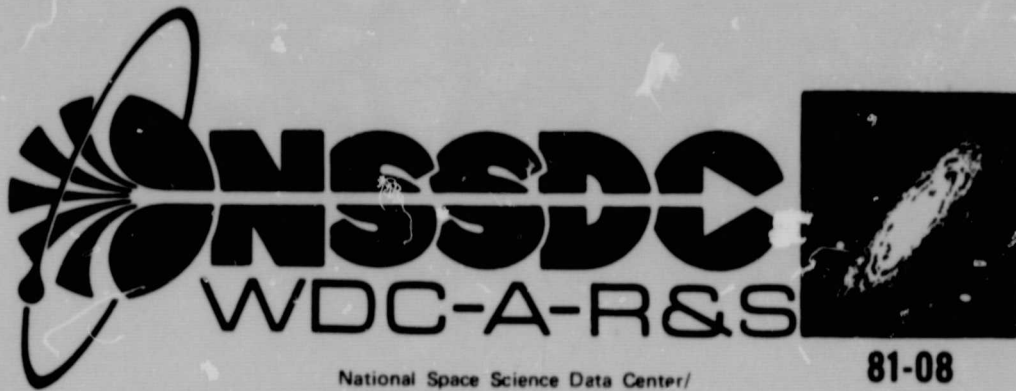
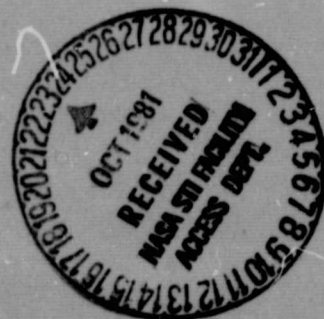


5,268 STANDARD STARS, 1950.0 BASED ON THE
NORMAL SYSTEM N30 (NASA) 14 p HC A02/HF A01
CSCL 03A H2/89

Unclass
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**Documentation for the
Machine-Readable Version of the
Catalog of 5,268 Standard Stars, 1950.0
Based on the Normal System N30**



July 1981

DOCUMENTATION FOR THE MACHINE-READABLE VERSION
OF THE CATALOG OF 5,268 STANDARD STARS, 1950.0
BASED ON THE NORMAL SYSTEM N30

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July 1981

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SECTION 1 - INTRODUCTION

The N30 catalog of 5,268 standard stars, 1950.0 (Morgan 1952) was constructed primarily to assist in the reduction and interpretation of planetary observations, particularly those made in the nineteenth century. The new catalog was considered necessary because the only fundamental catalogs available at the time (FK3, GC) have mean epochs around 1900, and over the period of approximately fifty years, positional accuracies had deteriorated from cumulative effects of proper-motion inaccuracies. A full description of the formation of the catalog, source catalogs used, probable errors, and other information can be found in the introduction to the published version.

This document describes the machine-readable version of the N30 catalog available on magnetic tape from the Astronomical Data Center. Numerical representations of some data fields on the original catalog have been changed to conform more closely to formats now being used for star-catalog data, plus all records having asterisks indicating footnotes in the published catalog now have corresponding remarks entries in a second tape file; i.e. the footnotes in the published catalog have been computerized and are contained in a second file of the tape.

This paper is intended to fully describe the tape version of the N30 catalog so that users can avoid the frequent problems and guesswork usually involved with processing a not fully documented machine-sensible data set. A copy of the document should be distributed with any machine-readable version of the catalog.

SECTION 2 - TAPE CONTENTS

A byte-by-byte description of the contents of the logical records in the N30 catalog is given in Tables 1 and 2. The suggested format specifications can be modified depending upon usage, but care must be exercised when using integer and real format specifications in place of character (A) formats because some data fields contain blanks when data are absent. Real (F) format specifications are suggested for some data to indicate the location of decimal points, even though the data are recorded on the tape as integers. Alternate specifications are given in parentheses.

Table 1. Tape Contents. N30 Catalog of 5,268 Standard Stars

Byte(s)	Description	Suggested Format
1- 4	N30 running number	I4
5-12	DM number (Present for all stars)	(A8)
	5 sign	A1
	6- 7 zone	A2 (I2)
	8-12 number	A5 (I5)
13-17	GC number (blank if not present)	A5
18-21	Harvard photometric magnitude	F4.2

If the position is for the mean, center of light, or center of gravity, the combined magnitude is given and the magnitudes, distance and position angle of the components are given in the notes. Where the position is for the center of gravity, the orbital corrections used in the reduction of the observation were taken from the GC, Vol. I, Ap. II. For double stars of distances 1" to 2", there is an uncertainty as to part observed, depending upon the relative magnitudes of the components. If the components are separated and differ considerably in magnitude, then the use of screens cuts out the fainter star. There are a number of such stars and in older work the observations were reduced as the mean, or center of light. Where it seems probable that the new position is for the brighter star and the GC gives a mean, a note is given.

The magnitudes of variable stars are given as a blank followed by three zeroes.

22-25	Henry Draper (HD) spectral type Composite spectra are given as combinations; e.g. K0A0 or K0+A. A few peculiar composite spectra require >4 characters and the p's are omitted in the fields, but given in the notes.	A4
26-34	Right ascension (α) for equinox and epoch 1950.0 (brought up from epoch of observation using Newcomb's precession and the proper motions in this catalog)	
	26-27 hours	I2
	28-29 minutes	I2
	30-34 seconds	F5.3
35-41	Third term in right ascension (the first and second terms are not included on the tape) ($0^{\circ}01$)	F7.2
42-46	Centennial proper motion in right ascension (μ_{α}) ($0^{\circ}01$)	F5.2
47-53	$\Delta\mu_{\alpha}$ centennial secular variation ($0^{\circ}01$) (blank if not present)	F7.2
54-56	Mean epoch of α (0.1 yr) (1900+)	F3.1
57-59	Sum of combining weights used in forming the normal position in α	I3
60-68	Declination (δ) for equinox and epoch 1950.0 (see note for right ascension)	
	60 sign	A1
	61-62 degrees	I2
	63-64 arcminutes	I2
	65-68 arcseconds	F4.2
69-73	Third term in declination (the first and second terms are not included on the tape) ($0^{\circ}1$)	F5.1
74-78	Centennial proper motion in declination (μ_{δ}) ($0^{\circ}1$)	F5.1
79-81	$\Delta\mu_{\delta}$ centennial secular variation ($0^{\circ}1$) (blank if not present)	F3.2
82-84	Mean epoch of δ (0.1 yr) (1900+)	F3.1

85-87	Sum of combining weights used in forming the normal position in δ	I3
88	* if there is a remark in the notes file of the catalog, otherwise blank	A1

Table 2. Tape Contents of Notes File. N30 Catalog of 5,268 Standard Stars

Byte(s)	Description	Suggested Format
1- 4	N30 running number	I4
5	A period (.)	A1
6	Blank	1X
7-80	Remark(s)	74A1

For printing only, the notes file can, of course, be read with format 80A1 (or 20A4, 8A10, etc.). Note that the remarks are upper and lower case characters, so the use of an extended chain printer is recommended. Note also that the symbol for degrees (hexidecimal A1, punch code 11-0-1) is used throughout the remarks file, and it may be necessary to convert it for other than IBM systems.

SECTION 3 - TAPE CHARACTERISTICS

The information contained in Table 3 is sufficient to enable a user to read the machine version of the catalog. Information for the entire catalogue (both files) is given in the table, but parameters which are easily varied from installation to installation, such as blocksize (physical record length), blocking factor (number of logical records per physical record), total number of blocks, tape density, and coding (EBCDIC, ASCII) are not included. This information should always be supplied if copies of the catalog are transmitted to other users or installations.

Table 3. Tape Characteristics. N30 Catalog of 5,268 Standard Stars

NUMBER OF TRACKS	9
NUMBER OF FILES	2
LOGICAL RECORD LENGTH	88,80
RECORD FORMAT	FB*
NUMBER OF LOGICAL RECORDS	5268,277

*Fixed length blocks

The numbers separated by commas refer to the first and second files of the catalog, respectively. Logical record lengths are given in bytes (characters).

SECTION 4 - REMARKS, MODIFICATIONS AND REFERENCE

The catalog was received on magnetic tape from the Centre de Données Stellaires, Strasbourg. The following modifications were made to the format in order to make the records appear more similar to the published catalog, to make them easier to read when listed, and to simplify processing to produce printed and microform versions closely approximating the published catalog in appearance:

1. Data were read and rewritten to discard leading zeroes, which make the numbers difficult to read when listed.
2. All positive Durchmusterung numbers had zeroes in the zone numbers where + signs would ordinarily be. The zeroes were changed to + signs.
3. The GC numbers and secular variations in α and δ were changed to blank fields if not present. (They were zeroes on the tape as received.)
4. Several modifications were made to the spectral types:
 - (a) Peculiar and emission symbols (p, e) were changed to lower case to conform to standard usage.
 - (b) Composite spectra are indicated by two spectral types which run together in the 4-byte field. For types of the form K0A, a change was made to the form K0+A.
 - (c) Peculiar HD O-star types were coded numerically; they were decoded by replacing O1 by Ob, O3 by Od, O4 by Oe5, and O0P by Oap.
5. Plus (+) signs were added to the first byte of the declination field where blanks had been previously.
6. The note indicator (byte 88) was an asterisk (*) in many cases, but for more than half of the stars having notes, a peculiar code was found which printed as β on an extended chain printer. Since there should have been no varying note characters, the latter codes were changed to asterisks for uniformity.

The notes file was created and added to the machine-readable catalog. Checks were made to ensure that all records containing an * have corresponding notes and vice versa.

REFERENCE

Morgan, H. R. (1952). Catalog of 5,268 Standard Stars for the Equinox and Epoch 1950.0 Based on the Normal System N30, *Astron. Papers Amer. Ephemeris* 13, Part III.

SECTION 5 - SAMPLE LISTING

The sample listing given on the following pages contains logical data records exactly as they are recorded on the tape. Groups of records from the beginning and end of each file are illustrated. The beginning of each record and the bytes within the record are indicated by the column heading index across the top of each page (digits read vertically).

