



## ND600 7/9 Track Magnetic Tape System

### Description

The ND600 7/9-Track Magnetic Tape System provides an industry standard 7 or 9-track magnetic tape input/output facility for the ND600 System. It is capable of operation at a synchronous read/write speed of 45 ips with a packing density of 800 bpi. The magnetic tape system consists of the ND600 7/9-Track Magnetic Tape Interface (70-2438), a 7 or 9-track magnetic tape transport and formatter, interface cabling and firmware. The system provides a means of entering and writing an identification number (0 to 65,535) and a tagword number (0 to 65,535) to identify magnetic tape files and subsequent readback of any identified file by read search on identification and tagword numbers. Display of the next identification and tagword numbers to be written or read is provided on Status Page 6.

All magnetic tape input/output operations are controlled from the pushbutton keyboard of the ND600 Terminal. Operations include writing data from the current display group to magnetic tape; writing a filemark on magnetic tape; reading data from the magnetic tape into the current display group; searching the magnetic tape for identification and tagword numbers, last file or the next filemark; backspacing the magnetic tape over one file; and rewinding the magnetic tape. Messages displayed in the Status Display indicate a magnetic tape off-line or write protect condition, detection of the last file or end of tape, and the number of transmission errors detected during read or write.

All interface circuitry for the 7 or 9-track magnetic tape transport and formatter is contained on a full-width printed circuit board which plugs into rear board housing of the ND600 Electronics Enclosure. Two firmware pairs which must be installed in the Firmware Option Board (70-2434) are required for supporting the 7/9-track magnetic tape interface, transport and formatter.

### Magnetic Tape Format

The American National Standards Institute (ANSI) standard is employed in magnetic tape formatting and recording. Each magnetic tape is initialized with a Volume Label. Each subsequent file written on magnetic tape consists of File Headers 1 and 2, an

ID record, an integer number of data records, and an End of File Label. Each record consists of 513 8-bit bytes with a checksum written in byte 513. The information written in each label is restricted to the first 80 bytes. The information in each ID record is restricted to the first 512 bytes. The information in each data record is restricted to the first 510 bytes. Each data record written on magnetic tape consists of up to 170 24-bit data channels, each arranged in four 6-bit characters on 7-track magnetic tape or three 8-bit characters on 9-track magnetic tape. Parity generation and checking is a function of the magnetic tape formatter.

### Technical Specifications

#### 7-track Magnetic Tape System

**Packing Density:** 200, 556 or 800 bpi.

**Tape Speed:** 25 or 45 ips.

**Parity:** Odd transverse parity in seventh level.

**Interrecord Gap:** Standard 0.75-in. Interrecord Gap (IRG) is inserted between each record.

**Filemark:** Standard 3.5-in. file gap and a filemark containing binary 15 and its Longitudinal Redundancy Check Character (LRCC), followed by 0.75-in. IRG, is inserted at end of each file.

#### 9-Track Magnetic Tape System

**Packing Density:** 800 bpi.

**Tape Speed:** 25 or 45 ips.

**Parity:** Odd transverse in fourth level.

**Interrecord Gap:** Standard 0.6-in. Interrecord Gap (IRG) is inserted between each record.

**Filemark:** Standard 3.5-in. file gap and a filemark containing binary 19, its Longitudinal Redundancy Check Character (LRCC) and its Cyclical Redundancy Check Character (CRCC), followed by 0.6-in. IRG, is inserted at end of each file.

**Tape Specifications:** 0.5-in., 1.5 mil thick, computer grade.

**Reel Size:** 7-in. on 25 ips units, or 10.5-in. on 45 ips units.

## Magnetic Tape Interface

**ID and TAG Numbers:** 0 to 65,535, each selected via the operand pushbutton array and entered using ENTER pushbutton.

**ID and TAG Number Display:** Next ID and TAG numbers to be written or read are displayed for the ID and TAG parameters (Status Page 6).

**Operational Modes:** Write Volume Label, data or a filemark; read data; search for ID and TAG numbers, end of file or the next filemark; backspace; and rewind. The input/output device (MAGT), write (BINO) or read (BINI) data are selected for the IO1 or IO2 parameter (Status Page 4) and executed by depressing the IO1 or IO2 pushbutton. The write Volume Label (VOL) or a filemark (WF); search for ID and TAG numbers (SK), end of file (LF), or the next filemark (SF); backspace (BK); and rewind (RW) commands are entered via the operand pushbutton array and executed by depressing the IO1 or IO2 pushbutton which is assigned to magnetic tape.

**Error Message Display:** Messages to indicate a magnetic tape OFF LINE or write protect (WRT PROT) condition, detection of the last file (DATA ENDS) or end of tape (PAST EOT), and the number (N) of transmission errors (ERRS N) are displayed on Status Page 6.

**Power Requirements:** +5 Vdc @ 2.5A.

**Dimensions:** Standard full-size PC board (8.5-in. l. x 10.5-in. w.)

**Part Number:** 70-2438.

## NUCLEAR DATA INC

Specifications subject to change.  
Printed in U.S.A. 10/77 PS 1032 2.5

### Sales and Service Facilities United States and Canada

Atlanta, Georgia  
Tel: 404/284-1747

Boston, Mass.  
Tel: 617/535-5665

Cleveland, Ohio  
Tel: 216/331-5145

Denver, Colorado  
Tel: 303/755-6607

Los Angeles, Calif.  
Tel: 714/898-7760

New York, New York  
Tel: 212/962-3666

San Francisco, Calif.  
Tel: 415/483-9200

Schaumburg, Illinois  
Tel: 312/884-3600

Washington, D.C.  
Tel: 301/345-6766

### Europe

Frankfurt, Germany  
Tel: 529952

London, England  
Tel: 22733, 25357

Uppsala, Sweden  
Tel: (018) 15-25-15

Other Sales and Service  
Representatives located  
throughout the world.  
Please write or call  
Schaumburg, Illinois for  
your local  
representative.