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INSTITUTION University of South Florida, Tampa.
PUB DATE Mar 76
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IMPLEMENTATION OF THE OHIO COLLEGE LIBRARY CENTER'S PROPOSED SERIALS CONTROL SUBSYSTEM AT THE UNIVERSITY OF SOUTH FLORIDA LIBRARY: SOME PRELIMINARY CONSIDERATIONS

by

ANNE TWITCHELL and MARY SPREHN

MARCH, 1976

Library Science/Audiovisual Department
University of South Florida
Tampa, Florida

PREFACE

An evaluation of the Ohio Library College Center's proposed Serials Control Subsystem was undertaken for the purpose of determining, as far as possible, the effect of that system, should it be adopted, on the operation of the Serials Department at the University of South Florida Library.

The evaluation was accomplished with the aid of correspondence and materials furnished by Meg Sarver, systems analyst at OCLC. Particularly useful was Serials Control Subsystem: User's Manual (December 1975). In addition, interviews were conducted with Arthur Ketchersid, Assistant Director for Technical Services of the University of South Florida Library and with Arline King, Assistant Librarian, Cataloging Department, who demonstrated search techniques on the SOLINET terminal and discussed cost factors as well as retrieval and maintenance problems. Random sampling was employed in the course of determining some characteristics of alternative search keys and their applicability to the retrieval of serial records by OCLC's proposed system.

The system is described and, as it is related to U.S.F.'s present manual system, problems that are likely to be encountered--with particular emphasis on the difficulty of retrieving records on-line by title search key--are indicated. An effort is made to provide cost and time comparison of manual and automatic check-in procedures.

This paper is a part of a larger study entitled "An Analysis of the Serials Department of the University of South Florida Library with a Preliminary Discussion of the Possible Implementation of the Serials Control Subsystem of the Ohio College Library Center at the University of South Florida Library", which resulted from a project undertaken by eight library science students, members of Dr. Stephen Harter's class in Library Systems Planning during Quarter II of the academic year 1975-76.

We wish to express particular appreciation to Dr. Harter, associate professor, Library Science/AV Department at the University of South Florida, for his valuable suggestions.

IMPLEMENTATION OF THE OHIO COLLEGE LIBRARY CENTER'S PROPOSED SERIALS CONTROL SUBSYSTEM AT THE UNIVERSITY OF SOUTH FLORIDA LIBRARY

The Ohio College Library Center's Serials Control Subsystem will consist of three components: check-in, claiming, and binding; only the check-in component, however, is expected to be implemented in the near future. The claiming and binding components and their implication for the U.S.F. Library will be briefly described, after which the check-in component and its effect on the present system, should it be adopted, will be treated more fully.

Claiming

The major activities of the claiming component will be to identify missing issues and to produce claim notices. A claim cycle will be set by each library for each serial and will specify how many days following the expected receipt date an issue will be claimed.

After a missing issue has been identified by the system, a claim notice will be automatically generated and sent to the library or to the publisher or vendor, as specified by each library. The options of semi-automatic and non-automatic claim will also be available to a participating library. Under the semi-automatic option the system will send a message to the terminal operator that a possible claim

has been identified; the operator then decides whether or not to command printing and sending of the claim notice. A non-automatic claim will not be identified by software but will be generated only on command of the operator. The claims system will, for example, periodically generate a listing of all titles having no activity within a defined period. A library may then decide to claim from the listed titles.

Adoption by the U.S.F. Library of the automatic claiming component, by which the system would send notices directly to the vendor or publisher, would mean the elimination of the weekly claims check of the Central Serials Record, as well as of the filling out of claim cards and the addressing and stuffing of envelopes. After a third claim is generated and sent by the system and the issue has failed to arrive, the system will send no further notices but presumably will produce on command a list of still-unreceived serials from which personal letters to vendors (or publishers) can be written and sent, as is done under the present manual system. A library that chooses to have claim notices sent to the library--perhaps in order to maintain control over each claiming decision--rather than sent directly to the vendor (or publisher) would, of course, still haveto mail its own claims, thus saving less time than would be possible under the more fully automatic component. Adoption of the semi-automatic or non-automatic option would mean correspondingly less time saved in the performance of the claiming operation over the current manual system. It is conceivable,

however, that a library might choose one of those options in preference to the automatic component, in order to have more direct control over claiming, i.e., over what items are claimed and when. The determination of the need for more control might be made by a particular library after a trial run with the fully automatic system.

Binding

The binding component will identify completion of a binding unit from data entered into each serial check-in record by each participating library. The data will include all necessary binding information such as type of binding, color of lettering, bindery schedule, and bindery code. When the system identifies a completed binding unit, it will output a printed notice complete with all binding information which will be forwarded to the library. Adoption by the U.S.F. Library of the binding component would result in the elimination of the periodic binding checks of the CSR file. Pull flags would no longer need to be placed in the final issue of a binding unit during the check-in process. When the computer-produced binding notice was received from OCLC, the unit to be bound would be pulled by the Binding subsystem staff and prepared, according to the present procedure, for shipment to the bindery.[1] The bindery notice would accompany the shipment, replacing the bindery slip that is

[1]Insufficient information is available from QCLC at the present to determine how and when a check-in record will indicate that a unit has been identified as ready for binding.

currently filled out and sent with each unit.

File Conversion

The check-in component will consist of: (1) on-line storage of serial check-in records, (2) automatic prediction of "next expected issue" and arrival date, and (3) automatic update of check-in records. The file of serial check-in records stored in the OCLC data base would replace the CSR. Thus each library must create a separate machine-readable check-in record for each serial subscription. Clearly, this would be a sizable undertaking for the Serials Department at U.S.F., subscribing as it does to over 6000 serials. OCLC reports the experience of the only library which has begun creation of check-in records, Case Western Reserve, at which an average of between eight and nine records were created per hour. Using a figure of 8.5 records created per hour, it would take approximately 706 man hours to convert 6000 serial records. But OCLC indicated that fewer records per hour might be created by other libraries, as the particular library reported on took advantage of relatively low response time by having staff enter records during evening hours and on Saturdays, and, furthermore, the library did not enter retrospective holdings unless they were straightforward.[1] Assuming that the conversion--were it to be undertaken at U.S.F.--would be done over an extended period, as staff time

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[1]Personal letter from Meg Sarver, OCLC systems analyst, March 17, 1976.

permitted, it is nevertheless likely, inasmuch as the present staff considers itself shorthanded, that some temporary additional staff would need to be employed to aid in the creation of check-in records.

Check-in Record

The serials check-in record is the on-line record of holdings and receipt dates but includes other pertinent holding information as well. The record must be input by each individual library, and since it is designed primarily for local use, each library may set its own policies for entering information. The information originally supplied on the workform to initiate the record may be modified, deleted, or corrected at any time.

The heading of a check-in record identifies the serial. The first line contains the name main entry and title, followed on the second line by the key title (when it is contained in the bibliographic record); the third line will indicate the ISSN, OCLC control number, frequency code and regularity code. The record is designed for local use; however, in order to permit sharing of information, certain holding fields and subfields are uniformly defined for use by all member libraries. The above described heading design of an entry card is considered relatively uniform.

All of the information given in the heading of the Serials Check-in Record is taken from the bibliographic record. It is not a physical part of the check-in record as this information is not stored with local data, but is used

on the display screen along with local information. The OCLC control number serves as a link between the bibliographic record and data from the local library.

A check-in record contains two fixed fields, both containing information in coded form. Each field is preceded by a start-of-message symbol (Þ), and the information given is closed by a field terminator (¶). The first field appears immediately below the heading and identifies the holding library ("Hld lib"), "Copy", Reproduction ("Repr"), Subscription status ("Subsc stat") and "Loan". The operator enters the four-character holding code for the library. Only this code identified in the institution's OCLC profile may be entered in this element. The system will respond with ILLEGAL HOLDING LIBRARY if an unauthorized code is entered. If no code is entered, the system will supply the main holding code by default.

The "Copy" element of the serials check-in contains a numeric copy identification to distinguish multiple check-in records for one serial. Each institution assigns copy numbers according to its own criteria. This identification must be numeric and less than 255. The element will remain blank if the operator does not enter a copy number.

The reproduction ("Repr") element uses a one character alphabetic code to distinguish the form of the reproduction, such as: "a" for microfilm, "b" for microfiche, etc. If no code is entered, the value will default to blank and indicate that it is not a reproduction; this is shown by a slashed b (ƀ).

Subscription status ("Subsc stat") is the fourth element and contains a one character code describing the status of the library's subscription to the serial. An "a" would indicate "active"; "b" would indicate "active temporarily"; "c" would indicate "cancelled"; and "d" would indicate "dead". If no code is entered, an "a" is automatically supplied by default.

The "Loan" element is the last one in the fixed field, and it describes the loan policy for the serial. This is confined to a local loan and not interlibrary. When the check-in record is created, the operator enters the one character alphabetic code, and when the record is subsequently changed or retrieved, the system will provide a code to describe the determined loan policy. For example, if the code "a" is assigned, the serial is not loanable in any form and the screen display will advise "not loanable". An "f" code would indicate a loan period of three days and this would also appear on the screen display if the code "f" was initially entered. If no code is entered into this element, no value will be supplied.

The second fixed field follows line 6 of the variable fields and is labeled "Date recd". Contained in the field are the day, month, and year of receipt for the six most recent issues. This is given in six characters, e.g., 740113 would indicate the issue of January 13, 1974; the earliest issue is on the left and the last on the extreme right. If one issue in this sequence is missing, the date will be sub-

stituted by six question marks. Where records are continually updated, this field will be recorded and be quite helpful in check-in as well as in the claiming of missing issues.

Ten variable fields are included in a serials check-in record. A symbol (▷) precedes each field and is followed by a line number that gives the sequence of each given line. The tag, or information code, follows; the contents of the field is next, followed by the field terminator (¶). Subfields may be used within the individual variable fields; these are identified by delimiters (≠) and subfield codes. Each variable field is identified by a mnemonic four character alphabetic tab. The ten variable fields include:

1 CLNO (Call number)
2 LOCN (Location)
3 FUND (Fund)
4 RMKS (Remarks)
5 DEFN (Definition)
6 NEXT (Next expected issue)
7 CRHD (Current holdings)
8 RTHD (Retrospective holdings)
9 CLMS (Claims)
10 BNDG (Binding)

Each field is shown on the screen in numerical order, with the start-of-message symbol (▷) shown before the field tab, e.g., CLNO field would indicate the call number used by the library for that serial.

Subfields may be included and in the call number field are defined by "a" and "b" preceded by a delimiter. Thus the "call number" field, field number one, would be displayed as follows:

▷ 1 CLNO GV1507.C7 ≠b S5 ¶

The regular call number is GV1507 .C7, while the book

number is denoted in the subfield "b". The remaining nine fields are formulated in the same manner; the number of subfields, however, varies from field to field. It is not mandatory that data be entered into every field; any one field may remain blank. (See Figure 1)

Creation of the Check-in Record

Before the operator can request a workform to create a check-in record he must log-in to the Serials Control Subsystem and enter the search key, thus retrieveing a bibliographic record (although it will not display on the terminal screen.) The institution's symbol must have previously been entered on the record.

When the search entry has retrieved a single bibliographic record for the serial, the system will scan that record for the three-character institution symbol. If the symbol is present but no check-in record exists, it will respond NO HOLDING RECORD. The operator will then request a workform by entering the command "wfc" DISPLAY REC'D SEND.

The workform is then displayed; it gives the serial's name, the main entry and title, the key title, ISSN, OCLC control number, frequency code, and regularity code. The information is extracted from the bibliographic record which was previously scanned. Following this heading the fixed fields and tags for the ten variable fields are provided for entering local information needed for serials control. (See Figure 2)

To create the check-in record, the operator enters

```
The Albertan geographer.
ISSN: 0065-6097  OCLC no: 910291   Frequn: a   Regulr: r
▷ Hld lib: TRNH Copy: 1 Repr:   Subsc stat: a Loan: 1 WEEK ¶

▷ 1 CLNO    G1 ǂb .A43 ¶
▷ 2 LOCN    soc sci/hum ¶
▷ 3 FUND    Geography. ¶
▷ 4 RMKS    Vols. 1-7 have been separately pam-bound. ¶
▷ 5 DEFN    ǂv no. ¶
▷ 6 NEXT    ǂv 12 ǂd 761231 ¶

▷ Date recd:  721128  721128  721128  730507  740715  750628 ¶

▷ 7 CRHD    ǂv 8-11 ǂy 1972-1975 ¶
▷ 8 RTHD    ǂv 1-7 ǂy 1964/65-1970/71 ¶
▷ 9 CLMS     ¶
▷10 BNDG     ¶
```

FIGURE 1: SERIALS CHECK-IN RECORD

The Albertan geographer.
ISSN: 0065-6097 OCLC no: 910291 Frequn: a Regulr: r
▷ Hld lib: TRNH Copy: 1 Repr: Subsc stat: a Loan: 1 WEEK ¶

▷ 1 CLNO G1 ǂb .A43 ¶
▷ 2 LOCN soc sci/hum ¶
▷ 3 FUND Geography. ¶
▷ 4 RMKS Vols. 1-7 have been separately pam-bound. ¶
▷ 5 DEFN ǂv no. ¶
▷ 6 NEXT ǂv 12 ǂd 761231 ¶

▷ Date recd: 721128 721128 721128 730507 740715 750628 ¶

▷ 7 CRHD ǂv 8-11 ǂy 1972-1975 ¶
▷ 8 RTHD ǂv 1-7 ǂy 1964/65-1970/71 ¶
▷ 9 CLMS ¶
▷10 BNDG ¶

FIGURE 1: SERIALS CHECK-IN RECORD

Journal of medical education.
Journal of medical education
ISSN: 0022-2577 OCLC no: 1605691 Frequn: m Regulr: r

▷ Hld lib: Copy: Repr: Subsc stat: Loan: ¶

▷ 1 CLNO ǂb ¶
▷ 2 LOCN ǂb ¶
▷ 3 FUND ¶
▷ 4 RMKS ¶
▷ 5 DEFN ǂv vol. ǂp no. ¶
▷ 6 NEXT ǂv ǂp ǂd ¶

▷ Date recd: ¶

▷ 7 CRHD ǂv ǂp ¶
▷ 8 RTHD ǂv ǂp ¶
▷ 9 CLMS ǂb ǂc ǂd ¶
▷ 10 BNDG ¶

FIGURE 2 SERIALS CHECK-IN RECORD WORKFORM

data into all of the applicable fields. In each fixed field element this is done by positioning the cursor in the space following the name and entering the appropriate code. Data is entered into a variable field by depressing the INSERT key and positioning the cursor five spaces after the tag, after which the operator proceeds to enter the data along with any delimiters and subfield codes not provided on the workform. As the characters are entered, the field terminator will move down to the next line. Each field must be individually transmitted to the central computer system. When one field is completed, the operator depresses ADVANCE LINE which will advance the cursor to the next field.

The system will respond "Fixed field updated" when data for a fixed field has been accepted by the system. The response will be "Field CLNO added", for example, when the call number field is entered.

When all data has been accepted, the operator will depress UPDATE and SEND. This action integrates the check-in record into the on-line catalog for subsequent retrieval. When accepted into the system, the response will appear on the terminal screen "Record stored".

A separate check-in record must be created for each copy of a serial which a library has. If a library has more than one copy of a serial, after the first check-in record is created and when it is still displayed on the screen, the operator makes changes in any fields in order to reflect the second copy. When the screen display matches the second copy,

the operator will enter the command "add" UPDATE SEND.

Modification of the Check-in Record

Modification of a check-in record may mean an addition, alteration, or deletion of information included in the record, and it may be done at any time.

Changes are made by entering data onto the terminal screen within the appropriate field. After the alteration, the operator depresses ADVANCE LINE and SEND. This transmits the altered field into the system. When the change has been accepted, the screen will indicate it by displaying the appropriate information: Field ____ added, or Field ____ replaced, or Field ____ deleted.

To replace a check-in record, the operator requests that the altered record be displayed for proofreading by keying "rf" DISPLAY REC'D and SEND. When the record appears as it should, the operator depresses UPDATE and SEND. The system will advise "Record replaced."

Deletion of a Check-in Record

If all issues of a serial are removed from a library, it may be expedient to delete the check-in record rather than to maintain the obselete information in the data bank. This can be done by retrieving the check-in record and then entering the letters "del", followied by UPDATE and SEND. The system will respond "Record deleted."

Retrieval of Check-in Records

Once a check-in record is entered into the system,

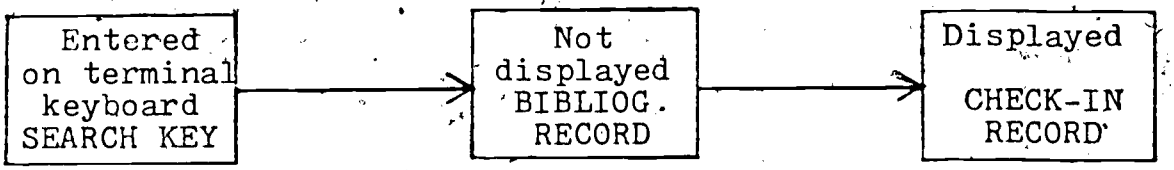
automatic check-in is possible. But before a check-in record can be updated, it must be retrieved. The process can be thought of as having four parts: log-in, retrieve check-in records, check-in, and log-off.

Logging-in is done according to the format:

NNN-NNN-NNNsss,llll[1]
SEND

The computer's response will be the display on the screen of the operator's short name or initials (up to seven characters).

After logging-in, the operator is ready to search for a serials check-in record. A search key is entered, and the entire OCLC bibliographic record file (not merely a file of check-in records) is searched for all bibliographic records that correspond to the search key--this may include monographs as well as serials. When the search or sequence of searches retrieves the desired bibliographic record, that record is not displayed on the screen, but rather the institution's check-in record corresponding to that bibliographic record is displayed.



[1] NNN-NNN-NNN - user's authorization number
sss - subsystem designator (ckn - serials control)
llll - level designator (full, part, srch)
SEND - depression of SEND key

There are seven possible types of search keys: OCLC control number, Library of Congress card number, International Standard Serial Number (ISSN), CODEN, personal name main entry, title, and name/title. It is clearly advantageous to use a unique search key, i.e., one that will retrieve one and only one record, thus avoiding an extended search. Regrettably, each of the four unique search keys has disadvantages or limitations. Any key which is found on the cover of a serial is a particularly useful key. Thus the OCLC control number and the Library of Congress card number, neither of which ever presently occurs on a periodical cover, are not useful keys. ISSN and CODEN are the preferred search keys and will be used in all cases in which they appear on a serial cover. A random sample of 100 of the currently-received periodicals at the U.S.F. Library demonstrated, however, that only 12 percent of the covers have ISSN and/or CODEN. Thus a search key other than ISSN or CODEN would have to be chosen for 88 percent of the periodicals. (On the basis of the standard error of this estimate we can be 95 percent confident that the true percentage of periodicals having ISSN and/or CODEN on their covers lies between 9.60 and 14.40.)

Personal name main entry and name/title keys are not applicable to most periodicals; thus in the great majority of cases a title search key will need to be used. The major disadvantage of using a title search key is that more than one record may be retrieved, thus making it necessary to narrow the search. The likelihood of retrieving multiple records

when using a title search key is considerably greater for periodicals than for monographs. A look at the format for search by title will demonstrate why. The format for maximum specificity (other less specific formats may be used) is 3,2,2,1, i.e., the first three letters of the first word, the first two letters of the second and third words, and the first letter of the fourth word. Three commas are required to indicate a title search regardless of how many words are actually contained in a title, e.g., Library Journal would be keyed lib,jo,, and Newsweek would be keyed new,,,

Many periodical titles start with the words "Journal of". Of a random sample of 100 serial titles taken from the U.S.F. serials computer print-out, seven started in that manner, which if projected to the entire collection of approximately 6000 serial titles, would mean that 420 U.S.F. titles begin with "Journal of." Two of the seven were not retrieved on the SOLINET terminal after five minutes searching, at which time retrieval attempts were discontinued. If projected to the entire collection, a total of 117 titles beginning with "Journal of" would not be retrieved by title in less than five minutes. This test was admittedly very limited; however, it does serve to illustrate a problem of retrieval by title search key that is unique to serials.

One can readily see that an attempt to retrieve a record through title search key would frequently result in the retrieval of multiple records. An experiment run on a U.S.F. terminal demonstrated this very clearly. For the ex-

periment a random sample of 100 titles was chosen from the U.S.F. serials computer print-out. Each of the titles was searched by title key on a SOLINET terminal using the format of maximum specificity. Retrieval time and number of transactions (i.e., the number of individual keying operations, each of which results in a distinct screen display, that were required before a check-in record was displayed) were noted for each title. Inasmuch as the operator was a novice at working with the terminal and felt that she improved in speed and accuracy with practice, it was decided to compile statistics on the basis of the last 50 titles keyed only.

Shown in Table 1 are the number and percentage of the 50 titles that were retrieved in one retrieval transaction, in two retrieval transactions, and in three retrieval transactions, and those that were not retrieved at all.[1]

Table 1

No. of retrieval transactions	No. of titles retrieved	Percentage of titles retrieved
1	8	16.0
2	25	50.0
3 or more	4	8.0
unable to retrieve	13	26.0
TOTAL	50	100.0

Using the figures in Table 1, it is possible to determine the number of retrieval transactions and percentage of titles

[1]Those not retrieved included those that after keying brought a display response of "not in index" and those that brought a response of "request impossible. The response produces more than the present limit of 256 entries," as well as those that were not retrieved after a five minute search.

retrieved in a sample of 100 serial titles retrieved by ISSN or CODEN when possible, or by title. These are shown in Table 2.

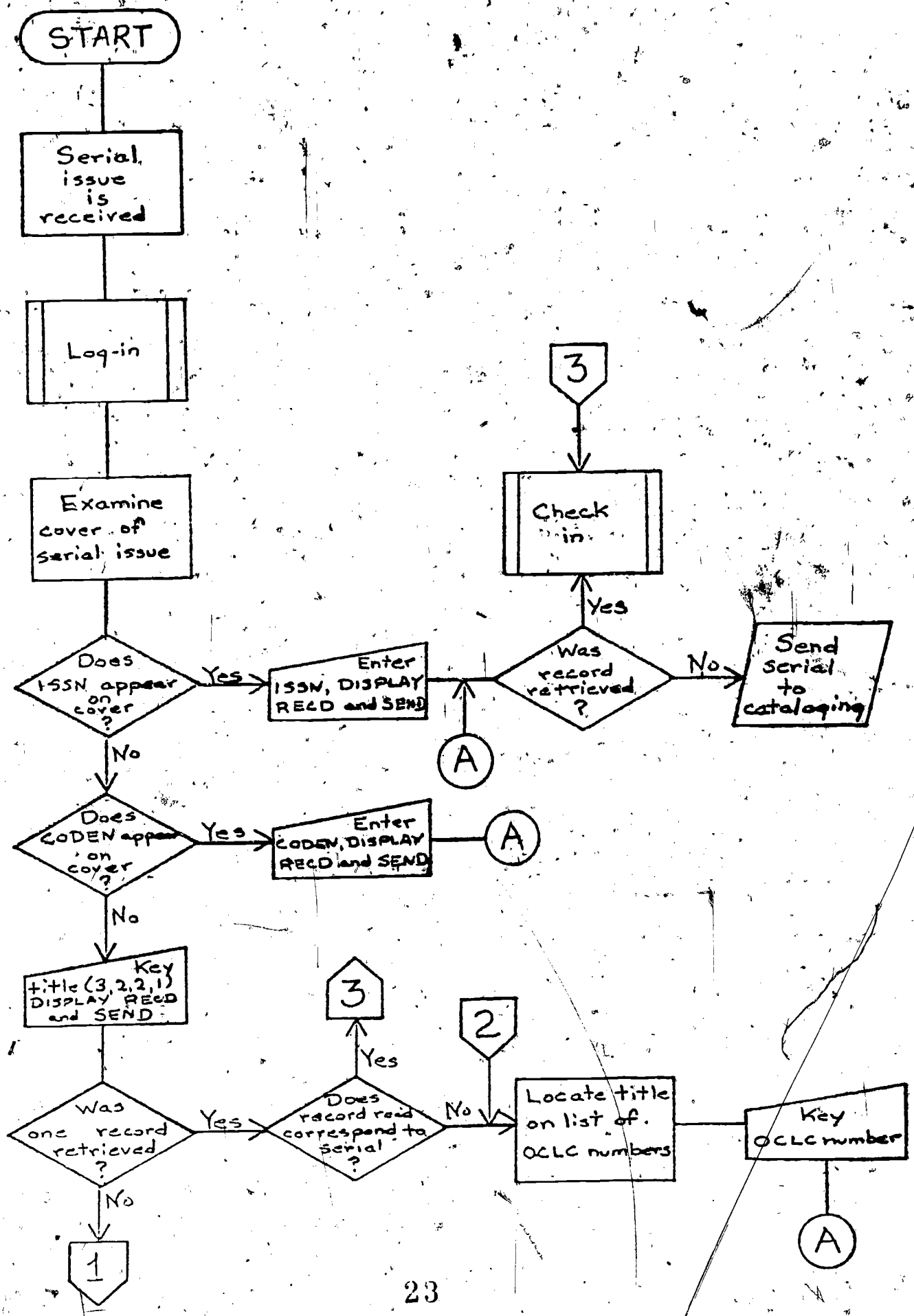
Table 2

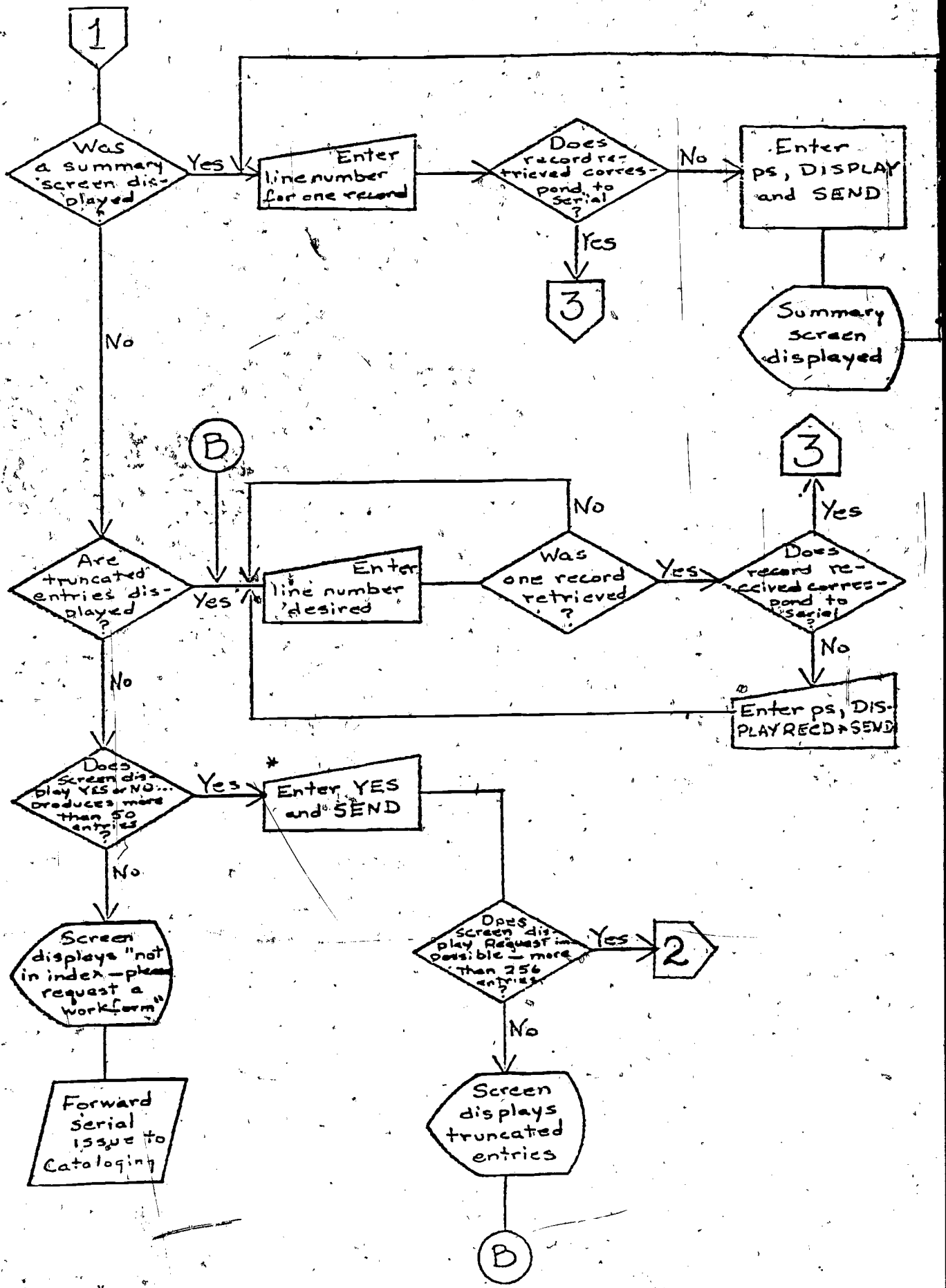
Search key	No. of retrieval transactions	Percentage of titles retrieved
ISSN/CODEN	1	12.0
Title	1	14.0
Title	2	44.0
Title	3 or more	7.0
Title	not retrieved	23.0
TOTAL		100.0

Because of the difficulty of retrieving serials by title search key, it may be necessary to keep a list of OCLC control numbers arranged by serial title, which can be referred to if title search fails. Perhaps these numbers could be added to the computer print-out. In recognition of the difficulty of searching for serials by title the Freiberger Library at Case Western Reserve University is offering for sale to any library planning to adopt OCLC's Serials Control Subsystem a copy of a serials print-out containing OCLC control numbers for about 5000 serials (price $20.00). As an alternative to compiling its own list of serials with their corresponding OCLC numbers, the U.S.F. Library might consider purchase of the Case Western Reserve list, recognizing, however, that the list is limited in number of titles and represents the collection of a particular library--one would not be certain of finding a particular U.S.F. title listed.

If the operator has tried all possible search keys

RETRIEVAL OF SERIAL CHECK-IN RECORD





*In actual practice an operator would probably choose to consult a list of OCLC control numbers because response time increases greatly at this point (a minimum of three minutes from the keying of YES to the next screen display in the SOLINET experiment.)

without retrieving the desired record, the computer will instruct "please request a workform," an indication that the item has not been cataloged and that there is no check-in record for it in the system. Failure to retrieve a record may mean that the serial in question is the first issue of a new subscription or that it is an unsolicited serial.

Check-in Procedure

After the desired check-in record is displayed on the terminal screen, the operator will compare the issue received with the predicted issue in "NEXT". The three possible results of a comparison are:

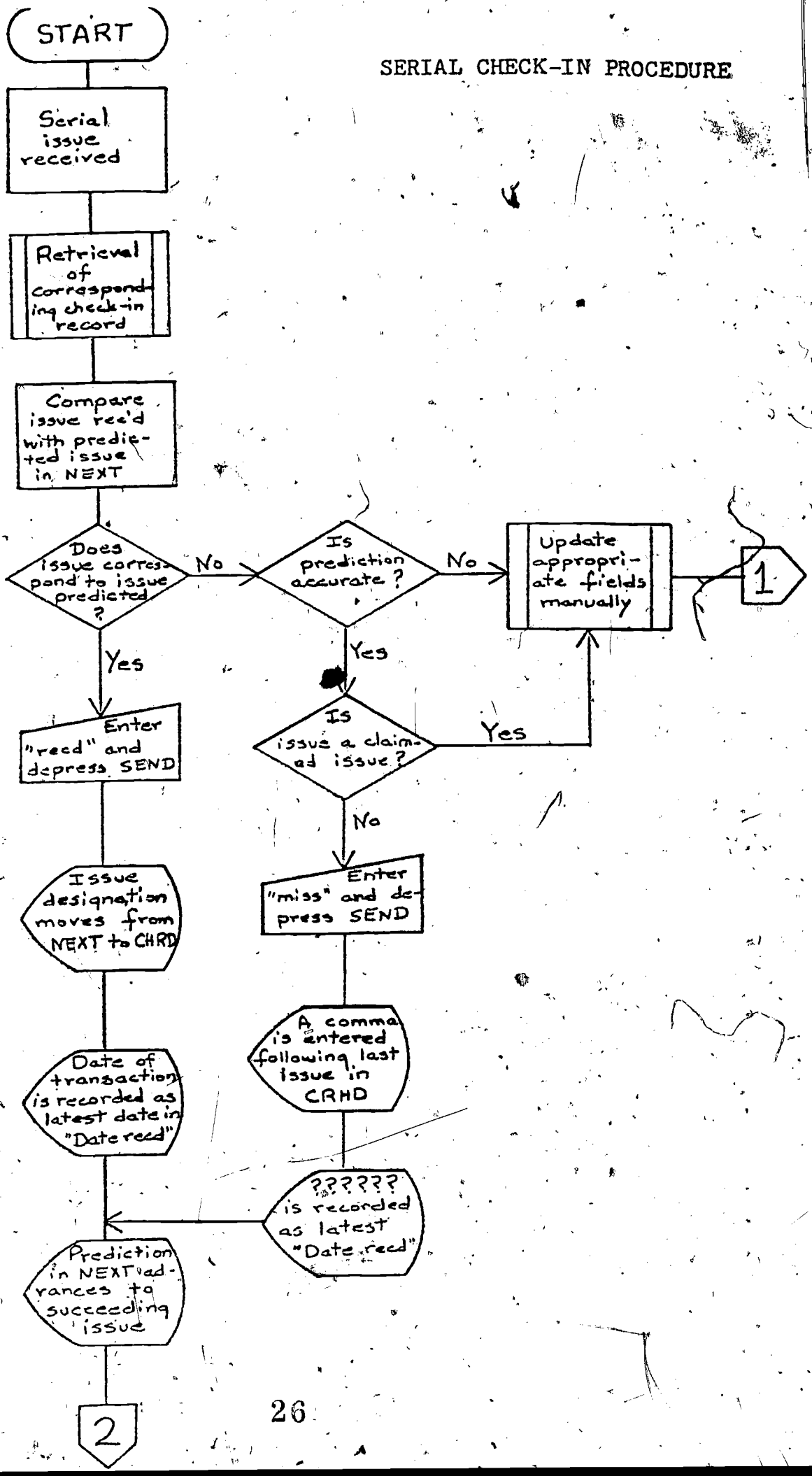
1. The issue received corresponds to the issue predicted, in which case the operator enters "recd" and depresses SEND, causing the check-in record to be updated automatically.

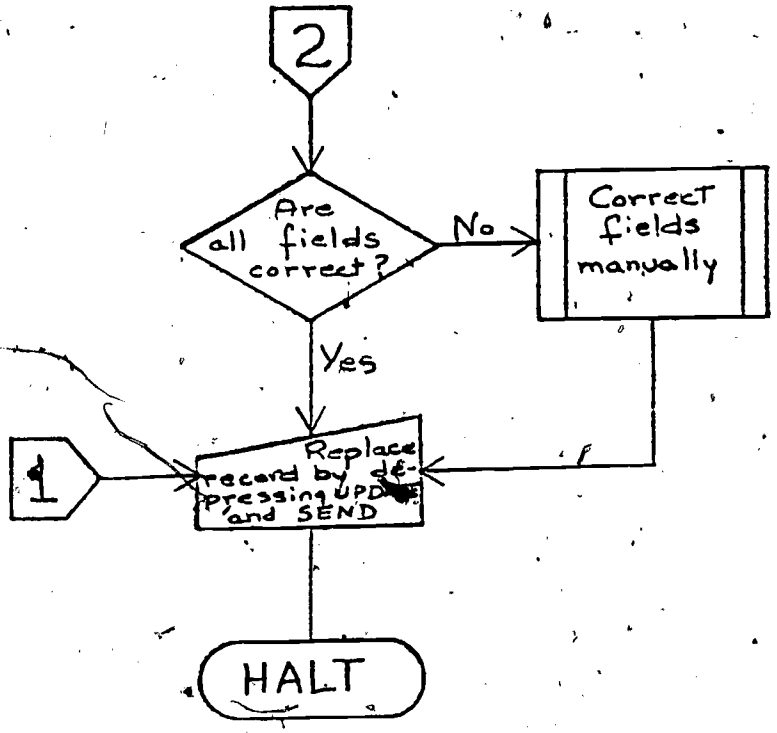
2. The issue received does not correspond to the issue predicted; the prediction is accurate but the issue received is later than the issue predicted, in which case the operator enters "miss" and depresses SEND, which causes the system to indicate that the predicted issue is missing. The operator then initiates automatic check-in, as above.

3. The issue does not correspond to the issue predicted due to an error in prediction or because the issue received is a back issue, in which case the operator manually updates the appropriate fields.

After one of the three operations above is completed, the operator replaces the record by depressing UPDATE and SEND. (See flow chart on following page.)

SERIAL CHECK-IN PROCEDURE




2
Are all fields correct?
No
Correct fields manually
Yes
1
Replace record by depressing UPDATE and SEND
HALT

On January 5, 1976 OCLC clocked the response time of all messages between 9 A.M. and 3 P.M. and found that the mean response time was 7.97 seconds. When the OCLC Serials Control Subsystem is operational, and the system makes an accurate prediction of the next predicted issue, checking in one issue should require three transactions (to search the record, to send the "recd" command, and to replace the record.). Based on a mean response time of 7.97 seconds, one title could be checked in in 23.91 seconds, plus an estimated time for thinking and keying of three seconds per transaction, a total check-in time per serial of 32.91 seconds, or 109 titles per hour. This compares very favorably with U.S.F.'s present manual check-in system, which on February 25, 1976, averaged 17 pieces per hour.

This computation, however, assumes that only one transaction will be required to retrieve a check-in record. The results obtained in the SOLINET experiment refute that presumption, for only 16 percent of the sample titles were retrieved in one transaction (i.e., after one keying operation.) Thus out of every 100 serials the check-in records for only 26 would be retrieved in one transaction--12 by ISSN or CODEN and 14 (16 percent of the 88 percent that must be retrieved by some other search key)by title.

Table 3 provides a summary of the length of time required for check-in assuming that no fields need to be altered. If it is assumed that no fields are altered, 26 percent of the titles could be retrieved in one transaction and would be

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Table 3

	No. of retrieval transactions		Consultation of OCLC list
	1	2	
Total no. of transactions	3	4	4
Seconds	32.91	43.88	53.88
Check-ins/hr.	109	82	67

able to be checked in at a rate of 109 per hour, while 44 percent would require two retrieval transactions and could be checked in at a rate of 82 per hour. For the remaining 30 percent it would not be advisable to continue the on-line search. When a title is keyed resulting in a display of ". . . produces more than 50 entries. Do you wish to continue with this search?", response time in a continued search at that point increases dramatically--during the SOLINET experiment a minimum of three minutes elapsed before there was a new display, which in some instances turned out to be completely non-productive, i.e., the message read "Response impossible. The response produces more than the present limit of 256 entries." Thus at this point in the search it is advisable, rather than to continue the on-line search, to consult a list of OCLC numbers, such as that available from Case Western Reserve University. Allowing ten seconds for consulting the list, the remaining 30 percent of the titles would be retrieved at the rate of 67 per hour. The following equation illustrates the number of check-ins that could be expected when no fields are altered:

$$.26(109) + .44(82) + .30(67) = 84.5 \text{ check-ins per hour}$$

Thus in actual practice the mean number of check-ins per hour would be not more than 84.5 and could be expected to be considerably less, the true mean depending on the number of check-ins requiring alteration.

If the system prediction of next expected issue is not correct, additional transactions (a total of between four and six) would be required (to search for record, to alter and send two to four fields, and to replace the record).[1] It would seem reasonable to assume that the alteration of fields would require more than three seconds of thinking and keying time--perhaps five for each field would be a plausible estimate. Assume that an issue of the Journal of Jazz Studies is to be checked in. In the SOLINET experiment it required two transactions to retrieve a record for that particular periodical--the first keying resulted in a summary screen from which the title of the particular journal desired was chosen and then, in the second transaction, was keyed. Those two transactions would require 7.97 seconds for each transaction plus three seconds for thinking and keying time, a total of 21.94 seconds. Now assume that the issue received is later than the issue predicted and that two fields need to be altered. Altering of the fields requires 7.97 seconds for each alteration plus five seconds for keying and thinking, a total of 25.94. After the alterations are entered the record is replaced, which takes

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[1]Personal letter from Meg Sarver, March 17, 1976.

10.97 seconds (7.97 seconds plus three seconds for keying and thinking). The total time for check-in of that particular issue of that particular periodical would require a total of 58.85 seconds (21.94 + 25.94 + 10.97).

Since it is certain that some alteration of fields will be necessary, it will be assumed, for the purpose of making a comparison with the check-in situation detailed previously (i.e., in which no fields were altered), that of a group of titles to be checked in 80 percent will require no field alteration, while 10 percent will require that two fields be altered, 5 percent will require three fields altered, another 5 percent will require four fields altered. Table 4 details the number of seconds required and check-ins per hour possible under differing retrieval situations and how those factors vary according to the number of fields that require alteration.

Table 4

No. of fields altered	0	2	3	4
	One retrieval transaction			
Total no. of transactions	3	4	5	6
Seconds required	32.91	47.88	60.85	73.82
Check-ins per hour	109	75	59	49
	Two retrieval transactions			
Total no. of transactions	4	5	6	7
Seconds required	43.88	58.85	71.82	84.79
Check-ins per hour	82	61	50	42
	Consultation of OCLC no. list			
Total no. of transactions	4	5	6	7
Seconds required	53.88	68.85	81.82	94.79
Check-ins per hour	67	52	44	38

The following equations are based on the figures in the table and on the assumption that is made on the previous page regarding the percentage of titles that will require alteration of fields:

The mean number of seconds it will take to check in one title assuming one retrieval transaction only is
$[.80(32.91) + .10(47.88) + .05(60.85) + .05(73.82)] = 37.8$

The mean number of seconds it will take to check in one title assuming two retrieval transactions is
$[.80(43.88) + .10(58.85) + .05(71.82) + .05(84.79)] = 48.8$

The mean number of seconds it will take to check in one title assuming that a list of OCLC numbers is consulted after keying title reveals that more than two transactions will be required to retrieve the check-in record title search is
$[.80(53.88) + .10(68.85) + .05(81.82) + .05(94.79)] = 58.8$

Therefore the mean number of seconds it will take to check in one title is given by
$[.26(37.8) + .44(48.8) + .30(58.8)] = 48.94$ seconds

Thus in the hypothetical situation in which 80 percent of a group of titles that is checked in requires no field alteration, 10 percent require two field alterations, 5 percent require three field alterations, and 5 percent require four field alterations, one title will be checked in in 48.94 seconds, or 73.6 titles will be checked in per hour.

Clearly, the variables are numerous--and not all of them have been considered here, e.g., the eventuality that a particular title may not be on a list of OCLC numbers. Nonetheless, it is evident that check-in by means of OCLC's automated system will result in considerably more serial issues being checked in per hour than the 17 that are now

being done under the manual system.

But what of the cost? If it is assumed that no fields are altered and 84.5 check-ins are done in one hour, the cost would be $21.34.

.034 (per check-in) x 84.5 =	2.87
log-in (per log-in)	.61
connect charge (per hour)	14.64
hourly salary	3.22
	$21.34

The hourly salary is based on the assumption that check-in is done in equal amounts by Clerk III's and Clerk II's and will continue to be done so should OCLC's serials control system be adopted. The median hourly salary ranges have been averaged, resulting in a $3.22 median hourly salary.[1] The cost of checking in 73.6 records, the number of titles checked in per hour in the hypothetical situation above would be $20.97.

By the present manual system it cost $15.97 to check in 84.5 titles and $13.92 to check in 73.6 titles. Thus it would cost 25 percent and 34 percent more to check in 84.5 and 73.6 titles respectively by OCLC's automated serials control system than it does under the present system at U.S.F.

After the daily check-in of serials is completed, the operator will log-off, a procedure accomplished by entering "end" and depressing SEND. The operator will know that the message has been received when the computer responds "Good-bye".

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[1]Clerk III salary range is $6264-7955, while Clerk II salary range is $5575-6974.

Further Considerations

Some additional factors that should be considered when the adoption of OCLC's Serials Control Subsystem is contemplated are the cost of equipment and maintenance, OCLC's response time degradation, down time, the present status of the Serials Control Subsystem, and the future status of SOLINET in relation to OCLC.

OCLC offers two plans: one, an inclusive plan available to Ohio member libraries and to independent participating libraries, whereby a library pays a set charge for each transaction, this single charge covering the cost of terminals and telecommunications; two, a basic plan available to libraries, like the U.S.F. Library, that participate in OCLC as members of other networks, whereby transaction charges are lower than under the inclusive plan but do not include the cost of terminals and telecommunications.

The following are proposed OCLC charges for the fiscal year 1976/77:

Terminal	$4514.00
Terminal installation	143.90
First access	1.88
Tymnet (communications)	
Log-on (per log-on)	.61
Connect charge (per hour)	14.64
Maintenance	
Monthly charge per terminal (includes 3 calls/year)	50.60
Each additional call	202.35

That maintenance charges can be considerably greater than the charges list might indicate is evidenced by the fact

that one of U.S.F.'s five terminals required twelve maintenance calls during 1975.

OCLC has set 8.5 seconds as the minimum acceptable response time, and in the test conducted on January 5, 1976 a mean response time of 7.97 was realized. During much of last year, however, the response time was considerably higher; it was, for example, reported as 15.1 seconds during the week of November 3-7. OCLC installed a new computer in December, effecting a reduction in response time. Users, nevertheless, are concerned about possible future overload of the system and subsequent degradation of response time, a concern that is likely to increase as the Serials Control Subsystem is implemented and system activity is intensified.

Another problem of concern to users is down time. The record kept at the U.S.F. Library indicates that during February 1976, the first full month that all five terminals were in operation, there was a down time of 176 hours, or 11 percent of the operating hours (weekdays, 8 A.M. - 10 P.M.; Saturday, 8 A.M. - 5 P.M.). That down time is considerably greater during some months is indicated by the fact that during December 1975 with only two terminals in operation the U.S.F. Library clocked a down time of 285 hours.

OCLC's Serials Control Subsystem has not as yet been implemented. Some delay was experienced when, in order not to degrade response time further while a new computer was being installed and the on-line system was being converted to run on two computers, all software additions and changes were suspended. Moreover, it was determined that additional

programming is necessary before implementation can become a reality.[1] Presently the system has the capability to handle the creation of check-in records on-line, but to date only one library, that of Case Western Reserve University, has begun a serious conversion project. No date has been set by OCLC for full implementation of serials control.

Furthermore, the future status of SOLINET is not as yet clear. Its contract with OCLC will terminate in 1978, at which time SOLINET will decide whether to enter into a new contract with OCLC or to function as a wholly independent system.

CONCLUSION

The automation of library operations, including those of the Serials Department at the U.S.F. Library, is a subject that should concern all librarians, for the exponential growth in the number of titles is making the organization and retrieval of data increasingly difficult under present manual systems. Automation of many aspects of serials control is becoming increasingly inevitable and advisable. Whether OCLC's Serials Control Subsystem will ultimately prove to be the best automation choice for U.S.F. is not possible to state conclusively at the present time. As the subsystem is implemented elsewhere and experience is gained, further study will be needed to determine its cost effectiveness for U.S.F. Automation alternatives to the OCLC system,

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[1]Personal letter from Meg Sarver, March 17, 1976.

e.g., the use of on-line terminals through the central university computer and the use of minicomputers, should be studied and evaluated as well.

True, caution is advised when automation is contemplated, but caution must not be an excuse for delay, for the conditions that make adoption of automation a probability heighten with the passage of time.