete PCB, heatsink | B0D1XR(x) |
| B0D4X | Complete PCB, supply | B0D4XR(x) |
| B0D2X | Complete PCB, amplifier | B0D2XR(x) |
| B01DX | Complete PCB, remote | B01DXR(x) |

Updates

1. On board B0D1X (3 PCBs), replace R110 and R210 with Classe part number A211-1308.

Fuses



EXTRA PRECAUTIONS SHOULD BE TAKEN WHEN REPAIRING, MODIFYING, OR TROUBLESHOOTING IN THE POWER SUPPLY AREA. UNIT MUST BE DISCONNECT FROM MAIN SOURCE AND CAPACITORS MUST BE DISCHARGED USING A 100W INCANDESCENT BULB.



WHEN REPLACING FUSES, PLEASE MAKE SURE THAT THE FUSE HOLDERS ARE HOLDING THE FUSES VERY TIGHTLY. A LOOSE FUSE HOLDER CAN TRANSLATE INTO DISTORTION ON TOP OF THE SIGNAL.

Main fuses:

For 100 – 120v units: 6A slo-blo, Classe part number MDL-6A

For 220 – 240v units: 4A slo-blo, Classe part number MDL-4A

The main fuse is located at the back of the unit, on the rear panel.

Control board fuse: 0.50A, Classe part number 225.500

The control board fuse is located on top of the supply board (B0D4X)

Mosfet fuses: 0.75A, Classe part number 225.750

The Mosfet fuses are located on top of the capacitors board (B0D3X)

Rail fuses: 3.15A, Classe part number GDB-3.15A

The rail fuses are located on top of the capacitors board (B0D3X)

Voltage Change



EXTRA PRECAUTIONS SHOULD BE TAKEN WHEN REPAIRING, MODIFYING, OR TROUBLESHOOTING IN THE POWER SUPPLY AREA. UNIT MUST BE DISCONNECT FROM MAIN SOURCE AND CAPACITORS MUST BE DISCHARGED USING A 100W INCANDESCENT BULB.

1. Set the jumper position according to the table below.
2. Replace the varistor, according to new line voltage, following Classe’s recommendations. If varistor is not available, remove old varistor and leave it empty.

Jumper positions, main transformer

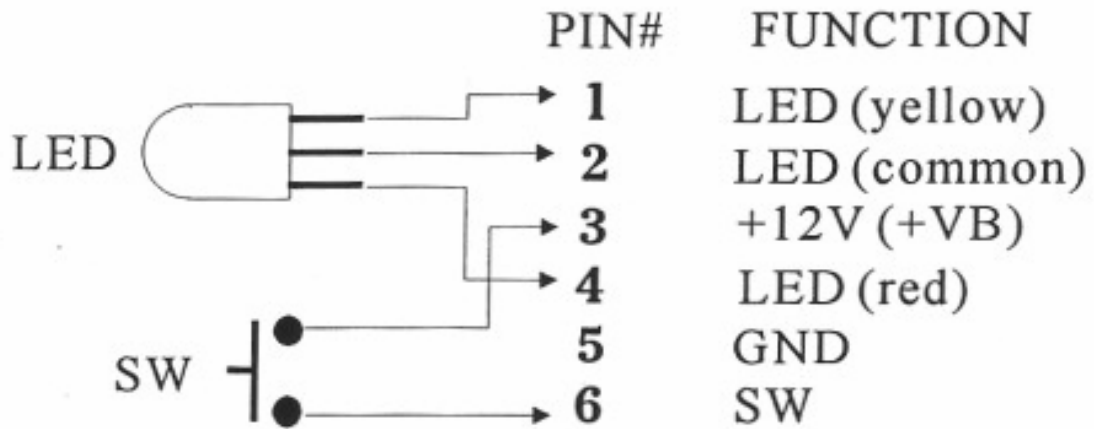
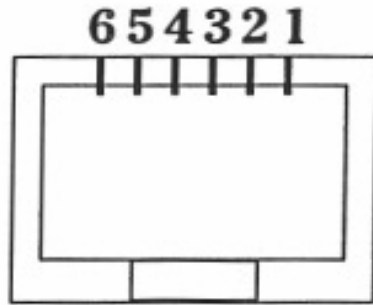
| Mains | Jumper 1 | Jumper 2 | Jumper 3 | Varistor |
|--------|----------|----------|----------|-----------|
| 100VAC | A | E | F | 221 |
| 120VAC | A | C | D | 221 |
| 220VAC | B | E | - | 391 / 441 |
| 240VAC | B | D | - | 391 / 441 |

Jumpers, auxiliary transformer

| Mains | Position 1 | Position 2 | Position 3 | Position 4 | Position 5 |
|------------|------------|------------|------------|------------|------------|
| 100/120VAC | In | Out | Out | Out | In |
| 220/240VAC | Out | Out | In | Out | Out |

Remote Interface Information

The CAV75 can be turned on or off using an simple interface connected to the Remote jack, located at the back of the unit.



6

5

4

3

2

1

D

D

C

C

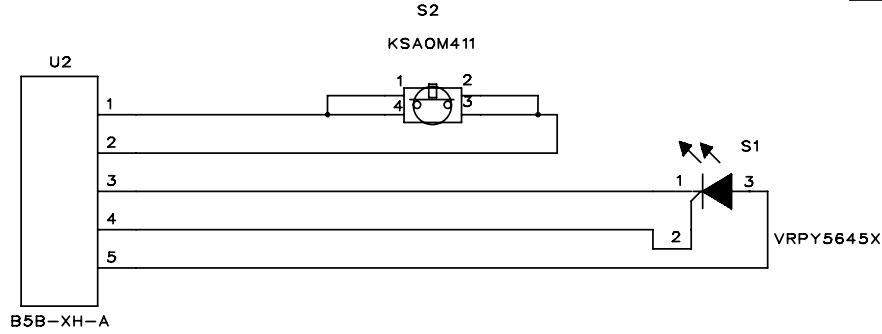
B

B

A

A

| REVISION RECORD | | | |
|-----------------|---------|-----------|-------|
| LTR | ECO NO: | APPROVED: | DATE: |
| | | | |
| | | | |
| | | | |
| | | | |



| | | | | | | | | |
|------------------|--|--------|--|----------------------|-------|-------------|--|-----------|
| COMPANY: | | | | Classé Audio Inc. | | | | |
| TITLE: | | | | POWER SWITCH | | | | |
| DRAWN: | | DATED: | | CODE: | SIZE: | DRAWING NO: | | REV: |
| CHECKED: | | DATED: | | B01CXR00 | | | | |
| QUALITY CONTROL: | | DATED: | | | | | | |
| RELEASED: | | DATED: | | SCALE: JUNE 27, 2000 | | | | SHEET: OF |

6

5

4

3

2

1

D

D

C

C

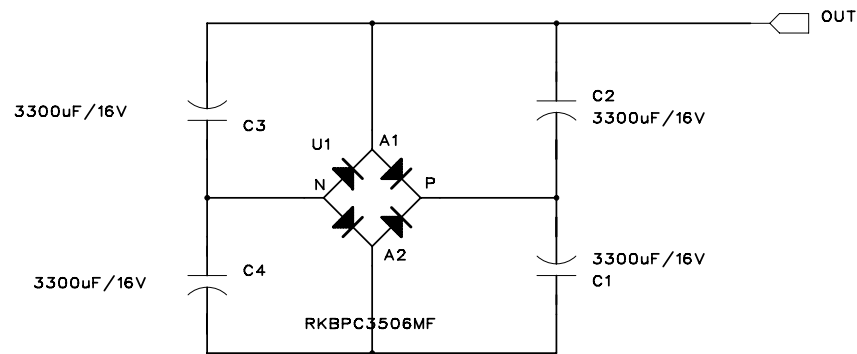
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B

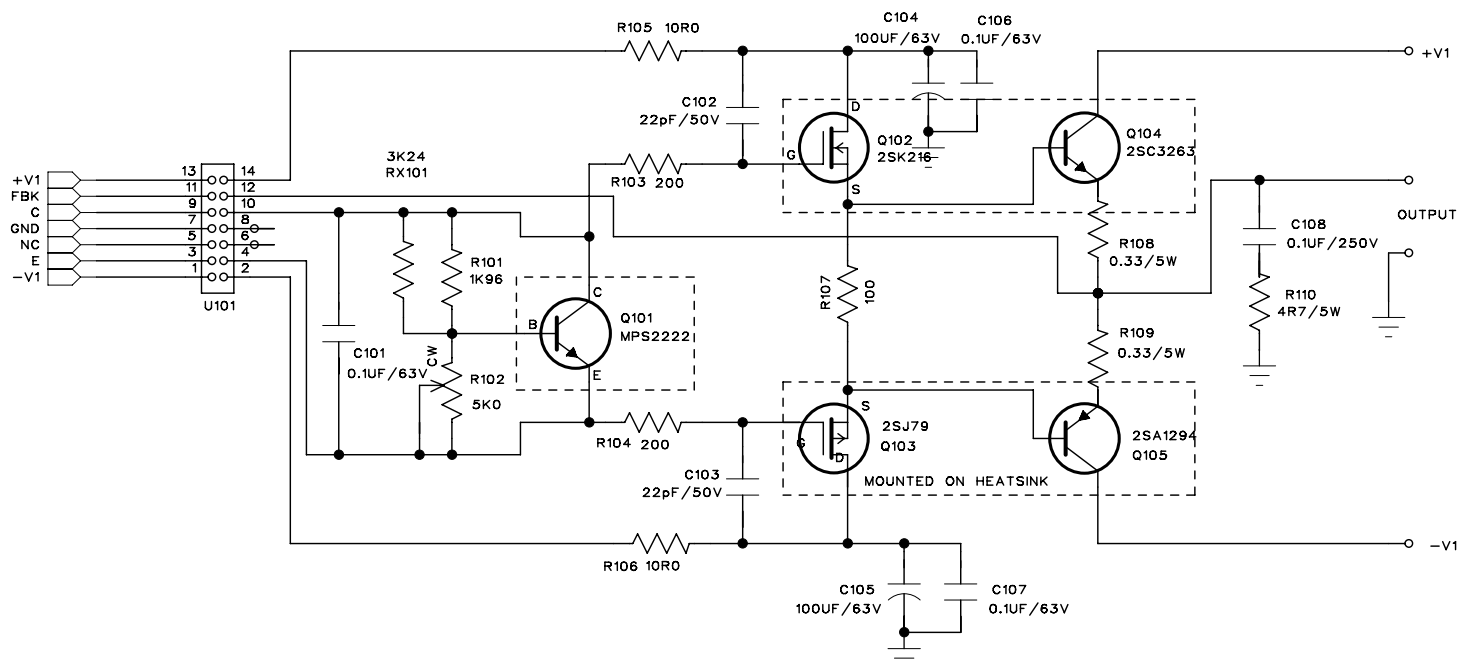
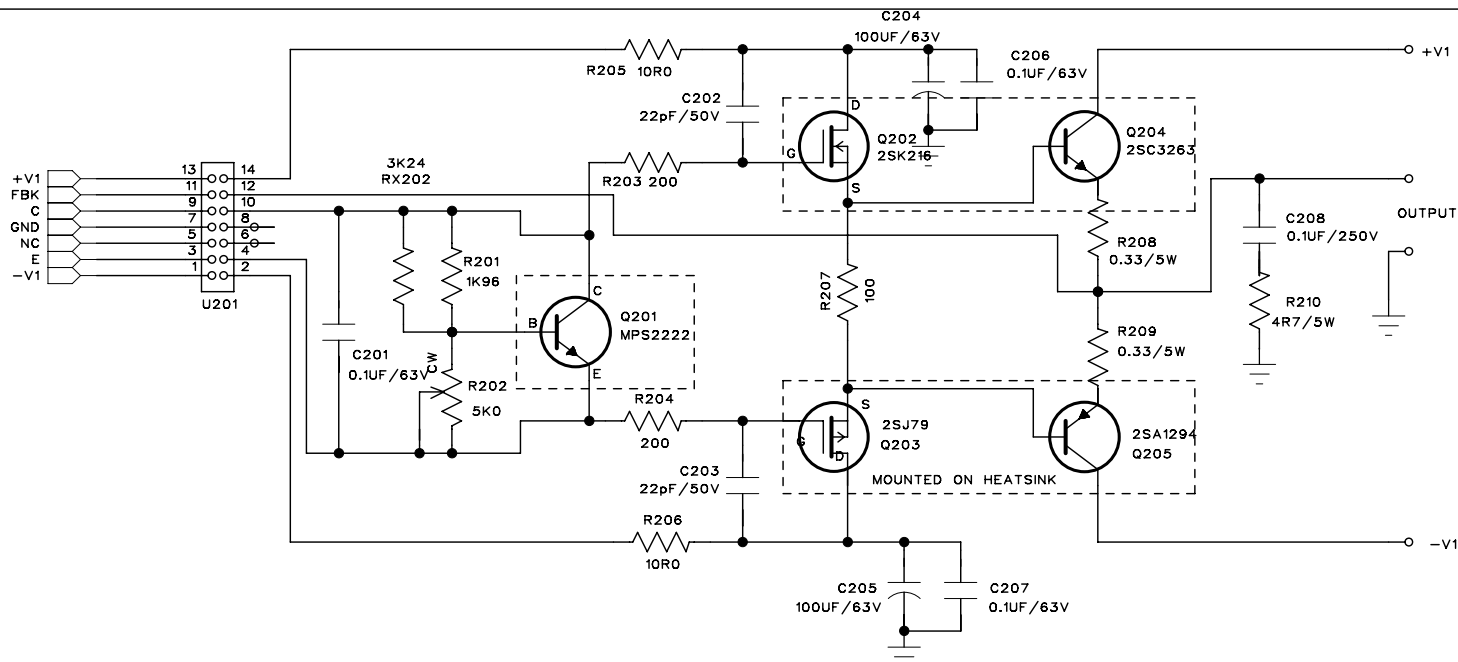
A

A

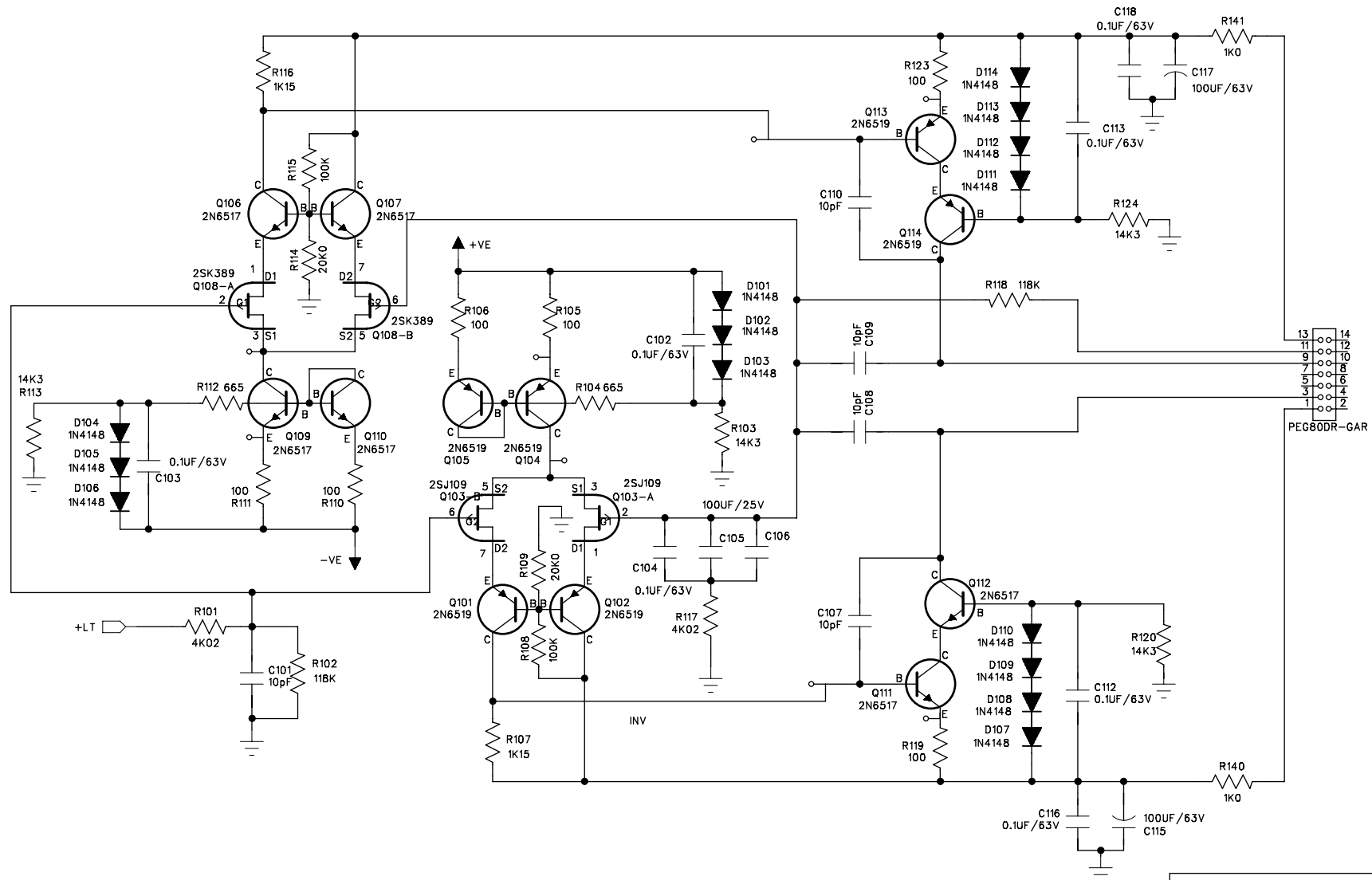
| REVISION RECORD | | | |
|-----------------|---------|-----------|-------|
| LTR | ECO NO: | APPROVED: | DATE: |
| | | | |
| | | | |
| | | | |
| | | | |



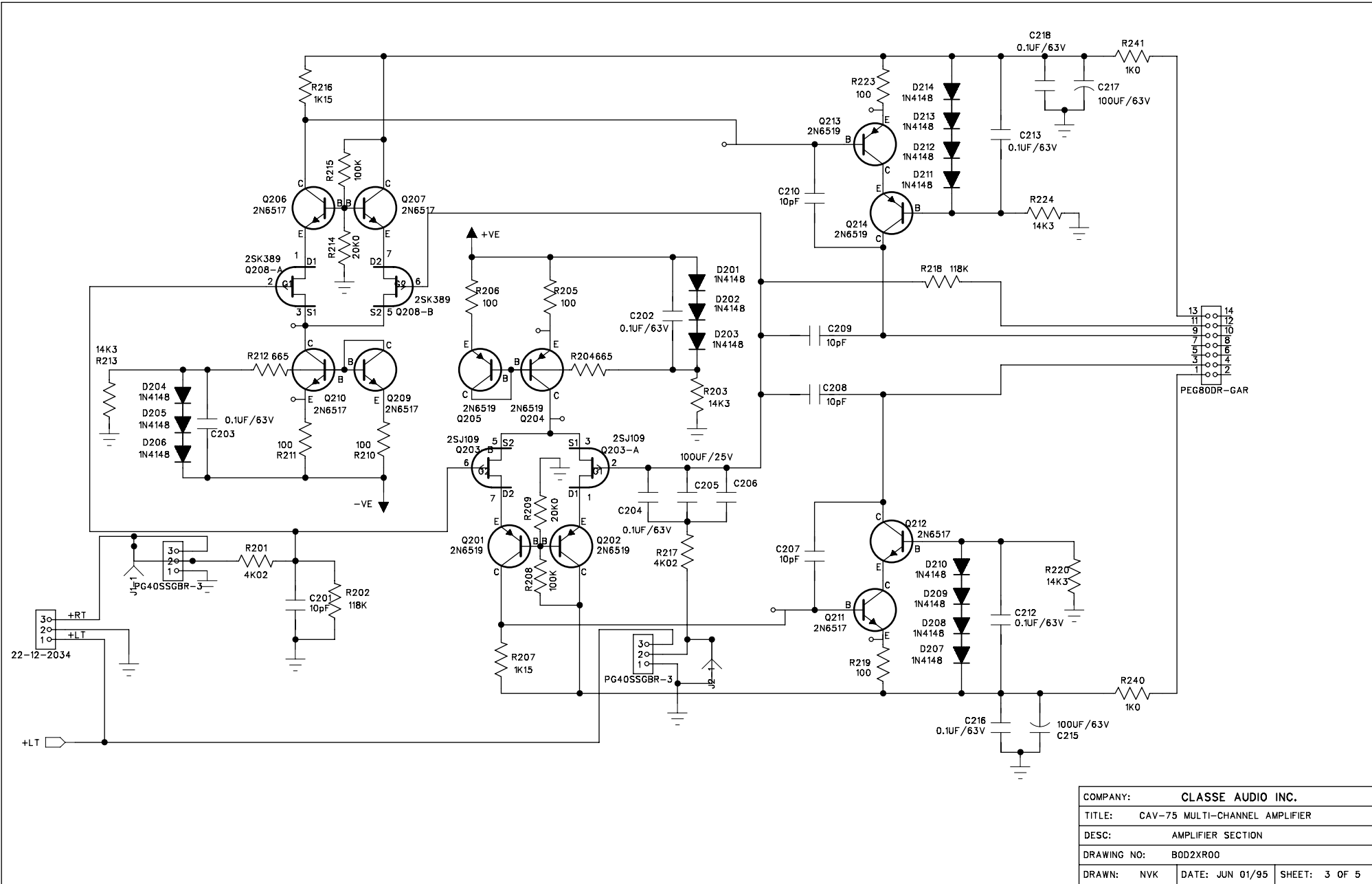
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|------------------|--|--------|--|----------------------|-------|-------------|--|---------------|--|
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| TITLE: | | | | NOISE FILER | | | | | |
| DRAWN: | | DATED: | | CODE: | SIZE: | DRAWING NO: | | REV: | |
| CHECKED: | | DATED: | | B01GXR02 | | | | | |
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| RELEASED: | | DATED: | | SCALE: JUNE 23, 2000 | | | | SHEET: 1 OF 1 | |



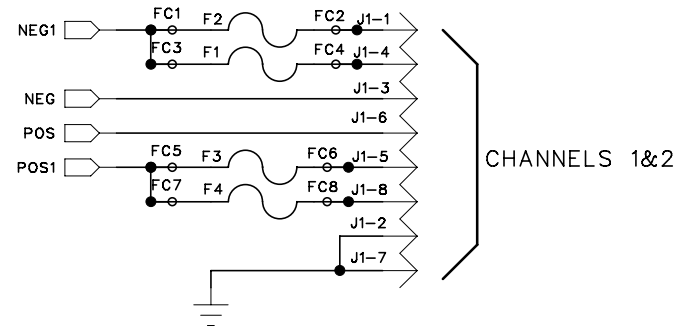
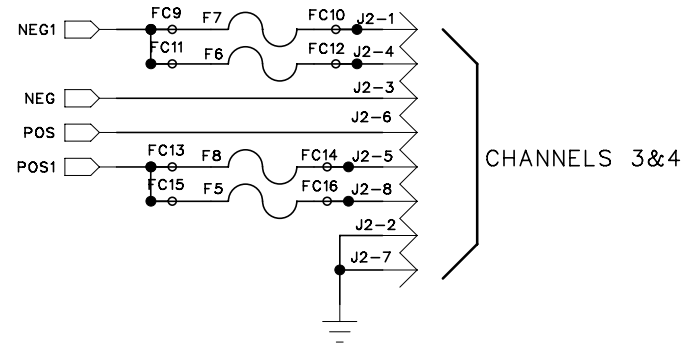
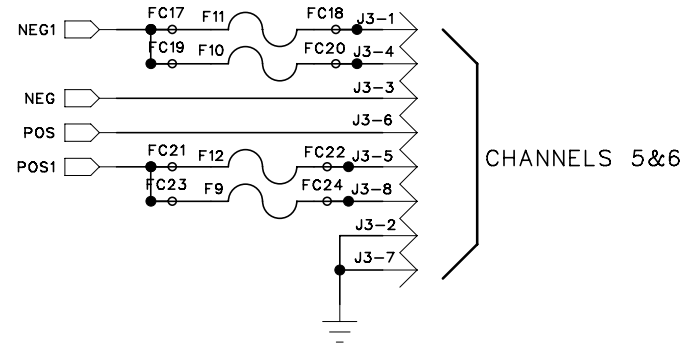
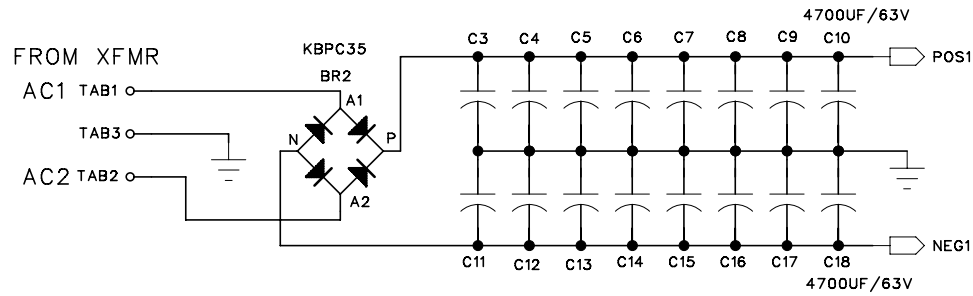
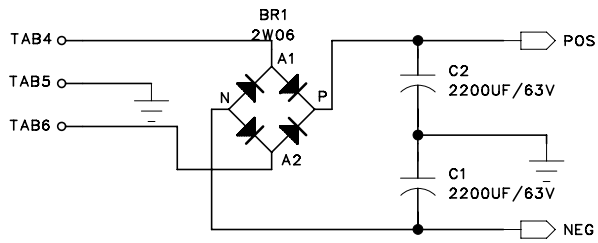
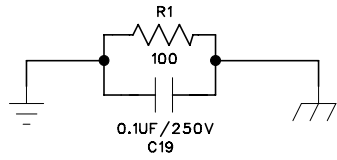
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|-------------|--------------------------------|-------|-------------------------|
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| TITLE: | CAV-75 MULTI-CHANNEL AMPLIFIER | | |
| DESC: | OUTPUT SECTION | | |
| DRAWING NO: | B0D1XR01 | | |
| DRAWN: | NVK | DATE: | MAR 19/96 SHEET: 1 OF 5 |



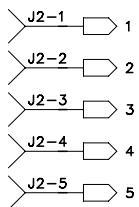
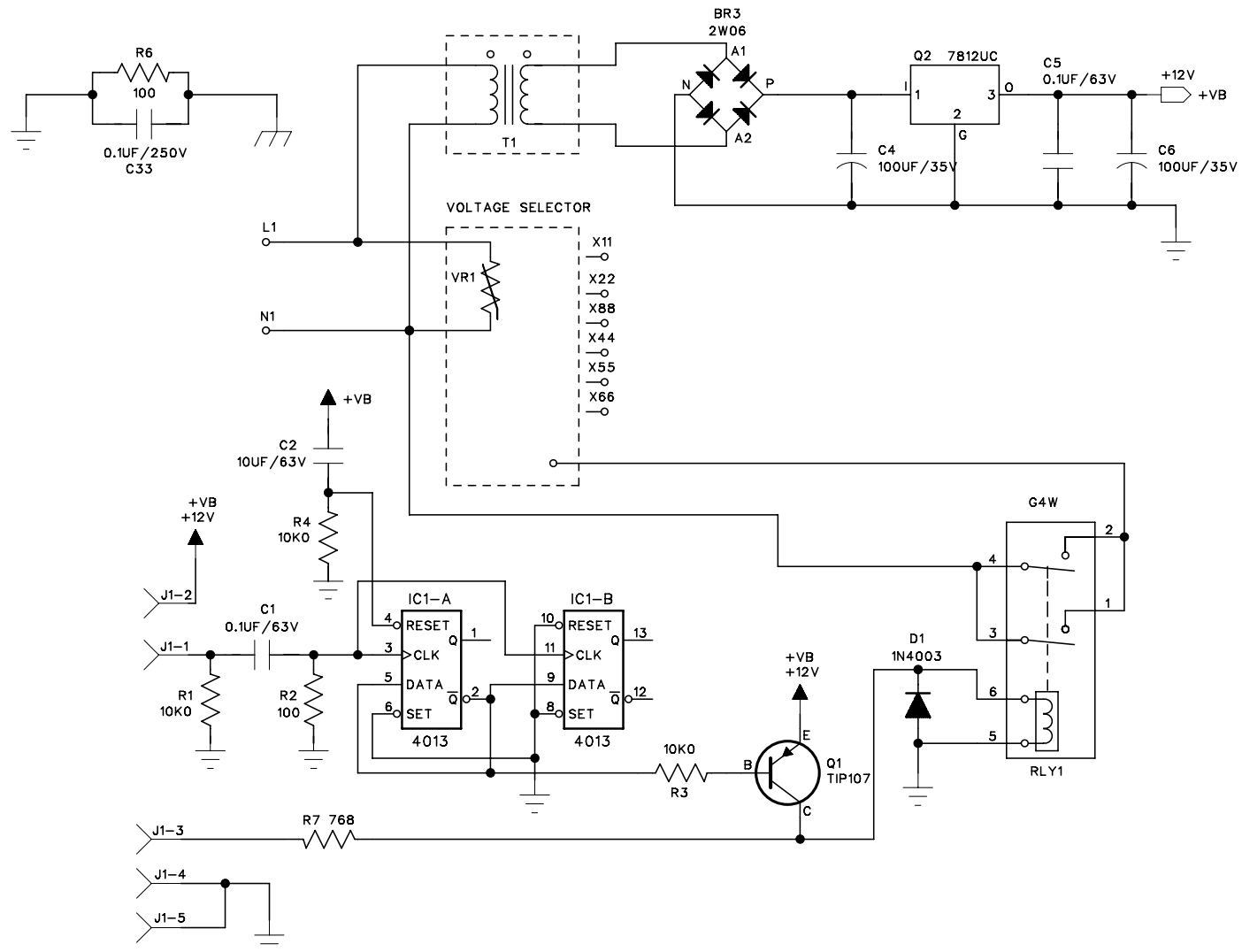
| | | | |
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| DRAWING NO: | | B0D2XR00 | |
| DRAWN: | NVK | DATE: | JUN 01/95 |
| | | SHEET: | 2 OF 5 |



| | | | |
|-------------|--------------------------------|--------|-----------|
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| TITLE: | CAV-75 MULTI-CHANNEL AMPLIFIER | | |
| DESC: | AMPLIFIER SECTION | | |
| DRAWING NO: | B0D2XR00 | | |
| DRAWN: | NVK | DATE: | JUN 01/95 |
| | | SHEET: | 3 OF 5 |



| | | | |
|-------------|--------------------------------|-----------------|---------------|
| COMPANY: | CLASSE AUDIO INC. | | |
| TITLE: | CAV-75 MULTI-CHANNEL AMPLIFIER | | |
| DESC: | POWER SUPPLY | | |
| DRAWING NO: | B0D3XR00 | | |
| DRAWN: | NVK | DATE: JUN 01/95 | SHEET: 4 OF 5 |



| | | | |
|-------------|---------------------------------|--------|-----------|
| COMPANY: | CLASSE AUDIO INC. | | |
| TITLE: | CAV-75 MULTI-CHANNEL AMPLIFIER | | |
| DESC: | POWER SWITCH & VOLTAGE SELECTOR | | |
| DRAWING NO: | B0D4XR00 | | |
| DRAWN: | NVK | DATE: | JUN 01/95 |
| | | SHEET: | 5 OF 5 |