

THE MYSTERY MONO BLOCK AUDIO AMPLIFIER

How I Was Able to ID This Piece of Equipment



Photo 1

How many of us find a piece of equipment that we are unable to identify either the manufacturer or model number?

Sound familiar?

Last month I found a “hoard” of tube audio equipment and one of the items was a mono block audio amplifier. Yes, I know some of you don't feel it's the right thing to write about audio equipment in the pages of A.R.C. but for the last few years every radio meet I've attended has had a lot of tube and solid state audio equipment for sale.



Photo 3

This audio amp was very strange because the only ID on it was “A-20 Power Amplifier” on top of the chassis. The transformers were made by Chicago Transformer. The 2 electrolytic capacitor cans “plugged” into sockets (one can was missing) – they were

not soldered. The chassis measured 13” x 7” x 2”. The amp weighed 23 pounds. The chassis was marked for the following tubes: a 5V4 rectifier, two 5881 or 6L6 (but actually it came with 2 RCA 7027's), and one 12AX7. The chassis also had markings for the 2 electrolytic capacitor cans: one 4 section 20 mfd, 450 volt, and one 2 section 20 mfd, 450 volt.

Not much to work with.



Photo 2

MY NEXT STEP

In this case I turned to the internet. There are many web sites that cater to different collectors. Many of us know the Antique Radio Forum. There are many other equipment specific web sites that specialize in phonographs, radio consoles, phone equipment, audio equipment, and I even found one called the Flashlight Museum – check it out, it's very interesting.

I posted photographs of the amp on a web site called Audio Karma (www.audiokarma.org) that specializes in audio equipment. Like the Antique Radio Forum, Audio Karma has various forums that specialize on

different subjects. Within a few hours I had many people asking questions on the tube compliment, who made the transformers, and giving me their thoughts on who made the amp.

Well after 1 day and 33 comments, a gentleman from Kansas identified the amp and referred me to a link on the Radio Museum web site (www.radiomuseum.org). The amp was made by a company called the Electronic Workshop Sales Corporation, 351 Bleeker Street, New York 14, NY (For those of you who don't know what the number 14 means, before zip codes were used many cities had postal zones. This address was in New York City postal zone 14 called Greenwich Village).



Photo 4

The reason why there was no manufacturer on the amp was because on the front of the amp there were the following inputs: input jack, ground, speaker plug (400, 15, 8, and 4 ohms), control power unit plug (later I found out this attached to other equipment made by the company), AC outlet, and a fuse holder (3A). But there was a space between the speaker and control power unit plug and 2 very small holes where a metal plate was supposed to be a plaque with the company information attached and somehow had fallen off since 1951.



Photo 5

MYSTERY SOLVED

But there was no schematic available so I decided to do some more digging. I Googled the company and that led me to the Audio Engineering Society (www.aes.org).

The Audio Engineering Society is the only professional society devoted exclusively to audio technology. Founded in the United States in 1948, the AES has grown to become an international organization that unites audio engineers, creative artists, scientists and students worldwide by promoting advances in audio and disseminating new knowledge and research.

They have over 12,000 members around the world and hold conventions in many countries every year. On the AES web site I found a list of exhibitors who attended their 1949 through 1953 "Audio Fair" and The Electronic Workshop Sales Corporation was one of them. The list of exhibitors gave the contact information for each company, some of their products, and a list of key personnel who would be at their booth.

What was interesting is that the exhibitor list on the AES web site was originally published in the magazine Audio Engineering because the AES didn't have a publication at that time.

With the permission of the AES I have reprinted the list. You will find many companies that are still in business as well as those who merged with other companies

or just disappeared. I would urge anyone interested in the history of the audio industry to visit the AES web site and check out the information from their Historical Committee that is devoted to historical information on the development of the audio industry.

There is another mention of the Electronic Workshop Sales Corporation in the AES web site. The AES has reprinted an article on Magnecord Reel-To-Reel tape recorders that was originally published in the Chicago Daily News on July 29, 1946, page 22 (<http://www.aes.org/aeshc/docs/recording.technology.history/magnecord.html>) that mentions the Electronic Workshop in the last paragraph suggesting the company will do custom work for customers: "A simplified home-adapted outfit minus engineers' gadgets can be made up for you for about \$500 - use your own playback amplifier and speaker. Electronic Workshop, 351 Bleecker St., New York 14, will do it. Music recorded on this from local (wide-range) FM symphony broadcasts is fabulous. I've heard nothing to compare with it in any form of disc recording whatsoever."

I would also like to tell everyone to visit: www.americanradiohistory.com that has many magazines like Audio Engineering and other magazines that would be of interest to people who like to read about and preserve the history of radio.

CONCLUSION

There are many sources on the internet for information on the history of radio, audio, finding original advertisements, finding schematics, getting advice on troubleshooting a piece of equipment, etc.

This is just one story and now I have found sources to answer other questions that I may have in the future.

For more information:

The Audio Engineering Society Historical Committee: www.aes.org/aeshc

American Radio History:
www.americanradiohistory.com

Radio Museum:
www.radiomuseum.org

Antique Radio Forum:
www.antiqueradios.com

Photo Captions:

Photos page 13:

(from top to bottom)

Photo 1 – Front of Amplifier

Photo 2 – Rear of Amplifier

Photo 3 – Front Connections of Amplifier

Photos page 14:

(from top to bottom)

Photo 4 – Close Up of Capacitor Socket

Photo 5 – Under the Amplifier Chassis

A Better Product through "Sound" Research



Magnecorder
High Fidelity Tape Recorders For Industry



**NOISE ANALYSIS • PROCESS CONTROL
VIBRATION TESTS • TELEMETERING**

Used by more engineers
than all other professional
tape recorders combined

Magnecord, Inc.

360 NORTH MICHIGAN AVENUE
CHICAGO 1, ILLINOIS

Write for NEW CATALOG

Magnecord, Inc., Dept. P-2
360 N. Michigan Ave., Chicago 1, Ill.
Send me further information on Magnecord
tape recorders for industrial "Sound" Research.

Name _____
Company _____
Address _____
City _____ Zone _____ State _____

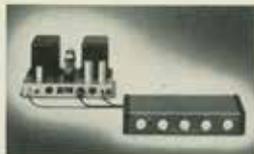
News—New Products

These manufacturers have invited PROCEEDINGS readers to write for literature and further technical information. Please mention your I.R.E. affiliation.

(Continued from page 11A)

New Amplifier

A new wide-range, low-distortion amplifier system A-20-5 is available from **The Electronic Workshop**, 351 Bleecker St., New York 14, N. Y.



The four input channels, including an equalizer-preamplifier for any of the available magnetic phono cartridges, have independent level adjustments. A four-position treble cut-off filter reduces high-frequency noise and distortion. A loadness-compensated volume control is provided, as well as separate bass and treble controls giving 18-db boost or cut. The treble control equalizes for high-frequency recording characteristics.

A noise suppressor can be conveniently connected into the system to be effective on all channels. A recorder output which is unaffected by settings of the tone and volume controls is included.

The 18 db of feedback in the amplifier affords excellent loudspeaker damping and long tube life. Distortion at 20 watts is less than 1 per cent. Full power is delivered over the entire audio range.

A somewhat simplified system, the S-20 is also available.

Television Deflector Yoke Core

A high-permeability core for deflection of wide-angle, large-screen, kinescopes is available from **Westinghouse Electric Corp.**, P. O. Box 2099, Pittsburgh 30, Pa.

Made of Hipersil, a cold-rolled, grain-oriented electrical steel, the core has low reluctance at all flux densities.

The core is wound and bonded in circular form from a continuous strip of 5-mil material. It is then cut into two "C" shaped pieces for assembly around the deflection coils. The firm claims that the extremely thin laminations plus superior magnetic characteristics of the steel result in improved linearity and sharper pictures. The cores are rugged and completely free from magnetic instability due to change in temperature.

The core is available in sizes to suit the application.

(Continued on page 11A)

Audio Fair Exhibitors

BRITISH INDUSTRIES CORP. 618-619

164 Duane St., New York 7, N. Y.
Products: Garrard record changers and phonograph motors, Wharfedale speakers, Vitavox speakers, Leak "Point One" amplifiers, K186 tubes.

IN ATTENDANCE

Leonard Carduner Franklin Hoffman
 Eugene Carduner Bill Lichter
 Edward Kleaman James De Sio
 William Carduner

BRUCINER ELECTRONICS LABORATORY 540

1546 Second Ave., New York 23, N. Y.
Products: Dual-horn corner reproducer; Trio 3-channel corner reproducer; Duoflex coaxial speaker cabinet; phonograph pre-amplifier-equalizer; square-wave tester.

IN ATTENDANCE

Victor Brociner Robert Ellis

BROWNING LABORATORIES, INC. 645

750 Main St., Winchester, Mass.
Products: AM-FM tuners, audio amplifier.

IN ATTENDANCE

G. H. Browning R. L. Furrington
 S. S. Egan Jack Fields
 J. Mandel R. L. Gordon
 W. Garfinkle

C & H WOODWORK CO. 511

(Cabinet Furniture Co.)
 75 N. 11th St., Brooklyn 11, N. Y.
Products: Radio-phonograph and television cabinets.

IN ATTENDANCE

Sidney Herbstman George Getzels

COLLINS AUDIO PRODUCTS CO., INC. 539

Mountainside, N. J. (Mailing address—Westfield, N. J.)
Products: FM tuners, FM-AM tuners, FM tuner kit, Stereoast receiver, miscellaneous small assemblies.

IN ATTENDANCE

W. H. Collins Herman Elette

COOK LABORATORIES 647

R. 2, Stamford, Connecticut.
Products: Cook cutters, Cook feedback recording needs, Cook custom recording systems, "Sounds of Our Times" recordings.

IN ATTENDANCE

Emory Cook

COWAN PUBLISHING CORP. 627

67 W. 44th St., New York 18, N. Y.
Products: CQ, The Radio Amateur Journal, Radio-Television Service Dealer (Professional radio & TV man's journal).

IN ATTENDANCE

S. L. Cowan S. L. Marshall
 O. F. Ferrell H. N. Reizes
 S. L. Cahn

DANBY RADIO CORPORATION 549

100A S. 21st St., Philadelphia, Pa.
Products: Danby corner horn speaker systems, Danby custom amplifiers.

IN ATTENDANCE

Daniel K. Greenfield Herbert I. Kerose
 David Hafer

THE DAVEN COMPANY 616

191 Central Ave., Newark 4, N. J.
Products: Attenuators; potentiometers; laboratory test equipment such as transmission measuring sets, electronic voltmeter; output power meter; audio effects filters, RF & video components, resistors, switches, etc.

IN ATTENDANCE

Lewis Newman E. K. Garrison
 Richard J. Newman J. F. Smith, Jr.
 E. L. Grayson C. F. Scott

DUOTONE COMPANY, INC. 516

Keypoint, N. J.
Products: Magnetic recording tape, recording blanks, cutting supplies, diamond

Audio Fair Exhibitors

replacement, needles, phono accessories, phono needles, recording heads, and cutting devices.

IN ATTENDANCE

Stephen Nestor Virginia Daelels
 Paul Nichols Perry Lohse
 Carlos Auremia Charles W. Pointent
 Sol Sargeant Walter Huatis
 Herb Erickson

ELECTRONIC WORKSHOP SALES CORP. 551

351 Bleeker St., New York 14, N. Y.
Products: Electronic Workshop Custom-Built radio-phonograph system; A-20-5 audio amplifier.

IN ATTENDANCE

Clifton M. Howard Margaret Howard
 Kenneth Wisner Charles B. Graham
 Edward Tattall Canby Milton D. Solomon
 Ray Fronaska

ELECTRO-VOICE, INC. 626

Buchanan, Michigan.
Products: Microphones, pickups, cartridges, loudspeakers, loudspeaker cabinets and enclosures, components, and TV boosters.

IN ATTENDANCE

A. R. Kahn H. T. Souther
 W. F. Soules J. E. Willson

FEDERATED PURCHASER, INC. 543

66 Day St., New York 7, N. Y.
Products: The newest audio equipment, including amplifiers, tuners, recorders, recorders, changers, and fine audio accessories.

IN ATTENDANCE

Max Epateln Bill Kornhauser
 John B. Patterson Ed Hanson
 Basilio Gutrea Jack Greenspan
 Dan Seymour

FISHER RADIO CORP. 529

41 E. 47th St., New York 17, N. Y.
Products: Concertone tape recorder; Fisher high-quality preamplifier, Model PR-4; Fisher high-quality receivers and amplifiers.

IN ATTENDANCE

James J. Parks Avery R. Fisher
 William Seller E. Berlant
 Virginia Abbott Harlan Thompson

GENERAL ELECTRIC COMPANY 531

Electronics Park, Syracuse, N. Y.
Products: Cartridges, loudspeakers, pre-amplifiers, tonearms, phono accessories.

IN ATTENDANCE

E. A. Malling T. J. Nicholson
 Mark Woodworth P. E. Humphreys
 E. Dally

GRAY RESEARCH AND DEVELOPMENT CO. 550

16 Arbor St., Hartford, Conn.
Products: Gray transcription equipment.

IN ATTENDANCE

W. E. Dittmars Richard E. Mathes
 Chester B. Hayes Chester A. Snow

HARRISON RADIO CORP. 523

225 Greenwich St., New York 7, N. Y.
Products: Wide-range music systems for the home, and components.

IN ATTENDANCE

Ben Fins Bill Harrison
 Charles Sarnack Ben Snyder
 Bert Schrelnair Jay Snyder
 Eddy Beale Herb Spingeld

H. A. HARTLEY CO., LTD. 533

162 Hammersmith Road, London W.6, England.
Products: Hartley-Turner 215 Speaker, True-Bass Baffle (non-resonant box baffle), tone control preamplifier, 20-watt amplifier, audio components, and Selected Record Catalogue, pickups and phonograph motors, British 78 r.p.m. and LP records.

IN ATTENDANCE

H. A. Hartley, Managing Director

Audio Fair Exhibitors

HARVEY RADIO CO., INC. 631

103 W. 43rd St., New York 18, N. Y.
Products: High-quality music and sound reproducing equipment, tape recorders, microphones, turntables, amplifiers, reproducers, speakers, speaker enclosures, tapes, and allied equipment.

IN ATTENDANCE

Harvey E. Sampson Sam Findling
 Roy Neusch George Zarrin
 Anton Schmidt Gil Demsky
 Leo Spitzer

HUDSON RADIO & TELEVISION CORP. 634-635

48 W. 48th St., New York 19, N. Y.
Products: All standard makes of high-fidelity equipment.

IN ATTENDANCE

Carl Carlson Adolph Gross
 Lester Klein Sol Baxt

GATES RADIO COMPANY 542

Quincy, Illinois
Products: Broadcast station speech input equipment and accessories, amplifiers, etc.

IN ATTENDANCE

Fred O. Grimwood Norbert Yochem
 Owen W. McReynolds Larry Cervonne

ISLAND RADIO DISTRIBUTORS, INC. 608

412 Fulton Ave., Hempstead, N. Y.
Products: Equipment of all major audio manufacturers.

IN ATTENDANCE

Jack Bussler Max Barnett
 Gilbert E. Miller

JENSEN MANUFACTURING COMPANY 518-519

6601 S. Laramie Ave., Chicago 38, Ill.
Products: Loudspeakers and accessories.

IN ATTENDANCE

Charles A. Hansen Karl Kramer
 Horace L. White

LAFAYETTE RADIO (RADIO-WIRE-TELEVISION) 643

100 Sixth Ave., New York 13, N. Y.
Products: High-fidelity tuners, amplifiers, speakers, and associated equipment.

IN ATTENDANCE

W. Rivkin Herman Holstein
 J. E. Schocken J. A. Wohl
 D. Scott M. Goyet

LANGVIEW MANUFACTURING CORP. 530

87 W. 65th St., New York 23, N. Y.
Products: Amplifiers, power supplies, transformers.

IN ATTENDANCE

Donald S. Morgan George V. Rosenquist
 Myron R. Coe Frederick K. Hankinson
 Robert Winston Edward Sokolowski

JAMES B. LANSING SOUND INC. 604-605-606

2439 Fletcher Drive, Los Angeles, Calif.
Products: Speakers of quality.

IN ATTENDANCE

Leonard Larson Harry Miller

LEONARD RADIO, INC. 536

63 Cortland St., New York 7, N. Y.
Products: Complete high-fidelity audio equipment, components, and accessories.

IN ATTENDANCE

Sidney Schugar Arthur A. Priest
 Norman Sanders Ellis Rosen

MAGNECORD, INC. 604-605-606

360 N. Michigan Ave., Chicago, 1, Ill.
Products: Magnecord professional tape recording equipment with all series of equipment, new models, accessories, and developments.

IN ATTENDANCE

C. G. Barker Otto Bixler
 John J. Boyers Richard McQueen
 John Bixler

Audio Fair Exhibitors

MARK SIMPSON MFG. CO., INC. 603

32-28 49th St., Long Island City 3, N. Y.
Products: Magnetic tape recorders, transcription players, high-fidelity amplifiers, sound systems.

IN ATTENDANCE

Mark Simpson Miryam Simpson
 David Libsohn G. Leonard Werner
 Sale Nachtigall Henry Berlin

McINTOSH ENGINEERING LABORATORY 604-605-606

320 Water St., Binghamton, New York
Products: High-fidelity audio amplifiers.

IN ATTENDANCE

Frank McIntosh

MEASUREMENTS CORP. 527

Boonton, New Jersey

Products: Electronic test equipment: intermodulation meters, pulse generators, square-wave generators, standard signal generators, television signal generators, UHF radio noise & field strength meter, peak voltmeters, R.F. attenuators, megacycle meters, vacuum-tube voltmeters, special test instruments.

IN ATTENDANCE

H. W. Henck John M. Van Beuren
 Jerry B. Minter Nelson C. Doland, Jr.
 Edgar M. Weed John H. Redington

THE M.S.S. RECORDING CO. LTD. 602

Forle Close, Colnbrook, Bucks., England
Products: M.S.S. Recorders (tape and disc) and discs.

IN ATTENDANCE

J. B. Smyth M. D. Collier
 P. J. Walker

OHIO STATE UNIVERSITY 547

Acoustics Dept., Columbus, Ohio
Products: Research and education; pulse-type audiometry and audiometers.

IN ATTENDANCE

Professor J. W. Black

PERMOFLUX CORP. 640

4900 W. Grand Ave., Chicago 39, Ill.
Products: Loudspeakers, dynamic headsets.

IN ATTENDANCE

L. M. Heineman Ray R. Hutmacher
 R. S. Fenton

PFANSTIEHL CHEMICAL COMPANY 620

104 Lake View Ave., Waukegan, Ill.
Products: Strain-sensitive phonograph pickup and related accessories, preamplifiers, tonearms, cartridge holders, needles, etc.

IN ATTENDANCE

Robert S. John S. George Sands
 Bruce Wight

PICKERING AND COMPANY, INC. 624-625

Oceanside, N. Y.
Products: Phonograph pickups, audio amplifiers, audio equalizers, pickup arms, loudspeakers.

IN ATTENDANCE

Walter O. Stanton George P. Petetin

PRESTO RECORDING CORPORATION 612

P. O. Box 500, Hackensack, N. J.
Products: Disc and tape recording and transcription equipment, amplifiers, and blank recording discs.

IN ATTENDANCE

George Saliba Thomas H. Aldrich
 M. M. Gruber Austin Sholes

RADIO CORPORATION OF AMERICA 632-633

Victor Division,
 Front & Cooper Sts., Camden 2, N. Y.
Products: 16-mm sound projectors (including the new 16-mm magnetic sound projector); speakers, amplifiers, broadcast audio equipment, studio turntable, tape recorder, microphones, LC-1A loudspeakers.

Audio Fair Exhibitors

IN ATTENDANCE

Radio Corporation of America (Cont'd.)

J. P. Taylor Julius Haber
 C. M. Lewis W. O. Hadlock
 L. T. LaPatka W. L. Lawrence
 L. LeKashman A. K. Ward
 R. H. Hooper D. R. Deakins

THE RADIO CRAFTSMEN, INC. 521

4401 N. Ravenswood Ave., Chicago 40, Ill.

Products: AM-FM tuners, amplifiers, television tuners, complete television chassis.

IN ATTENDANCE

John H. Cashman Edward S. Miller
 Howard J. Christianson

RADIO AND TELEVISION NEWS 515

RADIO-ELECTRONIC ENGINEERING

366 Madison Ave., New York 17, N. Y.

IN ATTENDANCE

Oliver Road Wm. A. Stocklin
 Harold Becker Harold Ikenne
 Murray Goldman Leonard L. Osten
 W. Stanton Butler Jerome Jacobs

RADIO MAGAZINES, INC. 627 & Foyer

342 Madison Ave., New York 17, N. Y.
Products: PUBLISHERS OF AUDIO ENGINEERING and the AUDIO ANTHOLOGY.

IN ATTENDANCE

C. G. McProud D. S. Potts
 Ladd Haystead Harrie K. Richardson
 Sanford L. Cahn Harry N. Reissus
 Sanford R. Cowan

RADIO MUSIC CORP. 520

Fort Chester, New York
Products: Pickups, broadcast reproducers, amplifiers, turntables, and pulse transformers.

IN ATTENDANCE

Lionel C. Cornwell, Presk.
 J. Giannucci, Vice-Pres.
 Harold Lowm, Foreman

RANGERTONE, INC. 621

72 Winthrop St., Newark 4, N. J.
Products: Synchronous magnetic tape recorders.

IN ATTENDANCE

Col. R. H. Ranger F. M. Brubaker
 A. V. Colabella C. H. Wirth
 H. Gallina J. Brett
 W. Braun

REEVES SOUNDCRAFT CORP. 546

10 E. 62nd St., New York 22, N. Y.
Products: Soundcraft blank recording discs, magnetic recording tape, and magnetic recording film "Magnastripe."

IN ATTENDANCE

Don E. Ward William H. Deacy
 David Ruark

REK-O-KUT COMPANY 636-637

39-01 Queens Blvd., Long Island City 1, N. Y.

Products: Challenor recorders, Rhythm-master variable speed phonographs, Rectalist 3-speed phonographs, 16" cutting mechanisms, transcription and recording turntables, record players.

IN ATTENDANCE

George Silber Sydney Simonson
 Fred Moulin

"THE REPRESENTATIVES" 528

New York Chapter, New York
Products: "Representatives" Hospitality.

IN ATTENDANCE

New York Chapter "Reps."

HERMON HOSMER SCOTT, INC. 628

285 Putnam Ave., Cambridge 39, Mass.
Products: High-fidelity amplifiers; laboratory amplifiers; Dynural amplifiers, noise suppressors, converters, and preamplifiers; equalizer-preamplifiers; sound level meters; vibration meters; noise generators; miscellaneous high fidelity and laboratory equipment.

IN ATTENDANCE

H. H. Scott
 D. H. von Recklinghausen
 Victor H. Pomper
 Edmund G. Dyett, Jr.

AUDIO ENGINEERING • NOVEMBER, 1951

List of Exhibitors at the 1951 AES Audio Fair

Audio Fair Exhibitors

J. B. SMYTH 602

8440 Schute, Montreal, Canada
Products: Acoustica Quad amplifier; Acoustical corner ribbon loudspeaker; M.S.S. tape and disc recorders and discs; Wirek portable tape recorders.

IN ATTENDANCE

J. B. Smyth M. D. Collier
 P. J. Walker

SONOCRAFT CORP. 623

115 W. 45th St., New York 19, N. Y.
Products: Sound and recording equipment and accessories—tape, disc, and wire—professional, industrial, and educational; transcription players.

IN ATTENDANCE

Herbert H. Borchardt
 Gerhard M. Behrendt
 Elton Nachman
 Joe Gschaar
 Harold H. Oppenheimer
 Fred M. Lissa
 Bert Gedzelman

STEPHENS MANUFACTURING CORPORATION 642

5538 Warner Drive, Culver City, Calif.
Products: Loudspeakers, microphones, speaker systems and components.

IN ATTENDANCE

Robert L. Stephens Frank H. Gilbert

SUN RADIO & ELECTRONICS CO. INC. 601

122-124 Duane St., New York 7, N. Y.
Products: Loudspeaker systems featuring the following: Altec Lansing, Sun Radio, Stephens Trasonic, Electro-Voice, Tannoy, Acoustical, Jim Lansing.

IN ATTENDANCE

Samuel Schwartz Samuel N. Gerard
 Irving Greene Robert Smith
 Irving Hodas Carol Hobart
 Morris Brown Joseph Greenfield
 Cuzie Reiter Walter Zuckerman
 Al Goldberg Arthur Liebschutz
 Charles Matluck George Ortiz
 Sam Abrams Joseph Schwartz
 Joseph Kroll

TECH LABORATORIES, INC. 609

Bergen & Bdsall Bldvs., Palisades Park, N. Y.
Products: Attenuators, potentiometers, switches, bridges, precision attenuators, reverberation generator, and EditTape tape splicing block.

IN ATTENDANCE

M. Bjorndal D. Bjorndal
 G. Van Baaren G. D. Harris
 H. Kovarik W. Richards

TERMINAL RADIO CORPORATION 526

85 Cortlandt St., New York 7, N. Y.
Products: Latest and best high-quality audio equipment and components, comprising amplifiers, loudspeakers, record players and changers, pickups, tone arms, pre-amplifiers and equalizers, sty, speaker housings and enclosures, and other quality audio accessories.

IN ATTENDANCE

Robert Corendhal Jack Simon
 Maury Freeman Irwin Levy
 Nat Sinreich

THE TETRAD CORPORATION 622

62 St. Mary St., Yonkers, N. Y.
Products: Diamond phonograph needles and other audio manufacturers' products utilizing diamond sylvil.

IN ATTENDANCE

Morton V. Marcus Edward Weinberger
 Emanuel J. Marcus Edward P. Delaney
 Jeanne M. Axelrod

TRIAD TRANSFORMER MFG. CO. 607

2254 Sepulveda Blvd., Los Angeles, Calif.
Products: Transformers, reactors, and harmonic terminals; toroidal coils, high-fidelity amplifier kit.

IN ATTENDANCE

L. W. Howard Ernest Clover
 George Clark Harry Miller
 Bob Finlay Dan Greene

Audio Fair Exhibitors

UNIVERSITY LOUDSPEAKERS, INC. 611

30 S. Kensico Ave., White Plains, N. Y.
Products: 1-way, 2-way, and 3-way high-fidelity speaker systems which may be constructed by the audio enthusiast at unusually low cost; public address speakers of all types.

IN ATTENDANCE

Irving Golin Larry Epstein
 Bob Reiss Saul White
 Sidney Levy Abe Cohen
 Arthur Blumenfeld Seymour Blumenfeld

U. S. NAVAL SCHOOL OF AVIATION MEDICINE 547

Acoustic Laboratory
 Naval Air Station, Pensacola, Florida
Products: Audiometric research, pulse type, relative to hearing losses due to noises; Audiogrametry.

IN ATTENDANCE

Professor J. W. Black

UNITED TRANSFORMER COMPANY 522

150 Varick St., New York 13, N. Y.
Products: Transformers, amplifiers, kits, and filters.

IN ATTENDANCE

S. L. Baraf Bob Mitchell
 Joe Baracca S. Mannville
 Hank Buswell Ted Craig

WAVEFORMS, INC. 552-553

333 Sixth Ave., New York 14, N. Y.
Products: High-fidelity amplifiers, audio oscillators, tuners, education equipment, horn-loaded speaker enclosure.

IN ATTENDANCE

Howard T. Sterling Ben Bell
 W. W. Chamberlin George Shapiro
 Edgar Juefhd

WEATHERS INDUSTRIES 541

610 Eicher Ave., W. Collingswood, N. J.
Products: Wide-range FM pickup, high-quality audio system.

IN ATTENDANCE

Paul Weathers

AUDIO ENGINEERING • NOVEMBER, 1951

List of Exhibitors at the 1951 AES Audio Fair