

**National Library Service  
for the Blind and  
Physically Handicapped**

**The Library of Congress**

Approved by Director, NLS/BPH



Date 7/25/95

**Specification:** #203

**Title:** Four-Track Monaural Open Reel Intermaster (7 inch- 3 3/4 ips)

**Date:** July 1995



**Technical Certification**

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Engineering Date

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Quality Assurance Date

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Chief, MDD Date

## BACKGROUND

The National Library Service for the Blind and Physically Handicapped (NLS) of the Library of Congress administers a free library service to eligible residents of the United States and citizens living abroad who cannot hold, handle, or read traditional print media because of visual or physical handicaps.

Using federal funds, NLS annually publishes approximately 2,000 books and 70 magazines on cassettes, on discs, and in braille. Titles are selected to appeal to a wide variety of interests, and copyright permission is obtained from authors and publishers. Books and magazines are narrated and duplicated at a high-quality professional standard. The quantity produced of any title is dependent on anticipated reader demand.

Playback machines and their accessories are designed to facilitate convenient use by handicapped people and to provide maximum reliability under environmental conditions that are sometimes harsh and handling that may be technically unsophisticated or inadvertently abusive. The equipment plays program materials at noncommercial speeds: 8-1/3 rpm for discs and 15/16 ips, 4-track for cassettes. All materials and equipment in the program can be sent to users and returned to libraries postage free.

A cooperating network of 56 regional libraries and more than 100 subregional libraries circulates recorded and braille books to some 700,000 adults and children out of a potential three million eligible population. Magazine subscriptions are provided on a direct-mail basis from the manufacturers. Users must generally deal with service centers in distant cities with communication by mail or phone and little or no personal contact. Everything comes and goes through a mail-order system. Fifty percent of the users are over sixty-four years old, and many depend on the NLS program for their major source of entertainment and connection with the world; 95 percent read recorded materials, 5 percent read braille.

Users are informed about new books, magazines, and services through bimonthly publications, annual catalogs, and subject bibliographies produced by NLS, and through various publications produced and circulated by the regional and subregional libraries.

## USER MATERIALS

Contractors who consider submission of a bid to produce books, equipment, or other program products should be cognizant of the consumer-responsive nature of the program, and that the specifications for these products have been developed to meet the special reader needs in the program. Materials are produced with those reader needs foremost in mind, and improved through constant monitoring and consumer input. Contractors are expected to familiarize themselves with the equipment-handling practices of blind and physically handicapped clientele and ensure that the equipment they produce will stand up under this type of use. A high degree of quality workmanship and product reliability is mandated by the product specification.

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NLS  
Specification #203

1. SCOPE

This specification defines the requirements for duplicated four-track monaural, open reel intermasters, suitable for use by multistate centers, regional and subregional libraries, and the Library of Congress in the talking-book program.

2. APPLICABLE DOCUMENTS

The following documents and publications, of the issue in effect on the date of invitation for bids, form a part of this specification. In the event of conflict between the documents and publications referenced herein and the content of this specification, the content of this specification shall be considered a superseding requirement.

Specifications

National Library Service for the Blind and Physically Handicapped, Library of Congress (NLS).

#703 - Tape Specification

Standards

National Association of Broadcasters' Standard-Magnetic Tape Recording and Reproducing (Reel to Reel), (April 1965 International Electrotechnical Commission (IEC) Recommendations: IEC 94 Amendment #1 and #2 Magnetic Tape Recording and Reproducing Systems: Dimensions and Characteristics (Copies may be obtained from the American National Standards Institute, 1430 Broadway, New York, New York 10018.)

Electronic Industries Association (EIA Standards: RS-362 Tensile Properties of Magnetic Tape - Recommended Test Method (Copies may be obtained from the Electronic Industries Association, Engineering Department, 2001 Eye Street, N.W., Washington, D.C. 20006.)

MIL-STD 105D, Sampling Procedures and Tables for Inspection by Attributes.

3. REQUIREMENTS

3.1 General

The magnetic tape and open reels furnished under this specification shall be new and shall have been designed in accordance with the requirements given in IEC 94, the NAB Open Reel Standard, NLS Specification #703, and as specified herein.

3.2 Tape

Tape characteristics and physical properties shall conform to those specified in NLS Specification #703, Section 3.

3.3 Duplicated Open Reel Intermasters

3.3.1 Duplicated Speed

The duplication system shall be capable of producing open reel

copies at a speed of 3-3/4 ips (+2%, -0%).

### 3.3.2 Duplication Equalization

The duplication system shall be adjusted to conform to the equalization required for 3-3/4 ips recording and reproduction. Reference NAB Standard, Magnetic Tape Recording and Reproducing (Reel to Reel), April 1965.

Naturalness of reproduction when compared to the master tape shall be the subjective basis for judging acceptability of the system. Over or under accentuation of bass, treble and/or high frequency response of open reel copies shall not be permitted.

### 3.3.3 Level of Duplication

Tapes shall be produced at an average duplication system level of -5.0 VU. Peaks of the voice shall not exceed +2.0 VU. (The RMS short circuit flux of 185 nW/m at 500 Hz shall be defined as 0 VU.) Sound tracks shall not vary between sides more than 2 VU.

### 3.3.4 Duplication Signal-to-Noise

The unweighted signal-to-noise ratio of a duplicated tape shall not be less than 40 dB.

### 3.3.5 On Tape Crosstalk

There shall be no discernible interchannel crosstalk from adjacent tracks on the duplicated tape.

## 3.4 Other Requirements

### 3.4.1 Program Material

Duplicated program material shall be placed on the tape so that:

- (a) The end of side 1 and the beginning of side 2 physically coincide;
- (b) The end of side 2 and the beginning of side 3 physically coincide;
- (c) The end of side 3 and the beginning of side 4 physically coincide.

Sides shall be assigned as follows:

Side 1 corresponds to track 1  
Side 2 corresponds to track 4  
Side 3 corresponds to track 3  
Side 4 corresponds to track 2

- (d) The track layout of subsequent tapes shall follow the same format.
- (e) Information shall begin 72 inches (+24, -0 inches) from the end of the tape.

(f) Program material shall be complete and inclusive.

3.4.2 Timing

The recorded time for all tracks shall be 88 minutes, +0, -1 minute, except for the last track.

4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling Inspection Plan

The contractor is required to perform 100% inspection for the following requirements under this specification:

Section 3.3.1  
Section 3.3.2  
Section 3.3.3  
Section 3.3.5  
Section 3.4  
Section 5

The contractor is required to perform those quality control procedures listed in Specification #703, covering Section 3 of that specification.

4.2 Quality Control Plan

The contractor is required to provide written documentation showing that his methods of quality control incorporate those established by this specification under Section 4.1.

4.3 Rework

Should NLS determine that significant fault or faults be found in production units, then correction of the fault or faults in previously produced units and production inspections or controls for prevention shall be instituted without additional charge to NLS.

4.4 Warranty

The contractor shall agree to unconditionally warrant each tape he produces for this program for a period of 1 year. Tapes that are found to be not in conformance with this specification shall be returned to the contractor via the U.S. Postal Service. (Defective tapes shall be replaced and returned within five (5) working days.) Statistics shall be kept. Statistics shall be reviewed on a quarterly basis by the contractor and the contracting officer (or his designee) for NLS at the end of the warranty period. A monthly report on warranty returns shall be forwarded to the NLS Quality Assurance Section. Upon such review, warranty claims shall be allowed dependent upon the cause of the defect in the product. In the case of dispute, the decision of the contracting officer (or his designee) shall prevail.

4.5 Recall

Tapes produced for the talking-book program are subject to recall, based on the criteria under the Quality Assurance Section. It shall be the prerogative of the contracting officer to institute a recall at his discretion.

#### 4.6 NLS Inspection

The right is reserved by the National Library Service for the Blind and Physically Handicapped, Library of Congress, to inspect any process or tests being performed. The Library representative shall have the authority to select at random a sample of the tapes at any time during the course of the contract for testing to the specified requirements. The right is reserved by the National Library Service for the Blind and Physically Handicapped, Library of Congress, to reject any production lot represented by a tested sample which has been rejected.

#### 4.7 Certified Acceptance Sample

A certified acceptance sample of each lot produced shall be forwarded to the NLS Quality Assurance Section for approval prior to production and distribution. This sample shall be considered representative of any and all intermasters produced in that lot and shall be retained by NLS as a production control copy.

### 5. PREPARATION FOR DELIVERY

#### 5.1 Reel Labeling

Each individual reel shall have a 1-inch minimum diameter, yellow pressure-sensitive dot attached to the odd-numbered side of the reel. The dot shall incorporate the first odd-numbered side of that particular four-track reel (1, 5, 9, 13, 17, etc.) in braille and raised numbers or print.

#### 5.2 Box Labeling

##### 5.2.1 Box Face

Each individual reel box shall have a yellow label overlay matching the color of the dot on the reel. The overlay shall be printed with the following legend:

This is a pre-recorded, four-track, 88 minute intermaster, speed 3-3/4 ips.

Print shall be black, in as bold a type as practicable.

##### 5.2.2 Box Spine

The box spine shall have a yellow, pressure-sensitive label, stating the following information, in the order given:

- a. Book number
- b. Title
- c. Author/s (last names)
- d. Number of reels in the book (1 of 3, 2 of 3, etc.)
- e. Contractor symbol

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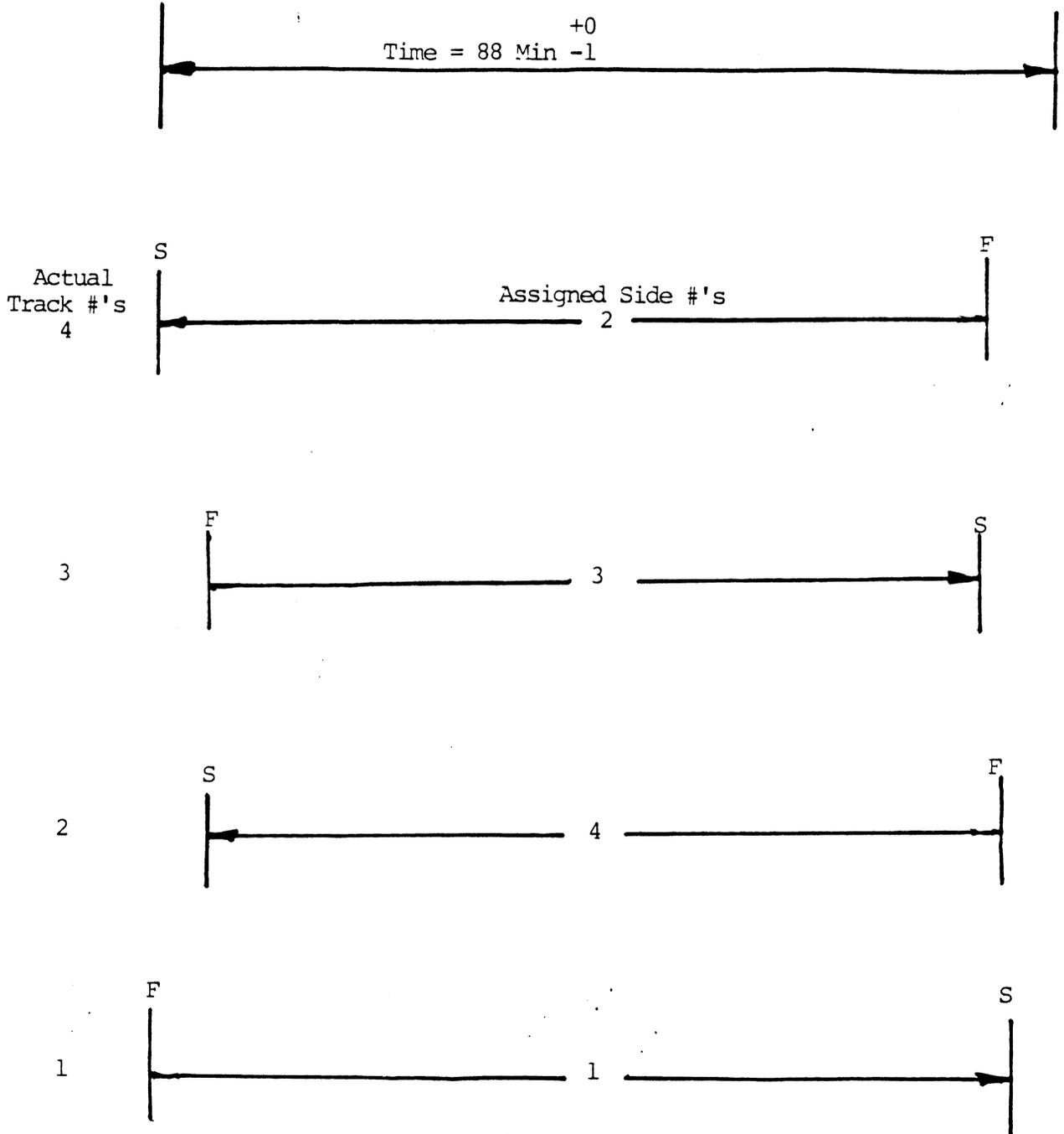
e.g. RC 33131      Clocks for the ages  
     Silverberg      1 of 3            AFB

Print shall be black. No other markings, braille or print are to be permitted.

5.2.3 Overpack

Intermasters shall be packed individually by title. Each overpack shall have a matching color overlay to identify contents. The overlay shall include the book number in bold, black print.

FIGURE 1



S = Start  
F = Finish

→ ←  
denotes tape travel