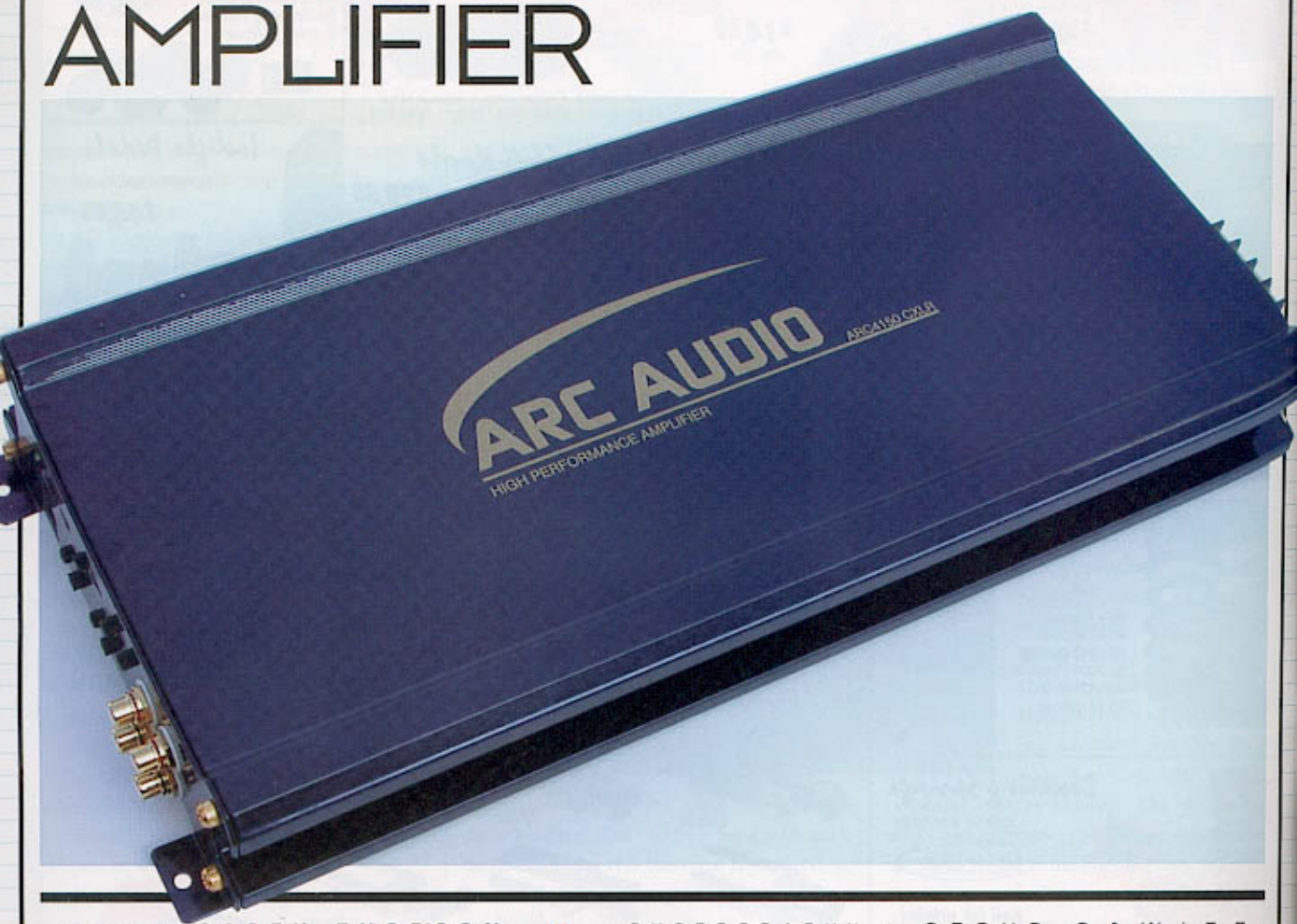


# ARC AUDIO

## ARC4150-CXLR

### AMPLIFIER



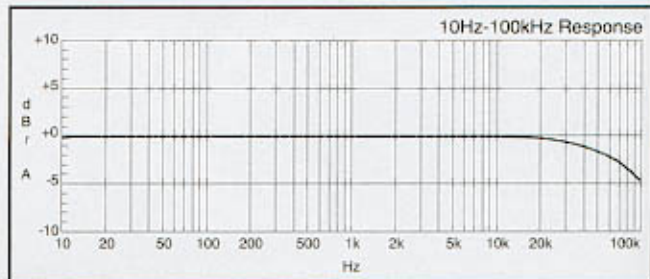
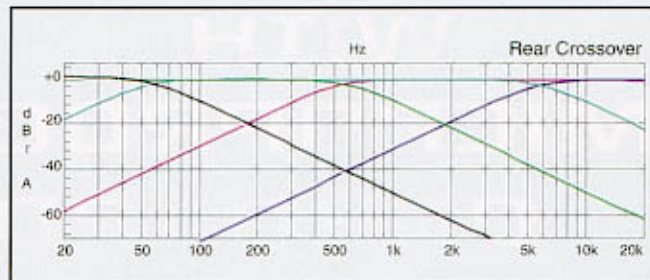
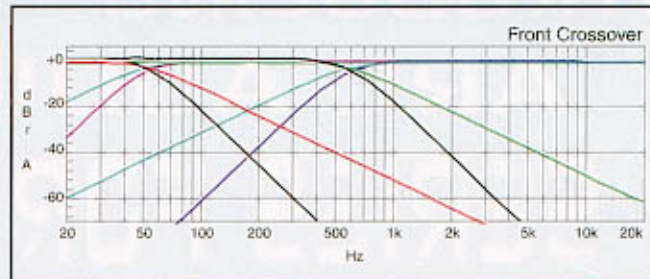
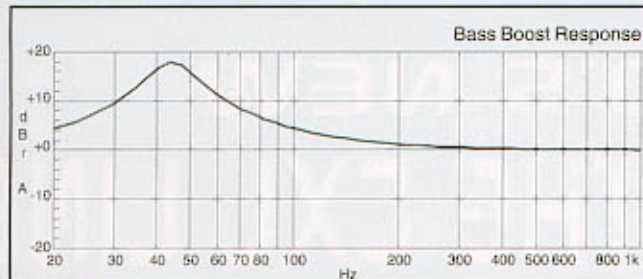
TEXT ▶ CASEY THORSON ■ PHOTOGRAPHY ▶ STEVE SAWITZ

**ARC AUDIO** is a fairly new player on the car audio block. From its start in 1998, the people at Arc Audio were determined to build audiophile quality amplifiers and electronics rivaling the best on the market. In this month's review we put the 4-channel **ARC4150-CXLR**, which the company rates at 75 watts per channel into 4 ohms, on the bench. This amp uses a class AB, Bipolar design and features a somewhat complex preamp section that includes the crossovers and variable bass-boost.

#### FEATURES

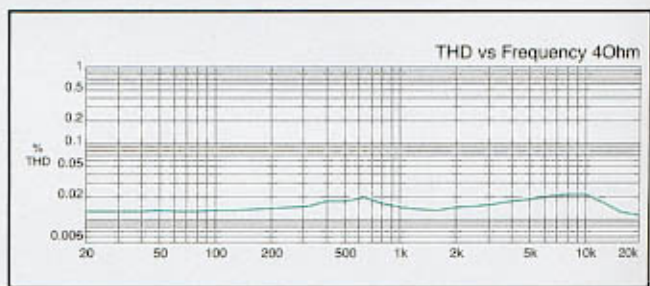
- Heavy duty gold plated RCA connectors
- Microprocessor controlled
- Remote bass boost
- Compact design
- Broad crossover range: 50Hz to 5.5kHz
- Internal crossover with Full/Low/High range output

Opening the gift box of the ARC4150-CXLR reveals the rich deep blue color of the amp's exterior. The heatsink is virtually free of fins that clutter most amplifiers, leaving



the amp with a rather simple, yet rugged look. The gold screened logo in the center of the amp is nicely complemented by the gold plated screws, terminals and plated RCA receptacles. The size of the ARC4150-CXLR is somewhat compact for its output power rating with a footprint measuring 16.5" x 8" x 2.35".

Unbolting the bottom chassis plate from the Arc uncovers a very clean circuit board with high quality through-hole and surface mount components. Because of the compact design, an additional PCB for the crossovers and bass boost circuitry was required. A microproces-



www.arcaudio.com

Brand: Arc Audio

Model: ARC4150-CXLR

MSRP: \$859.00

#### MEASURED SPECIFICATIONS

##### Output power @1% THD 1kHz 14.4 volts

Stereo @ 4 ohms	.4 x 101 watts
Stereo @ 2 ohms	.4 x 183 watts
Bridged @ 4 ohms	2 x 366 watts

##### Output power @1% THD 1kHz 12.5 volts

Stereo @ 4 ohms	.4 x 98 watts
Stereo @ 2 ohms	.4 x 164 watts
Bridged @ 4 ohms	2 x 328 watts

Distortion at 150Watts x 4, 1kHz, 14.4 volts	0.025% @ 2 Ω
Input sensitivity	250mV-2.6V
Frequency response (±1dB)	10Hz- 40 kHz
S/N (A-weighted, below clipping)	> 109 dB
Damping Factor @ 100Hz, 4 Ω	> 2300
Idle current	1.9 amps
Efficiency at 1/3 power: 2 ohm / Ch.	35%
Minimum operating voltage	10 Volts
Front Crossover slope	12/24 dB/octave, Butterworth
Front Crossover: high or low pass	55-5.5kHz in two ranges
Front Crossover slope	12 dB/octave, Butterworth
Rear Crossover: high or low pass	50-550 Hz



sor was set in place to monitor the internal temperature, power supply, remote bass control, and protection circuitry.

The power supply is a typical pulse width modulated type that is regulated down to 12 volts while delivering full rated power. Arc Audio gets our praise for the eight high quality, low ESR, 105° C capacitors used in the output section of the supply. It is these types of quality components that assure great performance with minimal degradation over the life of the amplifier.

The output stage uses four 25-ampere bipolar transistors per channel, held in place with heavy gauge pressure clamps. A messy, thermally conductive grease was used to increase the heat transfer from the transistors to the heatsink. The grease conducts heat well, but can be a technician's nightmare.

One end of the amplifier contains the power and output connections. The connectors are standard gold plated spade lug terminals used in many amplifiers. At the opposite end of the amp are the audio input connections. These are very high quality machined RCAs that mount to the side panel of the heatsink rather than the PCB (where they can break away from the board when too much pressure is applied).

### Input Selection and Electronic Crossover

One glance at the left side of the amplifier sent me scrambling for the manual that I should have looked at before benching the amp (old installer habit; look at the manual only when you aren't exactly sure what you are doing). Switches and dials encompass the remaining portion of the left side next to the RCA inputs. This is home to the input and crossover selection.

The input selection was more versatile than most of the other amplifiers we've tested: The ARC4150-CXLR can be configured as summed bridged mono (the left and right channels are summed together), left bridged, right bridged, or stereo. When the front channels are bridged, the source will be the front right. When the rear channels are bridged, the source is the front left. Two-channel with bass can also be chosen through rear source select, allowing the use of the remote bass level control.

The internal crossover provides either 12dB or 24dB/octave Butterworth slopes for the front channels. The rear channel



crossover is fixed at 12dB/Octave. The front channel crossover is variable from 55Hz to 550Hz. The rear channel crossover is variable from 55Hz to 5,500Hz in two switchable ranges, x1 and x10. Both front and rear crossovers can be configured as high or low pass via switches under the bottom plate that is difficult to access once the amplifier is mounted in the vehicle.

#### Protection

The ARC4150-CXLR is fused with three internal 30 amp automotive fuses. The pro-

tection circuit should prevent these fuses from blowing, but we would prefer to see external fuses that are much easier to access. The Arc passed all of our tests without any hiccups, including the over-voltage, reverse-voltage, and speaker-short tests.

#### Performance

This amplifier passed, in terms of performance, with flying colors. With typical distortion being below 0.02% and a slew rate better than 40, the ARC4150-CXLR is a dream amplifier. The damping factor was

#### PROS

- ▶ Chassis mounted machined gold plated RCA connectors
- ▶ High slew rate
- ▶ Very high damping factor
- ▶ 105° C. capacitors in power supply
- ▶ Micro processor controlled
- ▶ Digital control pot for the remote bass boost
- ▶ Left and right sum mono option
- ▶ 12/24dB crossover selector for front channels

#### CONS

- ▶ Internal fuses
- ▶ Access for four of the crossover switches is through the bottom plate
- ▶ Manual written for professional installers

also extremely impressive, better than 2000 at 4 ohms. This is an incredible feat for any amplifier, especially a four-channel amp; so much so that we checked the damping three times! According to Arc Audio, these great specs are a direct result of the high current triple darlington output stage design.

Other measurements were impressive. Separation was an excellent 85dB. A weighted signal-to-noise (SNR) was better than 109dB, a great figure, given the complexity added by the bass boost circuit.

The input sensitivity was variable from 215 mV to 2.6 volts. This range is rather narrow, but the amp should have no problem making full power off of any head unit. However, line drivers or processor can easily peak the inputs of the amp if the levels are too high.

Efficiency at full power into 2 ohms was 56%, about average for a class A/B amplifier. At 1/3 power the efficiency fell to 35%, again typical for class A/B amplifiers. Idle current for this size amplifier was common (for this size amplifier) at just a tick under 2 amps.

#### Manual

Arc spared no expense in the design of the amplifier, but when it comes to the manual they left a little to be desired. Reading through the manual, it is very apparent that



it was written for professional installers, not the installation challenged. There are lots of specifications provided with charts to back them up, but little explanation of installing the unit into the car or exactly how to use the crossover and bass controls to your advantage.

### Listening Test

The ARC4150 was reviewed using various source materials. At first listen you get the feeling that this is a powerful amplifier. Bass response was solid and clean. Midrange and treble were highly detailed and full sounding. Overall, no coloration, distortion, or loss of staging could be detected. There was a slightly audible turn-on "tick", but no turn-off noise.

### Conclusion

The ARC4150-CXLR is quite the contender. Its internal layout is as beautiful as its performance. To say this four-channel meets audiophile criteria would be a gross understatement, considering such astounding results: low distortion, low noise, high slew rate, great separation, and high output current. This amp gets our highest marks! ✖

