

SERIES 200

USERS' LIBRARY SUBMITTAL STANDARDS GUIDE

SUBJECT:

SERIES 200 USERS' LIBRARY SUBMITTAL
STANDARDS GUIDE

PURPOSE:

To define the proper methods of submitting
programs to the Series 200 Users' Library
and requesting routines from the library.

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FOREWORD

The Series 200 Users' Library has been established in order to facilitate the interchange of routines and techniques among Series 200 users. A master file of routines, from which is published an index, is maintained in Wellesley by Systems Service. The master index is supplemented on a monthly basis and will be republished in its entirety at intervals, dependent upon the frequency of submittals. There is sufficient information in the index about each routine so that any participant can properly evaluate a library routine within the framework of his own application needs and hardware configuration. All Series 200 users are encouraged to utilize the library facilities, for only through your active participation can the library become an effective medium of interchange.

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Honeywell Inc.
Electronic Data Processing Division
60 Walnut Street
Wellesley Hills, Massachusetts 02181

SUBMITTAL REQUIREMENTS

When submitting a routine for inclusion in the Library, the contributor should send the following material:

1. Submittal Form (#2263)
2. Assembly or Compilation Listing
3. Descriptive Documentation
4. The Symbolic Deck

All items should be addressed to:

Librarian, Series 200 Users Library
Systems Service
HONEYWELL, Inc.
60 Walnut Street
Wellesley Hills, Massachusetts 02181

The submittal form (see Figures 1 and 2) consists of three parts. The biographical section is self-explanatory. The sections dealing with index information and abstract cards are explained in detail on the following pages. These forms will be available through Honeywell representatives in each area, or through the Librarian in Wellesley.

INDEX INFORMATION

Card Columns

Explanation

- 1 Major and Minor Classification
See Classification System discussion presented later in this publication.
Example: an octal patching subroutine would be classified L 4.
- 3 Central Processor Model Code:
0 = 121 3 = 1201 6 = 8201
1 = 201-1 4 = 2201
2 = 201-2 5 = 4201
- 4 Language and Level Code:
E = EASYCODER
C = COBOL
F = FORTRAN
Level of language is the same as that defined in Honeywell
Software Bulletins.
Example: EC = EASYCODER 12K level
- 20 Size of the routine.
This is a decimal count of the number characters occupied by the routine,
including all buffers. Leading zeros are required.
Example: 000480

Card Columns (cont)

Explanation

- 26 Admode of the routine.
Acceptable codes: 2 = 2-character addressing
3 = 3-character addressing
4 = 4-character addressing
If the routine changes modes, specify the highest mode used.
- 27 Type of routine.
Acceptable codes: M = main program
S = subroutine
- 28 Edit Option.
Acceptable codes: Y = used or required;
Δ = not used.
- 29 Advanced Programming Option.
Acceptable codes: Y = used or required;
Δ = not used.
- 30 Multiply/Divide Option.
Acceptable codes: Y = used or required;
Δ = not used.
- 31 Floating Point Unit.
Acceptable codes: Y = used or required;
Δ = not used.
- 70 Number of cards in Source deck.
A decimal count of all cards in the source deck; must have leading zeros.
Example: 00102
- 75 User Identification Number (left-justified).
This is the Honeywell assigned (hardware) system number which is used for the Machine Usage Report. If the submitter is unaware of this number, the Honeywell representative for each installation will gladly supply it.

The first eight digits of index information, which includes a three-digit number affixed by Librarian, comprise a unique name or request number. If a routine already in the Library is resubmitted for any reason, please refer to the eight-digit code as it appeared in the last index listing.

G. Statistical Analysis & Probability

1. Data Reduction

Refers to the computation of the more common statistical parameters such as mean, median, standard deviation, etc.

2. Correlation and Regression Analysis

Includes curve fitting which is explicitly for statistical purposes.

3. Sequential Analysis

4. Analysis of Variance

5. Random Number Generators

6. Statistical Tables

7. Time Series

H. Operations Research & Linear Programming

I. Extensions or Modifications to Honeywell Software

1. Language Processors

2. Operating Systems

3. Easytran Subroutines

4. Input/Output Packages

5. Other

J. Input-Output

1. Tapes

2. Peripherals

3. Mass Storage

4. Central Processor to Central Processor

K. Data Manipulation

1. Sorts

2. Collates

3. Conversions

4. Formatting

L. Programming Aids

1. Trace

2. Peripheral Dumps

3. Core Dumps

4. Other

- M. Simulation
 - 1. Peripheral Devices
 - 2. Central Processors
 - 3. Series 200 Options

- N. Communications
 - 1. Data Collection
 - 2. Inquiry
 - 3. Message Switching

- O. Diagnostic Programs

- P. Service Programs
 - 1. Clear, Reset Programs
 - 2. Check Sum Programs
 - 3. Restore, Rewind, Tape Mark, Bootstrap Programs

- Q. Operations in General Mathematical Systems

- R. Combinatorial Analysis

- Z. All Others

Where no minor classes are shown under a major class, the minor class code is 0 (zero). These classifications will be reviewed from time to time by the Library Committee. It is anticipated that there will be a need for additional classifications.

ABSTRACT INFORMATION

On the reverse side of the submittal form are ten card layouts, each broken down 40-40. These are to be used to provide a descriptive abstract of the routine, and will be literally reproduced on the index listing as illustrated in Figure 4. If more than ten cards are necessary, use additional forms.

Both the index information and abstract cards will be keypunched in Wellesley; it is only necessary to fill in the appropriate information.

DESCRIPTIVE DOCUMENTATION

The only restrictions on documentation are that it be typewritten and as complete as possible. Please note that the more complete the documentation, the fewer the problems which will arise through misuse. The following example is free form, but it contains all the information

necessary to evaluate and use the routine. The index listing of this routine is shown in Figure 4.

SYMBOLIC DECK

No restrictions exist on the symbolic deck other than those expressed or implied by the source language.

SUBMITTAL EXAMPLE

Program: HOPS (Handy Octal Patching Subroutine)

HOPS is a packaged subroutine for Series 200 computers. The HOPS program can be included in the user's source deck and assembled along with any EasyCoder program in order to provide a convenient method for making octal corrections to the program during the checkout phase. Control may be turned over to HOPS on a SENSE switch option in the housekeeping phase of the user's program. The subroutine makes all the corrections specified on the correction cards and then returns control to the main program at the instruction following the one that originally gave control to HOPS.

Equipment Requirements

HOPS requires a card reader (octal address 41), approximately 480 characters of storage, and the Advanced Programming Instructions (Feature 011).

Implementation

In order to use HOPS, the programmer inserts a symbolic deck of the subroutine along with the main source program for assembly. Upon assembly, HOPS becomes effectively a segment of the program and may be employed during any subsequent checkout runs to perform the octal patching function.

Linkage to HOPS

To turn control over to HOPS it is only necessary to enter "HOPS" into the operands field of a Branch instruction in the main program. This instruction will probably want to be a branch on SENSE switch option although this is not mandatory.

Return Linkage to Object Program

To terminate the operation of HOPS, a blank card must be inserted behind the last correction card. Upon detection of this last card HOPS will return to the main program by going to the instruction immediately following the instruction that originally gave control to HOPS.

SERIES 200 USERS' LIBRARY
SUBMITTAL FORM

PROGRAM TITLE: HOPS DATE RECEIVED: 1/1/66
SUBMITTER: ANYCODER DATE SUBMITTED: / /
INSTALLATION NAME: XYZ CORP. PHONE: 617-111-1111
MAILING ADDRESS: 123 MAIN ST.
SOMEWHERE, USA.

ARE YOU WILLING TO ANSWER QUERIES DIRECTLY? PLEASE CHECK ONE ^{yes} ^{no}
IF THIS IS NOT A NEW ROUTINE TO BE ADDED PLEASE SPECIFY OLD REQUEST CODE _____

PLEASE FILL IN THE FOLLOWING FOR THE INDEX CARD— SEE LIBRARY SUBMITTAL GUIDE

- 1 MAJOR & MINOR CLASSIFICATION CODES
- 3 CENTRAL PROCESSOR MODEL CODE
- 4 SOURCE LANGUAGE AND LEVEL CODE
- 6 FOR LIBRARIAN'S USE ONLY
- 20 SIZE OF ROUTINE IN CHARACTERS WITH LEADING ZEROES
- 26 ADMODE IN WHICH ROUTINE IS WRITTEN
- 27 TYPE OF ROUTINE — MAIN OR SUBROUTINE
- 28 EDIT OPTION USED
- 29 ADVANCED PROGRAMMING NEEDED
- 30 MULTIPLY/DIVIDE USED
- 31 FLOATING POINT UNIT REQUIRED
- 64 FOR LIBRARIAN'S USE ONLY
- 70 NUMBER OF CARDS IN SOURCE DECK WITH LEADING ZEROES
- 75 USER IDENTIFICATION NUMBER (LEFT JUSTIFIED)
- 80

DISCLAIMER:

ALTHOUGH THE PROGRAMS CONTAINED WITHIN THE SERIES 200
USERS' LIBRARY HAVE BEEN TESTED BY THEIR CONTRIBUTORS, NO
WARRANTY, EXPRESSED OR IMPLIED, IS MADE BY HONEYWELL
INC. OR THE CONTRIBUTORS, AS TO THE ACCURACY AND
FUNCTIONING OF ANY PROGRAM OR RELATED PROGRAM
MATERIAL.

Figure 3. HOPS Submittal Form

ABSTRACT CARD FORM

1	01		40
	41	80	A
2	01	40	80
	41	80	A
3	01	40	80
	41	80	A
4	01	40	80
	41	80	A
5	01	40	80
	41	80	A
6	01	40	80
	41	80	A
7	01	40	80
	41	80	A
8	01	40	80
	41	80	A
9	01	40	80
	41	80	A
10	01	40	80
	41	80	A

Figure 4. HOPS Abstract Card Form

Correction Card Format

Columns 1-6 of each correction card must contain the octal starting address of the consecutive memory locations to be changed. Leading zeros are required. Columns 7-68 contain correction data expressed as octal digits, every two of which represents one character of storage, and may also contain punctuation information, which may be indicated by a W (word mark), I (item mark), or R (record mark). If a punctuation indicator is used, it will be associated with the character position (two octal digits) immediately following it. For example:

Cols. 1-6	Cols. 7-68
000377	W274236I43.....

In this example, main memory location 377_8 will be changed to an octal 27 with an associated word mark. Locations $400-401_8$ will be changed to contain octal characters 42 and 36 with no punctuation. Location 402_8 will be changed to an octal 43 with an associated item mark, etc.

No two punctuation indicators may appear following one another on the same card. In order to enter punctuation marks into two consecutive memory locations, the programmer may either use two separate correction cards or use a single card on which the character associated with the first punctuation mark is punched octally in the two columns immediately following it and preceding the second punctuation indicator.

Column 69 of all correction cards must be blank. Columns 70-80 may be used for anything the programmer desires (date, program name, etc.). HOPS terminates its entering of corrections into memory upon sensing a blank column in the correction card.

Correction cards are placed immediately behind the execute card (last card) of the load deck (if the main program is on tape, then place correction cards directly into the read hopper) and are followed by any detail deck to be read in by the program, or if no detail deck, by two blank cards.

Precautions

HOPS uses symbolic tags, all of which are listed below. The main source program must not employ these in assignment of tags, otherwise a duplicate tag condition will arise in assembly. All of these tags begin with "H." except for the tag "HOPS."

H. ADR1	H. B2	H. PTCH
H. ADR2	H. B7	H. READ
H. ADR3	H. END	H. RM
H. ADR4	H. ERR	H. SCAN
H. ADR5	H. EXIT	H. VAL
H. ADR6	H. IM	H. WM
H. ADST	H. INIT	H. X1
H. APCH	H. INV	H. X2
H. BAD	HOPS	H. ZERO
H. B1	H. PNCT	

HOPS checks for numeric punches of 0-7 in columns 1-6 but does not check validity of this six-character address. In the corrections columns, any punches other than 0-7, W, I, and R are flagged as errors.

HOPS is assembled in three-character addressing mode and has a "CAM 0" as its first instruction. It has no means of telling whether it was entered from two- or three-character mode; therefore it returns to the main line of the program in three-character mode. If the main program mode of operation is two character, then a "CAM 20" instruction must follow the branch to HOPS instruction. HOPS uses index registers 1 and 2, but it saves their contents and punctuation and restores it upon the termination of the HOPS operation.

Halt Conditions

Upon program halt, the operator may display the A- and B-address registers to determine the cause.

A-Address	B-Address	Cause and Action
0001	0001	The card reader is not activated. Cycle up the reader and press the RUN button.
0002	0002	Card read error; correct the card, replace in feed hopper, and press the RUN button.
0003	0003	Invalid punch detected; correct the card, replace in feed hopper, and press the RUN button.

THE INDEX LISTING

An index listing will be published periodically. There will be monthly supplements during the intervals between publications. The listing is in order by the request code of the routines. Because of the way in which the request code is formed, the listing is in order by classification (function), central processor, language and level, and routine number within language and level:

1. Classification (of function)
2. Central Processor
3. Language
4. Language Level
5. Unique routine number

It is only necessary to know the classification system and scan the listing for that classification code. Within that code all routines will be found arranged according to 2 through 5. The following sample page from the listing includes the routine used as a submittal example.

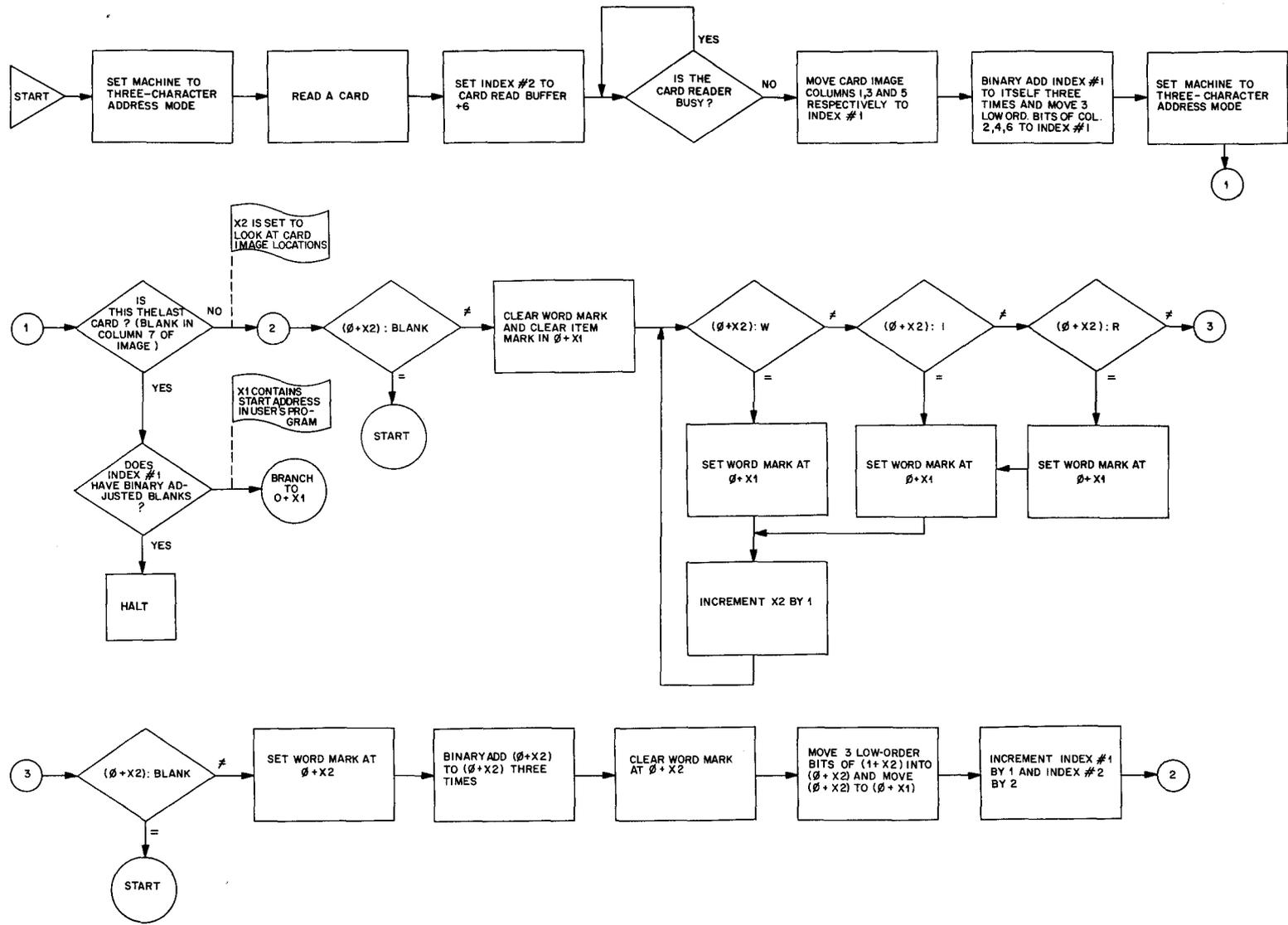


Figure 5. General Flow Chart of HOPS Program

* SIGNIFIES NEW REOUTINE SERIES 200 USERS LIBRARY

12/01/65

* L22EA003(-REQUEST CODE)

201-2 EASYCODER A 000705 LOC, ADMODE 3, SUB- PROG, 00301 CARDS IN DECK
OPTIONS NEEDED: EDIT, ADV PROG, A0000

THIS IS A DYNAMIC DUMPING SUBROUTINE. IT IS ASSEMBLED WITH ANY EASYCODER PROGRAM. TWO SYMBOLIC CARDS MUST BE INSERTED IN THE DECK TO SPECIFY THE "FROM", "TO" LIMITS OF THE DUMP. THE ORIGINAL PROGRAM MUST EXECUTE A CHANGE ADDRESSING MODE (CAM) INSTRUCTION SPECIFYING 3 CHARACTER, ITEM MARK TRAPPING MODE. THE INSTRUCTIONS WHERE DUMPING IS TO OCCUR MUST BE ITEM MARKED OVER THE OPCODE. THIS MAY BE ACCOMPLISHED AT EITHER ASSEMBLY OR LOAD TIME. THE FORMAT IS IN OCTAL.

L21EC004

201-1 EASYCODER C 000185 LOC, ADMODE 3, SUB- PROG, 00090 CARDS IN DECK
OPTIONS NEEDED: ADV PROG, A9999

THIS SUB-PROGRAM GIVES SNAPSHOTS OF CORE ON THE 220-2 CONSOLE WHEN THE OPERATOR PUSHES THE INTERRUPT BUTTON. IT REQUIRES THE INTERRUPT OPTION WITH 201-0 OR 201-1. THERE IS NO LIMIT ON THE AMOUNT OF CORE WHICH CAN BE DUMPED ON THE CONSOLE HOWEVER THE CONSOLE IS SLOW AND IT IS IMPRACTICAL TO TYPE OUT MUCH MORE THAN 20 CHARACTERS. THE SNAPSHOTS CAN BE TAKEN AS FREQUENTLY AS DESIRED. THE ROUTINE MUST BE ASSEMBLED WITH EACH PROGRAM AND MUST BE SPECIALIZED WITH A FROM DSA AND A TO DSA. IT RESTORES THE A AND B REGISTERS AND RETURNS. IT DOES NOT RESTORE THE VARIANT REGISTER.

L41EA001 (SEE SAMPLE FORM AND DOCUMENTATION IN SUBMITTAL EXAMPLE)

201-1 EASYCODER A 000480 LOC, ADMODE 3, SUB-PROG, 00100 CARDS IN DECK
OPTIONS NEEDED: ADV PROG, A0000

HANDY OCTAL PATCHING SUBROUTINE (HOPS) IS AN AID TO EASY PATCHING OF EASY-CODER PROGRAMS. IT IS INCLUDED IN THE PROGRAM'S SOURCE DECK FOR ASSEMBLY. NORMAL ENTRY TO THE ROUTINE WOULD BE BY A BCT ON SENCE SWITCH IN THE HOUSE-KEEPING SECTION. WHEN IN CONTROL HOPS WILL READ PATCH CARDS FROM THE READER. THESE CARDS CONTAIN THE OCTAL STARTING ADDRESS AND THE OCTAL INFORMATION TO BE PUT IN THESE LOCATIONS. THE PROGRAM CAN BE DIRECTED TO SET PUNCTUATION WHEN A BLANK CARD IS ENCOUNTERED, HOPS RETURNS TO THE CALLING PROGRAM AFTER RESTORING THE A AND B REGISTERS.

Figure 6. Sample Listing

REQUEST FORMS

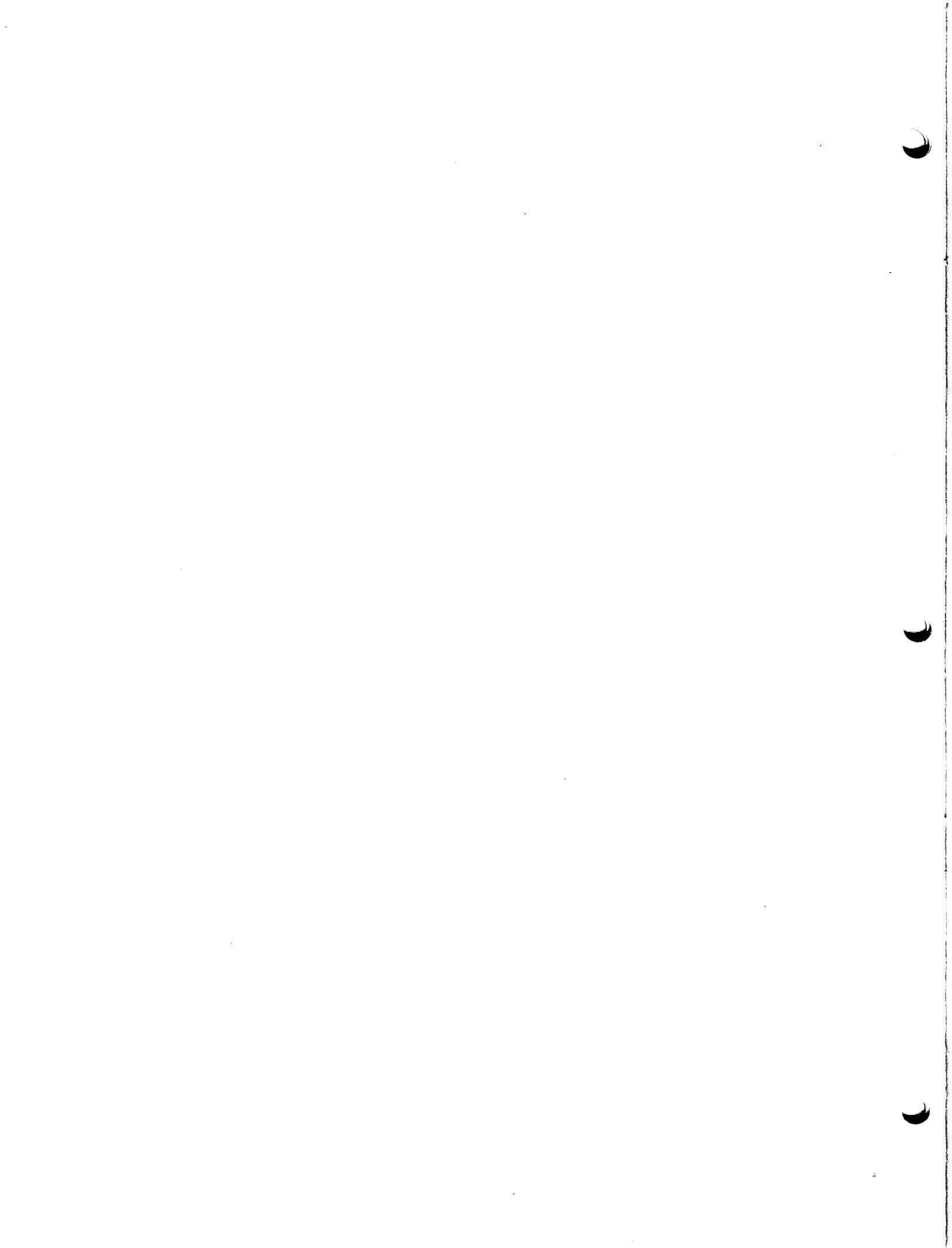
All requests for routines from the Library should be submitted on the standard request form (#2264, see Figure 5), which is available from the Honeywell representative in each area, or from the Librarian. It is necessary to list each routine individually according to its request code, as it appears in the index listing. The installation code is the (hardware) system number of the requesting installation. It is possible to request one of four combinations of information:

1. A listing;
2. a listing and a symbolic card deck;
3. a listing and a symbolic card image tape; or
4. documentation only.

In combinations 1 through 3 the descriptive documentation is automatically included.

The requestor should calculate the total number of cards for all requested routines. This can be done as the size of the symbolic deck is printed on the index listing. If the calculated total exceeds 2000 cards, a tape must accompany the request. It will be returned as a card image tape. It is not possible to honor a request that calls for both card and tape output. Multiple requests for the same routine on one request form are not permitted.

Any questions which arise can be sent to the Librarian. The Library can only become a useful source of information if it is supported through active participation of many users. Please feel free to comment, criticize, and make suggestions.



SERIES 200 USERS' LIBRARY
REQUEST FORM

WOULD YOU PLEASE SEND THE REQUESTED MATERIAL FOR THE FOLLOWING ROUTINES.
THEY APPEAR IN THE INDEX LISTING DATED _____

	Routine Request Code						Installation Code				Output Code	Documentation Only
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

OUTPUT CODES
1= LISTING ONLY
2= LISTING WITH CARDS
3= LISTING WITH CARD IMAGE TAPE

NOTE:
DOCUMENTATION WILL BE SENT WITH OUTPUT

SEND TO: _____

BUSINESS REPLY MAIL

No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY

HONEYWELL

ELECTRONIC DATA PROCESSING DIVISION

60 WALNUT STREET

WELLESLEY HILLS, MASS. 02181

ATT'N: SYSTEMS SERVICE—SERIES 200 USERS' LIBRARIAN

FIRST CLASS
PERMIT NO. 39531
WELLESLEY HILLS
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