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Technical Report

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MECHANIZATION STUDY
OF THE TECHNICAL LIBRARY,
U. S. ARMY MAP SERVICE,
WASHINGTON, D. C.

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ABSTRACT

The Army Map Service (AMS) Library uses a Univac 1004 computer to produce map accessions lists and bibliographies from punched cards containing printed text. Also, data on a Map Reproduction (Repromat) File are punched onto cards and transferred to magnetic tape on a Honeywell H-800 computer. This tape is used to produce a high-speed printout of the Repromat Tabulation semiannually and a monthly listing to update the semiannual tabulation. It is felt that the mechanized Repromat File system should be modified in a number of ways for greater efficiency.

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I. SUMMARY

Mechanization of the Army Map Service (AMS) Library began in 1945. The original semiautomated system consisted of a card punch, a sorter, and a tabulator and employed 90-column punched cards. At present, these punched cards, containing printed text, make up several of the Library's card files and are used manually for reference purposes. These cards are also used to produce accessions lists and bibliographies, utilizing a Univac 1004 computer.

In 1963, data on the Map Reproduction File (Repromat File) were punched onto 80-column cards and transferred to magnetic tape on the Honeywell H-800 computer system. This tape is used to produce a high-speed printout of the Repromat Tabulation semiannually and a monthly listing to update the semiannual tabulation.

The Repromat File consists of more than 120,000 map sets. There is one set of repromat per map sheet; each set averages 10 pieces of photographic film. The films that make up the Repromat File depict mapping features and are used primarily to make lithographic press plates for the production of maps. The map collection contains some two million maps with an annual increase of approximately

21,000. The Library's book collection consists of approximately 75,000 books with an annual growth of 9,000 volumes. The collection is cataloged by using the Library of Congress classification scheme and a modified 3 x 5 card format. Periodical subscriptions number 1,500 with no noticeable increase, since cancelled subscriptions usually equal the number of new titles added per year. The Document Library collection, although new, numbers 25,000 to 30,000 items with an expected annual growth of 22,000.

II. MECHANIZATION

I. CHRONOLOGY

In 1945, AMS completed the conversion of all maps to a 90-column punched card catalog system.

In 1959, periodical titles were transferred to punched cards which were used to mechanically produce a current list of periodicals received at AMS.

In 1963, a Command Improvement Plan recommended the study of automatic data processing applications to library-type operations, beginning with the Repromat File. A target date of 1964 was established for implementation of recommendations resulting from this study. The Department of Computer Services feasibility study was completed in August, and conversion of the Repromat File to magnetic tape was begun. The system began operation in the fall.

In 1965, AMS began punching onto cards data on books and reports for a Master Authority File.

2. DESCRIPTION OF MAPS PROCESSES

(1) Input Procedures

1. One to ten copies of maps are received; one copy goes to the Reproduction Unit for inclusion in the Repromat File; outside distribution is made (if required), and the Cataloging Section receives up to five copies.
2. Maps are separated by area and placed in catalogers' bins. (Three geographical areas are involved.)
3. Catalogers pick up, check for duplicates, authorities, etc.
4. Data sheets are completed (see Appendix B) and are sent to the Accessioning Unit.
5. Accessioning Unit adds accession number to worksheets and maps and forwards worksheets to Computer Services. (Maps are forwarded to the files.)
6. Cards are keypunched and interpreted in Computer Services and are returned to the Records Unit.

(2) Outputs

Punched Cards

Punched cards and worksheets are returned from Computer Services and proofread. Cards are filed in one or more of the following files: Area; City Plan Area; Authority; Special Service Negative; Army Map Depository (copy of cards on maps going to Depository); Change of Call Number; Scale; City Plan; and Map Series.

Punched cards are prepared in various colors to indicate the type of card and the file for which each card is intended. The cards are punched, using an alphanumeric code. The plain text translation of the punch code is simultaneously printed on the cards. This is done to allow the cards to be used for manual searches. Designations are preprinted on the cards to show the kind of information that must be entered into each field. Reference to code lists is necessary to interpret most of the information, but frequent users of the files soon become familiar with the codes for areas, subjects, and authorities of most interest to them.

There are two types of cards used: A and B (see Appendix B for samples.) A type A card is made for every copy of each sheet in the collection. The type B card gives only the data common to all sheets of one call number. The call number consists of the geographic area, type of map, primary subject classification, producing authority, and scale, in that exact order. For example, a topographic map of France, produced by the AMS at a scale of 1:500,000, would have the call number 006M01300090000000500000. In this number, 6M represents France, 01 indicates a general map, 3000 is the classification number for topographic information, 90000 is the code number for AMS, and 000500000 represents the scale of 1:500,000.

Accessions Lists

Every two weeks an accessions list is prepared from the punched cards for new maps. This is distributed to AMS personnel and outside agencies on the distribution list.

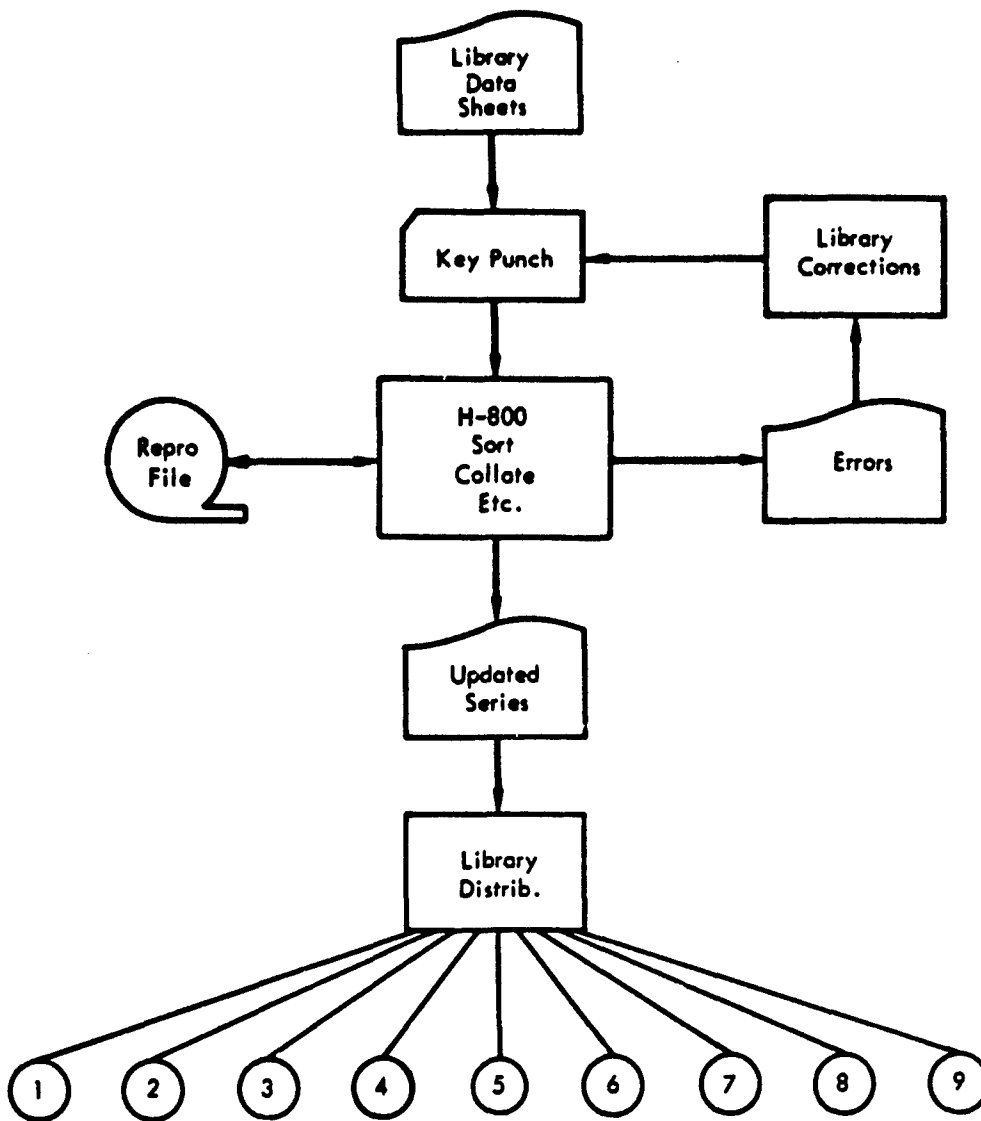
Map Searches

Authorized users may request bibliography searches either verbally or in writing. Cards are pulled by the Library staff and are sent to Computer Services, where a printout is made. All copies of the printout are forwarded to the requester. Appendix C is a copy of a partial printout of a search for all available maps on Thailand.

3. DESCRIPTION OF MAP REPRODUCTION TABULATION PROCESSES

The AMS Repromat Tabulation provides a current list of all Repromats held in the Library. A complete tabulation is produced semiannually that lists all known sheets of a map series and indicates those for which AMS holds Repromats. In addition, a listing updating the basic tabulation is produced monthly.

The mechanization of the Repromat File is described in the flow diagram of Figure 1.



Errors

1. Repro
2. MAD
3. D/GAD
4. Library Hdqtrs
5. Collection
6. AMDEP
7. P & P
8. USAREUR
9. USAMSFE

1. No card type designated
2. Action code undefined
3. Item to be deleted is not in file.
4. Item to be updated is not in file.

FIGURE 1
Library Map Reproduction Material
Tabulation

(1) Input Procedures

Input data sheets are prepared in the Library, containing all the data that are to be entered into the file. Copies of the data sheets and instructions for their completion are shown in Appendix D. The input data are then forwarded to Computer Services, where 80-column cards are punched directly from the data sheets, since the card format and data sheet format are identical.

The punched cards are then processed on the H-800 computer to produce a magnetic tape. The data are first sorted by series number and sheet number and then are collated with the Master Repromat File. An error listing is produced for illogical items and cards that have omissions. The error listing is sent back to the Library so that corrected cards may be produced. A printout for those map series that have been modified is then produced and is sent to the Library for distribution.

(2) Output

The output data consists of an 80-column printout of those map series that have been modified. Separate pages are produced for each map series so that the initial printout may be updated by replacement of the corresponding page. Appendix E contains a

sample of the printout format, together with an explanation of the column headings and codes used. Because of the number of copies required, the printout must be run off twice.

4. DESCRIPTION OF BOOKS PROCESSES

Mechanization for books is limited to the Authority File, which is maintained on punched cards for the present. Beginning with the "A's" and proceeding through the alphabetical files, author and source authorities are being entered on worksheets. Approximately 1,000 entries have been processed in the "A's."

Worksheets are completed as follows (see Appendix F for samples of worksheets):

<u>Label</u>	<u>Columns</u>
Code number of authority	1-6
Country abbreviation	8-9
Title or name of authority	12-59
Cross-reference	62-71
Alphabetizing code	73-79

Worksheets are forwarded to Computer Services for keypunching onto 80-column cards. No formal printout of this file has been made.

5. DESCRIPTION OF PERIODICALS PROCESSES

(1) Input Procedures

1. New periodicals are received in the Library.
2. Worksheets are completed as follows (see Appendix G-1 for sample of worksheet):

<u>Label</u>	<u>Columns</u>
Title	1-45
Alphabetizing code	46-51
Texts: 1st	52-53
2nd	55-56
Frequency	58
Retention	60
Areas: 1st	62-65
2nd	67-70
Subject codes:	
1st	71-72
2nd	73-74
Subjects written or abbreviated (up to three)	75-89

3. Subjects are selected from a list of 99 items.
4. Worksheets are forwarded to Computer Services for keypunching.

(2) Output

A list of periodicals currently received in AMS is issued once a year in two parts. The first part is alphabetical; the

second is by subject (see Appendix G-2 to G-4 for examples and instructions). The most recent issue was printed from the punched cards utilizing the Univac 1004 computer. In the future, this file will be transferred to magnetic tape.

6. MAJOR PROBLEMS

As a result of the experience gained since 1963, it is now felt that several areas of the mechanized Repromat File System should be modified. Examples of those areas for which modifications are being considered follow.

The tabulation for each series includes sheets that are not in the inventory. This was done to indicate the contents of the complete map series. It has proved to be a problem from the standpoint of added volume and increased time required for the monthly update.

Any action within a series of maps gives a complete revision of each series. This saves time during the monthly manual correction of the tabulation by allowing a one-for-one page replacement. However, it is primarily responsible for the long printout time required on the high-speed printer.

Printouts of a series include an asterisk to indicate that some action has been taken on an item (i. e. , additions, deletions, revisions);

however, no indication of the type of action is given. This is especially troublesome in the case of deletions.

More identifying information is included in map series printouts than is needed. The map series and number of sheets would have been sufficient. (See Appendix C.)

In order to obtain a printout of an entire series, a particular sheet within the series must be identified. A program for the printout of the entire series would have been of greater benefit.

In order to cancel a series, each sheet number within that series must be identified.

A printout of a specific series can be given, but a computer search cannot be made.

Complete program documentation was not provided.

III. PROGRAM SYSTEM DATA

The Repromat File consists of photographic films that depict mapping features and that are primarily used to make lithographic press plates for the production of maps. The Library originally maintained control of the repromats by using the 90-column punched card file, which contained approximately 130,000 cards. The Repromat File was converted to magnetic tape for use on the AMS Honeywell H-800 series computer in 1963. The conversion was performed by examining and manually recataloging, on new data sheets, every item in the repromat library (120,000 repromat sets--approximately 1,200,000 film pieces). In this way, the magnetic tape file was built up without causing any inconveniences either to the Library or to the Computer Services group. The Library continued to use the 90-column card file until the magnetic tape system was placed in operation.

The computerized Repromat File is arranged by map series numbers and sheet numbers or sheet names; a new series number starts a new page. Whenever a change occurs in a series (repromat added, revised, or deleted), all pages containing the particular series are reprinted. An asterisk to the left of the sheet number or name will

identify the sheet affected. Maintenance of the basic tabulation is performed by manually substituting the new pages for the old.

The program system is depicted in the flow charts of Figure 2. The flow charts describe the main body of the program and do not include the input, presort, and sort routines required before the start of this section of the program. The program reads and compares each item on the master and input data files; performs the necessary operations of addition, deletion, or substitution; and prepares a new master file tape and an output tape to be used for printing and replacement pages for the Repromat Tabulation.

1. FILE

The primary key in the magnetic tape file is the map series number. The secondary key is the map sheet number or sheet name. Map sheet numbers exist in a variety of forms and are more commonly used than names. (Some sheet numbers are Arabic numbers, some are Roman numerals, and others are a combination of both.) The form of a sheet number is constant within a series but may be different from one series to the next. There are approximately 1,200 series in the file.

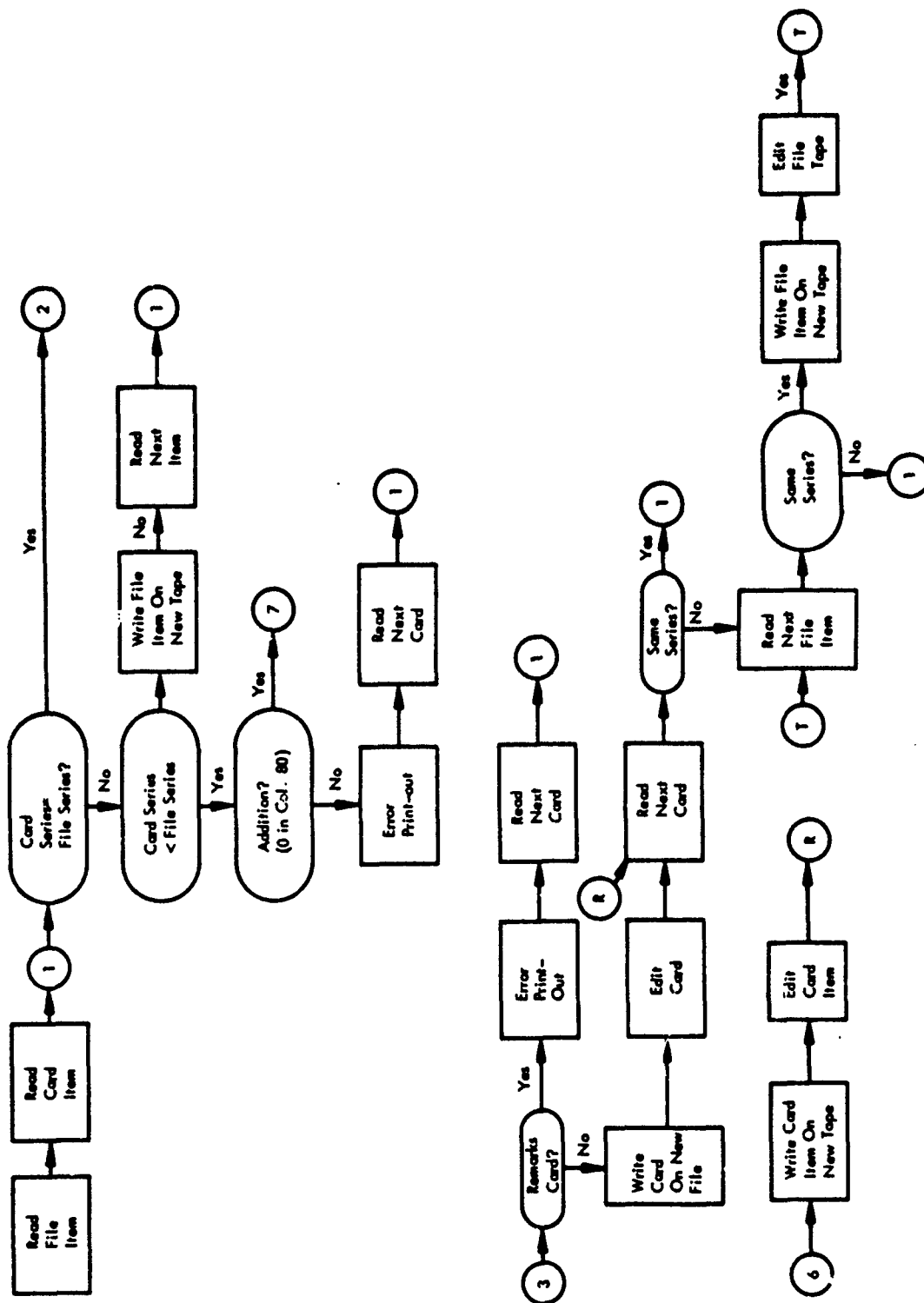
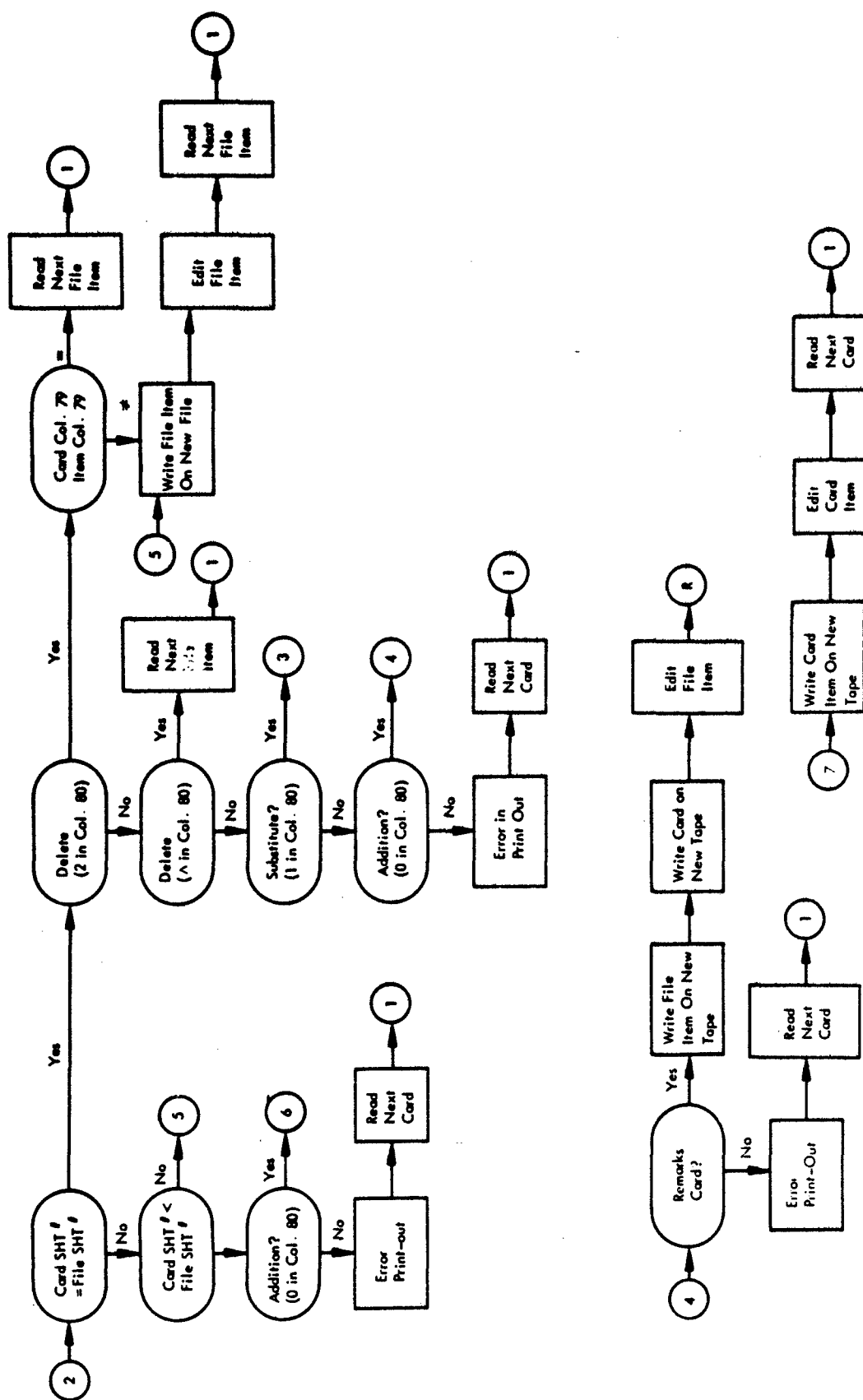


FIGURE 2
Program System-- Map Reproduction Tabulation



System Flow Chart

FIGURE 2 (Continued)

The data entries in the file are arranged by "item". Each item contains all the information associated with a single map series number. This information is categorized into words, and there are 14 words per item. There are two possible formats for each item, as follows:

Format I

<u>Word</u>	<u>Character Format</u>	<u>Explanation</u>
1	SSSSSSNN	
2	NNNNNNNN	S's = Series number
3	NNNNNNNN	N's = Sheet names or number
4	NNNNNNNN	
5	SAAADDDO	S = Security, A's = Agency, D's = Data, O = Omaha
6	MMKKKKKK	M's = Material
7	KKKKKKKK	K's = Number and kind of
8	KKTTEEEE	material
9	RRRRRRRR	T's = Total, E's = Edition
10	RRRRRRRI	R's = Remarks, A = Action I = Data Card Image
11	SSSSSSNN	
12	NNNNNNNN	Same as words 1-4 with
13	NNNNNNNN	spaces suppressed to
14	NNNNNNNN	zeros (used as sort keys)

Format II

<u>Word</u>	<u>Character Format</u>	<u>Explanation</u>
1	SSSSSSNN	
2	NNNNNNNN	S's = Series Number
3	NNNNNNNN	N's = Sheet name or number
4	NNNNNNNN	
5-9	RRRRRRRR	R's = Remarks
10	RRRRRRZA	Z = Detail card image
		A = Action
11	SSSSSSNN	
12	NNNNNNNN	Same as words 1-4 with
13	NNNNNNNN	spaces suppressed to
14	NNNNNNNN	zeros (used as sort keys)

There are 17 items per record. The file identification record must not exceed 242 words in length. The tape is sorted on ascending words: 11, 12, 13, 14. Maintenance of the file involves approximately 500 cards per month. (The printout, however, will have approximately 15,000 line items.)

2. PROGRAMS

There are six major programs that may be identified within the file maintenance program. Because of the lack of complete program documentation at present, the ensuing descriptions must be general in nature.

(1) Input

This run places all punched card input data onto magnetic tape.

(2) Presort

This run rearranges the punched card input data into the word format previously indicated under the file description.

(3) Sort

A modified Honeywell H-800 sort run is employed to sort each item on the input tape in ascending order, using the keys provided by words 11-14. The items are therefore arranged by ascending series number and within each series by ascending sheet number or alphabetic characters (if sheet name is used).

(4) Collate

The collate run is the main body of the program. It compares the master file and the sorted input file; makes the necessary deletions, substitutions and additions; and forms a new master file. It also prepares an output tape to be used for printing the revised pages for the Repromat Tabulation.

(5) Error

If, during the update or collating run, a logical error is discovered (e. g. , an item to be updated does not exist in the master file), an error printout will indicate the card that caused the error and will identify the error condition. The run is not stopped by these errors, and the erroneous information is disregarded by the computer.

(6) Edit

The edit run converts the format of the data on the output tape to the format required for printing. The edit or print format is as follows:

<u>Header</u>	
<u>Columns</u>	<u>Heading</u>
2-7	Series
11-30	Sheet number or name
38-40	Sec
42-47	Agency
49-52	Date
54-55	OM
57-59	Mat
62-86	Number and kind of sheets
93-97	Total
99-105	Edition
109-115	Remarks

Data Line--Type 1

<u>Columns</u>	<u>Data</u>
2-7	Series number
11-36	Sheet number or name
39	Security code
43-45	Agency
50-52	Date
55	At Omaha
58-59	Material
62-92	Number and kinds of sheets
95-96	Total
100-103	Edition
106-119	Remarks

Data Line--Type 2

<u>Columns</u>	<u>Data</u>
1-40	Spaces
41-88	Remarks
89-120	Spaces

Appendix E-1 shows a sample of a printed page.

IV. EQUIPMENT AND COSTS

1. REPROMAT FILE

The system employed for automatic data processing of the Repromat File makes use of the electronic data-processing equipment available at AMS in the Department of Computer Services. None of the equipment is owned or operated by the Library. The Library is charged \$250/hour for use of the H-800 computer, \$15/hour for the high-speed printer, and \$8.10/hour for the use of card-handling equipment. Cost of materials used is also charged to the Library. The following are representative monthly operating costs:

Card punching, verifying, etc. (400 cards/mo, 7 hr at \$8.10)	\$ 57
Card to tape and update (1 hr/mo at \$250)	250
Printout (400 pages/mo-- 2 runs--4 hr/mo at \$15)	60
Materials (cards and printpaper)	<u>24</u>
Monthly operating cost (average)	\$391/mo

In addition, services amounting to one full-time cataloger in the Library are required for preparation of the input data sheet and other

duties concerned with the Repromat File. Thus, the cost of the automatic data-handling portion of the system is only a fraction of the cost of the Library catalogers.

The initial one-time costs involved in converting the system were estimated as follows:

Cataloging	\$ 62,600
Keypunching, verification, etc.	15,390
Card-to-tape conversion	2,170
Printing	80
Programming	920
Applications analysis	<u>1,300</u>
Total	\$ 82,460

The conversion required the services of 10 catalogers full time for one year plus 1,600 hours overtime.

2. MAP FILE

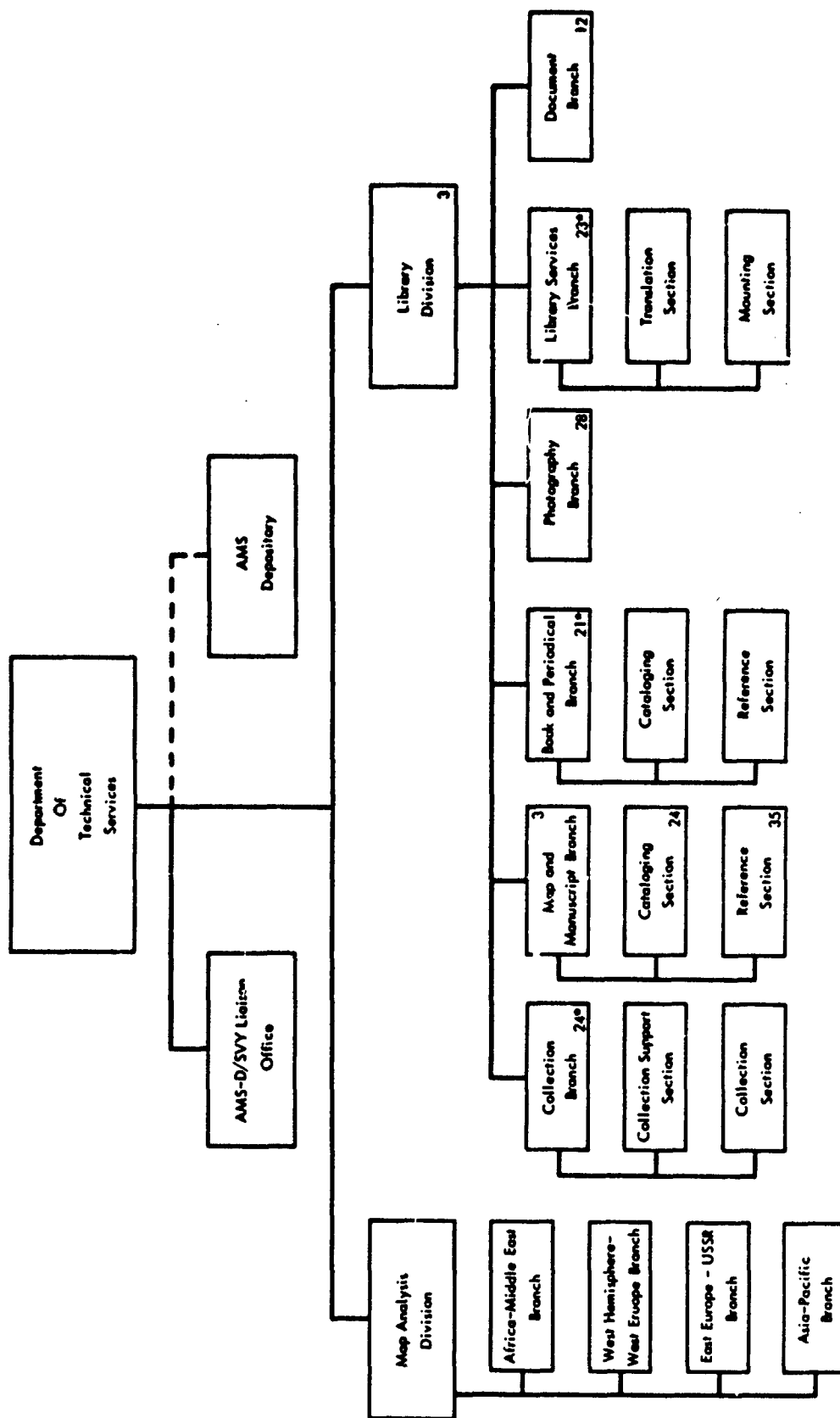
The maintenance of the map card file during Fiscal Year 1965 involved cataloging 88,228 maps, recataloging 15,306 maps, and canceling 67,317 maps. Representative monthly operating costs are as follows:

306 Remington keypunch (250 hr/mo)	\$ 2,025
312 Remington interpreter (25 hr/mo)	203
315 Remington reproducer (20 hr/mo)	162
420 Remington sorter (20 hr/mo)	<u>162</u>
Total	\$ 2,552

The above does not include the cost of the Library personnel who prepare the input data sheet, assign accession numbers, file punched cards, etc. The major portion of the time of 23 catalogers is spent on these tasks.

In addition, an Accessions Bulletin that indicates the new and revised maps in file is printed twice monthly using the Univac 1004. Approximately 70 Bulletins are produced at each printing, with an average over the year of 100 pages per Bulletin.

APPENDIX A
ORGANIZATION CHARTS



• Represents total number of personnel in entire branch

Army Map Service Organization Chart

APPENDIX B
MAPS PROCESSING

AREA	TYPE	SUBJECT	AUTHORITY	SCALE
1	5	7	11	10
2	5	7	11	10
3	5	7	11	10
4	5	7	11	10
5	5	7	11	10
6	5	7	11	10
7	5	7	11	10
8	5	7	11	10
9	5	7	11	10
10	5	7	11	10
11	5	7	11	10
12	5	7	11	10
13	5	7	11	10
14	5	7	11	10
15	5	7	11	10
16	5	7	11	10
17	5	7	11	10
18	5	7	11	10
19	5	7	11	10
20	5	7	11	10
21	5	7	11	10
22	5	7	11	10
23	5	7	11	10
24	5	7	11	10
25	5	7	11	10

MAP CARD

A CARD CROSS REFERENCE

CATALOG DATA SHEET (CARD-A & B)
SERIES

REMARKS	
---------	--

MAP CARO B

EXACT TITLE										SERIES NUMBER & MISC CROSS REFERENCES										AREA, SUBJECT, FOLDER - X - REF		TEXT																																																				
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

MAP CARD A

SHEET NUMBER OR NAME						NEGATIVE NO.		SIGNIFICANT DATE		SOURCE	DESCRIPTION			SECONDARY AUTHORITY	ACCESSION NUMBER	PRINTING DATE	ACC DATE	
											1	2	3					
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	
82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	
100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	
118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	
136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	
154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	
172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	
190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	
208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	
226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	
244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	
262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	
280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	
298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	
316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	
334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	
352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	
370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	
388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	
406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	
424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	
442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	
460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	
478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	
496	497	498	499	500	501	502	503	504	505									

~~SECRET~~

[illegible]

CATALOG DATA SHEET CARD--A

URBAN AREAS -- GENERALS--PARTS--MISC

ACCESSION DATE

[illegible]

AMS FORM 3420-11

DATE ACQUISITION OF 1878 IS WHICH MAY BE USED

[illegible]

APPENDIX C
MAP SEARCH PRINTOUT

GENERAL MAPS

02

SL 01 2450 85040 2000000
 THE SHELL ROAD MAP OF THAILAND
 85040 SHELL OIL COMPANY INC NEW YORK

ENGL AND THAI

50

SHEET	EDITION	DATE CODE	SEC AUTH	PRINT DATE	SEC CODE
THAILAND		P1963 L		1963	

GENERAL MAPS

SL 01 2450 85043 2300000/2
 ROAD MAP BANGKOK THONBURI AND THAILAND
 85043 CALIFORNIA TEXAS OIL COMPANY LIMITED

THAI

CT

SHEET	EDITION	DATE CODE	SEC AUTH	PRINT DATE	SEC CODE
THAILAND		1964 L		1964	

SERIES MAPS

SL 03 3000 90000 50000

THAILAND
THAILAND

AMS L708 S

0

THAI ENGL
3UENGL

0

90000 ARMY MAP SERVICE

AM

SHEET	EDITION	DATE CODE	SEC AUTH	PRINT DATE	SEC CODE
5864 II	1	M1963 L	90052	0364	
5963 III	2	M1964 L	90052	0664	

URBAN AREAS

SL 41 2900 85040 12500

MAP OF BANGKOK

N1345E100310520000 ENGL AND THAI

85040 SHELL OIL COMPANY INC NEW YORK

50

SHEET	EDITION	DATE CODE	SEC AUTH	PRINT DATE	SEC CODE
BANGKOK THAILAND		0164 L		0164	

APPENDIX D

**INPUT PROCEDURES
MAP REPRODUCTION TABULATION**

LAYOUT FORM - 80 COLUMN CARD

Series	Name or Number	SECURITY	AGENCY	DATA	DATE	NUMBER AND KIND OF REPRODUCTION MATERIAL	EDITION	REMARKS	CARD TYPE	ACTION
1	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
2	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
3	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
4	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
5	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
6	7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
7	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
8	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
9	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
0	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
1	12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
2	13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
3	14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
4	15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
5	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
6	17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
7	18 19 20 21 22 23 24 25 26 27 28 29 30 31 32									
8	19 20 21 22 23 24 25 26 27 28 29 30 31 32									
9	20 21 22 23 24 25 26 27 28 29 30 31 32									
0	21 22 23 24 25 26 27 28 29 30 31 32									
1	22 23 24 25 26 27 28 29 30 31 32									
2	23 24 25 26 27 28 29 30 31 32									
3	24 25 26 27 28 29 30 31 32									
4	25 26 27 28 29 30 31 32									
5	26 27 28 29 30 31 32									
6	27 28 29 30 31 32									
7	28 29 30 31 32									
8	29 30 31 32									
9	30 31 32									
0	31 32									
1	32									
2										
3										
4										
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1										
2										
3										
4										
5										
6										
7										
8										

LAYOUT FORM - 80 COLUMN CARD

Series	Name or Number	Remarks
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
22	22	22
23	23	23
24	24	24
25	25	25
26	26	26
27	27	27
28	28	28
29	29	29
30	30	30
31	31	31
32	32	32
33	33	33
34	34	34
35	35	35
36	36	36
37	37	37
38	38	38
39	39	39
40	40	40
41	41	41
42	42	42
43	43	43
44	44	44
45	45	45
46	46	46
47	47	47
48	48	48
49	49	49
50	50	50
51	51	51
52	52	52
53	53	53
54	54	54
55	55	55
56	56	56
57	57	57
58	58	58
59	59	59
60	60	60
61	61	61
62	62	62
63	63	63
64	64	64
65	65	65
66	66	66
67	67	67
68	68	68
69	69	69
70	70	70
71	71	71
72	72	72
73	73	73
74	74	74
75	75	75
76	76	76
77	77	77
78	78	78
79	79	79
80	80	80

Title	
Prepared By	For Program
By Programmer	Checked By
Modification	Date
Remarks	

Data Sheet Completion Instructions

In order to prepare data sheets for use as input information, certain basic knowledge of the requirements and limitations of the computer is required. The printout will furnish only information that is put into the computer. As long as the information is routine, the computer operates without any specific instructions. For any information placed in the computer contrary to the normal routine or contrary to its normal sequence, it must be instructed by means of a "flag" appearing in a predetermined column. In this instance, columns 79 and 80 of the data sheet will be reserved for this purpose. The flag is an assigned letter or number which gives instruction to the computer. A list of the assigned flags and their duties appears at the end of this SOP.

The sequence of the computer is 0 thru 9, A thru Z. This being the case, all continental would appear on a printout before any of the alphabetical series. Since this holds true in all areas of the printout, it must be foremost in the cataloguers mind when placing information on the data sheets. Further consideration is given to sequence under Sheet Names or Number.

The allotment of spaces on the data sheet is as follows:

	<u>Spaces</u>	<u>Total</u>
Series	6	
Sheet Name or No.	26	32
Security	1	33
Agency	3	36
Significant Date	3	39
Omaha	1	40
Material	2	42
Pieces	16	58
Total Pieces	2	60
Edition	4	64

The Repromat Files are presently arranged in Series and Sheet Number order. It is desired to continue with this system, consequently, accuracy is of utmost importance in the arrangement of information in the first 32 spaces. These spaces are for the series and sheet number and are the computer's instruction for arranging in order.

Each item appearing on the data sheet is explained in detail below:

a. Series - Spaces 1 thru 6.

The series will be placed on the data sheet, beginning with space one and using as many of the six spaces as required. No blank spaces should appear between the beginning and end of a series identification.

b. Sheet Name or Number - Spaces 7 thru 32.

The sheet name will undoubtedly create the most difficulty and require the most care by the cataloguers. The sheet numbering system for each series will have to be considered before placing on the data sheets. The cataloguer must keep in mind that any time a space is left immediately preceding a zero, the printout will drop the zero. The reason for this is so that when a file is arranged in straight numerical order, the zeros preceding the unit will be dropped. It would appear on the data sheet as follows:

001
002
009
010
012
010
111

The same sheets would appear on the printout as follows:

1
2
9
10
12
101
111

If the numbering system continued into thousands, an additional zero must be added in front, etc. Since the zeros are not desired on the printout but are used to fill the field, it is necessary to leave a space preceding the field. Consequently, space 7 should not be used.

Some of the series (e.g. M841) have sheet numbers beginning with zero: 0810, 0820, etc. The field for these numbers should begin at column 7 so the zeros would not be omitted.

D-3 (continued)

Sheet numbers such as 240 085 in Series K835 must utilize a slant, 240/085 in order to retain the 0 in 085.

Roman numerals are often used as a sheet numbering system such as M761. Since the computer treats the roman numeral as a letter, it requires special treatment. Place Z's in the first two columns (Column 7 and 8) of the name field. The arabic number equivalent recorded in the next columns, filling any spaces between the number and the Z's with zeros. Example:

ZZ001
ZZ011
ZZ111

The sheet number as it normally appears in roman numerals form should be recorded, beginning with column 65.

c. Security - Space 33.

The security codes presently in use by the map library will be used for reproduction material as well.

d. Agency - Spaces 34 thru 36.

This will not change from the policy used on the 90 column card.

e. Significant Date - Spaces 37 thru 39.

No change from old policy.

f. Omaha - Space 40.

Tabs will be received from Omaha of their coverage and will be the sole authority for indicating coverage.

g. Material - Spaces 41 and 42.

A new code has been devised to indicate the type of material reported:

<u>Material</u>	<u>Code</u>
PBN	N1
TBN	N2
VBN	N3
PBP	P1
TBP	P2
VBP	P3
AP	P4
PP	P5

D-3 (continued)

h. Pieces - Spaces 43 thru 58.

It will no longer be necessary to indicate the letter code when listing the pieces, only the number of pulls for each feature in the proper column. The letter code will be programmed into the computer. An additional space was allotted to Miscellaneous (N), to be used when more than 9 pulls are held on one feature. For instance, a set has 11 tints, indicate 9 under tints (R) and list the other two in Miscellaneous. The letter "M" should be used if a pull is missing from a set.

i. Total Pieces - Spaces 59 and 60.

No change in procedure.

j. Edition - Spaces 61 thru 64.

No change in procedure.

Spaces 65 thru 78 are reserved for clarification of sheet name or number or for a plain language explanation of some other feature recorded on the data sheet. At the present time, the only use that comes to mind is for recording the roman numeral sheet numbering system as referred to earlier.

Additional use will be made of the spaces, I'm sure, when we become involved in the actual recording procedure.

In some instances, the regular line map and plastic model utilize the same pulls that are common to both sets. The features that are used to compile both series should be recorded on the data sheets under both sheets, even though there may be only one set of repro. In filing the material, those pulls that are common should be filed with the line map. The folder containing the pulls for the plastic model only should have a note attached: "See line map for remainder of repro."

When it becomes necessary to place additional information on a detail card (information beyond column 80), the same data sheet will be used. The first 32 columns will be prepared exactly as on the header card. The detailed information can then be recorded in plain language, beginning with Column 33. The proper flags must be recorded in Columns 79.

D-3 (continued)

Listed below are the flags which will serve to instruct the computer:

Card Column 79 will indicate the type of card
Code

- 0 - Repro data card (header)
- 1 - Remarks card (detail)

Card column 80 will indicate the action to be taken
0 - File the Card

- 1 - Up-date information already in file
- 2-a. Delete all cards of the type indicated in
column 79 of the indicated series and sheet.
- b. No punch in column 79, delete all cards of the
indicated series and sheet.

APPENDIX E

**MAP REPRODUCTION TABULATION PRINTOUT
FORMAT AND EXPLANATION**

Map Reproduction Tabulation Printout Format

SERIAL	SHEET NUMBER OR NAME	SEC AGENCY	DATE	CM	WAY	NUMBER	AND KIND	OF SHEETS	TOTAL EDITION	REMARKS
1301	ICELAND SPECIAL	AMS	M52	X	I.I	1A	IDIEIF	1M	1N	9R 15 4AMS
1301	NA 1	AMS	V52	X	A1	1A	10 1P	1M	7N	9R 20 1AMS
1301	NA 4	AMS	V58	X	N1	1A	1P	1M	1G	4 1AMS
1301	NA 5	AMS	V52	X	N1	1A	1P	1M		3 1AMS
1301	NA 17	AMS	V43	X	N1	1A	1E1F	1M	1K	7R 12 1AMS
1301	NA 18	AMS	V48	X	N1	1A	1E1F	1M	1K	5R 10 1AMS
1301	NA 19	CNG	M50	X	N1	1A	1P			2 NONE
1301	NA 20	AMS	M60	X	N1	1A	102E1F1G1H		2N	9R 18 2AMS
1301	NA 21	AMS	M56	X	N1	1A1B	1D1E2F	2M	1K	2P 11 2AMS
1301	NA 22	AMS	M56	X	N1	1A1B	1D1E1F	1M1J1K	1P	2R 11 3AMS
1301	NA 26	AMS	M56	X	N1	1A	1P	1F	1M	2N 1C9R 16 3AMS
1301	NA 32	AMS	M63	X	N1	1A	1D1E1F	1M1J	1N	109R 17 4AMS
1301	NA 33	D-S	P56	X	I.I	1A	1D1E1F1G1H	1K	2R	9 3GSG
1301	NA 34	D-S	P56	X	N1	1A	1D1E1F	1M	1R	6 3GSG
1301	NA 35	D-S	M43	X	I.I	1A	1D1E			3 1GSG
1301	NA 36	AMS	M57	X	N1	1A	1D1E2F	1M	1N1P	9R 17 5AMS
1301	NA 37	D-S	V54	X	N1	1A	1D1E1F	1M	1K	2R 8 5GSG
1301	NA 38	AMS	M44	X	N1	1A	1D1E1F	1M	1K	6R 12 3AMS
1301	NA 43 SA 43	AMS	M44	X	N1	1A	1D1E1F	1M	1K	8R 14 3AMS
1301	NA 46	AMS	M44	X	N1	1A	1D1E1F	1M		8R 13 3AMS
1301	NA 47	AMS	M57	X	N1	1A	1D1E2F	1M	1N1P	9R 17 5AMS
1301	NA 48	D-S	V54	X	N1	1A	1D1E1F	1M	1K	2R 8 5GSG
1301	NA 49	AMS	M44	X	N1	1A	1D1E1F	1M	1K	6R 12 3AMS
1301	NA 50	AMS	M44	X	N1	1A	1D1E1F	1M	1K	8R 14 3AMS
1301	NA 51	AMS	M44	X	N1	1A	1D1E1F	1M		8R 13 3AMS

DESCRIPTION OF REPROMAT PRINTOUT

A brief description of the Series Number, arrangement of the tabulation, and a key to the codes used are explained in the following paragraphs.

1. SERIES NUMBERING SYSTEM

The world is divided into continental and regional areas which are designated by numerals and/or letters.

The series number consists of four elements as follows:

- . First element--a numeral or letter identifying the continental or regional area in which the series occurs
- . Second element--a numeral indicating either the scale or a city plan or photo map
- . Third element--a numeral identifying the subregional area in which the series occurs
- . Fourth element--a numeral giving unique identification to the series

The first element of a series number is selected as follows:

- . A world series is assigned the numeral 1
- . A small scale map covering a continental or regional area is assigned a numeral (e. g. 2-Africa, 3-Antarctica, etc.)
- . For medium and large scale maps of continental areas, a letter is assigned (e. g. A-Canada, E-Latin America, S-Philippine Islands, etc.)
- . The Index to Regional Areas shows the assignment of numerals and letters to the regional areas.

E-2 (continued)

The second element of a series number is selected as follows:

<u>SCALE GROUP</u>	<u>SECOND ELEMENT</u>
1:5, 000, 000 and smaller	1
Larger than 1:5, 000, 000 to 1:2, 000, 000	2
Larger than 1:2, 000, 000 to 1:510, 000	3
Larger than 1:510, 000 to 1:255, 000	4
Larger than 1:255, 000 to 1:150, 000	5
Larger than 1:150, 000 to 1:70, 000	6
Larger than 1:70, 000 to 1:35, 000	7
Larger than 1:35, 000	8
City Plans (regardless of scale)	9
Photo Maps (regardless of scale)	0

The third element of the series number is assigned in accordance with the numerals assigned to subregional areas as indicated on the regional indexes. A numeral "O" is used if the series extends beyond a subregional area.

The fourth element of the series is a number and, in some cases, two. They identify the specific series and are assigned in order as a series is developed.

A letter suffix sometimes appears on a series and is used to denote some specific type of mapping. The following letters appear on this print-out:

- A - An added series
- P - Plastic relief series
- R - Native language series
- S - Special series
- SP - Special Plastic relief series
- W - A special series of the world

2. PRINTOUT ARRANGEMENT

The repromat is recorded on the printout in series and sheet number order. All continental series are listed at the beginning, and the printout then progresses through Area B to Area Z.

Because of the order of priority given to numerals by the computer, certain series are arranged differently than one is normally accustomed to seeing them. For example, Photo maps appear at the front of a series; i.e., L001 appears at the beginning of the L series. Another example is that series L7010 appears before L701.

The computer is incapable of arranging sheets identified by Roman numerals, so all sheet numbers appearing in parenthesis are actually Roman numerals.

3. KEY TO CODES

SEC (Security Code)

Date

W - Edition
 V - Revised
 L - Field Examination
 M - Compiled
 D - Surveyed
 E - Engraved
 P - Published or Printed
 Z - Reprinted
 B - Later than same date map in file
 C - Circa
 X - Interpreted but no applicable code
 Blank - No interpretation date

OM (Omaha)

- . X indicated AMDEP holds like material. In most instances, AMS maintains the negative and AMDEP the positive.
- . O indicates that AMDEP's material is older.
- . Blank indicates no repro at AMDEP.

MAT (Material)

N1 Polyester Base Negative (PBN)
 N2 Topo Base Negative (TBN)
 N3 Vinyl Base Negative (VBN)
 P1 Polyester Base Positive (PBP)
 P2 Topo Base Positive (TBP)
 P3 Vinyl Base Positive (VBP)
 P4 Astrolon Positive (AP)
 P5 Paper Pulls (PP)

Number and kind of sheets

The letter identifies the features appearing on the pulls as follows:

- A - Culture
- B - Border
- C - Names
- D - Relief
- E - Open Water
- F - Drainage
- G - Vegetation
- H - Roads
- J - Residential
- K - Boundary
- L - Air Data
- N - Miscellaneous
- P - All grids except UTM
- Q - UTM Grid
- R - Tints

The number preceding these letters indicate the number of each of these pulls in the set.

APPENDIX F
BOOKS PROCESSING

CATALOG DATA SHEET
SPECIAL REFERENCE FILES

- ☐ CANCELLED OR CHANGE OF CALL NO CARD
☐ BY THIS FORM
☐ RELISTED
☐ 1AB

- ☒ AUTHORITY CARD
☒ NUMERICAL
☐ X-REF
☐ TRANSLATION
☐ CANCELLATION

- ☐ SPECIAL NUMBER CARD
☐ SOURCE CARD
☐ URBAN AREA X-REF

CODE NO		NAME OF AUTHORITY	
SPECIAL NUMBER			
4	0	1	0
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45			

CODE NO		NAME OF URBAN AREA	
46	47	48	49
50	51	52	53
54	55	56	57
58	59	60	61
62	63	64	65
66	67	68	69
70	71	72	73
74	75	76	77
78	79	80	81
82	83	84	85
86	87	88	89
90			

CATALOG DATA SHEET
SPECIAL REFERENCE FILES

☐ CANCELLED OR CHANGE OF CALL NO CARD
☐ BY THIS FORM
☐ RELISTED
☐ TAB

☒ AUTHORITY CARD
☐ NUMERICAL
☒ X-REF #1
☐ TRANSLATION
☐ CANCELLATION

☐ SPECIAL NUMBER CARD
☐ SOURCE CARD
☐ URBAN AREA X-REF

CODE NO		NAME OF AUTHORITY																																										
SPECIAL NUMBER																																												
TITLE OR NAME OF URBAN AREA																																												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

AREA		TYPE		CLAS		AUTHORITY		SCALE		CODE NO		ALPHABETIZING																																
46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90

APPENDIX G
PERIODICALS PROCESSING

CATALOG DATA SHEET
SPECIAL REFERENCE FILES

FRIDMAN, L. S.

☐ SPECIAL NUMBER CARD
☐ SOURCE CARD
☐ URBAN AREA X-REF

☐ AUTHORITY CARD
☐ NUMERICAL
☐ X-REF
☐ TRANSLATION
☐ CANCELLATION

☐ BY THIS FORM
☐ RELISTED
☐ TAB

[illegible]

PART I ALPHABETICAL LIST

TITLE	TEXT	F H O	R E T	AREA		SUBJECT
				1ST	2ND	
AANNINSTEN OVEN DE MAANDEN	DU	12	1	1		GEN THUMICS
ABSTRACTS OF PHOTOGRAPHIC SCIENCE AND ENGR LIT	EN	12	2	1		ENGR PHOTOG
ACCESSIONS LIST (INDIA)	EN	12	3	5U		BIBLIOGRAPHY
ACCESSIONS LIST (PAKISTAN)	EN	12	1	1	7U	BIBLIOGRAPHY
ACCESSIONS LIST OF THE GEOGRAPH BN OF CANADA	EN	12	C	1		BIBL MAPPING
ACTA GEOGRAPHICA	FN	04	C	1		GEOGRAPHY
ACTA TECHNICA ACADEMIAE SCIENTIARUM HUNGARICARUM GEOD ET GEOP	GE EN	02	5	1	37M	GEOQUEST GEOPH
ACTIVIDADES ECONOMICAS DE ANGOLA	FN	02	3	12		ECON COND
ADRESSES AGE	EN	12	1	1		GRAPHIC ARTS
ADI NEWSLETTER	EN	06	1	1		DOCUMENTATION
ADMINISTRATIVE MANAGEMENT	EN	12	2	1		MANAGEMENT
ADVANCED MANAGEMENT JOURNAL	EN	04	1	1		MANAGEMENT
AFGHANISTAN NEWS	FN	12	1	1U		GENERAL
AFRICA	SP	12	3	2		GENERAL
AFRICA CALLS FROM RHODESIA AND NYASALAND	EN	06	1	4Y		GENERAL
AFRICA JOURNAL OF THE INTERNAT AFRICAN INST	EN FN	04	3	2		ANTHROP LANG
AFRICA REPORT	EN	12	2	2		ECON COND
AFRICA TODAY	EN	12	3	2		GENERAL
AFRICAN ROADS AND TRANSPORT	EN	06	3	2		ROADS
AFRICAN WORLD	FN	12	1	2		ECON COND
AFRICANA	FN	04	2	0		GEN GEOG
AFRIQUE	FN	12	C	2		GENERAL
AFRIQUE MAGAZINE	FN	06	1	2		ECONOMIC COND
AMMAN	AR	0	C	7P		CURRENT EVENTS
AIAA JOURNAL	EN	12	1	1	51	AERON ASTRON
AIR ALMANAC	EN	03	2	1		AIR NAV GEOG
AIR CONDITIONING HEATING AND VENTILATING	EN	12	C	1		AIR CONDITON
AIR ENGINEERING	EN	12	C	1		AIR CONDITON
AIR FORCE AND SPACE DIGEST	EN	12	1	V		AERONAUTICS
AIRMAN'S INFORMATION MANUAL	EN	26	C	V		AERO AIRWAYS
ALA BULLETIN	FN	10	5	1		LIBRARIES
ALASKA SPORTSMAN	EN	12	1	0		GEN GEOG
ALGERIE AGRICOLE	FR AH	06	1	4P		AG. CULTURE
ALL INDIA MOTORIST	EN	12	1	1	5U	SHIPPING TRNSPT

PART 2 SUBJECT LIST

TITLE	TEXT		F R O	R E T	AREA		SUBJECT
	1ST	2ND			1ST	2ND	
COMMONWEALTH DEVELOPMENT	EN		06	1	1		ECON CONO
ECONOMIC AND STATISTICAL REVIEW	EN		04	1	0		ECON CONO
ECONOMIC BULLETIN (NATH BANK OF EGYPT)	EN		04	2	7P		FIN ECON CONO
ECONOMIC GEOGRAPHY	EN		04	5	1		GEO EC CONO
ECONOMIC NEWS OF BULGARIA	EN		14	1	20M		CON ECON CONO
Ekonomicheskaya Gazeta	RS		D	X	N		ECON CONO
ETUDES ET CONJONCTURE	FR		12	C	6M		ECONOMIC CONO
ETUDES ET STATISTIQUES	FR		12	4	176	86	ECON CONO
PAN EASTERN ECONOMIC REVIEW	EN		52	1	5		ECON CONO
FEDERAL NIGERIA	EN		12	1	66		GENE ECON C
GERMANY: THE MAGAZINE OF THE FEDERAL REPUBLIC	EN		04	1	4M		EN ECON CONO
GHANA RECONSTRUCTS	EN		06	1	256		ECON CONO
HS.N CHIEN-SHE	CH		12	2	1L		ECON CONO
INDUSTRIAL REVIEW OF AFRICA	EN		12	1	1	2	IND ECON CONO
INDUSTRY OF FREE CHINA	EN		12	2	193L		ECON CONO IND
INDUSTRY TODAY	EN		12	2	1	1R	ECON CONO IND
INFORMACION ECONOMICA SEMANAL	SP		52	C	16E		ECON CONO
INTERNATIONAL COMMERCE	EN		52	1	1	V	CON ECON CONO
INTERNATIONAL FINANCIAL NEWS SURVEY	EN		52	1	1		COMM ECON CON
ISRAEL ECONOMIC INDICATORS	HE EN		12	C	13K		ECON CONO
LATIN AMERICAN REPORT NEWSLETTER	EN		14	1	7		GEN ECON CONO
MAGNEN DIGEST	EN		12	1	P		GEN ECON CONO
MEXICAN AMERICAN REVIEW	EN		12	2	V	F	ECON CONO IND
NEKHODNUYE KHOZYAYSTVO KAZAKHSTANA	RS		12	2	3M		ECON CONO
NETHERLANDS ECONOMIC BULLETIN FOR THE FOREIGN P	EN		24	1	33M		ECON CONO
NOTES ET ETUDES DOCUMENTAIRES	FR		14	1	1		ECON CONO
NOTES ET ETUDES DOCUMENTAIRES SUPPLEMENT	FR		74	1	1		ECON CONO
OPTIMA	EN		04	1	1	9Y	ECON CONO
ORIENTAL ECONOMIST	EN		12	1	75L		ECON CONO
OVERSEAS BUSINESS REPORTS	EN		14	1	1		CON ECON CONO
OVERSEAS REVIEW	EN		12	1	1		ECON CONO
PLANOVNO STUPANSTVO I STATISTIKA	RU		12	1	20M		ECON CONO
POWER AND INDUSTRY	EN		12	2	5		ECON CONO
QUARTERLY ECONOMIC REV OF BELGIUM LUXEMBURG	EN		04	1	13M	23M	GEOE ECON CONO

LIST OF PERIODICALS CURRENTLY RECEIVED IN BOOK AND PERIODICAL LIBRARY JANUARY 1965

The first part of this list is arranged alphabetically by title and the second part alphabetically by broad subject. Each entry gives the title of the periodical, the language of the text, frequency of publication, period of retention in Army Map Service Book and Periodical Library, areas, and specific subjects concerned. These periodicals are routed upon receipt to interested elements in AMS. After routing, they are available for loan to individuals in AMS or through the Inter-Library Loan procedure to agencies outside AMS.

The list will be revised and issued annually. Inquiry concerning the list may be made by AMS personnel by telephoning extension 2347. Other government agencies may call code 140, extension 2317 or 986-2317. Written inquiries should be addressed to:

Commanding Officer
Army Map Service
ATTN: Library Division 13401
Corps of Engineers, U. S. Army
Washington, D. C. 20315

EXPLANATORY NOTES

Title

1. Initial articles are omitted.
2. The first two words are usually not abbreviated; any other words are abbreviated to shorten the title to fit the space allowed.
3. Subtitles are not given unless needed to distinguish between otherwise identical titles.

Text

1. No more than two different languages are shown.
2. The first language listed is probably the most important or most used in the periodical; the second language may be for abstracts, etc.

3. Abbreviations used:

AF AFRICAANS	EN ENGLISH	IN INDONESIAN	RS RUSSIAN
AG AFGHAN	ES ESTONIAN	IT ITALIAN	SC SERBO CROAT
AL ALBANIAN	ET ETHIOPIA	JA JAPANESE	SL SLOVENIAN
AM AMHARIC	FI FINNISH	KO KOREAN	SP SPANISH
AR ARABIC	FL FLEMISH	MO MONGOLIAN	SW SWEDISH
BR BURMESE	FR FRENCH	NO NORWEGIAN	TH THAI
BU BULGARIAN	GE GERMAN	PE PERSIAN	TI TIBETIAN
CH CHINESE	GR GREEK	PL POLISH	TU TURKISH
CZ CZECH	HE HEBREW	PR PORTUGUESE	UK UKRAINIAN
DA DANISH	HU HUNGARIAN	RM RUMANIAN	VT VIETNAMESE
DU DUTCH	IC ICELANDIC		UR URDU

Frequency

1. Code used:
D = Daily
IR = Irregular
SW = Semiweekly or twice a week
TW = Triweekly or three times a week
2. A number indicates the number of times a year the periodical is issued.

Retention

1. Code used for AMS retention of periodicals:
P = Permanent
Number = Number of years
X = Less than 1 year
C = Cancelled after routing

Area

1. The AMS Library Theater area code is used.
2. Only two areas are given; if relative importance can be determined, the more important area is given first.

Subject

1. Abbreviations are used freely in order to show several subjects. They may vary depending on the space available; for example: The abbreviation for public works may be PUB WKS or P WK.
2. Two spaces are used between words to show two subjects, one space indicates one subject either inverted or in running order; for example: Geography, Economic and Current Events.

As an additional aid to research, separate tabulator listings can be supplied for areas, texts, frequency of publication, or retention in AMS Book and Periodical Library.

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R&D		
<small>(Security classification of this and of abstracts containing information must be the same as the source)</small> 1. ORIGINATOR BOOZ ALLEN APPLIED RESEARCH, INC. 4733 Bethesda Avenue Bethesda, Maryland 20014		2. SECURITY CLASSIFICATION Unclassified
3. REPORT TITLE Mechanization Study of the Technical Library, U. S. Army Map Service, Washington, D. C. 20315		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report of on-site survey		
5. AUTHOR(S) (Last name, first name, initial) G. A. Kershaw, D. Crowder, J. E. Davis, E. G. Loges, E. Merendini, S. M. Thomas		
6. REPORT DATE September, 1966	7a. TOTAL NO. OF PAGES 66	7b. NO. OF PAGES 0
8a. CONTRACT OR GRANT NO. DSA-7-15489 9. PROJECT NO.	9a. ORIGINATOR'S REPORT NUMBER 914-1-26	
	9b. OTHER REPORT NUMBERS (Any other numbers that may be assigned this report) AD 640 121	
10. AVAILABILITY LIMITATION NOTICES Distribution of this Document is unlimited		
11. ABSTRACT NOTES None	12. SPONSORING MILITARY ACTIVITY Defense Supply Agency Defense Documentation Center Cameron Station, Virginia	
13. ABSTRACT <p>The Army Map Service (AMS) Library uses a Univac 1004 computer to produce map accessions lists and bibliographies from punched cards containing printed text. Also data on a Map Reproduction (Repromat) File are punched onto cards and transferred to magnetic tape on a Honeywell H-800 computer. This tape is used to produce a high-speed printout of the Repromat Tabulation semiannually and a monthly listing to update the semi-annual tabulation. It is felt that the mechanized Repromat File system should be modified in a number of ways for greater efficiency.</p>		

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Unclassified
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14	KEY WORDS	LINK A		LINK B		LINK C	
		ROLE	WT	ROLE	WT	ROLE	WT
Information Retrieval Digital Computers							
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<p>1. ORIGINATING ACTIVITY: Enter the name and address of the contractor, subcontractor, grantee, Department of Defense activity, or other organization responsible for the report.</p> <p>2. REPORT SECURITY CLASSIFICATION: Enter the overall security classification of the report. Indicate whether "Restricted Data" is included. Marking is to be in accordance with appropriate security regulations.</p> <p>3. GROUP: A numerical designation is specified in D.D.D. to Group 5, 6, 7, 8, 9, 10, and Armed Forces Industrial Manual. Enter the appropriate number when appropriate. Marking is optional. Marking is to be in accordance with Group 1 and Group 2 as authorized.</p> <p>4. REPORT TITLE: Enter the complete report title in all capital letters. Titles in all cases should be unclassified. If a classification is to be indicated without a classification marking, indicate classification in all capitals in parentheses immediately following the title.</p> <p>5. ORIGINATOR'S NOTES: If appropriate, enter the type of report (e.g., progress, summary, annual, or final), and the number of pages when a specific reporting period is noted.</p> <p>6. AUTHOR(S): Enter the name(s) of author(s) as shown on the report. Enter last name, first name, middle initial. If a title, show rank and branch of service. The name of the principal author is an absolute minimum requirement.</p> <p>7. REPORT DATE: Enter the date of the report as day, month, year, or month, year. If more than one date appears on the report, use date of publication.</p> <p>8. TOTAL NUMBER OF PAGES: The total page count should be entered. Normal pagination procedures apply. Enter the number of pages containing information.</p> <p>9. NUMBER OF REFERENCES: Enter the total number of references cited in the report.</p> <p>10. CONTRACT OR GRANT NUMBER: If appropriate, enter the official number of the contract or grant under which the report was written.</p> <p>11. AS A PROJECT NUMBER: Enter the appropriate code or department identification, such as project number, contract number, system number, task number, etc.</p> <p>12. ORIGINATOR'S REPORT NUMBER(S): Enter the official report number by which the document will be identified and controlled by the originating activity. This number must be unique to the report.</p> <p>13. OTHER REPORT NUMBER(S): If the report has been assigned any other report numbers, either by the originator or by another agency, enter these numbers.</p> <p>14. AVAILABILITY LIMITATION NOTICES: Enter any limitation or other dissemination of the report other than those imposed by security classification, using standard statements such as:</p> <ul style="list-style-type: none"> (1) "Qualified requesters may obtain copies of this report from DDC." (2) "Foreign announcement and dissemination of this report by DDC is not authorized." (3) "U.S. Government agencies may obtain copies of this report directly from DDC. Other qualified DDC users shall request through." (4) "U.S. military agencies may obtain copies of this report directly from DDC. Other qualified users shall request through." (5) "All distribution of this report is controlled. Qualified DDC users shall request through." <p>If the report has been furnished to the Office of Technical Services, Department of Defense, for sale to the public, indicate this fact and enter the price, if known.</p> <p>15. SUPPLEMENTARY NOTES: Use for additional explanatory notes.</p> <p>16. SPONSORING MILITARY ACTIVITY: Enter the name of the departmental project office or laboratory sponsoring, reviewing, and/or developing the report. Include address.</p> <p>17. ABSTRACT: Enter an abstract giving a brief and factual summary of the document indicative of the report, even though it may also appear elsewhere in the body of the technical report. If additional space is required, a continuation sheet shall be attached.</p> <p>It is highly desirable that the abstract of classified reports be unclassified. Each paragraph of the abstract shall end with an indication of the military security classification of the information in the paragraph, represented as (S), (C), (R), or (O).</p> <p>There is no limitation on the length of the abstract. However, the suggested length is from 150 to 225 words.</p> <p>18. KEY WORDS: Key words are technically meaningful terms or short phrases that characterize a report and may be used as index entries for cataloging the report. Key words may be selected so that no security classification is required. Identifiers, such as equipment model designation, trade name, military project code name, geographic location, may be used as key words but will be followed by an indication of technical content. The assignment of links, notes, and weights is optional.</p>							