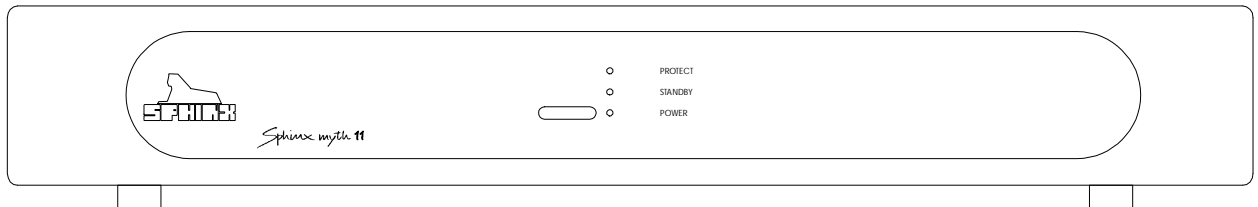


# SERVICE MANUAL

MYTH 11

STEREO  
POWER AMPLIFIER



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## The Sphinx Myth 11 design

This service manual will help you to optimally service and repair the Sphinx Myth 11 Stereo Power Amplifier.

This high quality high end stereo power amp is of discrete design throughout (no IC's are used).

The power amp uses specially selected Power MOS-FETs with a power bandwidth of over 20 MHz, a very fast slew rate and an unsurpassed phase linearity over the power bandwidth. Each channel uses four 120W/10 A FETs, operates as a pure voltage source with an extremely low impedance and is thus very stable.

The most unique feature is that it works in full Class-A mode up to 10 W!

Thanks to the generous energy reserve of 69,600  $\mu$ F, unlimited power is available for the largest signal peaks.

To obtain the maximum quality from this power amp it is necessary to use it with top quality audio components, preferably with other Sphinx components.

**Please also refer to the User Manual of the Myth 11 for information about functions not described in this manual. It is important to familiarise yourself with the special functions, operation and possibilities of the Sphinx Myth 11.**

## 1. UNPACKING

Before leaving the factory every Myth 11 is subjected to stringent and extensive technical and exterior quality inspection.

This ensures you will enjoy many years of high quality audio from a perfect-looking product.

**Attention: The power amp weighs over 10 kg! Never lift it out of the box without someone helping you.**

After unpacking your Myth 11 we therefore recommend you carefully check it for any transport damage.

Even if the component is in perfect condition you should still keep the packing materials. If you need to transport your Myth 11 at a later time it will be best protected by the original packing materials.

## 2. CONTACTING THE MANUFACTURER

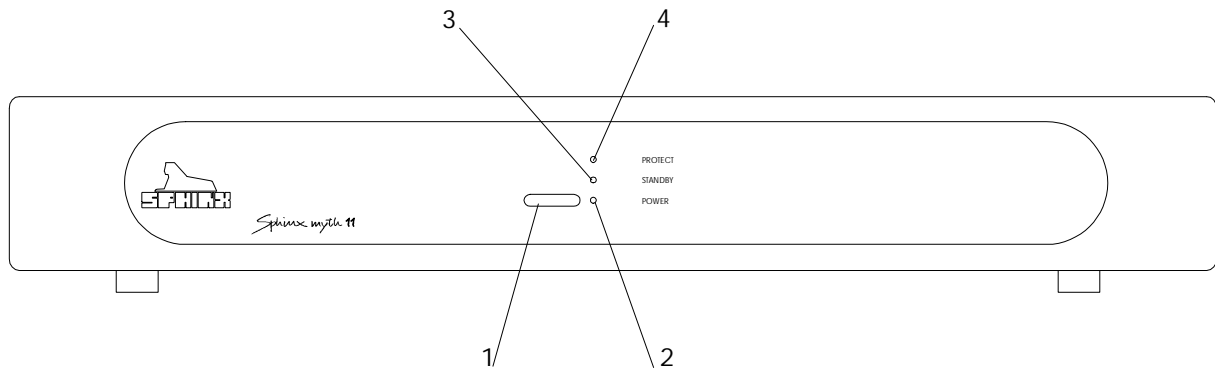
In case of any problem not covered in this manual or if you have other questions you may contact the Sphinx **International Service Department** in The Netherlands (local time: GMT +1h) during office hours at the following numbers:

Phone: (+31) 35 602 0302  
Fax: (+31) 35 602 2806  
E-mail: [audionl@euronet.nl](mailto:audionl@euronet.nl)

It is always very helpful and efficient if you have all relevant information about the specific product and the problem ready.

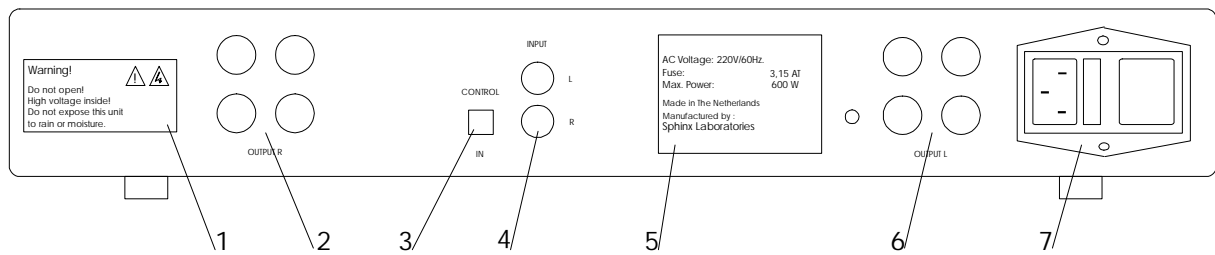
## 3. THE POWER AMP AT A GLANCE

### Front panel



- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. <b>STANDBY:</b> To switch the component on and off.</li> <li>2. <b>POWER LED:</b> Indicates the selected function:<br/>stand-by    off<br/>amp on      red</li> </ol> | <ol style="list-style-type: none"> <li>3. <b>STANDBY LED:</b> Indicates the selected function:<br/>stand-by    red<br/>amp on      off</li> <li>4. <b>PROTECT LED:</b> Normally off. When blinking red it indicates that the protection circuit is active</li> </ol> |
|---|--|

## Rear panel



1. **Warning label:** This shows important safety warnings.
2. **OUTPUT R:** To connect the cable from the right loudspeaker:  
red +  
black -
3. **CONTROL IN:** To connect the optical cable from another Sphinx component like a pre-amp.
4. **INPUT:** To connect the cinch cables from the output of the signal source.
5. **Manufacturer's label:** This shows important data for the component, such as serial number and mains power voltage.
6. **OUTPUT L:** To connect the cable from the left loudspeaker:  
red +  
black -
7. **AC POWER:** Connect the power amp to a mains outlet (230 - 240 VAC) and the mains power switch.  
The mains fuse is placed behind the cover.

## 4. OPERATION

Once you have finished connecting all components, you can switch on the Myth 11.

Connect the mains cable to a mains outlet.

### Power on

Switch the Myth 11 on with the O / I switch (7) on the rear panel.

The STANDBY LED (3) will blink for a while after which it will light red. The Myth 11 is now in stand-by mode.

From now on you should switch the power amp on and off with the STANDBY button (1) on the front panel or the STANDBY button of another Sphinx component connected to the optical CONTROL IN jack.

This way all circuits will remain at working temperature and the audio quality will be 100 % within 15 minutes after activating. Additionally it considerably increases the life span of the component.

Switch the Myth 11 on with the STANDBY button: the LED (3) will extinguish and the POWER LED (2) will light.

If you activate the power amp for the first time or after a long period of non-use with the power 'off', the amp will be at maximum performance after one hour.

From stand-by mode it takes only around 15 minutes.

### Power off

You switch the Myth 11 off (stand-by) with the STANDBY button (1).

**N.B.:** If you need to switch the system on again immediately, you should wait for at least 60 sec though.

Because switching on the amp within 30 sec will activate the protection circuits: the red PROTECT LED (4) will blink rapidly.

Only if you will not be using the amp for a long period (e.g. during holidays) should you switch the amp off with the O / I switch (7).

In stand-by mode the Myth 11's power consumption is still around the 70 W mark.

## 5. TECHNICAL SPECIFICATIONS

Bandwidth	0 - 300,000 Hz (+0/-0.25 dB)
Phase response error	<2° (0 - 20,000 Hz)
Gain	29.5 dB max.
Minimum Power Output (1 - 20,000 Hz)	>2x 94.5 W into 8 ohm (19.8 dBW), THD <0.01% >2x 157.5 W into 4 ohm (22.0 dBW), THD <0.01% >2x 217.6 W into 2 ohm (23.4 dBW), THD <0.01%
THD+N (IHF-A)	<0.06% / 0.006% (2 <sup>nd</sup> harmonic, 10 - 20,000 Hz)
IMD	<0.005% (50 W into 8 Ω)
S/N ratio (IHF-A)	>85 dB / 98 dB
Channel separation	>90 dB (1 - 20,000 Hz)
Slew rate	>100 V/μs
Damping factor	>500 (1 - 1,000 Hz)
Input level, nominal	Cinch: unbalanced 1.25V (1.9 dBV)
Impedance	20 kΩ
Supply capacitance	26,000 μF total per channel
Power consumption	550 W max. (70 W standby)
Dimensions (h x w x d)	73 x 434 x 350 mm
Weight	10 kg

This unit conforms to the EMC interference regulations issued by the EU and to the CE standards.  
This unit complies with safety regulation VDE 0860 and therefore with international safety regulation IEC 65.

Technical specifications may be changed by SPHINX without prior notice if technical developments make this necessary.

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## 6. ADJUSTMENT PROCEDURES

The Myth 11 only has three parameters for each channel (so six in total) that might need adjustment:

- **Bias:** to set the bias current and bias voltage of the amplifier for normal use.
- **Offset:** to set the DC-offset voltage of the output.

These adjustments might be necessary when the amplifier has been used for a period of time (and settings have changed due to ageing) or when parts of the Myth 11 have been replaced.

### Attention:

When re-adjusting any setting please ensure that there is no loudspeaker connected to the output! Otherwise the loudspeaker may be seriously damaged.

### Attention:

The amplifier is able to generate high output voltages of over + or -40 V. Please be very careful during the adjustments!

### Bias

With this procedure you set the proper bias level for the power FETs. This ensures their Class A operation at low power levels.

Connect the amplifier according to the drawing "Measurement Set-up" (page 11).

The input of the amplifier must be shorted (by way of the MUTE function of the oscillator).

- Switch the amplifier ON and wait until it has reached the proper working temperature
- Set the millivolt-meter to the DC-range.
- Place the two measuring clips of the meter across one of the source resistors  
Left: R30L, R31L, R39L, R40L  
Right: R30R, R31R, R39R, R40R
- The level for each should be 8 mV DC ( $\pm 2$  mV).  
If not: adjust potmeter P2L (Left) or potmeter P2R (Right) until the level is 8 mV.
- Repeat this procedure after 20 minutes to finalise the adjustment.
- Switch the oscillator on and set it to 1 kHz and a level of 0 dBV (1 V).
- Check the distortion with a THD analyser: it should be conform to the specified value (0.006% IHF-A @ 1 – 20 kHz @ 50 W into 8 ohm).

If this is correct the procedure is finished.

You may now switch off the amplifier or continue with another adjustment procedure.

### Offset

The Offset adjustment procedure minimises the DC offset value of the amplifier output. This DC offset is important when capacitive loads are used, such as electrostatic loudspeakers. These loudspeakers often use a very low-impedance step-up transformer. The amplifier 'sees' this load as a short for the DC voltage.

Connect the amplifier according to the drawing "Measurement Set-up" (page 11).

The input of the amplifier must be shorted (by way of the MUTE function of the oscillator).

- Switch the amplifier ON and wait until it has reached the proper working temperature.
- Set the millivolt-meter to the DC-range.
- Place the measurement clips of the meter over the output terminal.
- The level should not exceed +1 or -1 mV DC. If it does: adjust potmeter P1L (Left) or P1R (Right) until the level is within this range.
- Repeat this procedure after 20 minutes to finalise the adjustment.
- Switch the oscillator on and set it to 1 kHz and a level of 0 dBV (1 V).
- Check the distortion with a THD analyser: it should be conform to the specified value (0.006% IHF-A @ 1 – 20 kHz @ 50 W into 8 ohm).

If this is correct the procedure is finished.

You may now switch off the amplifier or continue with another adjustment procedure.



## 7. PROBLEMS AND SOLUTIONS

At the moment of writing the Myth 11 has one known specific problem.  
 If in the future you encounter any problem(s) you may enter the info in this table. This table can then be used for future reference.

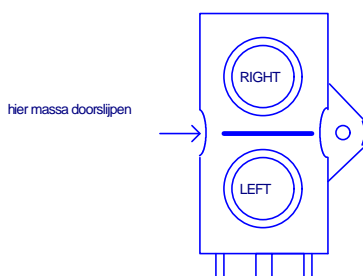
Please also send (by fax or e-mail) the specific information to the **Sphinx International Service Department** (see page 3): this info can then be added to the general database to aid others.

Problem	Cause	Solution	Refer to page...
Protection activates	Temperature of amplifier is too high	Re-adjust bias	14/15
Hum at the output. Modified from November 1998.	Cinch input connector not modified.	Separate the ground from L&R cinch input and place a 10 Ohm resistor between.	10

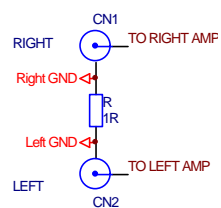
## 8. DIAGRAMS AND PARTS LISTS

The next pages contain the front and rear panel layout and a complete set of schematic drawings including the associated parts lists (if applicable).

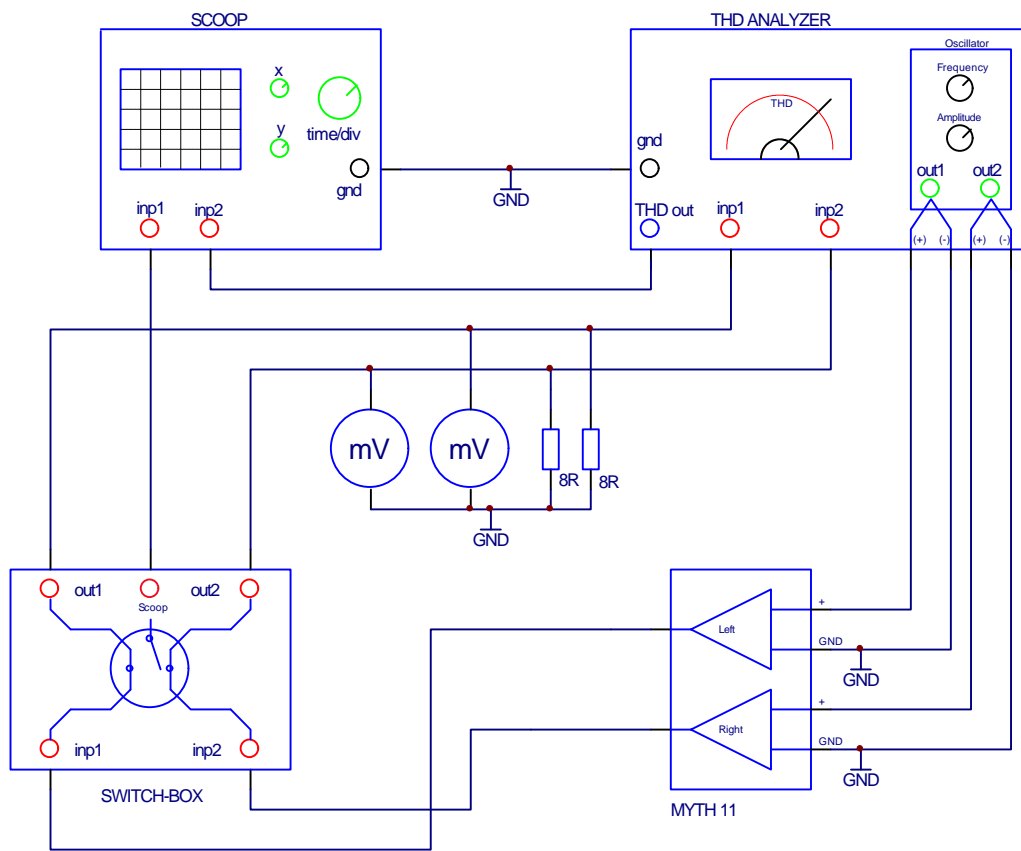
Modificatie tegen brommen.



Tussen beide massa's een weerstand van 1R solderen  
 Massa's linker kanaal en rechter kanaal nu apart aansluiten



## Measurement Set-up

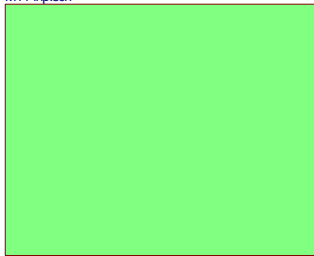


## General Overview Myth 11

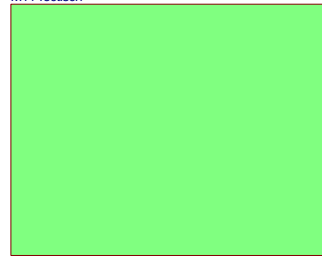
Myth 11 protection  
M11-prot.sch



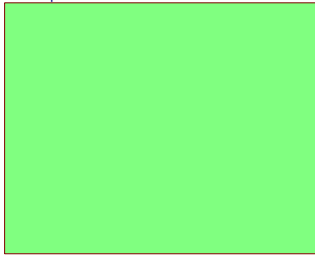
Myth 11 input  
M11-inp.sch



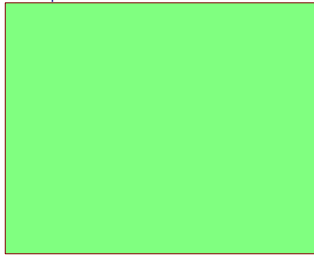
Myth 11 rectifier  
M11-rect.sch



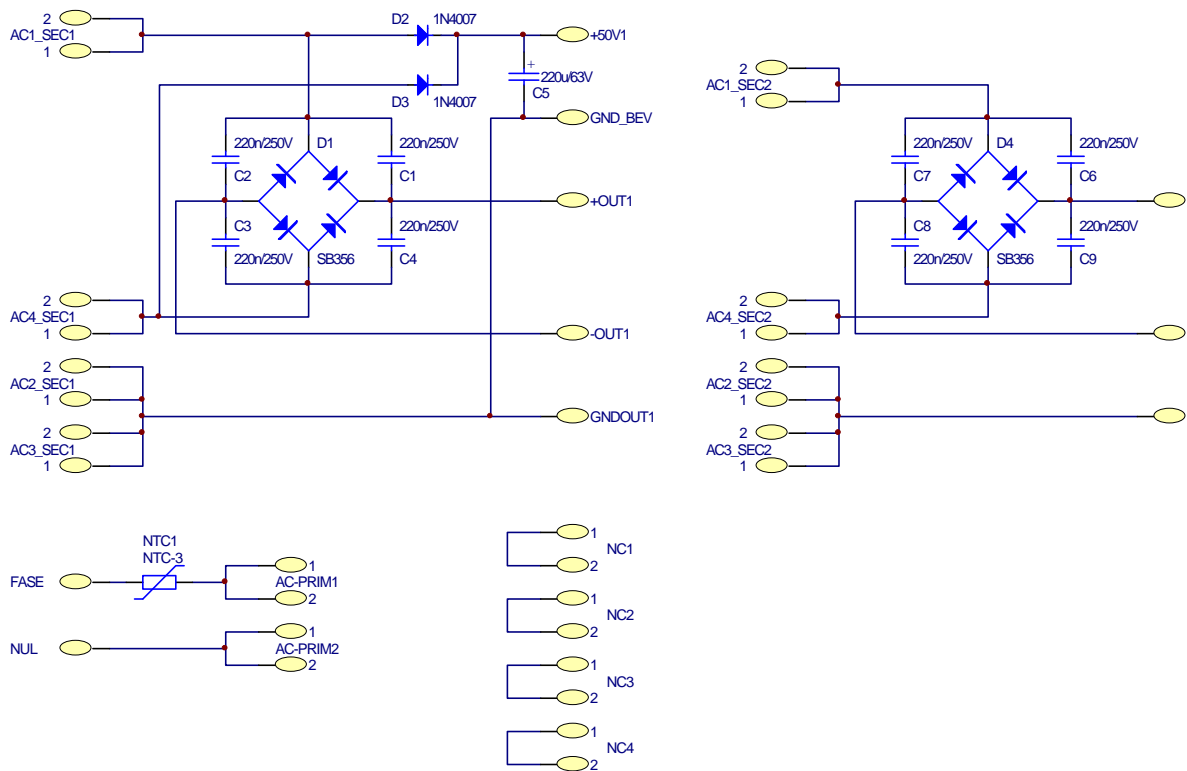
Myth 11 amplifier left  
M11-ampl.sch



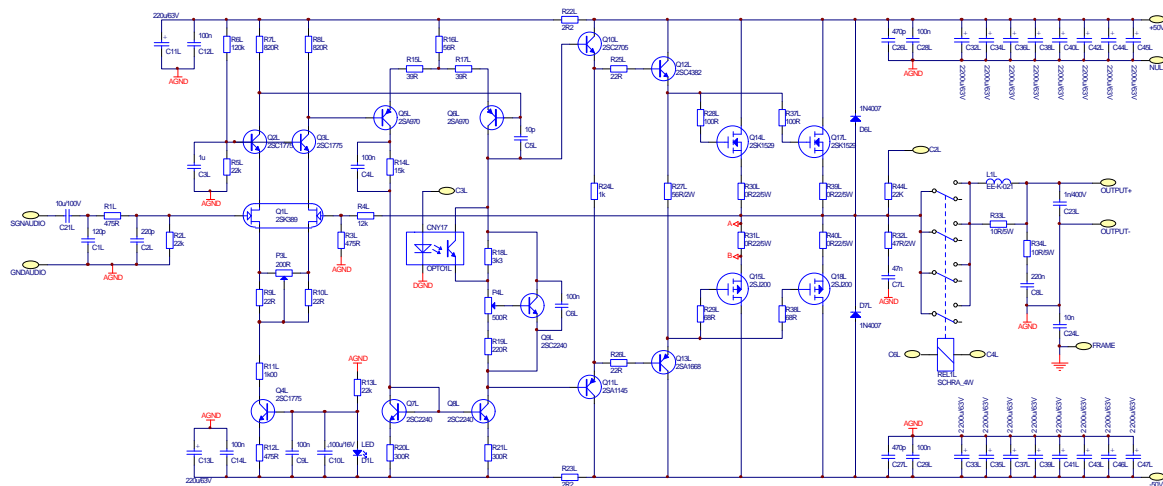
Myth 11 amplifier right  
M11-ampr.sch



## Power Supply

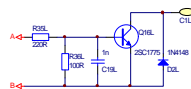


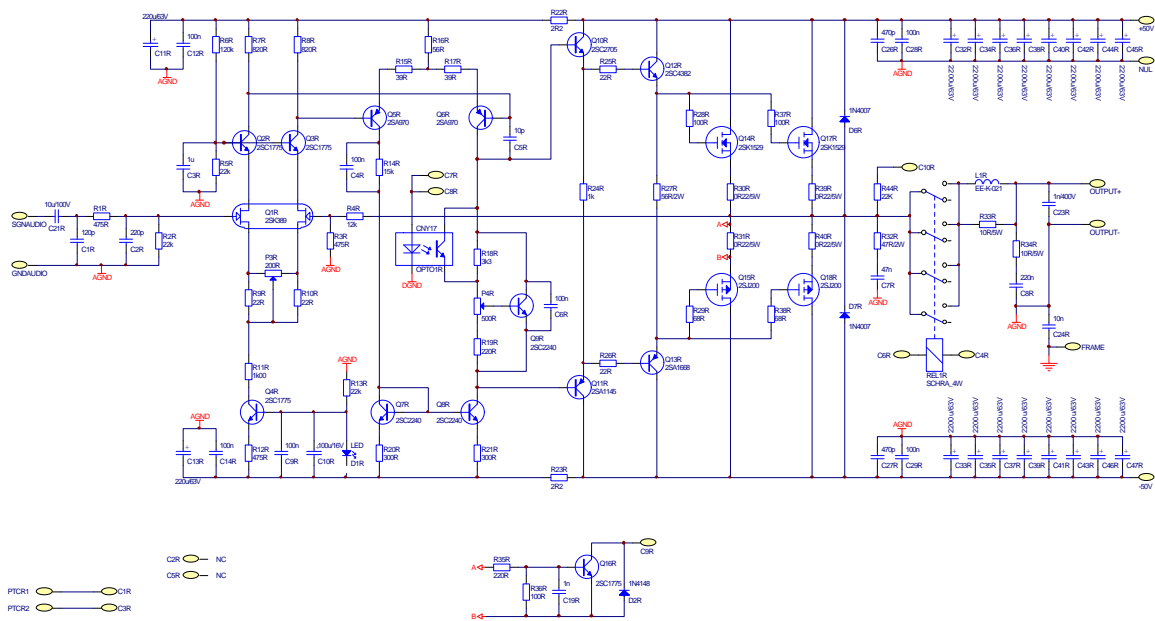
## Amplifier Left

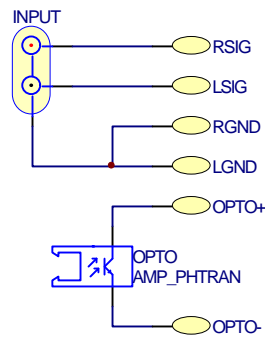


- OPTO+ ○—○ C1L
- OPTO- ○—○ C10L
- PIQ1 ○—○ C1L
- PIQ2 ○—○ C7L

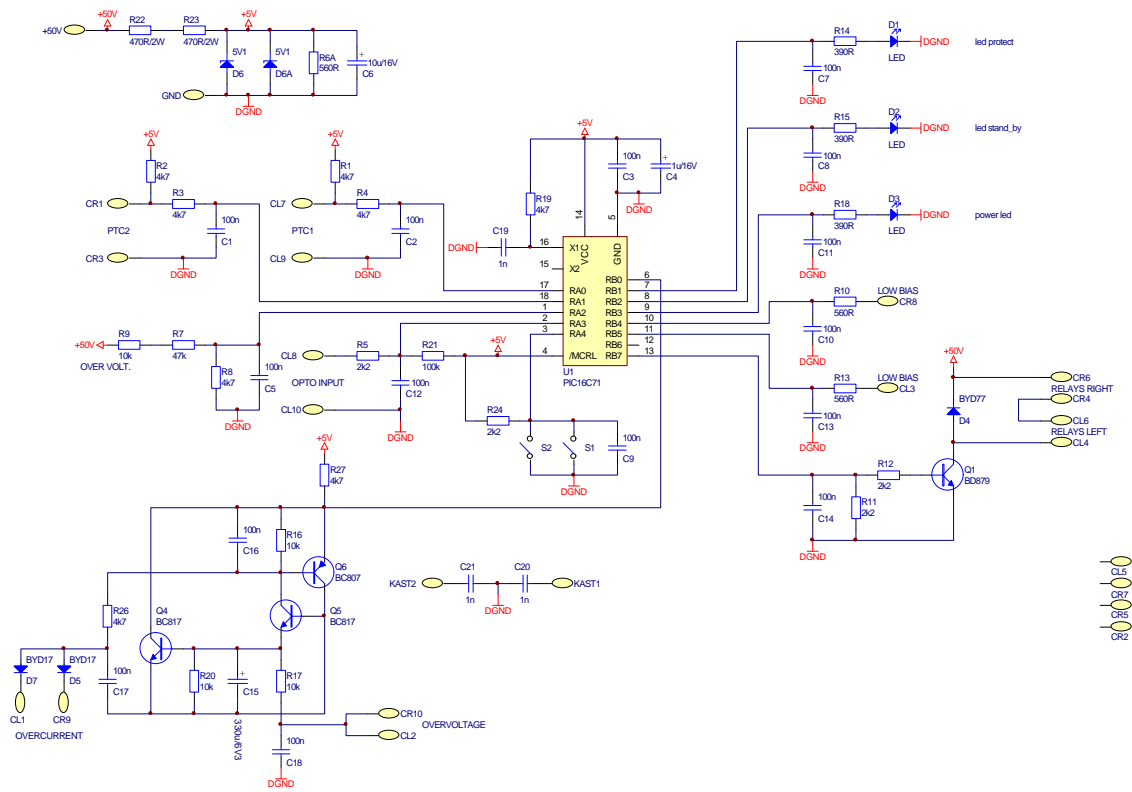
CSL ○—○ NC











Designator	Part Type	Description
C1	100n	MKT capacitor
C1	220n/250V	MKT capacitor
C10	100n	MKT capacitor
C10L	100u/16V	Electrolytic capacitor
C10L	1PIN	Connector
C10R	100u/16V	Electrolytic capacitor
C11	100n	MKT capacitor
C11L	220u/63V	Electrolytic capacitor
C11R	220u/63V	Electrolytic capacitor
C12	100n	MKT capacitor
C12L	100n	MKT capacitor
C12R	100n	MKT capacitor
C13	100n	MKT capacitor
C13L	220u/63V	Electrolytic capacitor
C13R	220u/63V	Electrolytic capacitor
C14	100n	MKT capacitor
C14L	100n	MKT capacitor
C14R	100n	MKT capacitor
C15	330u/6V3	Electrolytic capacitor
C16	100n	MKT capacitor
C17	100n	MKT capacitor
C18	100n	MKT capacitor
C19	1n	MKT capacitor
C19L	1n	MKT capacitor
C19R	1n	MKT capacitor
C1L	120p	Styroflex capacitor
C1R	120p	Styroflex capacitor
C1R	1PIN	Connector
C2	100n	MKT capacitor
C2	220n/250V	MKT capacitor
C20	1n	MKT capacitor
C21	1n	MKT capacitor
C21L	10u/100V	MKT capacitor
C21R	10u/100V	MKT capacitor
C23L	1n/400V	MKT capacitor
C23R	1n/400V	MKT capacitor
C24L	10n	MKT capacitor
C24R	10n	MKT capacitor
C26L	470p	Styroflex capacitor
C26R	470p	Styroflex capacitor
C27L	470p	Styroflex capacitor
C27R	470p	Styroflex capacitor
C28L	100n	MKT capacitor
C28R	100n	MKT capacitor
C29L	100n	MKT capacitor
C29R	100n	MKT capacitor
C2L	220p	Styroflex capacitor
C2R	1PIN	Connector

Designator	Part Type	Description
C2R	220p	Styroflex capacitor
C3	100n	MKT capacitor
C3	220n/250V	MKT capacitor
C32L	2200u/63V	Electrolytic capacitor
C32R	2200u/63V	Electrolytic capacitor
C33L	2200u/63V	Electrolytic capacitor
C33R	2200u/63V	Electrolytic capacitor
C34L	2200u/63V	Electrolytic capacitor
C34R	2200u/63V	Electrolytic capacitor
C35L	2200u/63V	Electrolytic capacitor
C35R	2200u/63V	Electrolytic capacitor
C36L	2200u/63V	Electrolytic capacitor
C36R	2200u/63V	Electrolytic capacitor
C37L	2200u/63V	Electrolytic capacitor
C37R	2200u/63V	Electrolytic capacitor
C38L	2200u/63V	Electrolytic capacitor
C38R	2200u/63V	Electrolytic capacitor
C39L	2200u/63V	Electrolytic capacitor
C39R	2200u/63V	Electrolytic capacitor
C3L	1u	MKT capacitor
C3R	1PIN	Electrolytic capacitor
C3R	1u	MKT capacitor
C4	1u/16V	Electrolytic capacitor
C4	220n/250V	MKT capacitor
C40L	2200u/63V	Electrolytic capacitor
C40R	2200u/63V	Electrolytic capacitor
C41L	2200u/63V	Electrolytic capacitor
C41R	2200u/63V	Electrolytic capacitor
C42L	2200u/63V	Electrolytic capacitor
C42R	2200u/63V	Electrolytic capacitor
C43L	2200u/63V	Electrolytic capacitor
C43R	2200u/63V	Electrolytic capacitor
C44L	2200u/63V	Electrolytic capacitor
C44R	2200u/63V	Electrolytic capacitor
C45L	2200u/63V	Electrolytic capacitor
C45R	2200u/63V	Electrolytic capacitor
C46L	2200u/63V	Electrolytic capacitor
C46R	2200u/63V	Electrolytic capacitor
C47L	2200u/63V	Electrolytic capacitor
C47R	2200u/63V	Electrolytic capacitor
C4L	100n	MKT capacitor
C4R	100n	MKT capacitor
C5	100n	MKT capacitor
C5	220u/63V	Electrolytic capacitor
C5L	10p	Styroflex capacitor
C5L	1PIN	Connector
C5R	10p	Styroflex capacitor
C5R	1PIN	Connector
C6	10u/16V	Electrolytic capacitor
C6	220n/250V	MKT capacitor

Designator	Part Type	Description
C6L	100n	MKT capacitor
C6R	100n	MKT capacitor
C7	100n	MKT capacitor
C7	220n/250V	MKT capacitor
C7L	1PIN	Connector
C7L	47n	MKT capacitor
C7R	47n	MKT capacitor
C8	100n	MKT capacitor
C8	220n/250V	MKT capacitor
C8L	1PIN	Connector
C8L	220n	MKT capacitor
C8R	220n	MKT capacitor
C9	100n	MKT capacitor
C9	220n/250V	MKT capacitor
C9L	100n	MKT capacitor
C9L	1PIN	Connector
C9R	100n	MKT capacitor
CN1	INPUT	CINCH-2P
D1	LED	LED red
D1	SB356	Diode
D1L	LED	LED red
D1R	LED	LED red
D2	1N4007	Diode
D2	LED	LED red
D2L	1N4148	Diode
D2R	1N4148	Diode
D3	1N4007	Diode
D3	LED	LED red
D4	BYD77	Diode
D4	SB356	Diode
D5	BYD17	Diode
D6	5V1	Zener diode
D6A	5V1	Zener diode
D6L	1N4007	Diode
D6R	1N4007	Diode
D7	BYD17	Diode
D7L	1N4007	Diode
D7R	1N4007	Diode
L1L	47uH	Coil
L1R	47uH	Coil
NTC1	NTC-3	NTC
OPTO	AMP_PHTRAN	Optical output
OPTO1L	CNY17	Opto-coupler
OPTO1R	CNY17	Opto-coupler

Designator	Part Type	Description
P3L	200R	Adj. potmeter
P3R	200R	Adj. potmeter
P4L	500R	Adj. potmeter
P4R	500R	Adj. potmeter
Q1	BD879	Transistor
Q10L	2SC2705	Transistor
Q10R	2SC2705	Transistor
Q11L	2SA1145	Transistor
Q11R	2SA1145	Transistor
Q12L	2SC4382	Transistor
Q12R	2SC4382	Transistor
Q13L	2SA1668	Transistor
Q13R	2SA1668	Transistor
Q14L	2SK1529	Transistor
Q14R	2SK1529	Transistor
Q15L	2SJ200	Transistor
Q15R	2SJ200	Transistor
Q16L	2SC1775	Transistor
Q16R	2SC1775	Transistor
Q17L	2SK1529	Transistor
Q17R	2SK1529	Transistor
Q18L	2SJ200	Transistor
Q18R	2SJ200	Transistor
Q1L	2SK389	DUAL N-JFET
Q1R	2SK389	DUAL N-JFET
Q2L	2SC1775	Transistor
Q2R	2SC1775	Transistor
Q3L	2SC1775	Transistor
Q3R	2SC1775	Transistor
Q4	BC817	Transistor
Q4L	2SC1775	Transistor
Q4R	2SC1775	Transistor
Q5	BC817	Transistor
Q5L	2SA970	Transistor
Q5R	2SA970	Transistor
Q6	BC807	Transistor
Q6L	2SA970	Transistor
Q6R	2SA970	Transistor
Q7L	2SC2240	Transistor
Q7R	2SC2240	Transistor
Q8L	2SC2240	Transistor
Q8R	2SC2240	Transistor
Q9L	2SC2240	Transistor
Q9R	2SC2240	Transistor
R1	4k7	Resistor
R10	560R	Resistor

Designator	Part Type	Description
R10L	22R	Resistor
R10R	22R	Resistor
R11	2k2	Resistor
R11L	1k00	Resistor
R11R	1k00	Resistor
R12	2k2	Resistor
R12L	475R	Resistor
R12R	475R	Resistor
R13	560R	Resistor
R13L	22k	Resistor
R13R	22k	Resistor
R14	390R	Resistor
R14L	15k	Resistor
R14R	15k	Resistor
R15	390R	Resistor
R15L	39R	Resistor
R15R	39R	Resistor
R16	10k	Resistor
R16L	56R	Resistor
R16R	56R	Resistor
R17	10k	Resistor
R17L	39R	Resistor
R17R	39R	Resistor
R18	390R	Resistor
R18L	3k3	Resistor
R18R	3k3	Resistor
R19	4k7	Resistor
R19L	220R	Resistor
R19R	220R	Resistor
R1L	475R	Resistor
R1R	475R	Resistor
R2	4k7	Resistor
R20	10k	Resistor
R20L	300R	Resistor
R20R	300R	Resistor
R21	100k	Resistor
R21L	300R	Resistor
R21R	300R	Resistor
R22	470R/2W	Resistor
R22L	2R2	Resistor
R22R	2R2	Resistor
R23	470R/2W	Resistor
R23L	2R2	Resistor
R23R	2R2	Resistor
R24	2k2	Resistor
R24L	1k	Resistor
R24R	1k	Resistor
R25L	22R	Resistor
R25R	22R	Resistor
R26	4k7	Resistor

Designator	Part Type	Description
R26L	22R	Resistor
R26R	22R	Resistor
R27	4k7	Resistor
R27L	56R/2W	Resistor
R27R	56R/2W	Resistor
R28L	100R	Resistor
R28R	100R	Resistor
R29L	68R	Resistor
R29R	68R	Resistor
R2L	22k	Resistor
R2R	22k	Resistor
R3	4k7	Resistor
R30L	0R22/5W	Resistor
R30R	0R22/5W	Resistor
R31L	0R22/5W	Resistor
R31R	0R22/5W	Resistor
R32L	47R/2W	Resistor
R32R	47R/2W	Resistor
R33L	10R/5W	Resistor
R33R	10R/5W	Resistor
R34L	10R/5W	Resistor
R34R	10R/5W	Resistor
R35L	220R	Resistor
R35R	220R	Resistor
R36L	100R	Resistor
R36R	100R	Resistor
R37L	100R	Resistor
R37R	100R	Resistor
R38L	68R	Resistor
R38R	68R	Resistor
R39L	0R22/5W	Resistor
R39R	0R22/5W	Resistor
R3L	475R	Resistor
R3R	475R	Resistor
R4	4k7	Resistor
R40L	0R22/5W	Resistor
R40R	0R22/5W	Resistor
R44L	22K	Resistor
R44R	22K	Resistor
R4L	12k	Resistor
R4R	12k	Resistor
R5	2k2	Resistor
R5L	22k	Resistor
R5R	22k	Resistor
R6A	560R	Resistor
R6L	120k	Resistor
R6R	120k	Resistor
R7	47k	Resistor
R7L	820R	Resistor
R7R	820R	Resistor

<b>Designator</b>	<b>Part Type</b>	<b>Description</b>
R8	4k7	Resistor
R8L	820R	Resistor
R8R	820R	Resistor
R9	10k	Resistor
R9L	22R	Resistor
R9R	22R	Resistor
REL1L	SCHRA_4W	Relay
REL1R	SCHRA_4W	Relay
S1	SWITCH-SPST	Switch
S2	SWITCH-SPST	Switch
U1	PIC16C71	Micro processor

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