

# AUDIO FRAME X

Loudspeaker Systems  
v1.6

Dear Customer,

Thank you for making the excellent decision of purchasing this WVL product.

WVL / Wolf von Langa - This name stands for true high end quality products in the audio industry, music reproduction technology, characterised by technical competence, extraordinary performance and permanent innovation.

Whether you are an ambitious music lover or a professional user - a product of the WVL brand family will provide you with the best music reproduction quality available today. Special features: We offer the sophisticated technology and reliable quality of our WVL products at an exceptional price/performance ratio.

Enjoy your new WVL / Wolf von Langa product!

These instructions are intended for several models. The respective differences between the different models are described in words and pictures. Also observe the type-related information in the section „Technical Specifications“

Subject to changes/modifications without notice

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## Introduction

The objective of the AUDIO FRAME X loudspeaker family is the realistic reproduction of music in an acoustically "normal" living room, a studio, a small theater or home cinema.

The difference to a conventional sound transducer is mainly the loudspeaker drive unit which is of highest importance and need to be energized. We develop and manufacture all these units in our own plant. Only this fact takes us to the best possible accuracy of music reproduction and enjoyment.

The AUDIO FRAME X loudspeaker's natural and fast transient response and decay behaviour lead to a lively and stress-free listening experience. The quietest pieces of music are reproduced just as naturally as large orchestral passages. The recording quality and the characteristics of your music sources and amplifiers are heard 1:1.

Please contact us after receiving your new loudspeaker system with any question there might be.

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## Overview

### WVL 23216 AUDIO FRAME LONDON

The model "London" takes its name by the use of our unique field coil drive unit based on the "Paul Voigt Mains Energised" full range loudspeaker from England, 1931. Our modern electromagnet achieves an even higher magnetic flux density in a deeper air gap, thus enabling a tremendously dynamic reproduction of the entire range of natural musical instruments. The model "London" consists of the BASE, the WOOFER BASS (WB), the WOOFER MID (WM) and the MID MODULE (M), the latter in this special case is responsible for the mid and high frequency reproduction, optional available is a super tweeter on request.

### WVL 23239 AUDIO FRAME CHICAGO

The electrodynamic loudspeaker developed by Edward Kellog and Chester Rice appeared in 1925 for Western Electric from Chicago. In principle, this is still installed today in well over 90 percent of all reproduction systems.

After Paul Voigt designed the first strong permanent magnet in 1936, Western Electric began manufacturing loudspeakers for smaller rooms in the 1940s. From 1946, Western Electric manufactured a wide band speaker with the designation WE755A.

Our successor of the WE755A justifies the name giving and is used as the mid-range driver in the model "Chicago". For a realistic whole, we supplement the high frequency range in the MID MODULE (M/TW) with our super-fast Air Motion Transformer (TW). The remaining AUDIO FRAME CHICAGO consists of the BASE, the WOOFER BASS (WB) and the WOOFER MID (WM) MODULES.

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### **WVL 33221 AUDIO FRAME BERLIN**

Horn speakers are modern again. Friedrich Rösch invented the spherical horn in the laboratories of the Klangfilm GmbH, Berlin-Steglitz. The advantages of the spherical compared to the exponential horn are the shorter design and the almost ripple-free radiation.

The AUDIO FRAME "Berlin" loudspeaker gives you a direct music reproduction of highest perfection. The use of three bass systems ensure a corresponding efficiency at very low frequencies.

The "Berlin" model consists of the BASE, three WOOFER MODULES and the SPHERICAL HORN MODULE (M/TW).

### **DIMENSIONS**

The total height of the model London / Chicago is 1150 mm, the height of Berlin with four modules reach 1730 mm.

BASE dimensions:

W 580 x D 420 x H 20 mm, weight  $\approx$  20 kg.

WOOFER MODULE (WB/WM) London / Chicago / Berlin dimensions:

W 482 x D 300 x H 420 mm, weight  $\approx$  25 kg.

MID MODULE (M) London / Chicago dimensions:

W 482 x D 300 x H 305 mm, weight  $\approx$  16 kg.

SPHERICAL HORN MODULE (M/TW) Berlin dimensions:

W 482 x D 300 x H 420 mm, weight  $\approx$  25 kg.

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# **AUDIO FRAME X**

Owners Manual

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## **AFX Setup**

### **BASE**

Your new AUDIO FRAME X system is designed for set up in a few simple steps. Please read the instructions carefully before setup.

Common to all AUDIO FRAME models is the stable BASE made of aircraft aluminum with a hardened surface and four set screws for optimal positioning on uneven floors. With the cables upwards, place the BASE on the position at which you want the loudspeaker approximately in the listening room.

If you find yourself with a wooden or a stone floor a piece of carpet to move the AFX system is helpful until you find the optimum location in your room. Then, by screwing the set screws with a fine thread, remove the piece of „sliding“ carpet and set the screws with a level.

### **WOOFER BASS MODULE**

By avoiding to crush any cable put the first WOOFER MODULE (WB), which you insert with the guide pins into the appropriate recesses of the BASE. From the inside and back, secure the seat with two screws M6 on the left and the right in the center. Secure these screw connections easily (hand-tight) with a 10 spanner.

### **CROSSOVER (E = ENTRY)**

Secure the crossover board with eight M4 screws to the transparent support (lettering towards the rear). Connect the audio cables coming from the BASE as indicated (E/M (E/TW) and E/W). Avoid bending the cables and secure them behind the prominent screws on the left and right inner back. Connect the wiring from the crossover to the lower WOOFER BASS (WB). Preliminary leave the umbilical cable with the BASE.

### **WOOFER MID MODULE**

Proceed with the WOOFER MODULE (WM). The Wolf von Langa logo should be positioned to the center. Insert the guide pins into the

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appropriate recesses of the WOOFER BASS MODULE. Again secure the seat with two screws M6 on the inner left and the right in the center. Secure these screw connections easily (hand-tight) with a 10 spanner.

Connect the audio cable from the crossover to the WOOFER MID (WM). Preliminary leave the umbilical cable with the BASE.

### **MID MODULE**

Close by putting the MID MODULE by inserting the guide pins into the appropriate recesses of the WOOFER MID MODULE and secure it from above with the two short M6 screws hand-tight. Now connect all audio cables from the MID MODULE to the crossover as indicated (M/TW) and secure them behind the prominent screws on the left and right inner back again.

Route the umbilical cable on the inner left rear side to the crossover board, secure it behind the prominent screws on the left inner back and lead back the black/brown pair to the WOOFER BASS (WB). Secure the connector with the clamp.

Proceed by connecting the red/orange pair to the WOOFER MID (WM) and secure the connector with the clamp.

Finally connect the yellow/green pair to the MID MODULE (M) and secure the connector with the clamp again. In case of AUDIO FRAME BERLIN the yellow/green umbilical pair must be connected to the upper WOOFER MODULE and secured with the clamp.

### **UMBILICAL CABLE COLOR CODING**

Black/brown	-/+
Red/orange	-/+
Yellow/green	-/+

This polarity is necessary to energize all drives correctly like specified.

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## Special Instructions AUDIO FRAME BERLIN

The heavy SPHERICAL HORN MODULE as well as the „Berlin“ horns require special attention.

For security reasons, we supply these elements separately.

First place the SPHERICAL HORN MODULE on the back and remove the front panel by unscrewing the six M5 screws. Put the front bezel in a safe place.

To facilitate assembly, place the SPHERICAL HORN MODULE on the already setup upper BASS MODULE (WM) and secure it with two M6 screws from back, each in center of the lower aluminum profile, hand-tight.

Now take the small horn with the mounting bracket and hold it such you can insert the long M6 screw with the retaining ring and the large washer from top to clamp these parts together. Markings on the horn support show the middle of the screw head position. The markings shifted more towards the front are for the small horn, the markings shifted towards the back are for the large horn. Adjust precisely and similar for the pair of speaker systems.

The audio cables have to be connected to M and TW outputs on the crossover board.

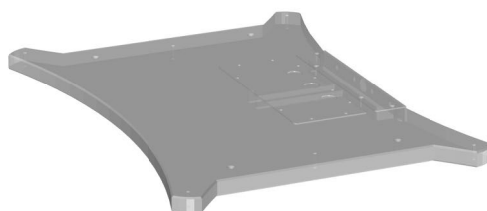
Place the third WOOFER MODLE on top of the SPHERICAL HORN MODULE. At last put the end plate on top and secure with M6 screws from top. All WOOFER MODULES must be connected to the WM outputs on the crossover in case of BERLIN.

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## AFX Setup in Pictures

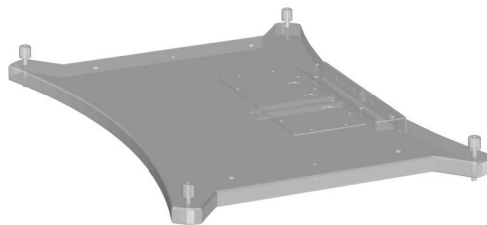
BASE



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## AFX Setup in Pictures

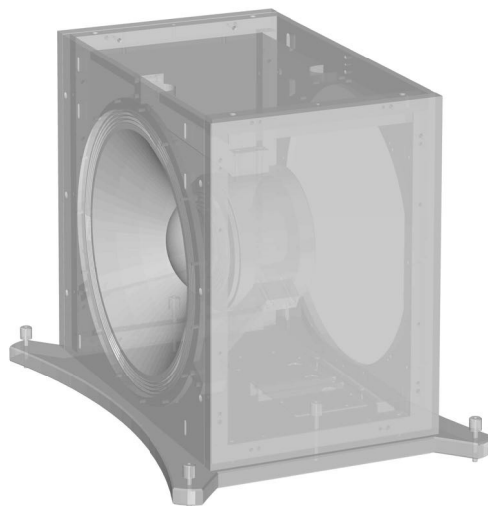
BASE and set screws (4x M6 fine thread)  
Adjust them with POM washers after room location is perfect



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## AFX Setup in Pictures

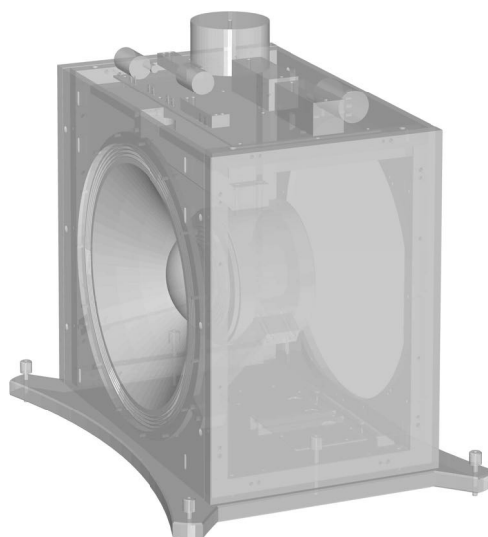
WOOFER BASS MODULE (WB)  
Secure with 2 M6 screws hand-tight



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## AFX Setup in Pictures

CROSSOVER BOARD LETTERING TOWARDS BACK  
Secure with 8 M4 screws hand-tight



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## AFX Setup in Pictures

WOOFER MID MODULE (WM)

Secure with 2 M6 screws hand-tight



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## AFX Setup in Pictures

### MID MODULE

Secure with 2 M6 screws from top hand-tight



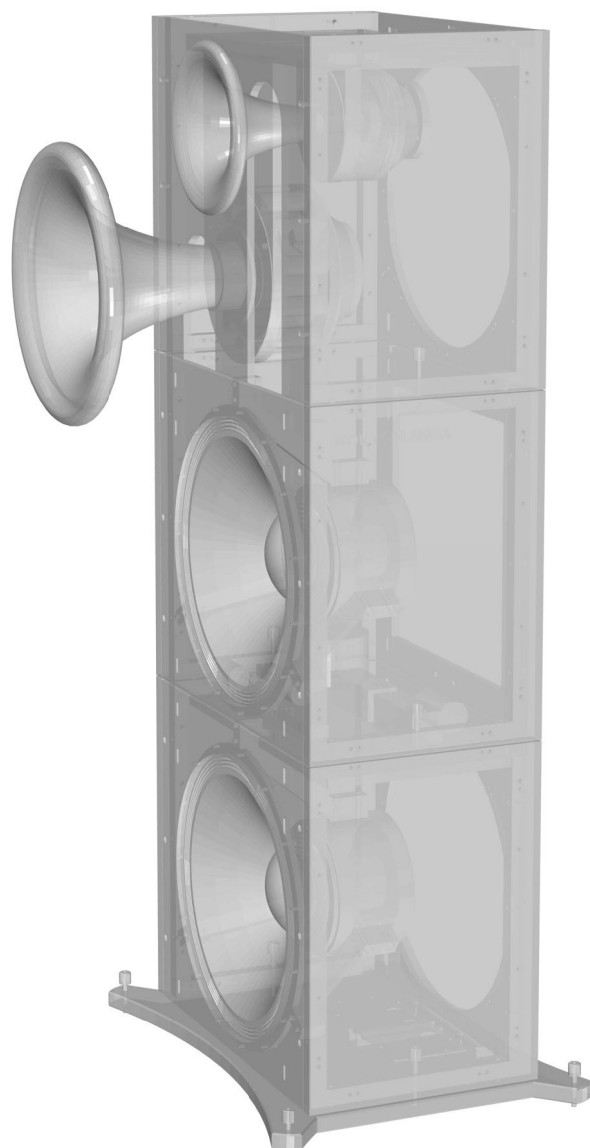
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## AFX Setup in Pictures

### SPHERICAL HORN MODULE

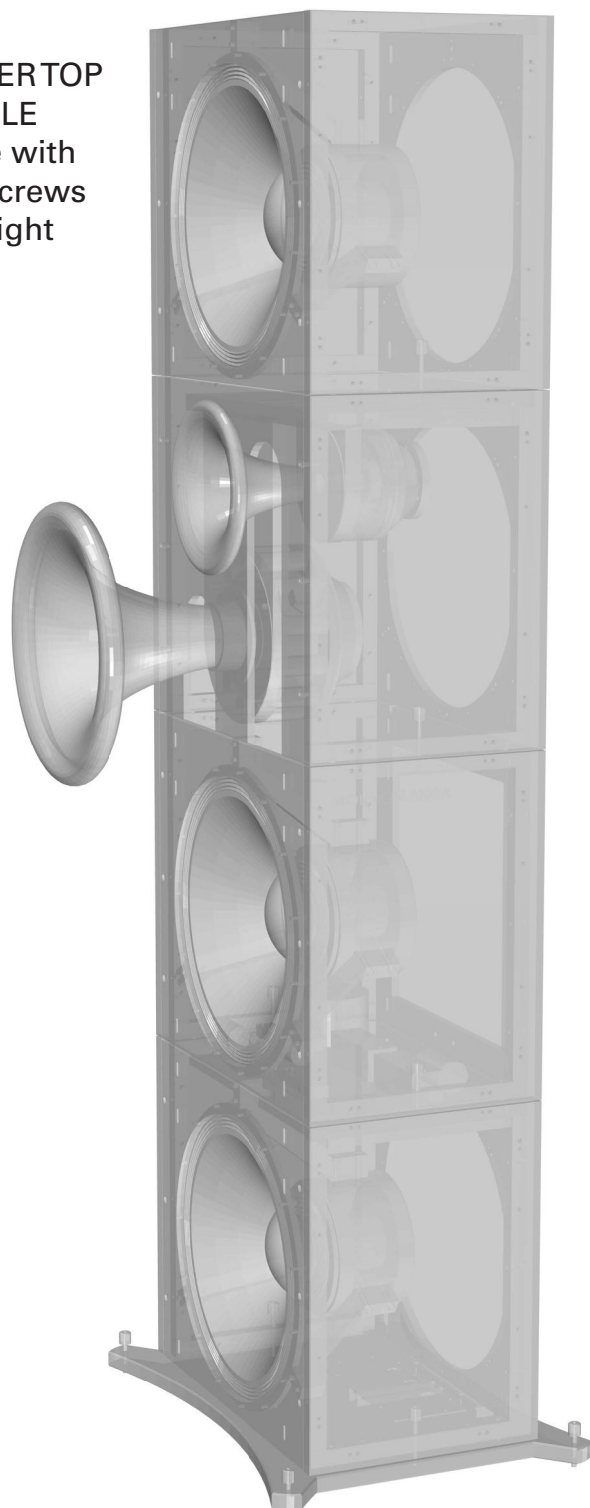
Secure with 2 M6 screws hand-tight

Use 2 long M6 screws with retaining ring and large washer from top to secure each horn bracket



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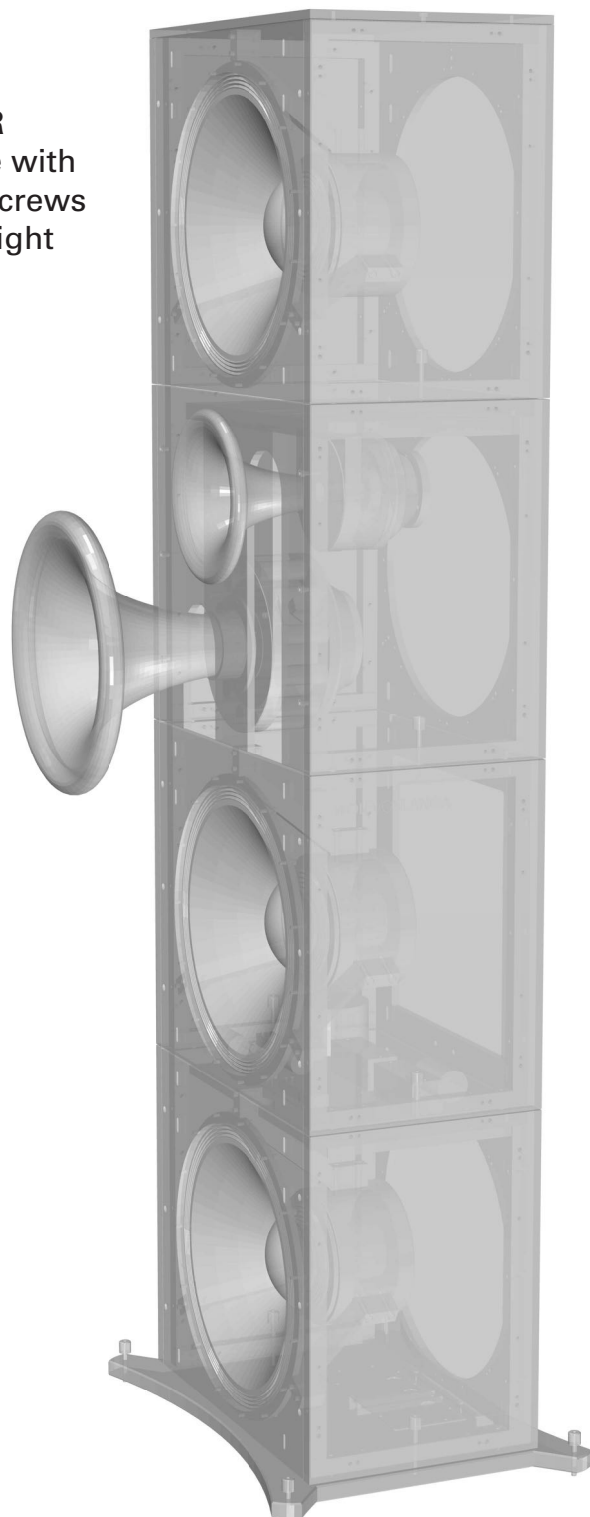
WOOFERTOP  
MODULE  
Secure with  
2 M6 screws  
hand-tight



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TOP  
COVER  
Secure with  
2 M6 screws  
hand-tight



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## Technical Specifications

<b>WVL 23216 AF LONDON</b>	B 571 x H 1147 x T 419 mm
Frequency range	30-20.000 Hz
Rating (5ms peak)	150 Watts (1000 Watts)
Impedance/Efficiency	8 Ohms/95dB/1W/1m
Field current DC	
WOOFER MODULE WB	1,6...2,1 A
WOOFER MODULE WM	1,6...2,4 A
MID MODULE	1,7...1,8 A
<b>WVL 23239 AF CHICAGO</b>	B 571 x H 1147 x T 419 mm
Frequency range	30-30.000 Hz
Rating (5ms peak)	150 Watts (2000 Watts)
Impedance/Efficiency	8 Ohms/95dB/1W/1m
Field current DC	
WOOFER MODUL WB	1,6...2,1 A
WOOFER MODUL WM	1,6...2,4 A
MID MODUL	1,7...1,8 A
<b>WVL 33221 AF BERLIN</b>	B 571 x H 1285 x T 543 mm
Frequency range	30-30.000 Hz
Rating (5ms peak)	300 Watts (3000 Watts)
Impedance/Efficiency	4 Ohm/96dB/1W/1m
Field current DC	
WOOFER MODUL WB	1,6...2,1A
WOOFER MODUL WM	1,7...2,4 A
WOOFER MODUL WT	1,7...2,4 A
<b>WVL BASS MODULE</b>	B 482 x H 417 x T 300 mm
Frequency range	30-2.500 Hz
Rating (5ms peak)	100 Watts (1000 Watts)
Impedance/Efficiency	16 Ohm/93dB/1W/1m
Field current DC	
WOOFER MODULE	1,6...3,0 A

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## Parts List

WVL AFX model \_\_\_\_\_ manufactured \_\_\_\_\_

AFX Base w/cables	<input type="checkbox"/>	<input type="checkbox"/>
Set screws M6 fine thread	<input type="checkbox"/>	<input type="checkbox"/>
WVL MODULE WB	<input type="checkbox"/>	<input type="checkbox"/>
WVL MODULE WM	<input type="checkbox"/>	<input type="checkbox"/>
WVL MODULE MID London	<input type="checkbox"/>	<input type="checkbox"/>
WVL MODULE MID Chicago	<input type="checkbox"/>	<input type="checkbox"/>
Binding screws M6	<input type="checkbox"/>	<input type="checkbox"/>
WVL SPHERICAL HORN MODULE Berlin	<input type="checkbox"/>	<input type="checkbox"/>
Horn small w/bracket and screw set	<input type="checkbox"/>	<input type="checkbox"/>
Horn large w/bracket and screw set	<input type="checkbox"/>	<input type="checkbox"/>
WVL crossover London/Chicago/Berlin	<input type="checkbox"/>	<input type="checkbox"/>
WVL MODULE WM Berlin	<input type="checkbox"/>	<input type="checkbox"/>
WVL MODULE w/crossover support	<input type="checkbox"/>	<input type="checkbox"/>
AFX top cover w/screws	<input type="checkbox"/>	<input type="checkbox"/>
AFX FC multi cable	<input type="checkbox"/>	<input type="checkbox"/>
AFX power supply	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>

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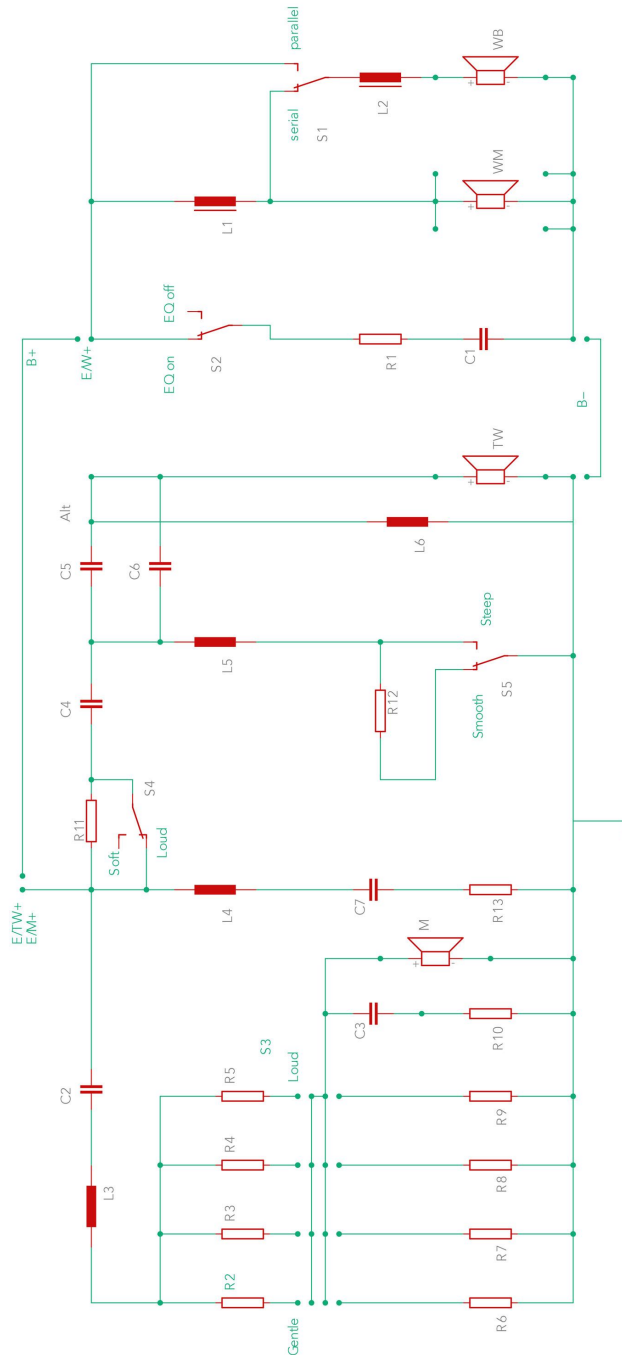
**Your Notes**

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### Crossover for AFX

Schematics (components tipped individual)



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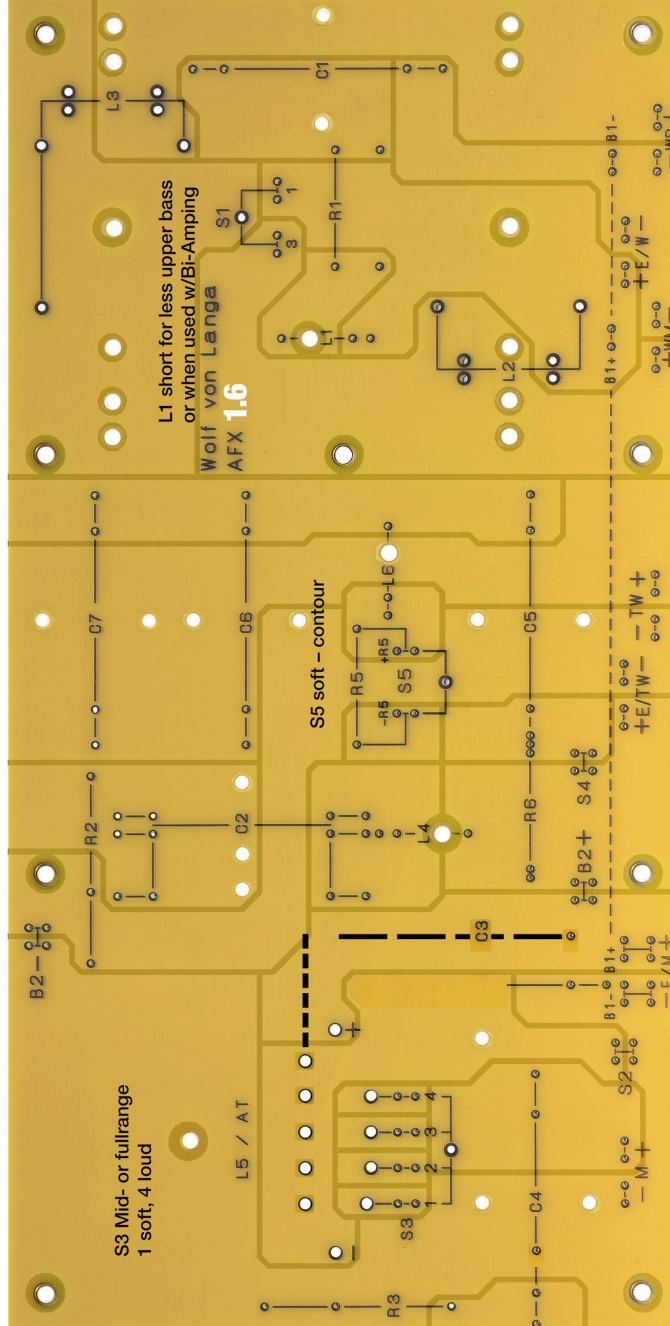
Crossover board functions

# NETWORK AFX 1.6

Lower bass WB 1,6 ... 2,2A 1,9A Upper bass WM 1,8 ... 2,5A 2,2A Mid 1,6 ... 1,8A 1,7A

If B1-/B1- and B1+/B1+ are in place there is no need for bridging the 2 red and 2 black terminals at the base

B2 shorted



S1  
Pos. 3 serial, cuts lower bass early  
Pos. 1 parallel, both woofers parallel

L1 short for less upper bass  
or when used w/Bi-Amping  
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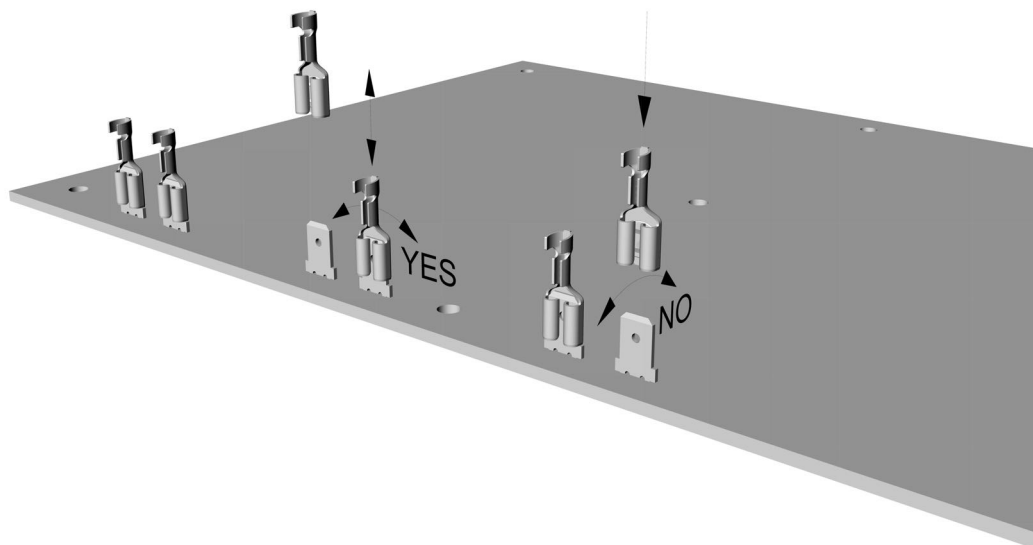
M Mid out  
S2 do not use  
E/M = Entry from Base, left terminals seen from back  
B2 shorted  
B1- and B1+ remove for Bi-Amping  
E/TW do not use  
S4 short to make tweeter louder  
TW tweeter out  
WM upper bass  
WB lower bass  
E/W = Entry from Base, right terminals seen from back

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## Crossover for AFX

Please read!

Avoid bending the contacts on the PCB



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## Connecting the crossover

We know the connectors on the circuit board look simple and they are indeed uncomfortable because they are hard to remove, especially the very first time.

But finally, you have to accept that there are no more reliable electrical connectors. They are used throughout the automotive industry and permanently withstand vibrations, temperature and humidity changes.

Please read these lines and follow our recommendation for attaching and removing these contacts. This allows you to connect your high-quality loudspeakers reliably and make individual adjustments.

In all circumstances, avoid bending the flat connectors on the printed circuit board. The plug-in sleeves can be pushed better on the flat plug by slight lateral movements. Take your time please.

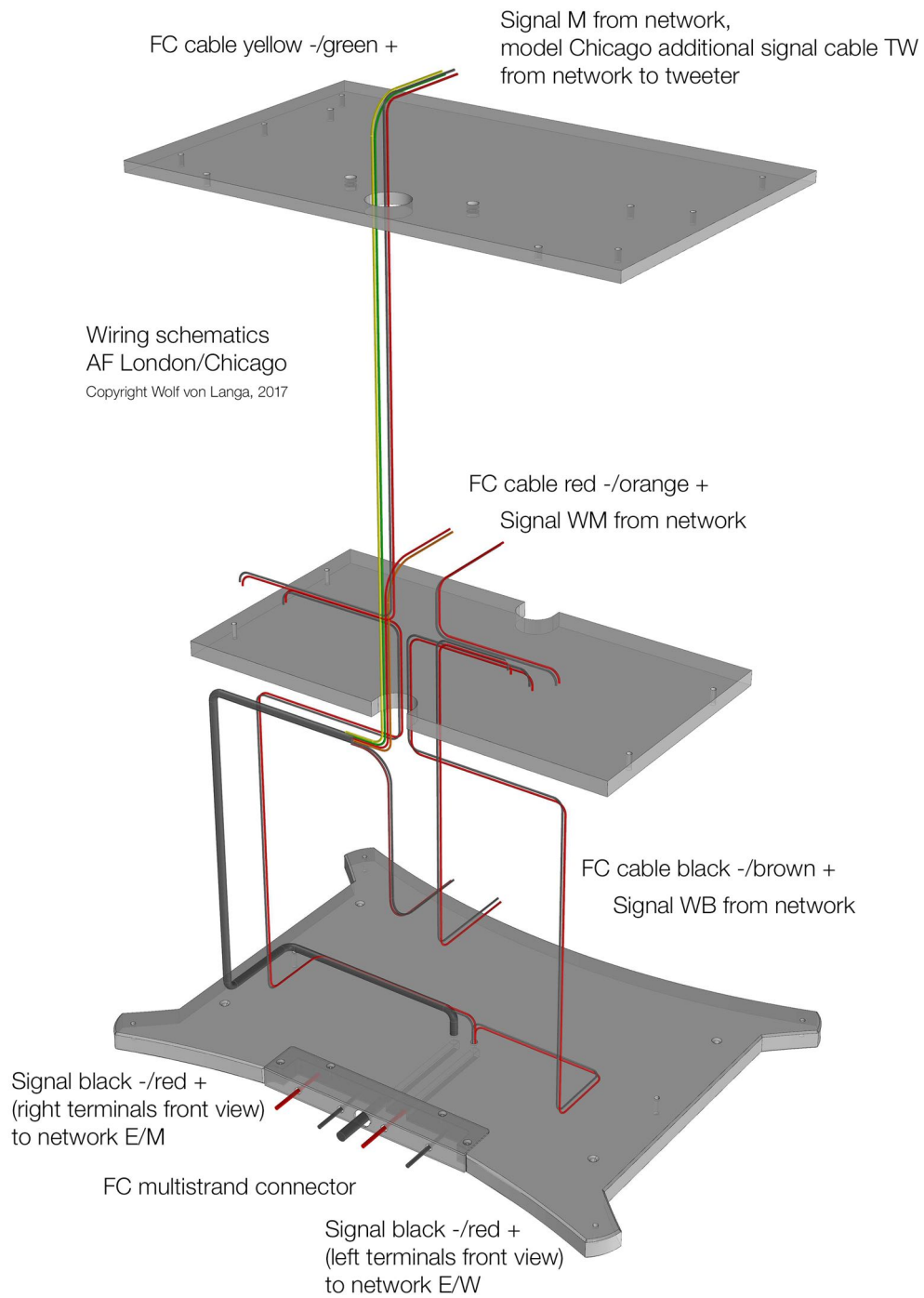
The same applies to the removal of the flat connectors. In this case, take a flat-headed screwdriver and slide it between the circuit board and the connector. Carefully pry the plug while holding the cable with the other hand to avoid bending the flat plug on the PCB.

Thank you and enjoy your new WVL loudspeaker!

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### Connecting the AFX cables



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