General Disclaimer

One or more of the Following Statements may affect this Document

- This document has been reproduced from the best copy furnished by the organizational source. It is being released in the interest of making available as much information as possible.
- This document may contain data, which exceeds the sheet parameters. It was furnished in this condition by the organizational source and is the best copy available.
- This document may contain tone-on-tone or color graphs, charts and/or pictures, which have been reproduced in black and white.
- This document is paginated as submitted by the original source.
- Portions of this document are not fully legible due to the historical nature of some
 of the material. However, it is the best reproduction available from the original
 submission.



(NASA-TH-84039) DOCUMENTATION FOR THE HACHINE-READABLE VERSION OF THE CATALOGUE OF STARS WITHIN 25 PARSECS OF THE SUN (NASA) 17 p HC A02/HF A01 CSCL 03A

N82-20088

Unclas G3/89 12332

Documentation for the

Machine-Readable Version

of the Catalogue of Stars

Within 25 Parsecs of the Sun

January 1982

DOCUMENTATION FOR THE NACHINE-READABLE VERSION OF THE CATALOGUE OF STARS WITHIN 25 PARSECS OF THE SUN

Wayne H. Warren, Jr.

January 1982

National Space Science Data Center (NSSDC)/
World Data Center A for Rockets and Satellites (WDC-A-R&S)
National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, ND 20771

PRECEDING PAGE BLANK NOT FILMED

TABLE OF CONTENTS

Sect	tion 1	- INTRODUCTION	1-1
Sect	cion 2	- TAPE CONTENTS	2-1
Sect	ion 3	- TAPE CHARACTERISTICS	3-1
Sect	ion 4	- REMARKS, MODIFICATIONS AND REFERENCES	4-1
Sect	tion 5	- SAMPLE LISTING	5-1
		LIST OF TABLES	
TABI	-		
TABL	<u> </u>		
1	Tape	Contents	2-1
2	-	Characteristics	

SECTION 1 - INTRODUCTION

The Catalogue of Stars within twenty-five parsecs of the Sun (Woolley, Epps, Penston and Pocock 1970) was constructed at the Royal Greenwich Observatory in order to enlarge the Catalogue of Nearby Stars compiled by Gliese (1957). The catalogue contains data on stars nearer than 25 pc which are not included in Gliese's catalogue, plus additional information published since 1957 on stars in the Gliese compilation.

The machine-readable version of the Catalogue of Stars within twenty-five parsecs of the Sun contains essentially all information given in Table Ia of the published catalogue, plus positional data and all cross references to other catalogue numbers given in Table IIa. Not included from Table Ia are the flags (asterisks appended to catalogue numbers) indicating notes in the published catalogue, nor are the notes in machine-readable form. Omitted from Table IIa are the finding chart identifiers (Lowell G numbers or notes reference) and miscellaneous cross identifications to other names and catalogue identifiers. Tables Ib and IIb, containing 21 systems originally included in Gliese's (1957) catalogue, but for which revised parallaxes have placed them farther than 25 pc, are not included in the machine-readable version. A useful extension to the present machine-readable catalogue would be the addition of the cross identifiers and the creation of a separate file containing the notes.

This document describes the machine-readable version of the subject catalogue currently available on magnetic tape from the Astronomical Data Center. Although it should enable users to read and process the tape file without difficulty, and to interpret the data to some extent, the additional information given in the data descriptions and the notes in the published catalogue make it advisable to consult the latter when analyzing and/or interpreting the data in the machine version.

SOURCE REFERENCE

Woolley, R., Epps, E. A., Penston, M. J. and Pocock, S. B. 1970, Catalogue of Stars within twenty-five parsecs of the Sun, Roy. Obs. Ann., No. 5.

SECTION 2 - TAPE CONTENTS

A byte-to-byte description of the contents of the logical records in the Catalogue of Stars within twenty-five parsecs of the Sun is given in Table 1. The suggested format specifications are presented in order to clarify the units and data types, and they can be modified depending upon usage; however, 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. All tape data are recorded as integers, but real (F) format specifications are suggested when more appropriate and to show decimal point locations. Since data fields are blank for missing data, records should be buffered in or fields tested in some way to distinguish between blanks and zero. Alternate specifications are given in parentheses. For complete data descriptions, the user show decimal the published catalogue referenced on page 1-1.

Table 1. Tape Contents. Catalogue of Stars within 25 parsecs of the Sun

		Suggested	
Byte(s)	Units	Format	Description
1- 4		14	Star number. Numbers in Gliese's (1957) catalog retained; newly added stars have numbers starting at 9001 and increasing with α_{1950} , but since numbering of extension, new parallaxes have removed 9419 and added two new stars: 9849, 9850 (both at $\alpha_{1950} = 4^h$ 19 ^m), The Sun (first record) has number 0.
5		A1	Component identification (A, B,) for stars having the same number. Stars with separately published parallaxes have generally been assigned separate numbers. Components are given for extension stars when they are known or suspected to form a physical system.
6- 8	•	F3.3	Parallax (π) . The main sources of trigonometric parallaxes are the Yale General Catalogue of Trigonometric Stellar Parallaxes and its supplement (Jenkins 1952, 1963). Some spectroscopic parallaxes are included and indicated by the probable error code following.

Byte(s)	Units	Suggested Format	Description
9- 10	и	A2	Probable error of a trigonometric π . The two bytes given are the least significant digits in a number of the form $\pm 0.0XX$ which, for pure numbers, could be read in format F2.3; however, for spectroscopic π , byte 9 is blank and byte 10 contains "S".
11		I1 (A1)	"8" if p.e. (π) < 15% "9" if p.e. (π) < 10% blank otherwise
12- 16	s yr ⁻¹	F5.4	Annual proper motion μ_{α} in seconds of time; blank if not present. Note that most data are given to a precision of 050001; however, many values are only quoted to 05001. In the latter case, byte 16 is blank, hence precision can be ascertained by reading the field in an A format and testing for a blank in byte 16.
17- 22	* yr-1	F6.3	Annual proper motion μ_{δ} in arcseconds; blank if not present. See note on precision for μ_{α} above.
23- 27	km s−1	F5.1	Radial velocity taken from the GCRV (Wilson 1953), unmodified for Wilson codes a and b, revised for codes c and d if additional measures were available. Observed velocities are given for white dwarfs (uncorrected for gravitational redshift). Additional unpublished velocities from various observations are included where needed. Field blank if no datum present; if datum present, sign always in byte 23.
23		I1 (A1)	Radial velocity code: 1 if mean value of combined components of binary (symbol J in published catalogue); 3 if velocity variable (symbol V in published catalogue); otherwise blank.

Table 1. (continued)

	3.4.	Suggested	
Byte(s)	Units	Format	Description
29- 32	km s ⁻¹	14	$m{U}$ component of space velocity relative to Sun (blank if no data).
33- 36	km s ⁻¹	14	V component of space velocity relative to Sun (blank if no data).
37- 40	km s ⁻¹	14	W component of space velocity relative to Sun (blank if no data).
41- 45		F5.4	Box orbit parameter, $\tilde{\omega}$, the distance of the epicenter of the box from the Galactic center (see Woolley and Candy 1968). Note that the quantities $\tilde{\omega}$, e and i are normalized to the solar distance from the Galactic center and the unit of velocity is the Sun's circular velocity, taken to be 250 km s ⁻¹ . The solar motion used is $u_0 = +10$ km s ⁻¹ , $v_0 = +10$ km s ⁻¹ , $w_0 = +7$ km s ⁻¹ , while the Oor 's constants adopted are $A = +14.6$ km s ⁻¹ kpc ⁻¹ , $B = -11.5$ km s ⁻¹ kpc ⁻¹ . For multiple systems $\tilde{\omega}$, e and i have been computed for the first component only using available values of u , v , and w . Field blank if no datum.
46- 49		P4.4	Box orbit parameter, e, the eccentricity of the orbit; blank if no data.
50- 53		F4.4	Box orbit parameter, i, the box angle; blank if no data.
54		I1 (A1)	Luminosity class code (MK or Mt. Wilson): 1 - I or c; 2 - II or c; 3 - III or g; 4 - IV or sg; 5 - V or d; 6 - VI or sd; 7 - D or wd. Blank for no data. Note: Intermediate luminosity classes have no codes; e.g., 4 is given for class IV-V.
55- 57		A3	Spectral type (MK where available, mostly from Jaschek et al. 1964; preference given to Wilson 1953 for remaining types). Peculiarity indicators (n, e, etc.) given in upper case.

|--|

		Suggested	
Byte(s)	Units	Format	Description
58		I1 (A1)	Spectral-type code: 1 - MK; 2 - combined MK type for multiple system; 4 - combined non-MK; blank - non-MK.
59- 62	may	F4.2	Magnitude V , m_V or m_{pg} . V preferred, sometimes weighted means. Photoelectric data are given to $0^m_{1}01$ precision, Mv and Mpg to $0^m_{1}1$ precision (byte 62 blank). Data always present except for Sun (first record).
63		I1 (A1)	Magnitude code: 1 - combined light value for multiple system (symbol J in published catalogue); 2 - photographic magnitude (P in published catalogue); 3 - variable magnitude (V in published catalogue); otherwise blank.
64- 67	mag	F4.2	B-V color. Field blank if no data; sign always in byte 64 if value present.
68- 71	mag	F4.2	U-B color. Field blank if no data; sign always in byte 68 if value present.
72- 75	ma g	F4.2	Absolute visual magnitude M computed from apparent magnitude and parallax: $M=m+5+5\log\pi$, reported to 0^m_101 if both probable error of $\pi<10$ % and V magnitude given to 0^m_101 .
76- 77	hours	12	^a 1900
78- 80	min	F3 - 1	^α 1900
81		A1	Sign of δ_{1900}
82- 83	•	12	δ ₁₉₀₀
84~ 85	1	12	δ ₁₉₀₀

Table 1	. (cont	inu	ed)

Byte(s)	Units	Suggested Format	Description
86- 87	hours	12	or 1950 taken, in order of preference, from the Smithsonian Astrophysical Observatory Star Catalog (SAO 1966), the lists of Giclas et al. (1959-1969) and the General Catalogue (GC, Boss 1937). Positions precessed from those given in parallax references in other cases.
88- 89	min	12	α 1950
90- 91	sec	12	a 1950
92		A1	Sign of δ_{1950}
93- 94	•	12	δ1950
95- 97	•	F3.1	δ1950
98-102		A4, A1	Number in General Catalogue of Trigono- metric Parallaxes (Jenkins 1952, 1963). For GCTP numbers form XXXX.X, the decimal point lies between bytes 101 and 102; i.e., the numbers can be read with format F5.1, but the field is blank when there is no value given.
103-108		I6 (A6)	Henry Draper (HD) catalogue number. Blank for no data.
109-110		I2 (A2)	DM zone. Signs are present in byte 109 only when $ \mathrm{DMZ} < 10^\circ$; in other cases, the sign should be taken from the declination (byte 81 or byte 92). The HD convention of DM assignment is followed: BD north of -23°, CD -23° $> \delta$ zone $> -52^\circ$, CPD south of -52°.
111115		I5 (A5)	DM number. DM field is entirely blank for no data.
116-120		I5 (A5)	Number in the GCRV (Wilson 1953). Blank if not present.

Tabl	<u>e 1. </u>	(cont	inna	đ١
		11.01.	41140	4.

Byte(s)	Units	Suggested Format	Description			
121-126		λ 6	Other proper-motion catalogue designations; byte 121 or bytes 121-122 can contain the following letter codes: L - Luyten LTT catalogues (1957, 1961, 1962); C - Cincinnati Publ. No 18 (Porter et al. 1915); CC - Cincinnati Publ. No. 20 (Porter et al. 1930). A pure numerical designation implies a GC number. Priority is GC, CC, C, LTT. Field blank when no data.			
127-130		I4 (A4)	YBS = HR number from Catalogue of Bright Stars (Hoffleit 1964). Blank for massing number.			
131-133		I3 (A3)	Numbers in red-dwarf lists of Vyssotsky and collaborators (1943, 1946, 1952, 1956) and in supplementary list (Vyssotsky 1958). Blank for missing data.			
134		A1	Remarks code: Code Abbrev. 2 SB spectroscopic binary 3 ST spectroscopic triple 4 D unresolved double, unknown nature 5 UV UV Ceti flare star 6 EB eclipsing binary 7 SR semi-regular variable 8 AB astrometric binary 9 PL NEB planetary nebula			
135		λ1	Remarks code as above. Two bytes are used to allow for at least two remarks for the same star.			

SECTION 3 - TAPE CHARACTERISTICS

The information contained in Table 2 is sufficient to enable a user to read the machine version of the catalogue. Information for the entire catalog is given in the table, but parameters which are easily varied from installation to installation, such as block size (physical record length), blocking factor (number of logical records per physical record), total number of blocks, tape density, and coding (EBCDIC, ASCII, BCD, etc.) are not included. This information should always be supplied if secondary copies of the machine-readable catalogue are transmitted to other users or installations.

	Tape Characteristics. of the Sun.	_			_	parsecs
NUMBER OF	FILES	• • • • • • • • • • • • • • • • • • • •	• • • • • • • •	• • • • • • • • • • • • • • • • • • • •	• • • • •	1
LOGICAL R	ecor^ length (bytes)	• • • • • • • • • • • • • • • • • • • •	• • • • • • • •	• • • • • • • • •	• • • • •	135
RECORD FO	RMAT	• • • • • • • • • •	• • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	• • • • •	FB*
TOTAL NUM	BER OF LOGICAL RECORDS	•••••	•••••	• • • • • • • • • • • • • • • • • • • •	2	150

^{*}Fixed length blocks (last block may be short)

SECTION 4 - REMARKS, MODIFICATIONS AND REFERENCES

A magnetic tape version of the Catalogue of Stars within twenty-five parsecs of the Sun was received from the Centre de Donnees Stellaires, Strasbourg (CDS catalogue number 5004). As received the logical record length was 160 bytes and the file had been recorded in 026 character code. The file was converted to 029 code (& converted to + signs, etc.) and reformatted to eliminate all unnecessary blank characters, thus resulting in the current 135-byte logical record length. The remarks coding (bytes 134-135) originally included seven codes (2-8), as defined in Table 1; however, one star (9785) in the published catalogue (Table Ia) contains the note "PL NEB", which had not been assigned a remarks code. The code 9 has been assigned to the planetary nebula category and entered into byte 134 of the record for star 9785.

REFERENCES

- Boss, B. 1937, General Catalogue of 33342 Stars, Publ. Carnagie Inst., Washington, No. 468.
- Gliese W. 1957, Mitt. Astron. Rechen-Inst., Ser. A, No. 8.
- Jaschek, C., Conde, H. and de Sierra, A. C. 1964, Catalogue of Stellar Spectra Classified in the Morgan-Keenan System, Publ. La Plata Obs., Ser. Astron. Vol. 28, No. 2.
- Jenkins, L. F. 1952, General Catalogue of Trigonometric Stellar Parallaxes (New Haven: Yale University Observatory)
- Jenkins, L. F. 1963, Supplement to the General Catalogue of Trigonometric Stellar Parallaxes (New Haven: Yale University Observatory)
- Luyten, W. J. 1957, Catalogue of 9687 Stars in the Southern Hemisphere with Proper Motions Exceeding 0"2 Annually (Minneapolis: The Lund Press).
- Luyten, W. J. 1961, Catalogue of 7127 Stars in the Northern Hemisphere with Proper Motions Exceeding 0"2 Annually (Minneapolis: The Lund Press).
- Luyten, W. J. 1962, First Supplement to the LTT Catalogue (Minneapolis: Univ. Minnesota Observatory).
- Porter, J. G., Yowell, E. I. and Smith, E. 1915, Publ. Cincinnati Cbs., No. 18.
- Porter, J. G., Yowell, E. I. and Smith, E. 1930, Publ. Cincinnati Obs., No. 20.
- Smithsonian Astrophysical Observatory, 1966, Star Catalog, Smithsonian Publ. 4652.
- Vyssotsky, A. N. 1943, Astrophys. J. 97, 381.
- Vyssotsky, A. N. 1956, Astrophys. J. 61, 201.
- Vyssotsky, A. N. 1958, Astrophys. J. 63, 211.
- Vyssotsky, A. N. and Bateer, A. M. 1952, Astrophys J. 116, 117.
- Vyssotsky, A. N., Janssen, E. M., Miller, W. J. and Walther, M. E. 1946, Astrophys. J. 104, 234.
- Wilson, R. E. 1953, General Catalogue of Stellar Radial Velocities, Publ. Carnegie Inst., Washington, No. 601.

REFERENCES (continued)

Woolley, R. v.d. R. and Candy, M. P. 1968, Mon. Not. R. Astron. Soc. 141, 277.

Woolley, R., Epps, E. A., Penston, M. J. and Pocock, S. B. 1970, Catalogue of Stars within twenty-five parsecs of the Sun, Roy. Obs. Ann., No. 5.

SECTION 5 - SAMPLE LISTING

The sample listing presented on the following pages contains logical data records exactly as they are recorded on the tape. 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). Since each logical record is longer than 115 bytes, the remainder of the record (bytes 116-135) is printed in the following row.

LISTING OF RECORDS FROM TAPE FILE

TAPE FILE NAME: STARS < 25 PARSECS

-

1 10

RECORDS TAPE FILE

	α	RECORD LENGTH 135 BYTES
		INPUT VOLSER 1 JOB
	2	111111111111112222222222222222333333344444444
RECORD	-	05 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
RECORD ;	~	225
RECORD	e	31 49 2 094 49+083 - 015 + 02 -36 -21 -15 9517090301055M2 989 +150+118 9760000+4514000232+45306 44 4548
		34CC 4 216 3 07712 - 032 - 052 + 410 35 -39 -9 87601774 255K5 1 845 +105+103 788 0 02-6822000248-68 62 3 5568 3597
		0 080 1017977 000 01E 1055KF
	n (2 100 40 100 100 100 100 100 100 100 100
	ō - a	5MC 897 +143+120 884 0 04+4316000304+45351
		88 5 8 + 0330+ 034- 16 -17 -27 -0 5GB 720 +078+033 547 0
RECORD	on on	45 9002A049 78+0573- 037+ 09 -46 -28 -9 92121305 254G1 1 569 +052

16628 4704

σ

995 0 11-4938 0 344-49212

5 069 79+0286- 0180- 82 -15 -23 -10 9426 592 385K0 1 614 +075+033 533 0 14+2828000401+28447

95

5

=

RECORD

10 90028049 78

RECORD

LISTING OF RECORDS FROM TAPE FILE

TAPE FILE NAME: STARS < 25 PARSECS

2140 70 2150 36 RECORDS TAPE FILE

135 BYTES RECORD LENGTH

WHW0 08 IMPUT VOLSER

000000000011111 0100000000111111 0123456789012345	22 6219
111 .66577777777776:8888888999999999996000 :789012345678901234567890123456789012	97023496-2220235212-22033
	RECORD 2140 911 066 5 -004 + 016 + 18 1 15 -:5111971247 1035WG 106
ONN ONN DAU NU NO	RECORD 2140

22 6219	-6 6318			45 4378	-4 6001	17 6862		3026 4734	
97023496-2220235212-22033	6 101423566- 642235307-0624957791	0 88223520-17 5235440-16473	130623520-17 5235441-16477	*'44+119 85123535+46;0235607+462765732	91123551- 437235740- 4203	91223563-:730235852-17133	90623568+2528235922+254405905	.067.005 53723569.2633235933.264905807 22493026	83723569+2633235933+264905807
901	1114 - 146	:076 -130	un •"	562 + 14	9- * • •	თ ::	0	n 1- n	875
1 15 -: 5111971247 103540	•	-52 13 -10111051731 1605Wg		-40 -16 -13 9734 930 785W0	() B	-15 -29 -17 9173 833 1345WS	e ,	-9 -74 -33 75282471 436552 1	
911 066 5 -004 + 016 + 18 348	912 06313 -033 - 035 L 9789	9845A041 S +026 + 28 + 17 L 9805 349	98458041 5 +026 + 28 L 9806 349	913 060 78+0545- 603'+ 45 15000 33249 214	2145 9846 040 5 -0091+ 030 871	9847 044 S +019 - 19 + 8	9848 34112 -022 - 61 CC1472	9:4AC84 49+5625- 0988- 352 15044 333349388	914B084 49+0625- 0988
2 4	2141	2142	2143	2144	2145	2146	2147	2148	2149
RECORD	RECORD	RECORD	RECORD	RECORD	RECORD	RECORD	RECORD	RECORD	RECORD

745 .305 .007-087134823570-4342235934-432515808 RECORD 2150 915 122 89+055 - 667 CC1474