BAUER COMMUNICATIONS, INC.

COMMUNICATIONS

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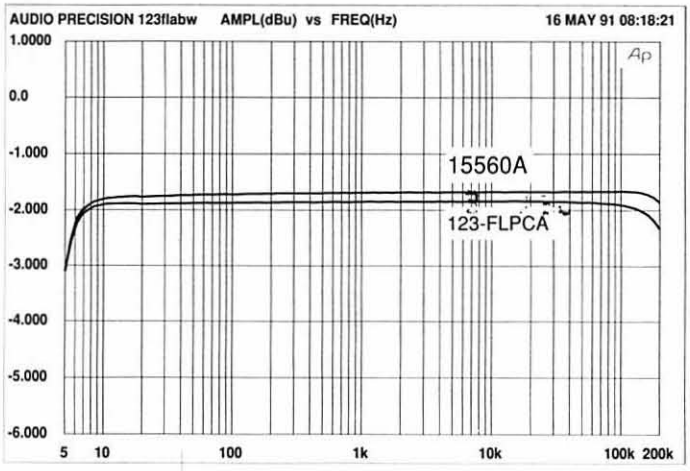
NSCA

A couple of months ago I called up S&VC hoping to get a couple of guest badges to the NSCA convention. After a 30 minute conversation with Fred Ampel we ended up with our badges, EXHIBITOR BADGES that is. This is the first time we have exhibited at the NSCA. We will finally be able to meet many of you who have called us over the past year. So many of you have made suggestions that are now products as you will see in the following pages.

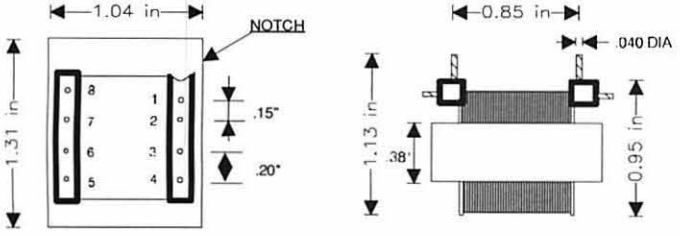
TWO BETTER SOLUTIONS

We have developed two cost effective transformers for equipment that use the Altec Lansing* 15560A output transformer. The first is the RE-123-FLPCA 50% nickel output transformer. This transformer uses a quadfilar winding similar to the 123-FL, has a flat magnitude response, and low distortion.



RE-123-FLPCA and 15560A MAGNITUDE RESPONSE

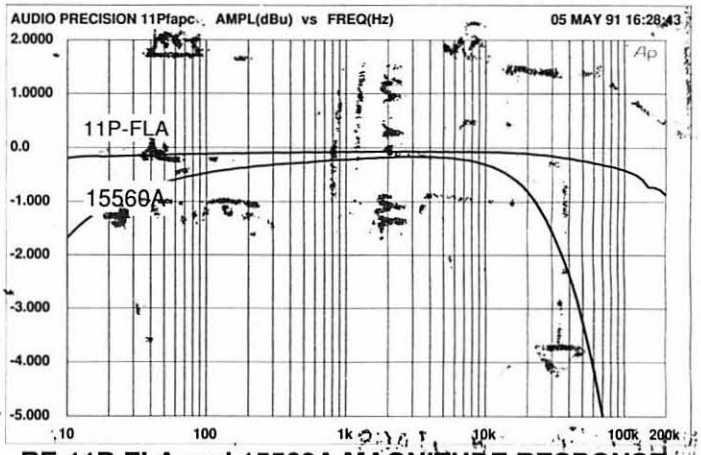
Tested as output transformers



Altec 15560A / RE-123-FLPCA / RE-11P-FLA

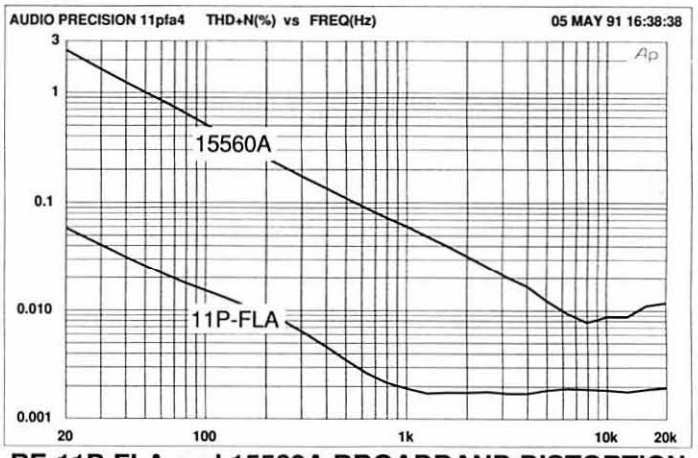
* Altec Lansing is a registered trademark of ALTEC LANSING CORPORATION

The 15560A is a steel core output transformer that many have also used as an input transformer (a job this transformer was not designed for). The following graphs show the results of this misapplication. The RE-11P-FLA is a 1:1, 20k ohm to 20k ohm bridging input transformer with a 50% nickel core, which allows multiple amplifiers to be fed from a single line feed without degradation due to loading effects.



RE-11P-FLA and 15560A MAGNITUDE RESPONSE

Tested as input transformers



RE-11P-FLA and 15560A BROADBAND DISTORTION

Tested as input transformers

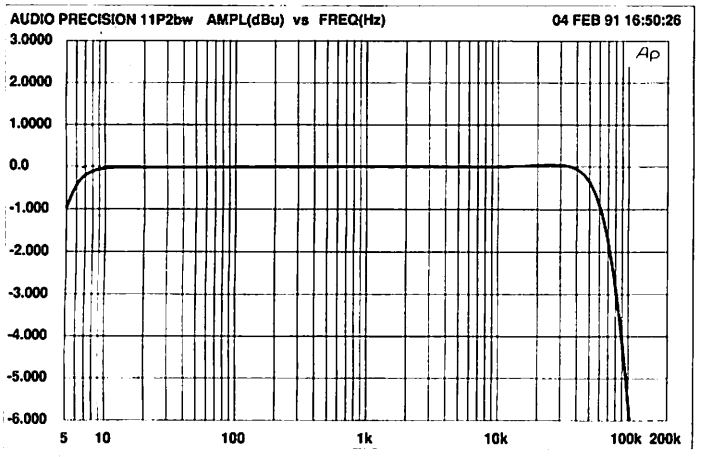
The RE-11P-FLA is a cost effective direct replacement solution. If lower distortion is needed use the RE-11P-FMA (80% nickel). If electrostatic or magnetic shielding is necessary contact us for a recommended transformer. The RE-123-FLPCA output and the RE-11P-FLA input are available at a contractor net price of $19.95 each. Both of these transformers are currently being evaluated by Altec.

THE 11P-1

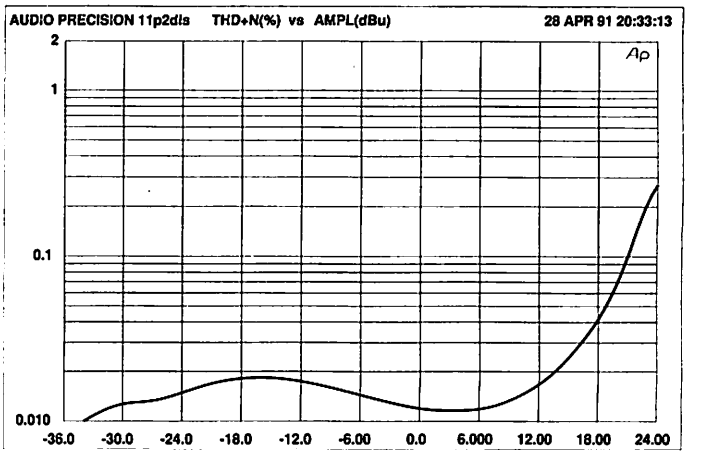
When an application call comes in for a line input transformer most of the time the choice is simple, an RE-11P-1. Small size, low cost, wide bandwidth, and low distortion make it an almost universal 1st choice. We conservatively rate this transformers maximum 20 Hz input level at +16 dBu. Up till now if you needed a transformer for the N-10 standard of +21 dBu, you had to use the larger and more costly RE-11P-9, with a maximum 20 Hz input level of +24 dBu.

THE MID SIZE 11P-2

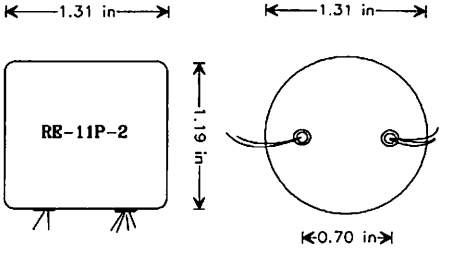
The new RE-11P-2 was developed to fill the gap between these two transformers. It has a 20 Hz max. input level of +22 dBu, (30 Hz of +26 dBu) plus an 80 kHz bandwidth and low distortion. Add a smaller package and lower cost than the RE-11P-9 and you have a transformer that will handle most of your higher input level needs.



RE-11P-2 Magnitude Response



RE-11P-2 20Hz Distortion

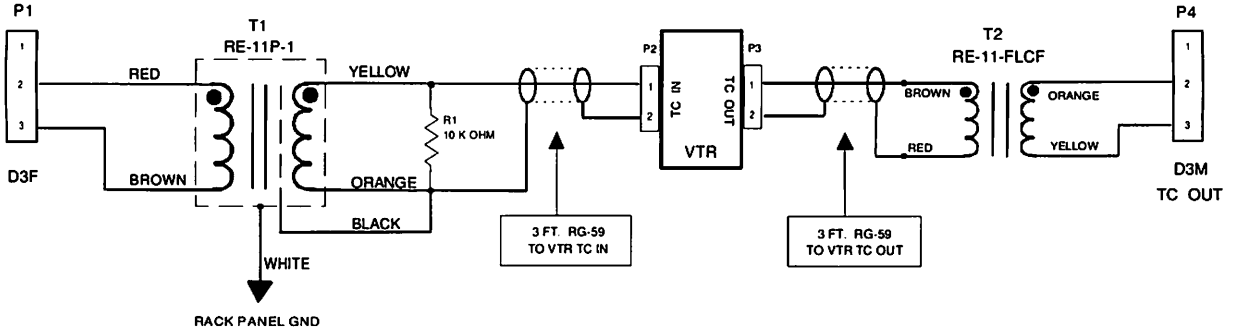


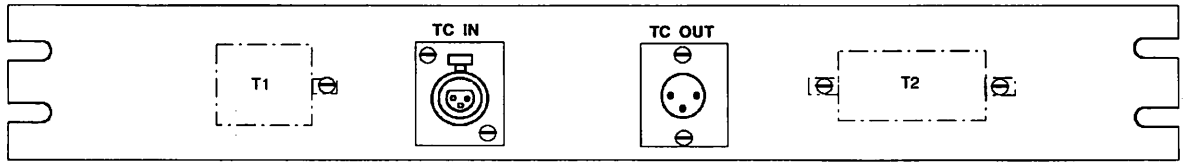
PRODUCTS IN PROGRESS

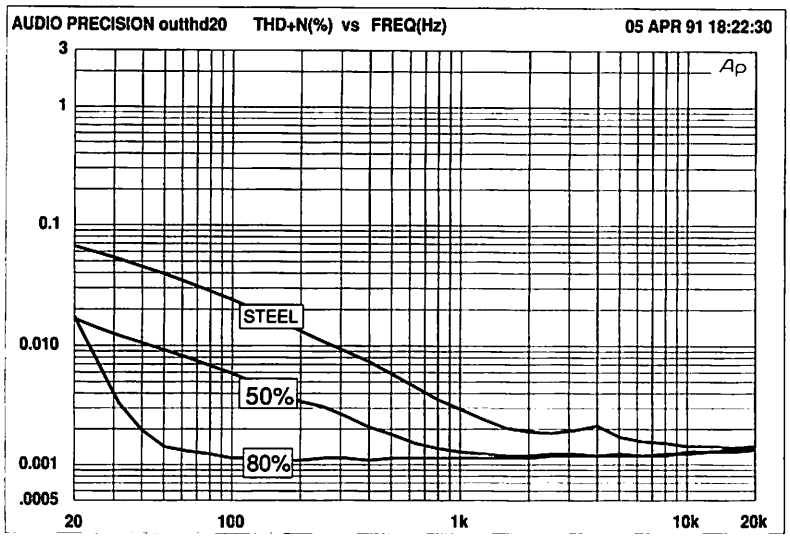
- **70 volt line transformers** from 12.5 watt to 300 watt.
- **Dynamic terminal blocks** that fit directly on top of the transformer for fast easy wiring. This will eliminate the need to use a separate barrier strip when mounting a transformer in a rack or other stationary enclosure.

KEEPING TIME CODE CLEAN

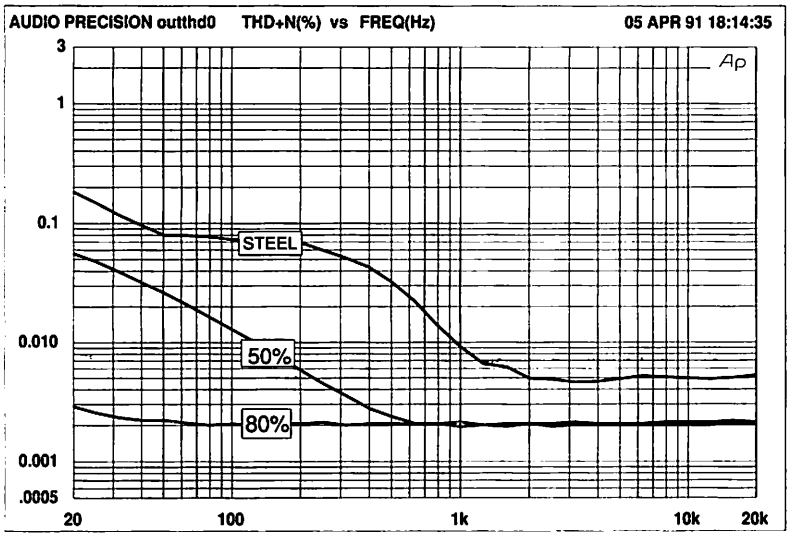
For central time code source in a multi machine environment, quality transformers are needed. Transformers provide, 1) ground loop isolation, 2) keep time code out of the audio and, 3) keep spurious signals out of the time code. If the VTR TC input is 10K or lower, R1 can be omitted. Both transformers are small enough to fit on a 1.75" rack panel mounted directly under the VTR.



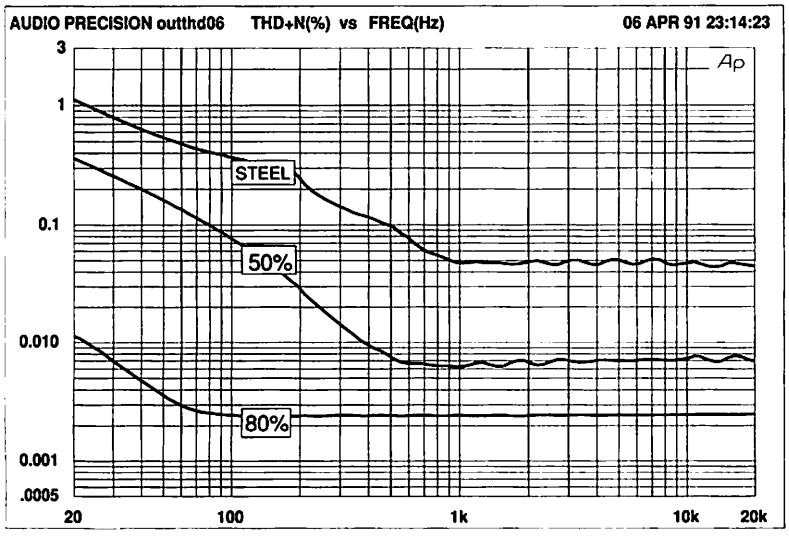




Broadband Distortion @ +20 dBu, 25 Ohm source impedance



Broadband Distortion @ 0 dBu, 25 Ohm source impedance



Broadband Distortion @ 0 dBu, 600 Ohm source impedance

STEEL, 50%, 80% NICKEL DOES IT REALLY MATTER?

This is a daily question we field concerning the core material in our output transformers. The answer is yes. How much it matters depends upon your application, your budget, and any size constraints you may have. The first two graphs were made at +20 dBu and at 0 dBu over the frequency range of 20 Hz to 20 kHz, source impedance is 25 ohms. The transformer series chosen was the "B" series, in this case the 11-B (steel), 11-BL (50% nickel), and the 11-BM (80% nickel).

Graph #1 (+20 dBu)

We see all three core types begin at 20 kHz with the same distortion. Around 2 kHz the steel starts its distortion climb, while around 1 kHz the 50% nickel starts it's climb. The 80% nickel doesn't really begin it's rise until around 50 Hz.

Graph #2 (0 dBu)

As the output level decreases we notice the steel starts at a higher distortion level. Again it's distortion begins to climb around 2 kHz. The 50% nickel stays down until about 600 Hz when it starts its climb, while the 80% nickel maintains a consistent low distortion.

Graph #3 (0 dBu, 600 ohm)

As we raise the source impedance to 600 ohms we see both the steel and the 50% nickel experience a significant increase in overall distortion. The 80% nickel experiences a minor increase in distortion with the worst being between 20 Hz to 50 Hz.

If you are using a true zero source impedance output, your distortion will be slightly lower than the first two graphs, especially for steel core transformers. If you use an amp with a higher source impedance than 600 ohms, your distortion will be higher than graph #3.

After seeing these graphs you can see why our input transformers, many of which expect to see a 600 ohm source impedance, typically use 80% nickel core material. Clearly the 80% nickel core material is the winner when it comes to distortion. But is it always the right choice?

Case in point.

You have need of a transformer that handles +20 dBu. You look at the chart (on the next page) and see the RE-11-FL (50% nickel) handles +20 dBu at 20 Hz, it has a small size, weighs only 4 oz, and has a unit cost of $27.00. In order to have the same level handling capability in an 80% nickel transformer you would have to use the RE-11-DM. This transformer handles +21 dBu at 20 Hz, but it is larger, it's weight is 11 oz and it's single unit cost is $48.00. Yes we would like you to use the 80% nickel, it makes a better transformer. However when you must look at size, weight, and cost, versus performance, you will have to make the choice. After all it is your nickel.

QUICK REFERENCE GUIDE

INPUT TRANSFORMERS

Model	Application	Impedance Ratio	Turns Ratio	Band-width	Max input level 20Hz	30Hz	Size	Weight	Approximate Cost 1	25	100
RE-16-A	Mic input	150-600	1:2	200K	+8	+12	1.31x1.57	5.5 oz	64.00	53.00	41.00
RE-13K6-C	Mic input	150-3750	1:5	85K	-2.5	+1	1.13x1.06	2.5 oz	41.00	34.00	26.00
RE-13K7-A	Mic input	150-3750	1:5	85K	+8	+12	1.31x1.57	5.5 oz	64.00	53.00	41.00
RE-115K-E	Mic input	150-1500	1:10	95K	-2.5	+1	1.13x1.06	2.5 oz	50.00	41.00	32.00
RE-MB-C	Mic split 1 secondary	150-150	1:1	150K	+1	+5	1.13x1.06	2.5 oz	40.00	33.00	26.00
RE-MB-D	Mic split 2 secondary	150-150-150	1:1:1	88K	+2	+6	1.13x1.06	2.5 oz	70.00	58.00	45.00
RE-MB-E	Mic split 3 secondary	150-150-150-150	1:1:1:1	48K	+10	+14	1.31x1.57	5.5 oz	96.00	80.00	61.00
RE-DB-E	Direct Box	20K-150	12:1	65K	+19	+24	1.13x1.06	2.5 oz	50.00	42.00	32.00
RE-11P-1	Line in	15K-15K	1:1	85K	+16	+20	1.13x1.06	2.5 oz	47.00	39.00	30.00
RE-11P-1PC	Line in	15K-15K	1:1	85K	+16	+20	1.13x0.84	2.5 oz	46.00	38.00	29.00
RE-11P-2	Line in	15K-15K	1:1	80K	+22	+26	1.31x1.19	4.0 oz	87.00	72.00	56.00
RE-11P-9	Line in	15K-15K	1:1	55K	+24	+28	1.31x1.57	5.5 oz	103.00	85.00	66.00
RE-10KB-C	Line in Bridging	10K-600	4:1	125K	+19	+23	1.13x1.06	2.5 oz	42.00	35.00	27.00
RE-6110K-B	Line in Bridging	10K-600	4:1	160K	+24	+27	1.31x1.57	5.5 oz	66.00	55.00	42.00

The above input transformers represent our most popular designs. Many are available as pc or octal plug mounting. Other types of mountings, split or tapped primary and secondaries, tube and true 600 ohm. are also available. Prices are rounded up.

OUTPUT TRANSFORMERS

Series Type	Maximum Output 20hz	30hz	DCR Bifilar	Quadfilar	Turns Ratio Bifilar	Quadfilar	Weight	Core Size	Approximate Cost 1	25	100
BL	+32	+35	40	20	1:1	1:1 / 1:2	19 oz	2.25x1.88	50.00	42.00	32.00
DL	+27	+30	38	19	1:1	1:1 / 1:2	11 oz	1.88x1.56	39.00	32.00	25.00
EL	+23	+26	40	20	1:1	1:1 / 1:2	6 oz	1.63x1.31	31.00	26.00	20.00
FL	+20	+24	58	29	1:1	1:1 / 1:2	4 oz	1.38x1.13	23.00	19.00	15.00
GL	+7	+11	43	NA	1:1	NA	1.5 oz	1.00x0.75	27.00	22.00	17.00
BM	+26	+29	40	20	1:1	1:1 / 1:2	19 oz	2.25x1.88	64.00	53.00	41.00
DM	+21	+25	38	19	1:1	1:1 / 1:2	11 oz	1.88x1.56	48.00	40.00	31.00
EM	+17	+22	40	20	1:1	1:1 / 1:2	6 oz	1.63x1.31	41.00	34.00	26.00
FM	+15	+18	58	29	1:1	1:1 / 1:2	4 oz	1.38x1.13	28.00	24.00	18.00
GM	+4	+7	43	NA	1:1	NA	1.5 oz	1.00x0.75	28.00	23.00	18.00

Of all the output transformers we manufacture the majority fall into 5 basic series (or sizes). Starting with the largest, the B series, then the D, E, F, and the smallest the G series. The prefix stands for its possible use, 11 = Bifilar or 1:1, with its counterpart 123 = Quadfilar or 1:1, 1:2, or in one case 1:3. The suffix L stands for 50% nickel core material. The Suffix M stands for 80% nickel core material. The next possible suffix would be CF for channel frame mounting or PC for printed circuit mounting. Therefore an RE-11-BLCF is a 1 to 1, B series transformer using 50% nickel core material and a channel frame for mounting. Within a particular series type the power handling will be relatively consistent regardless of Bifilar, Quadfilar, split, tapped, or pc mount. Prices are rounded up and are based on the 1:1 Bifilar type. Other winding configurations and mounting types may be more expensive.

Prices, terms, conditions, and specifications subject to change without notice or obligation.

BCI BAUER COMMUNICATIONS, INC.

PRECISION TRANSFORMERS

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