

New Glass-Base Audiodiscs Now In Production

Not a "Substitute", but a
Finer Quality Instantaneous
Recording Disc that is
Available for Unlimited Use

It has been known for some time that government restrictions on the civilian use of aluminum would force a sharp curtailment in the production of recording discs, unless another satisfactory base material were used to augment the supply of aluminum base discs. The aluminum shortage has not yet become so critical that recordists have been seriously handicapped through inability to obtain needed discs. However, the handwriting on the wall is quite clear, and since it has always been Audio's policy to *anticipate* the needs of the recording industry, glass base Audiodiscs are already being produced in ample quantity to compensate for the curtailed production of aluminum-base discs.

As most of our readers know, glass is not a *new* base material for recording disc manufacture. During the last war, many millions of glass-base Audiodiscs were produced and used with outstanding success. In fact this experience has definitely proved that the glass base disc is, in some respects, actually *superior* to the aluminum base disc.

The most significant improvement is the extreme smoothness of the surface. It has been demonstrated by precise measurements that the glass surface is far flatter and smoother than the finest aluminum base which it is possible to produce.

This is clearly shown by the comparative surface characteristics curves in Fig. 1 and Fig. 2. As a still further basis of comparison, Fig. 3 shows the surface characteristics of the finest rolled steel base material. These charts were drawn by a Brush surface analyzer, capable of measuring surface imperfections of the order of *one millionth* of an inch. Each vertical division on the chart represents a departure from absolute smoothness of .000005". Although total surface variations in an aluminum base cannot be kept less than about ten millionths of an inch, the perfectly smooth glass surface does not vary by even as much as *one*

(Continued on Page 2, Col. 1)



MUSICAL SWAP SHOP

Tony Schwartz, commercial artist, collects and exchanges recorded folk music from all over the world



Tony Schwartz working on exchange material in his home recording studio.

Many interesting and unusual communications come to the editor of Audio Record. One of the most unique, however, was an Audiodisc recording which told the story - in words and music - of Tony Schwartz and his "musical swap shop". In fact it told the story so simply and directly that we have transcribed it verbatim for the benefit of our readers. Here's what it says:

"Hello. My name is Tony Schwartz. I am very interested in collecting and spreading folk music. I live at 457 West 57th Street, New York 19, N. Y. I am a commercial artist by profession. I have been recording folk music for over five years and have many songs. The majority of material is originally recorded by myself. I have music from all over the United States, Puerto Rico, Peru, Brazil, Canada, China, Czechoslovakia, Greece, Spain, Soviet Union, Hungary, England, France, Scotland and

(Continued on Page 3, Col. 2)

audio record

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Glass Base Audiorecords

(Continued from Page 1, Col. 1)

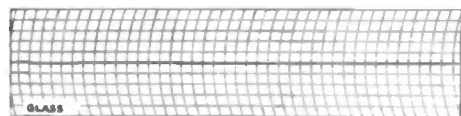


Fig. 1. Surface characteristics of glass base.

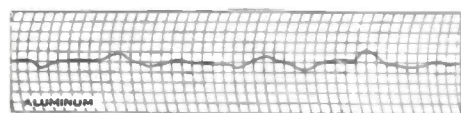


Fig. 2. Surface characteristics of aluminum base.

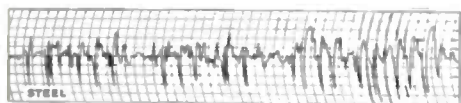


Fig. 3. Surface characteristics of rolled steel base.

month! In addition, the glass base is dimensionally stable at all normal temperatures and atmospheric conditions—absolutely free from any tendency to warp or buckle. This extreme smoothness and flatness gives the glass-base Audiorecord a mirror-smooth surface which approaches the ultimate in recording perfection.

The new glass base Audiorecords which are now being produced have been materially improved over those manufactured during the last war, in one important detail. That is the method of attaching the fiber center-hole insert to the glass base. To explain this more fully, let us go back to some of the early developments in the manufacture of the glass-base disc.

The first discs were made with only a center hole, drilled directly into the glass. The drive pin holes were omitted because it was found that a disc with only one hole was infinitely stronger than one with two or more holes. The lines of weakness in the glass between the closely spaced holes resulted in excessive breakage in handling. From an operational standpoint, the one hole disc was entirely practical, for the clamping friction in most recording machines was ample to prevent slippage while recording. The hard edges of the glass, however, had an objectionable tendency to scratch the metal center pin. To avoid this, a larger hole—about $\frac{3}{4}$ " in diameter—was drilled in the center and a fiber insert, the same thickness as the glass, was placed

in this hole. After coating, the center hole was punched in this insert. However, since the one-hole disc required some modifications or adjustments in a number of turntable and feed mechanisms, recordists preferred the standard pin drive. This was later achieved, without weakening the glass, by drilling one large, $2\frac{1}{2}$ " diameter hole in the center, with a fiber insert in which the center hole and three drive pin holes were punched after coating. (This development was patented, and carries U. S. Patents No. 2,283,797 and 2,295,938). The fiber insert was held in the glass base by friction and the lacquer coating which was applied over it sealed it in place. This method, although far superior to anything else available at the time, was not completely fool-proof, and—under unfavorable conditions—a center hole insert would sometimes pop out of the disc. In the new glass base Audiorecords, the fiber insert is permanently bonded to the glass in such a manner that it cannot come loose or buckle and pop out. This is accomplished by means of an extended flange on one face of the insert, which overlaps onto the face of the glass and is cemented in place before coating, as illustrated in Fig. 4. The insert is made slightly smaller than the hole, and, after coating, it is completely sealed in by the lacquer, yet has sufficient room to expand or contract without danger of coming out.

The glass base Audiorecords are precisely manufactured to extremely close tolerances for overall thickness, which is kept the same as on the conventional aluminum base disc. They can therefore be used on all recording machines without any modifications or special adjustments.

The mechanical strength of these glass base discs is much greater than might be supposed. This extra resistance to accidental breakage has been achieved through scientifically correct strength-to-weight ratio, with the coating supplying a high percentage of the total thickness. The glass used also possesses a high degree of resiliency which will easily absorb light impacts without cracking or shattering. It is true, of course, that glass base discs are more fragile than their non-breakable aluminum base counterparts. It is also true, however, that any impact of sufficient force to break a glass base disc would, in all probability, cause irreparable damage to the coating of an aluminum base disc. Since all recording discs must be handled with care, the recording engineer, as a general rule, doesn't have as many "thumbs" as most people. The likelihood of breakage in handling is therefore very slight. Breakage in shipment, however, would ordinarily present a much more serious problem. But this also was solved through experience gained during

the last war. Audio has developed special, re-usable wood packing cases which are approved by the transportation companies and permit the shipment of glass base discs with practically no danger of breakage.

Many prominent recording engineers observed the fact that glass base discs sound better and clearer than aluminum base discs. Ordinary test instruments, however, gave no clue as to the exact nature of this audible improvement. Distortion and frequency response tests showed no measurable differences. The improved tone quality—though still unexplained by acoustical analysis—remains a recognized characteristic of the glass base disc.

The new and improved glass base Audiorecords are now being produced in the following types and sizes:

Red Label	12" 16"
Single Face Red Label	12" 16"
Yellow Label	12" 16"
Reference Label	12" 16"

All orders for Audiorecords will be filled, as far as possible, with standard aluminum base discs. Where their availability is limited, the balance of the quantity ordered can be supplied with glass base discs. In all cases, however, glass base discs will be supplied only upon specific approval by the customer. Many experienced recordists will prefer to use glass base Audiorecords for all of their most critical instantaneous recording requirements. These discs can, of course, be supplied in ample quantity to avoid any restrictions as to their use.

By making glass base discs available now, Audio Devices is able to maintain full production and keep recordists from being inconvenienced by the aluminum shortage.

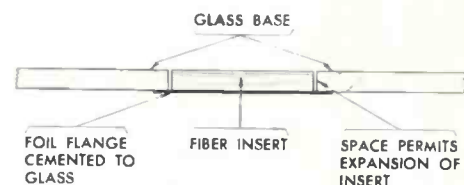


Fig. 4. Cross sectional sketch showing method of sealing fiber center-hole insert to glass base Audiorecords (thickness exaggerated for clarity). Actual fiber insert shown at right.



audio pointers for the Recordist

by C. J. LeBel, Vice President,
Audio Devices, Inc.

LICENSING OF RECORD CRITICS



C. J. LeBel

As many of our friends have often complained, we have no particular respect for sacred cows. Worse yet, we have no hesitation about placing our head in a lion's mouth. So this month we express our disrespect for an important part of the record field—the record critic. We feel that the critic's traditional immunity from punishment has led to serious carelessness in the handling of easily established facts.

The Artistic Side

The artistic aspect of record criticism is of course a matter of opinion, and presumably impossible to evaluate objectively. Nevertheless, we are driven to note the lack of correlation between critics, and a statistician could probably show that critical reactions to any given record would be completely random in nature. One complains bitterly about the lack of reverberation in a given record, while the next inveighs against its utterly excessive reverberation. They cannot both be right.

Technical Aspects

When we come to the record critics' technical remarks we have a very different situation. Technical points are objective, not subjective, and there is only one correct answer. The critic is either correct or incorrect, and he has nothing to hide behind.

We recall one critic who for many months attacked all microgroove discs as hopelessly over-recorded. Eventually he discovered that his pickup was obsolete,

(Continued on Page 4, Col. 1)

Musical Swap Shop

(Continued from Page 1, Col. 3)

others. The material is performed by people of all walks of life. Some are professionals. I would like to exchange music with you. I can make or play material on wire, tape or disc. I am interested in songs or music that people sing or play in their conscious or unconscious efforts to make the world a better place to live in. Songs of work, dance, protest or pastime. I hope you don't mind other people hearing what you send me. If you do, please say so and it will go no further. Here are a few short sections of various songs to give you an idea of the type of material I have in mind." (A brief musical excerpt follows each item listed.)

"The first is a Peruvian mountain song . . . An American work blues . . . A fishermen's song of the menhaden off the Jersey Coast . . . A Negro spiritual . . . A Negro gospel song . . . Next is a bit of a Spanish song from Peru . . . A Spanish guitar . . . A Chinese song . . . A Gaelic song . . . A Czechoslovak song . . . A song from a political rally . . . and last, group singing.

"I hope these have given you an idea of the type of material I have recorded. I have found many friends more interested in swapping songs by recording than by the written music, because they get a better idea of the song in its presentation. If you are interested in any of the songs I have recorded or would like to send or swap me some of the songs you or your friends sing, please send me any recorded wire, tape or disc message. My recording equipment can play 78 rpm, 33 $\frac{1}{2}$ rpm records, any wire recording, and 7 $\frac{1}{2}$ " or 15" per second single track tape recordings. I can play double track tape only if one track is left

clean. I am looking forward to hearing from you."

This record was cut from a tape original which Mr. Schwartz made up to serve as an introduction to his extremely interesting hobby. Copies of the record have been sent to contacts throughout the United States and all over the world. He has received answers from over 30 countries, and has collected about ten thousand songs. He obtains his contacts—the names of people interested in folk music—by reading farm journals, ranch news, cultural magazines (like *Audio Record*), secular club publications, and through his membership in the Webster Wirespondence Club.

Mr. Schwartz has recorded several well-known artists from their early years—among them, the "Weavers" and Yma Sumac. In fact he has more than fifty hours of recordings of Yma Sumac and her family, including some recordings which she made at the age of 14.

In describing the satisfaction which he has found through this unusual hobby, Mr. Schwartz says—"The world is full of music, and with my hobby I have touched a little of it and found tremendous knowledge and enjoyment."

Most of his recording work is done in his home studio, on a Magnecoorder, at 7 $\frac{1}{2}$ inches per second. The 15 inch speed is also available on this equipment, and is used where the type of program material recorded would benefit from the extended frequency range.

Mr. Schwartz will be most happy to swap recordings with any of our readers who are interested in folk music. "Pen Pals" are out of date, it seems. So if you'd like a new disc or tape pal, get in touch with Tony Schwartz, 457 West 57th Street, New York 19, N. Y.



Two of the "Weavers" putting heart and sole into a special recording for Tony Schwartz' collection of folk music.



Moises Vivanco (left), husband of Yma Sumac and authority on Peruvian and South American music, recording reference material for Tony Schwartz (right).

Record Critics

(Continued from Page 3, Col. 1)

his deemphasis incorrect. Another has been complaining about "variation in crossover frequency" of one make. Unfortunately for him, their equipment is of a type least likely to vary in crossover, and the fault one most likely to be caught by the daily maintenance tests. He probably means that the low frequency balance varies more than he likes, because microphone position is not always optimum.

Still a third critic has been sniffing about variations in "preemphasis" of organizations that have not changed their preemphasis, whilst ignoring six actual changes by one organization. Of course, he really means variation in high frequency balance due to microphone placement. Finally, we recall a critic who compared two organ recordings. One was ideal, while he considered the other a very poor likeness to an organ. Actually, both had been faithfully recorded, but they were representative of two entirely different eras in organ building, and naturally sounded different on records.

Our readers can surely multiply these examples a hundred fold.

A Guild

In years gone by quality standards were enforced by the guilds. Perhaps our most competent record critics should organize a guild. Only one who had passed a rigorous examination could use the guild's insignia at the head of his column. His work would be checked, and serious aberrations would be grounds for discipline. The public would soon learn that only a guild member's opinion would be worth attention.

Guild Standards

We may safely assume that a guild examination would include points like these:

1. Musical acoustics
2. Fundamentals of the recording process
3. A performance test on identification of record faults
4. Musical art

Likewise, we may be sure that a critic would be called on to prove the worth of his reproducing equipment—proof that its performance would be adequate to judge modern wide range recording, and also proof that it would be maintained in adequate condition.

A Beginning

It would be utopian to imagine that we could introduce these standards without pressure. This pressure should come from editors. Too often an editor hires a record critic, then fails to check his work. Too many magazines of otherwise high standards fail to carry those standards into their record columns.

Audio Booth at IRE Show Draws Record Attendance



New Sound Moving Picture on Audiotape Manufacture Shown to Public for First Time

The 1951 Radio Engineering Show, held at Grand Central Palace, New York, March 19-22, proved to be one of the most successful industrial exhibitions ever held. Its 297 exhibits, with six million dollars worth of components, tools and materials on display, drew a record attendance of radio engineers from all over the country.

To those interested in sound recording, the Audio Devices booth was a major attraction. For, in addition to a complete

display of all Audio products—discs, tape, film and points—it included a sound-proof studio where visitors were able to see the new sound moving picture in color, "Audiotape Speaks for Itself". This 20-minute film, telling the fascinating story of how Audiotape is made, was shown every hour on the hour. Between showings the studio resounded to the strains of the finest recorded music, on discs and tape—music whose sparkling clarity and brilliance of tone must be heard to be believed.

YOU CAN STILL TURN YOUR OLD DISCS INTO DOLLARS

Despite the present restrictions on the purchase and use of scrap aluminum, Audio Devices can still pay you top cash prices for your used recording discs. By taking advantage of this long standing policy you not only convert your otherwise useless discs into cash, but help to make additional aluminum available for disc production—which means more new discs for you when you want them.

Audio Devices will pay from 4 to 15 cents each for any make of used aluminum-base recording disc—depending on size, as follows:

10"	4 cents each
12"	8 cents each
13 1/4"	10 cents each
16"	15 cents each
17 1/4"	15 cents each

Since these discs are stripped of the old lacquer coating and used for remelt purposes, the above prices apply regardless of

the disc type. In other words, a yellow label or reference label disc will bring as high a price as a red label disc of the same size.

Audio Devices will pay cheapest way freight on all shipments of 100 pounds or more. All used discs should be shipped to:

The Audio Manufacturing Corporation
25 Palmer Avenue,
Glenbrook, Connecticut

Every year, Audio Devices pays thousands of dollars for the return of old aluminum-base recording discs. So don't overlook this excellent opportunity to reduce your recording disc costs. Old used discs that are "worthless to you" may be worth more than you think. Why not pack them up and ship them to the above address. You'll be surprised at how large the check can be.