VALVE

VINTAGE AUDIO LISTENERS AND VALVE ENTHUSIASTS

ampexes, nagras & ribbonmikes

> “ the acoustics of the church came through, even in mono ”

July's meeting was excellent. After a poor turnout at the swap (too bad, as Eric and I had a house full of tubes, amps, vintage TV's, test gear, radio parts, transformers, magazines, etc. for sale) Dave brought his humungous Ampex 351, a playback preamp, and some wonderful tapes he produced. Using the Magnepans driven by my modified Stereo 70 (sold it last week) and a stock MkIII driving my 'Stretchorn' subwoofer (more on that later) we had a veritable wall of mono sound.

This was particularly appropriate as the first recording was of an organ recital.

This tape was made in December of 1992 at First Presbyterian Church in Portland, Ore.

The excerpt was of James Welty playing *The Royal Swan Upping Song,* recorded at 15 ips on Ampex 456 mastering tape using the 351 and an HP instrumentation mic of East German manufacture.

This tape was particularly interesting to me because my uncle Don Schmalle, a marvelous tenor, was choir director at this church for years. I had attented a memorial service there when he passed away

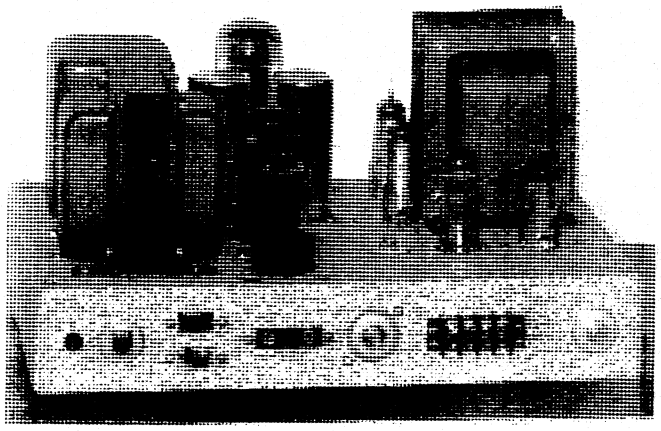
Cont. page 3

CLASSIC RADIO'S REFERENCE SYSTEM
JULY, 94
SPEAKERS - MAGNEPAN MG11A,
ALTEC LANSING A7
CLASSIC RADIO 'STRETCHORN' SUBWOOFER
AMPS - CLASSIC RADIO MOD STEREO 70,
DYNA MK III - SUBWOOFER
PREAMP - AMPEX 351
PHONO - DENON DP6000/DA305/AUDIOQUEST 404
CD - ONKYO DX1400
TUNER - KENWOOD L-07T
OPEN REEL - AMPEX 351

triophoni - triode triumph

This month I will take the opportunity to show off a little (Oh brother, not again...). I have today been putting the finishing touches on my latest amp project, a pair of triode output power amps called Triophoni. Since I spent a fair amount of time writing up a blurb to advertise them I will use excerpts from said blurb to describe them: 6CK4 cathode type triode valves operate class AB1 push-pull as

Cont. page 2



EARLY VERSION WITH DIFFERENT TRANSFORMER

VOLUME 1
NUMBER 6
AUGUST 1994

Dan Schmalle, editor

Next Meeting 8/7/94 12 noon

the output tube. This tube exhibits low drive and plate voltage requirements, allowing for fewer drive stages than the typical triode amplifier, helping to reduce phase shift.
A triode's transfer curve is more linear than that of a pentode. This helps minimize amplitude, harmonic and phase distorion, resulting in the incomparable triode sound.
The triode also exhibits low effective plate resistance, which minimizes 1) frequency response variations due to small inconsistencies in inductive reactance and distributed capacity in the output transformer and 2) transient distortion due to loudspeaker impedance variations. The low plate resistance to load resistance ratio of the triode in conjunction with the high turns ratio of the output transformer allows connection of speaker loads as low as 2 ohms.

A 6CG7 dual triode (like 6SN7 in a miniature envelope) operates as a long tailed pair phase inverter. The cathode circuit of the inverter is connected to the bias supply to give increased output voltage. The end result is an extremely stable amplifier with few amplification stages, requiring a low 12dB of negative feedback.

A 6267/EF86 pentode serves as the input stage. It is of course the low noise, low distortion pentode used in the classic Mullard circuit. The input and phase splitter are regulated by two 6626/0A2WA gaseous regulators supplying 300VDC +- 1%.

The choke input power supply incorporates a 5U4GB vacuum rectifier, yielding regulation of raw high voltage of +- 15VDC for a gentle ramp up at turn on. All power supply components are overrated for the puny 50 ma drawn by the 6CK4's.

The AC line input incorporates a neon pilot light, which flashes when godforbid a fuse blows, and an MOV across the mains.

The bias supply uses a separate transformer, an ultrafast diode rectifier and low ESR filter capacitors.
Bias and balance are adjustable and a socket is provided for connection of a voltmeter.

Construction is point to point, using star grounding, with AC wiring (in twisted pairs) and ground wiring running close to the chassis.

Resistors are metal film where prudent, and coupling and bypass caps are polypropylene. All tube sockets are ceramic.

Finishes are commercial grade paints.

Power output is 15 watts at the onset of clipping (about .7V input) and peak power is around 35 watts. That sounds pretty whimpy, but these amps even drive my Magnepans well. I think the reason is the gentle distortion characteristic of the triodes. I found myself turning the volume control up a notch or two from my usual setting with my Dyna amps, and distortion was not much of a problem, even though input sensitivity was greater.

Treble is clean as a whistle. No transistor grit, no pentode edge, as Mike would say, "triodes are sweet".
Midrange is present and well blended on both the high and low end. Female voice is in phase and realistic. Cellos show their marvelous buzzy idiosyncracies. Bass is bloody marvelous! I can't believe the clarity, detail, attack, punch and all those other adjectives. My basses really growl and groan, and my Tympanis hit my beer belly.

I thought this would be a nice cool jazz and chamber music amp, but I find myself relistening to Count Basie's big band and Beethoven's Ninth.

These are going to be hard to part with. I wonder what four 6CK4's in push pull parallel would sound like?

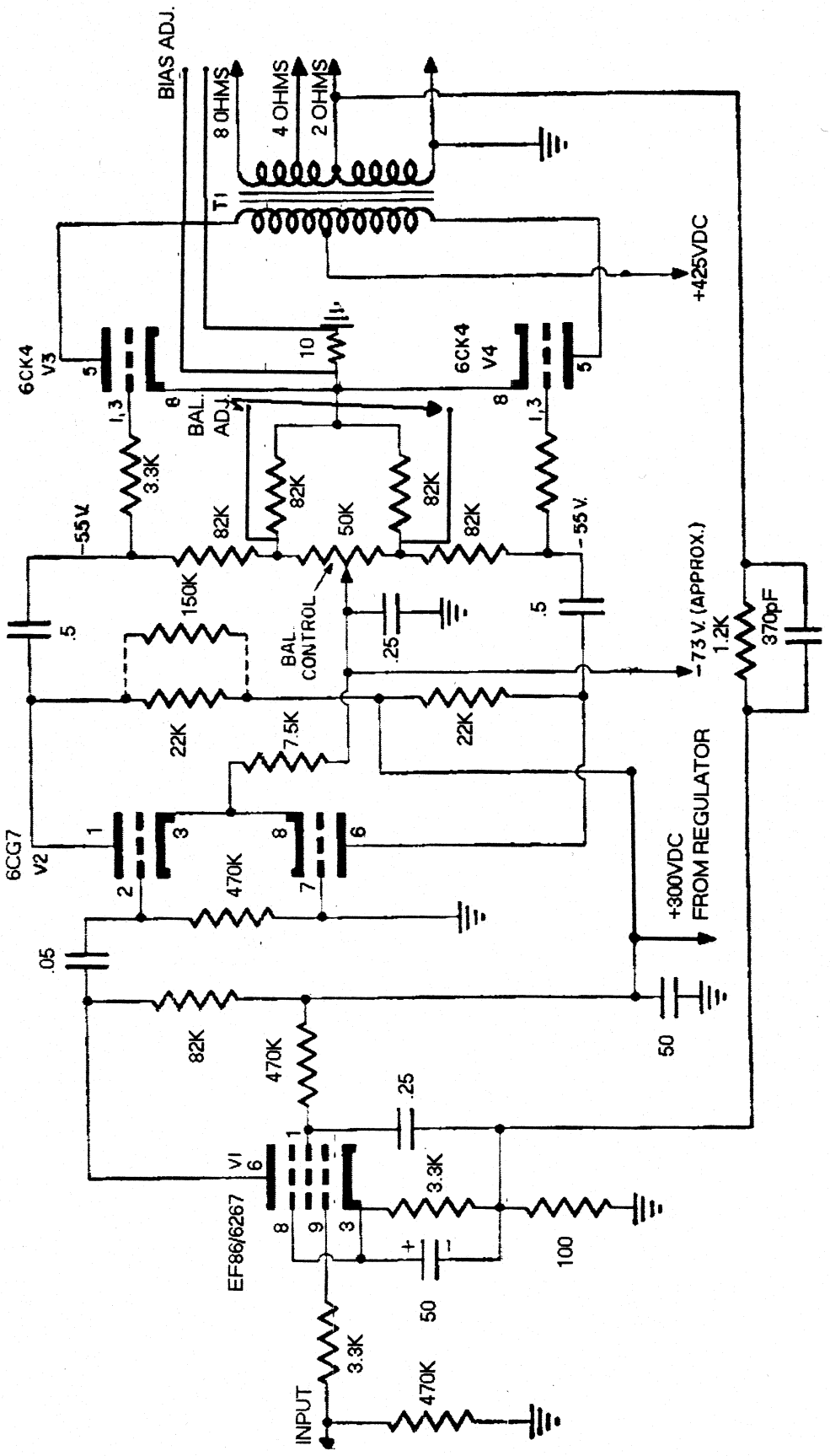
Come by and hear 'em before they get sold — dan

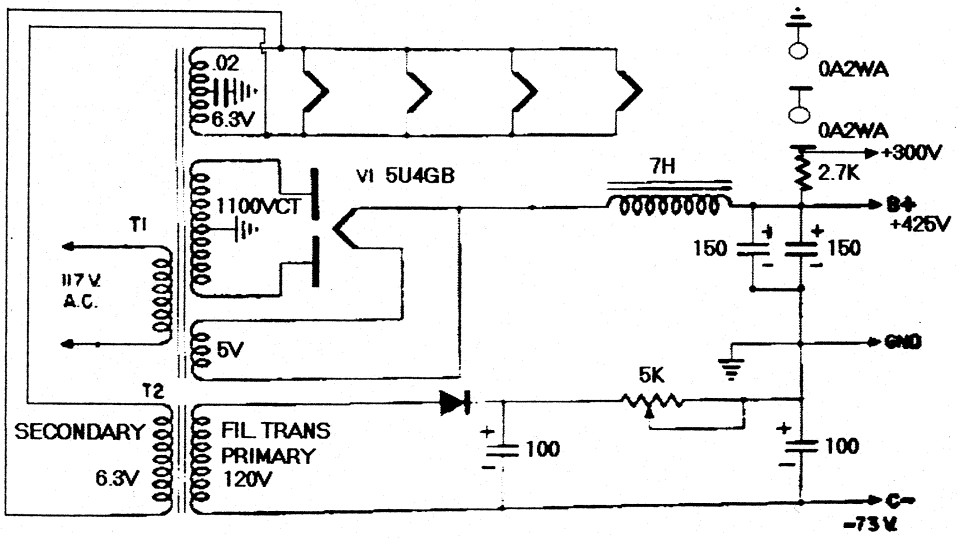
6CK4 RATINGS (DESIGN- MAXIMUM VALUES)	
DC PLATE VOLTAGE	550 VOLTS
PLATE DISSIPATION	12.0WATTS
AVERAGE CATHODE CURRENT	100 MA.
PEAK CATHODE CURRENT	350 MA.
GRID CIRCUIT RES. SELF BIAS	2.2 MEGOHMS
AVERAGE CHARACTERISTICS	
PLATE VOLTAGE	250 VOLTS
GRID NO. 1 VOLTAGE	-26 VOLTS
PLATE CURRENT	55 MA.
TRANSCONDUCTANCE	6500 MU MHOS
AMPLIFICATION FACTOR	6.7
PLATE RESISTANCE (APPROX.)	1000 OHMS

TYPICAL CLASS AB1 PUSH PULL CONDITIONS			
PLATE VOLTAGE	400	400	VOLTS
GRID VOLTAGE	-55	-55	VOLTS
GRID RMS SIG.	38.2	38.2	VOLTS
0 SIG. PLATE CUR.	60	60	MA
MAX. SIG. PL. CUR.	106	112	MA
LOAD RESISTANCE	7000	6500	OHMS
POWER AT TUBES	18.2	18.6	WATTS
THD - FULL OUTPUT	8.7	8.85	%
PLATE DISSIPATION (0 SIGNAL)	24	24	WATTS
PLATE DISSIPATION (MAX. SIG.)	24.2	26	WATTS
EFFICIENCY	43	41.5	%

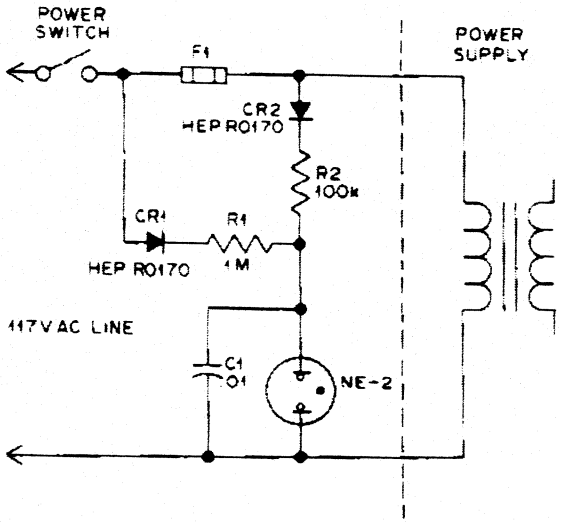
SCHEMATIC OF 'TRIOPHONI' AMPLIFIER

BASED ON CIRCUIT FROM ELECTRONICS WORLD, JULY 1959, P. 61





'TRIOPHONI ' POWER SUPPLY SCHEMATIC
MODIFIED FROM ELECTRONICS WORLD, JULT, 1958, P. 62



BLOWN-FUSE BLINKER—Neon lamp NE-2 glows steadily when fuse is good and flashes when fuse opens. Flash rate, determined by R1 and C1, is about 10 flashes per second for values shown.—T. Lincoln, A "Smart" Blown-Fuse Indicator, *QST*, March 1977, p 48.

FROM ELECTRONICS PROJECTS READY-REFERENCE
JOHN MARKUS, MCGRAW-HILL, 1980

last year. It was amazing to find that the acoustics of the church came through, even in mono, in such a manner as to take me back to the church. I've only had this experience once before, that being listening to the video tape of my son's birth (recorded with a Sony Hi-8 stereo camcorder) with headphones.
It's like the way they descibe certain smells setting off reconstruction of a strong memory. Very goosebumpy.
Quality wise, the next recording was even better. This tape was made at Richmond Beach Congregational Church in Seattle this spring. The performance was by a duet called Silverwood, actually Cheryl Kalinowsi, flute, and Kelly Maynard, bassoon. Excerpts were played from *Sept Impromptus* by Jean Francaix, and Beethoven's *Duet No. 3.*
This recording was done on a Nagra III, a gorgeous little Swiss AC/Battery recording deck designed for location recording primarily in the film industry.
Like the first recording it was done in full track mono, but at 7.5 ips on Ampex 632 duplicating stock.
The mic used was a cool RCA 77DX ribbon mic in bidirectional configuration which had been rebuilt after Dave purchased it.
Wow. The recording of this excellent perfomance was good enough that one of our musician members decided that the bassoon needed some pad work to reduce the slight key clacking.
All the wierd breathy buzzes and reed sounds came through beautifully.
Hats off to Dave for some great work! — dan

NEXT MEETING
SUNDAY AUGUST 7, 1994
SWAP MEET AT 10 AM
MEETING AT NOON

got a few extra bucks?

Fred sent us a price list and spec sheet for Magnequest output transformers this week. Apparently business slows down in the summer for owner Jim LeFevre, so he's got a sale going on his Discovery 025 single ended model. Fred ordered one for his ongoing single ended project and reports great sound.
Which nudges me to suggest once again that we organize some volume parts purchases. While we may not all need a # 025 Magnequest, surely everybody could use fuses, polypropylene coupling caps and 500V electrolytics. Lets talk about it at the August meeting

Done any imteresting projects lately? Why don't you share your experience with us ? You don't need to write a formal article, unless you'd like to. Just send us a letter, photos, schematics, etc. We'll put it in an upcoming issue.
Send your correspondence to VALVE, 1127 N.W. Briar Star Lane, Poulsbo,WA 98370 or call 206-697-1936.

the library -

New items this month:

- Radio's Master 1959 and 1968

- Magnequest price list and spec sheets

- Sept. 1966 issue of High Fidelity

- some early 40's issues of Radio News to flesh out that collection

-Bill has generously given us a list of manuals and Sam's he has in his files.
I will be putting copies of selected items from said files in the library soon

Thanks once again for your contributions!
Remember, members get copies of any of this material for just a nickel a page.

Does anybody have early AUDIO or AUDIO ENGINEERING issues?

what's brewin' ?

A slight parts windfall the last few weeks has set my project juices churning. Here's what I'd build if I had 48 hours in a day:

1 Wpc single ended headphone amp using transformer with 500 ohm tap and number 10 triodes to drive my AKG 240's (600 ohm impedance).

260 wpc class AB1 triode output amp using 304TL transmitting triodes (yes I really have a 1500V, 600 ma power transformer!)

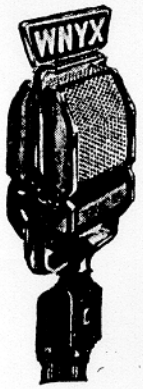
single ended headphone amp using 6336 dual low mu triode.

a stereo version of Triophony, using solid state power supply, self bias, and triode input.

I know you guys are out there dreaming too. Even if you don't build it, send us a note about your next 'proposed' project.

VELOCITY AMPERITE MICROPHONES

PREFERRED BY LEADING P. A. MEN THE WORLD OVER

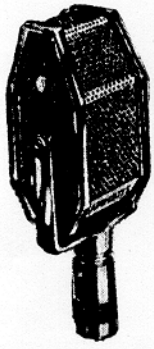


New Studio Model SR80n, Output 56 db.

On the basis of all-around tests, Model SR80n has achieved an outstanding record. Now accepted as the best for studio, P.A., and recording. Frequency range 40 to 15,000 cps. Output, —56 db Triple shielded, fitted with switch (optional) cable connector, and 25′ of cable.

Model	List
SR-80Hn hi-imp...	$80.00
SR-80n 200 ohms*	80.00

Chrome or gunmetal finish.
Call Letter Plate.. $7.00
*Other impedances obtainable at no extra cost.



A Very Popular, Very Excellent VELOCITY–RAH

Answering the demand for a high quality velocity microphone at a competitive price, Amperite presents models RAH-RAL. Excellent for both speech and music. Eliminates feedback. Has a frequency range of 60 to 7500 cps. Output, —68 db. Unaffected by temperature or humidity. Unusually rugged. Triple shielded, and fitted with heavy shock absorber. Shipping weight 5 lbs.

Model	
RAH	hi-imp. 12′ cable
RAL	200 ohms 8′ cable

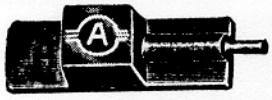
Either Model, Chrome or Gunmetal. List $22.00

New Amperite–ACH Compact Velocity

The smallest complete velocity ever made. Complete with output transformer, cable connector and switch. Has the output of a large velocity —70 db open line. Frequency response 60 to 7500 cps. ± 2 db. Can be used for speech or music. Fits standard ⅝-27 stand. Can also be used as a hand microphone—has comfortable pistol grip.

Size of Head: 1½″x2⅜″x1⅜″. Net weight 1 lb.

Model	List
ACH—25′ cable.....	$25.00



Kontak Mike

For Musical Instruments Can Be Attached To Most Radio Sets

Gives natural reinforcement without peaks. Easily attached without tools. Will operate with either low or high-gain amplifiers. Frequency response 40 to 9000 cps. Output, —40 db. Shipping Weight 2 lbs.

Model		List
SKH	Hi-imp.....	$12.00
KTH	DeLuxe Hi-imp..	22.00
KKH	With Hand Volume Control ..	18.00
KF	Foot Pedal Only	12.00
BT	Boosting Transformer for radio sets	3.00

Low impedance available in models SKH and KTH at same price.

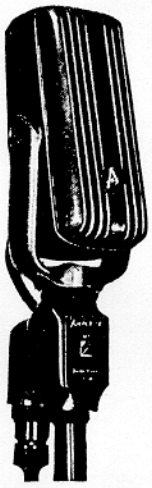
THE AMPERITE VELOCITY

Distinguished in Design and Quality

offers an exclusive feature in

THE ACOUSTIC COMPENSATOR

Models RBHk-RBMk



Considered the finest types of microphone available for P. A. work, these models are excellent for close talking and distant pickup, speech, music, or wherever else a high-quality microphone is required. Frequency range 40 to 11,000 cps. Output, —65 db. Excellent also for studio or recording. Complete with switch, cable connector and 25′ of cable.

The Acoustic Compensator permits the increase of the high frequencies by the mere flip of the finger. Simple construction. As shown in diagram, simply push the knob up to increase high frequencies, or down to increase lows. Makes microphone adjustable for close talking or distant pickup.

Models RBHk-RBMk, with acoustic compensator. Frequency range 40 to 11,000 cps. Output, —65 db. Complete with switch, cable connector and 25 of cable. Chrome or Gunmetal. **List $42.00**

Same as above, except without acoustic compensator

		Chrome or Gunmetal
Model RBHn	High impedance ...	List $42.00
Model RBMn	200 ohms	List 42.00

Models RBBHn-RBBn

For unusual feedback conditions such as footlight installations. Not to be used for close talking. Frequency range 40 to 11,000 cps. Complete with switch, cable connector and 25′ of cable.

		Chrome or Gunmetal
Model RBBHn	High impedance	List $42.00
Model RBBn	200 ohms	List 42.00

AMPERITE MICROPHONES ARE TRIPLE SHIELDED against all RF or magnetic fields, entirely eliminating hum pickup. They are acoustically designed to eliminate any possibility of cavity resonance.

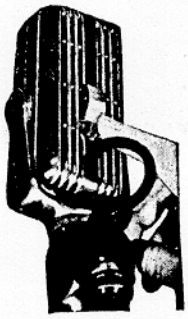
FINISHES: All microphones have the new standard gunmetal finish. Also available at no extra charge in long-lasting chrome finish.

NOTE: Special custom microphones, such as microphones with increased low or high frequencies, or special impedances, obtainable at no extra charge.

Additional CABLE LENGTHS obtainable at 8c list per foot.

New RSHk-RBSk

With Acoustic Compensator



Similar in appearance to RBHK. Has slightly less output and frequency range. For speech or music. ACOUSTIC COMPENSATOR permits adjustment for close or distant pickup or for various conditions encountered. Complete with switch and cable connector. Output —68 db. Frequency range 60 to 8000 cps. 12 ft. of cable.

		Chrome or gunmetal
Model RSHK	high-imp.	List $32.00
Model RBSK	200 ohms	List 32.00

Obtainable without Acoustic Compensator at same price.

Amperite–7JH Velocity Mike

"Lapel"

The most successful "lapel" made. Size of match box. Ideal for lectures and specialty acts. Can be hidden under coat. Output constant with any position of the head. Transformer included in microphone case. Flat response 60 to 7500 cps. Output, —70db. Shipping weight 3 lbs.

Model 7J-H	Hi-imp.	List $22.00
Model 7J	200 ohms.....	22.00

Input Transformer (Cable Type) LGP

Enables the use of low impedance microphones and cable lengths up to 5000 ft. with amplifiers having high impedance input. Hum trouble entirely eliminated. Can be used with 25, 50, or 200-ohm microphones. Output connects directly to high imp. input of amplifier. Standard grade recommended for speech; laboratory grade for music. 2′ cable. Shipping Wt. 3 lbs.

Model		List
LGP	(Standard) 60-8000 cps.....	$ 6.00
LGP	(Lab.) 40-14,000 cps.....	10.00

letters

great recollections from Fred

Years ago when I was doing some consulting I came across an amplifier system in a high school on Long Island. Seems that it was built and installed by a senior student as his last act before leaving school.
There were quite a few Amperite ribbon mikes, strung across the front of the stage. It was a large auditorium, about 1200 seats, and they put on many stage plays and operettas.
The mikes were supported by pipe ends flush with the surface of the stage, and located between each of the tilt up foot lights.
Now the selection of ribbon mikes was a good one from ruggedness. Schools are not known for being careful with delicate items. A crystal would be fragile, a capacitor mike would require the associated preamp and a carbon would also be fragile and generate hiss. Dynamics were too expensive.
The only problem with the Amperites were the kids sliding them across the stage and poking stuff thru the grill to see what that shiny thing was inside of the unit.
Luckily one could remove the grill and with a toothpick rearrange the ribbon.
The magnets were not too good in those days and thus the output was low and required a preamp under the stage to raise the level so that the sound could reach the projection booth where the amplifier was.
As the mikes were 200 ohm, and located in the midst of the footlight power lines, 60 cycle hum was a monster!
Improved grounding, shielded twisted wire and careful lead location from the mikes to the preamp location helped.
The existing preamp was a small input transformer, several type 56 triodes and a small power supply.
This was replaced with one of the Thordarson TruFidelity input transformers as they had much better magnetic shielding, the tubes replaced with two of the 1603 low noise and low microphonic broadcast tube types.
Cathode bypass capacitors were selected to reduce the low frequency amplification, and shock mounting reduced some of the physical shock from big kids dancing and jumping on the stage.
Next stop was the amplifier in the projection booth. This was an excellent mechanical construction, used two 2A3 triodes with a 45 volt B battery for bias. Other driver stages all type 56.
Had an input for radio, booth mike, record player, and sound from 16mm or 35mm projector.
The amazing discovery was that the output was not 500 ohms, it was voice coil impedance running from the booth to over the top of the auditorium, to the top of the procenium and then down to the speakers either side of the stage in the organ lofts.
Apparently most of the ten watts output went into keeping the voice coil leads warm!
Line trans. fixed this and they had a good system.
Very best regards, Fred

august

This month I'd like to ask your help in really wringing out my new amps.
Please bring your favorite audition LP's and CD's. This will make it easier for you to give me an opinion about my amps' performance.
I'd also like to ask for more show and tell. We haven't had many nice surprises show up lately. Grab some neat thing you have in your collection, working or not, and bring it for others to have a look see.
I'll also be bugging people to send some interesting articles /letters/ photos for this newsletter. I know that not everyone has a lifetime of marvelous audio experiences like Fred, but everybody in the club has interesting equipment they've either collected or built, and brief write ups of what they are would be great to put in the newsletter.
If you don't feel that you can write, call me and I'll help get your thoughts down on paper. — dan

THE NEXT MEETING IS ON SUNDAY, AUGUST 7 12 NOON