National Space Science Data Center/
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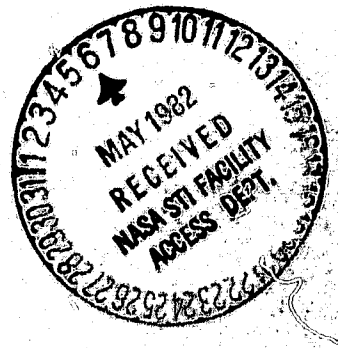
DOCUMENTATION FOR THE

MACHINE-READABLE VERSION OF

A DEEP OBJECTIVE-PRISM SURVEY

FOR LARGE MAGELLANIC CLOUD MEMBERS



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DOCUMENTATION FOR THE MACHINE-READABLE VERSION OF *A DEEP OBJECTIVE-PRISM SURVEY FOR LARGE MAGELLANIC CLOUD MEMBERS*

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February 1982

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SECTION 1 - INTRODUCTION

This catalog contains 1273 proven or probable Large Magellanic Cloud (LMC) members, as found on deep objective-prism plates taken with the Curtis Schmidt telescope at Cerro Tololo Inter-American Observatory in Chile. The stars are generally brighter than about photographic magnitude 14 and are identified on charts published by Hodge and Wright (1967) and reproduced in the source publication (Sanduleak 1969). Approximate spectral types were determined by examination of the 580 Å mm^{-1} (at H_γ) objective-prism spectra; approximate 1975 positions were obtained by measuring relative to the 1975 coordinate grids on the Uppsala-Mount Stromlo Atlas of the LMC (Gascoigne and Westerlund 1961), and approximate photographic magnitudes were determined by averaging image density measures from the plates and image-diameter measures on the "B" charts of Hodge and Wright (1967).

This document describes the machine-readable version of the LMC survey catalog. It is intended to enable users to read and process the tape file without problems or guesswork. A copy of the document should be supplied with any machine-readable version of the catalog.

SOURCE REFERENCE

Sanduleak, N. 1969, *A deep objective-prism survey for Large Magellanic Cloud members*, Cerro Tololo Inter-American Observatory, Contrib. No. 89.

SECTION 2 - TAPE CONTENTS

A byte-to-byte description of the contents of the machine-readable catalog is given in Table 1. The suggested format can be modified depending upon usage, although data fields specified with A (character) formats only contain character data and alternate specifications cannot be used. Alternate specifications are given in parentheses.

Table 1. Tape Contents. *A Deep Objective-Prism Survey for LMC Members*

Byte(s)	Units	Suggested Format	Description
1- 7	---	I3,I4	Catalog number (NS): Declination zone in bytes 1-3 (sign always in byte 1), number in bytes 5-7 (byte 6 always blank).
8	---	A1	Suffix character "a", "b", or "c" in cases where more than one star has the same NS number. Blank otherwise.
9	---	A1	Asterisk if there is a note about this star in the published catalog. The notes are reproduced in Table 3 of this document.
10-15	---	I6 (A6)	Number in the *Henry Draper Catalogue* (HD); otherwise blank.
16	---	A1	Colon (:) if HD identification uncertain; otherwise blank.
17-23	---	I7 (A4,A3)	Number in the *Cape Photographic Durchmusterung* (CPD); blank for no CPD identification.
24	---	A1 (1X)	Reserved for CPD colon (:), but no cases occur in the catalog.
25-26	hours	I2	Right ascension α_{1975}.
27	---	1X	Blank
28-31	min	F4.1	α
32	---	1X	Blank
33-35	°	I3	Declination δ_{1975}. Sign always in byte 33 (always negative).
36	---	1X	Blank

Table 1. (continued)

Byte(s)	Units	Suggested Format	Description
37-38	'	I2	δ
39-44	---	A6	Spectral type (OP). Lower case characters are used for broad lines (n) and emission (e) symbols.
45-48	mag	F4.1	Photographic magnitude m_{pg} (always present).
49	---	A1	"v" if variable m_{pg}; otherwise blank.
50-61	---	12A1 (3A4)	or equivalent. Finding chart identification in source publication (Sanduleak 1969). When a star is identified on more than one chart, the numbers are separated by commas. (Identifications such as 45a, 45d are present).
62-85	---	24A1 (6A4)	Alternate identification designations for the star, separated by commas for multiple entries. Abbreviations for the numbers are given in Table 2 of this document. Otherwise blank.

Table 2. Key to Alternate Identifications

Des.	Reference	Information Content
AL	Andrews and Lindsay (1964)	List of H_α emission stars
BBB	Bok, Bok and Basinski (1962)	Color-magnitude arrays for two associations
FDD	Fehrenbach, Duflot and Duflot (1965)	List of stars having very large radial velocities indicating LMC membership
HV	Hodge and Wright (1967)	List of Harvard variables
L	Lindsay (1963)	List of H_α emission stars
R	Feast, Thackeray and Wesselink (1960)	Spectroscopic and photometric data for known bright LMC members
S	Henize (1956)	List of H_α emission stars
W	Westerlund (1961)	Photometric data in several selected regions of the LMC. As an example of the notation, W10-46 means star 46 in Westerlund's table 10
Wo	Woolley (1968)	Proper motions for stars in a one square degree region
WS	Westerlund and Smith (1964)	A list of Wolf-Rayet stars

Table 3. Notes to Catalog Data Records

Zone	Star	Remarks
-65°	20a	Easternmost star of unresolved pair on the chart.
	62	Westernmost of the three stars.
-66°	41	Brightest star in NGC 1769. See Woolley (1963) for positive identification.
	43	Easternmost of two brightest stars in NGC 1773.
	97	Westernmost of unresolved pair on the chart. No. 98 is the other star.
-67°	19	Strong Balmer discontinuity.
	44	Very strong Balmer discontinuity.
	250	Excites large H II ring.
-68°	15	Westernmost star of unresolved pair on chart.
	18	Double. Both components are OB stars.
	19	Located just south of a much brighter late-type star.
	93	Strong Balmer discontinuity.
	98	See chart by Westerlund (1961) for positive identification.
	100	K-line present.
	110	Should be deleted. Proven foreground star.
	145	Shows λλ 3811-34 (OVI) in emission.
-69°	25	Excites H II region.
	36a	Double. Both components are OB stars.
	76	South-trailing star.
	94	North-preceding star.
	147a	North-preceding star.
	148	May be late-type supergiant.
	209a	See chart by Westerlund and Smith (1964) for positive identification.

Table 3. (continued)

Zone	Star	Remarks
	223	South-preceding star whose spectrum overlaps with that of star 224 to form HD 38029.
	243	See Feast *et al.* (1960) for positive identification of this star and several WR stars which we could not detect because of the nebulosity in this region.
	266	North-trailing star.
-70°	98	Brightest star in the cluster SL539 = HDE 269664.

SECTION 3 - TAPE CHARACTERISTICS

The information contained in Table 4 is sufficient for a user to read the machine version of the catalog. Statistics for the entire catalog are given in the table, but data 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, BCD, etc.) are not included: these parameters should always be supplied if secondary tape copies of the catalog are transmitted to other users or installations.

Table 4. Tape Characteristics. *A Deep Objective-Prism Survey for LMC Members*

NUMBER OF FILES	1
LOGICAL RECORD LENGTH (BYTES)	85
RECORD FORMAT	FB*
TOTAL NUMBER OF LOGICAL RECORDS	1273

* Fixed length blocks (physical records). Last block may be short.

SECTION 4 - REMARKS AND REFERENCES

The data, contained in Table III of Sanduleak (1969), were transcribed to data forms at the Astronomical Data Center, then punched to cards and verified at two separate locations. The resulting two card decks were transferred to disk and compared, corrected, and modified with the addition of the notes flags and extension to the 85-byte records. The catalog was then transferred to magnetic tape.

REFERENCES

Andrews, A. D., and Lindsay, E. M. 1964, *Irish Astron. Journal* 6, 241.

Bok, B. J., Bok, P. F., and Basinski, J. M. 1962, *Monthly Notices Roy. Astron. Soc.* 123, 487.

Feast, M. W., Thackeray, A. D., and Wesselink, A. J. 1960, *Monthly Notices Roy. Astron. Soc.* 121, 337.

Fehrenbach, Ch., Duflot, M. and Duflot, A. 1965, *Journ. des Obs.* 48, 185, 199.

Gascoigne, S. C. B., and Westerlund, B. E. 1961, Uppsala-Mount Stromlo Atlas of the Magellanic Clouds, Australian National University, Canberra.

Henize, K. G. 1956, *Astrophys. J. Suppl.* 2, 315.

Hodge, P. W. and Wright, F. W. 1967, *The Large Magellanic Cloud*, Smithsonian Publication 4699, Smithsonian Press: Washington D.C.

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Nassau, J. J., and Stephenson, C. B. 1960, *Astrophys. J.* 132, 130.

Sanduleak, N. 1969, Cerro Tololo Inter-American Obs., Contrib. No. 89.

Thackeray, A. D., and Wesselink, A. J. 1955 *Observatory* 75, 33.

Westerlund, B. E. 1961, *Uppsala Astron. Obs. Ann.* 5, 3.

Westerlund, B. E., and Smith, L. F. 1964, *Monthly Notices Roy. Astron. Soc.* 128, 311.

Woolley, R.v.d.R. 1963, *Roy. Obs. Bull.* No. 66.

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).

LISTING OF RECORDS FROM TAPE FILE

TAPE FILE NAME: LRC SURVEY
RECORDS 1 TO 30
TAPE FILE 24
RECORD LENGTH 85 BYTES
INPUT VOLSER WYS012

COLUMN HEADING INDEX										
	1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345									
RECORD	1	-65	1			4 54.0	-65 38OB	12.3	26	PDD
RECORD	2	-65	2			4 56.8	-65 34OB	12.6	26	
RECORD	3	-65	3			4 58.6	-65 06OB	12.6	25	
RECORD	4	-65	4	270918		4 58.6	-65 52OB	12.2	26	Wo135
RECORD	5	-65	5			4 58.7	-65 41OB	12.9	26	
RECORD	6	-65	6			4 58.8	-65 42OB	13.2	26	Wo14
RECORD	7	-65	7			4 59.1	-65 38OB	13.0	26	
RECORD	8	-65	7a			4 59.1	-65 46OB:	12.6	26	
RECORD	9	-65	8	270920	-65 398	4 59.1	-65 43G5I:	10.7	26	Wo17
RECORD	10	-65	9			4 59.2	-65 51OB	12.3	26	Wo124
RECORD	11	-65	10			4 59.2	-65 43OB	12.7	26	Wo27
RECORD	12	-65	11		-65 399	4 59.3	-65 45B6I	11.5	26	Wo35
RECORD	13	-65	12			4 59.4	-65 39OB:	13.3	26	
RECORD	14	-65	13			4 59.5	-65 48OB	12.5	26	Wo80
RECORD	15	-65	14			4 59.5	-65 37OB	12.6	26	
RECORD	16	-65	15			4 59.6	-65 52OB	12.1	26	Wo137
RECORD	17	-65	16			4 59.7	-65 47OB	11.6	26	Wo81
RECORD	18	-65	17			4 59.8	-65 41OB:	12.9	26	
RECORD	19	-65	17a			5 00.0	-65 51OB	12.8	26	Wo127
RECORD	20	-65	18	270933	-65 404	5 00.0	-65 48B6I	10.7	26	R68,Wo104
RECORD	21	-65	19	270948	-66 359	5 01.0	-65 58OB	12.0	26	Wo227
RECORD	22	-65	20	270949	-65 410	5 01.1	-65 51BGI	11.1	26	R70,Wo129
RECORD	23	-65	20a*			5 01.2	-65 58OB:	12.4	26	
RECORD	24	-65	21			5 01.3	-65 44OB	11.9	26	Wo39
RECORD	25	-65	22	270952	-66 361	5 01.3	-65 55OE	11.8	26	Wo171
RECORD	26	-65	23			5 01.8	-65 40OB:	13.4	26	
RECORD	27	-65	24			5 02.1	-65 51OB	12.9	26	Wo132
RECORD	28	-65	25			5 02.4	-65 53OB:	13.4	26	Wo229
RECORD	29	-65	26			5 03.3	-65 51OB:	13.4	26	Wo118
RECORD	30	-65	27			5 04.7	-65 53A0:I:	12.9	26,34	Wo151

L I S T I N G   O F   R E C O R D S   F R O M   T A P E   F I L E

```
        TAPE FILE NAME: LMC SURVEY
                RECORDS    1244 TO    1273
              TAPE FILE      24
          RECORD LENGTH      85 BYTES
           INPUT VOLSER    WTS012

C O L U M N                                                                                                            1111111111111111
H E A D I N G            11111111112222222222333333333344444444445555555555666666666677777777778888888888999999999900000000001111111
I N D E X       1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345

RECORD   1244   -71   27                    5 23.7 -71 180B      12.6 46
RECORD   1245   -71   28                    5 23.7 -71 27ASI:    12.8 46
RECORD   1246   -71   29                    5 25.5 -71 290B      14.5v46         HVSC27
RECORD   1247   -71   30   269547           5 26.5 -71 350B      11.4 46,47      R101
RECORD   1248   -71   31                    5 28.0 -71 280B      13.2 46
RECORD   1249   -71   32                    5 28.1 -71 280B      13.3 46
RECORD   1250   -71   33                    5 28.6 -71 010B:     13.6 46
RECORD   1251   -71   33a                   5 29.6 -71 430B      11.1 46
RECORD   1252   -71   34                    5 29.9 -71 010B(e)   12.6 46         L-264:
RECORD   1253   -71   35                    5 30.4 -71 090B      12.7 46         L-270:
RECORD   1254   -71   36                    5 30.4 -71 260B:     13.2 46
RECORD   1255   -71   37                    5 30.6 -71 210B      13.0 46
RECORD   1256   -71   38    37240           5 30.9 -71 03WR      12.9 46         WS32
RECORD   1257   -71   39   269656           5 31.0 -71 030B      12.3 46
RECORD   1258   -71   40                    5 31.0 -71 58AOI     13.0 47
RECORD   1259   -71   41                    5 31.0 -71 070B      12.9 46
RECORD   1260   -71   42   269660 -71 348   5 31.1 -71 050B      11.0 46         R112
RECORD   1261   -71   43                    5 31.3 -71 36AOI:    12.8 46,47
RECORD   1262   -71   44                    5 31.4 -71 030B:     13.0 46
RECORD   1263   -71   45   269676 -71 351   5 31.6 -71 050B      11.6 46         R113
RECORD   1264   -71   46                    5 32.1 -71 050B      12.9 46
RECORD   1265   -71   47                    5 32.2 -71 440B:     12.9 47
RECORD   1266   -71   48                    5 38.8 -71 390B      12.5 55
RECORD   1267   -71   49                    5 40.5 -71 130B      12.7 54
RECORD   1268   -71   50                    5 41.1 -71 280B      12.6 55         L-317:
RECORD   1269   -71   51                    5 42.0 -71 200B      12.2 54
RECORD   1270   -71   52                    5 43.6 -71 160B      12.6 54
RECORD   1271   -71   53   270069           5 46.4 -71 14A2I     12.3 54         FDD
RECORD   1272   -72    1                    5 14.0 -72 07AOI     13.0 39
RECORD   1273   -72    2                    5 28.3 -72 01AOI:    12.9 47
```