DOCUMENT RESUME

ED 080 120 LI 004 425

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TITLE	Development of a Computerized Regional Library System. Appendix 24. Final Report.
INSTITUTION	Ohio Coll. Library Center, Columbus.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
BUREAU NO	BR-9-0554
PUB DATE	Jun 73
CONTRACT	OEC-0-70-2289(506)
NOTE	104p.; (0 References)
EDRS PRICE	MF-$0.65 HC-$6.58
DESCRIPTORS	Bibliographic Citations; *Cataloging; College Libraries; Computer Programs; Data Bases; Expenditure Per Student; Library Automation; *Library Expenditures; *Library Networks; *On Line Systems; Regional Programs; Union Catalogs; *University Libraries
IDENTIFIERS	Machine Readable Cataloging; MARC; OCLC; *Ohio College Library Center

ABSTRACT

The purpose of the Ohio College Library Center (OCLC) computerized regional library system is to provide an on-line system that makes available to faculty and students in individual colleges and universities the library resources throughout a region, while at the same time decelerating the rate of rise of per-student library costs. The research and development culminated in the successful implementation of an on-line union catalog and shared cataloging system. The final report of the project is LI 004 422. This document contains appendix twenty-four, The Ohio College Library Center Program/Subroutine Documentation; Master Data Base Update (MDBUPD). The program MDBUPD (Master Data Base Update) is used to add the records from the weekly MARC tapes to the existing data base. This program takes a record that is in MARC format, checks the entries for validity, and converts it into the current bibliographic data file format. The program assigns an OCLC number to new records and adds them to the data base. MDBUPD replaces corrected or revised records and deletes unwanted records. It also returns various statistics. (Other appendices are LI 004 423, LI 004 424 and LI 004 426 through LI 004 428.) (Author/SJ)

Final Report

Project No. 9-0554
Contract No. OEC-0-70-2289 (506)

June 1973

THE DEVELOPMENT OF A COMPUTERIZED REGIONAL LIBRARY SYSTEM

APPENDIX 24

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APPENDICES

I. Instruction Manual for Catalog Production. (LI 004 423)

II. Manual for OCLC Catalog Card Production; Revised and Enlarged. Judith Hopkins. (LI 004 423)

III. Creation of Machine Readable Catalog Entries; An Adaptation of the "Data Preparation Manual: MARC Editors." (LI 004 423)

IV. Cataloging on a Cathode Ray Tube Terminal. (LI 004 423)

V. Brief Description of the Serials Control System: A Preliminary Report. (LI 004 424)

VI. A Preliminary Description of the OCLC Serials Control System. (LI 004 424)

VII. Manual for Checking-In, Binding, and Claiming of Serials on a CRT Terminal - Draft of Preliminary Procedures. (LI 004 424)

VIII. Suggested Minimum Requirements for Serials Cataloging. (LI 004 424)

IX. OCLC Technical Processing System - A Preliminary Outline. (LI 004 424)

X. The Technical Processing System, May 1972. (LI 004 424)

XI. Recommended Standards for the Cataloging of Serials. (LI 004 424)

XII. Standards for Input Cataloging. (LI 004 424)

XIII. The Technical Processing System, August 1972. (LI 004 424)

XIV. Ohio College Library Center Annual Report, 1971/1972. (LI 004 424)

XV. Large On-Line Files of Bibliographic Data: An Efficient Design and a Mathematical Predictor of Retrieval Behavior. P.L. Long, K.B.L. Rastogi, J.E. Rush and J.A. Wyckoff. (Not Available EDRS)

XVI. OCLC Systems: Technical Aspects. Phillip Long. and Ohio State University Libraries Systems. Gerry D. Guthrie. (Not Available EDRS)

XVII. Name-Title Entry Retrieval from a MARC File. Philip L. Long and Frederick G. Kilgour. (Not Available EDRS)

XVIII. A Truncated Search Key Title Index. Philip L. Long and Frederick G. Kilgour. (Not Available EDRS)

XIX. Title-Only Entries Retrieved by Use of Truncated Search Keys. Frederick G. Kilgour, Philip L. Long, Eugene B. Leiderman and Alan L. Landgraf. (Not Available EDRS)

XX. Ohio College Library Center Systems. Frederick Kilgour. (Not Available EDRS)

XXI. Evolving, Computerizing, Personalizing. Frederick Kilgour. (Not Available EDRS)

XXII. The Shared Cataloging System of the Ohio College Library Center. Frederick G. Kilgour, Philip L. Long, Alan L. Landgraf, and John W. Wyckoff. (Not Available EDRS)

XXIII. Cataloging with a Computer - OCLC Comes to Pennsylvania. Robert C. Stewart. (Not Available EDRS)

XXIV. The Ohio College Library Center Program/Subroutine Documentation; Master Data Base Update (MDBUPD). (LI 004 425)

XXV. The Ohio College Library Center Program/Subroutine Documentation; Convert Call Number (CNVT). (LI 004 426)

XXVI. The Ohio College Library Center Program/Subroutine Documentation; Generate Pack Definition Tables (GENPDTS). (LI 004 427)

XXVII. The Ohio College Library Center Program/Subroutine Documentation; Catalog Card Format Program (CCFP). (LI 004 427)

XXVIII. The Ohio College Library Center Program/Subroutine Documentation; Build Print Tape (BPT). (LI 004 428)

XXIV

THE OHIO COLLEGE LIBRARY CENTER

PROGRAM/SUBROUTINE DOCUMENTATION

Master Data Base Update
(MDBUPD)

CONTENTS

PROGRAM: MDBUPD

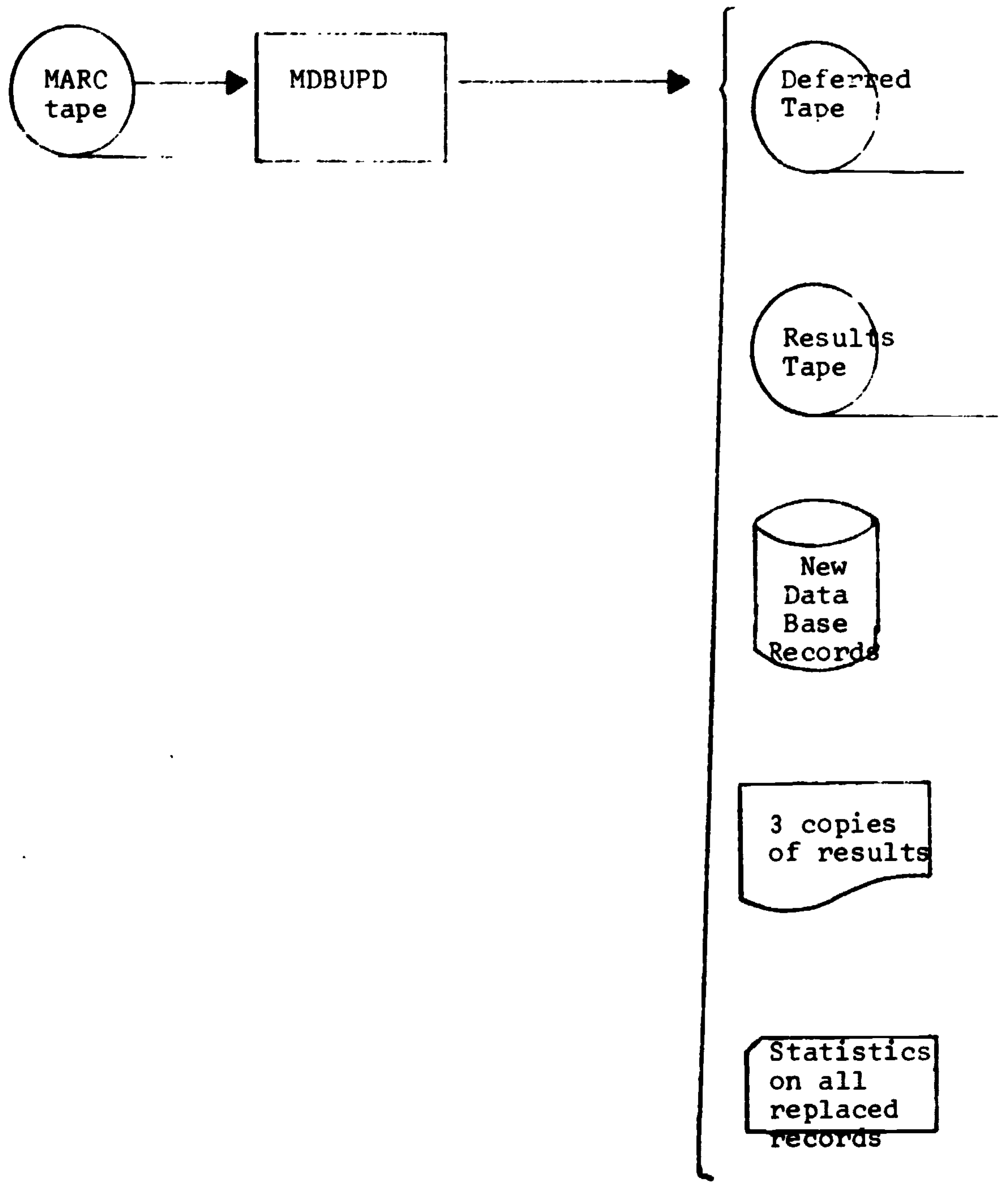
OCLC PROGRAM DOCUMENTATION

I. Overview

The program MDBUPD (Master Data Base Update) is used to add the records from the weekly Marc tapes to the existing data base. This program takes a record that is in MARC format, checks the entries for validity, and converts it into the current bibliographic data file format. The program assigns an OCLC number to new records and adds them to the data base. MDBUPD replaces corrected or revised records and deletes unwanted records. It also returns statistics as to the number of records added, replaced, deleted, rejected, and so on. It also returns 3 copies of the error messages on paper and 1 copy on an output tape. The records that could not be processed for one reason or another are written on the deferred tape.

CAUTION: MDBUPD is not to be run during online processing.

II. DATA FLOW


MARC tape
MDBUPD
Deferred Tape
Results Tape
New Data Base Records
3 copies of results
Statistics on all replaced records

III. SUMMARY OF INPUT & OUTPUT

A. MARC TAPE (INPUT)

Volume Header Label	File Header Label	T M	File of Records for Monographs	T M	End of File Label	T M	T M

TM= Tape Mark (MARC Manual[1]- p. 3)

1. Volume Header Label -- MARC Manual Page 2

2. File Header Label -- MARC Manual Page 2

3. File of Records for Monographs:

Ø	24		
Leader	Record Directory	Control Fields	Variable Fields

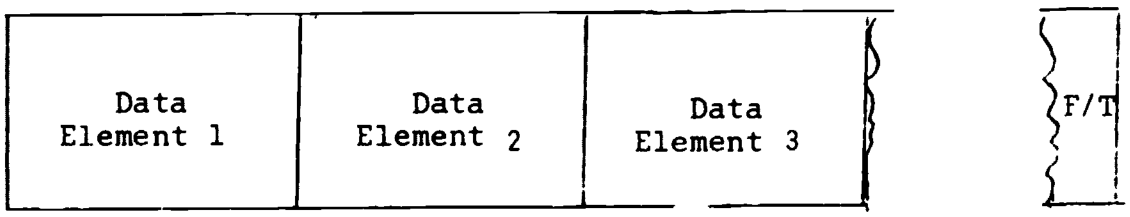
a. Leader -- Page III.3
b. Record Directory:

Ø	3	7	
Tag	Length	Starting Character Position	F/T

1. MARC MANUAL Vol. 1
Books: A MARC Format Fourth Edition April 1970

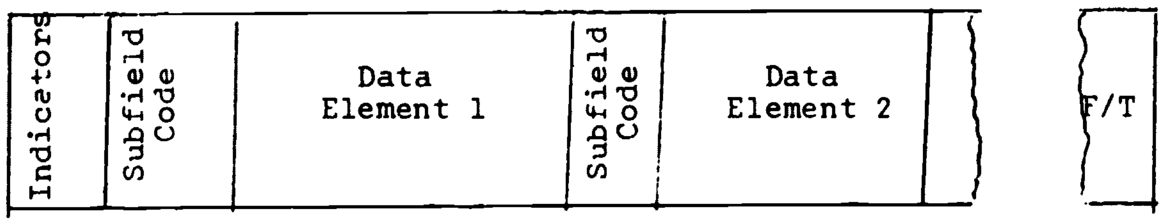
Name of Record Directory Data Element	No. of Char's	Char. Pos.
Tag	3	Ø - 2
Length	4	3 - 6
Starting Char. Pos.	5	7 - 11

c. Control Fields



MARC Manual - Page 30 - 39

d. Variable Fields



MARC Manual - Page 40 - 70

4. End of File Label - MARC Manual - Page 3

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Record Layout

File Name MARC RECORD LEADER FORMAT (INPUT)

Record Name ______

Record Type - ( ) Card (X) Tape ( ) Disk ( ) Other ______

File Organization SEQUENTIAL Record Size ______ Block Size ______

General Description ______

FIELD NAME AND DESCRIPTION	POSITION	FIELD LENGTH	FORMAT
RECORD LEADER			
Logical Record Length	0 - 4	5	ASCII
Record Status (MARC Manual Page 26)	5	1	ASCII
Type of Record (MARC Manual Page 26)	6	1	ASCII
Bibliographic Level (MARC Manual Page 26)	7	1	ASCII
Blanks	8 - 9	2	ASCII
Indicator Count (MARC Manual Page 27)	10	1	ASCII.

III.4
Record Layout (Cont)

File Name MARC RECORD FORMAT

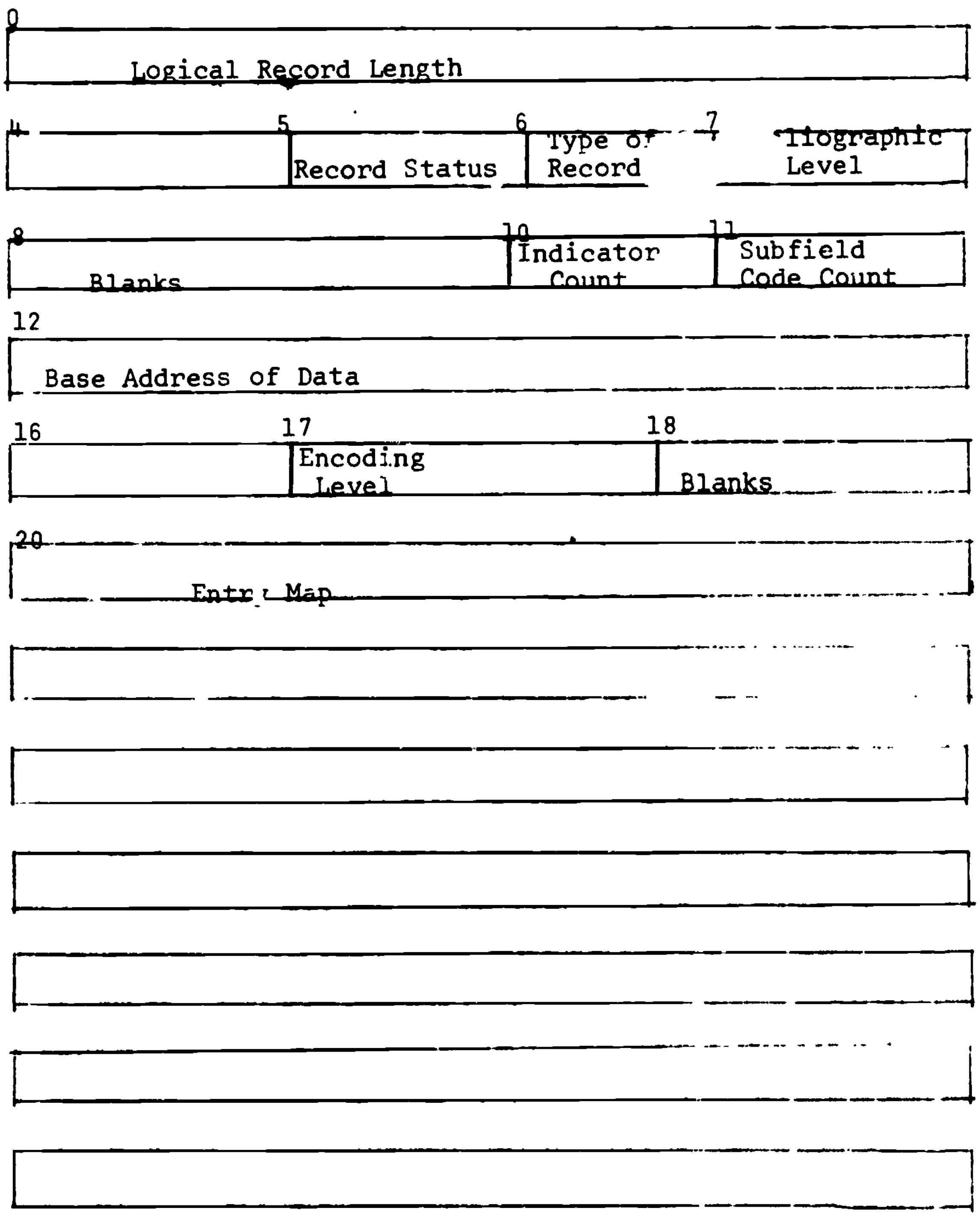
Record Name ____________________

FIELD NAME AND DESCRIPTION	FIELD POSITION	FIELD LENGTH	FIELD FORMAT
Subfield Code Count (MARC Manual Page 27)	11	1	ASCII
Base Address of Data (MARC Manual Page 27)	12 - 16	5	ASCII
Encoding Level (MARC Manual Page 27	17	1	ASCII
Blanks	18 - 19	2	ASCII
Entry Map (proposed - MARC Manual Page 27)	20 - 23	4	ASCII

III.5

Application MARC Record Leader Format Date 8/21/72 Page 1 of 1

Procedure ____________ Drawn by T. Beckett



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Record Layout

File Name BIBLIOGRAPHIC DATA FILE

Record Name BIBLIOGRAPHIC RECORD

Record Type - ( ) Card ( ) Tape (X) Disk ( ) Other

File Organization IBM Variable Blk Format Record Size 45-6144 Block Size 6144

General Description OCLC internal processing format of the MARC II Bibliographic Record. Access is either sequential or random.

FIELD NAME AND DESCRIPTION	FIELD		
	POSITION	LENGTH	FORMAT
RECORD LEADER			
Logical Record Length	0-1	2	Binary
Record Status Character (MARC Manual - Page 26).	2	1	EBCDIC
Encoding Level (MARC Manual - Page 27)	3	1	EBCDIC
Leader Length - byte size of leader including terminator (X 'FD')	4	1	Binary
Type Index - index into a table of ~~Material~~ Type Indicator Codes (See Cataloging on a CRT Terminal - Page 32). Note that the zero entry is used.	5	Upper 4 bits	Binary

Record Layout (Cont)

File Name BIBLIOGRAPHIC DATA FILE

Record Name BIBLIOGRAPHIC RECORD

FIELD NAME AND DESCRIPTION	FIELD		
	POSITION	LENGTH	FORMAT
Bibliographic Level Index - index into a table of level codes (See Cataloging on a CRT Terminal - Page 32). Note that the zero entry is used.	5	Lower 4 bits	Binary
Reserved	6-7	10 Bits	Binary
Variable Control Field Length - Word length of field between supplement number and suffix character in LC card number.	7	Lower 6 bits	Binary
OCLC Number	8-11	4	Binary
Date Entered			
Year	12	1	Packed*
Month	13	1	Packed*
Day	14	1	Packed*
Type of Publication Date - Description of contents of Publication Date fields (See MARC Manual pp. 32-34).	15	1	EBCDIC
Publications Dates			
Date #1	16-17	2	Packed*
Date #2	18-19	2	Packed*
Country of Publication - First two characters of MARC field (See MARC Manual pp. 35, 290-318).	20-21	2	EBCDIC
Illustration Code Indexes - Four 4-bit indexes into the table of Illustration codes (See MARC Manual pp. 35). Note that the zero entry is used to indicate an invalid code was received and that entry contains a blinking blank.	22-23	2	Binary

* Packed data is numeric data which has had the upper four bits of each numeral removed and has been packed two digits per byte.

Record Layout (Cont)

File Name BIBLIOGRAPHIC DATA FILE

Record Name BIBLIOGRAPHIC RECORD

FIELD NAME AND DESCRIPTION	FIELD		
	POSITION	LENGTH	FORMAT
Form of Content Code Indexes - four 4-bit indexes into a table of codes describing the form of work (See MARC Manual pp. 36-37). Note that the zero entry contains a blinking blank to indicate an invalid code was received.	24-25	2	Binary
Intellectual Level Index - index into a table of intellectual level codes (See MARC Manual pp. 36). Note the zero entry is used to indicate that the input code was invalid and contains a blinking blank.	26	Upper 4 bits	Binary
Format Reproduction Code Index - Index into a table of codes describing the type reproduction, if any. Note the zero entry is used to indicate that the input code was invalid and contains a blinking blank.	26	Lower 4 bits	Binary
Indicators 10 thru 15 - bit switches to indicate the MARC indicators described in the MARC Reference Manual (pp. 37-38, par. 10-15). Bit values are Bit 0 - REserved 1&2 - Government Pub. Ind. 3 - Conference Pub. Ind. 4 - Festschrift Ind. 5 - Index Ind. 6 - Main Entry Ind. 7 - Function Ind.	27	1	Binary
Biography Code Index - index into a table of biography codes (See MARC Reference Manual pp. 33). Note that the zero entry contains a blinking blank to indicate an invalid code was received.	28	1	Binary

Record Layout (Cont)

File Name BIBLIOGRAPHIC DATA FILE

Record Name BIBLIOGRAPHIC RECORD

FIELD NAME AND DESCRIPTION	FIELD POSITION	FIELD LENGTH	FIELD FORMAT
Modified Record Indicator Index - Index into a table of codes describing the type of change. Note that the zero entry contains the blinking blank character to indicate a code was received in error. (See MARC Manual pp. 38-39).	29	Upper 4 bits	Binary
Catalog Source Index - index into a table of codes to describe other sources of catalog records. (See MARC Manual - page 39.) Note that the zero entry contains a blinking blank to indicate an error code was received.	29	Lower 4 bits	Binary
Language Index - index into a table of language codes to describe the text of the data. Although the codes are not arranged exactly as shown, see the manual "Cataloging on a Cathode Ray Tube Terminal" pp. 46-52.	30-31	2	Binary
LC-Card Number			
Prefix	32-34	3	EBCDIC
Year Part	35	1	Packed*
Number Part	36-38	3	Packed*
Supplement number	39	1	EBCDIC
Length of 1st Author Substring The number of bytes to use for the first author substring	40-41	2	Binary
Displacement of 1st Author Substring Byte displacement to the 1st author substring from end of leader	42-43	2	Binary

* Packed data is numeric data which has had the upper four bits of each numeral removed and has been packed two digits per byte.

Record Layout (Cont)

File Name BIBLIOGRAPHIC DATA FILE

Record Name BIBLIOGRAPHIC RECORD

FIELD NAME AND DESCRIPTION	FIELD		
	POSITION	LENGTH	FORMAT
Length of 2nd Author Substring The number of bytes to use for the second author substring.	44-45	2	Binary
Displacement of 2nd Author Substring Byte displacement to the 2nd author substring from end of leader.	46-47	2	Binary
Length of Title Substring The number of bytes to use for the title substring.	48-49	2	Binary
Displacement to Title Substring The byte displacement to the title substring from the end of the leader.	50-51	2	Binary
Holdings File Pointer Word Pointer to holdings list.	52-55	4	Binary
Institutional Holdings Bits Bit switches indicating holdings for an institution. A one indicates holdings, a zero indicates no holdings.	56-71	16	Binary
LC Suffix A variable length character string which may be absent. Displacement to suffix equal to 40 + 4*n where n equals the binary value of bits 2-7 of byte #7 of leader. Length of suffix is equal to the leader length, byte #4, minus the displacement to the suffix minus one.	Variable	Variable	EBCL
Leader Terminator X "FD" that follows the suffix to indicate the end of the leader.	Variable	1	Binary

Record Layout (Cont)

File Name BIBLIOGRAPHIC DATA FILE

Record Name BIBLIOGRAPHIC RECORD

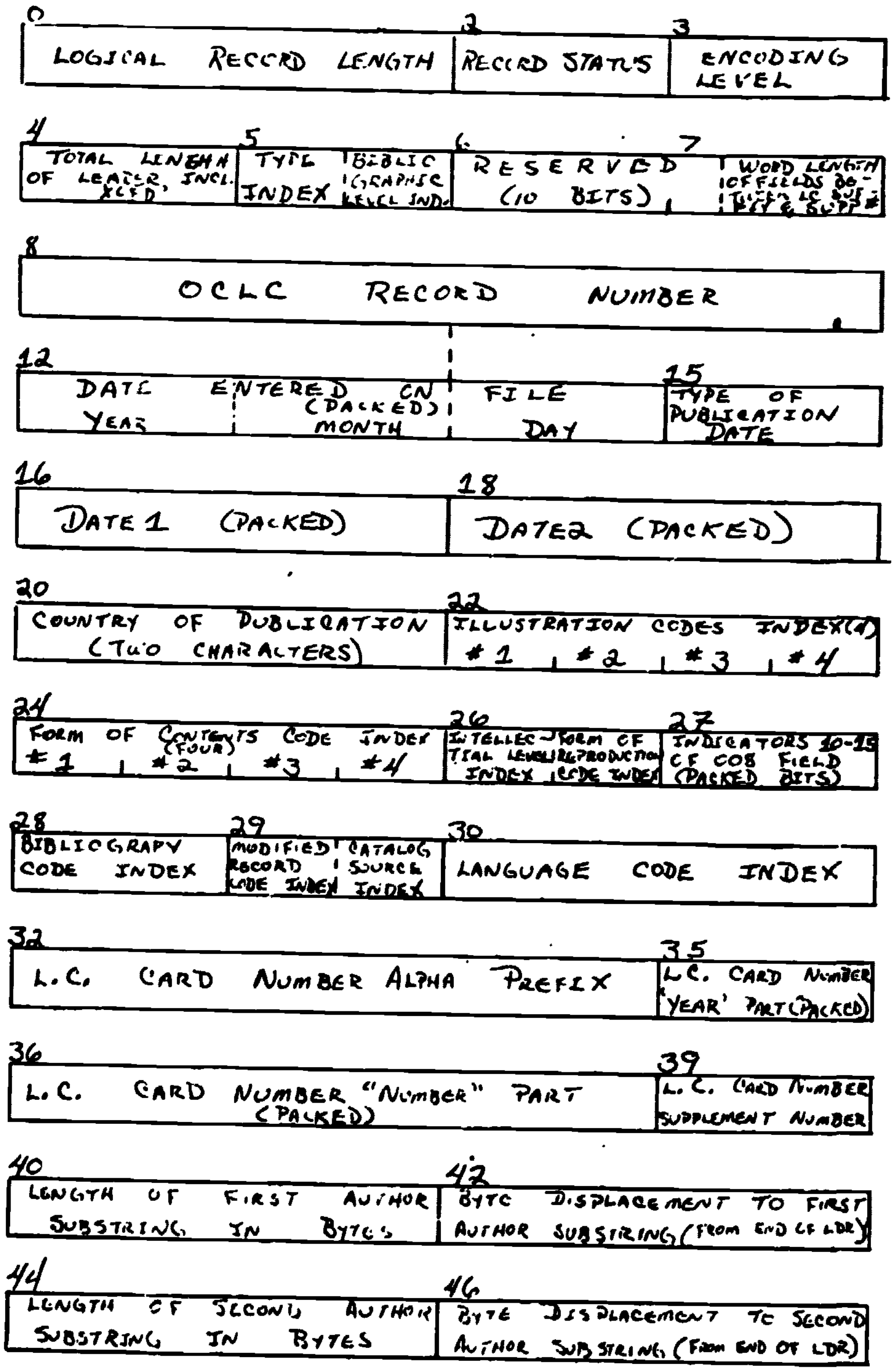
FIELD NAME AND DESCRIPTION	FIELD POSITION	FIELD LENGTH	FIELD FORMAT
VARIABLE FIELDS			
The following fields of the record are repeated for as many times as there are bibliographic elements. The fields are variable in the data that they contain and the length of each data item. The elements have the following format:			
Tag - element field descriptor number	0-1 **	2	Binary
Element Length - length of element including tag.	2-3 **	2	Binary
Subfields and Indicators - the remainder of the element fields are identical to the MARC format with the exception that the '$a' subfield code is deleted if this field is present and the data begins immediately following the indicators. The code is a X'FD' for end of subfield and X'FE' for end of record.	4-n **		EBCDIC

** These value are the relative positions within the variable fields.

* Packed data is numeric data which has had the upper four bits of each numeral removed and has been packed two digits per byte.

IBM DIAGRAMMING AND CHARTING WORKSHEET

Application On Line Bibliographic Record   Date 11/[illegible]/71   Page 1 of 3
Procedure ______   Drawn By [illegible]

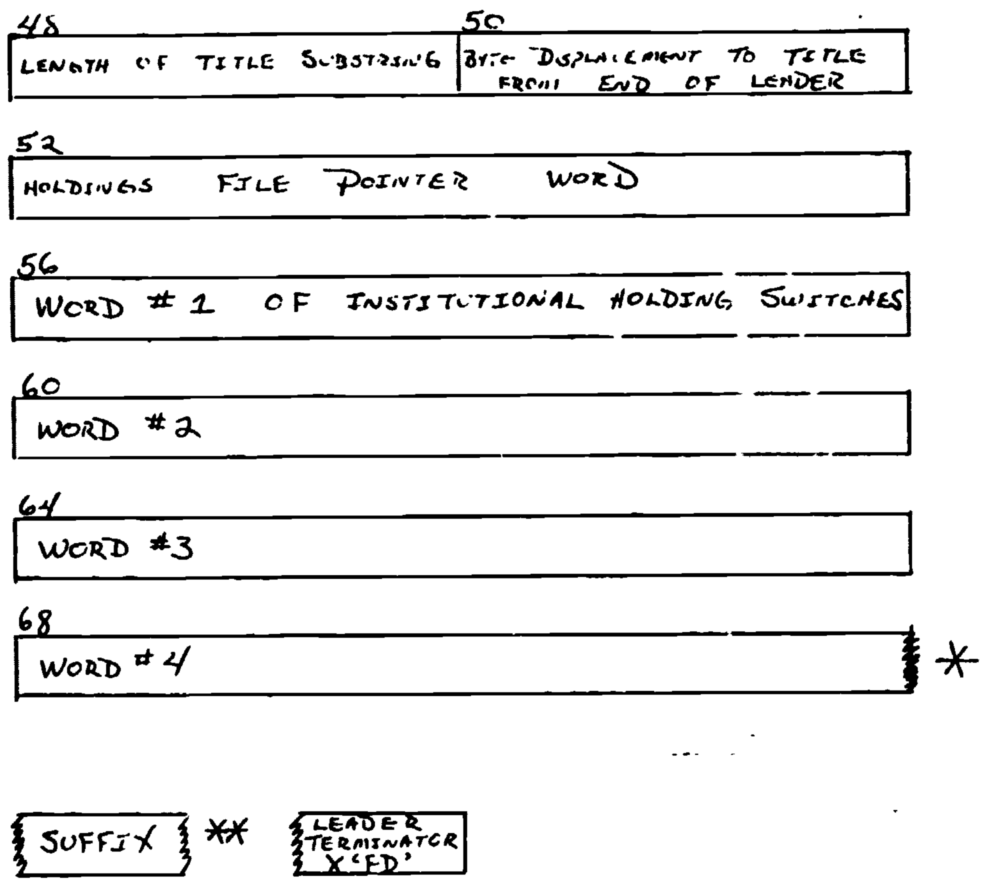


0 LOGICAL RECORD LENGTH		2 RECORD STATUS	3 ENCODING LEVEL
4 TOTAL LENGTH OF LEADER, INCL. XCFD	5 TYPE INDEX / BIBLIOGRAPHIC LEVEL IND.	6 RESERVED (10 BITS)	7 WORD LENGTH OF FIELDS BETWEEN LC SUFFIX & SUPP #
8 OCLC RECORD NUMBER			
12 DATE ENTERED ON FILE (PACKED) YEAR / MONTH		DAY	15 TYPE OF PUBLICATION DATE
16 DATE 1 (PACKED)		18 DATE 2 (PACKED)	
20 COUNTRY OF PUBLICATION (TWO CHARACTERS)		22 ILLUSTRATION CODES INDEX (4) #1 #2 #3 #4	
24 FORM OF CONTENTS CODE INDEX (FOUR) #1 #2 #3 #4		26 INTELLECTUAL LEVEL INDEX / FORM OF REPRODUCTION CODE INDEX	27 INDICATORS 10-15 OF COB FIELD (PACKED BITS)
28 BIBLIOGRAPHY CODE INDEX	29 MODIFIED RECORD CODE INDEX / CATALOG SOURCE INDEX	30 LANGUAGE CODE INDEX	
32 L.C. CARD NUMBER ALPHA PREFIX			35 L.C. CARD NUMBER 'YEAR' PART (PACKED)
36 L.C. CARD NUMBER "NUMBER" PART (PACKED)			39 L.C. CARD NUMBER SUPPLEMENT NUMBER
40 LENGTH OF FIRST AUTHOR SUBSTRING IN BYTES		42 BYTE DISPLACEMENT TO FIRST AUTHOR SUBSTRING (FROM END OF LDR)	
44 LENGTH OF SECOND AUTHOR SUBSTRING IN BYTES		46 BYTE DISPLACEMENT TO SECOND AUTHOR SUBSTRING (FROM END OF LDR)	

IBM DIAGRAMMING AND CHARTING WORKSHEET

Application On-line Cataloging Bibliographic Record Date 11/12/71 Page 2 of 3

Procedure ______ Drawn By [illegible]



48
LENGTH OF TITLE SUBSTRING
50
BYTE DISPLACEMENT TO TITLE FROM END OF LEADER
52
HOLDINGS FILE POINTER WORD
56
WORD # 1 OF INSTITUTIONAL HOLDING SWITCHES
60
WORD # 2
64
WORD #3
68
WORD # 4
*
SUFFIX
**
LEADER TERMINATOR X'FD'

* VARIABLE DATA WILL BE INSERTED HERE TO ASSIST IN INTERNAL PROCESSING AS THE NEED ARISES. TOTAL NUMBER OF WORDS BETWEEN L.C. SUFFIX AND SUPPLEMENT IS REFLECTED IN ~~BITS~~ 2-7 OF BYTE #7 OF LEADER.

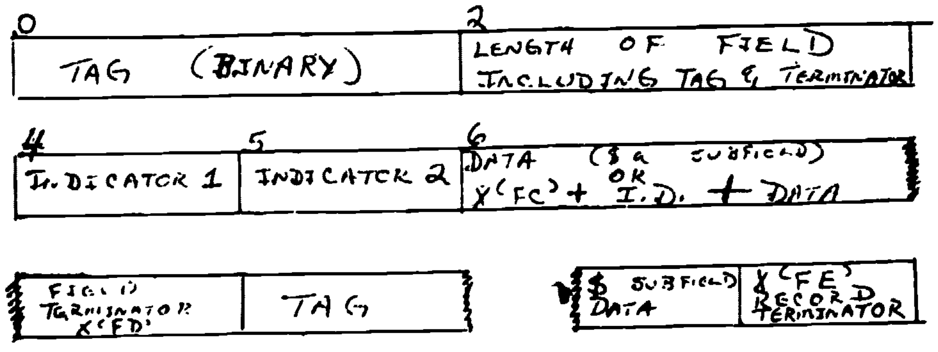
** THE SUFFIX IS THE LAST FIELD IN THE LEADER SINCE IT IS VARIABLE IN LENGTH AND MAY EVEN BE ABSENT. THE LENGTH IS EQUAL TO THE LEADER LENGTH (BYTE #4) MINUS 40 MINUS FOUR TIMES THE VALUE OF BITS 2-7 OF BYTE #7 MINUS ONE. THE ADDRESS OF THE SUFFIX IS EQUAL TO THE LENGTH OF THE FIXED LEADER (40) PLUS THE BINARY VALUE OF BITS 2-7 OF BYTE #7 TIMES FOUR.

IBM DIAGRAMMING AND CHARTING WORKSHEET

Application On Line Canadian Bibliographic [illegible]	Date 11/2/71 Page 3 of 3
Procedure	Drawn By

FOLLOWING THE LEADER ARE THE TAG FIELDS. THESE FIELDS ARE VARIABLE IN LENGTH AND IMMEDIATELY FOLLOW THE PREVIOUS FIELD (OR LEADER FOR THE FIRST ELEMENT). EACH IS TERMINATED BY A DELIMITER (X'FD' OR X'FE' FOR THE LAST ELEMENT). THEY FOLLOW THE BASIC MARC-II FORMAT WITH THE FOLLOWING FOUR EXCEPTIONS

1. THE TAG ITSELF IS BINARY
2. THE FIELD LENGTH IS IN BINARY
3. THE FIRST $a IS NOT INCLUDED IN THE RECORD IF PRESENT. IF THE '$' (X'FC') does NOT IMMEDIATELY FOLLOW THE INDICATORS, THE CHARACTER IS DATA and the sub-field IS THE $a subfield. OTHERWISE, The DATA IS STD.
4. THE CHARACTER X'FC' REPLACES THE '$'.



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Record Layout

File Name BIBLIOGRAPHIC DATA FILE

Record Name AUTHOR TITLE & TITLE ONLY INDEX (AT & TO)

Record Type - ( ) Card ( ) Tape (XX) Disk ( ) Other

File Organization Random Record Size 12-bytes Block Size 1020

General Description This file is used to access the required Bibliographic Record(s) from the input Author-Title Key (3,3) which is hashed to a disk address within the file. If the input key and the title key within the record agree, the index points to one of the possible matching BIB records.

FIELD NAME AND DESCRIPTION	FIELD POSITION	FIELD LENGTH	FORMAT
Chaining Flag - Bit flag indicating end of chain. 0 = Not last in entry chain 1 - End of entry chain	0	Bit 0	Binary
Master BIB Record Present Flag - Bit flag indicating whether BIB record is present or absent (deleted) 0 = Master record deleted 1 = Master record present	0	Bit 1	Binary
Bibliographic Record Address - 30 bit disk address of Bibliographic record.	0-3	30 Bits	Binary
Author-Title & Title Only Key - String of six EBCDIC characters which make up the 3,3 key of the bibliographic record pointed to by the index.	4-9	6	EBCDIC
Reserved	10-11	2	----

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Record Layout

File Name BIBLIOGRAPHIC DATA FILE

Record Name OCLC # INDEX (OCLC)

Record Type - ( ) Card ( ) Tape (X) Disk ( ) Other

File Organization Random Record Size 8-bytes Block Size

General Description This file is used to access the required Bibliographic Record(s) from the input OCLC # Key which is hashed to a disk address within the file.

FIELD NAME AND DESCRIPTION	POSITION	FIELD LENGTH	FORMAT
Chaining Flag - Bit flag indicating end of chain. 0 = Not last in entry chain 1 = End of entry chain	0	Bit 0	Binary
Master BIB Record Present Flag - Bit flag indicating whether BIB record is present or absent (deleted) 0 = Master record deleted 1 = Master record present	0	Bit 1	Binary
Bibliographic Record Address - 30 bit disk address of Bibliographic record.	0-3	30 Bits	Binary
Reserved	4-7	4	----

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Record Layout

File Name BIBLIOGRAPHIC DATA FILE

Record Name LIBRARY OF CONGRESS CARD NO. INDEX (LCCN)

Record Type - ( ) Card ( ) Tape (xx) Disk ( ) Other

File Organization Random Record Size 12-bytes Block Size 1020

General Description This file is used to access the required Bibliographic Record(s) from the input LCCN key which is hashed to a disk address within the file. If the input key and the title key within the record agree, the index points to one of the possible matching BIB records.

FIELD NAME AND DESCRIPTION	FIELD POSITION	FIELD LENGTH	FORMAT
<u>Chaining Flag</u> - Bit flag indicating end of chain. 0 = Not last in entry chain 1 = End of entry chain	0	Bit 0	Binary
<u>Master BIB Record Present Flag</u> - Bit flag indicating whether BIB record is present or absent (deleted) 0 = Master record deleted 1 = Master record present	0	Bit 1	Binary
<u>Bibliographic Record Address</u> - 30 bit disk address of Bibliographic record.	0-3	30 Bits	Binary
<u>LCCN Key</u> - Library of Congress Card Number Prefix	4-6	3	EBCDIC
<u>L.C. Card Number Part</u>	7-10	4	Packed
<u>L.C. Supplement</u>	11	1	EBCDIC

IV. FUNCTIONS

A request is made on the OC device to mount the MARC tape on 9TA80 and the output tape for deferred records on 9TA81. If Sense Switch's are '0' the deferred tape is positioned past the last tape marks. If Sense Switchs are not 0, a reply is requested from the operator. A reply of 'x' will abort the job. A reply of 'NEW' indicates that the deferred tape is new and to start processing. A reply of anything other than 'x' or 'NEW' will cause the request for a reply from the operator to occur again. An area called 'RESULTS' is assigned on the RAD for error and warning messages.

After initialization, the program 'READMARC' reads a record from the MARC tape. If this record is the volume header label or the end of file label, it is converted to EBCDIC and written on the deferred tape.

The routine 'CASBI' is used to convert fields to binary, the result being returned in R1. The routine 'CASEB' is used to convert fields to EBCDIC, the address of the result being returned in the third word of the parm list.

The base address of the data and the record length are picked up from the MARC leader and converted to binary. Positions 6-11 of the leader are verified as being 'am 22'. Positions 18-23 are verified as being all blanks.

The record directory is taken from the MARC tape and a corresponding binary directory is built for the bibliographic record at location 'DIR', where each field has a 2-word entry:

Word #0 -- tag (1 byte), BA(field)
Word #1 -- length of field

The record status is now checked. If it is 'D' the record is to be deleted. This is accomplished by changing the Encoding level to 'J' and skipping the error checking and formating of the record. Otherwise, the bibliographic record leader is built taking the data from the leader, field ØØ1 and field ØØ8 of the MARC record. The next available OCLC # is found and is put into the leader. Each data entry is converted from ASCII to either EBCDIC or PACKED, is checked for validity using the tables in MDBUPD, and is moved to the appropriate position in the leader. There are 2 instructions indicated in the 'BLDLEADR' section of the program listing which must be changed if the last 8 control fields are to be added to the leader.

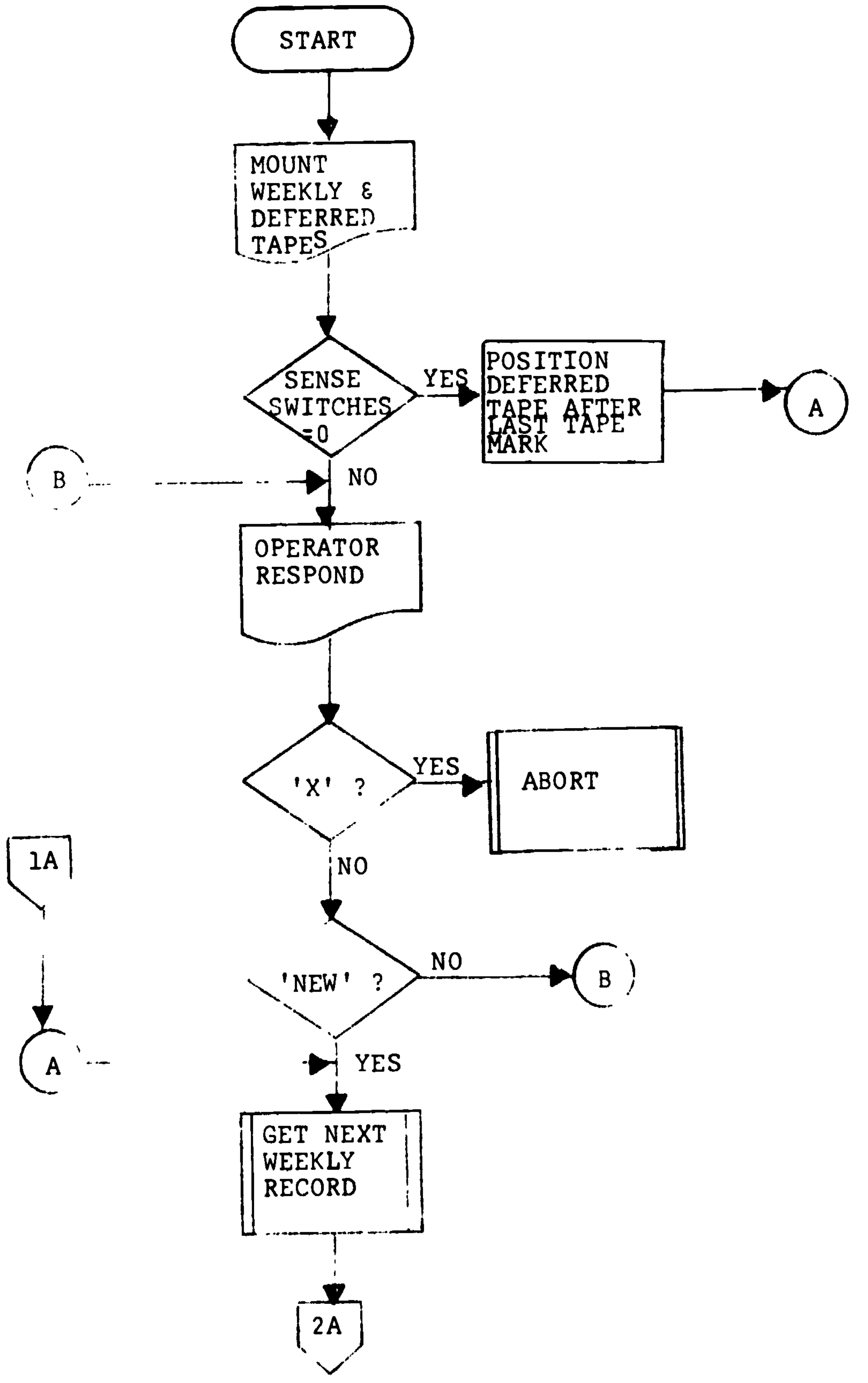
The length of each field and the indicators are checked for validity against the tables. Any invalid characters are reported as errors and replaced with blinking blanks (X'77'). If the field begins with a '≠a' subfield code, the subfield code is deleted, and the rest of the field is converted to the proper format (either EBCDIC, binary or packed), checked for valid characters, and moved to the output buffer. Then the subfield codes are checked for validity using the table 'SFLD'. Each field is moved in this manner until an end of record indicator is encountered (X'FE').

If there were any errors in the record, the error message and the record are written on the RAD and printed in the format as shown in APPENDIX B. All Warning messages are also written on the RAD. The subroutine 'INDEXER' is then the author-title key, and the LC card number key. The subroutine 'SEARCHER' performs several checks on these keys. This MARC record is checked against the other existing MARC records. If the LC card numbers match, the new MARC is logged as a duplicate and is entered on the deferred tape. The MARC record is checked against the records input by the member libraries (those with encoding level ='I'). If all 3 keys are equal, the holdings from the data base record are added to the new MARC record and the data base record is deleted but its OCLC# is kept. If a weekly record that has a 'D' (delete) status has the same LCCN as an old MARC record, the old MARC record is deleted as long as it has no holdings. If it does have holdings, its encoding level is changed to 'I' and it remains on the data base. The new MARC record is checked against the old MARC records which have an encoding level of 'J' (deleted). If the LC card numbers are equal, the old data base record is replaced with the new MARC record. Then the new MARC record is checked against the user data base records and the MARC data base records which have an encoding level of 'J'.

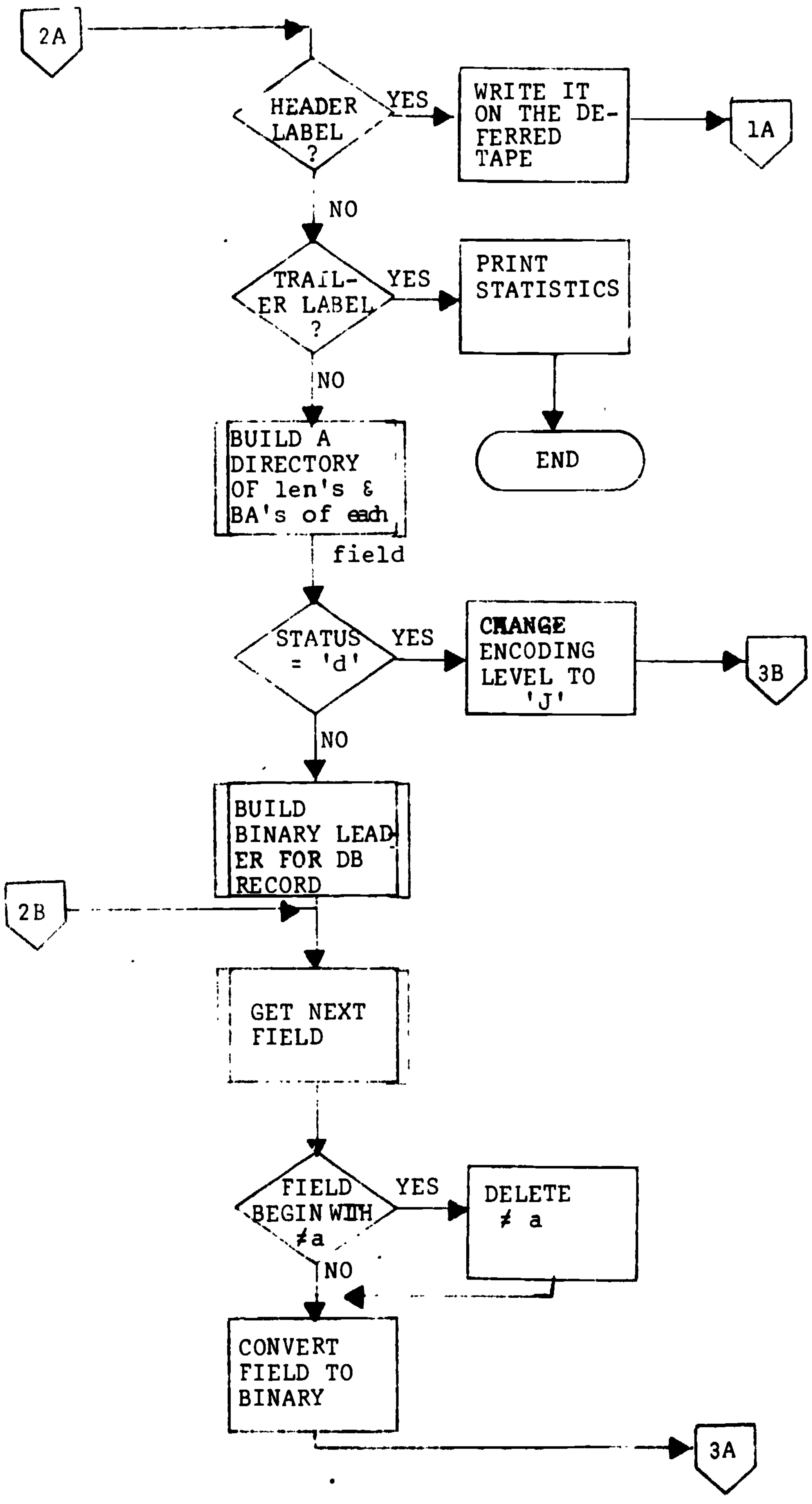
If the card numbers are not present or are not the same, but the title key and the author-title key match, the record is written on the differed tape and awaits human intervention. If the new MARC record has been proven not to be a duplicate, the record is either written at the end of the Bibliographic file, or is written in an available slot where another record had been deleted.

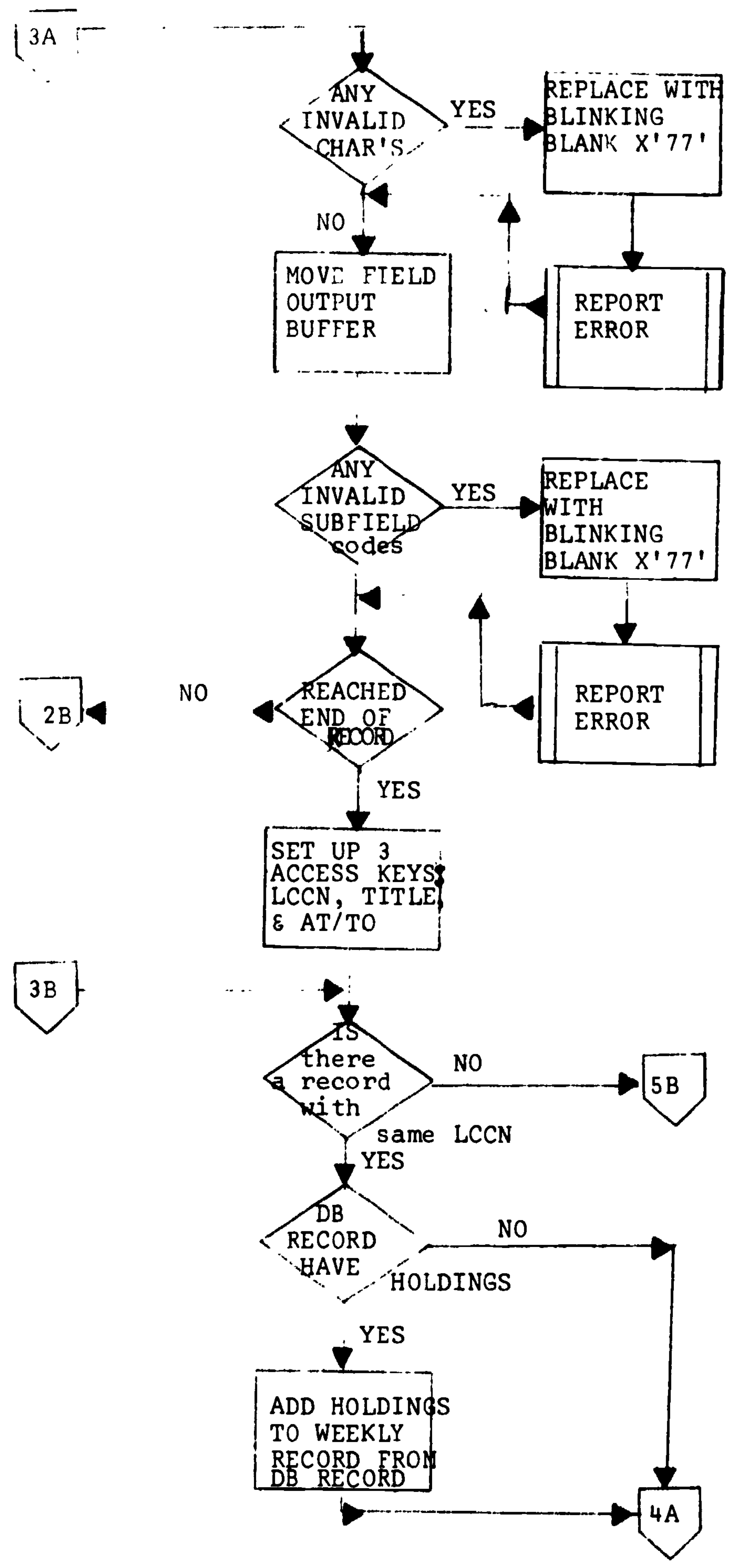
Before reading the next MARC record, a check is made to determine if the previous record was a replacemen record. If it was, the LC card number and the OCLC number of the Marc record and the OCLC number of the Data Base record are punched on the card punch. If the previous record was the last record on this weekly tape, the Summary statistics are written on the RAD file.

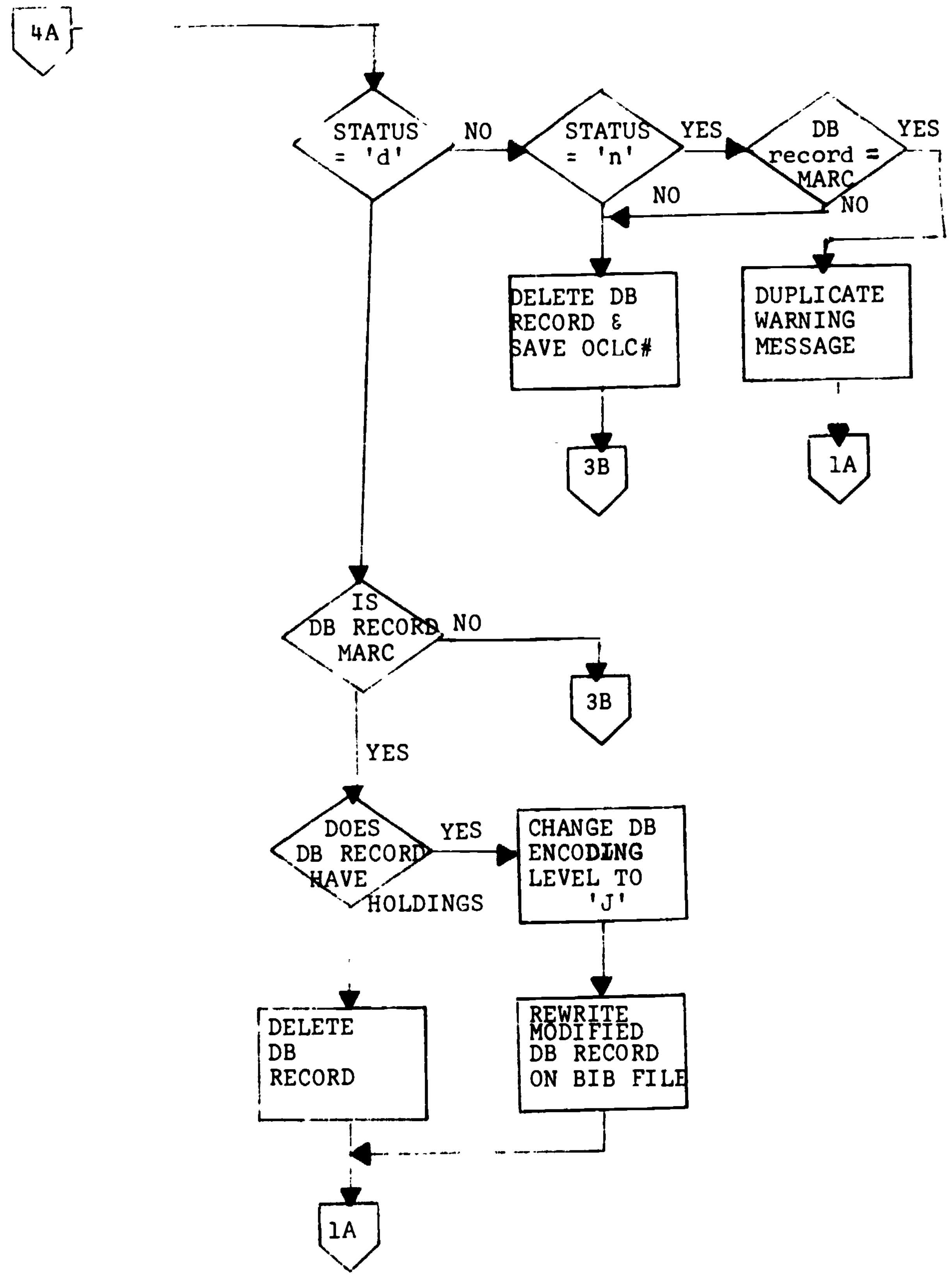
V. GENERAL INFORMATION FLOW

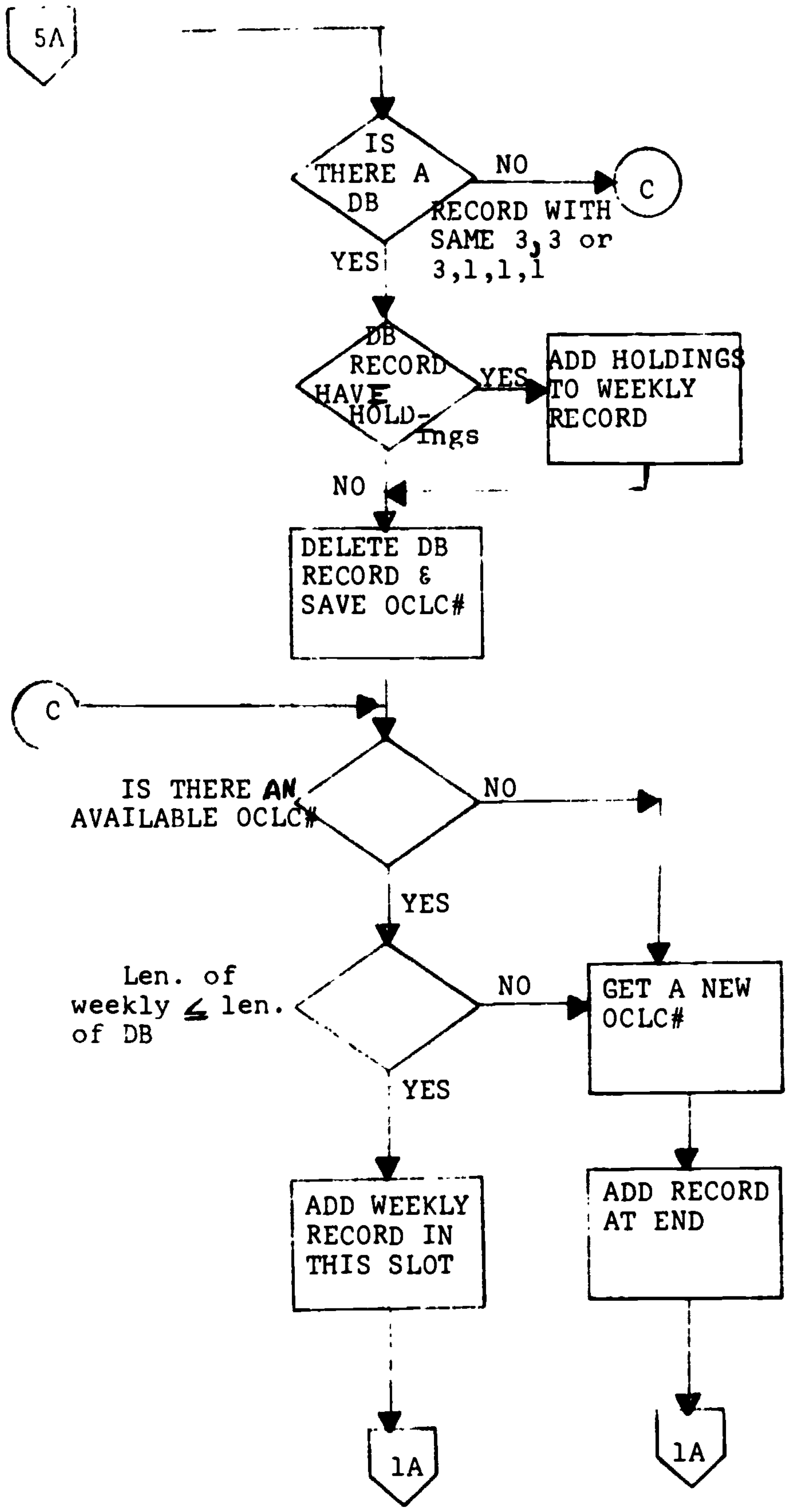


V.2


2A
HEADER LABEL ?
YES
WRITE IT ON THE DEFERRED TAPE
1A
NO
TRAILER LABEL ?
YES
PRINT STATISTICS
END
NO
BUILD A DIRECTORY OF len's & BA's of each field
STATUS = 'd'
YES
CHANGE ENCODING LEVEL TO 'J'
3B
NO
BUILD BINARY LEADER FOR DB RECORD
2B
GET NEXT FIELD
FIELD BEGIN WITH ≠a
YES
DELETE ≠ a
NO
CONVERT FIELD TO BINARY
3A


3A
ANY INVALID CHAR'S
YES
REPLACE WITH BLINKING BLANK X'77'
NO
MOVE FIELD OUTPUT BUFFER
REPORT ERROR
ANY INVALID SUBFIELD codes
YES
REPLACE WITH BLINKING BLANK X'77'
REPORT ERROR
2B
NO
REACHED END OF RECORD
YES
SET UP 3 ACCESS KEYS; LCCN, TITLE, & AT/TO
3B
IS there a record with same LCCN
NO
5B
YES
DB RECORD HAVE HOLDINGS
NO
YES
ADD HOLDINGS TO WEEKLY RECORD FROM DB RECORD
4A


4A
STATUS = 'd'
NO
STATUS = 'n'
YES
DB record = MARC
YES
NO
NO
DELETE DB RECORD & SAVE OCLC#
DUPLICATE WARNING MESSAGE
3B
1A
IS DB RECORD MARC
NO
3B
YES
DOES DB RECORD HAVE HOLDINGS
YES
CHANGE DB ENCODING LEVEL TO 'J'
DELETE DB RECORD
REWRITE MODIFIED DB RECORD ON BIB FILE
1A


5A
IS THERE A DB RECORD WITH SAME 3,3 or 3,1,1,1
NO
C
YES
DB RECORD HAVE HOLD-ings
YES
ADD HOLDINGS TO WEEKLY RECORD
NO
DELETE DB RECORD & SAVE OCLC#
C
IS THERE AN AVAILABLE OCLC#
NO
YES
Len. of weekly ≤ len. of DB
NO
GET A NEW OCLC#
YES
ADD WEEKLY RECORD IN THIS SLOT
ADD RECORD AT END
1A
1A

VI. SOFTWARE INTERFACE

A. Linkage - background linkage with OBM

B. Parameter List Description - none

C. Return Codes - none

D. Other Entry Points - none

E. OCLC Subroutines Referenced

```
CASEB
CASBI
MDBUPDLG
OPENMARC
READMARC
CLOSEMARC
PACK
UNPK
$MBS
$MBSS
NDX123
ADDMAST
RADDMAST
DELTMAST
LCCN000    (Alternate EP,LCCN000T)
INDEXER
```

VII. DESCRIPTION OF SPECIAL STORAGE AREAS, SWITCHES, AND TABLES

A. Special Storage
None

B. Special Switches
None

C. Tables

ECV - This is a table of sub-tables which will set up the table of parameters required for the program 'CBIEB' which will convert binary data to EBCDIC. An example of an 'ECV' table would be:

```
ECV1    DATA        0
        DATA,1      5,C' ',C'+',C'-'
        DATA        0
```

where the first word is the number to be converted; the second word contains the length in bytes to be converted, a fill character (usually a blank), a plus sign and a minus sign; the third word has the byte address of the area where the converted number is to go.

PACK_ _ _ _The data statements PACK_ _ _ _ are used to generate the parameter list needed for the OCLC subroutine 'PACK' which is used to convert ASCII fields to packed format. A sample statement would be:

```
PACK LCC#    DATA        BA(UNPLCCN) +3,8, BA(PLCCN) +3,0
```

The first word gives the address of the field to be packed. The second word gives the number of bytes to be converted. The third word gives the byte address of where to put the packed field. The fourth word is where the condition of the conversion is passed.

CASBI3, CASBI4, CASBI5 -- These are data statements which are used to set up the parameter list for the OCLC subroutine 'CASBI' which converts a field in ASCII format to binary. A sample data statement would be:

```
CASBI3    DATA      3,0,0
```

The first word gives the number of bytes to convert. The second word is used for the byte address of the field to be converted. The third word is used to return the condition of the conversion.

DELTPARM, ADDPARM, RADDPARM, RESTPARM, — These are data statements which set up the parameter lists for the OCLC subroutines DELTMAST, ADDMAST, and RADDMAST. A sample data statement would be:

```
DELTPARM    DATA     0, DBBUF, MASTWORK, ATKEY+2, DBADDR
```

The first half-word is where the status is returned. The second word is the word address of the bibliographic record. The third word is the word address of the work area. The fourth word is the word address of the returned OCLC entry. The fifth word is the word address of the index (for RADDMAST and DELTMAST only).

MSG TABLE - This is a table of partial text messages from which a message will be built. A sample entry would be:

```
   MSG8   TEXTC    'FIELD TERMINATOR MISSING IN POSITION'
```

PRCS - This is a branch table of routines that are used to check the tag fields for required data and to check that the subfields are correct and in the correct sequence. The index to this table is retrieved from the table 'PRC'. The calling sequence for this table is:

```
   LB,R1         PRC,R6
     B           PRCS,R1
```

where R6 has the field index obtained from the table 'TAGS' for this field.

ERL - and ABL - These are tables of procedures that set up the FPT's and the parameters for printing the error messages. These tables are described more thoroughly in Section VIII, Part E with the description of the procedures 'MSG', 'DEC', 'HEX', and 'MEND'.

SUL - This is a table of sub-tables which set up the parameters for printing the messages concerning the weekly tape totals. An example of a sub-table would be:

```
   SUL1      DEC              ECV6
             MSG              MSG42
             MEND
```

The procedure 'DEC' sets up the parameters for the conversion to EBCDIC. The procedure 'MSG' causes the message to be copied. The procedure 'MEND' indicates the end of the parameter list. For a more thorough description of the procedures, refer to Section VIII, Part E.

TAGS - This is a table of valid tag indicators. The procedure 'DTAG' will cause these entries to expand to a table with 841 byte entries. The procedure 'DTAG' is described more thoroughly in Section VIII, Part E. Each tag from 001 to 840 has a corresponding byte entry which can be found by using the tag number as an index. The byte entry in the table will be used as an index for that field into all the other tables. This byte will be called the field index. If the corresponding byte is 0 when the table is indexed by a tag number, that tag is invalid. A partial expansion of the table would be:

```
T001      DATA,1      1
          DATA,1      0
          DATA,1      0
          DATA,1      0
          DATA,1      0
          DATA,1      0
          DATA,1      0
T008      DATA,1      2
          DATA,1      0
          DATA,1      0
          DATA,1      0
          DATA,1      0
          DATA,1      0
          DATA,1      0
T015      DATA,1      3
```

In other words, the first entry is a '1' (field index for the 001 field); the eighth entry is a '2' (field index for the 008 field); the fifteenth entry is a '3' (field index for the 015 field), and so on. All other entries are '0' to indicate an invalid tag. This byte (the field index) is then stored at the beginning of the field's entry in the directory.

BTAGS - This is a table which contains the half-word binary value of the tag value. This table is indexed by the field index which was found from the table 'TAGS'.

MINL - This is a byte table whose entries indicate the minimum byte length acceptable for each tagged field. This table is indexed by the field index for this field. The 001 and 008 fields are handled separately.

IND1 - This is an indexable byte table of byte displacements into the 'NL'table. This table and the 'NL'table are used to verify and edit the first indicator for each individual field. The byte displacement into the 'NL' table for a particular field is picked up from this table using R6, the field index. If the byte displacement code for a field is 'FBL', the first indicator should be a blank and a blank is loaded into the record in the first indicator position. If the byte displacement code for a field is 'PBL' and the first indicator is a blank, it is replaced with a blinking blank. The indicator for fields 001 and 008 are handled separately.

IND2 This is an indexable byte table of byte displacements in the 'NL' table. This table and the 'NL' table are used to verify and edit the second indicator of each individual field. This table is set up the same as the table 'IND1'.

SFLD This is an indexable byte table of byte displacements into the table 'AL'. This table and the table 'AL' are used to verify the subfield codes for each individual field. The byte displacement into the table 'AL' for a particular field is picked up from this table using R6 the field index. The subfield codes for the 001 and 008 fields are handled separately.

PRC This is an indexable byte table of word indexes into the branch table 'PRCS'. This table and the table 'PRCS' are used to verify and edit the required data for each individual field. The word index into the table 'PRCS' for a particular field is picked up from this table using R6, the field index. The data for the 001 and 008 fields are handled separately.

MINCNT An indexable byte table whose entries indicate the minimum allowable times a tagged field may appear within each MARC record. This table is indexed by the field index obtained from the table 'TAGS'.

MAXCNT This is an indexable byte table whose entries indicate the maximum allowable times a tagged field may appear within each MARC record. This table is indexed by the field index obtained from the table 'TAGS'.

AL This is an indexable byte table of valid subfield codes that may be used for a particular field. This table contains 30 subtables, one of which is associated with each valid field. The first entry of each sub-table is the number of byte entries for this subtable. The remaining entries are the valid subfield codes. The correct subtable is located by first retrieving the byte displacement from the table 'SFLD' for a particular field. This is then used as an index to point to the correct subtable in the table 'AL'. The program 'NDX123' uses this subtable to verify the subfield indicators. The table 'AL' is used with the following sequence of instructions:

```
LB,R3          SFLD,R6        pick up the byte
                              displacement using
                              tag as an index
                              point to the
                              appropriate sub-
                              table of subfield
AI,R3          AL             codes
BAL,R7         NDX123         go check for a
                              valid subfield code
```

where R6 equals the field index obtained from the table 'TAGS' for this field.

<u>NL</u> This is an indexable byte table of valid indicators that may be used for a particular field. This table contains 15 sub-tables, one of which is associated with each valid field. The first entry of each sub-table is the number of byte entries for this sub-table. The remaining entries are the valid indicators. The correct sub-table is located by first retrieving the byte displacement from either the table 'IND1' or 'IND2' for a particular field. This is then used as an index to point to the correct sub-table within the table 'NL'. The program 'NDX123' uses this sub-table to verify the indicators. The table 'NL' requires the following sequence of instructions:

```
LB,R3          IND1,R6        pick up byte
                              displacement using
                              tag as index
AI,R3          NL             point to the
                              appropriate sub-
                              table of indicators
BAL,R7         NDX123         go check for a
                              valid indicator
```

where R6 equals the field index obtained from the table 'TAGS' for this field.

<u>LNGLIST</u> This is a word table of valid language codes. The language code from the MARC record is checked sequentially against the entries in this table until a match is found. The index that was used to verify

the MARC language code is then used in the OCLC bibliographi record instead of the characters. The table is ordered so that the most frequently used language is found first.

CPLIST This is a half-word table of valid country of publication codes. If the work was published in the United States, Canada, Russia, or the United Kingdom, this table contains the mnemonic code for the state, province, or other subdivision. The country of publication code from the MARC record is checked sequentially against the entries in this table until a match is found. The index used to find the match is then used in the OCLC bibliographic record instead of the characters.

VIII APPENDIX

APPENDIX A

OPERATING REQUIREMENTS

1. Computer - Xerox Sigma 5
2. I/O Devices - 2 9 track tape drives, line printer, card reader/punch
3. Operating System - OBM
4. Execution Time - depends upon number of records to be added; approximately 45 minutes for 1500 records.
5. Run Schedule - weekly
6. Job Control Language

```
!JOB  ONLINE, MDBUPD
!IMG002A E1
!RADEDIT
:CLEAR D2
:ALLOT   (FILE, D2, RESULTS), (FSI,8950), (FOR,C)
!ASSION  (M:SO,CP), (TRIES,100)
!MDBUPD
!IMG002A M1
!STD  (LL,0)
!RADEDIT
:COPY  (FILE,D2,RESULTS), (OUT,LO), VFC
:COPY  (FILE, D2,RESULTS), (OUT,LO),VEC
!STD (LL,LP)
!STD (BI,T0), (BO,0)
!COPY BI, 1000
SFI  T0, BACK
!RADEDIT
:COPY (FILE, D2, RESULTS), (OUT,T0)
!WEOF T0,2
!UNL  T0
!JOB  IDLE,
!IMG002A CCR
!FIN
```

APPENDIX B

OPERATING CHARACTERISTICS

1. CONSOLE MESSAGES

```
! MES -- IF A MARC WEEKLY TAPE IS NOT TO BE ADDED
!! PAU -- TO THE DATA BASE, THEN ABORT THIS JOB NOW.
```

RESPONSE:	ACTION:
'X'	Abort the job
'C'	Continue to add the MARC tape

```
!! PAU -- READY CARD PUNCH *
RESPONSE:  'C' - New Line

MOUNT OUTPUT ON 081
RESPONSE: 1) Mount tape as directed -- ring in
          2) 'C'  -  New Line

MOUNT WEEKLY ON 080
RESPONSE: 1) Mount tape as directed -- no ring
          2) 'C'  -  New Line
```

If a new deferred tape is to be started, set all Sense Switches to '1' and the following message will appear on the console:

```
RESET SENSE SWITCHES
BEGIN WAIT
```

RESPONSE:	ACTION:
'X'	Abort the job
'NEW'	Start a new deferred tape

```
DISMOUNT WEEKLY FROM 080
RESPONSE: 1) Dismount tape as directed
          2) 'C'  -  New Line

! MES  --  MOUNT RESULTS TAPE ON TO
RESPONSE: 1) Mount tape as directed  --  ring in
          2) 'C'  -  New Line

! PAU  --  VERIFY RESULTS TAPE MOUNTED ON TO, RING IN *
RESPONSE:  'C'  -  New Line

! PAU  --  DISMOUNT ALL TAPES *
RESPONSE: 1) Dismount tapes as directed - remove the rings
          2) 'C'  -  New Line
```

2. PROGRAMMED ABNORMAL COMPLETION
- MDBUPD will terminate abnormally via a CALl,9 3 instruction under the following conditions. The message printed out to signal the abort is included in each case.

MESSAGE	REASON
'ERROR READING MASTER DATA BASE'	four possible reasons: 1. Invalid logical file or block no. 2. Permanent I/O error 3. Invalid Index 4. End-of-file delimiter read
'ERROR REPLACING MASTER DB RECORD'	three possible reasons: 1. OCLC index entry found occupied 2. Could not replace Bib. record 3. Could not replace an index
'ERROR DELETING MASTER DB RECORD'	three possible reasons: 1. Invalid index 2. Permanent I/O error 3. End-of-file delimiter read
'ERROR ADDING MASTER DB RECORD'	three possible reasons: 1. OCLC index entry found occupied 2. Could not add Bib. record 3. Could not add an index

3. DIAGNOSTICS

MESSAGE	REASON
NON-NUMERIC X ' ' in POSITION X ' '	There was an error in converting from ASCII to Binary
LRECL ( ) DOES NOT EQUAL PRECL ( )	Record length does not equal length of actual data read
ILLEGAL CHARACTER X ' ' IN POSITION _	Three possible reasons: 1. Illegal encoding level 2. Bytes 18-23 of the MARC leader are not all blank or of the form ' 4500'. 3. Bytes 6-11 of the MARC leader are not of the form 'AM 22'
BADDR INCORRECT LENGTH	MODULO 12 of the Base address does not equal 1
FIELD TERMINATOR MISSING IN POSITION _	Field terminator is missing at the end of the directory

MESSAGE	REASON
RECORD TERMINATOR MISSING IN POSITION _	Record terminator is missing at the end of the record
ILLEGAL TAG IN POSITION _	Two possible reasons: 1. Tag is too big 2. Tag is not in table of legal tags
TOO MANY FIELDS	There are more than 50 fields in the record
MASTER RECORD MISSING -- CANNOT DELETE	Record status equals 'D' but there is not master record to delete
MASTER RECORD PRESENT -- CANNOT ADD	This record is already on the master data base file, log it as a duplicate
MASTER RECORD MISSING -- STATUS CHANGED TO NEW	If the status of the record is not 'N' and no existing record was found, the status is changed to 'N'.
001 FIELD IS NOT FIRST	The 001 field must be the first field in the record
001 FIELD INCORRECT LENGTH	The 001 field must be at least 13 bytes and not more than 30 bytes
NON-MARC CHARACTER X ' ' IN POSITION (FIELD)	An Invalid character was returned when converting from ASCII to EBCDIC
NON-NUMERIC IN LC CARD NUMBER	The LC card number must be all numeric
008 FIELD IS NOT SECOND	The 008 field must be the second field in the record
008 FIELD INCORRECT LENGTH	The 008 field must be 41 bytes including the field terminator

MESSAGE	REASON
INVALID DATA IN ELEMENT ' ' OF 008 FIELD	The 008 field of the MARC record contains invalid data
RECORD HAS FEWER THAN 3 FIELDS	Every record must have at least 3 fields
FIELD IS TOO SHORT	Every field must be at least 5 bytes long
FIELD IS SHORTER THAN EXPECTED	The field is shorter than minimum length required for that field
INVALID FIRST INDICATOR X ' ' IN POSITION ' ' (FIELD)	The first indicator for this field is not one of the valid entries in the table 'IND1'.
INVALID SECOND INDICATOR X ' ' IN POSITION ' ' (FIELD)	The second indicator for this field is not one of the valid entries in the table 'IND2'.
SUBFIELD DELIMITER IS NOT FIRST IN POSITION ____ (FIELD)	Each data element in a field must begin with a subfield delimiter (X'FC')
FIELD TERMINATOR MISSING IN POSITION ____ (FIELD)	If the field terminator (X 'FD') is missing, provide one.
ILLEGAL SUBFIELD CODE X ' ' IN POSITION____ (FIELD)	The subfield code is not one of the valid entries for this field in the table 'SFLD'
FIELD OR REC'D TERMINA TOR END'D IN POSITION ___ BEFORE END OF FIELD	The field terminator (X 'FD') or the record terminator (X 'FC') are encountered before the actual end of field
OBSOLETE TAG CHANGED TO ____	The 652 field is obsolete and will be changed to a 651. The 750 field is obsolete and will be changed to a 710.

MESSAGE	REASON
$a SUBFIELD IS NOT FIRST IN ___ FIELD	The first subfield for every field must be a $a subfield
CONTENTS OF 050 FIELD CAN'T BE PARSED	The first indicator of the 050 (LC call number) field is not equal to '1' (the book is in LC), but the call number is not valid.
ILLEGAL STATUS CHARACTER X ' ' CHANGED TO 'N'	The status of the MARC record is not one of the valid codes (D,N,C,P) so it is changed to 'N'.
ENCODING LEVEL CHANGED TO 'E'	The encoding level changed to 'E' on every record that has an error and is dumped to the 'RESULTS' area.
ENCODING LEVEL CHANGED TO 'W'	The encoding level is changed to 'W' on every record that has a warning message associated with it.
FIELD OCCURS ___ TIMES	The field occurs less than the minimum or more than the maximum number of allowable times as indicated in the tables 'MINCNT' and 'MAXCNT'

4. Parameter Cards Required - none

5. Example of Output - next page

```
1 -- TAG                                                  5 -- FIELD
2 -- LENGTH OF FIELD                                      6 -- FIELD IN HEXADECIMAL FORMAT
3 -- RELATIVE POSITION OF FIELD IN RECORD                 7 -- ACTION TAKEN BY MDBUPD
4 -- INDICATORS                                           8 -- ERRORS ENCOUNTERED IN RECORD

8 }ERROR   245 FIELD OCCURS 2 TIMES
         1     2     3   4  5                                    6
       LDR    24      0     |01C37NAM  2200253   450C|                 30313033376E616D2C20323230303235332020203435303O
       001    13    253     |  72179320 •|                             2020203732313739333230201E
       008    41    266     |720710S1971      STKAF     C      0011|   373230373130733139373120202020737468616620202063202020203031
                    298     |10 ENG  •|                                313C20656E6720201E
       C15    14    307     |•AF71-25908•|                        2020 1F61423731203235393038 1E
       C20    15    321     |•AC90275PC22P•|                      2020 1F6130393032373532303232 1E
       C43    21    336     |•AE-UK----•AE-UK-ST•|                2020 1F61652D756B2D2D2D1F61652D756B2D73741E
       C50    16    357 0   |•AN0467•B.G55•|                      3020 1F614E443436371F622E4735351E
       082    22    373     |•A759.2/074/09•1435•|                2020 1F613735392E322F3037342F30393431343335 1E
       11C    39    395 10|•AGLASGO...•BART GALLERY AND MUSE|      3130 1F61476C6173676F772E1F62417274204761C6C65727920616E64204D757365
                    429     |UMS.•|                                    756D732E1E
       245   120    434 10|•ASUMMARY CATALOGUE OF BRITISH O|       3130 1F6153756D6D61727920636174616C6F677565206F6620427269746973682O6F
                    468     |IL PAINTINGS: WITH WHICH IS INCL|         696C207C61696E74696E67733A2077697468207768696368206973206E6C6C
                    500     |UDED A SMALL GROUP OF MISCELLANE|         756465642061207360616C6C2067726F7570206F66206D697363656C6C616E65
                    532     |OUS FOREIGN PICTURES.•|                   6F75732O666F726569676E20706963747572657 32E1E
       245   120    554 10|•ASUMMARY CATALOGUE OF BRITISH O|       3130 1F6153756D6D61727920636174616C6F677565206F6620427269746973682O6F
                    588     |IL PAINTINGS: WITH WHICH IS INCL|         696C2070616 96E74696E67733A2077697468207768696368206973206E6C6C
                    620     |UDED A SMALL GROUP OF MISCELLANE|         756465642061207360616C6C2067726F7570206F66206D697363656C6C616E65
                    652     |OUS FOREIGN PICTURES.•|                   6F757320666F726569676E2070696374757265732E1E
       260    45    674 0 |•AGLASGO,.•BART GALLERY AND MUSE|       3020 1F61476C6173676F772C1F624172742047616C6C657279206 16E64204D757365
                    708     |UM,•C1971.•|                              756D2C1F633139373 12E1E
       300    41    719     |•AP-123 P.; 17 PLATES.•BILLUS.•C|     2020 1F6132203132332070 2E3B2031372070 6C617465732E1F62696C6C7573 2E1F63
                    753     |23 CM.•|                                  32352063 6D2E1E
       350    10    760     |•A£0.75•|                            2020 1F61593 02E37351E
       500    55    770     |•ACOVER TITLE: BRITISH PAINTINGS|    2020 1F61436F76657220746974 6C653A20427269746973682070616 96E74696E6773
                    804     |: SUMMARY CATALOGUE.•|                    3A20737 56D6D61727920636174616C6F6775652E1E
       650    34    825   0|•APAINTINGS, BRITISH•XCATALOGS.•|    2030 1F615061696E74696E67732C2042726974697368 1F784361746 16C6F67732E1E
       650    51    859   0|•APAINTINGS, MODERN•Y19TH CENTURY|    2030 1F6150 61696E7469 6E672C204D6F6465726E1F79313974682063656E74757279
                    893     |•ZGREAT BRITAIN.•|                        1F7A4772656174204272697461696E2E1E
       650    51    910   0|•APAINTINGS, MODERN•Y20TH CENTURY|    2030 1F6150 61696E74696E672C204D6F6465726E1F7932 30746820 63656E74757279
                    944     |•ZGREAT BRITAIN.•|                        1F7A4772656174204272697461696E2E1E
       650    34    961   0|•APAINTINGS•ZGLASGOW•XCATALOGS.•|    2030 1F615061696E74696E67731F7A476C6173676F771F7843617461 6C6F67732E1E
       740    42    995 11|•ABRITISH PAINTINGS: SUMMARY CAT|     2031 1F614272697469736820 7061696E74696E67733A20 73756D6D6172792063617 4
                   1029     |ALOGUE.•|                                 616C6F6775652E1D
     7
 ENCODING LEVEL CHANGED TO 'E'

   72179320 ADDED       72179565 ADDED       72179725 ADDED       72179707 ADDED       72179779 ADDED
   72179?47 ADDED       72179968 DEFERRED    72180189 ADDED       72180203 ADDED       72180204 ADDED
   72180?4? ADDED       72180471 ADDED       72181195 ADDED       72181203 ADDED       72181215 ADDED
   72181314 DEFERRED    72181321 ADDED

WARNING MASTER RECORD MISSING -- STATUS CHANGED TO NEW

   72181422 DEFERRED    72181664 ADDED       72181686 ADDED       72181696 ADDED       72182661 ADDED
   72182711 REPLACED    72182784 ADDED       72182785 ADDED       72182815 ADDED       72182868 ADDED
   72182?71 REPLACED    72182872 ADDED       72183013 ADDED       72183125 DEFERRED    72183127 ADDED
   72183131 ADDED       72183132 ADDED       72183138 ADDED       72183148 ADDED       72183177 ADDED
   72183197 ADDED       72183545 ADDED       72183553 ADDED       72183569 ADDED       72183926 ADDED
```

```
ERROR   INVALID FIRST INDICATOR X'20' IN POSITION  300 (041 FIELD)

        LDR   24     0   |00892CAM  220C241    4500|              303C38353263616D2020323230303E343120202034353030
        001   18   241   |   70027503 //R72*|                     2C2C2037303032373530332O2F2F7237321E
        008   41   259   |71C826S1971     NYU      S    000|      37313038323673313937312020202O6E79752020202020207320202020303030
                   291   |0C ENG  *|                              303C20656E6720201E
        041   11   300   |*AENGFRE*|                         2020 1F6165 6E6766726 51E
        050   38   311 0 |*AJX1977*B*A2 ST/STAT/SER*P/7*AM|   3020 1F614A583139373 71F622E413220535 42F535441542F7365722E502F371F6148
                   345   |C49*|                                   4339391E
        082    8   349   |*A338*|                            2020 1F613333381E
        110   41   357 20|*AUNITED NATIONS**BSTATISTICAL O|   3230 1F61556E697465642 04E61746 96F6E732E1F6253746174697374696361 6C204F
                   391   |FFICE**|                                66666963652E1E
        245   73   398 14|*ATHE GROWTH OF WORLD INDUSTRY. |  3134 1F61546 8652067726F777468206F6620776F726C6420696E6475737472792E2O
                   432   |LA CROISSANCE DE L'INDUSTRIE MON|       4C612063726F69737 3616E6365206465206C27696E6475737472696520 6D6F6E
                   464   |DIALE**|                                646961 6C652E1E
        250   13   471   |*A1969 ED.*|                       2020 1F613139363920656 42E1E
        260   38   494 0 |*ANEW YORK,*BUNITED NATIONS,*C19|   3020 1F614E657720596F726B2C1F62556E69746564204E6174696F6E732C1F633139
                   518   |71.*|                                   37312E1E
        300   17   522   |*A2 V.*C29 CM.*|                   2020 1F613220762E1F633239206360 2E1E
        350   20   539   |*A$10.00 PER VOL.*|                2020 1F612431 3C2E30302C7065722076 6F6C2E1E
        410   49   559 20|*A<UNITED NATIONS.*DOCUMENT>*VS|   3230 1F6158556E697465642 04E6174696F6E732E1F74446F63756D656E745D1F7653
                   593   |T/STAT/SER.P/7.*|                       542F5354415 42F534552 2E502F371E
        500   86   608   |*A*UNITED NATIONS PUBLICATION. S|   2020 1F61225 56E697465642 04E6174696F6E 7320707562 6C6963617469 6F6E2E2053
                   642   |ALES NO.: V. 1, E/F.71.XVIII.6; |       616C6573204E6F2E3A20762E20312C2045 2F462E37312E58564949492E362020
                   674   |V. 2, E.71.XVII.7.**|                   762E20322C20452E37312E58564949 2E372E221E
        500   24   694   |*A*ENGLISH AND FRENCH.**|          2020 1F61456E676C697368 20616E64204672656E63682E1E
        505   97   718 0 |*AV. 1. GENERAL INDUSTRIAL STATI|   3020 1F61762E20312E2047656E6572616C20496E647573747269616C207374617469
                   752   |STICS, 1960-1968.--V. 2. COMMODI|       7374696373 2C203139363 02D31393638 2E2D2D762E20322E20436F6D6D6F6469
                   784   |TY PRODUCTION DATA, 1960-1969.*|        747920 70726F6475637 4696F6E206461746 12C20313936302D313936392E1E
        650   14   815  0|*AINDUSTRY.*|                      2030 1F61496E64757374727 92E1E
        650   28   829  0|*AECONOMIC HISTORY*Y1945-*|       2030 1F6145636F6E6F6D6963204869737 46F7279 1F7931393435 2D1E
        650   25   857  0|*ACOMMERCIAL PRODUCTS.*|          2030 1F61436F6D6D657263 69616C2070726F647563747 32E1D

ENCODING LEVEL CHANGED TO 'E'

   70027503 DEFERRED     70037094 ADDED        70037603 ADDED        70038005 ADDED        70038320 REPLACED
   70038564 ADDED        70038754 REPLACED     70039640 ADDED        70039719 REPLACED     70039841 REPLACED
   70076758 REPLACED     70086858 DEFERRED     70090808 REPLACED     70092234 REPLACED     70095271 REPLACED
   70103155 ADDED        70105427 ADDED        70105704 ADDED        70106701 REPLACED     70110949 ADDED
   70114195 ADDED        70114361 REPLACED     70115945 ADDED        70121396 REPLACED     70121399 REPLACED
   70121400 REPLACED     70122405 REPLACED     70125773 ADDED        70124270 REPLACED     70129221 REPLACED
   70133490 DEFERRED     70133537 ADDED        70134013 REPLACED     70135455 DEFERRED     70135590 REPLACED
   70134235 ADDED        70136444 REPLACED     70137397 ADDED        70137492 ADDED        70137615 ADDED
   70139234 REPLACED     70140429 ADDED        70141371 ADDED        70141762 ADDED        70142502 ADDED
   70142510 ADDED        70144523 ADDED        70144653 DEFERRED     70144862 ADDED        70145142 REPLACED
   70145193 DEFERRED     70145965 ADDED        70147530 ADDED        70149195 REPLACED     70149622 ADDED
   70150596 ADDED

WARNING MASTER RECORD MISSING -- STATUS CHANGED TO NEW

   70151227 DEFERRED     70151495 REPLACED     70151791 ADDED        70153074 ADDED        70153710 DEFERRED
   70155087 ADDED        70157503 REPLACED     70157755 ADDED        70157905 DEFERRED     70158421 ADDED
   70159706 ADDED        70159784 ADDED        70160713 REPLACED     70161430 REPLACED     70161626 REPLACED
   70163356 ADDED        70164924 ADDED        70165117 ADDED        70165665 ADDED        70166307 ADDED
   70168111 REPLACED     70168548 ADDED        70169423 ADDED        70169700 ADDED        70169849 ADDED
   70169944 ADDED        70170875 ADDED        70171253 DEFERRED     70171269 ADDED        70171568 ADDED
```

```
WARNING MASTER RECORD MISSING -- STATUS CHANGED TO NEW

        73138648 DEFERRED    73139180 REPLACED    73140896 DEFERRED    73141388 REPLACED    73142117 REPLACED
        73142204 ADDED       73142500 ADDED       73144521 ADDED       73147322 REPLACED    73148780 ADDED
        73149911 REPLACED    73151670 ADDED       73153072 ADDED       73157867 ADDED       73159636 ADDED
        73163322 ADDED       73165560 DEFERRED    73169038 ADDED       73170270 ADDED       73170814 REPLACED
        73172179 DEFERRED    73179982 ADDED       73180389 ADDED       73181607 ADDED       73182261 ADDED
        73182742 ADDED       73182978 ADDED       73183581 ADDED       73184972 ADDED       73185527 ADDED
        73186662 ADDED       73187233 ADDED       73189542 ADDED       73189593 ADDED       73190210 ADDED
        73190604 ADDED       73190639 ADDED       73263747 REPLACED    73281019 REPLACED    73472101 REPLACED
        73580447 REPLACED    73609714 REPLACED    73610102 REPLACED    73610283 ADDED       73614337 ADDED
        73614712 REPLACED    73616228 ADDED       73627283 ADDED       73630223 DELETED     73635010 ADDED
        73636294 ADDED       73637259 ADDED       73637354 ADDED       73637389 ADDED       73852333 REPLACED
        73855272 REPLACED

WARNING MASTER RECORD MISSING -- STATUS CHANGED TO NEW

        73858546 DEFERRED    73874057 REPLACED    73879455 REPLACED    73890207 ADDED       73926343 ADDED
        73943517 ADDED       74037612 REPLACED    74038033 ADDED       74092108 REPLACED    74092806 ADDED
        74098834 REPLACED    74106338 ADDED       74114433 REPLACED    74114965 REPLACED    74118997 ADDED
        74116359 REPLACED    74119657 REPLACED    74121401 REPLACED    74123946 DEFERRED    74126641 DEFERRED
        74127146 ADDED       74129154 REPLACED    74131004 ADDED       74131761 ADDED       74136244 DEFERRED
        74139672 REPLACED    74140375 ADDED       74140872 REPLACED    74142503 ADDED       74147719 ADDED
        74152847 REPLACED    74153828 REPLACED    74154640 REPLACED    74156582 ADDED

WARNING MASTER RECORD MISSING -- STATUS CHANGED TO NEW

        74156992 DEFERRED    74157756 ADDED       74158903 REPLACED    74161923 ADDED       74162596 ADDED
        74162632 ADDED       74162746 ADDED       74164452 ADDED       74164661 ADDED       74164917 REPLACED
        74165957 ADDED       74166536 ADDED       74167951 REPLACED    74169290 ADDED       74169818 ADDED
        74170476 ADDED       74171699 ADDED       74172045 ADDED       74172495 ADDED       74174875 ADDED
        74175036 ADDED       74175900 ADDED       74177459 REPLACED    74177633 ADDED       74179445 ADDED
        74179613 REPLACED

WARNING MASTER RECORD MISSING -- STATUS CHANGED TO NEW

        74182702 DEFERRED    74182956 ADDED       74183095 ADDED       74183253 ADDED       74183880 ADDED
        74186594 ADDED       74187340 ADDED       74188111 ADDED       74189048 ADDED       74189257 ADDED
        74189711 ADDED       74189947 ADDED       74189971 ADDED       74261481 REPLACED    74270166 REPLACED
        74353670 REPLACED

WARNING MASTER RECORD MISSING -- STATUS CHANGED TO NEW

        74383414 DEFERRED    74409024 REPLACED    74446430 DEFERRED    74448443 REPLACED    74499522 REPLACED
        74554374 ADDED       74555587 REPLACED    74607406 REPLACED    74608413 REPLACED    74614398 REPLACED
        74616255 ADDED       74636254 ADDED       74915048 REPLACED    74924132 ADDED       75007228 REPLACED
        75012782 REPLACED    75027566 REPLACED    75037039 REPLACED    75038158 ADDED       75038470 REPLACED
        75038568 REPLACED    75038821 REPLACED    75077376 REPLACED    75094759 REPLACED    75116682 REPLACED

ERROR   FIELD TERMINATOR MISSING IN POSITION  168

        RECORD   REJECTED    75121376 REPLACED    75123851 DEFERRED    75128831 REPLACED    75138418 REPLACED
        75140875 REPLACED    75143511 REPLACED    75147222 REPLACED    75147458 REPLACED    75147679 REPLACED
        75150774 DEFERRED    75154923 ADDED

WARNING MASTER RECORD MISSING -- STATUS CHANGED TO NEW
```

```
     79573562 REPLACED    79593458 REPLACED    7961C141 REPLACED    79611445 REPLACED    79611768 ADDED
     79614794 ADDED       79616362 ADDED       79629003 REPLACED    79632748 ADDED       79635660 ADDED
     79637138 ADDED       79650359 REPLACED    79862823 REPLACED    79868520 REPLACED

WARNING MASTER RECORD MISSING -- STATUS CHANGED TO NEW

     79871173 DEFERRED    79917480 REPLACED    79927714 ADDED

WARNING MASTER RECORD PRESENT -- CANNOT ADD

     AS468CC0222 DEFERRED
                                                                                   MDBUPD FINAL STATISTICS
     EOF ON MERC
     EOF:Z39.4-71MARC-2545 SD424C0010001      72256011    CO1M5015M370/155 SS
     EOF ON [illegible]
        414774 RECORDS ON OLD MASTER
          1850 RECORDS ON UPDATE TAPE
          1316 RECORDS ADDED
           338 RECORDS REPLACED
             4 RECORDS DELETED
             1 RECORDS REJECTED
           181 RECORDS DEFERRED
        416073 RECORDS ON NEW MASTER
     OLD CONTROL NUMBER:     415228
     NEW CONTROL NUMBER:     416527
```

APPENDIX C

DETAILED DESCRIPTION OF INTERNAL SUBROUTINES

:CBS1234

This routine is used to compare bytes for equal. Upon entry to this routine, R1 has the number of bytes to be checked, R2 has the byte address of the record, R3 has the byte address of the field to be checked. R7 is the link register. At exit, R2 is pointing to the next byte of the record. If the two fields are equal, the condition is set to zero.

DUMPLN

This routine is used to translate a field to EBCDIC and hexadecimal and move it to output buffers. The output buffer for the EBCDIC translation is called 'TXTFLD'; for the hexadecimal translation, it is called 'HEXFLD'. The characters are converted and moved 32 bytes at a time. The link register is R9. Upon entry, R2 has the byte address of the field to be translated, and R3 has the length of the field.

SEARCHER

This routine is used to check the access keys for a particular MARC record against the existing access keys for the other bibliographic records. Before branching to this routine, an FPT is set up in the following manner:

```
SCHFPT DATA 0,0,0, SCHWORK,OCL NUMBER
```

Where the first word is for the completion status and function code; the second word is the logical file number; the third word is either the title key or the author-title key; the fourth word is the word address of the work area; the fifth word is the OCLC number.

The link register to this routine is R5. A description of the processes of this routine are given in Section IV - - FUNCTIONS.

DEFER

This routine well cause a troublesome record to be copied onto the deferred tape. The routine picks up the beginning address of the record from the location 'RECORG' and picks up the record length from the location 'RECLN'. The routine then sets up a 'copy' FPT and issues the copy command.

FLDERR

This routine causes the error message to be logged. R9 is the link register to this routine. R8 has the address of the error message to be used. This routine sets up the required parameters and links to the external sub-routine,'LOGERR'.

FLDWAR

This routine causes the warning messages to be logged. R9 is the link register to this routine. R8 is set with the address of the warning message to be used. This routine sets up the required parameters and links to the external sub-routine, 'LOGWAR'.

APPENDIX D

ADDITIONAL SUBROUTINE DOCUMENTATION

I. FUNCTIONS

The external subroutine 'CASEB' is used to convert ASCII data to EBCDIC. The address of the parameters needed for this subroutine is passed in R8.

II. SOFTWARE INTERFACE

A. Linkage

```
LI,R8      CASEBF
BAL,R7     CASEB
```

B. Parameter List Description

```
CASEBF  RES 1  number of bytes to be converted
        RES 1  beginning address of data
        RES 1  beginning address of storage area
        RES 1  completion status
```

C. Return Codes

The status of the convert operation is returned in the fourth word of the parameter list.

```
STATUS = X'80000000' - Normal completion; all characters
                       were legal
       = X'C0010000' - Abnormal completion
```

D. Other Entry Points - none

E. OCLC Subroutines Referenced - none

F. OCLC Procedures Referenced - none

III. DESCRIPTION OF SPECIAL STORAGE AREAS, SWITCHES, AND TABLES

ASEBTBL

The conversion from ASCII to EBCDIC is accomplished with this one large table. Using the ASCII value of the character as an index, the corresponding EBCDIC value is retrieved from this table. If the corresponding table entry is a '0', the character is considered illegal.

PROGRAM: MDBUPD
SUBROUTINE: CASBI

I. FUNCTIONS

The external subroutine CASBI is used to convert numeric data which is in ASCII format to Binary format. The ASCII character is first checked to be numeric (between the limits of X'30' and X'39'), and is then converted to binary.

II. SOFTWARE INTERFACE

A. Linkage

```
LI,R8   CASBI5
BAL,R7  CASBI
```

B. Parameter List Description

The address of the three word parameter list is passed to this subroutine in R8.

```
RES 1  number of bytes to be converted
RES 1  beginning address of field to be converted
RES 1  completion status
```

C. Return Codes

The status of the convert operation is returned in the third word of the parameter list.

```
STATUS = X'80000000'  Normal completion
       = X'C0010000'  Abnormal completion; character
                      to be converted is not numeric
```

D. Other Entry Points

CEBBI - This entry point converts numeric data in EBCDIC format to Binary format.

E. OCLC Subroutines Referenced - none

F. OCLC Procedures Referenced - none

I. FUNCTIONS

The external subroutine 'MDBUPDLG' is used as the logging routine for the program MDBUPD only. MDBUPDLG is a program of subroutines as follows:

Name of subroutine	Function
LOGMSG	type and log a text message.
LOGTEXT	log a text message
LOGERR	log a message with the preface 'ERROR'
LOGWAR	log a message with the preface 'WARNING'
LOGADD	log the LC card number and the word 'ADDED'
LOGREP	log the LC card number and the word 'REPLACED'
LOGDEL	log the LC card number and the word 'DELETED'
LOGREJ	log the LC card number and the word 'REJECTED'
LOGIGN	log the LC card number and the word 'IGNORED'
LOGPAGE	write the previous line and supply the format control character to eject the page
LOGDEF	log the LC card number and the word 'DEFERRED'
LOGDUMP	log the message to be listed on the DO device (teletype)
LOGPUNCH	log the message to be listed on the SO device (card punch)

MDBUPDLG begins with an indexable branch table which branches to one of these routines. When a message is 'logged', it is written on the RAD area assigned by MDBUPD. The RAD file will later be used to print copies of the messages on the appropriate devices.

II. SOFTWARE INTERFACE

A. Linkage

```
LOGTEXT     EQU     MDBUPDLG + 1

            LI,R8   MSGNPARNS
            BAL,R7   LOGTEXT
```

B. Parameter List Description
R8 is set up with the address of the parameter list required to format the message. Each parameter list must be at least two words long. Every word except the last word is of the format:

```
            GEN, 8, 24          FC,BA (message)
```

FC= Function Code	Purpose
1	single message is to be logged
2	message is to be converted to hexadecimal before being logged
3	message is to be converted to EBCDIC before being logged

The last word of the parameter list must be a '0' to indicate to MDBUPDLG that the end of the parameter list has been reached. For additional documentation and examples, see the APPENDIX, Section E, under the procedure description for 'MSG'.

C. Return Codes
No completion codes are set. The return is made back to the calling program through R7.

D. Other Entry Points
None

E. OCLC Subroutines Referenced
$MBS - - Move Byte String
(described on page VIII.28)

CBIEB - - Convert Binary to EBCDIC
(described on page VIII.49)

F. OCLC Procedures Referenced
None

III. DESCRIPTION OF SPECIAL STORAGE AREAS, SWITCHES, AND TABLES

Upon entry to MDBUPDLG, there is an indexable branch table of routines. This table effectively produces the same result as having separate entry points. A branch is taken from this table to the appropriate routine.

IV. INTERNAL SUBROUTINE DESCRIPTION

CBIHE12 - - This routine converts one byte in binary format to 2 digits in hexadecimal format. The link register to this routine is R7.

PURGLINE -This routine is used to test the status of the buffer, print the previous line if there is one, clear out the line image and re-set the buffer status. A buffer status of '-1' indicates that the buffer is ready to go. A status of '0' indicates that the buffer is empty. A buffer status of anything else will cause the previous line to be written. The link register to this routine is R5.

I. FUNCTIONS

The external subroutines OPENMARC, CLOSE MARC, and READMARC are used to perform the MARC tape input operation.

The external subroutine OPEN MARC sets up the parameters needed for the subroutine TAPEIO (described on page VIII.53).

TAPEIO performs the operation of reading the MARC tape input.

OPENMARC sets up the two function parameter tables (FPT's) needed to perform this read operation. The first FPT is for the read operation itself; the second FPT is used to sense the device status. OPENMARC also sets up R1 with the address of a work area and R8 with the address of the parameters needed for TAPEIO.

At its alternate entry point, READMARC, OPENMARC actually reads the record by means of the subroutine TAPEIO. READMARC exits with the length of the record in R1 and the byte address of the record in R2. The return to the calling program is made either 0,1,2,or 3 instructions past the calling instruction depending upon whether the record read was a header label, a MARC record, a trailer label, or the end of a particular file, respectively.

At its alternate entry point, CLOSEMARC, OPENMARC sets up the tape for the next record. If there was an end of file, the tape is unloaded, otherwise CLOSEMARC causes TAPEIO to back space over the last record read.

II. SOFTWARE INTERFACE

A. Linkage

The calling sequence for OPENMARC is as follows:

```
LI,R8     X'80'    device address needed for the FPT's

BAL,R7    OPENMARC
```

B. Parameter List Description

None

C. Return Codes

None

D. Other Entry Points

READMARC
CLOSEMARC

E. OCLC Subroutines Referenced

TAPEIO (Page VIII.53)

F. OCLC Procedures Referenced

None

II. SOFTWARE INTERFACE

A. Linkage

The calling sequence for READMARC is as follows:

```
BAL,R7        READMARC
B             File 1   header label
B             File 2   data
B             File 3   trailer label
Bal,R7        CLOSEMARC  done with that EOF
```

B. Parameter List Description

None

C. Return Codes

None

D. Other Entry Points

None

E. OCLC Subroutines Referenced

LOGMSG	(page VIII.19)
LOGWAR	(page VIII.19)

F. OCLC Procedures Referenced

None

II. SOFTWARE INTERFACE

A. Linkage

```
BAL,R7    CLOSEMARC
```

B. Parameter List Description

None

C. Return Codes

None

D. Other Entry Points

None

E. OCLC Subroutines Referenced

TAPEIO (page VIII.53)

F. OCLC Procedures Referenced

None

I. FUNCTIONS

These external subroutines are used to Pack and Unpack numeric data. The characters are first checked to be numeric and are then either packed or unpacked depending on the entry point.

II. SOFTWARE INTERFACE

A. Linkage

```
LI,R8  PACKPARM
BAL,R7 PACK
```

B. Parameter List Description

The address of the 4-word parameter list is passed to these routines in R8.

```
RES 1  byte address of field to be packed
RES 1  number of bytes to convert
RES 1  byte address of storage area
RES 1  completion status
```

C. Return Codes

The status of the conversion is returned in the fourth word of the parameter list

```
STATUS = X'80000000' - Normal completion
       = X'C0010000' - Abnormal completion; character
                       to be converted is non-numeric
```

D. Other Entry Points

UNPK - - This entry point is used to unpack data. The parameter list is the same as for PACK. The return code for a normal completion is the same. There is no abnormal completion.

E. OCLC Subroutines Referenced

NDX123 - This routine is used to check for valid numeric characters for the PACK routine. NDX123 is described more thoroughly on page .

F. OCLC Procedures Referenced - none

III. DESCRIPTION OF SPECIAL STORAGE AREAS, SWITCHES, AND TABLES

PTBL - This is a table of valid numeric characters for the PACK routine.

I. FUNCTIONS

This external subroutine is used to move byte strings. If the address of the field to be copied and the address of the location for the output are not both word aligned, they are adjusted to compensate. $MBSS is used to move less than 15 bytes.

II. SOFTWARE INTERFACE

A. Linkage

```
BAL,R7  $MBS
```

B. Parameter List Description

Enter with the number of bytes to be moved in R1. The beginning byte address of the field must be R2 The byte address of the location whe 'e the field [illegible] to be moved must be in R3.

C. Return Codes

The return is made back to the calling program through R7 with no completion status posted.

D. Other Entry Points

$MBSS - This entry point is used when 14 bytes or less are [illegible] be moved. There is no check for the word alignment of the addresses.

E. OCLC Subroutines Referenced - none

F. OCLC Procedures Referenced - none

I. FUNCTIONS

This external subroutine is used to search for a particular character (byte) in a list. The search is performed form the end of the list and the index used to find the character is returned to the calling program.

II. SOFTWARE INTERFACE

A. Linkage

```
BAL,R7   NDX123
```

B. Parameter List Description

Enter with the byte to be searched for in R2 and the byte address of a list in R3. The first entry of the list must be the number of entries in the list.

C. Return Code

There are no completion codes returned to the program. Return to the calling program is made through R7. The index used to find the character in the list is returned in R1. R1 is '0' if the character was not found. The search is performed from right to left.

D. Other Entry Points - none

E. OCLC Subroutines Referenced - none

F. OCLC Procedures Referenced - none

I. FUNCTIONS

The external subroutine'ADDMAST' is used to add and delete records from the master data base. If the OCLC file entry is not occupied, the search keys are extracted for this record and the indexes are added to the index file. The record is also added to the data base.

If the OCLC file entry is occupied, a check is made to determine if the subroutine 'DELTMAST' had been called. 'DELTMAST' is another entry point to the subroutine 'ADDMAST'. If the OCLC file entry is occupied and 'DELTMAST' is not called, this constitutes an error and the OCLC file entry is returned and nothing is added.

Another entry point to 'ADDMAST' is 'RADDMAST' which will re-add a bibliographic record and its indexes.

II. SOFTWARE INTERFACE

A. Linkage

```
LI,R8     ADDPARM
BAL,R7    ADDMAST
```

B. Parameter List Description

```
RES   1    completion status
RES   1    word address of the bibliographic record
RES   1    WA (WORKAREA)
RES   1    word address of OCLC file entry and indexes
RES   1    WA(index)
```

Where WORKAREA is a 312 word double word alinged workarea. The workarea is 313 words if it is not double word aligned. The fifth word is used only for DELTMAST and RADDMAST.

C. Return Codes

The status of the addition operation is returned in the first half-word of the parameter list.

```
STATUS = X'8000' - Normal completion
       = X'C000' - Abnormal completion; OCLC index
                   found occupied, nothing has been
                   added to the data base
       = X'C001' - Abnormal completion; could not
                   add the Bib. record, no index
                   were added to the data base
       = X'C001' + INDEX FILE NO.--
                   Abnormal completion; could not
                   add an index, the Bib. record and/or
                   other indexes were added
```

D. Other Entry Points

DELTMAST - This entry point is used to delete a record and its indexes.

RADDMAST - This entry point is used to re-add a record and its indexes.

E. OCLC Subroutines Referenced

INDEXER - This external subroutine (described more fully elsewhere in this section) is used to set up the access keys for a particular record.

F. OCLC Procedures Referenced - none

FUNCTIONS

LCN000 breaks a call number into components to aid in the formatting of the call number. A code set at the entry point determines the type of call number which has been input. At LCCN000, the code is set to zero; at LCCN000B, the code is set to four; at LCCN000D, the code is set to two; and at LCCN000T, the code is set to one. Upon entry to either LCCN000, LCCN000B, LCCN000D, or LCCN000T, R8 points to a parameter list which contains the byte address of the input call number. The second word of the parameter list is the byte address of a work area.

LCCN000 scans and interrogates the call number using a set of internal procedures. The components to be broken down by LCCN000 are as follows:

0 - A string of alphas, followed by a blank, which precedes the rest of the call number.
1 - Alpha portion of the Library of Congress class number.
2 - Numeric portion of the Library of Congress class number.
3 - Decimal portion of the Library of Congress class number.
4 - Date type element that precedes the first Cutter. In reality this is any field preceded by a blank which precedes the first Cutter.
5 - First Cutter. It must begin with a decimal followed by an alpha string and a numeric string.
6 - Date type element that precedes the second Cutter. In reality this is any field preceded by a blank which precedes the second Cutter.
7 - Second Cutter. It is preceded by a decimal if component 6 is present; otherwise it immediately follows the first Cutter. The second Cutter is a numeric string followed by an alpha string.
8-254 These components are variable in format. Bit 7 of the component number set to 1 indicates an element followed by a comma.

Component 255 always marks the end of the call number in the work area.

When an error is encountered in the format of the call number, the condition code is set and control is returned to CNVT.

As each component of the call number is found, it is stored in the workarea preceded by its component number. When the end of the call number field is encountered, if all required components are present, control is returned normally.

SOFTWARE INTERFACE

A. LINKAGE

```
LI,R8    LCCNPARM
BAL,R7   LCCN000 (or LCCN000B, LCCN000D, or LCCN000T)
```

B. PARAMETER LIST DESCRIPTION

```
LCCNPARM     DATA      BA(050 FIELD) or 090 FIELD IF
                                         PRESENT
             DATA      BA(WORKAREA) AREA WHERE FORMATTED
                           CALL NO. WILL BE RETURNED
```

C. RETURN CODES

LCCN000, LCCN000B, LCCN000D, & LCCN000T set the condition code as follows:

```
CC1 - 4 = 0   NORMAL RETURN
CC3 = 1       DEFAULT TO UNIT CARD
CC4 = 1       BREAKDOWN WAS UNSUCCESSFUL
```

D. OTHER ENTRY POINTS

LCCN000B
LCCN000D
LCCN000T

E. OCLC SUBROUTINES REFERENCED - none

F. OCLC PROCEDURES REFERENCED -

```
NEXT
BACK
SPAN
POWER
ANY
SAVE
MARK
OPT
ALPHA ⎫
NUMER ⎪
POINT ⎬    Different name values for the
BLANK ⎪     same procedure
TERMN ⎪
COMMA ⎭
BREAK
```

PROCEDURE DESCRIPTION

PURPOSE: NEXT generates a BAL,R7 :NXT where: NXT is an internal subroutine of LCCN000

FORMAT: NEXT No operands are required

EXAMPLE:

```
        NEXT
+       BAL,R7     :NXT
```

PROCEDURE DESCRIPTION

PURPOSE: BACK sets up a parameter value and provides a link via R7 to the internal subroutine :BCK. If the value of AF(1) is less than two, a BAL,R7 :BCK-1 is generated. If AF(1) is loaded into R14 and a BAL,R7 :BCK is generated.

FORMAT: BACK AF(1)

EXAMPLE 1:

Back up one character.

```
        BACK      AL        WHERE  AL=1
+       BAL,R7     :BCK+1
```

EXAMPLE 2:

Back up four characters

```
        BACK      PO          where PO=4
        LI,R14     4
        BAL,R7    :BCK
```

PROCEDURE DESCRIPTION

PURPOSE: SPAN sets up a parameter value and links to internal subroutine :PWR-1 via R7. R14 is loaded with the argument field. Its range of values is the table CHARVAL.

FORMAT: SPAN AF(1)

EXAMPLE: Scan to the next non-numeric character.

```
SPAN     NU      where NU = char value for a
                  numeric in CHARVAL

+     LI,14   2
+     BAL,R7  :PWR -1
```

PROCEDURE DESCRIPTION

PURPOSE: POWER sets up a counter in R13 from AF(2) and a value in R14 from AF(1); then links to the internal subroutine :PWR. On return from :PWR, an unconditional branch is taken. The effective address of the branch is determined by the value of AF(3) and AF(5). If AF(3) =1 and AF(5) =0 a B $+2 is generated. If AF(3) =0 and AF(5) =1, three instructions are generated:

```
B  $+2
B  $+3
BAL,R7  :RST
```

If AF(5) =1 an unconditional branch to AF(4) is generated.

FORMAT: POWER AF(1),AF(2),AF(3),AF(4),AF(5)

EXAMPLE: Scan to see if there is a blank in the next 4 characters. If so, branch to T4. If not, restore R1 and branch to T4.

```
  POWER    BL,PO,NO,T4
+ LI,R13   4
+ LI,R14   8
+ BAL,R7   :PWR
+ B        $+2
+ B        $+3
+ BAL,R7   :RST
+ B        T4
```

EXAMPLE 2: Scan to see if there is a blank in the next four characters. If not, skip the branch to T4 and continue with the next sequential instruction. If so, branch to T4.

```
  POWER    BL,PO,YES,T4
+ LI,R13   4
+ LI,R14   8
+ BAL,R7   :PWR
+ B        $+2
+ B        T4
```

PROCEDURE DESCRIPTION

PURPOSE: ANY compares the character value which is in R15 to a table value or a combination of table values [AF(1)]. The succeeding branch instructions are generated on the basis of AF(2) which has the value 0 or 1 and the presence or absence of AF(4). The effective address of the branch instruction is AF(3).

FORMAT: ANY AF(1), AF(2), AF(3), AF(4)

EXAMPLE: Is next character a period or a blank:
ANY PO/BL,NO,ABT

```
+  CI,15   12
+  BAZ     ABT
```

where PO = 4
BL = 8
NO = 1

Is the value in R15 4 or 8? If neither, branch to ABT, otherwise fall through to the next sequential instruction.

PROCEDURE DESCRIPTION

PURPOSE: SAVE generates a STW,1 :SAVE instruction to save the pointer to the current location in the TEMP area.

FORMAT: SAVE

EXAMPLE:
```
         SAVE
    +    STW,R1     :SAVE
```

PROCEDURE DESCRIPTION

PURPOSE: MARK sets up the component number and links to the routine :MRK which will move the component to WORKAREA.

```
FORMAT:   MARK   AF(1)

EXAMPLE:  MARK   1
       +  LI,14  1
       +  BAL,R7   :MRK
```

Mark component #1 and move it to the WORKAREA

PROCEDURE DESCRIPTION

PURPOSE: OPT interrogates the next sequential character value. If it is not equal to AF(1) a branch is taken to $+2. If the character value is equal to AF(1), a BAL,R7 :NXT is taken.

FORMAT: OPT AF(1)

EXAMPLE: Is the next character a blank. If so, look at following character.

```
         OPT      BL
+        CI,15     8
+        BAZ      $+2
+        BAL,R7       :NXT
```

PROCEDURE DESCRIPTION

PURPOSE: ALPHA compares the character value in R15 to its name value shifted left one position (1**NAME). The shifted name value equals the alpha character value from the table CHARVAL. The conditions of the succeeding branch instruction are generated depending on the value of AF(1) which may be 0 or 1 and the presence or absence of AF(3). If AF(3) is absent, the effective address of the branch is AF(2). If the branch is not taken, the next sequential instruction is executed. If AF(3) is present the effective address of the generated branch is $+3. If the branch is not taken, the next instruction is a BAL,R7 :RST followed by an unconditional branch to AF(2).

There are five alternate names that may be used to invoke this procedure.

NUMER	- its name value equals the numeric character value
POINT	- its name value equals the character value for a period
BLANK	- its name value equals the character value for a blank
TERMN	- its name value equals the character value for a field delimiter
COMMA	- its name value equals the character value for a comma

These procedures are used to interrogate the value of a character.

FORMAT: ALPHA AF(1), AF(2), AF(3)

EXAMPLE 1: Is the character in question numeric. If not, declare an error.

```
    NUMER     NO,ABT
+   CI,15     2
+   BAZ       ABT
```

where no = 0

EXAMPLE 2: Is the character alpha. If it is skip around; if not restore R1 to previous character and branch to T8

```
     ALPHA     NO,T8,REST
+    CI,15     1
+    BANZ      $+3
+    BAL,7     :RST
+    B         T8
```

where no = 0 and REST = 1

PROCEDURE DESCRIPTION

PURPOSE:

BREAK sets up a parameter value and links to the internal subroutine, :BRK. R14 is loaded with AF(1). Its range of values is equal to the range of values in the table CHARVAL.

FORMAT: BREAK AF(1)

EXAMPLE:

Scan to find the next numeric character.

```
                BREAK    NU              where NU = CHAR. value
                                         for a numeric is CHARVAL

+               LI,14    2
+               BAL,R7   :BRK
```

I. FUNCTIONS

The external subroutine 'INDEXER' scans the given bibliographic record. It returns a 6 - byte (left-justified) author-title access key in the third and fourth words of the workarea which is provided by the calling program. It also returns a 6 - byte (left-justified) title-only access key in the first and second words of the workarea. It also returns the 8 - byte OCLC semi-packed representation of the first 12 characters of the LC card number in the fifth and sixth words of the work area.

INDEXER also prepares and stores three pointers at word displacements 10,11, and 12 in the OCLC bibliographic record (see Bibliographic record format - page 14). The content of these pointers is as follows:

1. First Pointer --
   Bits 0 - 15: Byte length of first part of the author string (1XX field).
   Bits 16 - 31: Byte displacement to the first author substring from the end of the leader.

2. Second Pointer --
   Bits 0 - 15: Byte length of the second part of the author string
   Bits 16 - 31: Byte displacement to the second author, string from the end of the leader.

3. Third Pointer --
   Bits 0 - 15: Byte length of the title (245 field) string.
   Bits 16 - 31: Byte displacement to the first character of the title string from the end of the leader.

II. SOFTWARE INTERFACE

A. Linkage

```
LI,R6           XRPAPMS
BAL,R7          INDEXER
```

B. Parameter List Description

RES	1	word address of the cell containing the word address of the record
RES	1	WA(WORKAREA)

where WORKAREA is 14 words and double word aligned. The work area is set up as follows:

WKAREA	RES	0	
3111	RES	2	title access key returned here
33KEY	RES	2	author/title access key returned here
LCCARONO	RES	2	LC card number returned here
SCRATCH	RES	8	scratch area

C. Return Codes

If the title cannot be parsed, is missing, or appears after the 260 field, the title portion of the author/title key will be 3 blanks, and the title only key will be 6 blanks. There is no returned status.

D. Other Entry Points

PULLKEYS - This entry is used when the access keys are to be set up and returned but the pointers are not to be prepared or stored.

E. OCLC Subroutines Referenced

None

F. OCLC Procedures Referenced

None

III. DESCRIPTION OF SPECIAL STORAGE AREAS, SWITCHES, AND TABLES

A. Special Switches
None

B. Special Storage Areas
None

C. Special Tables

ALLOWED -- This is a byte table of characters values that are permitted in the keys. If the byte is a '1', it is an allowed character. The table is indexed by the character itself.

FUNCTIONS

CBIEB converts variable-length binary fields to EBCDIC. The user specifies what sign is to be given to the result and what fill character is to be used in padding the field. Error conditions are encountered when there is an overflow condition in the output field or when the output field is not large enough to contain the sign. The return code is posted in the first two bytes of the parameter list upon return.

SOFTWARE INTERFACE

A. LINKAGE

The calling sequence is

```
LI,R8    CBPARMS
BAL,R7   CBIEB
```

B. PARAMETER LIST DESCRIPTION

```
CBPARMS     DATA      BA(BINARY FIELD TO BE CONVERTED)
            DATA,1    WIDTH, FILL,PLUS, MINUS
            DATA      BA(OUTPUT FIELD)
```

C. RETURN CODES

The return code is found in bytes 0 and 1 of CBPARMS.

```
BYTE0 - X'80'  Normal completion
BYTE1 = X'00'
BYTE0 = X'C0'  ERROR
BYTE1 = X'01'  NO ROOM IN FIELD FOR SIGN
BYTE0 = X'C0'  ERROR
BYTE1 = X'02'  FIELD OVERFLOW
```

OTHER ENTRY POINTS - none

OCLC SUBROUTINES REFERENCED - none

OCLC PROCEDRURES REFERENCED - none

FUNCTIONS

LOGMSG formats and prints a log entry for each OCLC record number which is selected for catalog card production. A log entry on the CNVT Log consists of the OCLC control number, the color code, and the holding library code followed by a statistical code showing whether the record was selected (SLD) or rejected (RJD). LOGMSG also prints diagnostic messages when required by CNVT.

SOFTWARE INTERFACE

A. LINKAGE

Control is transferred from CNVT via a

```
BAL,R7      LOGMSG
```

This instruction must be immediately followed by the parameter list described below. Upon entry to LOGMSG,R7 points to the parameter list.

B. PARAMETER LIST DESCRIPTION

The following list of parameters must be passed to LOBMSG.

```
GEN,8,24     FUN,BA(MESSAGE)
DATA         WA(UNPACKED LC CARD NUMBER)
DATA         WA(COLOR CODE)
DATA         WA(LIBRARY CODE)
```

Where the byte indicator 'FUN' may assume the following values:

```
FUN = 0   Print message only, do no logging.
    = 1   Log as selected before printing a message.
    = 2   Log as missing before printing a message.
    = 3   Log as rejected before printing a message.
    = 15  Eject page when printing a message.
```

No message will be pr[illegible]ted if BA(MESSAGE) is equal to zero.

C. RETURN CODES - none

D. OTHER ENTRY POINTS - none

E. OCLC SUBROUTINES REFERENCED - none

F. OCLC PROCEDURES REFERENCED - none

FUNCTIONS

TAPEIO is a general purpose input/output subroutine which performs the following functions depending on a function code passed from the calling program.

FUNCTION CODE	FUNCTION
X'00'	READ
01	WRITE
02	READ REVERSE
03	WEOF
04	SKIP ONE RECORD FORWARD
05	SKIP ONE RECORD BACKWARD
06	SKIP ONE FILE FORWARD
07	SKIP ONE FILE BACKWARD
08	REWIND (ONLINE)
09	UNLOAD

TAPEIO sets up the FPT to be used in IOEX CAL2 from parameters passed by the calling program. If the function required does not involve data transfer (in the range of codes 3-9), the only parameters needed by TAPEIO are the function code, the unit address, and an event word. If data transfer is to be performed (codes 0,1,2), TAPEIO must also have the address of a buffer and the length of the data to be read or written. Upon entry to TAPEIO, general register 1 should be pointing to a user-defined work area on a double word boundary.

If the function to be performed involves data transfer or is a WEOF, two function parameter tables (FPT's) are set up. The first FPT is for the operation requested; the second is used to sense the device status in the event the requested operation does not end normally. For non-data transfer functions, only one FPT is constructed.

TAPEIO contains its own end action routine, STDEA. STDEA uses the Test Device (TDV) status returned by the IOEX CAL2 to determine the end action required. If the I/O operation terminated normally, the first byte of the event word in the first FPT is set to X'80' and control is returned. If the operation ended abnormally, the TDV status is interrogated more closely to determine the exact result of the operation.

A table of TDV status values and their meanings follows:

TDV STATUS	EXPLANATION
0200	NORMAL TERMINATION BEYOND END OF TAPE
0400	NORMAL TERMINATION AT BEGINNING OF TAPE
B87E	NORMAL TERMINATION
000E	IOP ERROR
0010	MEMORY ADDRESS ERROR
2000	WRITE PROTECT VIOLATION
1000	END OF FILE
8000	DATA OVERRUN
0800	NON-CORRECTABLE READ ERROR
0040	TRANSMISSION DATA ERROR
0020	TRANSMISSION MEMORY ERROR

A TDV status of 'B87E' initiates the return of a normal completion code (X'80') to the user. If the status is '1000', an end of file indication is returned. If the TDV status is '000E', '0010', or '2000', the error is not attributed to the I/O device; and no retry is attempted. If the status is one of the last four in the table, the retry count is interrogated. The retry count is arbitrarily set in TAPEIO to ten for data transfer operations (function codes 0-2) and WEOF (code 3) and is set to zero for non-data operations (codes 4-3). If the retry count for this operation is zero, an abnormal return code is posted, and control is returned to the calling program. If the retry count is greater than zero, retry procedures are initiated based on the type of I/O function that was attempted.

If the status is '0200' or '0400', a code is returned to indicate the position of the tape.

If the operation was a READ and the error is correctable (TDV status of '8000', '0040', or '0020'), the second FPT is pulled from the work area and used to sense the device. If the sense does not take, an unconditional backspace and retry are initiated; otherwise STDEA will alternately backspace, or forward space (depending on whether the READ was forward or reverse), sense, retry, and sense until either the retry count is zero or the I/O operation has been performed. If the retry count reaches zero before the operation has been terminated normally, the condition code returned is the result of the last retry.

If the operation was a READ but the error was declared non-correctable (TDV status '0800'), STDEA initiates an unconditional retry. It backspaces, or forward spaces if the operation was READ REVERSE, and attempts to READ again. The TDV status is interrogated after each retry of the READ. If the error status becomes correctable before the retry count is zero, STDEA will initiate sensing of the device and the correctable READ error procedure. In any case, retry continues until the operation is completed normally or the retry count reaches zero. If the retry count becomes zero before the operation has terminated normally the condition code returned is the result of the last retry.

If the operation was a WRITE or WEOF, STDEA automatically backspaces, senses, and attempts the operation again. This procedure continues until the I/O is complete or the retry count is zero. If the retry count reaches zero before the operation has been terminated normally, the condition code returned is the result of the last retry.

At its alternate entry point, TAPEWAIT, TAPEIO checks for completion of an I/O operation performed by TAPEIO. If the event is not complete TAPEWAIT issues a CAL2,9 0 to wait for completion. When the event is posted complete, the status is interrogated. If the completion is normal (X'80'), control is returned to the return address plus one. If the completion is abnormal (X'C0') control is returned at the return address. In either case BYTE0 of the event word is returned in bits 24-31 of R8.

SOFTWARE INTERFACE

A. LINKAGE

The calling sequence for TAPEIO is as follows:

```
LI,R1      WORKAREA
LI,R8      PARMS
BAL,R7     TAPEIO
```

Where WORKAREA is a 16-word storage area aligned on a doubleword boundary.

B. PARAMETER LIST DESCRIPTION

For function codes 0, 1, 2

WORD 0	FUNCTION	DEVICE ADDRESS
WORD 1	BA (BUFFER)	
WORD 2	BYTE COUNT	
WORD 3	EVENT STATUS	

For functions 3-9

WORD 0	FUNCTION	DEVICE ADDRESS
WORD 1	EVENT STATUS	

C. RETURN CODES

```
NORMAL COMPLETION: EVENTWORD BYTE 0 = X'30'
                             BYTE 1 = X'00'

ABNORMAL COMPLETION: EVENT WORD BYTE 0 = X'C0'
                                BYTE 1 = XX - CODE INDICATING
                                 NATURE OF ABNORMAL COMPLETION.
```

Possible event words for abnormal completion and their meanings are listed below:

EVENT WORD	TDV STATUS	MEANING
C001	0200	NORMAL TERMINATION BEYOND END OF TAPE MARKER
C002	0400	NORMAL TERMINATION AT BEGINNING OF TAPE
C00A	000E	IOP ERROR
C009	0010	MEMORY ADDRESS ERROR
C008	2000	WRITE PROTECT VIOLATION
C003	1000	END OF FILE
C007	8000	DATA OVERRUN
C004	0800	NON-CORRECTABLE READ ERROR
C005	0040	TRANSMISSION DATA ERROR
C006	0020	TRANSMISSION M[illegible]RY ERROR
C000	----	UNIT UNRECOGNIZED
C00B	----	SOFTWARE ERROR

For codes C000-C003 and C008-C00B, no retry has been attempted. For codes C004-C007, retry has been attempted only if the function was a data transfer or WEOF.

D. OTHER ENTRY POINTS
TAPEWAIT

E. OCLC SUBROUTINES REFERENCED - none

F. OCLC PROCEDURES REFERENCED - none

SOFTWARE INTERFACE (TAPEWAIT)

A. LINKAGE

```
LI,R8      PARMS
BAL,R7     TAPEWAIT
```

B. PARAMETER LIST DESCRIPTION

same as for TAPEIO

C. RETURN CODES:

BYTE 0 of the user provided EVENT WORD is returned in bits 24-31 of R8

D. OTHER ENTRY POINTS - none

E. OCLC SUBROUTINES REFERENCED - none

F. OCLC PROCEDURES REFERENCED - none

APPENDIX E

ADDITIONAL PROCEDURE DOCUMENTATION

PURPOSE:

DTAGS establishes the parameters for the table 'TAGS' which assigns an index to each field to be used for all the other tables.

FORMAT:

```
     DTAG    AF(1)
```

EXAMPLE:

```
     DTAG           1
     DTAG           8
     DTAG           15

+    DATA,1         0
+    DATA,1         1          index for 001 field
+    DATA,1         0
+    DATA,1         0
+    DATA,1         0
+    DATA,1         0
+    DATA,1         0
+    DATA,1         0
+    DATA,1         2          index for 008 field
```

PROCEDURE DESCRIPTION

PURPOSE:

MSG established the parameters for the external subroutine 'MDBUPDLG'. The CNAME value of MSG is 1 and indicates to MDBUPDLG that a single message is to be logged. There are three alternate names for MSG.

HEX - has a CNAME equal to 2 and indicates that the message is to be converted to Hexadecimal

DEC - has a CNAME equal to 3 and indicates that the message is to be converted to EBCIDIC.

MEND - has a CNAME equal to 0 and indicates the end of the parameter list.

FORMAT:

```
     MSG      AF(1)
```

Example 1:

```
     MSG      MSG71
     HEX      ECH1
     MSG      MSG72
     MEND

+    GEN,8,24            1, BA (MSG71)
+    GEN,8,24            2, BA (ECH1)
+    GEN,8,24            1, BA (MSG72)
+    DATA                0
```

Example 2:

```
     DEC      ECV3
     MSG      MSG75
     DEC      ECV4
     MSG      MSG76
     MEND

+    GEN,8,24            3, BA (ECV3)
+    GEN,8,24            1, BA (MSG75)
+    GEN,8,24            3, BA (ECV4)
+    GEN,8,24            3, BA (MSG76)
+    DATA                0
```

VALIDATION PROCESSES PERFORMED BY OCLC ON THE MARC RECORDS

1. All data must be correct ASCII data.
2. The actual length of the record must equal the record length in the leader.
3. The Type of Record must be 'a' (lower case ASCII).
4. The Bibliographic Level must be 'm' (lower case ASCII).
5. 'BLANKS' (position 8-9 in the leader) must be blank.
6. The Indicator Count must be 2.
7. The base address of the data must be a multiple of 12 (leader = 24, Directory = 12).
8. The Subfield Code Count must be 2.
9. There must be a field terminator (X'1E') at the end of the directory.
10. There must be a record terminator (X'1D') at the end of the record.
11. Leader positions 18-19 must be all blank.
12. The Entry Map in the Leader must be all blank or be of the form '4500'.
13. There can be no more than 50 fields in a record.
14. The value of the tag can not exceed '340'.
15. The value of the tag must be in the following list of valid tags:

001	086	410	630
008	100	411	650
015	110	440	651
020	111	490	652
025	130	500	700
040	240	501	710
041	241	502	711
043	245	504	730
050	250	505	740
051	260	520	750
060	300	600	800
070	350	610	810
082	400	611	811
			840

16. The record is rejected if the LC card number is not all numeric.

17. The Record Status must be one of the following: D (delete), NC (new), C (corrected), or P (full replacing CIP). If it is not one of the above, the Record Status is changed to N (new) and a warning is logged.

18. The Encoding Level must be one of the following: 1 (sublevel 1), 8 (full replacing CIP), or blank (full level).

19. The record is rejected if the 001 field is not the first field in the directory.

20. The record is rejected if the 001 field is not at least 13 characters or is more than 30 characters long.

21. The record is rejected if the 008 field is not the second entry in the directory.

22. The record is rejected if the length of the 008 is not 41 characters including the field terminator.

23. The Type of Publication Date Code must be one of the following:

    s (date is known), c (consists of two dates), n (date is unknown), r (previously published), m (multiple date), q (one or more digits are missing).

24. The Country of Publication Code must be in the list of valid codes.

25. The Illustration Codes must be one of the following:

    a (illustration), b (maps), c (portraits), d (charts), e (plans), f (plates), g (music), h (facsimiles), i (coates of arms), j (geneologival tables), k (forms), l (samples), m (phono disc), ƀ = blank (no illustrations).

26. Elements 11-15 of the 008 field (Conference, Festscrift, Index, Main Entry, and Fiction Indicators) must be either 0 or 1.

27. The Government Publication Indicator must be 0.

28. The Form of Reproduction Code must be one of the following:

    a (Microfilm), b (Microfiche), c (Micropague), d (Large-print), ƀ = blank (not a reproduction).

29. The Intellectual Level Code must be either 'j' or ƀ = blank.

30. The Form of Content Codes must be one of the following:

    b (Bibliographies), c (Catalogs),
    i (Indexes), a (Abstracts),
    d (Dictionaries), e (Encyclopedias),
    r (Directories), y (Yearbooks),
    s (Statistics), h (Handbooks),
    p (Programmed Testbooks), or
    ƀ = blank (not a specified form).

31. The Language Code must be in the list of valid language codes.

32. The Cataloging Source Cdoe must be one of the following·

    a (National Agricultural Library),
    b (National Library of Medicine),
    c (Cooperative Cataloging), or
    ƀ = blank (Library of Congress

33. The Modified Record Indicator must be either d, s, x, or a blank.

34. The Biography Code must be one of the following:

    a (Autobiography), b (Individual),
    c (Collective), d (Contains biographical information),
    or ƀ = blank (not biographical).

35. The record is rejected if the directory has only 1 or 2 entries.

36. Every field must be at least five characters long.

37. The minimum byte length for the 020 field is 14.

38. The minimum byte length for the 025 field is 10.

39. The minimum byte length for the 040 and 043 fields is 12.

40. The minimum byte length for the 041 field is 11.

41. The minimum byte length for the 082 field is 6.

42. The minimum byte length for every other field (excluding 001, 008, 020, 025, 040, 041, 043, and 082 fields) is 7.

43. Check to see that fields 041, 050, 240, 241, 245, 260, 490, and 750 have a first indicator of 0 or 1.

44. Check to see that fields 110, 111, 410, 411, 505, 510, 611, 710, 711, 810, and 811 have a first indicator of 0, 1, or 2.

45. Check to see that fields 100, 400, 600, 700, and 800 have a first indicator of 0, 1, 2, or 3.

46. Check to see that the first indicator for every other field is a blank.

47. Check to see that the second indicator for the 100, 110, 111, 130, 400, 410, and 411 fields is a 0 or 1.

48. Check to see that the second indicator for the 700, 710, 711, 730, 740, and 750 fields is a 0, 1, or 2.

49. Check to see that the second indicator for the 600, 610, 611, 630, 650, 651, and 652 fields is a 0, 1, 2, 3, or 4.

50. Check to see that the second indicator for every other field is a blank.

51. Every field must begin with a subfield delimiter (X'1F').

52. Every field must end with a field terminator (X'FD').

53. Verify that the subfield codes for the 041, 050, 060, 070, and 250 fields are either 'a' or 'b'.

54. Verify that the subfield codes for the 051, 245, 260, and 300 fields are either 'a', 'b', or 'c'.

55. Verify that the subfield codes for the 100 field are either 'a'. 'b', 'c', 'd', 'e', 'k', or 't'.

56. Verify that the subfield codes for the 110 field are either a, b, e, k, or t.

57. Verify that the subfield codes for the 111 field are either a, b, c, d, e, g, k, or t.

58. Verify that the subfield codes for the 130 field are either a or t.

59. Verify that the subfield codes for the 400 and 800 fields are either a, b, c, d, e, k, t, or v.

60. Verify that the subfield codes for the 410 and 810 fields are either a, b, e, k, t, or v.

61. Verify that the subfield codes for the 411 and 811 fields are either a, b, c, d, e, g, k, t, or v.

62. Verify that the subfield codes for the 440 and 840 fields are either a or v.

63. Verify that the subfield codes for the 600 field are either a, b, c, d, e, k, t, x, y, or z.

64. Verify that the subfield codes for the 610 field are either a, b, e, k, t, x, y, or z.

65. Verify that the subfield codes are the 611 field are either a, b, c, d, e, g, k, t, x, y, or x.

66. Verify that the subfield codes for the 630 field are either a, t, x, y, or z.

67. Verify that the subfield codes for the 650 and 651 fields are either a, b, x, y, or z.

68. Verify that the subfield codes for the 652 field are either a, x, y, or z.

69. Verify that the subfield codes for the 700 field are either a, b, c, d, e, k, t, or u.

70. Verify that the subfield codes for the 710 field are either a, b, e, k, t, or u.

71. Verify that the subfield codes for the 711 field are either a, b, c, d, e, g, k, t, or u.

72. Verify that the subfield codes for the 730 field are either a, t, or u.

73. Verify that the subfield codes are 'a' for following fields:

(015	043	350	504)
(020	082	490	505)
(025	086	500	520)
(040	240	501	740)
	241	502	750)

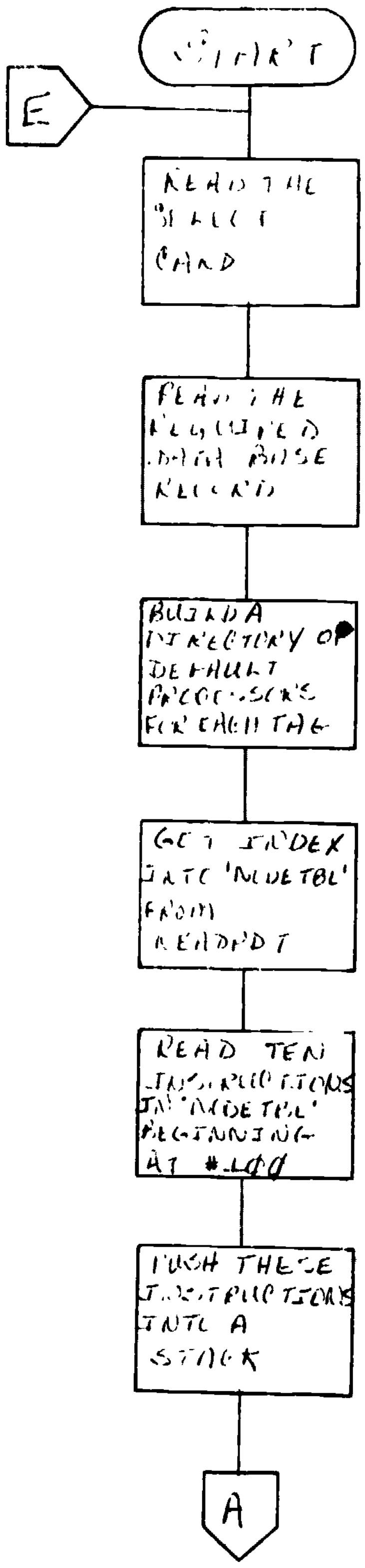
74. A field terminator must come directly before the record terminator.

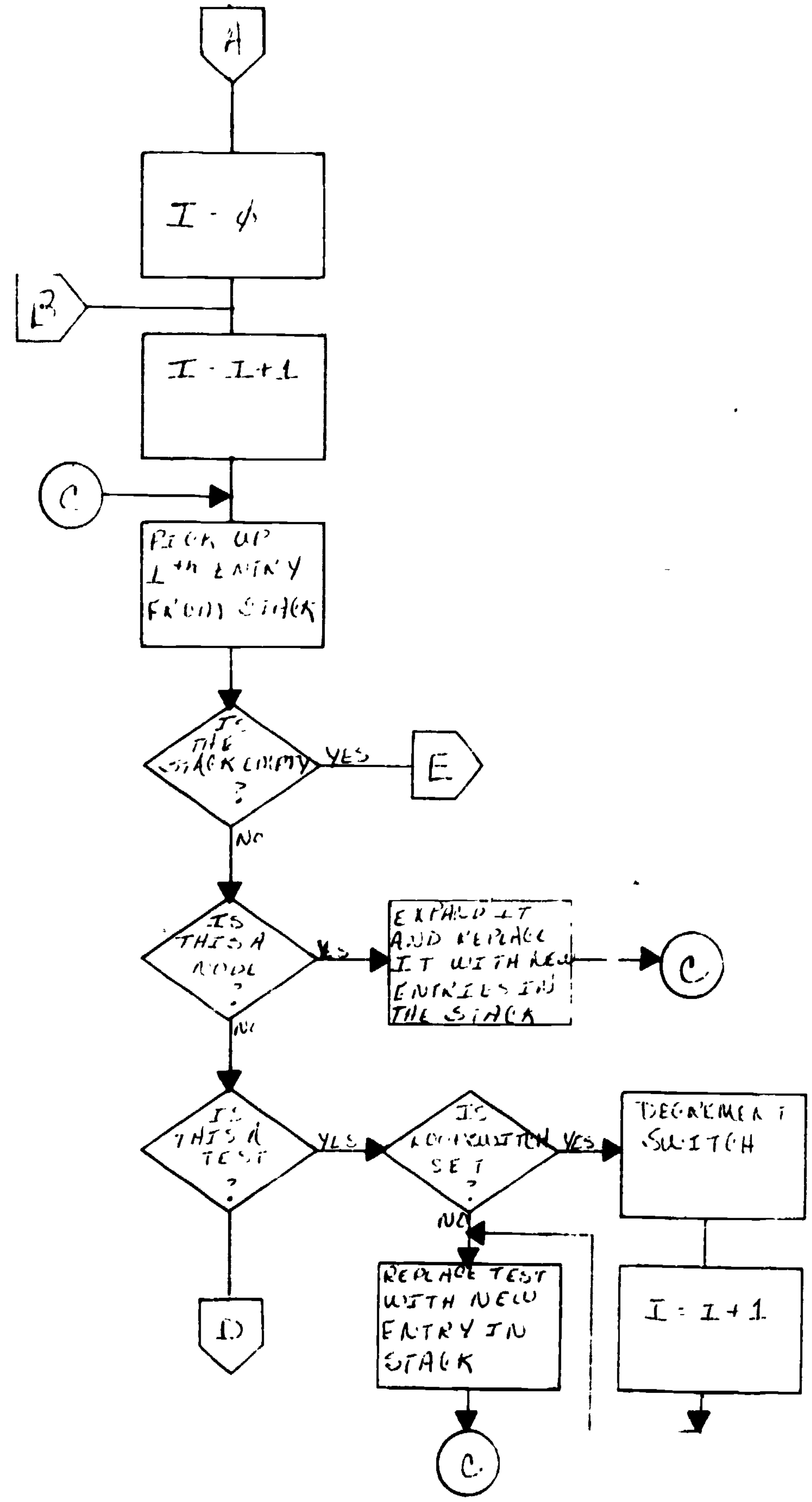
75. Verify that the 245 and 260 fields are present in every record.

76. Verify that the 025, 255, and all the fields from 400 to 840 do not occur more than 255 times in one record.

77. Verify that there are no more than two 050 fields in each record.

78. Verify that all the other fields (all fields from 001 to 350 except 025, 050, and 255) do not occur more than once in each record.


START
E
READ THE SELECT CARD
READ THE REQUIRED DATA BASE RECORD
BUILD A DIRECTORY OF DEFAULT PROCESSORS FOR EACH TAG
GET INDEX INTO 'MODETBL' FROM READPDT
READ TEN INSTRUCTIONS IN 'MODETBL' BEGINNING AT #100
PUSH THESE INSTRUCTIONS INTO A STACK
A


A
I = φ
B
I = I+1
C
PICK UP I th ENTRY FROM STACK
IS THE STACK EMPTY ?
YES
E
NO
IS THIS A NODE ?
YES
EXPAND IT AND REPLACE IT WITH NEW ENTRIES IN THE STACK
C
NO
IS THIS A TEST ?
YES
IS ... SWITCH SET ?
YES
DECREMENT SWITCH
I = I + 1
NO
REPLACE TEST WITH NEW ENTRY IN STACK
C
D