

The IBM logo consists of the letters "IBM" in a bold, sans-serif font, white against a black rectangular background.

**Systems Reference Library**

**Catalog of Programs for IBM 1240-1401-1420-  
1440-1450 and 1460 Data Processing Systems  
(January 1971)**

This Catalog contains a complete listing of all programs for the IBM 1240, 1401, 1420, 1440, and 1460 Data Processing Systems available from the Program Information Department, 40 Saw Mill River Road, Hawthorne, New York 10532.

Instructions for ordering programs are contained in the section of the Introduction entitled, "Completion of the IBM Program Order Form".

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Copies of this and other IBM publications can be obtained through IBM branch offices. Address comments concerning the contents of this publication to IBM, Program Information Department, 40 Saw Mill River Road, Hawthorne, N.Y. 10532

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## INTRODUCTION

The only authorized IBM agency in the United States for the distribution of programs to IBM users is the DP Program Information Department, 40 Saw Mill River Road, Hawthorne, New York 10532.

## PROGRAMS AVAILABLE FROM PID

IBM makes available a wide variety of programs for IBM systems. This catalog contains a list of available programs categorized as Type I, II, III, IV and Prior Use Programs.

## TYPE I AND II PROGRAMS

Type I and II programs are programs which have been subjected to formal testing. All Type I and II programs have been assigned a Service Classification. For information concerning Service Classifications, contact your IBM Branch Office. Most Type I and all Type II programs were available for delivery from the Program Information Department prior to June 23, 1969.

## TYPE III AND IV PROGRAMS

Type III programs have been submitted by one or more IBM employees. They are programs of general interest submitted for unrestricted distribution. They have met a basic set of programming and documentation standards but are not program tested in any formal fashion by the IBM Corporation. The user is expected to make the final evaluation as to the usefulness in his own environment. These programs were available for delivery from the Program Information Department prior to June 23, 1969.

IBM MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AS TO THE DOCUMENTATION, FUNCTION OR PERFORMANCE OF THESE PROGRAMS.

Systems Engineering Service (charge basis) is available from your IBM Branch Office to assist you with the installation, modification or any technical assistance required for use of this program.

Type IV programs are those contributed for unrestricted distribution by one or more authors of which at least one is an employee of an IBM customer. They are made available by IBM essentially in the author's original form, but conform to published Type IV standards. IBM exercises no control over the technical content of the documentation but merely assures that the quality of reproduction is satisfactory. Type IV programs have not

been tested by IBM. The user is expected to make the final evaluation as to their usefulness in his own environment.

IBM MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AS TO THE DOCUMENTATION, FUNCTION OR PERFORMANCE OF THESE PROGRAMS.

## TYPE III PROGRAMS WITH SERVICE A CLASSIFICATION

Type III programs which were given Service A Classification, perform functions which may be fundamental to the operation and maintenance of the user's system. These programs have not been subjected to formal test by IBM.

Until reclassified, IBM will provide for these Type III programs with the following: (a) Central Programming Service including design error correction and automatic distribution of corrections; (b) Field Engineering Programming Service including design error verification, Authorized Programming Analysis Report (APAR) documentation and submission, and application of Program Temporary Fixes or development of an emergency by-pass when required.

IBM does not guarantee service results or represent or warrant that all errors will be corrected. The user is expected to make the final evaluation as to the usefulness of these programs in his own environment.

THE FOREGOING IS IN LIEU OF ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

## PRIOR USE PROGRAMS

There are a limited number of programs that were developed prior to June 23, 1969 which were in the possession of and were being used by customers without restriction, but were not included in the Type III or IV libraries. These programs have been designated Prior Use Programs and are being made available through the Program Information Department (PID).

Prior Use Programs have not been developed or tested in any formal fashion by the IBM Corporation, and, therefore, are available only on an "as is" basis without charge. It is the customer's responsibility to make the final evaluation as to the usefulness of the program in his own data processing and business environment.

IBM MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED

WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AS TO THE DOCUMENTATION, FUNCTION OR PERFORMANCE OF THESE PROGRAMS.

Prior use programs are classified as follows:

- 360K - System/360 Model 20
- 360L - System/360 Models 25 and Above
- 1131 - 1130 Computing System
- 1801 - 1800 Data Acquisition and Control System
- 1402 - 1401 Data Processing System

IBM CATALOGS OF PROGRAMS

Abstracts and ordering instructions for all programs available from PID are found in the IBM Catalogs of Programs and their Supplements, published periodically by PID. These Catalogs are available from the Mechanicsburg Distribution Center as follows:

| SYSTEM                             | CATALOG     | SUPPLEMENT  |
|------------------------------------|-------------|-------------|
|                                    | FORM NUMBER | FORM NUMBER |
| 1240/1401/1420<br>1440/1450/1460   | GC20-1601   | GN20-0013   |
| 700 Series, 1410,<br>7000 Series   | GC20-1602   | GN20-0014   |
| 1620/1710                          | GC20-1603   | GN20-0015   |
| System/360 Models 25<br>and above. | GC20-1619   | GN20-0030   |
| 1130/1800                          | GC20-1630   | GN20-0031   |
| Model 20                           | GC20-1691   | GN20-1852   |

PID ORDER PROCESSING TURN-AROUND TIMES

The normal elapsed time which can be anticipated from the time the program order is shipped to PID till the time the order is received may be calculated from the following table:

| ACTION                 | TIME IN DAYS                         |
|------------------------|--------------------------------------|
| Order sent to PID      | Average - 4 calendar days in transit |
| Order processed at PID | Maximum - 8 working days at PID      |
| Order sent from PID    | Maximum - 4 calendar days in transit |

Thus, a three-week cycle should be planned for when ordering programs from PID.

PID SHIPPING METHOD'S

PID uses three methods to ship program packages, depending on destination, weight and urgency. This information may be worthwhile to users who send magnetic volumes to PID.

1. United Parcel Service (air and land) is used whenever possible.
2. U.S. Mail is used for destinations beyond United Parcel territories. Fourth Class Special Delivery is the level of service chosen because it provides service comparable to First Class (4 days maximum to any location in the continental United States) at a much lower rate. Special Handling Service it should be noted, is not the same as Special Delivery Service, and is not as fast. PID insures Fourth Class Special Delivery shipments to provide a means for tracing shipments. A signature at the destination is a requirement for insured packages.
3. Air Freight service is used for expedited shipments. To metropolitan centers, overnight delivery can usually be expected. Two day delivery to locations more than 50 miles from a major airport is normal.

COMPLETION OF THE IBM PROGRAM ORDER FORM

INTRODUCTION

The IBM Program Order Form (120-1957) is to be employed for all orders submitted to PID for Type I, II, III, IV and Prior Use programs and for communications with PID relative to the establishment, modification and deletion of PID user profiles. This is the ONLY form to be used for these purposes.

The IBM Program Order Form is a 3-copy form. Copy 3 is retained by the user. Copies 1 and 2 should be forwarded to the IBM Branch Office. After completing Section 5 (see below), the Branch should forward Copy 1 to PID and retain Copy 2 for reference purposes.

THE IBM PROGRAM ORDER FORM CONTAINS 5 SECTIONS:

- Section 1, Program Package Identification, is used to describe the program material required.
- Section 2, Customer and Order Identification, MUST ALWAYS BE COMPLETED.
- Section 3, User Volume Information, is completed when the order

requires the submission of user volumes.

- Section 4, User Registration, is completed to register a new PID user, or to modify or delete a user registration.
- Section 5, For IBM Use, MUST ALWAYS BE COMPLETED by an IBM representative.

Instructions for the completion of each section are given below. Refer to the sample form (Figure1) presented at the end of this discussion.

#### SECTION 1 PROGRAM PACKAGE IDENTIFICATION

This section is used to describe the program packages being ordered. The instructions which follow, apply to ordering all programs described in this catalog.

A program is packaged and distributed under one program number (e.g., 7090-PR-130, 1410-PR-155, 1620-01.6.145, 1440-UT-041, etc.) and is fully specified by entries in Columns 1-24 ON ONE LINE of Section 1. A total of 25 ordering lines have been provided on the order form. If more than 25 lines are required, the order may be continued on a second form and then a third, etc.

#### COLUMN 1 BASIC OR OPTIONAL MATERIAL

The requester specifies, in Column 1, whether the basic or optional program package is required. If both the basic and the optional program packages are required, they must be described separately, on separate lines of the form. The contents of these program packages are described in the abstracts in this manual.

ENTER B or O

#### COLUMN 2 MACHINE READABLE

The requester specifies, in Column 2, whether or not he wishes the machine readable portion of the program package.

ENTER Y or N

#### COLUMN 3 DOCUMENTATION

The requester specifies, in Column 3, whether or not he wishes the documentation portion of the program package. PID will send one copy of the basic documentation associated with each Type I and II program ordered, if the documentation is requested. Requests for ONLY the documentation for Type I and II programs, when the machine readable material is not ordered, should be sent to the Mechanicsburg Distribution Center, by the IBM Branch Office (use Publication Requisition #M02-0618-4). Also, requests for multiple copies of documentation for Type I and II programs

should be requested through the IBM Branch Office.

PID will honor "documentation only" requests for Type III and IV programs and also requests for multiple copies for Type III and IV program documentation, up to 3 copies. If more than 3 copies are required, the user may reproduce copies locally (provided this material is not copyrighted).

ENTER 0 or 1 for Type I and II Programs

ENTER 0, 1, 2 or 3 for Type III and IV Programs

#### COLUMNS 4-13 PROGRAM NUMBER

The exact Program Number, as specified in the ordering information portion of the Catalog of Programs abstract should be entered in this field.

ENTER the Program Number (e.g., 7040SI141) in columns 4-12 or columns 4-13, as the length requires. Omit all special characters such as decimal points or hyphens.

#### COLUMNS 15-20 PROGRAM NUMBER EXTENSION

The Program Number Extension is used in conjunction with the Program Number to completely and uniquely identify orderable Types I, II, III, IV and Prior Use Programs. Program number extensions pertinent to a given program number are described in the ordering information portion of the Catalog of Programs abstract for that program. Whenever a program number requires a program number extension, IT MUST BE ENTERED in Columns 15-20.

ENTER as specified in the Catalog of Programs abstract (left justify).

#### COLUMN 14 ACTION CODE (TYPE I AND II BASIC PROGRAM PACKAGES ONLY)

Column 14 provides the user with the means to maintain his PID profiles for Type I and II programs in order to make most effective use of the Program Update Service. There are 2 specific actions requiring an entry in Column 14. COLUMN 14 SHOULD BE LEFT BLANK IN ALL OTHER CASES. These two actions are:

##### 1. ORDER AN ANNOUNCED MAINTENANCE PACKAGE

Users of record receive announcements of the availability of orderable maintenance packages for programs automatically from PID.

Users wishing to order an announced orderable maintenance package may do so as follows:

ENTER M in Column 14

The program number and any applicable program number extension which is identified in the announcement material must be entered in Columns 4-13 and 15-20 respectively. The remainder of Columns 1-24 must also be completed as applicable.

2. DELETE A TYPE I OR II PROGRAM FROM THE USER PROFILE

Through the Program Update Service, PID makes extensive distributions of machine readable material and documentation to all users of record of all Type I and II basic programs. It is essential that the PID profiles be kept up to date to facilitate the distribution of this material to active users as well as to avoid the distribution of this material to installations no longer using previously ordered Type I and II programs.

A Type I or II program previously ordered, which is no longer being used, may be deleted from the PID profile as follows:

ENTER D in Column 14

The program number and any applicable program number extension must be entered in Columns 4-13 and Columns 15-20 respectively. No other entries in columns 1-24 are required.

COLUMNS 21-22 DISTRIBUTION MEDIUM CODE (See Table Below)

The media on which each Type I, II, III, IV and Prior Use program is available from PID and the codes to be used, in Columns 21-22, to specify the desired media are identified in the Catalog of Programs abstract for each program.

ENTER the selected medium code.

MEDIUM CODE TABLE

| TYPE    | DESCRIPTION  | CODE |
|---------|--|------|
| DTR*    | Medium defined by PID user profile   | 00   |
| PT      | 8 channel paper tape.  | 05   |
| CARDS   | 80 column punched cards.   | 15   |
| 7/556   | Magnetic tape recorded at 7 track, 556 cpi.                                | 22   |
| 7/800   | Magnetic tape recorded at 7 track, 800 cpi.                                | 24   |
| 7DC/800 | Magnetic tape recorded at 7 track, 800 bpi. Data convert feature required. | 26   |
| 9/800   | Magnetic tape recorded at 9 track, 800 bpi.                                | 28   |
| 9/1600  | Magnetic tape recorded at 9 track, 1600 bpi.                               | 29   |
| 1316    | 1316 Disk Pack.  | 52   |
| 2316    | 2316 Disk Cartridge  | 57   |
| 2315    | 2315 Disk Cartridge.   | 58   |

2316

2316 Disk Cartridge.

57

NOTE 1: DTR\*

Card programs will be distributed on DTR's (Distribution Tape Reels) to card users with magnetic tape capability as indicated on the PID user profile (See Section 4). These programs will be distributed in card form to users with no magnetic tape capability. Whenever possible, multiple card programs ordered together will be stacked on one or more DTR's. A retriever will be placed at the beginning of each DTR, enabling the user to selectively punch out the programs stacked on the DTR. Card programs which will be volume shared as described above are identified by DTR\* in the ordering information portion of the Catalog of Programs abstracts. The user may establish or modify the profile entry describing his magnetic tape capability through the use of Section 4 of the Program Order Form.

NOTE 2:

Types I, II, III, IV and Prior Use program orders require the user to specify a medium code. However, in the absence of a medium code, a default option is exercised by PID under the following circumstances.

- . All distribution media for the program package in question (Basic or Optional) must be magnetic tape.
- . User volume requirements for the program package in question (Basic or Optional) must be the same for all tape types.
- . The default medium must be one of the recording densities available.

The default options are:

- . For programs available on 7/556 cpi and 7/800 cpi, 7/800 cpi will be supplied.
- . For programs available on 7DC/800 cpi, 9/800 bpi, or 9/1600 bpi, 9/800 bpi will be supplied.

COLUMNS 23-24 USER VOLUMES REQUIRED

When the programs ordered require the submission of user volumes (2400' magnetic tape reels and/or disk devices) the number of user volumes for each program, as specified in the Catalog of Programs abstract, is entered in Columns 23-24 and Section 3 of the order form is to be completed.

ENTER the number of user volumes required

for the medium type selected. The number should be entered as two digits (01, 02, etc.)

by a tape end  
retainer

Disk cartridges should  
be shipped in the  
standard cartridge  
container (Part  
#7350600).

## SECTION 2 CUSTOMER AND ORDER IDENTIFICATION

### CUSTOMER NUMBER

Enter the 7-digit Customer Number in the space provided ON EVERY IBM PROGRAM ORDER FORM SUBMITTED TO PID. Do not use dashes. Do not use the shaded area unless previously advised to do so. The Customer Number MUST BE ENTERED CORRECTLY because the user profile maintenance and the address to which the ordered program material will be shipped by PID will be determined from this number for all registered PID users (See Section 4). Once registered with PID, users are not required to enter their name and address on the order form.

### ORDER NUMBER

This number is pre-printed on each form.

### PAGE - OF -

If only one form is needed to specify the program order, enter "1 of 1". When more than one form is needed, number the forms "1 of n" "2 of n"... "n of n". Enter the CUSTOMER NUMBER ON EVERY FORM, and staple the forms together when sending to PID.

## SECTION 3 USER VOLUME INFORMATION

The total number of user volumes (2400' magnetic tape reels, disk packs or cartridges) required to fill the program order, as identified program by program in Columns 23-24 of Section 1, should be accounted for in this section. These volumes may either be forwarded to PID or ordered from the appropriate IBM location. Complete Section 3 by entering the number of 2400' magnetic tape reels forwarded or ordered, the serial numbers of disk devices forwarded, or the plant order number, quantity and scheduled shipping dates of the disk devices ordered from San Jose.

Copy 1 of the IBM Program Order Form should accompany user volumes forwarded to PID. User volumes forwarded to PID should be externally labelled as follows:

|                                  |                                  |
|----------------------------------|----------------------------------|
| 2400' MAGNETIC<br>TAPE REELS     | DISK PACKS/<br>CARTRIDGES        |
| 1. Customer Number               | 1. Customer Number               |
| 2. *Order Number<br>(Preprinted) | 2. *Order Number<br>(Preprinted) |
|                                  | 3. Disk serial number            |

It is suggested  
that tape reels  
be of the aluminum  
hub variety and  
the tape secured

Disk packs should be  
shipped in the  
standard disk pack  
containers (Part  
#7350520).

\* If multiple Program Order forms are required to complete the program order, enter the preprinted Order Number from the FIRST FORM on all user volume labels.

In lieu of forwarding tape reels to PID, reels may be purchased in conjunction with ordering programs. To purchase magnetic tape reels, Part #7035113 (10 1/2" diameter, 2400' reel, 3200 FCI, total surface tested, clear front, blue back, solid flanges), contact the IBM representative who can order them directly from PID by sending a completed copy of the Magnetic Tape Order Form #170-1138 to PID together with Copy 1 of the Program Order Form. Part #7035113 is the only part number PID carries. If different tape reels are desired the IBM representative must send orders for them with Copy 1 of the Program Order Form to the Boulder Tape Center. The Tape Center will forward the reels and the Program Order Form to PID. This procedure will of course extend total turnabout time and delay receipt of the program.

Disk packs and disk cartridges may be ordered from San Jose in conjunction with ordering programs. Contact the IBM representative for assistance. Copy 1 of the Program Order Form should be sent directly to PID. Upon receipt of the volumes, PID will fill the order in the normal manner.

## SECTION 4 USER REGISTRATION

Section 4 is completed to register a new PID user and to modify or delete previous registrations. Each user must be registered with PID prior to, or simultaneously with, his first program order. Once the user is registered Section 4 NEED NOT BE COMPLETED AGAIN until the registration data requires modification or deletion.

### ACTION CODE

R: REGISTER a new PID user. All blocks of Section 4 must be completed.

M: MODIFY a previous registration by changing any or all blocks in Section 4. Each block modified must be completely respecified. Thus, a permanent change in the "Attention To" line of the user's name and address requires re-specification of the entire "Ship To" Information block of Section 4. The other blocks are left blank.

D: DELETE a previous registration. This action causes the deletion of the

entire user profile (identified by the 7-digit Customer Number entered in Section 2) from the PID files. No other information is necessary.

S: SPECIAL "Ship To" this order only. This action causes a "Ship To" Information substitution for this order only. The "Ship To" Information block must be completely specified. All other blocks are left blank. The permanent user registration data is not affected.

#### DP BRANCH OFFICE NUMBER/IBM LOCATION

Enter the IBM DP Branch Office number for the IBM customer or DP Branch Office user. Enter the IBM division, location and department codes for IBM users.

#### MAGNETIC TAPE CAPABILITY

As stated in Section 1 (Columns 21-22) Card programs will be volume shared for distribution on Distribution Tape Reels (DTR's) to Card users with magnetic tape capability. These DTR's will have a retriever placed at the front to enable the user to punch the programs out selectively. Enter here the preferred tape recording mode (trackage and density) for these volume shared DTR's. Check "None of These" if not a Card user.

#### "SHIP TO" INFORMATION

Enter the complete shipping address. Do not use only a Post Office Box number since PID uses carriers other than the U. S. Mail. The ZIP CODE must be provided. In the "Attention To" line, if at all possible, enter a position title or department name/number, rather than the name of an individual.

#### SECTION 5 FOR IBM USE

##### IBM CONTACT

Enter the last name and telephone number of the IBM representative familiar with the order. If the representative can be reached on the IBM network, enter NET and the correct seven-digit number. PID will call this person should clarification of any of the information on the Order Form be required.

##### IBM MANAGEMENT SIGNATURE

Each order should be signed by a member of Branch management or, in the case of internal IBM users, by the department manager. The order form should be dated (MM DD YY) and the Branch Office/Department number entered.

##### IBM WORLD TRADE USERS

World Trade users should order programs by contacting their IBM representative.

#### KEYWORD-IN-CONTEXT (KWIC) INDEX

The Keyword-in-Context Index lists all available programs by their search words and keywords. Search words are significant words that describe the program but do not appear in the title. Keywords are significant words which appear in the program title.

Each search word and each keyword is listed alphabetically in a column of the index. Their respective context words are printed to the right of the search word or keyword. There is an index entry for each search word and keyword. Certain words are not accepted as indexing words. They are considered to be too general to be useful for retrieval purposes and are therefore prevented from indexing. Hyphenated words are treated as one index word, with only the first word being significant. Figure 2 illustrates the operation.

Note that the # sign always precedes the first word of the title. An \* sign precedes a search word. Each print line in the KWIC Index contains 43 positions. A search word group or title that is longer than 43 positions will show only the words that fall to the right of the search word or keyword being highlighted, up to the limits of one line. The remaining words become a separate entry on a different line. The + sign at the end of a line indicates there are more words in the search word group or title than are shown. The complete title may be found in the title section of the program abstract.

#### PROGRAM CLASSIFICATION CODES

Classification codes represent areas of function of application to which programs apply. Included below is a complete listing of classification codes for all types of programs and for each system included in this Catalog.

#### PROGRAMMING SYSTEMS TYPE I

|      |  |
|------|--|
| /AD/ | Autochart                              |
| /AS/ | Assembly Systems                       |
| /AT/ | Automatic Test                         |
| /AU/ | Autocoder                              |
| /CB/ | COBOL - Common Bus. Oriented Language  |
| /CT/ | Commercial Translator                  |
| /CV/ | Conversion Programs                    |
| /DN/ | Diagnostic Programs                    |
| /FO/ | FORTTRAN - Formula Translation         |
| /IO/ | Input/Output                           |
| /IM/ | Library Material                       |
| /MI/ | Miscellaneous                          |
| /PR/ | Processor - Includes AU, CB, I/O, etc. |
| /RG/ | Report Generators                      |
| /SI/ | Simulator Programs                     |
| /SM/ | Sort/Merge                             |
| /SP/ | Symbolic Assembly Programs             |



/SV/ Supervisory Systems  
 /UT/ Utility Programs

APPLICATION PROGRAMMING TYPE II

Distribution  
 /DP/ Publishing  
 /DR/ Retail  
 /DW/ Wholesale

Fabrication and Assembly  
 /CN/ Numerical Control Applications  
 /CX/ Other  
 /EE/ Electrical Engineering  
 /EO/ Optics  
 /EX/ Other  
 /ME/ Electrical Machinery

Process  
 /MP/ Petroleum and Industrial  
 Chemicals  
 /MT/ Textiles and Paper

Service Industries

Finance  
 /FB/ Banking  
 /FI/ Brokerage and Investment

Information Retrieval  
 /CR/ Information Retrieval

Insurance  
 /IF/ Fire and Casualty  
 /IL/ Life

State and Local Government  
 /UG/ Government, State and Local

Transportation  
 /ST/ Transportation

Utilities  
 /SU/ Utilities

Federal Region  
 /GF/ Government, Federal

Scientific Industries

Aerospace  
 /MA/ Aerospace

Education  
 /US/ Secondary Schools

Medical  
 /UH/ Hospital and Medical

Scientific Marketing  
 /CA/ Statistical Applications  
 /CO/ Operations Research  
 /CP/ Critical Path Scheduling  
 /CM/ Mathematical Applications  
 /EC/ Civil Engineering  
 /MF/ Fabrication and Primary Metals

Cross Industry

Communications

/SC/ Communications

Simulators  
 /CS/ Simulators

Systems Engineering  
 /SE/ Systems Engineering Techniques

TYPE III AND TYPE IV PROGRAMS

IBM 1401, 1420 and 1460 Data Processing  
 Systems

Utility Programs 1.0

- 1.1 Assembly
- 1.2 Sorting - Merging
- 1.3 Report Generating
- 1.4 Miscellaneous General Purpose
- 1.5 Input/Output
- 1.6 Data Transmission

Programming Systems 2.0

Mathematical Subroutines 3.0

Differential & Integral Equation 4.0

Matrix Programs 5.0

Statistical Programs 6.0

Mathematical Routines 7.0

Physical Sciences 8.0

- 8.1 General Physics
- 8.2 Nuclear Physics
- 8.3 Geology and Geophysics
- 8.4 Other

Engineering Applications 9.0

- 9.1 Aeronautical
- 9.2 Civil
- 9.3 Chemical
- 9.4 Electrical
- 9.5 Mechanical
- 9.6 Petroleum
- 9.7 Other

Management Science 10.0

- 10.1 Linear Programming
- 10.2 Simulation
- 10.3 Other

Demonstration Programs 11.0

Guide 12.0

- 12.1 Utility
- 12.2 Assembly
- 12.3 Simulation
- 12.4 Other

Share 13.0

- 13.1 Utility
- 13.2 Assembly

|  |      |   |   |
|--|------|---|---|
| 13.3 Simulation                                      |      | 9.2 Scheduling  |   |
| 13.4 Other   |      | 9.3 Information Classification & Retrieval  |   |
| Unclassified   | 14.0 | 9.4 Simulators  |   |
| IBM 1440 Data Processing System                      |      | 9.5 Linear Programming  |   |
| Programming Systems                                  | 1.0  | 9.6 General Problem Solvers   |   |
| 1.0 Preprocessing, Editing                           |      | 9.9 Other   |   |
| 1.1 Monitoring or Supervisory                        |      | Commercial Industries Applications  | 10.0  |
| 1.2 Assembly   |      | 10.1 Distribution   |   |
| 1.3 Compiling  |      | 10.2 Finance  |   |
| 1.4 IOCS   |      | 10.3 Insurance  |   |
| 1.5 Report Generators                                |      | 10.9 Other  |   |
| 1.6 Sorting, Merging                                 |      | Public Service Industries Applications  | 11.0  |
| 1.7 File Organization                                |      | 11.1 Business Services  |   |
| 1.8 Data Transmission                                |      | 11.2 Communications   |   |
| 1.9 Other  |      | 11.3 Education  |   |
| Utility Programs                                     | 2.0  | 11.4 Government   |   |
| 2.1 Disk   |      | 11.5 Medical  |   |
| 2.2 Tape   |      | 11.6 Transportation   |   |
| 2.3 Duplicators and Listers                          |      | 11.7 Utilities  |   |
| 2.4 Input-Output                                     |      | 11.9 Other  |   |
| 2.5 Internal Information Transfer                    |      | Manufacturing Industries Applications   | 12.0  |
| 2.6 Data Manipulation-Handling                       |      | 12.1 Aerospace  |   |
| 2.7 Debugging Aids                                   |      | 12.2 Control Systems  |   |
| 2.8 Housekeeping, Documentation, Programming Aids    |      | 12.3 Fabrication and Assembly   |   |
| 2.9 Other  |      | 12.4 Numerical Control  |   |
| Simulators, Translators, & Interpreters              | 3.0  | 12.5 Process  |   |
| 3.1 Unit Record Simulation                           |      | 12.6 Other  |   |
| 3.2 Computer Simulation                              |      | Demonstrations  | 13.0  |
| 3.3 Translators                                      |      | Systems Engineering   | 14.0  |
| 3.4 Interpreters                                     |      | Unclassified  | 15.0  |
| 3.9 Other  |      |   |   |
| Differential & Integral Equations                    | 4.0  |   |   |
| Matrix Programs                                      | 5.0  | USING THE CATALOG   |   |
| Statistical Analysis & Probability                   | 6.0  | To locate a program begin by thinking of the significant words describing the desired program. Then look in the KWIC, Keyword-in-Context, Index for the keyword entry. The page number adjacent to the file number will then direct you to the corresponding program abstract. The reference code is set up as follows: |   |
| 6.1 Basic Statistics                                 |      |   |   |
| 6.2 Time Series Analysis                             |      |   |   |
| 6.3 Correlation                                      |      |   |   |
| 6.4 Regression Analysis                              |      |   |   |
| 6.5 Analysis of Variance                             |      |   |   |
| 6.6 Tests  |      |   |   |
| 6.9 Other  |      |   |   |
| Mathematical Routines                                | 7.0  |   |   |
| 7.1 Functional Subroutines                           |      | System  | File No.  |
| 7.2 Floating Point Arithmetic                        |      | 7070  | AT-082  |
| 7.3 Interpolation & Curve Fitting                    |      | 1410  | 11.9.001  |
| 7.4 Polynomial Solutions                             |      | The number of the IBM system for which the program is written.  | The IBM Library code for filing and ordering a program. |
| 7.9 Other  |      |   |   |
| Social & Physical Sciences, Engineering Applications | 8.0  | Now refer back to the illustration in the section entitled, "Keyword-in-Context Index". As you can see, there are two kinds of file numbers: The first consists of an alphabetical and numeric reference;   |   |
| Management Information                               | 9.0  |   |   |
| 9.1 Inventory Control                                |      |   |   |

the second is completely numeric in a Dewey Decimal sequence.

Type I and II program abstracts are located in the "IBM Programs" section of this Catalog; Type III, IV and Prior Use program abstracts are located in the "Contributed Programs" section.

The page number listed at the end of the KWIC entry line will direct you to the program abstract. Each abstract describes the relevant program in enough detail to help you determine if the program will meet your requirements.

#### LIST OF NEW PROGRAMS

This section consists of a list of new programs added since the last edition of the Catalog or its Supplements. All new Type III, IV and Prior Use Programs which appear in this catalog were accepted prior to December 31, 1969.

#### PROGRAM CORRECTIONS AND REVISIONS

There are two kinds of revisions to programs listed in this Catalog:

1. Changes in the program abstract,
2. Functional changes in the program documentation and/or machine readable material.

Abstract changes for all Types of programs are noted in this Catalog and in the Supplement. The following codes appear at the extreme right-end of the title line for each abstract that is new or has been revised in this edition:

- \*N - This symbol indicates a new program.
- \*M - This symbol indicates that the text of the abstract has been modified.

Functional changes in program documentation and/or decks or tapes for Type III (IBM Contributed) and Type IV (Customer Contributed) programs are listed in a special table preceding the KWIC Index. This data is listed under four headings: machine area; order number; date the correction was effective; and material changed. If a user has received the program data prior to the date indicated and would like to receive the correction, he must reorder the program. See the section entitled, "Completion of the IBM Program Order Form". All corrections and revisions which appear in this catalog were accepted prior to December 31, 1969.

Information concerning functional changes in program documentation and/or machine readable material for Type I (Programming Systems) and Type II (Application Programs) can be obtained through your IBM Branch Office.

#### DELETED TYPE I, II, III, AND IV PROGRAMS

Deleted Types I, II, III and IV programs are announced in each Catalog or Supplement in the table entitled "List of Deleted Type I, II, III and IV Programs".

Catalogs will contain a list of all deleted programs, including those contained in all previous supplements, that have been deleted since the last published catalog.

# IBM Program Order

IBM Corporation  
 Program Information Dept.  
 411 Saw Mill River Road  
 Hawthorne, New York 10532  
 Tel. 914-592-5790/IBM Network 8-659-1011

| LINE NUMBER | MACHINE READABLE DOCUMENTATION CENTER & I/O'S | PROGRAM NUMBER |   |   |   |   |   |   |   |   |    |    |    |         | ACTION CODE | PROGRAM NUMBER EXTENSION | DISTRIBUTION (SEE INSTRUCTIONS) | USER VOLUMES REQUIRED | FOR IBM USE (SEE 2.0 MANUAL) |
|-------------|---|----------------|---|---|---|---|---|---|---|---|----|----|----|---------|-------------|--------------------------|---------------------------------|-----------------------|------------------------------|
|             |   | 1              | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13      |             |                          |                                 |                       |                              |
| 01          |   | B              | Y | 3 | 1 | 4 | 0 | 1 | 0 | 1 | 4  | 1  | 2  | 1       |             |                          | 15                              |                       |                              |
| 02          |   | O              | Y | 0 | 1 | 4 | 0 | 1 | 0 | 1 | 4  | 1  | 2  | 1       |             |                          | 15                              |                       |                              |
| 03          |   | B              | Y | 1 | 1 | 4 | 4 | 0 | R | G | 0  | 2  | 1  | 0.P.T.2 |             | 15                       |                                 |                       |                              |
| 04          |   | B              | Y | 1 | 1 | 4 | 4 | 0 | A | S | 0  | 9  | 0  |         |             | 15                       |                                 |                       |                              |
| 05          |   | O              | Y | 1 | 1 | 4 | 4 | 0 | T | 0 | 0  | 1  | 1  |         |             | 15                       |                                 |                       |                              |
| 06          |   | O              | Y | 0 | 1 | 4 | 4 | 0 | C | X | 0  | 7  | X  |         |             | 5202                     |                                 |                       |                              |
| 07          |   | B              | Y | 1 | 1 | 4 | 4 | 4 |   |   |    |    |    |         |             | 15                       |                                 |                       |                              |
| 08          |   | B              | Y | 1 | 1 | 4 | 4 | 0 | A | T | 0  | 4  | 1  |         |             | 15                       |                                 |                       |                              |
| 09          |   | B              | Y | 3 | 1 | 4 | 0 | 1 | 0 | 2 | 0  | 0  | 3  | 6       |             |                          | 2201                            |                       |                              |
| 10          |   | B              | Y | 1 | 1 | 4 | 6 | 0 | C | X | 0  | 8  | X  |         |             | 15                       |                                 |                       |                              |
| 11          |   | O              | Y | 0 | 1 | 4 | 6 | 0 | C | X | 0  | 8  | X  |         |             | 5202                     |                                 |                       |                              |
| 12          |   | B              | M | 3 | 1 | 4 | 0 | 1 | 0 | 2 | 0  | 0  | 3  | 9       |             |                          | 15                              |                       |                              |
| 13          |   | B              | Y | 2 | 1 | 4 | 0 | 1 | 0 | 1 | 4  | 1  | 8  | 9       |             |                          | 15                              |                       |                              |
| 14          |   | B              | Y | 1 | 1 | 4 | 0 | 1 | S | M | 0  | 6  | 0  |         |             | 2201                     |                                 |                       |                              |

CUSTOMER NUMBER (ONLY DASHES) **4217600** ORDER NUMBER **D125321** PAGE OF **11**  
 REFER TO THIS NUMBER WHEN MAKING INQUIRIES

**SECTION 3 USER VOLUME INFORMATION** NUMBER OF MAGNETIC TAPE REELS **02**

DISKS SENT TO PID - ENTER SERIAL NUMBERS

LEFT JUSTIFY **B6261** LEFT JUSTIFY **51144** LEFT JUSTIFY **A6673** LEFT JUSTIFY **H1329**

DISKS ORDERED FROM PLANT

PLANT ORDER NUMBER (LEFT JUSTIFY) QUANTITY SCHEDULED SHIPPING DATE PLANT ORDER NUMBER (LEFT JUSTIFY) QUANTITY SCHEDULED SHIPPING DATE

**SECTION 4 USER REGISTRATION** This section should be completed only to register a new user with PID or to modify/delete a previous registration. Otherwise this section should be left blank. However, if any data is entered in Section 4, an action code must appear.

ENTER ACTION CODE **R** REGISTER NEW PID USER  
**M** MODIFY REGISTRATION  
**D** DELETE REGISTRATION  
**S** USE "S" IF ADDRESS FOR THIS ORDER ONLY IS DIFFERENT FROM THE ONE ALREADY REGISTERED WITH PID

COMPLETE FOR CUSTOMER ORDERS OR COMPLETE FOR IBM INTERNAL ORDERS AND COMPLETE THIS

OF BRANCH OFFICE NO. **223** IBM DIVISION IBM LOCATION IBM DEPARTMENT

SING MAGNETIC TAPE CAPABILITY CHECK (✓)  
 7 TRK 800 WITH DATA CONVERT 9 TRK 800 9 TRK 1600 NONE OF THESE

SHIP TO INFORMATION (DO NOT USE P.O. BOX NUMBERS)  
 COMPANY NAME AND ADDRESS (PRINT)  
**SMITH DRUGS**  
**912 GARDEN PLAZA**  
**KINGSPORT, TN**

ATTENTION TO: (USE POSITION TITLES WHENEVER POSSIBLE)  
**D. P. LIBRARIAN**

**SECTION 5 FOR IBM USE** IBM CONTACT (PRINT LAST NAME) TELEPHONE NO. (INCLUDE AREA CODE)  
**SINGLETON** **6152468112**

IBM MANAGEMENT SIGNATURE DATE BR/DEPT. NO. SPECIAL INSTRUCTIONS (SEE 2.0 MANUAL)  
**B.R. Taylor** **021569223**

120-1957-2 (U/M-015)

Copy 1 - Program Information Department

Figure 1

LIST OF NEW TYPE III, IV AND PRIOR USE PROGRAMS

All programs which appear on this list were accepted prior to December 31, 1970.

| PROGRAM NO.   | PROGRAM TITLE  | PAGE NO. |
|---------------|--|----------|
| 1401-10.3.071 | 1401 UNIVERSITY ADMISSIONS INFORMATION SYSTEM            | 056      |
| 1401-10.3.072 | FINANCIAL AID INFORMATION SYSTEM (LOAN SUBSYSTEM)        | 056      |
| 1401-10.3.073 | FINANCIAL AID INFORMATION SYSTEM (STUDENT AID SUBSYSTEM) | 057      |
| 1402-10.3.075 | SOCRATES STUDENT SCHEDULING - BETA VERSION               | 061      |

LIST OF TYPE III AND IV PROGRAM CORRECTIONS AND REVISIONS

This change was requested by the authors.

Alphabetic Key To Material Revised:   A. Documentation  
   B. Machine Readable  
   C. Catalog Abstract

This correction was accepted prior to December 31, 1969.

| PROGRAM NO.   | PROGRAM TITLE                      | CODES |
|---------------|------------------------------------|-------|
| 1401-10.3.065 | SOCRATES STUDENT SCHEDULING SYSTEM | A B   |

DELETED TYPE I, II, III AND IV PROGRAMS

The following programs were deleted because of low usage:

| PROGRAM NO.   | PROGRAM TITLE   |
|---------------|---|
| 1401-01.1.014 | AUTOEDIT - 1401 EDIT FOR 1410 AUTOCODER PROGRAMS            |
| 1401-01.1.016 | ACCELERATOR PACK-SYMBOLIC 4K                                |
| 1401-01.1.017 | RAPID ASSEMBLY PROGRAM NO. 14043                            |
| 1401-01.1.020 | EDIT - EDITING DATA INPUT FOR VALIDITY                      |
| 1401-01.1.026 | AUTOCODER PRE-LIST DIAGNOSTIC                               |
| 1401-01.1.039 | PRE-LIST FOR AUTOCODER SOURCE DECK                          |
| 1401-01.2.003 | THREE TAPE SORT PROGRAM                                     |
| 1401-01.2.018 | CARD MERGE  |
| 1401-01.2.024 | ALPHABETIC NAME FILE SPARCHING BASED ON PHONETICS           |
| 1401-01.2.025 | 1401 SORT 7 - 1311 DISK LOAD                                |
| 1401-01.3.003 | GENERAL PURPOSE TAB-BACK PROGRAM                            |
| 1401-01.3.005 | REPORT PROGRAM GENERATOR PRE-EDIT                           |
| 1401-01.4.034 | GENERAL APPROACH TO AUTOMATIC PROGRAMMED ADDRESS CONVERSION |
| 1401-01.4.039 | MONITOR SYSTEM FOR TAPE                                     |
| 1401-01.4.067 | UNPACK CONDENSED CARDS                                      |
| 1401-01.4.068 | REER - REPRODUCE, EMIT, ELIMINATE, REPRODUCE                |
| 1401-01.4.102 | CHECKPOINT AND RESTART PROCEDURE                            |
| 1401-01.4.121 | SELF CHECKING NUMBER CALCULATION - MODULOUS 10              |
| 1401-01.4.123 | TAPE COMPARE ERROR PRINT/DUPLICATE                          |
| 1401-01.4.126 | PRINT DECISION TABLES                                       |
| 1401-01.4.135 | IMPACT SIMULATOR  |
| 1401-01.4.136 | WRITE AND READ TAPE CHECK                                   |
| 1401-01.4.158 | GENERAL PURPOSE TAPE DUMP                                   |
| 1401-01.4.159 | 1401/1311 CARD-TO-DISK CONSECUTIVE LOAD PROGRAM             |
| 1401-01.4.187 | 1311 DISK RECORD FINDER                                     |
| 1401-01.4.189 | 1401/1440/1460 RESEQUENCE AUTOCODER SOURCE PROGRAMS - RASP  |
| 1401-01.4.193 | PAPER AND PROGRAM DOCUMENTATION EDITOR                      |
| 1401-01.4.211 | 1401-1311 DISK PRINT PROGRAM                                |
| 1401-01.4.226 | GENERALIZED TABULATE WITH OR WITHOUT CONTROL FIELDS         |
| 1401-01.4.228 | CPI - CREATE PRINT IMAGES                                   |
| 1401-01.4.231 | MATCH AND MODIFY FILES PROGRAM                              |
| 1401-01.5.002 | DIOS - 1311/1301 INPUT-OUTPUT SYSTEM FOR THE 1401/1440/1460 |
| 1401-02.0.013 | CARD AUTOCODER PROGRAMMING SYSTEM (CAUTO)                   |
| 1401-02.0.021 | 1401/1311 MONITOR FOR PROGRAMS ON DISK PACKS                |
| 1401-02.0.024 | FLOWCHARTING AND DOCUMENTATION AID PROGRAM                  |

| PROGRAM NO.   | PROGRAM TITLE  |
|---------------|--|
| 1401-02.0.025 | FORTRAN MODIFICATION WHICH ELIMINATES THE MULTIPLY - DIVIDE SPECIAL FEATURES REQUIREMENTS                            |
| 1401-02.0.040 | TYPEWRITER MACROS FOR 1401/1440/1460 DISK AUTOCODER  |
| 1401-02.0.041 | COBOL EXPANDER PROGRAM   |
| 1401-03.0.019 | A SQUARE ROOT SUBROUTINE FOR THE 1401 USING NORMAL EXTRACTION METHOD   |
| 1401-06.0.005 | MULTIPLE CORRELATION - VARIABLES OF IMPORTANCE DETERMINED VOID   |
| 1401-06.0.007 | REGRESSION ANALYSIS COMPUTER PROGRAM   |
| 1401-06.0.010 | SEASONAL ADJUSTMENT, CENSUS METHOD II, X-9 VERSION, 4K, SHORT PROGRAM  |
| 1401-06.0.013 | DATA TRANSFER - PROGRAM FOR CENSUS METHOD II   |
| 1401-06.0.018 | TRADING - DAY ADJUSTMENT FOR 1401 VERSIONS OF CENSUS METHOD II   |
| 1401-07.0.002 | SELF-CHECKING NUMBER CALCULATION MODULUS II  |
| 1401-10.1.004 | LINEAR PROGRAMMING REVISED SIMPLEX METHOD  |
| 1401-10.2.008 | GENERAL PURPOSE SIMULATOR-GPSS-2   |
| 1401-10.3.001 | LESS-LEAST-COST ESTIMATING AND SCHEDULING (4K-SCHEDULING PHASE ONLY)   |
| 1401-10.3.015 | PIECEWORK-TIMEWORK PAYROLL   |
| 1401-10.3.017 | LESS PROGRAM 4K  |
| 1401-10.3.024 | LOT SIZE INVENTORY MANAGEMENT INTERPOLATION TECHNIQUE (LIMIT)  |
| 1401-10.3.039 | THE TRAVELING SALESMAN   |
| 1401-10.3.044 | PROJECT PROGRESS REPORT PHASE I  |
| 1401-10.3.047 | INFORMATION STORAGE AND RETRIEVAL PROGRAM  |
| 1401-10.3.050 | 1401/1311 TRANSPORTATION PROBLEM   |
| 1401-10.3.069 | 1401 AIRLINE AIRCRAFT EVALUATION PROGRAM   |
| 1401-13.1.009 | RGCP - REPRODUCE, GANG PUNCH, COUNT, PRINT   |
| 1401-14.0.004 | FOURTEEN 0 ONE OFFSET REPRODUCING AND GANGPUNCHING OR EMITTING STATE AND LOCAL INCOME TAXES FOR IBM 1401 TAPE SYSTEM |
| 1401-14.0.012 | EXTENDED PERFORMANCE COMPUTER ASSISTED INSTRUCTION OPERATING SYSTEM FOR 1401/1026                                    |
| 1401-14.0.027 |  |
| 1410-03.9.002 | SORT TIMING PROGRAM  |
| 1440-01.1.001 | CONTROLLER   |
| 1440-01.1.002 | PROGRAM TO LOAD PROGRAMS ON DISK   |
| 1440-01.3.002 | MACBADA 8K 1440 FORTRAN  |
| 1440-01.4.002 | RAPID SELECTIVE TRACE  |
| 1440-02.1.002 | 1440/1311 DISK ADDRESS UTILITY   |
| 1440-02.1.003 | 1440/1311 DISK SORT PACKAGE  |
| 1440-02.3.001 | VARIABLE CARD REPRODUCER FOR 1440/1311   |
| 1440-02.3.002 | ONE CARD 80-80 CARD TO PRINTER PROGRAM WITH BRANCH ON OVERFLOW   |
| 1440-02.3.003 | 1440/1311 80-80 REPRODUCE PROGRAM  |
| 1440-02.7.002 | CORE PRINT   |
| 1440-02.7.003 | CORE DUMP ROUTINE IN ACTUAL FORM   |
| 1440-02.9.003 | PUNCH CORE IN PROGRAM LOAD FORMAT  |
| 1440-02.9.005 | IBM 1440 CORE PUNCH PROGRAM  |
| 1440-03.1.001 | REPRODUCE GANG PUNCH SIMULATOR   |
| 1440-03.3.002 | CONVERT 1440 AUTOCODER SOURCE PROGRAMS TO 1401   |
| 1440-10.1.001 | SMI MEAT SYSTEM  |
| 1440-11.3.001 | TARS - TALLY ANALYSIS REGISTRATION AND SCHEDULING  |
| 1440-11.5.003 | COMPUTER FOR THE IBM 1080 ANALYTICAL DATA ACQUISITION PROGRAM  |
| 1440-11.5.004 | MEDICARE INPATIENT BILLING   |
| 1440-12.3.001 | BILL OF MATERIAL PROCESSOR STRUCTURE FILE ADDRESS REORGANIZATION MAINTENANCE PROGRAM                                 |
| 1440-12.3.003 | BILL OF MATERIAL PROGRAMS TO LOAD, MAINTAIN AND EXPLODE BM FILES   |
| 1440-15.0.001 | EXTENDED PERFORMANCE COMPUTER ASSISTED INSTRUCTION OPERATING SYSTEM FOR IBM 1440-1448                                |

KWIC (KEYWORD-IN-CONTEXT) INDEX

| ABRIDGE  | TITLE                         | PROGRAM NO.   | PAGE | TITLE  | PROGRAM NO.                     | PAGE          |     |
|--|-------------------------------|---------------|------|--|---------------------------------|---------------|-----|
| ABRIDGE CARD KEEPING.                          | #STACK - STORAGE ON+          | 1401-01.4.167 | 037  | CONTROL FIELDS.                                | #GENERALIZED TABULATE WITH+     | 1401-01.4.226 | 042 |
| ACCOUNT.                                       | #DEMAND DEPOSIT               | 1400-FB-03X   | 028  | CONTROL MONITOR ON DISK.                       | #1401/1400/1400 JOB             | 1401-01.4.228 | 042 |
| ACCOUNTING SYSTEM FOR HOSPITAL.                | #PROPERTY                     | 1400-11.5.005 | 063  | CONTROL PROGRAM.                               | #AUTOPROPS II NUMERICAL         | 1401-CN-03X   | 003 |
| ACCOUNTING.                                    | #SAVINGS                      | 1400-FE-05X   | 021  | CONTROL SYSTEM.                                | #PROJECT                        | 1400-HX-02X   | 023 |
| ACCOUNTING.                                    | #MORTGAGE LOAN                | 1400-FE-04X   | 021  | CONTROL SYSTEM.                                | #INPUT/OUTPUT                   | 1401-IO-065   | 011 |
| ACCOUNTING.                                    | #ON-LINE SAVINGS              | 1400-FB-07X   | 021  | CONTROL SYSTEM.                                | #INPUT/OUTPUT                   | 1400-IO-010   | 022 |
| ACCOUNTING.                                    | #INSTALLMENT LOAN             | 1400-10.2.003 | 063  | CONVERSION OF OTHER PUNCHES.                   | #SCOOP I & II --+               | 1401-01.4.012 | 035 |
| ACCOUNTING.                                    | #MOTOR FREIGHT REVENUE        | 1400-ST-02X   | 024  | #CONVERSION OF SPS TO AUTOCODER.               |                                 | 1401-01.4.160 | 039 |
| ACCOUNTS PAYABLE.                              | #HOSPITAL                     | 1400-UB-03X   | 025  | CONVERSION PROGRAM.                            | #DEMAND DEPOSIT                 | 1200-FB-12X   | 001 |
| #ACCOUNTS RECEIVABLE FOR HOSPITALS.            |                               | 1400-UB-02X   | 025  | CONVERSION PROGRAM.                            | #FORTRAN II LANGUAGE            | 1401-FO-702   | 008 |
| ACCOUNTS RECEIVABLE.                           | #RETAIL                       | 1400-DR-02X   | 019  | CONVERSION PROGRAM.                            | #1401 FARGO TO+                 | 1401-02.0.036 | 045 |
| ADDRESS UTILITY.                               | #1401/1311 DISK               | 1401-01.4.176 | 039  | CONVERSION.                                    | #COBOL LANGUAGE                 | 1401-CB-701   | 003 |
| ADJUSTMENT - CENSUS METHOD II, X-9 VERSION,+   |                               | 1401-06.0.009 | 048  | CONVERT DOLLARS AND CENTS DIGITS TO+           |                                 | 1401-14.0.008 | 060 |
| ADJUSTMENT OF MONTHLY TIME SERIES.             | #SEASONAL                     | 1401-06.0.001 | 047  | #CONVERT SPS CARD FORMAT TO AUTOCODER CARD+    |                                 | 1401-01.4.131 | 038 |
| ADJUSTMENT, CENSUS METHOD II, X-9 VERSION,+    |                               | 1401-06.0.010 | 048  | CONVERTER.                                     | #SOPHISTICATED SPS TO AUTOCODER | 1401-01.4.165 | 039 |
| #ADMINISTRATIVE TERMINAL SYSTEM.               |                               | 1400-CX-08X   | 028  | #COOPERATIVE ADMISSIONS INFORMATION SYSTEM.    |                                 | 1401-10.3.068 | 056 |
| #ADMINISTRATIVE TERMINAL SYSTEM.               |                               | 1400-CX-07X   | 018  | #COPY 1401-AU-008 SYSTEMS PACK TO TAPE THEN+   |                                 | 1401-01.4.071 | 036 |
| ADMISSIONS INFORMATION SYSTEM.                 | #COOPERATIVE                  | 1401-10.3.068 | 056  | #CORE DUMP ROUTINE.                            |                                 | 1400-02.7.004 | 062 |
| ADMISSIONS INFORMATION SYSTEM.                 | #1401+                        | 1401-10.3.071 | 056  | #CORE DUMP.                                    |                                 | 1401-06.0.006 | 048 |
| ALTERATION PROGRAM.                            | #STANDARD NAME                | 1401-14.0.019 | 060  | #CORLS THIRTEEN VARIABLE SIMPLE CORRELATION.   |                                 | 1401-06.0.005 | 047 |
| AMORIZATION SCHEDULE.                          | #MORTGAGE                     | 1401-10.2.006 | 050  | CORRELATION - VARIABLES OF IMPORTANCE+         |                                 | 1401-06.0.008 | 048 |
| ANALYZE TEACHER-MADE TESTS. #TSS0 - SCORE AND  |                               | 1401-10.3.070 | 056  | CORRELATION COEFFICIENTS PROGRAM. #REGAN --+   |                                 | 1401-06.0.006 | 048 |
| #ANTIC A LIST OF CONDENSED CARDS.              |                               | 1401-01.4.198 | 041  | CORRELATION. #CORLS THIRTEEN VARIABLE SIMPLE   |                                 | 1401-06.0.008 | 048 |
| #APTCO - AUTOMATIC PROGRAMMING, TESTING, AND+  |                               | 1401-01.4.094 | 036  | COUNT, PRINT. #RGCP - REPRODUCE, GANG-PUNCH    |                                 | 1401-13.1.009 | 058 |
| #ASK - INFORMATION RETRIEVAL PROGRAM FOR THE+  |                               | 1401-10.3.009 | 052  | CREDIT UNIONS. #INDIVIDUAL LEDGER EXTRACT+     |                                 | 1401-10.3.055 | 054 |
| ASSEMBLER.                                     | #SPS SINGLE PASS              | 1401-01.1.052 | 032  | CREDIT UNIONS. #INDIVIDUAL LEDGER UPDATE+      |                                 | 1401-10.3.056 | 055 |
| ASSEMBLER.                                     | #SPSS - AN IMPROVED SPS       | 1401-01.1.036 | 031  | #CRITICAL PATH LISTING AND RESOURCE ANALYSIS.  |                                 | 1401-10.3.028 | 053 |
| ASSEMBLER.                                     | #1401 SPS TO SYSTEM/360 BASIC | 1401-01.4.195 | 041  | #CRITICAL PATH SCHEDULER GANE.                 |                                 | 1401-10.3.059 | 055 |
| ASSEMBLY FOR THE 1401.                         | #TWO - TAPE AUTOCODER         | 1401-01.1.018 | 031  | #CRITICAL PATH SCHEDULER (BASIC 1401).         |                                 | 1401-10.3.013 | 052 |
| ASSEMBLY LANGUAGE. #1401/1400 EDIT+            |                               | 1401-01.1.056 | 032  | CURVE FIT FOR ECONOMIC ANALYSIS AND+           |                                 | 1401-07.0.003 | 049 |
| ASSEMBLY PROGRAM NO. 140043.                   | #RAPID                        | 1401-01.1.017 | 031  | CYCLE PROGRAMS. #CONSOLIDATED FUNCTIONS+       |                                 | 1401-11.0.001 | 049 |
| ASSISTED INSTRUCTION. #1401/1400 - 1026+       |                               | 1401-05-092   | 012  | DAILY CYCLE PROGRAMS. #CONSOLIDATED+           |                                 | 1401-11.0.002 | 049 |
| ASSISTED PROJECT EVALUATION AND REVIEW+        |                               | 1401-10.2.011 | 051  | DATES SUBROUTINE-DTCALC. #CALCULATE NUMBER+    |                                 | 1401-03.0.011 | 046 |
| *ARS ADMINISTRATIVE TERMINAL SYSTEM            |                               | 1400-CX-08X   | 028  | DAYS BETWEEN TWO DATES SUBROUTINE-DTCALC.      |                                 | 1401-03.0.011 | 046 |
| *ARS ADMINISTRATIVE TERMINAL SYSTEM            |                               | 1400-CX-07X   | 018  | #DECISION LOGIC TRANSLATOR PROGRAM.            |                                 | 1401-SE-05X   | 014 |
| #ATTENDANCE RECORDING FOR SECONDARY SCHOOLS.   |                               | 1400-US-04X   | 027  | DECISION MAKING LABORATORY AUTOMATIC+          |                                 | 1401-10.2.007 | 050 |
| #AUTO RATING FOR FIRE AND CASUALTY COMPANIES.  |                               | 1401-IF-01X   | 008  | DECISION MAKING LABORATORY. #1401/1400 DISK+   |                                 | 1401-10.2.012 | 051 |
| AUTO-TEST 8K.                                  | #1401/1311                    | 1401-AT-001   | 001  | DECISION TABLES.                               | #PRINT                          | 1401-01.4.126 | 037 |
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| ROOT ROUTINE.                                 | #SQUARE                               | 1401-03.0.015 | 046  | TAPE SEARCH PROGRAM.                         |  | 1401-01.4.058 |
| ROOT SUBROUTINE USING ODD INTEGER METHOD.     |                                       | 1401-03.0.014 | 046  | TAPE SORT MERGE.                             | #8K THREE                              | 1401-01.2.022 |
| ROOT SUBROUTINE.                              | #SQUARE                               | 1401-03.0.010 | 045  | TAPE SORT PROGRAM.                           | #THREE                                 | 1401-01.2.003 |
| RPG MODEL 20 CONVERSION PROGRAM.              | #1401 FARGO+                          | 1401-02.0.036 | 045  | TAPE SORT.                                   | #TTSRT - TWO                           | 1401-01.2.012 |
| RPG TO SYSTEM/360 TRANSLATOR.                 | #IBM 1400                             | 1401-RG-700   | 013  | TAPE SYSTEM LOADER.                          |  | 1401-01.1.035 |
| SAVINGS ACCOUNTING.                           | #ON-LINE                              | 1440-PB-05X   | 021  | TAPE THEN TAPE TO 360/2311 IN COMPATIBILITY+ |  | 1401-14.0.024 |
| SAVINGS ACCOUNTING.                           |                                       | 1440-PB-07X   | 021  | TAPE TO ABRIDGE CARD KEEPING.                | #STACK -+                              | 1401-01.4.197 |
| SAVINGS TELLER SIMULATION USING NABAC MODEL.  |                                       | 1401-10.2.010 | 051  | TAPE TO 360/2311 IN COMPATIBILITY MODE.      |  | 1401-14.0.024 |
| SCHEDULE.                                     | #HOBSTGAGE AMORTIZATION               | 1401-10.2.006 | 050  | TAPE UPDATE UTILITY PROGRAM.                 |  | 1401-01.4.022 |
| SCHEDULER (BASIC 1401).                       | #CRITICAL PATH                        | 1401-10.3.013 | 052  | TAPE UTILITY PROGRAMS WITH 120 CHARACTER+    |  | 1401-UT-025   |
| *SCHEDULER PROJECT #PERT                      |                                       | 1401-10.3.007 | 052  | TAPE 1401.                                   | #GENERAL DISTRIBUTION PROGRAM FOR      | 1401-IF-03X   |
| SCHEDULING - BETA VERSION.                    | #SOCRATES STUDENT                     | 1402-10.3.075 | 061  | TAPE.  | #1401/60 FORTRAN IV                    | 1401-FO-052   |
| SCHEDULING SYSTEM.                            | #ENGINEERING                          | 1401-EX-01X   | 005  | TAPE-TO-CARD FOR THE SHARE LIBRARY.          |  | 1401-13.1.028 |
| SCHEDULING SYSTEM.                            | #SOCRATES STUDENT                     | 1401-10.3.065 | 055  | TAPE-TO-CARD UTILITY PROGRAM.                |  | 1401-UT-028   |
| SCHEDULING 8K, 12K, and 16K.                  | #LESS -+                              | 1401-10.3.002 | 051  | TAPE-TO-PRINTER UTILITY PROGRAM.             |  | 1401-UT-026   |
| SCHEDULING.                                   | #TALLY ANALYSIS REGISTRATION AND      | 1401-14.0.025 | 060  | TAPE-TO-TAPE FOR THE SHARE LIBRARY.          |  | 1401-13.1.025 |
| SCHOOL PROGRAMS (GRADE REPORTING).            | #SECONDARY                            | 1440-US-02X   | 026  | TEACHER-MADE TESTS.                          | #TS00 - SCORE AND ANALYZE              | 1401-10.3.070 |
| SCHOOL PROGRAMS (PAYROLL AND PERSONNEL).      |                                       | 1440-US-03X   | 027  | TEACHER-MADE-TEST PACKAGE.                   |  | 1401-10.3.067 |
| SCHOOL PROGRAMS (STUDENT SCHEDULING).         |                                       | 1440-US-01X   | 026  | TECHNIQUE-PHASE I PROGRAM PACKAGE.           | #FAST -+                               | 1401-10.3.063 |
| SCHOOLS.                                      | #ATTENDANCE RECORDING FOR SECONDARY   | 1440-US-04X   | 027  | TELLER SIMULATION USING NABAC MODEL.         |  | 1401-10.2.010 |
| *SCOOP I & II - SIMPLIFIED CONVERSION OF+     |                                       | 1401-01.4.012 | 035  | TERMINAL SYSTEM.                             | #ADMINISTRATIVE                        | 1400-CX-00X   |
| SCORE AND ANALYZE TEACHER-MADE TESTS.         | #TS00 -                               | 1401-10.3.070 | 056  | TERMINAL SYSTEM.                             | #ADMINISTRATIVE                        | 1400-CX-07X   |
| SCORING TECHNIQUE.                            | #FAST - FULLY AUTOMATIC               | 1401-10.3.041 | 054  | TEST.  | #ONE OF ONE - 80X80 REPRODUCE WITH+    | 1401-01.4.188 |
| SCORING TECHNIQUE-PHASE I PROGRAM PACKAGE.    |                                       | 1401-10.3.063 | 055  | TESTING, AND CONDENSING OPERATION.           | #APTCO -+                              | 1401-01.4.094 |
| SEARCH MACRO.                                 | #AUTOCODER SEARCH BINARY              | 1401-03.0.036 | 046  | TESTS.                                       | #TS00 - SCORE AND ANALYZE TEACHER-MADE | 1401-10.3.070 |
| SEARCH PROGRAM.                               | #TAPE                                 | 1401-01.4.058 | 035  | THEN TAPE TO 360/2311 IN COMPATIBILITY MODE. |  | 1401-14.0.024 |
| SEASONAL ADJUSTMENT - CENSUS METHOD II, X-9+  |                                       | 1401-06.0.009 | 048  | THIRTEEN VARIABLE SIMPLE CORRELATION.        | #CORL8                                 | 1401-06.0.006 |
| SEASONAL ADJUSTMENT OF MONTHLY TIME SERIES.   |                                       | 1401-06.0.001 | 047  | TIME SERIES.                                 | #SEASONAL ADJUSTMENT OF MONTHLY        | 1401-06.0.001 |
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88X88

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1240-FB-12X

DEMAND DEPOSIT CONVERSION PROGRAM

\*M

DESCRIPTION - The IBM 1240 Demand Deposit Conversion Program designed to convert MICR paper documents to disk pack records in the format required by the 1440 Demand Deposit Application Program. The program is used in conjunction with the 1440 Demand Deposit Program to do the complete demand deposit application on the 1240 System.

FEATURES- It allows sorting of paper documents based on an account number limits table prepared by the user. Other functions are identical to the 1440 Demand Deposit Conversion run.

USE - This program is used in place of the 1440 Demand Deposit Conversion run on the 1240 System. It may be used without modification or may be easily modified if user requirements dictate. Two programs are furnished which allow the use of a buffered or an unbuffered 1443 Printer.

PROGRAM REQUIREMENT - Demand Deposit Accounting for the IBM Data Processing System (1440-FB-03X).

MINIMUM SYSTEM REQUIREMENTS - A 1241 Processing Unit, Model A4. 1442 Card Read Punch, Model 1. 1443 Printer with additional print positions. 1447 Console with Sense Switches. Two 1311 Disk Storage Drives, Models 1 and 2.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up... Reference Manual including program listings.  
MACHINE READABLE - Source and program cards.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1240FB12X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

- character).
- Maintain disk labels on the label track of a disk pack.
- Load the program to be tested from cards.
- Print data read from or written in disk storage during program execution.
- Print data from selected areas of core storage at specific times during program execution.
- Print core storage when program execution terminates.
- List punched card input before test and output following test.

Several programs may be stacked for testing in a single run. A convenient card format for patching program decks being tested is provided to facilitate retesting of any program.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1401 system with... one 1311 Disk Storage Drive... 1402 Card Read Punch... 1403 Printer Model 2 or 1404 Printer... Advanced Programming and High-Low-Equal Compare or an 8K 1460 system with... one 1311 Disk Storage Drive... IBM 1402 Card Read Punch... One IBM 1403 Printer... Indexing and Store Address Register.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up, System listings, Specifications and Operating Procedures.  
MACHINE READABLE - Auto-Test system.  
Disk Pack: DECKA - initiate program testing.  
DECKB - restart.  
DECKC - sample test deck.

OPTIONAL PROGRAM PACKAGE

DOCUMENTATION - System flowcharts.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401AT081

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-AT-017

CARD SYSTEM ERROR-DETECTION AIDS

\*M

DESCRIPTION - To provide a simple 1401 System for checking out programs. Equipment specifications - No special features required. The programs will provide a control card method for (patching) a 1401 program with instructions that will either; (1) Halt the program at selected times (2) Print selected areas of storage at selected times. Means for conveniently removing the patches are also provided.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up... Listings... Flowcharts... Operating procedures.  
MACHINE READABLE - Condensed program.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401AT017

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-AU-005

BASIC AUTOCODER 2K

\*M

DESCRIPTION - The 1401 Basic Autocoder 2K Processor accepts source statements written in Basic Autocoder 2K language and produces machine language object programs. Basic Autocoder 2K is a 2-pass system. The source program is processed and the resulting object program is converted by one of two special condensing routines from one-instruction-per-card to condensed card format.

MINIMUM SYSTEM REQUIREMENTS - A 2K 1401 system with... 1402 Card Read Punch... 1403 Printer.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program Write-up, Operating Procedures.  
MACHINE READABLE - Processor. Pre-list routine. Post list routine. Condensing routines Deck 1 and Deck 2. Sample problem.

OPTIONAL PROGRAM PACKAGE

DOCUMENTATION - Flowcharts, Program listing.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401AU005

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-AT-081

1401/1311 AUTO-TEST 8K

\*M

DESCRIPTION - An integrated set of utility programs... Auto-Test is designed to provide documentation for program evaluation during a program testing run. It can be used on an IBM 1401/1311 or 1460/1311 system to test programs assembled by the IBM 1401/1311 Autocoder program. Because test runs can be planned to proceed with a minimum of operator intervention, Auto-test is a useful tool for remove testing. Auto-test 16K permits testing of larger programs than does its companion 8K system.

Functions can be selectively specified... The Auto-test system resides in disk storage during testing. It controls program tests in which the following functions can be selectively specified.

- Clear selected areas of disk storage.
- Load program data from cards into disk storage.
- Print selected areas of disk storage.
- Create tape files prior to the test of each individual program.
- Print fixed or variable-length, blocked or unblocked tape records.
- Create and maintain IBM standard tape labels (120-

1401-AU-008

1401/1440/1460 AUTOCODER (ON DISK)

\*M

DESCRIPTION - The 1401/1440/1460 Autocoder (on disk), 1401-AU-008, system... (1) enables a program written in 1401/1440/1460 Autocoder (on disk) Language to be assembled on a 1401, 1440 or 1460 System... (2) Output is used to execute the program... (3) Offers assembly speeds up to two-and-one half times faster than existing 1401-1440/1311 Autocoder on systems with more than 4K storage.

The source program is punched in cards or as card images on disk storage and is assembled on a 1401/1440, or 1460 System. Input in 1400 Basic Autocoder format can be used. The output object program is the 1401, 1440, or 1460 machine language equivalent. The object program may be in condensed cards, or if "load-and-go" is desired, the object program may be directly loaded from disk storage for immediate execution. Program documentation and diagnostic output are printed by the 1403 or 1443 Printer. A stack of several source programs may be assembled at one time.

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In addition to the assembly function there are four other separate options -

- A library option to add, delete, or modify library routines.
- A listing option to obtain a listing of specified library routines, or of the entire library routines, or of the entire library, or a list of the library routine names.
- A system option to create or modify the Autocoder program on the system disk pack.
- A library option to relocate the library.

PROGRAMMING SYSTEMS - Written in Autocoder Language.

MINIMUM SYSTEM REQUIREMENTS -

- (1) An IBM 1401 System with 4K storage, a 1311 Disk Storage Drive, a 1402 Card Read Punch, a 1403 Printer, High-Low-Equal Compare feature or...
- (2) An IBM 1440 System 4K storage, a 1301 Disk Storage Drive, Model 11, 12, 21 or 22 or a 1311 Disk Storage Drive, a 1442 Model I or II Card Read Punch or a 1442 IV Reader and a 1444 Card Punch, a 1443 Printer or...
- (3) An IBM 1460 System with 8K storage, a 1301 Disk Storage Drive, Model 11, 12, 21 or 22, or a 1311 Disk Storage Drive, a 1402 Card Read Punch, a 1403 Printer.

Note - One of the following programs should be obtained to prepare disk storage to store Autocoder system.

- (1) 1401/1460 Disk Utility Program 1401-UT-053.
- (2) 1440 Disk Utility Program, 1440-UT-041.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up, Autocoder Language Specifications. Listings of sample source program. Operating procedures.  
MACHINE READABLE - Autocoder system, IBM supplied macros, Sample program.

OPTIONAL PROGRAM PACKAGE

DOCUMENTATION - Flowcharts, listing.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401AU000

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-AU-037

AUTOCODER PROGRAM

DESCRIPTION - Provides more powerful tools for programmers to enable them to concentrate their efforts on the problems of program logic rather than coding. In addition, to provide an extremely fast assembly system.

PROGRAMMING SYSTEMS - Written in Autocoder Language.

MINIMUM SYSTEM REQUIREMENTS - 4000 core-storage positions, 4 (four) 729 II or IV Tape Units, 1403, Printer Model 3 1402 Card Read-Punch, Advanced Programming features, High-Low-Equal Compare.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program Write-up, operating procedure.  
MACHINE READABLE - System tape and listings.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401AU037

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE       | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556 22<br>7/800 24 | 01<br>01                   |
| OPTIONAL | none                        | none                 |                      | none                       |

1401-CA-04X

DATA ANALYSIS AND REDUCTION

DESCRIPTION - DARS is a set of programs under its own monitor control which can be used to - selectively extract records from a file base on a variety of conditions, produce statistical analysis and single and multi-column (matrix) tabular reports, rearrange records to any desired format and make conditional or unconditional insertions into records. All of these functions are obtainable in any sequence by using simple control cards.

FEATURES -

CONTINUED FROM PRIOR COLUMN

- Accepts card or magnetic tape input.
- One or more statistical analyses of tabular reports may be produced from the same input data.
- Reports are produced immediately on the 1403 Printer.
- The system is user-expandable and may be tailored to meet specific needs by program changes, additions, and deletions.

The user selects the programs to be run and specifies the action to be taken by each through the use of control cards.

PROGRAMMING SYSTEMS - Written in 1401 Autocoder Language.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1401 system with three magnetic tape units, 1402 Card Read Punch, 1403 Printer, Model 2, and High-Low-Equal Compare, Advanced Programming, Multiply-Divide and Sense Switches to use variable input control program. A fourth tape unit is needed if sorting is necessary.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Application Directory, Sample problem output listing. Application Description H20-0207.  
Programmers and Operators Manual H20-0214.  
MACHINE READABLE - Object program and sample problem.

OPTIONAL PROGRAM PACKAGE

DOCUMENTATION - System Manual.  
MACHINE READABLE - Source code, and the mixed Autocoder output consisting of the assembly listings and object code.

ORDERING INFORMATION: PROGRAM NUMBER 1401CA04X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE       | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------------|----------------------------|
| BASIC    | none                        | DTR                  | 7/556 22<br>7/800 24 | none<br>none               |
| OPTIONAL | none                        | MT                   | 7/556 22<br>7/800 24 | 01<br>01                   |

1401-CB-070

1401 COBOL

DESCRIPTION - 1401 COBOL is a compiler system for the IBM 1401 Data Processing Systems. 1401 COBOL is used in conjunction with 1401 Autocoder. Therefore, a current version of Autocoder containing a library updated with COBOL subroutines is required to obtain a valid assembly after the COBOL run has been completed. IOCS one-for-one instructions normally will be generated by the COBOL processor (which requires less time for the generation). However, the user does have the option of the COBOL Processor outputting IOCS macros. A pre-scan diagnostic run is available for the purpose of diagnosing name-associated errors and for analyzing the sentence structure of the source program. These diagnostics are far superior to those contained in the system itself and use of the pre-scan run is strongly recommended.

MINIMUM SYSTEM REQUIREMENTS - 8K storage is required if the pre-scan diagnostic run option is used. 1401 with 4K storage...4 magnetic tapes...1402 Card-Read Punch...1403 Mod. 2 or 1443 Printer... Advanced Programming feature...Sense Switches. The 1401 system used as the object machine must have at least - 4,000 positions of core storage. Input-output units as required by the source program. Advanced Programming feature. High-Low-Equal Compare feature, and any features clearly implied by the source program. Multiply-Divide feature if either the multiply or divide verb is used in the source program, or if the operator \*or/or\*\* is used in an arithmetic expression.

Note - The need to use these verbs or operators may be eliminated by the use of the enter Autocoder statement, with the user supplying the appropriate subroutine.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up, Specifications, operating procedures.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE

DOCUMENTATION - Object time subroutine flow diagram.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401CB070

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE       | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556 22<br>7/800 24 | 01<br>01                   |
| OPTIONAL | none                        | none                 |                      | none                       |

CONTINUED FROM PRIOR COLUMN

1401-CB-701  
COBOL LANGUAGE CONVERSION

DESCRIPTION - It aids in the transition to System/360 by converting acceptable current COBOL languages to either System/360 level E COBOL or level F COBOL.

Acceptable Languages -- The COBOL LCP will accept as input -  
1401/1440/1460 COBOL 7070/7074 COBOL  
1410 COBOL 7070/7074 FOS COBOL  
1410/7010 COBOL 704/7080 COBOL  
7040/7044 COBOL 7090/7094 COBOL

FEATURES -

- Card or tape input -- both the LCP and the COBOL source programs can be read from either cards or tape.
- Single or stacked program conversion -- a single source program can be processed from one of the three tape units needed in a minimum configuration. Stacked programs can be processed if more than three tape units are used.
- Replacing the environment division -- a control card option allows the user to replace the original environment division with a new customer-written System/360 environment division.
- Card-code conversion for dual BCD characters -- a control card option provides automatic conversion from BCD input code to EBCDIC output code, or vice versa. In this way, the LCP can convert the dual BCD characters (for example, two characters with the same card code) into the proper System/360 card codes.
- Documented listing -- the LCP provides a listing of the source and converted programs. This listing contains numeric codes that document conversion actions and facilitate analysis of the converted program.
- Optional card output -- when specified, the LCP produces a punched-card deck that contains the converted program.
- Optional output on tape -- the user can specify that printed and/or punched output are to be recorded on tape.

Conversion savings - The COBOL LCP will reduce the amount of reprogramming necessary to convert current COBOL programs into System/360 COBOL programs. Use of the LCP will reduce time and money spent on recoding, clerical activities, and program debugging. Although the savings to be realized will vary for the individual source programs, the typical savings will be 50 per cent of the total COBOL program conversion effort consisting of statement conversion, compilation, and debugging.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1401 system with... a 1402 Card Read Punch... a 1403 Printer Model 2... three tape units... the Advanced Programming feature... the High-Low-Equal Compare feature, or an IBM System/360 with 1401 Compatibility and corresponding features and I/O devices.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up, Program material list, COBOL Transition Aids Manual.  
MACHINE READABLE - LCP ( in object code).

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - COBOL Language conversion source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401CB701

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR                  | 7/556 22       | none                       |
|          |                             | DTR                  | 7/800 24       | none                       |
| OPTIONAL | none                        | MT                   | 7/556 22       | 01                         |
|          |                             | MT                   | 7/800 24       | 01                         |

1401-CN-03X  
AUTOPROPS II NUMERICAL CONTROL PROGRAM

DESCRIPTION - AUTOPROPS II is a 1401 computer program for X-Y axis N/C machine tools to compute points and point arrays used in drilling, boring, tapping, stamping, riveting, etc. AUTOPROPS II is expanded to give four decimal output accuracy for machine tools such as jig grinders and jig borers. Anyone having two axes point-to-point N/C machine tools should be interested in the AUTOPROPS II modification resulting from engineering design changes. No new language is necessary to program a part with AUTOPROPS II because the source statements require only simple arithmetical descriptions familiar to everyone. As many as 999 positions in a pattern, such as a bolt circle or matrix, can be programmed with a single input statement. Small parts often loaded in a multiple station loading fixture can be programmed as a matrix and programming time is reduced in many cases over hand methods. A test program and a plot program give the programmer an opportunity to verify his results before machining a part, thereby reducing time and errors to a minimum.

MINIMUM SYSTEM REQUIREMENTS - A 1401 with 4K storage, card read punch and 1403 Printer mdl 2.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up, Reference Manual, listings.  
MACHINE READABLE - Object program, sample problem.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401CN03X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-CO-13X  
1400-1311 LINEAR PROGRAMMING

DESCRIPTION - Linear Programming is a mathematical programming technique for determining the optimum solution to a system of linear inequalities. This solution may be an optimum allocation of resources (capital, raw materials, manpower, etc.) to specified activities (investments, products, jobs) in order to obtain a particular objective (minimum expense, maximum profit) when there are alternate uses for these resources. Linear programming plays an important role in material allocation, ingredient blending (feed, flour, gasoline, etc.), production scheduling, and distribution and shipping. The system is composed of a number of programs stored on disk. The programs are called by procedure control cards known as AGENDUM cards. The sequence of AGENDUM cards defines the solution procedure by calling the processing agenda for an application.

FEATURES - Data originates from cards in SHARE standard format. Alternate objective functions and right-hand sides are specified by name for optimization. A modified simplex algorithm with bounded variables is used to maximize or minimize the objective function. Full economic analysis of the price-activity-cost relationships for structural variables and of the activity-cost relationship for row constraints is provided. Solution can be interrupted to process higher priority jobs, and continued from the point of interruption. Storing programs on disk enables the system to provide comprehensive solution procedures and post-optimal analysis. Optional features can be used to increase solution speed.

The bounded variables algorithm reduces the matrix size of many LP problems. Upper and lower bounds on variables are handled explicitly so that no "bound rows" are needed. Rows may have both high and low limits, further reducing the number of rows required to specify the problem. The problem matrix size may have up to 47 rows and 900 columns on a 4K system and up to 97 rows and 900 columns on an 8K or larger system. The number of rows and columns includes objective functions and right-hand sides.

PROGRAMMING SYSTEMS - Source language is IBM 1401/1440/1460 Autocoder on disk.

MINIMUM SYSTEM REQUIREMENTS -

1401 -- 4K, High-Low-Equal Compare, Advanced Programming, 1402 Card Read Punch, 1403 Printer, one 1311 Disk Storage Drive,

1440 -- 4K, Indexing and Store Address Registers, 1442 Card Read Punch, 1443 Printer, one 1311 Disk Storage Drive,

1460 -- 8K, Indexing and Store Address Registers, 1402 Card Read Punch, 1403 Printer, one 1311 Disk Storage Drive.

Optional features - Additional 4K of core storage increases problem capacity to 97 rows. Multiply-Divide and Direct Seek features can be used, if available, to reduce solution time. Sense Switches allow the use of the Solution Interrupt feature and provide a means of in-line correction of input data.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program Write-up, Application Description, Users Manual, Operators Manual.  
MACHINE READABLE - Sample problem - Option 1 - Object code for 8K or large 1401, 1440 or 1460 and is specified by using Program Number Extension OPT1. Option 2 - Object code for 4K 1401 or 1440 and is specified by using Program Number Extension OPT2.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - System Manual.  
MACHINE READABLE - Source code for 4K-8K.

ORDERING INFORMATION: PROGRAM NUMBER 1401CO13X

|  | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|--|-----------------------------|----------------------|----------------|----------------------------|
|--|-----------------------------|----------------------|----------------|----------------------------|

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| BASIC    | OPT1 | CARDS    | 15 | none |
|----------|------|----------|----|------|
|          | OPT2 | CARDS    | 15 | none |
| OPTIONAL | none | MT 7/556 | 22 | 01   |
|          |      | MT 7/800 | 24 | 01   |

1401-CR-02X

KEYWORD-IN-CONTEXT (KWIC) KEYWORD-OUT-OF-CONTEXT (KWOC)

DESCRIPTION - This program will produce two basic KWIC or permuted title indexes. The conventional format is illustrated by the index to the Catalog of Programs. The KWOC format provides full title printout with no fragmentation. Each new keyword is printed in the left hand margin, followed by titles containing that keyword. Keywords may be bold-faced, in both heading and title, utilizing the 1403 over-printing capability. The user enjoys the option of having the program automatically select keywords on the basis of a compare or a no-compare with a pre-assigned list of words. Indexing may be enriched with the addition of manually inserted descriptors and see also references. A statistical count is maintained on all keywords indexed and all words prevented from being indexed. A new type of wrap-around is employed in the keyword entries which saves the maximum amount of context adjacent to the keyword and eliminates undesirable word fragments for increased ease in reading. This program can be used to prepare indexes of published articles, internal reports, special collections (e.g., photographs, paintings, parts lists), procedure manuals, bibliographies, correspondence files. KWIC indexes have been used on foreign language material to prepare indexes and concordances. All that is involved in the preparation of input to the program is the keypunching of cards containing the title to the index. If the user desires, the author's name and source of publication may also be keypunched and would be automatically indexed. These cards can be punched at the rate of 900-1200 per day. The program also provides for tape input of 80 character card format records. This program can be used to produce KWIC indexes from information placed on tapes from the SDI program, 1401-CR-01X.

1401-CR-01X

SELECTIVE DISSEMINATION OF INFORMATION SYSTEM

DESCRIPTION - The IBM 1401 Selective Dissemination Of Information System acts as an electronic screening and distribution agency for information. From the flood of reports, articles and books received by an organization, the new system selects and routes information to people according to their specific interests and needs.

The 1401 SDI consists of a series of programs and a comprehensive system description to permit a customer to operate a current-awareness program. Users express their interests by lists of keywords called profiles. Abstracts of material to be disseminated (including the author, title, and source and comments) are typed on the IBM 826 Typewriter Card Punch. The auto-indexing program develops index keywords from the abstract text. The profiles are compared with the keywords of the abstracts. When a sufficient number of words match between a profile and an abstract, the abstract is printed on the 1403 and addressed to the user.

FEATURES -

- Allows the SDI user full control over his interest profile.
- Allows a wide combination of logical comparisons, including "weighted" words and multiple profiles for each user. 1-1 makes available many statistical control reports for operating control and for improving the user's interest profile.
- A new match and print program (SDI 8) which is similar to run 3 except that it will take advantage of 16K memory and Print Storage, if available, to overlap print buffer time with processing to produce far greater throughput.
- The ability to use four line addresses for abstract notices when subscribers are at remote locations.
- The ability to index abstracts on multiple word entries without the need for manual indexing.
- Lends itself to daily processing with minimum effort.
- A facility for creating input to KWIC (KeyWord-In-Context) indexing.
- The modification of SDI 6 to permit more user control of the abstract merge.
- SDI 5 now allows processing of cards that are blank in columns 1 through 60.
- Programs SDI 8 and 23 through 29 have been added.

The program will accept abstracts punched in accordance with the format outlined in the GI manual, "KeyWord-In-Context" (KWIC) Indexing, E20-8091. The abstracts are placed on an abstract history tape which may be used for retrospective searching. Any selected group of abstracts up to a limit of 100 may be selected from the history tape for the SDI notice printing run. Some SDI application areas are:

- Current-awareness program for research, engineering, management, and marketing personnel in industry, government banking, universities, publishing, brokerage, trade associations, professional societies, etc.
- Selective updating service for encyclopedias, journals, law books, etc.
- Selective communication system to bind the central office of a large chain with local managers.
- Police modus operandi files - to match details of the crime with the modus operandi file.
- Employment agencies to match skills available with employment requests.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1401 system with... High-Low-Equal Compare, Advanced Programming, and Sense Switches... 1402 Card Read Punch... 1403 Printer, Model 2... 4 magnetic tape units. Users of this program should obtain the IBM Sort 7, 1401-SM-060.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up, Application Manual, User's Manual, Operators Manual, Systems Manual.  
MACHINE READABLE - Program listing. source program object program, sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401CR01X

| PROGRAM NUMBER | DISTRIBUTION MEDIUM | USER VOLUME |
|----------------|---------------------|-------------|
| EXTENSION      | TYPE                | REQUIREMENT |
| BASIC          | none                | none        |
|                | MT 7/556            | 22          |
|                | MT 7/800            | 24          |
| OPTIONAL       | none                | none        |

MINIMUM SYSTEM REQUIREMENTS - A 4K 1401 system with... 4 magnetic tape units if sorting is done on the 1401, if not, 2 units are required for the basic package... Advanced Programming, High-Low-Equal Compare, Sense Switches, and Read Release feature. The 2-tape configuration will be of particular interest at installations where the 1401 is used as a peripheral equipment for a larger machine on which sorting can be done. If only 2 tapes are attached to the 1401, and a larger machine is not available, sorting can be done at any other available installation.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program Write-up. Reference Manual  
MACHINE READABLE - Six source programs, six object programs, and the sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401CR02X

| PROGRAM NUMBER | DISTRIBUTION MEDIUM | USER VOLUME |
|----------------|---------------------|-------------|
| EXTENSION      | TYPE                | REQUIREMENT |
| BASIC          | none                | none        |
|                | MT 7/556            | 22          |
|                | MT 7/800            | 24          |
| OPTIONAL       | none                | none        |

1401-CS-02X

MANAGEMENT DECISION-MAKING LABORATORY

DESCRIPTION - The Management Decision-Making Laboratory, often referred to as the management game, is a simulation of a general business economy requiring competitive decisions on the part of the participants. It is designed to provide, in a short period of time, planning and decision-making similar to that normally experienced over a period of several years in actual business practice. The mathematical model is incorporated in a program executed on a 1401 Data Processing System. The administrator of the laboratory briefs the participants on features of the model. The participants decisions are then processed by the 1401 system, period by period, producing output on the 1403 Printer (or on magnetic tape) to be used in the next decision period.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1401 system with, 1402 Card Read Punch, 1403 Printer mdl 2, three magnetic tape units (four, if magnetic tape output is desired), card punch, preferably 26 Printing Card Punch, Advanced Programming, High-Low-Equal Compare and Multiply-Divide special features.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program Material List... Operation, Reference and Participants Manuals.  
MACHINE READABLE - Object code program, sample data which may be used to generate equal starting reports, Autocoder assembly listing and output.

OPTIONAL PROGRAM PACKAGE

DOCUMENTATION - None.  
MACHINE READABLE - Source program, 80 character records, unblocked.

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ORDERING INFORMATION: PROGRAM NUMBER 1401CS02X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556 22       | 01                         |
|          |                             | MT                   | 7/800 24       | 01                         |
| OPTIONAL | none                        | MT                   | 7/556 22       | 01                         |
|          |                             | MT                   | 7/800 24       | 01                         |

1401-CS-03X \*M  
1401/1620 MODULAR INVENTORY MANAGEMENT SIMULATOR 12K  
1401 VERSION

DESCRIPTION - A modular Inventory Management Simulator to provide pre-testing of inventory control system. Designed for use of understanding, use of modification. Simulator includes first, and third order exponential smoothing.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - Approximately 9,500 positions on 12K-16K 1401 that will accept FORTRAN. Hi-Lo-Equal Compare, Multiply-Divide-Advanced Programming. Running time - 2 seconds per demand transaction.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Program Write-up... Listings.  
 Flowcharts.  
 MACHINE READABLE - Condensed deck.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401CS03X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-DW-03X \*M  
1311 WHOLESALER IMPACT

DESCRIPTION - The IBM IMPACT (Inventory Management Program And Control Techniques) system of scientific inventory management provides the warehouse distributor (or any organization with the same inventory control characteristics) with the information of "when" and "how much" to buy for each inventory item controlled by the system. It does this through the means of probability science in conjunction with the many factors influencing the distributors inventory control decisions. Factors considered include- lead time, lead time variability, forecast demand, forecast error, service desired, inventory, carrying costs, purchasing/receiving costs, discount structures, minimums, maximums, shelf life, and pack sizes. The "when" and "how much" answers are designed to find the most efficient balance between the cost of carrying inventory, cost of purchasing and receiving, discounts realized, and customer service requirements. The 1311 IMPACT computer program library is designed to provide the distributor who has an IBM 1401/1460/1311 system with the means to successfully implement an IMPACT Inventory Management System with a minimum of effort and expense. Programs are included that perform in the following functional areas- editing, file initialization, estimating, and the control of independent and joint replenishment ordering.

FEATURES - The 1311 Program Library performs in the same functional areas as the existing 1401-1405 IMPACT Computer Program Library.

- Edit all input for format.
- Determine the forecast model (horizontal, trend, horizontal-seasonal, or trend-seasonal).
- Determine the ordering strategy to be used and calculate order quantity or order frequency as appropriate for strategy selected.
- Calculate the safety factor required for a prescribed level of customer service.
- Calculate initializing values required for forecast and order models selected.
- Estimate results to be expected from applying the rules and values developed.
- Determine when to order item groups to meet service objectives after the system is operational.
- Calculate the product mix to be ordered within an item group that will meet both service objectives and limitations on total size of order.

In addition, the 1311 programs incorporate improvements over existing programs including -

- Work flow and record formats streamlined.

CONTINUED FROM PRIOR COLUMN

- Historical demands screened for promotions.
- Base index technique used for forecasting seasonal items.
- Item discounts considered, in addition to vendor discounts, in determining ordering strategies and order quantities.
- Different lead time may be specified for each vendor breakpoint.
- Service may be specified by item for both independent and joint vendors.
- Seasonality considered in ordering both independent and joint vendors.
- A service point and allocation program (SVA) that will take advantage of 8K memory to produce greater throughput.
- An option to force a predetermined order quantity for any item through the SVA program.
- The facility for expressing a conversion factor of 1.0 to the SVA program.
- Printing of the slope and intercept of the least squares lines has been included in the MADP program.
- Punching of the cost strategy records in the OGCL program has been eliminated.
- Provides safety factor (K) based on a lead time plus review time for items in a point vendor. When the peak point option is not satisfied.

The program library includes both initializing programs and operating programs. Initializing programs are designed to be used once to set up an IMPACT system, then periodically (at least once a year) or as required to meet changing conditions. A complete set of programs is provided to perform necessary initializing functions. Operating programs are used in the day-to-day control of the IMPACT system (forecasting and ordering). Library programs are provided to control the ordering of both independent and joint vendors. Instruction and block diagrams are available to help the user in programming the remaining operating programs with a minimum of effort (Implementation Reference Manual).

PROGRAMMING SYSTEMS - Programs in the IMPACT computer program library are written in 1311 Autocoder and 1311 IOCS.

MINIMUM SYSTEM REQUIREMENTS - 1401-4K 1401 system with 1402 Card Read Punch Model 1... 1403 Printer Model 2... two 1311 Disk Storage Drives... Advanced Programming, High-Low-Equal Compare. Two 1316 Disk Packs must be fully available during the operation of 1311 Library programs.

1460-8K 1460 System with 1447 Console Model 1... 1402 Card Read Punch Model 3... 1403 Printer Model 2... Two 1311 Disk Storage Drives... Indexing and Store Address Register. Two 1316 Disk Packs must be fully available during the operation of 1311 Library programs.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Program write-up. Users Manual.  
 Operation Manual.  
 MACHINE READABLE - Object code, sample problem.

OPTIONAL PROGRAM PACKAGE  
 DOCUMENTATION - Systems manual which contains the assembly listings of all the 1401/1460 - 1311 IMPACT programs.  
 MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401DW03X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-EX-01X  
ENGINEERING SCHEDULING SYSTEM

DESCRIPTION - The system contains a series of fourteen 1401 programs to automatically perform the dating, loading, and performance evaluation functions of scheduling. It is developed primarily for high volume, short-cycle operations as found in a custom engineering environment; techniques will also be applicable to many other types of project planning and control. The system emphasizes simplified input requirements and presents work-load information in formats designed to be most useful to individual supervisors. Major outputs, under selective control of the user, include - Facility load by time period. - Order status listings (full, or by exception). - Order listing in customer name sequence. - Performance evaluation by facility. - Order history report. - Repunched turn-around documents for work reporting.

FEATURES

- Skeleton file for retrieval of common work routines.
- Automatic calendar allows user communication using Gregorian dates.
- Automatic start-date calculation allows use of external constraint dates.

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- Data entry logs and errata listings.
- System handles up to 1,000 events per project, up to 260 common routings.
- Flexibility in organization of work force.
- Monitor control and a special three-tape sort minimize operator intervention.

Common routings are defined and used to prepare a skeleton file. A new order can then be entered into the work-in-process file with only one card. During the system run, all work is rescheduled to reflect developments since the preceding run. Output reports then present the work load to facility supervisors in clear, concise form for decisions in work dispatching.

PROGRAMMING SYSTEMS - Written in Autocoder/IOCS.

MINIMUM SYSTEM REQUIREMENTS - A 16K 1401 system with Advanced Programming, High-Low-Equal Compare, Multiply-Divide, Sense Switches, and Additional Print Control... 1402 Card Read Punch... 1403 Printer MDL 2... and four magnetic tape units.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Program write-up. Application Directory. Application Description. Programmer Manual. Operator Manual. Sample Problem Manual.  
MACHINE READABLE - Source code, object code, sample problem, and assembly listings.

**OPTIONAL PROGRAM PACKAGE**

DOCUMENTATION - System Manual  
MACHINE READABLE - Magnetic tape containing Autochart block diagrams.

ORDERING INFORMATION: PROGRAM NUMBER 1401EX01X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556 22       | 01                         |
|          |                             | MT                   | 7/800 24       | 01                         |
| OPTIONAL | none                        | MT                   | 7/556 22       | 01                         |
|          |                             | MT                   | 7/800 24       | 01                         |

**1401-FE-02X**

**BANK MANAGEMENT SIMULATOR**

DESCRIPTION - The Bank Management Simulator is an exercise which simulates the effects of management decisions in a \$50 million commercial bank. Each team's objective is to make decisions in the most profitable use of its assets. In one day, the players make decisions similar to those which would be made over a period of several years. This exercise was designed because of the difficulty of exposing officers to asset management decisions in any other way. The computer applies the decisions against a mathematical model of the bank, calculates their effect based on the state of the economy at the time, and calculates changes in the economy that might take place during the particular quarter of play. The results are presented to the participants so they may see the interaction of their various decisions. One to nine teams may participate at one time. Teams do not compete against each other, but rather against the economic climate established in the game.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1401 System with, three tape drives, Card Read/Punch, High-Low-Equal, Advanced Programming and Multiply-Divide Special features.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Program Write-Up. Operators Guide. Players and Examiner Instructions  
MACHINE READABLE - Card Decks - Initializer phase object program deck. Initializer data deck. Sample problem deck. On tape - Calculation phase object program.

**OPTIONAL PROGRAM PACKAGE**

DOCUMENTATION - None  
MACHINE READABLE - Assembly Listings

ORDERING INFORMATION: PROGRAM NUMBER 1401FB02X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556 22       | 01                         |
|          |                             | MT                   | 7/800 24       | 01                         |
| OPTIONAL | none                        | MT                   | 7/556 22       | 01                         |
|          |                             | MT                   | 7/800 24       | 01                         |

**1401-FE-02X**

**BOND TRADE ANALYSIS FOR A BANK**

DESCRIPTION - The Bond Trade Analysis is a management tool

CONTINUED FROM PRIOR COLUMN

designed especially for banks. The Analysis computes the net effect, after tax, of a proposed bond trade in the bank's own portfolio. The Analysis program computes time factors, coupon interest income, premium amortizations, capital gains, ordinary and capital gain taxes or tax savings, and sale proceeds applicable to the bonds being considered. Various logical decisions are also made in the program which are related to such items as the type of tax year being experienced by the bank, the type of bonds being considered, and whether or not a call date is involved. The result of these computations and decisions is set forth in terms of dollar return which may be easily interpreted by the banker. This program is designed to provide a comprehensive variety of results which will permit the banker to see the effect of alternate courses of action, and enable the banker to avoid common errors in bond investment planning and execution. The speed and precision of computation, the depth of analysis, and the number of alternatives provided by the program are not available to the banker today. This omission restricts his trading and thereby his profits.

The Bond Trade Analysis is designed to help the banker in the following areas -

- Improving the overall yield of the security portfolio.
- Utilizing tax provisions designed especially for banks.
- Reinvesting funds of near maturities.
- Converting present coupon income to future capital gains.
- Converting future capital gains to present coupon income.
- Comparing alternate trade possibilities.
- Realigning the maturities of the security portfolio.
- Avoiding capital gain and capital loss off-sets.
- Preventing inadvertent short-term sales.
- Accounting for security trades.

The input to effect a single analysis is two cards containing data relevant to a bond presently owned by the bank, which the bank anticipates selling, and one card containing the pertinent data concerning the bond the bank contemplates purchasing. Multiple presently owned bonds may be analyzed against from one to ten contemplated purchases in a single uninterrupted processing. Each individual analysis requires from 2 to 3 seconds of machine processing and printing time. At the end of a sequence of analyses, a recap of the various analyses may be printed if desired. It is significant to note that the cards representing bonds presently owned by the bank would ordinarily be available in the form of the bank's security inventory and control program. Therefore, only the card representing the contemplated purchase may have to be prepared. In addition to using the bond trade analysis program on the bank's own portfolio, application may be found in the management of large bank trading accounts and as a sales device for additional and new services to correspondent banks.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1401 with...Advance Programming, High-Low-Equal Compare, Multiply-Divide...1402 Card Read/Punch...1403 Printer.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Write-up, Operating instructions, Reference Manual, listing.  
MACHINE READABLE - Object code, Source program, Sample program.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401FB09X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

**1401-FI-04X**

**PORTFOLIO SELECTION PROGRAM**

DESCRIPTION - The 1401 Portfolio Selection Program (1401-FI-04X) is valuable to banks, mutual funds, trust and insurance companies, estates, and investment department of institutions both public and private.

The program determines optimally diversified portfolios from a given group of securities. These optimal portfolios minimize risk for given levels of return. The program uses a mathematical technique called quadratic programming to minimize the risk for any level of return associated with a security portfolio. It selects optimally diversified portfolios from groups of up to 750 securities, including cash investments. Constraints, such as a maximum holding or a fixed holding, may be applied to any or all of the securities being considered. Output consists of - 1. A set of portfolios -- each with minimum risk for its level of return -for as many levels of return as the user requests. 2. The individual security parameters -- such



CONTINUED FROM PRIOR PAGE

as return and risk -- that were used in the computation.  
3. The expected return and associated risk for a portfolio consisting of current holdings.

FEATURES -

- Uses the Index or Linear Model, which assumes a linear relationship between return and some single economic indicator.
- Eliminates the need for the user to provide estimates of covariance or correlation between pairs of securities. Using the Index Model, these correlations are derived implicitly by the program from the given input data and are used by the program to minimize risk through the principle of diversification.
- Includes a special subprogram called Data Transformation program, which allows the user to specify any linear function relating security return to the chosen index.
- Includes a standard least-squares technique for fitting a linear function through nine price estimates for each security.
- Furnishes all of the individual security parameters necessary for the quadratic programming portion of the program.

A self-loading program tape is provided. The user provides the data on punched cards in the specified formats, and all reports are automatically produced.

PROGRAMMING SYSTEMS - The source language used is 1401 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1401 with Advanced Programming, Sense Switches, Multiply-Divide (optional)... 1402 Card Read/Punch mdl 1... 1403 Printer mdl 1... four magnetic tape units. The use of the Multiply-Divide feature will reduce considerably processing time.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up, Application Directory. Reference Manual. System Manual.  
MACHINE READABLE - Self-loading object program. Source program. Assembly listings. The source and object code for the auxiliary program DTP maintenance procedure. Sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401FI04X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |          |
|----------|-----------------------------|----------------------|----------------|----------------------------|----------|
| BASIC    | none                        | MT                   | 7/556<br>7/800 | 22<br>24                   | 01<br>01 |
| OPTIONAL | none                        | none                 | none           | none                       | none     |

1401-FI-05X

FINANCIAL ANALYSIS PROGRAM

DESCRIPTION - The Financial Analysis program consists of a series of programs which give the professional financial analyst easily accessible, detailed, and analytical information about industrial corporations. The program utilizes the information handling and computational ability of the IBM 1401 to provide the professional financial analyst with tools to help him in screening and appraising industrial common stocks. The main input for the program is a magnetic tape containing historical balance sheet, income statement, and market data for a large number of industrial companies. This tape may be prepared by the user or obtained from the organization which makes it commercially available (Standard & Poors Corporation).

By using the program, the analyst may obtain reports providing him with -

1. A list of companies meeting certain standards specified by the analyst.
2. Past financial data and ratios.
3. Comparisons between a company's sales and earnings and GNP PRF index of industrial production.
4. Compound growth rates and stability measures.
5. Comparisons between individual companies and industry performance.
6. Financial and market information for up to five companies on a single report.

FEATURES -

- Provides the analyst with timely information that has previously been impractical to obtain consistently.
- Frees the analyst for more creative tasks by eliminating much of the clerical work he must now perform.
- Allows an analyst to follow closely more companies than is now practical.
- Selects companies which are worthy of further study based on the specified criteria.
- Separate programs allow the analyst to examine only those reports which interest him.

The Financial Analysis program consists of seven separate

CONTINUED FROM PRIOR COLUMN

1401 Autocoder programs, six of which may be run independently and are under the control of one executive program. Control cards indicate the program requested and the companies and industries to be analyzed. As many companies as desired may be processed in a single run.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1401 with four magnetic tape units... 1403 Printer mdl 1... 1402 Card Read Punch... Advanced programming, High-Low-Equal Compare, Multiply-Divide, Sense Switches, Additional Print Control.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up. Application Description Manual. Operation Manual.  
MACHINE READABLE - Object code, Source code, and Assembly listings.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401FI05X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |          |
|----------|-----------------------------|----------------------|----------------|----------------------------|----------|
| BASIC    | none                        | MT                   | 7/556<br>7/800 | 22<br>24                   | 01<br>01 |
| OPTIONAL | none                        | none                 | none           | none                       | none     |

1401-FO-051

1401/40/60 FORTRAN IV DISK

\*M

DESCRIPTION - FORTRAN IV for IBM 1401, 1440 and 1460, broadens IBM's FORTRAN language. It provides a FORTRAN IV level Language for the 1401/1460 and the first FORTRAN system for the 1440 user. With the powerful FORTRAN IV, 1401, 1440 and 1460 users can easily combine both business and scientific data processing in one low-cost system. Available as a separate program is a tape resident system (NO. 1401-FO-051) for 1401/60 system.

MINIMUM SYSTEM REQUIREMENTS - 12K 1401... one 1311 Disk Storage Drive... one 1402 Card Read/Punch... one 1403 Printer Model 2... Advanced Programming feature.

OR

A 12K 1440... one 1301 Disk Storage, or one 1311 Disk Storage Drive... one 1402 Card Reader... one 1403 Printer... Indexing and Store Address Register feature.

OR

A 12K 1460... one 1301 Disk Storage, or one 1311 Disk Storage Drive... one 1402 Card Read/Punch... one 1403 Printer Model 2... Indexing and Store Address Register feature.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up. Language Specifications. Program Specifications. Operating Procedures Manual.  
MACHINE READABLE - The System Control program, FORTRAN Compiler, the Relocatable Loader, FORTRAN Subroutine Library, Card Bootstraps, sample source program and various system generation utilities needed to build and operate a disk-resident system.

OPTIONAL PROGRAM PACKAGE

DOCUMENTATION - Source listings.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401FO051

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-FO-052

1401/60 FORTRAN IV TAPE

DESCRIPTION - FORTRAN IV for IBM 1401, 1440 and 1460, broadens IBM's FORTRAN language. It provides a FORTRAN IV level Language for the 1401/1460 and the first FORTRAN system for the 1440 user. With the powerful FORTRAN IV, 1401, 1440 and 1460 users can easily combine both business and scientific data processing in one low-cost system. Available as a separate program is a disk resident system (NO. 1401-FO-051) for 1401/40/60 systems.

MINIMUM SYSTEM REQUIREMENTS - A 12K 1401 or 1460 system with... 1402 Card Read/Punch... 1403 Printer Model 2... Four 7330 or 729 Magnetic Tape units. On the 1401 - High-Low-Equal and Advanced Programming... On the 1460 - Indexing

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and Store Address Register.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Program write-up. Language Specifications, Program Specifications, and Operating Procedures Manual.

MACHINE READABLE - A tape loader program which will punch the sample program deck. The card boot deck, the system control, FORTRAN compiler, the FORTRAN loader decks and the FORTRAN subroutine library decks.

**OPTIONAL PROGRAM PACKAGE**

DOCUMENTATION - Source listings.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401FO052

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR                  | 7/556          | 22                         |
|          |                             | DTR                  | 7/800          | 24                         |
| OPTIONAL | none                        | none                 |                | none                       |

CONTINUED FROM PRIOR COLUMN

overall savings to a customer must be determined on an individual basis.

**MINIMUM SYSTEM REQUIREMENTS** - An 8K 1401 system with... a 1402 Card Read/Punch... a 1403 Printer Model 2... three Tape Units... the Advanced Programming feature... the High-Low-Equal Compare feature (or an IBM System/360 with 2401 compatibility and corresponding features and I/O devices).

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Program Material List. FORTRAN II Language Conversion Manual.  
MACHINE READABLE - LCP object code.

**OPTIONAL PROGRAM PACKAGE**

DOCUMENTATION - None.  
MACHINE READABLE - LCP source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401FO702

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR                  | 7/556          | 22                         |
|          |                             | DTR                  | 7/800          | 24                         |
| OPTIONAL | none                        | MT                   | 7/556          | 22                         |
|          |                             | MT                   | 7/800          | 24                         |

**1401-FO-702**

**FORTRAN II LANGUAGE CONVERSION PROGRAM**

DESCRIPTION - The FORTRAN II Language Conversion program aids in the transition to System/360 by converting acceptable current FORTRAN II source programs into FORTRAN IV source programs for the System/360. The FORTRAN II LCP accepts as input-

- 1401 FORTRAN,
- 1410 FORTRAN II,
- 1620 FORTRAN,
- 1620 FORTRAN II,
- 1620 FORTRAN with format,
- 1620 Monitor I FORTRAN II-D,
- 1620 Monitor II FORTRAN II-D,
- 1620 FORTRAN II for automatic floating point,
- 7070 Series FORTRAN (basic and full),
- 7070 FOS FORTRAN,
- 0705 FORTRAN,
- 7080 Processor FORTRAN and
- 7090/7094 FORTRAN II.

The source programs can be converted to any of the following levels of System/360 FORTRAN --

- Operating System/360 FORTRAN IV (level H).
- Operating System/360 FORTRAN IV (E level subset).
- System/360 Basic Programming Support FORTRAN IV (tape).
- System 360 Basic Programming Support FORTRAN IV (card).
- Basic Operating System/360 with DOS/360.
- Basic Operating System/360 with TOS/360.

**FEATURES** - The FORTRAN LCP has -

- Card or tape input -- both the LCP and the FORTRAN II source programs can be read from either cards or tape.
- Single or stacked program conversion -- a single source program can be processed from one of the three tape units needed in a minimum configuration. Stacked programs can be processed if more than three tape units are used.
- Card-code conversion for dual BCD characters -- a control card option provides automatic conversion from BCD input code to EBCDIC output code, or vice versa. In this way, the LCP can convert the dual BCD characters, i.e., two characters with the same card code, into the proper System/360 card codes. The dual characters are - plus and ampersand... equal sign and pound sign... apostrophe and the commercial @ sign... left parenthesis and percent sign... right parenthesis and the lozenge.
- Documented listing -- the LCP provides a listing of the converted program. This listing contains message codes and tables that document conversion actions and facilitate analysis of the converted program. A listing of the source program is optional.
- Optional card output -- when specified, the LCP produces a punched-card deck that contains the converted program.
- Optional output on tape -- the user can specify that printed and, or punched output are to be recorded on tape.
- Replacement of tape refer. -- The user can specify that tape constants in I/O statements are to be replaced by a variable name or another tape constant.
- Resolution of common-equivalence interaction -- the user can specify that variables in common statements are to be reordered so that a System/360 compiler will allocate common storage and establish equivalencies in the same manner as the current FORTRAN II compiler.

The FORTRAN II LCP will reduce the amount of reprogramming necessary to convert current FORTRAN II programs into System/360 FORTRAN IV programs. Use of the LCP will reduce time and money spent on recoding, clerical activities, and program debugging. Although the savings to be realized for a single program may be as great as 65 per cent, the

**1401-IF-01X**

**AUTO RATING FOR FIRE AND CASUALTY COMPANIES**

**\*M**

DESCRIPTION - The Auto Rating program is a series of subroutines designed to perform the rating calculations involved in issuing a policy covering private passenger automobiles and pickup trucks. Provision is made for calculating such coverages with the limits of liability and deductibles as are published by the national rating organizations. By using a modular programming technique, it is easily adapted to individual requirements. Base rates and factors are utilized, which reduces core storage requirements. Use of tables and a special table lookup technique makes maintenance, caused by rate changes, much simpler. The user selects the routines for the desired coverages, discounts, deviations, etc., combines these with his own I/O routines - adds the desired base rate tables and processes, using either SPS or Autocoder, to produce an object deck. Normally, a separate program is produced for each state, although usually the only change is the base rate tables. Routines are supplied for the states that vary from standard formulas.

PROGRAMMING SYSTEMS - Written in SPS.

**MINIMUM SYSTEM REQUIREMENTS** - A 4K 1401 system with Advanced Programming and High-Low-Equal Compare features - 1402 and 1403 mdl 1. Storage requirements vary with systems considerations such as coverages, size of state tables, users deviations, and I/O requirements. The normal requirement for rating, policy issue, and statistical coding is 8000 positions of core storage.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Preliminary Reference Manual. Program write-up. Program listings.  
MACHINE READABLE - SPS Source program, object program and sample program.

**OPTIONAL PROGRAM PACKAGE** - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401IF01X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

**1401-IF-02X**

**GENERAL DISTRIBUTION PROGRAM**

**\*M**

DESCRIPTION - The General Distribution Program for a card 1401 Data Processing System accomplishes summary reporting without resequencing an input card file. The 1401 General Distribution Program fulfills its purpose by building a table of extracted control fields and respective algebraically added amounts. Specified fields on specified cards can be summarized for selective report writing. When an input file has been exhausted, output cards are punched reflecting the data amassed in the table. Output cards are then used for summary report writing either in the sequence produced or any other sorted sequence desired. If table space is exhausted before the end of input file, an extracted item table is punched out. Overflow items are processed upon completion of the initial run.

In addition to property and casualty insurance for which

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the program was developed, there are numerous imaginative uses for the General Distribution Program including multiple summarization and selective file searching. A significant flexibility is built into this program giving the user multiple control field designation with a range from 1 to 72 accumulators for each control field in the table. Report writing becomes a relatively simple use of sorted output with no alteration to input file sequence.

MINIMUM SYSTEM REQUIREMENTS - A 4K, 8K, or 16K 1481 with High-Low-Equal Compare, Advanced Programming, a 1482 Card Read Punch, and a 1483 Printer.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up, Reference Manual, including program listings.  
MACHINE READABLE - Program deck, sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1481IF82X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 88             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1481-IF-83X

GENERAL DISTRIBUTION PROGRAM FOR A TAPE 1481

DESCRIPTION - The General Distribution Program for a Tape 1481 Data Processing System (1481-IF-83X) provides file search or summary ability from a tape file without pre-sorting. It is a "LOAD and GO" type program which is activated by simple control cards. For most jobs only four control cards need to be punched. Thus, from random tape records, either blocked or single, it will extract control fields and amount fields, summarize, sequence, and write out these extracted summarized records. The program was developed especially for the property and casualty industry, but it will have wide application in all industries.

The program employs the techniques of building tables in core storage, doing an internal sort, and a 3 tape merge.

Detailed instructions for punching the control cards are given in the reference manual. These cards are placed behind the program deck, the input reel mounted on a tape drive, and the job is ready to run.

MINIMUM SYSTEM REQUIREMENTS - 4K, 8K, or 16K 1481 with High-low-Equal Compare, Advanced Programming, and Sense Switches. A 1482 Card Read Punch, 1483 Printer, and 3 tape drives.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up. Reference material, Flowcharts, Program Listings.  
MACHINE READABLE - Sample problem input... Source code... Object

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1481IF83X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556 22       | 81                         |
|          | none                        | MT                   | 7/888 24       | 81                         |
| OPTIONAL | none                        | MT                   | 7/556 22       | 81                         |
|          |                             | MT                   | 7/888 24       | 81                         |

1481-IF-85X

HOMEOWNERS RATING PROGRAM

DESCRIPTION - The IBM 1481 Homeowners Rating Program is a series of subroutines which provides a valuable tool to insurance companies that desire to rate new or renewal policies. It requires as input those factors from which an underwriter would rate the policy. The program has provision for allowing credit for existing insurance, increased or decreased limits, non-standard coverage amounts (interpolation), and rating of many standard endorsements.

FEATURES -  
- Reduces clerical effort in the rating, coding, and policy typing areas.  
- Flexible, modular program allowing modifications and ease of adaption.  
- Provides an important step in the implementation of an insurance information system.

CONTINUED FROM PRIOR COLUMN

MINIMUM SYSTEM REQUIREMENTS - An 8K 1481 (some states require 12K) with Advanced Programming and High-Low-Equal Compare features. Input/output devices are determined by users requirements. Use of random access (1485 or 1311) can reduce storage requirements to 4K. Rating in form sequence can also appreciably reduce core storage requirements.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up... Reference manual (including tables and program listings).  
MACHINE READABLE - Source code, Object code, sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1481IF85X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 88             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1481-II-81X

THE 62 CFO PROGRAM (CONSOLIDATED FUNCTIONS ORDINARY)

DESCRIPTION - This series of fourteen programs is designed to compute net premiums and terminal reserves for most plans of insurance. Computes adjusted premiums and minimum cash values for those plans requiring such values. Stores computed results on master rate tapes for use in the computation of legal reserves or non-forfeiture benefits. Prints the computed results in report form for visual reference and other purposes. Minimum input is required for most plans of insurance. (A whole life plan requires twenty-six columns of data.) 62 CFO terminal reserve, net premium, and minimum cash value programs provide extreme flexibility in the calculation of terminal reserves and minimum cash values. They have been used to duplicate correctly the values for hundreds of plans or insurance using a wide variety of benefits, mortality tables, interest rates, and methods of valuation. Use of these programs will provide an economic means of preparing consolidated files for conversion to 62 CFO daily cycle. Each plan of insurance must be described using standard forms. The input data is punched from these forms and processed through the appropriate CFO programs. Initial output is in the form of magnetic tape containing the structure of the plan, the premiums, and related policy values. A print program is provided which generates descriptive information and prepares a complete report on each plan of insurance.

PROGRAMMING SYSTEMS - This series of programs was written and assembled using 1481 SPS.

MINIMUM SYSTEM REQUIREMENTS - 12K 1481 tape system with, 1482 Card Read Punch mdl 1, 1483 Printer mdl 2, four tape drives, Advanced Programming, Expanded Print Edit, High-Low-Equal Compare, Multiply-Divide, Print Control Additional, and Sense Switches special features.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program Write-up. 62 CFO Volumes I and II.  
MACHINE READABLE - Magnetic tape containing program cards... Mortality tables... Selected twenty-pay life premiums... Selected adjusted life premiums. Card Decks - Tape-to-Card Program ... Sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1481II81X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556 22       | 81                         |
|          |                             | MT                   | 7/888 24       | 81                         |
| OPTIONAL | none                        | none                 | none           | none                       |

1481-II-82X

CONSOLIDATED FUNCTIONS ORDINARY DAILY CYCLE PROGRAMS

DESCRIPTION - The 62 Daily Cycle Programs, 1481-II-82X, are 31 programs with accompanying actuarial tables designed to meet data processing requirements for ordinary life insurance companies in the following areas - (1) Input preparation to the daily cycle (balance, sort, edit)... (2) Daily cycle processing for all policies contained in the master file (file maintenance, accounting, commission, billing, loan or nonforfeiture calculations and terminations)... (3) Preparation of daily accounting journals... (4) Periodic file updating runs (dividends, cash values, and renewable term premiums). The total system provides for automatic processing of all scheduled transactions and for requested processing of all non-

CONTINUED FROM PRIOR PAGE

scheduled transactions involving ordinary life contracts. Exceptions will occur only when the policy is issued under extremely unusual arrangements. The system is based upon consolidation of all policy information into a single magnetic tape record and integrates all processing functions within a single computer system. Processing commences with the first premium payment and continues through maturity, expiry, or any other form of termination. Accounting and commission records as well as policy exhibit transactions are generated automatically and brought forward under program control for month-end processing or for valuation purposes.

FEATURES- /62 CFO Daily Cycle programs will provide life insurance companies using this system with exceptional operational efficiency. The major features of this system are - (1) Daily analysis of all policy records for any form of activity... (2) Continuous control of the policy master file... (3) Policy information for accounting journals, commission statements, notification, policyholder service and valuation reports from a single source... (4) Organization of output from the system into meaningful printed reports.

USE - /62 CFO Daily Cycle assumes the development of a complete policy master file by each user. To help in the data gathering necessary for a consolidated file, programs are available (1401-IL-01X) to generate reserve, net premium and minimum cash value rate tapes. Rate tape philosophy has been incorporated into the overall system to facilitate the handling of any type of updating required and in many cases eliminate the necessity for data gathering.

User Responsibility includes the following major areas - (1) Gathering all data necessary to establish a policy master record... (2) Preparation of conversion programs which will convert gathered data into an acceptable format... (3) Preparation of new business programs which will convert new issue data into an acceptable format... (4) Preparation of a print program for premium and anniversary notices... (5) Preparation of cash value and dividend rate tapes, renewable term premium rate cards, agents control records, and commission tables.

Daily Cycle Programs may be used as they are or with slight modification to facilitate auditing newly converted policy records. Dividend, cash value and renewable term updating programs can also be used as conversion programs. Daily Cycle Programs will operate upon any properly converted block of policies on either a daily or periodic schedule.

MINIMUM SYSTEM REQUIREMENTS - 12K 1401 system with 1402 Card Read Punch mdl 1... 1403 Printer mdl 2... five tape drives... Advanced Programming, Expanded Print Edit, High-Low-Equal Compare, Multiply-Divide, Print Control Additional, and Sense Switches special features.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Program write-up... /62 CFO Policy Master Record Code Book (Volume 0) and Volumes 3 through 11.

MACHINE READABLE - Card decks - Object deck designed to add or alter programs on the /62 CFO program tape. Magnetic tape - one reel containing all decks in source program card form... and mortality tables.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401IL02X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556<br>7/800 | 22<br>24                   |
|          |                             |                      |                | 01<br>01                   |
| OPTIONAL | none                        | none                 |                | none                       |

CONTINUED FROM PRIOR COLUMN

with each policy record only at the time of valuation, thus eliminating the need to store excessive valuation information as a part of each policy record. The major features of the overall approach are -

- (1) Using the daily cycle programs (1401-IL-02X), control of the policy master file is maintained on a current daily basis for the number of policies, impairments, all forms of deposits, and suspense items, thus eliminating the need for preparatory work prior to the beginning of a valuation.
- (2) All elements other than legal reserves are carried as ledger items. Each detail item needed for a valuation is extracted from the policy master file on an individual basis for reporting purposes, allowing complete flexibility in reporting technique.
- (3) Reserves are computed for premium paying policies, all forms of paid-up policies, and for each of the various types of supplemental benefits and extra life premiums.
- (4) Deferred and uncollected premiums are computed on both a gross and net basis. In addition, gross advance premiums are calculated.
- (5) In-force amounts of the entire master policy file are computed, maintained, and reported as a part of the valuation procedure.
- (6) Reports are available as a detail listing of each item, by valuation cell, by plan, and by method of valuation, mortality table, and interest rate.

USE - Each valuation may be taken on either a partial basis or a complete basis as of any month end. Minimum results will involve - (1) Loan balances with either accrued or unearned interest adjustments... (2) Amounts on deposit with accrued interest... (3) Suspense totals of unapplied cash or returned items... (4) Life reserves and corresponding premium adjustments... (5) Policy exhibit changes within the reporting period... (6) Summary reports of each of the above items.

Additional results from a full valuation will include all of the above as well as - (1) Deficient reserves... (2) Totals for annual statement page 15 and state policy exhibits, and a detail listing of changes... (3) Reserves released and tabular net premium adjustments... (4) Either summary or detail reports of all valuation items.

MINIMUM SYSTEM REQUIREMENTS - 12K 1401 system with... 1402 Card Read Punch mdl 1... 1403 Printer mdl 2... five tape drives... Advanced Programming, Expanded Print Edit, High-Low-Equal Compare, Multiply, Divide, Print Control Additional, and Sense Switches special features.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Program Write-up... /62 CFO Volumes 12 through 16.

MACHINE READABLE - Card decks - Object deck designed to add or alter programs on the /62 CFO Program Tape. Magnetic Tape - one reel containing source program cards for the 15 component programs.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401IL03X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556<br>7/800 | 22<br>24                   |
|          |                             |                      |                | 01<br>01                   |
| OPTIONAL | none                        | none                 |                | none                       |

**1401-IL-03X**

**CONSOLIDATED FUNCTIONS ORDINARY VALUATION PROGRAM**

DESCRIPTION - The 62 CFO (Consolidated Functions Ordinary) Valuation Programs, 1401-IL-03X, are a series of 15 programs designed to operate exclusively in the area of valuation and in the preparation of the policy exhibit for ordinary life insurance companies. All of the programs in this series assume a standard 62 CFO record format. Processing may be performed on a standard annual basis or at any more frequently desired cycle such as semiannually, quarterly, or monthly. All information furnished by these programs comes exclusively from paid for business in the file on the valuation date and does not pertain in any way to supplementary files. Policy exhibit and reserves released are based on activity to the policy master file during the reporting period.

FEATURES - The valuation procedures were designed to conform to standard valuation practices and to furnish the maximum amount of information available from a current consolidated policy master file. All reserves and net premiums are stored on machine-generated rate tapes and are associated

**1401-IO-012**

**COMMUNICATIONS IOCS (1026/DDC) FOR THE 1401/1460**

**\*M**

DESCRIPTION - This IOCS facilitates the generation of programs to control 1026 communication with 1030, 1050, and 1060. It is compatible with the 1401/1460-1440 communications IOCS for the 1448, thus requiring a minimum of re-programming for growth from 1026 Transmission Control Units to a 1448. Applications can range from single inquiries to sophisticated real-time data operations. Its functions are -

- Control of the 1447 Console
- User control of polling, addressing and receiving
- Error detection
- Operation with existing IBM programs for DDC
- Time of day recording with the 1032 Digital Time Unit

The 1401/1460 Communications IOCS (1026/DDC) will operate with point-to-point or multi-point common carrier leased or customer-owned communication lines. In addition, the programs will support the Automatic Answering feature and the Automatic Calling feature.

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PROGRAMMING SYSTEMS - Communications IOCS (1026/DDC) consists of a set of library routines which, when called for in an Autocoder source program by macro instructions, are selected, tailored, and included in the object program. The routines perform the functions necessary to handle basic input/output files, to transmit information to and receive information from remote locations and remote processors, and to provide linkage to users programs. The specific routines generated at assembly time depend largely on the particular specifications contained in the user's source programs.

The library routines for this IOCS is to be placed in the Autocoder system through a library run, using Autocoder (on disk) for 1401, 1440, and 1460, No. 1401-AU-008.

MINIMUM SYSTEM REQUIREMENTS - For program assembly - same as those for the assembly of any program using 1401/1440/1460 Autocoder (on disk) program. The Autocoder (on disk) program should be ordered concurrently unless otherwise available.

For object programs - A 4K 1401 with... Advanced Programming and High-Low-Equal Compare features... 1409 Console Auxiliary mdl 2... 1026 Transmission Control Unit attachment feature... 1026 Transmission Control Units (one for each communication line)... I/O units (as required).

OR

An 8K 1460 with... Indexing and Store Address Register feature... 1447 Console mdl 1... 1026 Transmission Control Unit attachment feature... 1026 Transmission Control Units (one for each communication line)... I/O units (as required).

In addition - direct Data Channel feature... Interrupt... 1447 Console mdl 2 for 1440 and 1460, mdl 3 for 1401... 1032 Digital Time Unit may be present, as desired.

NOTE - Use of DDC with 1026 should specify the Interrupt feature (available on 1401 only as RFQ) for optimum performance.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up. Operations Instructions.  
MACHINE READABLE - Library of macros.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - Program flowcharts.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401IO012

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-IO-065

INPUT/OUTPUT CONTROL SYSTEM

DESCRIPTION - The 1401 IOCS consists of a set of library routines which, when called for in a 1401 Autocoder source program by macro instructions, are selected, tailored and included in the object program. These routines perform I/O functions and provide linkage to the users object program. The specific statements generated at assembly time depend completely on the particular specifications contained in the user's source program. Use of program the 1401 IOCS library routines are to be placed in the 1401 Autocoder System (version 3 or later version) through a librarian run.

MINIMUM SYSTEM REQUIREMENTS - The 1401 IOCS will perform the I/O functions and associated housekeeping for tape, card reader, card punch and printer. The object machine must have, in addition to any of the above I/O units, Advanced Programming features and the High-Low-Equal Compare feature. The amount of core storage required varies widely from program to program and must be determined at assembly time.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up... Documentation of the 1401 IOCS system including language specifications... Flowcharts... Sample problem.  
MACHINE READABLE - Magnetic tape - 1401 Model statements in card image form.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401IO065

|       | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|-------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC | none                        | MT                   | 7/556<br>7/800 | 22<br>24                   |
|       |                             |                      |                | 01<br>01                   |

OPTIONAL none none none

1401-IO-068

IBM 1401/1460 IOCS (ON DISK)

DESCRIPTION - The IBM 1401/1460 IOCS, (on disk), Version 2, NO. 1401-IO-068, (previously named 1401/1311 IOCS) is available to be used on 1401 and 1460 Systems with 1401/1440/1460 Autocoder (on disk), No. 1401-AU-008.

The new version consists of a set of library routines which, when called by macro instructions are selected, tailored and included in the object program. For 1401 and 1460 systems, these routines perform I/O functions and housekeeping associated with 1311 Disk Storage, 1301 Disk Storage, magnetic tape, card reader, card punch, and printer. They also provide linkage to the user's object program. The specific statements generated at assembly time depend completely on the particular specifications contained in the user's source program. The 1401/1460 IOCS library routines are to be placed in the 1401/1440/1460 Autocoder (on disk) System through a library run.

MINIMUM SYSTEM REQUIREMENTS - For assembly -- programs incorporating I/O macro instructions for 1401 and 1460 systems may be assembled on - a 4K 1401 system with... one 1311 Disk Storage Drive... 1402 Card Read Punch... 1403 Printer Mdl 2 or 1404 Printer... High-Low-Equal Compare,

OR

An 8K 1460 system with... one 1311 Disk Storage Drive or one Disk Storage Array... 1402 Card Read Punch... one 1403 Printer

OR

A 4K 1440 system with... one 1311 Disk Storage Drive or one 1301 Disk Storage Array... 1442 Card Read Punch mdl 1 or 2 or 1442 Card reader mdl 4 and 1444 Card Punch... 1443 Printer.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up, Library listings... Operating Procedures.  
MACHINE READABLE - Library...  
Sample source program for test purposes.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - Flowcharts.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401IO068

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-LM-007

CARD SYSTEM SUBROUTINES

DESCRIPTION - To provide a few frequently used arithmetic subroutines. This 1401 program provides Multiply I (for storage space economy) Multiply II (for speed economy) divide dozens-to-units conversion units-to-dozens conversion. Note-closed subroutine linkage instructions provided.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up...  
Listings... Flowcharts.  
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401LM007

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-LM-011

1401/1460 TIMING PROGRAM FOR IBM BASIC OPERATING SYSTEM/360 DISK SORT/MERGE PROGRAM (16K)

DESCRIPTION - The IBM 1401/1460 Timing Program provides timing estimates for the Disk Operating System/360 Disk Sort/Merge program (16K disk) when operating on a System/360 Model 2030 or Model 2040 with a maximum of 256K bytes of

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main storage, a channel configuration of one multiplexor or selector channel and up to 8 IBM 2311 Disk Storage Drives. Timing estimates for the Model 2030 assume a 1.5 microsecond cycle time. This program will provide sort timing estimates for sorting fixed length records with a single control field. Timings can be obtained for specific record volumes designated by the user, or for a spread of record volumes predetermined by the timing program. In addition, main storage utilization and maximum file size are included in the program output. Control cards are used to supply a description of the computing system, file configuration and record definition for which estimates are required. Multiple record/file cards may be used with one system definer card to estimate times for many file configurations on the same system. Also, many system definer cards may be used with one record/file card to estimate the time for sorting one file on several different systems. Multiple control card sets can be stacked to provide multiple estimates at the same time.

MINIMUM SYSTEM REQUIREMENTS - A 16K 1401 system with... a 1402 Card Read Punch Model 1... a 1403 Model 2, or 1404 Printer... High-Low-Equal Compare feature... Advanced Programming feature... Multiply-Divide feature... Sense Switches...

OR

A 16K 1460 system with... a 1402 Card Read Punch Model 3... a 1403 Model 2 Printer... Multiply-Divide feature... Indexing and Store Address Register features... Sense Switches.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program Material List... Timing Program Manual, C24-3445... Disk Operating System Sort/Merge Manual, C24-3444.  
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401LM011

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-OS-092

1401/1460 - 1026 OPERATING SYSTEM COMPUTER ASSISTED INSTRUCTION

\*M

DESCRIPTION - The Coursewriter Language is a special user language with which a teacher (i.e., "Author") can prepare his course material to accommodate the range of student abilities.

The Operating System consists of -

- A Monitor to supervise writing and instructing simultaneously. An Assembler which enables the course author to communicate with the computer when writing and revising courses.
- Utilities for preparing student and course reports.

It provides the ability -

- For authors to write and correct course material while students are taking courses.
- For a "proctor" who operates the system, to undertake essential administrative routines.
- To collect data on student responses for later analysis.
- For authors or programmers to add new functional capability to the coursewriter.
- To operate simultaneously up to five courses per 1316 Disk Pack.
- To service up to twelve 1050 point-to-point lines with a 1448 or up to four lines with four 1026 Transmission Control Units.

The word assisted in the term computer assisted instruction is important. This new methodology is not intended to replace the important role of the teacher in the educational process. Instead, it is a new science for assisting the teacher in administering course material and taking fullest advantage of the benefits of CAI.

MINIMUM SYSTEM REQUIREMENTS - For 1401/1026 configuration - A 12K 1401 Models B, C, or E with disk Storage Adapter, High-Low-Equal compare, Advanced Programming, Bit Test, Console Auxiliary Adapter, Sense Switches... 1402 Card Read/Punch Model 1... 1403 Printer Model 1... 1406 Storage Model 2... 1409 Console Auxiliary Model 2... 1311 Disk Storage Drive Models 2 and 4 with Direct Seek... 1026 Transmission Control Unit - Up to Model 1 maximum. The first 1026 must have the expanded line feature and as many as three additional 1026 Model 1, each with the additional line feature. One must specify text time-out suppression to disable the timer from operating at the normal 9-18

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second disconnect. This feature is to be used with the text time-out suppression of the 1051 Control Unit - 1050 Data Communication System - as many as four system maximum, each consisting of a 1051 control Unit Model 2 and a 1052 Printer-keyboard with the 1st Printer feature. (When the text time-out suppression is specified on the 1026 Components, it must be ordered on the 1051).

For 1460/1026 CONFIGURATION - 1441 Processing Unit Model B5 with Disk Storage Control, direct Seek, Indexing and Store Address Register, Bit Test, Transmission Control Unit attachment... 1447 Model 1 with Sense Switches... 1461 Model 1... 1402 Model 3... 1403 Model 2... 1311 Models 1 and 2 with direct Seek... 1026 - as many as four Model 1. The first 1026 Transmission Control Unit must have the expanded line feature and as many as three additional 1026 Model 1 each with the additional line feature. One must specify text time-out suppression to disable the timer from operating at the normal 9-18 second disconnect. This feature is to be used with the text time-out suppression on the 1051 Control Unit... 1050 Data communication System - as many as four systems each consisting of a 1051 Control Unit Model 2 and a 1052 Printer-keyboard with the 1st Printer feature. When the text time-out suppression is specified on the 1026 Components, it must also be ordered on the 1051.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program Write-up. Author and Proctor Manual. Coursewriter Description Manual.  
MACHINE READABLE - System Control Program. Instruction Function, Initial Load, Utility Program.

OPTIONAL PROGRAM PACKAGE

DOCUMENTATION - Flowcharts. Program Listings.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401OS092

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-RG-022

1401/1460 BASIC REPORT PROGRAM GENERATOR 4K

\*M

DESCRIPTION - IBM 1401 Basic Report Program Generator 4K enables a program written in 1401/1460 Basic RPG Language to be compiled on either a 1401 or 1460 system. The output is used to execute the application on a 1401 or 1460 system. The source program in the 1401/1460 Basic RPG Language, punched in cards, is compiled on either a 1401 or 1460 system. The output object program is in the 1401/1460 machine language. The source program may be compiled directly to condensed card output, and/or if load-and-go is desired, it may be directly executed. Additional features included in this program are Automatic Decimal Alignment and Extensive Diagnostics. The program listing, documentation and diagnostic output are recorded on the printer.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1401 or 8K 1460 system with... 1402 Card Read/Punch one 1403 Printer.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up. Specifications. Operating Procedures.  
MACHINE READABLE - Program deck. Sample problem source program and data.

OPTIONAL PROGRAM PACKAGE

DOCUMENTATION - Flowcharts. Listings.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401RG022

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-RG-032

1401/1311 REPORT PROGRAM GENERATOR (ON DISK) 1401/1460

\*M

DESCRIPTION - IBM 1401/1460 Report Program Generator (on disk), 1401-RG-032, enables the RPG processor to have 1301 Disk Storage system residence at compile time and provides for input, output, or for files on a 1301 Disk Storage Module at object time. Version 1, called "1401/1311 RPG" will not be available since its functions are included in the new version. Version 2 increases the power of the RPG Language through the implementation of disk update function. Included with 1401/1460 RPG (on disk) is a 1401 RPG Translator program enabling a program written for the

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1401 RPG Program to be punched in a form that can be compiled on a 1401/1311 System, a 1401/1311 system, or a 1460/1301 system. This system enables a program written in 1401/1440/1460 RPG Language to be compiled and assembled on a 1401/1311, 1460/1311 or 1460/1301 system. The output is used to execute the application on a 1401 or 1460 system.

Object program input is a card file, magnetic tape file, or disk storage file. The output report can be printer and/or punched into cards and/or written on either magnetic tape or disk storage. The source program in the 1401/1440/1460 RPG Language punched in cards is compiled and assembled on a 1401 or 1460 system. The output object program is either the machine language equivalent program or the Autocoder (on disk) Language equivalent program. The machine language equivalent object program can be in the form of condensed cards, or it "load-and-go" is desired, the object program can be directly loaded from the system pack or module. The program listing, documentation, and diagnostic output are recorded on the printer.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1401 system with... 1402 Card Read/Punch... 1403 Printer Model 2... one 1311 Disk Storage Drive... High-Low-Equal Compare feature.

OR

An 8K 1460 system with... 1402 Card Read/Punch... 1403 Printer... one 1311 Disk Storage Drive or one 1301 Disk Storage Module.

**BASIC PROGRAM PACKAGE**  
DOCUMENTATION - Program write-up, Operating Procedures.  
MACHINE READABLE - System deck, sample deck. 1401 RPG Translator Program.

**OPTIONAL PROGRAM PACKAGE**  
DOCUMENTATION - Flowcharts, listings.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401RG032

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

**1401-RG-033** \*M  
**REPORT PROGRAM GENERATOR 2K**

DESCRIPTION - The 1401 Report Program Generator 2K system enables a program written in 1401 RPG 2K Language to be compiled on a 1401. The output is used to execute the application on a 1401 system. The source program in the 1401 RPG 2K Language, punched in cards, is compiled on a 1401 system. The output object program is on condensed cards in 1401 machine language. The program listing, documentation, and diagnostic output are recorded on the printer.

MINIMUM SYSTEM REQUIREMENTS - A 2K 1401 system with... 1402 Card Read/Punch... 1403 Printer. Although the High-Low-Equal Compare feature is not needed, RPG 2K can use it to advantage if it is installed. The 1401 2K System will take advantage of an additional 2K core storage.

**BASIC PROGRAM PACKAGE**  
DOCUMENTATION - Program write-up, Operating Procedures.  
MACHINE READABLE - Program deck, sample problem source program, sample problem data.

**OPTIONAL PROGRAM PACKAGE**  
DOCUMENTATION - Flowcharts, listings.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401RG033

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

**1401-RG-045** \*M  
**FARGO - FOURTEEN-O-ONE AUTOMATIC REPORT GENERATING OPERATION**

DESCRIPTION - Provides a simple-to-learn, easy-to-use method of converting accounting reports from unit record equipment (602A - 402 - 514 - 604 - 407 - 519 types) to an IBM 1401 Data Processing System. Programming language 1401 Symbolic Programming System, method "load and go". Intermediate symbolic assembly operations.

This means that the FARGO condensed program decks with the inserted control cards containing the report specifications are read into the 1401 followed by the

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report data cards, and the report is begun when the first detail card is read. (1) List or tabulate with or without summary punching. (2) Print one full line of report heading on the 1st line of each page of the report. (3) Print 1 or 2 full lines of columnar or filed headings on each page. (4) Control on a maximum of four fields of any length. (5) Group indicate a maximum of four fields on the first line of each minor control group. (6) Recognize up to 10 types of detail cards by any single column character. If more than one card column must be tested to identify a given type of a card, a patch is required. Note- Each of the 10 types may be in separate card columns. (7) Add, subtract, multiply, divide operations may be performed on detail or total lines. These operations require Multiply/Divide feature. (8) Print multiple lines from one card (MLP).

**BASIC PROGRAM PACKAGE**  
DOCUMENTATION - Program write-up, Listings.  
MACHINE READABLE - Condensed system deck.

**OPTIONAL PROGRAM PACKAGE - None.**

ORDERING INFORMATION: PROGRAM NUMBER 1401RG045

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

**1401-RG-048** \*M  
**REPORT PROGRAM GENERATOR**

DESCRIPTION - Purpose 1401 RPG is a programming system which generates report writing programs which are specified by the user in the RPG language established for IBM 1400-series machines. The generated report program will accept source data contained in either a card file, magnetic tape file or disk storage file. The language facilitates specifying the classic report writing functions of heading and detail lines, total lines controlled by control field breaks, offset total printing, summary punching, cross-footing and calculation, page and serial numbering, etc. The output report can be obtained at the printer, on cards, on tape, or on any combination of the three. Use of program report specifications, punched on cards, are entered into the 1401 DPS together with the generated report deck. The output is a punched deck containing the generated report program in symbolic (1401 SPS) language. This deck is further processed by one of the 1401 Assembly Systems (SPS-1, SPS-2, or Autocoder) to obtain the machine language report writing program ready for loading.

MINIMUM SYSTEM REQUIREMENTS - For Report Program Generation: 1 4000 core storage positions; 1 1402 Card Read/Punch; 1 1403 Printer. For Report Program execution: 1 1403 Processing Unit (any model - core storage size required depends upon complexity of report); 1 1402 Card Read/Punch; tape units (Model 729 II, 729 IV, 729 V, 729 VI, or 7330). 1403 Printer Model 1 or 2; 1405 Disk Storage Unit - Only as required for input data file and output report media. Multiply-Divide special feature - may be used if installed. Sense Switches special feature - may be used if installed.

**BASIC PROGRAM PACKAGE**  
DOCUMENTATION - Program write-up, listings, flowcharts.  
MACHINE READABLE - Condensed program.

**OPTIONAL PROGRAM PACKAGE - None.**

ORDERING INFORMATION: PROGRAM NUMBER 1401RG048

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

**1401-RG-700** \*M  
**IBM 1400 RPG TO SYSTEM/360 TRANSLATOR**

DESCRIPTION - This program operates on a 1401 or 1460 Data Processing System. The Translator converts source programs written for any of the processors listed below to similar source programs acceptable to System/360 Model 20 RPG, System/360 Basic Programming Support RPG, Basic Operating System/360 RPG, or Operating System/360 TPG.

1400 RPG Processors to be translated include:

- (1) 1401 RPG (2K)
- (2) 1401 Basic RPG (4K)
- (3) 1401 RPG
- (4) 1401/1460 RPG (on disk)
- (5) 1440 RPG (2K)
- (6) 1440 Basic RPG (4K)

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- (7) 1440 RPG (on disk)
- (8) 1440 Sterling Basic RPG (4K)
- (9) 1440 Sterling RPG (1311)

The 1401 RPG processor will be handled after the program has first been translated to 1401/1460 RPG (on disk) using the 1401 RPG Translator program. Program input is 1400 series RPG source program cards; output is System/360 RPG source program cards for input, calculation, and output specifications. Non-translatable conditions will be flagged as they are detected by the translator.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1401 or 1460 with 1402 Card Read Punch... 1403 Printer, Model 2 or Model 3 (on 1460)... three 7330 or 729 Tape Units or one 1311 Disk Storage Drive or one 1301 Disk Storage Unit (on 1460)... Advanced Programming and High-Low-Equal Compare Register feature (on 1460).

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Program write-up... Program Material List... Sample program translation listing... System/360 RPG Translator Manual... Logic Manual.  
MACHINE READABLE - Card decks for Translator object program, sample program System/360 RPG source.

**OPTIONAL PROGRAM PACKAGE**

DOCUMENTATION - None.  
MACHINE READABLE - Translator source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401RG700

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | MT                   | 7/556          | 01                         |
|          |                             | MT                   | 7/800          | 01                         |

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|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | MT                   | 7/556          | 01                         |
|          |                             | MT                   | 7/800          | 01                         |

**1401-SE-12X**

**IBM DOCUMENTATION AIDS SYSTEM**

DESCRIPTION - The DA system provides machine-generated documentation aids to users who program in the IBM supported assembly-languages listed below. It provides an accurate, efficient, and inexpensive computer process for producing and maintaining up-to-date program documentation. The DA System consists of four programs and a system controller. They are highly modular and are integrated into a total system so that each program performs certain functions which may be required by other programs operating within the system.

The DA System processes programs written in System/360 Assembler Language, Symbolic Programming System (SPS), Autocoder, Macro Assembly Program (MAP), FORTRAN Assembly Program (FAP), or Symbolic Flowchart Language (SFL) for the System/360, 1401/1440/1460, 1620, 1410/1010, 7040/7044, 7070/7072/7074, 705/7080 and 7090/7094.

The source language used in the implementation of all DA System programs is 1401 Autocoder. The DA System objectives are to assist an installation in converting existing programs to System/360: to encourage the user to reprogram in higher level language, e.g., FORTRAN, COBOL, and PL/I. To allow the computer to assume many clerical and routine functions associated with documentation and conversion. To improve and update the documentation of existing programs, thereby reducing maintenance efforts. To improve programming efficiency by the standardization of documentation techniques.

**FEATURES -**

- The DA System operates directly upon Assembly Language source statements. No modification is required by the user before using DA System programs.
- Through scanning, the numerous symbolic languages are converted to a standard DA System record format. Processing of the DA formatted tape is thus largely language-independent.
- Each program within the DA System has its own control cards and is processed in sequence from the DA System tape, providing advantages normally found in a monitor system.
- The systems concept enables the user to submit a source program deck to the DA System and receive any or all of the source outputs of the system in one processing run.
- Source programs can be sequence checked, resequence numbered and updated. Corresponding listings can be produced.
- Cross-reference listings, both in program and in label table sequence, as well as analysis of operation type, indexing and operation code usage, are provided by the system.
- A storage map of an object program useful in detecting differences between the source and object programs is available. Overlay patches are identified and listed immediately after the instruction that they modify.
- The flowchart produced is a detailed logic flow of the source program. Flowchart symbols conform to the IBM Corporate Standard and the proposed American Standard Association Standards on flowchart symbols for information processing.

The Symbolic Flowchart Language provides a machine independent, easy-to-use language which may be used in application design and documentation of new and existing programs.

Implementation of the DA System on the 1401 gives the user the opportunity to document assembly programs for any current large-scale system without tying-up that system.

The function of the system controller is to start and end all DA runs as well as provide maintenance capability for the DA System programs. After identifying the machine type and language to be processed, the controller calls in the following programs in the sequence listed:

- An Update Program which allows insertion, deletion, and replacement of Assembly Language statements to bring the source program up to date.
- An Analysis Program which scans Assembly Language programs and produces pertinent information about the program scanned. Including cross references.
- A Flowchart Program which scans Assembly Language programs and produces flowcharts of program logic of designated areas.
- A Verification Program which produces a storage map of an object deck, noting overlay patch areas. Each program in turn proceeds as requested by DA System Control Cards, transferring control through the system

**1401-SE-05X**

**DECISION LOGIC TRANSLATOR PROGRAM**

\*M

DESCRIPTION - The Decision Logic Translator Program is valuable in the implementation of automated design engineering systems, as well as in other areas in which program logic can be effectively expressed in tabular form. The tabular approach to solution of complicated logical problems facilitates the breakup of a program into small, discrete, readily understood units of conditions and actions. This approach fosters modularity of program design which will be of increasing importance with the more widespread use of direct-access storage. Situations not yet anticipated can be introduced into existing programs with a minimum of effort through construction of additional tables. Existing condition-action tables can be easily altered, either as operational procedures change or to study the effect such changes would have on a business environment.

Areas of application of decision tables and 1401 Decision Logic Translator include:

- All types manufacturing operations which produce a wide variety of products from a relatively small pool of components including - electrical parts, motors, turbines, assemblies and sub-assemblies.
- Inventory control programs.
- Financial analysis and control applications.
- Special purpose simulation models.
- Quality control planning.
- Cost determination.
- Production control and planning.
- Real-time applications of information retrieval and decision making.

The 1401 Decision Logic Translator accepts as input decision tables written in a FORTRAN-oriented language. The Translator program sorts the rules to produce as output an efficient FORTRAN II source program. The use of this program can result in savings of up to 50 percent in implementation time and substantial reduction in cost in installation of applications that exhibit complex condition-action relationships.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - A 16K 1401 system with High-Low-Equal Compare, Multiply-Divide, and Advanced Programming... a 1402 Card Read/Punch... 1403 Printer... 2 tape units.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Program write-up... Reference Manual.  
MACHINE READABLE - Sample problem... Program cards.

**OPTIONAL PROGRAM PACKAGE**

DOCUMENTATION - Systems Manual.  
MACHINE READABLE - Translator source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401SE05X



CONTINUED FROM PRIOR PAGE

and processing the data until all DA System Control Cards have been processed.

PROGRAMMING SYSTEMS - All DA System programs are written in 1401 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1401 or 1460 system with four 729 or 7330 Magnetic Tape Units ... Advanced Programming... High-Low-Equal Compare... 1402 Card Read/Punch Model 1... 1403 printer Model 2 or 3 with 132 Print positions. A 1410, 7010, or System/360 Model 30 or 40 can be used when operating in 1401 Compatibility Mode.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Application Directory... Program Reference Manual, H20-0177.  
MACHINE READABLE - Systems tape.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401SE12X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556<br>7/800 | 22<br>24                   |
| OPTIONAL | none                        | none                 |                | none                       |

1401-SE-13X  
SYSTEM/360 COBOL EDIT

DESCRIPTION - COBOL Edit operates on a 1401 and will diagnose System/360 COBOL statements for syntactical errors. This will reduce System/360 test time by allowing debugging on the current system.

The System/360 COBOL Edit will accept as input S/360 COBOL D or E source programs in EBCDIC on card or on 7-track tape in card image. It prints a listing of the source program and identifies sequence errors, group marks and record marks. It also flags input characters punched in codes having dual representation in current systems. A dictionary of names is prepared and printed. It will indicate any names that are multi-defined, any COBOL reserved words incorrectly used as names and any undefined names. The program will scan the statements for syntax errors and print diagnostic messages if any sentence structure errors are found. Editing is for syntax only; the data attributes are not checked.

- FEATURES -
- Gives the user the ability to pre-edit System/360 COBOL source programs on the IBM 1401 at his own installation, thus providing him with better utilization of his S/360 test time.
  - Input programs can be stacked by the addition of an END card between programs.
  - May be used in conjunction with the IBM S/360 COBOL Language Conversion Program (1401-CB-701). The output of LCP will be accepted as input.

PROGRAMMING SYSTEMS - To obtain listings or cards from the tape, the following utilities will be required- IBM 1401 Tape-To-Printer Utility (1401-UT-026)... IBM 1401 Multiple Utility (1401-UT-039).

MINIMUM SYSTEM REQUIREMENTS - 8K 1401, 3 tape units, 1402 Card Read/Punch, 1403 Printer with 132 print positions, High-Low-Equal Compare, Sense Switches and Advanced Programming. Additional core will be utilized by the program. If a fourth tape drive is available, input can be on tape.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Application Directory... Program Reference Manual, H20-0217.  
MACHINE READABLE - Object code and sample program.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code and program listings

ORDERING INFORMATION: PROGRAM NUMBER 1401SE13X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR                  | 7/556<br>7/800 | 22<br>24                   |
| OPTIONAL | none                        | MT                   | 7/556<br>7/800 | 22<br>24                   |

1401-SM-060  
SORT 7

DESCRIPTION - SORT 7 is a generalized tape sorting program designed for use on an IBM 1401 tape system with at least 8,000 positions of core storage. This program provides label processing capabilities for the IBM Standard Tape Label (120 character). A tape-loadable option is available and when used 100 positions of storage are used. This program sorts fixed length or variable length, blocked or unblocked records into either ascending or descending sequence. Sorting can be controlled by as many as ten control data fields containing a total of up to 999 characters. For four-tape systems on which fixed length records are being sorted, SORT 7 provides an additional capability in the form of a Multiphase Procedure, 15 to 25 percent overall time saving may be realized as compared with the balance merging technique. Interrupt and Restart capabilities are provided in the program.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1401 or 1460 tape system... At least four IBM magnetic tape units (729 II, IV, or V, or 7330)... 1402 Card Punch... 1403 Printer md12 (or 1404 Printer - 1401 only) High-Low-Equal Compare, Advanced Programming and Sense Switches. An additional tape unit is needed if the Tape-Loadable option is used. The 1460 requires Indexing and Store Address Register and the Sense Switch feature. SORT 7 can also use, if available, five or six tape units and or 16K core storage capacity.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up... Specs... and Operating Procedures... Flowcharts.  
MACHINE READABLE - Object code and assembly listing for both Tape Load and Sort programs.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Symbolic program.

ORDERING INFORMATION: PROGRAM NUMBER 1401SM060

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556<br>7/800 | 22<br>24                   |
| OPTIONAL | none                        | MT                   | 7/556<br>7/800 | 22<br>24                   |

1401-SM-061  
MERGE 7

DESCRIPTION - MERGE 7 is a generalized tape merge program designed for use on IBM 1401 tape systems with at least 8,000 positions of core storage. The user may specify merging input files in either ascending or descending order to an output file of the same order. The program provides label processing capabilities for the IBM Standard Tape Label (120 character).

The program will merge fixed length and variable length blocked or unblocked records. Merging can be controlled by up to ten control data fields of total length as large as 999 characters. MERGE 7 also provides the additional features of reblocking single files and performing a sequence check on a single file or on the output file of normal merge operation. The program provides a wrong length record check for unblocked fixed length, blocked fixed length, and blocked variable length records.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1401 or 1460 tape system... 1402 Card Read/Punch... 1403 Printer md12 (or 1404 Printer - 1401 only). Plus for 1401 - High-Low-Equal Compare and Advanced Programming. For 1460 - Indexing and Store Address Register.

MERGE 7 requires from three to six tape units and will use 12K or 16K core storage capacity, if available.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up... Specs, and Operating Procedures... Flowcharts.  
MACHINE READABLE - MERGE 7 object code and the MERGE 7 program listing.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401SM061

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR                  | 7/556<br>7/800 | 22<br>24                   |
| OPTIONAL | none                        | none                 |                | none                       |

1401-SM-062  
SORT 6

DESCRIPTION - SORT 6 is a generative sort program designed for generation and use on an IBM 1401 or 1460 with at least one IBM 1311 Disk Storage Drive, and a minimum of 4000 positions of core storage (8000 for 1460). SORT 6 object programs will sort fixed length, blocked or unblocked, records in Move Mode into either ascending or descending sequence. Sorting can be controlled by as many as ten control data fields of total length up to a maximum of 194 characters. SORT 6 can generate an object program through use of the Autocoder Macro-Generator and parameter cards. It is further classified as a Generalized Program because it can modify itself at object run time according to information punched in control cards by the users.

MINIMUM SYSTEM REQUIREMENTS - Generation and object time use of the 1401 SORT 6 are: 4K 1401 or 8K 1460 system... One 1311 Disk Storage Drive... 1402 Card Read/Punch... One 1403 Printer Model 2, or 1404 Printer (1401 only)... High-Low-Equal Compare feature (1401 only). The object program can use, if available, up to 5 disk storage drives and 8K, 12K, or 16K core storage capacity. The following programs are required to implement 1401 SORT 6 -

1401/1440/1460 Autocoder (on disk) #1401-AU-088.  
1401/1460 IOCS Version 2 #1401-IO-068.  
1401/1311 Disk Utility Programs, #1401-UT-053.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - SORT 6 specifications... Operating Procedures... Flowcharts... Listing for library program... Listing for prephase programs.  
MACHINE READABLE - Library routine decks... Prephase decks.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401SM062

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-SM-063  
MERGE 6

\*M

DESCRIPTION - IBM 1401 Merge 6, (1401-SM-063, is a generative program for 1401/1311 or 1460/1311 systems. Used with 1401/1311 Autocoder and IOCS, Merge 6 will generate specific object programs that are fitted to the users particular merging applications. The object programs generated by Merge 6 are generalized in that they can be modified according to information supplied by the user in control cards. With object programs the user can merge pre-sorted, fixed length, blocked or unblocked records in the move mode into either ascending or descending sequence. The input and output can be on either disk or tape. A one-, two-, three-, or four-way merge can be performed. If specified by the user at generation time, options such as label checking, additions from cards, sequence check and hash total, deletions or selections by class can be incorporated into the object program.

MINIMUM SYSTEM REQUIREMENTS - Object program generation - same as for 1401/1311 Autocoder on 1401 or 1460 systems.

Object program execution- a 4K 1401 system or a 8K 1460 system, each with sufficient core storage to utilize the object program options... a 1402 Card Read/Punch... and, depending upon the object program requirements, a 1403 Printer or 1404 Console Inquiry Station (1401 only) or a 1447 Console mdl 2 (1460) or 3 (1401)... one to five 1311 Disk Storage Drives and/or one to six magnetic tape units (7330 or 729 II, IV, or V) in combination to provide a minimum of two input files and one output file... High-Low-Equal Compare (1401 only).

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Specifications... Operating Procedures... Flowcharts... Library listing... Prephase assembly listing.  
MACHINE READABLE - Library program... Prephase program.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: Program Number 1401SM063

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-SP-030  
SYMBOLIC PROGRAMMING SYSTEM 2 (SPS-2)

\*M

DESCRIPTION - Provides a symbolic language processor for machines with greater than 4000 positions of core storage.

MINIMUM SYSTEM REQUIREMENTS - 4000 positions of storage, 1402 Reader/Punch, 1403 Printer, Model 1...

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Listings... Operating Procedures.  
MACHINE READABLE - Condensed program.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401SP030

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-UT-001  
CARD SYSTEM UTILITY PROGRAMS

\*M

DESCRIPTION - Utility programs to load or to output programs and data. Programs provided clear storage, card loader, print storage, punch storage, punch-list-sequence check equipment specification.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Listings... Flowcharts.  
MACHINE READABLE - Condensed program.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401UT001

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-UT-025  
1401 AND 1460 TAPE UTILITY PROGRAMS WITH 120 CHARACTER LABEL CAPABILITY

\*M

DESCRIPTION - These three programs, for 1401 and 1460 tape systems, transfer data files from card to tape, from tape to card, and from tape to printer. Output format flexibility is provided through field-selection and exception-record procedures. The programs have the capability of processing the IBM standard tape label (120), using procedures similar to the available from IOCS. These are generalized utility programs, supplied by IBM as condensed card object decks. The programs modify themselves to fit a specific application through the use of control cards.

PROGRAMMING SYSTEMS - Written in 1401 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 4K 1401 or 8K 1460 system... 1402 Card Read Punch... one 1403 Printer, Model 2 or 3, or 1404 Printer... One 729 or 7330 Magnetic Tape Unit... Sense Switches feature (1401 only). If binary tape records or column binary cards are to be processed, the Column Binary Transfer feature (1460) is required.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up... Listings... Program specifications... Operating procedures.  
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - Flowcharts.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401UT025

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-UT-026  
TAPE-TO-PRINTER UTILITY PROGRAM

\*M

DESCRIPTION - The purposes of this program are - 1. To enable the printing of various tape configurations in many print configurations without the need for specific programs. 2. To simulate the 717, 720 and 730 Off-Line Printers for

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tapes prepared on 700-7000 series computers.  
PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 1401 Model C3 1403 Model 2 Printer 1 (one) 729 Model II or IV (1402 Card Read Punch High-Low-Equal Compare) may run on Model D3 if System Tape produced on Model C3. Timing varies according to record types (i.e., fixed length or variable length), and according to spacing and skipping requirements. Fixed length records which are single spaced obtain maximum speed (600 lines/minute). 1. Maximum block size allowable is 1496 characters without editing, 1279 with editing. 2. Multi-reel files and multi-file reels may be handled. 3. Sequence checking and exception testing are provided.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up... Listings...  
Flowcharts.  
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401UT026

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-UT-027 \*M

CARD-TO-TAPE UTILITY PROGRAM

DESCRIPTION - The Card-To-Tape Program provides for writing information contained in punched cards onto magnetic tape.

MINIMUM SYSTEM REQUIREMENTS - 1401 Model C3, High-Low Equal Compare, 1402 Model I Card Reader-Punch, one 729 Model II or IV 1403 Model 2 Printer. (Additional Remarks) 1. Input record in from 1 to 99 cards. 2. Rearrangement of input prior to output is allowed. 3. Up to 16 fields may be selected for output. 4. Blocking of 1499 characters of BCD records and 1599 characters for column binary records. 5. Sequence checking of cards and records can be performed. 6. An exception record procedure is provided. 7. Header and trailer labels may be inserted. 8. Column binary records and intermixed column binary and BCD records can be written on tape if the 1401 system being used has the Column Binary device. 9. A count of the number of data cards read and of the records written, exclusive of header and trailer cards and records, is printed out at the end of each file.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up... Listings...  
Flowcharts.  
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401UT027

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-UT-028 \*M

TAPE-TO-CARD UTILITY PROGRAM

DESCRIPTION - Transfers information recorded on magnetic tape into punched cards, with a variety of output column designations.

MINIMUM SYSTEM REQUIREMENTS - 1401 Model C3, 1403 Model 2 Printer, 729 Model 2 or 4 Tape Drive, 1402 Card Reader-Punch, High-Low-Equal Compare. Additional Remarks: timing varies from 200 to 250 C.P.M., depending upon the number of options desired by the user. 1. Maximum block size allowable is 1197 characters. 2. Additional information not contained within the record may be punched. 3. Field sequence checking and field selection is permitted. 4. Multiple file reels are processed according to the users specifications. 5. Exception record processing and card sequence numbering is allowed. 6. Header and trailer labels are optionally treated.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up... Listings...  
Flowcharts.  
MACHINE READABLE - Object code.

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OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401UT028

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-UT-052 \*M

1401/1311 DISK FILE ORGANIZATION ROUTINES 1401/1460

DESCRIPTION - 1401-UT-052, supports 1301 and 1311 Disk Storages and the 1401/1460's Console Printer. The package incorporates the additional features of 1301 Disk Storage and Console Printer capabilities, requires 1401/1440/1460 Autocoder (on Disk) for generation of object programs, and provides two complete sets of routines. One set generates object programs for a random file; the other, object programs for a control sequential file - Random file - The object programs for loading and maintaining a random file use the chaining method to load records into disk locations determined by control fields within the records. Records whose control data convert to the same address are linked together by a chain of addresses. Object programs can be generated by the routines to add records or delete them. Control sequential files use a sequence line to add records to the file or delete them, without destroying the sequence. A distribution index built by the programs makes possible quick access to any record. In both techniques, records may be loaded from or unloaded to cards, tape, or disk. The user's file organization routines are generated by 1401/1440/1460 Autocoder (on Disk) from a series of 1401/1460 IOCS (on disk) Version 2 Library routines and the Disk File Organization Library routines. By control cards, the user supplies the appropriate parameters for generation.

MINIMUM SYSTEM REQUIREMENTS

GENERATION REQUIREMENTS - Requirements for generation of the user's file organization object programs are the same as those for 1401/1440/1460 Autocoder (on disk, and 1401/1460 IOCS (on disk), Version 2.

EXECUTION REQUIREMENTS - 4K 1401 System for 1311 usage or 8K 1460 System for 1311 or 1301 usage with... 1402 Card Read Punch... 1311 Disk Storage Drive or 1301 Disk Storage Array... 1403 Printer or (1460) 1477 Console mdl 2 or 4 or (1401) 1407 Console Inquiry Station or 1477 Console mdl 3 (if a log is to be kept during file loading, additions, or deletions, the 1403 Printer is required, in that case, a console with printer is not required)... Magnetic tape unit (required only if tape I/O is used).

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up, Program listing, Disk File Organization Routines and Operating Procedures.  
MACHINE READABLE - Option 1 - Common and random, and is specified by using Program Number Extension OPT1. Option 2 - Common and control sequential, and is specified by using Program Number Extension OPT2. Option 3 - Common, random and control sequential, and is specified by using Program Number Extension OPT3.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - Flowcharts.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401UT052

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | OPT1                        | DTR*                 | 00             | none                       |
|          | OPT2                        | DTR*                 | 00             | none                       |
|          | OPT3                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-UT-053 \*M

UTILITY PROGRAMS FOR THE 1401-1311 DISK

DESCRIPTION - This system is designed to perform certain frequently required operations without programming effort on the part of the user. The system consists of: Clear-Disk-Storage Program, Disk-to-Tape Program, Tape-to-Disk Program, Disk-to-Card Program, Card-to-Disk Program, Copy-Disk Program, Print-Disk Program, Disk-Record-Load Program, and Disk-Label Program.

Each of the programs is generalized, modifying itself to

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perform specific operations by information received through control cards. Each of the programs includes an optional disk label checking routine. The programs are designed for use on 4K or larger Systems - 8K or greater is necessary when processing Disk data for which the track record special feature is required. These programs perform such functions as clear disk and generate addresses, supply output for file protection purposes, display disk storage on the printer, change data or addresses in disk storage, create the label track or remove the label track, and enter, delete, change, display, and punch disk labels.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1401 system (8K required if track record format is used) with... 1402 Card Read/Punch... 1403 Printer Model 1 or 2... one 1311 Disk Storage Drive... and one IBM Magnetic Tape Unit (729 II, IV, or V, or 7330) required for tape programs only.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up... Operating Procedures... Preliminary Specifications.  
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - Listings... Flowcharts.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401UT053

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-UT-157  
7040/7044 - 1401 PERIPHERAL UTILITY PROGRAM

DESCRIPTION - The 1401 Peripheral Utility Program, using information supplied by a single control card and the sense switches, performs, on an off-line 1401 Data Processing System. The basic peripheral operations associated with the 7040/7044 8K Operating System, thereby saving 7040/7044 machine time.

MINIMUM SYSTEM REQUIREMENTS - Restricted to users of the 7040/7044 8K Operating System, file number 7040-PR-154.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up...Program listing.  
MACHINE READABLE - Object code...Symbolic code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401UT157

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-UT-158  
7090/94 1401 PERIPHERAL OUTPUT PROGRAM

DESCRIPTION - The 1401 Peripheral Output Program is a combined tape-to-printer/punch routine utilizing the IBM 1401 Data Processing System. This program reads the system output tape and produces a listing on the IBM 1403 Printer or a deck of column-binary cards on the IBM 1402 Card Read/Punch. If a deck of column-binary cards is punched, it is not necessary that the control cards have a 7, 9 punch in column 1. Select 3 is used for output from this program.

This program acts on data of the following types-

- (1) Print-line images (on magnetic tape) in even-parity mode, blocked by a record mark in the last character position of each print-line, or column-binary card images in odd-parity mode, blocked with a record mark or unblocked.
- (2) Output from the IBJOB processor consisting of either of the following- (a) Print-lines (with a maximum of 132 characters including the carriage-control character) with characters translated by the 1401 Data Processing System into characters accepted by the 1403 printer. (b) Column-binary card images.

The distinction between these types of data is concerned with the presence or absence of the block control word. If the block control word is present, logical control words are written, if the block control word is not present, the mode is recorded on tape.

MINIMUM SYSTEM REQUIREMENTS - 4,000 Positions of core storage, one 729 or 7330 Magnetic Tape Unit, Advanced

CONTINUED FROM PRIOR COLUMN

Programming feature, High-Low-Equal Compare feature, Sense Switch feature, one IBM 1402 Card Read/Punch with Column Binary feature, one IBM 1403 Printer with 132 print positions and the Print Control feature.

The distribution of this program is restricted to users of the 7090/7094 IBSYS Processor, Program Number, 7090-PR-130.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up...  
MACHINE READABLE - Print/punch object code...  
Card-to-tape object code...Print/punch  
symbolic code... Card-to-tape symbolic  
code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401UT158

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-UT-938  
INPUT PROGRAM FOR 7090/7094 SUPPORT PACKAGES FOR IBM SYSTEM/360

DESCRIPTION - The 1401 Input Program is used to read card decks in one form and then prepare an input tape for use by the 7090/7094 support package. The tape will consist of card-image records, some of these will be in Binary Coded Decimal (BCD) representation, others in binary mode.

MINIMUM SYSTEM REQUIREMENTS - Restricted to users of the 7090/7094 support package for the IBM System/360, file number 7090-51-162.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up.  
MACHINE READABLE - Input program object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401UT938

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1440-CX-07X  
ADMINISTRATIVE TERMINAL SYSTEM \*M

DESCRIPTION - The primary concept of this system is to support a typewriter-like terminal for text processing. Information is entered from the terminals in either free or fixed form. It can be corrected, modified, or rearranged. Output formats are flexible and may be specified from the terminal.

Output may be transmitted to any terminal, stored on disk or tape, printed by an on-line printer, written as card images on tape, or punched. Stored information may be recalled for further processing.

FEATURES - Data correction, modification, and rearrangement by backspacing and retyping during entry... Retyping beginning with a particular word... Replacing a word or phrase... Adding to a line or text unit... Deleting a line or other text unit... Moving of groups of lines or text units... Gathering of stored data in any sequence... Copying of information by transmission to the originating terminal.

Storage and retrieval of data from disk files or tape.

Transmission of data to any terminal.

Output format controlled from the terminal by- limiting free-form text line length... Justification of right-hand margin... Intermix of free-form text with fixed format information... Placing specified heading and footing lines on all pages of a document... Automatic Page numbering... Controlled vertical spacing... Halting to allow operator intervention for text insertion or change of print elements.

Desk calculator functions - addition... subtraction... multiplication... division... roots... powers... factorials... evaluation of simple algebraic expressions.

Users may add programs to do simultaneous peripheral operations such as simple tape-to-printer and card-to-tape functions. An improved disk storage organization scheme

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will give improved terminal response on requests involving permanent disk storage. 1301 Disk file implementation significantly increases permanent storage capacity. Improved storage reporting facilities.

Principal application areas of the Administrative Terminal System are technical manual preparation, proposal writing, test report preparation, financial credit reporting, statistical typing, and similar areas. The system may also be used for source data entry, capturing data directly from a typewriter keyboard. This has particular significance in the computer programming area where program deck control cards and test decks may be selected, modified, combined and made available for running directly from a terminal.

The system, when properly instructed, can save every keystroke made by the operator. To alter the text, the operator directs the system to locate the characters to be changed and instructs it in what manner these are to be altered. If a copy of a document is requested, the system will produce and transmit it to the terminal.

PROGRAMMING SYSTEMS - The source program language is 1401/1440/1460 Autocoder (on disk).

MINIMUM 1440 SYSTEM REQUIREMENTS - A 16K 1440 with- Bit Test, console attachment, Direct Seek, Disk Storage Control, Indexing and Store Address Register, Transmission Control Unit attachment on the 1441 Processing Unit Model A6... One 1311 Disk Storage Drive Model 1 with Direct Seek... 1447 Console Model 1 with Sense Switches... 1447 Console Model 4... 1448 Transmission Control Unit with 1050/1060 attachment and RPQ E38485 and, as required, common carrier adapter sets or line adapter sets... either a 1442 Card Read/Punch Model 1 or 2 or a 1442 Card Reader Model 4 is required unless another 1401/1440/1460 system is available to load the program on a 1316 Disk Pack.

OPTIONAL 1440 SYSTEM REQUIREMENTS - Translate feature on the 1441 Processing Unit... one to four 1311 Disk Storage Drives Model 2 with Direct Seek and Seek Overlap features (at least one 1311 Model 2 is strongly recommended)... one to five modules of 1301 Disk Storage (one 1311 Model 2 is required)... either a 1442 Card Read/Punch Model 1 or 2 or a 1442 Card Reader Model 4 and/or a 1444 Card Punch Model 1... either a 1443 Printer Model 1 or 2 with 24 additional print positions, Printer Control, and Print Storage or a 1403 Printer Models 2, 3, or 5 with a 1446 Printer Control... 7335 Magnetic Tape Unit Model 1 or 2... line group features and RPQ 811390, as required, to attach more than 10 lines to the 1440 Transmission Control Unit. If uppercase and lowercase printing with 120 characters of Courier type (matching the Courier 72 printing element on the terminals) is desired using a 1403 Printer Model 2, add-RPQ'S 813148 and 818029 on the 1446 Printer Control... RPQ'S 812033, 812034, 898058, 33 each of RPQ E33255, and part 823380 (the chain) on the 1403 Model 2... RPQ 818019 on the 1441 Processing Unit.

TERMINAL REQUIREMENTS - 2741 Communication Terminals (up to 40), with Courier 72 standard SELECTRIC printing elements, and line adapters if required. ATS supports only the Correspondence Code 2741 Terminals without the Interrupt feature.

BASIC PROGRAM PACKAGE - DOCUMENTATION - Application Directory... Application Description, H20-0129... Terminal Operators Manual, H20-0185... Programmers Manual, H20-0228... Console Operators Manual, H20-0227. MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - DOCUMENTATION - Systems Manual (program flowcharts). MACHINE READABLE - 1401/1440/1460 Autocoder (on disk) output file on two 1316 Disk Packs from which source decks and program listings can be created using 1401/1440/1460 Autocoder (on disk) (1401-AU-008).

ORDERING INFORMATION: PROGRAM NUMBER 1440CX07X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | 1316                 | 52             | 02                         |

1440-DR-02X \*M  
RETAIL ACCOUNTS RECEIVABLE

DESCRIPTION - This program is a system of sixteen 1440 runs designed to automatically perform receivables maintenance and billing in medium-sized department or specialty stores. The program has been designed as a series of routines which perform specific functions. By selecting and combining these routines, specialized programs for a particular store are developed. Modifications and

CONTINUED FROM PRIOR COLUMN

refinements to parameters of these routines can be made to have them apply to a specific store. The system is designed to accommodate four types of charge accounts. These are- (1) 30-day charge account... (2) flexible revolving account--a monthly payment based on a percentage of the balance (includes option accounts)... (3) fixed revolving account--a fixed monthly payment based on the credit limit of the account... (4) contract account, or deferred payment account--a one time purchase with fixed monthly payments. Any given store will probably not have all four types of accounts. However, runs can be modified to delete those types of accounts which are not needed. Transactions are entered into the system in the form of punched cards. Edit and accounting control functions are performed, and the following major outputs are produced by the system. Adjustments listing, service charge adjustments listing, charge-offs listing, credits listing, cash batch balance listing, transaction register, signal messages, customer statements, delinquent account listing, aged trial balance (ATH), and control balance listing.

- FEATURES -
- Diagnostic aged trial balance designed specifically for authorization purposes.
  - Delinquent listing to automatically select for review and follow-up those accounts requiring credit action.
  - Up to 20,000 master accounts can be stored on each disk pack.
  - Signal messages prepared as a by-product of file maintenance when special action is required on an account.
  - Automatic aging of customer accounts to 150 days.
  - Automatic posting of transactions.
  - Operable with either internal or external account numbers.
  - IBM punched card customer statements printed two up.
  - Automatic re-entry of cash payments through prepunching of the customer statement stub.
  - Preparation of labels for promotional mailings on a selective basis.
  - Complete and automatic controls.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1440 system with... 1442 Card Read/Punch... 1443 Printer... 1311 Disk Storage Drive... Indexing and Store Address Register, Selective Stacker, 24 additional print positions, Selective Character Set, 39 Character Set.

BASIC PROGRAM PACKAGE DOCUMENTATION - Program write-up... Reference Manual including listings. MACHINE READABLE - Object code and sample problem.

OPTIONAL PROGRAM PACKAGE DOCUMENTATION - None. MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1440DR02X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1440-DR-01X \*M  
CHAIN AND WHOLESALE BILLING

DESCRIPTION - The 1440 Chain and Wholesale Billing program uses either the IBM card order plan or the permanent item code plan for placing orders. Three phases of the billing program result in a customer invoice. Phase 1 sets up order quantities, warehouse numbers, and disk pack addresses. Phase 2 sorts items into warehouse location sequence. Phase 3 prints customer's name and address, analyzes and updates stock availability, prices items according to price zones, etc., prints item lines, and stores desired analysis data for subsequent use. Intermediate totals are printed where necessary. Sales analysis and back-up records are provided as a by-product of the billing routine. Although this program was developed for the grocery distributor, it is equally applicable (in total or in segments--purposely designed this way) for other distributors, i.e., drug, hardware, rack jobber, liquor, auto parts, etc.

The Chain and Wholesale Billing program is designed to help install 1440 systems by providing concepts on which a system may be designed and by providing certain programs which may be modified and used in that system in whole or in part. This program provides a main line billing routine plus 6 supporting routines for each type of input (page and line or permanent item code). The billing portion of the program is broken into three phases.

MINIMUM SYSTEM REQUIREMENTS - 4K 1440 system with... 1447 Console Model 2... 1442 Card Read/Punch... 1443 Printer... two 1311 Disk Storage Drives... Indexing and Store Address Registers, Selective Character Set and Sense Switches features. (Card Image and Bit Test features are optional

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with card order plan input).

**BASIC PROGRAM PACKAGE**  
 DOCUMENTATION - Program write-up... Reference Manual.  
 MACHINE READABLE - Source program.

**OPTIONAL PROGRAM PACKAGE** - None.

**ORDERING INFORMATION:** PROGRAM NUMBER 1440DW01X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

CONTINUED FROM PRIOR COLUMN

**USE** - The Program Library includes both initializing programs and operating programs. Initializing programs are designed to be used once to set up an IMPACT system, then periodically (at least once a year) or as required to meet changing conditions. A complete set of programs is provided to perform necessary initializing functions. Operating programs are used in the day-to-day control of the IMPACT system (forecasting and ordering). Library programs are provided to control the ordering of both independent and joint vendors. Instruction and block diagrams are available to help the user in programming the remaining operating programs with a minimum of effort (Implementation Reference Manual).

**PROGRAMMING SYSTEMS** - Programs in the IMPACT Computer Program Library are written in 1311 Autocoder and 1311 IOCS.

**MINIMUM SYSTEM REQUIREMENTS** - 1440-4K 1440 system with 1447 Console Model 1... 1442 Card Read/Punch... 1443 Printer... two 1311 Disk Storage Drives... Indexing and Store Address Register. Two 1316 Disk Packs must be fully available during the operation of library programs.

**BASIC PROGRAM PACKAGE**  
 DOCUMENTATION - Program write-up... Users Manual... Operators Manual.  
 MACHINE READABLE - Object code and Sample problem.

**OPTIONAL PROGRAM PACKAGE**  
 DOCUMENTATION - Systems manual which contains the assembly listings of all the 1440-1311 IMPACT programs.  
 MACHINE READABLE - None.

**ORDERING INFORMATION:** PROGRAM NUMBER 1440DW04X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1440-DW-04X

1311 WHOLESALE IMPACT

\*M

**DESCRIPTION** - The IBM IMPACT (Inventory Management Program and Control Techniques) system of scientific inventory management provides the warehouse distributor (or any organization with the same inventory control characteristics) with the information of "when" and "how much" to buy for each inventory item controlled by the system. It does this through the means of probability science in conjunction with the many factors influencing the distributors inventory control decisions.

Factors considered include- lead time, lead time variability, forecast demand, forecast error, service desired, inventory carrying costs, purchasing/receiving costs, discount structures, minimums, maximums, shelf life, and pack sizes. The "when" and "how much" answers are designed to find the most efficient balance between the cost of carrying inventory, cost of purchasing and receiving, discounts realized, and customer service requirements.

The 1311 IMPACT Computer Program library is designed to provide the distributor who has an IBM 1440-1311 Data Processing System with the means to successfully implement an IMPACT inventory management system with a minimum of effort and expense. Programs are included that perform in the following functional areas: editing, file initialization, estimating, and the control of independent and joint replenishment ordering.

**FEATURES** - The 1311 Program Library performs in the same functional areas as the existing 1401-1405 IMPACT Computer Program Library-

- Edit all input for format.
- Determine the forecast model (horizontal, trend, horizontal-seasonal, or trend-seasonal).
- Determine the ordering strategy to be used and calculate order quantity or order frequency as appropriate for strategy selected.
- Calculate the safety factor required for a prescribed level of customer service.
- Calculate initializing values required for forecast and order models selected.
- Estimate results to be expected from applying the rules and values developed.
- Determine when to order item groups to meet service objectives after the system is operational.
- Calculate the product mix to be ordered within an item group that will meet both service objectives and limitations on total size of order.

In addition, the 1311 programs incorporate improvements over existing programs including-

- Work flow and record formats streamlined.
- Historical demands screened for promotions.
- Base index technique used for forecasting seasonal items.
- Item discounts considered, in addition to vendor discounts, in determining ordering strategies and order quantities.
- Different lead time may be specified for each vendor breakpoint.
- Service may be specified by item for both independent joint vendors.
- Seasonality considered in ordering both independent and joint vendors.
- A service point and allocation program (SVA) that will take advantage of 8K memory to produce greater throughput.
- An option to force a predetermined order quantity for any item through the SVA program.
- The facility for expressing a conversion factor of 2.0 to the SVA program.
- Printing of the slope and intercept of the least squares lines has been included in the MADF program.
- Punching of the cost strategy records in the OGCL program has been eliminated.
- Provides safety factor (K) based on a lead time plus review time for items in a joint vendor. When the peak point option is not satisfied.

1440-FB-03X

DEMAND DEPOSIT ACCOUNT

\*M

**DESCRIPTION** - This application program is designed to accomplish the demand deposit accounting function in a commercial bank. The application is divided into the following program runs- conversions, IBM 1440 SORT 5, stop pay and hold edit, short list and ledger control, transaction journal, posting, statements, exception statements and exception reports.

**FEATURES** - The user has the option of producing a separate trial balance non-sufficient fund notices are prepared automatically input can be magnetically encoded checks and deposit slips and/or punched cards.

Summary as well as detailed statements can be provided; detail statements may be printed either singly or two-up; MICR checks and deposit slips and/or punched cards are transaction input to the system. Master records, 1000 characters in length, are posted daily with all items affecting account balances from a transaction file which is under ledger control. A punched card file is maintained to satisfy stop-pay orders and hold requests. Statement writing may be cycled. All accounts within any sequential range of ledger numbers are printed. Users will write the following for insertion to the appropriate run; service charge routines for the posting run; a ledger control table for the conversion run; a utility program to create the master file (an IBM card to disk utility program can be used). Program requirements users of this program should obtain the IBM 1440 SORT 5 program (1440-SM-030) which constitutes run 03 of subject program.

**MINIMUM MACHINE REQUIREMENTS** - 8K 1440 system with... Indexing and Store Address...two 1311 Storage Drives...a 1442 Card Read/Punch...a 1443 Printer with 24 additional print positions...a 1447 Console with Sense Switches. If magnetically encoded checks and/or deposit slips are used, a 1412 Magnetic Character Reader with Serial I/O Adapter 7080 for MICR conversion is required. Print Storage and Selective Character Set features, although not required, will improve data throughput.

**BASIC PROGRAM PACKAGE**  
 DOCUMENTATION - Program write-up...Listings... Sample problem listings.  
 MACHINE READABLE - Object Program... Sample problem.

**OPTIONAL PROGRAM PACKAGE**  
 DOCUMENTATION - None.  
 MACHINE READABLE - Source code.

**ORDERING INFORMATION:** PROGRAM NUMBER 1440FB03X

|  | PROGRAM NUMBER | DISTRIBUTION | MEDIUM | USER VOLUME |
|--|----------------|--------------|--------|-------------|
|--|----------------|--------------|--------|-------------|

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|          | EXTENSION | TYPE  | CODE | REQUIREMENT |
|----------|-----------|-------|------|-------------|
| EASIC    | none      | CARDS | 15   | none        |
| OPTIONAL | none      | CARDS | 15   | none        |

1440-FE-04X  
MORTGAGE LOAN ACCOUNTING

DESCRIPTION -

1. Daily processing- File Maintenance processes and lists new loans, changes and deletions. Proof listing is produced from debit and credit transaction cards created from payment coupons, journals and advices. Posting of transaction cards to the Master Account Balance File is performed and special conditions are recorded on a report file. Reports of transaction and ledger recap, unprocessed items, payoffs (Final Payments), exceptions and excess items are produced.

2. Delinquency processing- Late notices, delinquency notices and delinquency reports are produced monthly or as desired.

3. Periodic reporting- Trial balance reflecting indicative information, date of last transaction, paid-through date, total payment amount, principal, escrow, late charge, and mortgage life balance for each mortgage is made. Statements are produced semi-annually from the old balance file and excess item cards produced by the daily report run. Coupon books are produced from payment changes, new account cards, and the master balance file. Investor reporting produces collection, past due, prepaid, variation, and paid-off loan reports on those investors specified by the user.

4. Escrow processing- Encompasses periodic escrow file maintenance, escrow analysis and customer advice notifying customer of any monthly payment change resulting from escrow analysis.

The program provides the user with- Effective control... Delinquent account information... Efficient daily processing... Escrow analysis... Complete detail on daily activity... Loan servicing reports.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1441 Processing Unit, Model A3 with Indexing and Store Address Register, Printer Attachment, Disk Storage Control... 1442 Card Read/Punch, Model 1, Card Read/Punch Adapter... 1443 Printer, Model 1, Printer Control, Selective Character Set, 13-Character Print Bar, 52-Character Print Bar... 1447 Console, Model 1, Sense Switches... 1311 Disk Storage Drive, Model 1... 1311 Disk Storage Drive, Model 2.

BASIC PROGRAM PACKAGE  
DOCUMENTATION- Program write-up... Reference Manual... Listings.  
MACHINE READABLE - Object code and sample problem.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1440FB04X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | CARDS                | 15             | none                       |

1440-FE-05X  
SAVINGS ACCOUNTING

\*M

DESCRIPTION - IBM now offers financial institutions a comprehensive 1440 Savings Accounting Program. Savings accounting functions are accomplished through the use of twelve 1440 processing runs. Master Account balance records on all savings accounts are stored and maintained daily in disk packs. Master records contain balance data, dividend data, and other significant data on each savings account. Daily transactions--deposits, withdrawals, and share loans (passbook Loans)--are posted to the balance record, and a daily transaction register is produced. Reports on zero balance accounts, passbook differences, and unprocessed transactions are prepared daily. A trial balance is also prepared daily. At the end of a dividend period, dividends are calculated, a dividend period activity report is prepared, mail dividend checks are prepared for selected accounts, and statements are printed. At the end of the year, dividend reporting is accomplished. In addition to the master account balance file, a name and address master file is maintained. This file is used in the preparation of mail dividend checks, statements, and annual dividend reporting.

FEATURES -

- Preparation of transaction cards by conversion of paper tape from window machines or by key-punching from source.

CONTINUED FROM PRIOR COLUMN

Ability to condense master account information and store up to 75,000 accounts per disk pack.  
- Verification of account balances to ledger control totals  
- Provision for printing uncollected funds, thus presenting an available funds balance for reference.  
- Detailed savings journal including previous and new account balances and anticipated dividend.  
- Exception report indicating activity on dormant accounts, passbook differences, zero balance accounts, etc.  
- Print four accounts to a line on daily trial balance.  
- Period-by-period itemization of unreported interest on dividends for teller window posting to passbooks.  
- Comprehensive dividend period activity report.  
- Automatic preparation of ready-to-mail dividend checks.  
- Customer statement of activity economically prepared, which details as well as summarizes activity of the period.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1441 Processing Unit, Model A3 with... Indexing and Store Address Register feature, Printer Attachment feature, Disk Storage Control feature... 1442 Card Read/Punch, Model 1, Card Read/Punch Adapter feature... 1443 printer, Model 1, Printer Control feature, Selective Character Set feature, 13-Character Print Bar, 52-Character Print Bar... 1447 Console, Model 1, Sense Switches... 1311 Disk Storage Drive, Model 1... 1311 Disk Storage Drive, Model 2.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up... Reference Manual... Listings.  
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1440FB05X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1440-FE-07X  
ON-LINE SAVINGS ACCOUNTING

\*M

DESCRIPTION - The program offers to savings banks, commercial banks, and Savings and Loan Associations a real-time system for use with the 1062 Teller Terminal.

The program provides the user with an on-line teller system. It has a capacity, with minor modification, for thirty-four 1062 terminals on seventeen lines, one 1052 System Terminal per line, or combinations of both; and the maximum machine capability of five 1311 Disk Drives. Five drives will typically store more than 400,000 account records. The program, as currently assembled, provides for seven lines and fourteen terminals. Some features are: A unique programming technique which develops an 80 per cent increase in rated Disk File capacity...A design which permits one or two 1062 terminals or one 1050 System Terminal per line... Maximum file packing from the use of a variable length format (or unposted and memorandum records)... An efficient model and machine-oriented file organization which keeps 1311 activity and 1441 processing at a minimum... A disk record structure and file arrangement which usually allows more than 1000,000 account records to a 1311 pack... A completely programmed analysis of disk drive usage relieving the customer of the need to give attention to either the quantity of drives or the placement of a pack on a specific drive... The option of continuing to operate on line at reduced efficiency without the immediate access pack (degraded service).

To facilitate understanding, it is possible to divide the program into these parts --

Line Control (multiplexing) for terminal service... Lines and terminals demand core... Users who require fewer than the maximum number of terminals have a proportionate share of core released for additional programming or storage.

File Control... This service supplies the usual I/O instructions plus the features of flexibility noted above.

Record Processing... Data from transactions affect account records... in addition, they are the sources for messages to the terminals.

As a supplement to the on-line routines, the package includes programs to help the user in his original conversion and in subsequent reorganizations.

MINIMUM SYSTEM REQUIREMENTS - A 16K 1440 system configuration as follows: 1441 Processing Unit Model A6 with Disk Storage Control, Expanded Print Edit, Indexing and Store Address Register, Console Attachment, Transmission

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Control Unit Attachment, Direct Seek, Bit Test, 1447 Console Model 4. 1311 Disk Storage Drive Model 1 for First Drive, Model 2 for Second Drive (additional Model 2's as required). 1448 Transmission Control Unit Model 1 with attachment feature, Fixed Time-Out, and as required, Line Group, Line Adapter Set, Common Carrier Adapter Set. 1061 Control Units, Model 1 or 2 with Line Adapter, Off-Line feature. 1062 Teller Terminal, Model 1 or 2. 1442 Card Read/Punch Model 1 with Card Read/Punch Adapter.  
 Recommendations for potential printing needs: Printer Attachment on 1441 Processing Unit. 1443 Printer Model 1 or 2 with Print Storage and Printer Control. To improve the time requirements for the off-line runs -- Print positions (24 Additional) and Selective Character Set (13 Character Set, 39 Character Set). 1446 Printer Control Unit with the appropriate attachment feature number 1325, 1326, 1327, or 1328. 1403 Printer Model 2,3,5, or 6. If a 1403 Model 3 is selected, a 1416 Interchangeable Train Cartridge is an additional requirement.

**BASIC PROGRAM PACKAGE**  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

**OPTIONAL PROGRAM PACKAGE - None.**

**ORDERING INFORMATION: PROGRAM NUMBER 1440FB07X**

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

**1440-IO-010 \*M**  
INPUT/OUTPUT CONTROL SYSTEM

**DESCRIPTION** - The IBM 1440 ICS, 1440-IO-010 (previously named 1440/1311 ICS) is to be used on 1440 systems with the new 1401/1440/1460 Autocoder (on disk), 1401-AU-008.

1440 ICS consists of a set of library routines which, when called for by macro instructions in a 1401/1440/1460 Autocoder (on disk) source program, are selected, tailored and included in the object program. For 1440 systems, these routines perform I/O functions and housekeeping associated with 1311 Disk Storage, 1301 Disk Storage, 7335 Magnetic Tape, 1442 Card Read/Punch, 1442 Card Reader, 1444 Card Punch, and 1443 Printer. They also provide linkage to the user's object program. The specific statements generated at assembly time depend completely on the particular specifications contained in the user's source program.

The 1440 ICS library routines are to be placed in the 1401/1440/1460 Autocoder (on disk) system through a library run.

**MINIMUM SYSTEM REQUIREMENTS** - For assembly - programs incorporating I/O macro instructions for 1440 systems may be assembled on- a 4K 1440 system with... one 1311 Disk Storage Drive or one 1301 Disk Storage Array... 1442 Card Read Punch mdl 1 or 2 or 1442 Card Reader Model 4 and 1444 Card/Punch... 1443 Printer, or a 4K 1401 system with... one 1311 Disk Storage Drive... 1402 Card/Read Punch... 1403 Printer Model 2 or 1404 Printer... High-Low-Equal Compare feature, or An 8K 1460 system with... one 1311 Disk Storage Drive or one 1301 Disk Storage Array... 1402 Card Read/Punch... one 1403 Printer. For execution - The 1440 object machine must have any I/O units required by the user's program. The amount of core storage required varies widely from program to program, and must be determined when it is assembled.

**BASIC PROGRAM PACKAGE**  
 DOCUMENTATION - Program write-up... Library listings... Operating Procedures.  
 MACHINE READABLE - Object code and sample problem.

**OPTIONAL PROGRAM PACKAGE**  
 DOCUMENTATION - Flowcharts.  
 MACHINE READABLE - None.

**ORDERING INFORMATION: PROGRAM NUMBER 1440IO010**

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

CONTINUED FROM PRIOR COLUMN

Communications IOCS for the 1440, thus requiring a minimum of re-programming for growth from 1026 Transmission Control Units to a 1440. Applications can range from single inquiries to sophisticated real-time data operations.

Its functions are -  
 - Control of the 1447 Console  
 - User control of polling, addressing and receiving  
 - Error detection  
 - Operation with existing IBM programs for DDC  
 - Time of day recording with the 1032 Digital Time Unit.

The 1440 Communications IOCS/1026 (DDC) will operate with point-to-point or multi-point common carrier leased or customer-owned communication lines. In addition, the programs will support the Automatic Answering feature and the Automatic Calling feature.

Communications IOCS (1026/DDC) consist of a set of library routines which, when called for in an Autocoder source program by macro instructions, are selected, tailored, and included in the object program. The routines perform the functions necessary to handle basic input/output files, to transmit information to and receive information from remote locations and remote processors, and to provide linkage to user's programs. The specific routines generated at assembly time depend largely on the particular specifications contained in the user's source programs.

The library routines for this IOCS is to be placed in the Autocoder system through a library run, using Autocoder (on disk) for 1401, 1440, and 1460, No. 1401-AU-008.

System requirements for program assembly - Same as those for the assembly of any program using 1401/1440/1460 Autocoder (on disk) program. The Autocoder (on disk) program should be ordered concurrently unless otherwise available.

**PROGRAMMING SYSTEMS** - Written in 1440 Autocoder.

**MINIMUM SYSTEM REQUIREMENTS** - Written in a 4K 1440 with... Indexing and Store Register feature... 1026 Transmission Control Unit Attachment feature... 1447 Console mdl 1... 1026 Transmission Control Units (one for each communication line)... I/O Units (as required). In addition - Direct Data Channel feature... Interrupt... 1447 Console mdl 2 for 1440 and 1460, mdl 3 for 1401... 1032 Digital Time Unit may be present, as desired.

Note - Use of DDC with 1026 should specify the Interrupt feature (available on 1401 only as RPG) for optimum performance.

**BASIC PROGRAM PACKAGE** -  
 DOCUMENTATION - Write-Up... Operating Instructions.  
 MACHINE READABLE - Appropriate material delivered.

**OPTIONAL PROGRAM PACKAGE** -  
 DOCUMENTATION - Flowcharts.  
 MACHINE READABLE - None.

**ORDERING INFORMATION: PROGRAM NUMBER 1440IO010**

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

**1440-ME-02X \*M**  
1440/1311 BILL OF MATERIAL PROCESSOR

**DESCRIPTION** - Most fabrication and assembly manufacturing organizations are required to maintain large volumes of records that describe the structure or makeup of their products. Product structure records are referenced by various nomenclature, such as bills of material, parts lists, and where-used lists, depending upon individual organization preferences and the arrangement of the data. The requirements for maintaining product structure records are sufficiently similar to allow development of standard systems approaches.

The 1440/1311 Bill of Material Processor package includes- (1) Generalized programs that organize and maintain product structure data on 1311 Disk Files and (2) Logic diagrams explaining the use or retrieval of the product structure information in fundamental applications.

**FEATURES** -  
 - This package can be used in a wide range of manufacturing industries where product structure records are maintained  
 - Product structure records are linked with part number master inventory type records on disk storage.  
 - Disk chaining is used to organize product structure data in two inherent sequences -

(1) Assembly or Bill of Material sequence (i.e., linking the components of an assembly). The user determines

**1440-IO-012 \*M**  
COMMUNICATIONS IOCS 1026 (DDC) FOR THE 1440

**DESCRIPTION** - This IOCS facilitates the generation of programs to control 1026 communication with 1030, 1050, and 1060. It is compatible with the 1401/1460-1440



CONTINUED FROM PRIOR PAGE

maintained sequence of components within the assembly. Typical sequences might be component part number or engineering drawing item number.  
 (2) Where-used sequence (i.e., linking the usages of a part number on higher level assemblies). This cross-referenced sequence eliminates the need to (a) maintain a duplicate file in where-used sequence for listing purposes.

- Raw material can be included in the product structure file, providing complete where-used cross reference of each raw material number.
- User designs his own disk record layouts by incorporating his own information plus certain required data into part number master inventory and product structure records.
- Low level coding is automatically maintained.
- Assembly to sub-assembly continuity is verified. This feature guarantees that the product structure records can be "exploded."
- User builds his own engineering change procedure into the file organization and maintenance programs.

This is a disk-oriented concept that requires a part number master inventory type file (i.e., one record per unique part number) and the product structure file to be on-line simultaneously. The part number master inventory records and an associated part number index file are loaded, added, and deleted using the IBM 1440 Disk-File Organization Routines. The product structure data (recorded as a series of single level assemblies) are loaded, added, deleted, or changed using a single comprehensive file organization and maintenance program. This program simultaneously updates the assembly and where-used sequence chains. All programs are user modified at source level and then assembled, providing an object program tailored to the user's requirements.

The package includes logic diagrams for six fundamental classifications of retrieval programs. They are - (1) One level bill of material or parts list, (2) Next assembly where-used listing, (3) Indented parts list, (4) Indented where-used list, (5) Summarized explosion and (6) summarized implosion. The package is designed so that the logic diagrams can be used by any customer as a guide in the preparation of his own set of programs.

**PROGRAMMING SYSTEMS -**

1. 1401/1440/1460 Autocoder (on Disk), 1401-AU-008 (Version 1)
2. 1440 IOCS, 1440-IO-010 (Version 2)
3. 1440 Disk File Organization Routines, 1440-UT-040, Group C - Common Random and Control Sequential (Version 2)
4. 1440 Disk Utility Programs, 1440-UT-041.

**MINIMUM SYSTEM REQUIREMENTS -** An 8K 1440 with Indexing and Store Register, 1447 Console Model 2, 1442 Card Read/Punch Model 1, 1443 Printer Model 1, and enough 1311 Disk Storage Drives to contain the part number master inventory records and product structure records on line.

The 1440 Disk-File Organization Routines (Group C - Common-Random and Control Sequential) must be ordered independently of the Bill of Material Processor.

**BASIC PROGRAM PACKAGE**

**DOCUMENTATION -** Program write-up...Application Directory...Programmer Manual...Operator Manual... System Manual.  
**MACHINE READABLE -** Source code for product structure file organization and maintenance program... sample problem source, data and object material.

**OPTIONAL PROGRAM PACKAGE -** None.

**ORDERING INFORMATION: PROGRAM NUMBER 1440HE02X**

|          | PROGRAM NUMBER EXTENSION | DISTRIBUTION TYPE | MEDIUM CODE | USER VOLUME REQUIREMENT |
|----------|--------------------------|-------------------|-------------|-------------------------|
| BASIC    | none                     | DTR*              | 00          | none                    |
| OPTIONAL | none                     | none              | none        | none                    |

**1440-HX-02X**

**PROJECT CONTROL SYSTEM**

**DESCRIPTION -** The 1440 Project Control System, 1440-HX-02X, is oriented to the specific needs of a construction company and will provide the backbone for a sales program that can result in net 1440 sales. The Project Control System provides a basic capability related to the planning, scheduling, and control of a project through the use of the critical path method. In the basic system, the user can initially plan a project, update and modify the project schedule, monitor progress, and investigate alternate approaches.

The basic system can be expanded by the user to include such related project functions as Estimating and Cost Control.

CONTINUED FROM PRIOR COLUMN

**FEATURES -**

- A basic system framework is provided that includes 1440 programs for planning, scheduling, and control of construction projects.
- All programs, including those added by the user, operate under the control of a systems monitor.
- Planning accomplished through conventional arrow diagramming or the new, highly efficient and easier to use precedence diagramming.
- Each project can contain up to 2,000 activities.
- Output in terms of project or calendar days can be displayed as bar charts, exception reports, and progress listings in terms of quantities set, percent complete, or remaining duration.

**USE -** The system, written in Autocoder and IOCS, operates under its own monitor. The master systems pack, containing the thirty-system programs and any customer programs, resides on one disk drive; the project master file pack resides on a second disk drive. The user specifies processing sequence and output desired through control cards allowing batched processing of a number of projects without operator intervention.

**PROGRAMMING SYSTEMS -** Basic Autocoder for 1440.

**MINIMUM SYSTEM REQUIREMENTS -** An 8K 1440 system... two 1311 Disk Storage Drives... 1442 Card Read/Punch... 1443 Printer... Indexing and Store Address Register; Direct Seek, additional print positions... 1447 Console with Sense Switches.

**BASIC PROGRAM PACKAGE**

**DOCUMENTATION -** Program write-up... Application Program Bulletin... Users Manual... Operators Manual... Systems Manual.  
**MACHINE READABLE -** Object program.

**OPTIONAL PROGRAM PACKAGE**

**DOCUMENTATION -** None.  
**MACHINE READABLE -** Source code.

**ORDERING INFORMATION: PROGRAM NUMBER 1440HX02X**

|          | PROGRAM NUMBER EXTENSION | DISTRIBUTION TYPE | MEDIUM CODE | USER VOLUME REQUIREMENT |
|----------|--------------------------|-------------------|-------------|-------------------------|
| BASIC    | none                     | DTR*              | 00          | none                    |
| OPTIONAL | none                     | CARDS             | 15          | none                    |

**1440-RC-020**

**1440/1311 REPORT PROGRAM**

**\*M**

**DESCRIPTION -** 1440/1311 RPG enables a program written in 1401/1440/1460 RPG Language to be compiled and assembled on a 1440/1311 system. Instead of writing a specific program for a report, the user states his problem on fixed form specifications sheets in 1401/1440/1460 RPG Language. The RPG Processor operates on the punched specifications, generating a program to do the specific job. By relieving the user of the machine coding and program testing, RPG permits him to concentrate his efforts on the solution to his particular problem. RPG will generate programs to produce reports of a variety of formats from source data contained in a card file or disk storage file. The output report can be obtained at the printer, on cards, on disk storage, or any combination of the three.

With the RPG and Autocoder (with IOCS Library Routines) in disk storage, the problem specification cards are loaded at the card reader. The compilation and assembly are completely automatic. The output object program is either the Machine Language Equivalent Program or the 1440/1311 Autocoder Equivalent Program. The Machine Language Equivalent object program may be in the form of condensed cards, or if (load-and-go) is desired, the object program may be directly loaded from the system pack for immediate execution. The program listing, documentation and diagnostic output are recorded on the printer.

**PROGRAMMING SYSTEMS -** Written in 1440 Autocoder.

**MINIMUM SYSTEM REQUIREMENTS -** For Report Program generation- 4K 1440 system with...one 1442 Card Read/Punch...1443 Printer...one 1311 Disk Storage Drive. For Report Program Execution-1440 system with core storage capacity depending on complexity of report...one 1442 Card Read/Punch...1443 Printer and/or 1311 Disk Storage as required by report. Reference material - 1440/1311 Autocoder, #1440-AU-002; 1440/1311 IOCS, #1440-IO-010; 1440/1311 Disk Utility Programs, #1440-UT-041.

**BASIC PROGRAM PACKAGE**

**DOCUMENTATION -** Program write-up...Listings... Specifications and Operation Procedures.  
**MACHINE READABLE -** Object code...RPG system card deck... Sample source program for test purposes.

**OPTIONAL PROGRAM PACKAGE**

**DOCUMENTATION -** Listings and flowcharts.

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MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440RG020

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1440-SM-030  
SORT 5

DESCRIPTION - Sort 5 is a generative sort program designed for generation and use on an IBM 1440 with at least one IBM 1311 Disk Storage Drive, and a minimum of 4000 positions of core storage. The program now has the ability to use 7335 Magnetic Tape for input/output files and the option to relocate phase four output to the beginning of the work area. It is a generative sort program (also needs 1440-10-010).

FEATURES - Sort 5 object program will sort fixed length, blocked or unblocked, records in Move Mode into either ascending or descending sequence. Sorting can be controlled by as many as ten control data fields of total length up to a maximum of 109 characters. Sort 5 can generate an object program through use of the Autocoder macro-generator and parameter cards. It is further classified as a generalized program because it can modify itself at object run time according to information punched in control cards.

PROGRAMMING SYSTEMS - The program requires 1401/1440/1460 Autocoder on disk.

MINIMUM SYSTEM REQUIREMENTS - 4K 1440 system... one 1311 Disk Storage Drive... 1442 Card Read/Punch... 1443 Printer. The object program can use, if available, up to 5 disk storage drives and 8K, 12K, or 16K core storage capacity.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Write-up... Specs. and Operating Procedures... Library deck listing... Prephase program listing.  
MACHINE READABLE - Prephase deck.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440SH030

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1440-SM-031  
MERGE 5

DESCRIPTION - IBM 1440 Merge 5, 1440-SM-031, is a generative program for an IBM 1440/1311 system. Merge 5 will generate specific object programs that are fitted to the users particular merging applications. The object programs generated by Merge 5 are generalized in that they can be modified according to information supplied by the user in control cards. With object programs the user can merge pre-sorted, fixed length, blocked or unblocked, disk records in the Move Mode into either ascending or descending sequence. A one-, two-, three-, or four-way merge can be performed. If specified by the user at generation time, options such as label checking, additions from cards, sequence check and hash total, deletions or selections by class can be incorporated into the object program.

PROGRAMMING SYSTEMS - The program requires 1440/1311 Autocoder and IOCS.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1440 system with sufficient core storage to utilize the object program options... One 1442 Card/Read Punch... and, depending upon the object program requirements, a 1442 Printer or 1447 Console mdl 2, and one to five 1311 Disk Storage Drives.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Program write-up... Specifications... Operating procedures... Flowcharts... Library listing... Assembly listing.  
MACHINE READABLE - Library program deck... Prephase deck.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440SH031

|       | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|-------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC | none                        | DTR*                 | 00             | none                       |

CONTINUED FROM PRIOR COLUMN

OPTIONAL none none none

1440-ST-02X  
MOTOR FREIGHT REVENUE ACCOUNTING

DESCRIPTION - Accounting and control of motor freight revenue is one of the largest clerical problems in the motor freight industry. Ever since the industry began extending credit, interlining shipments, and expanding to larger networks serving more and more points, revenue accounting has grown more difficult, more time-consuming, and more costly. Faster, more efficient revenue accounting and control is vitally needed. To meet this need IBM has developed the Motor Freight Industry Revenue Accounting Program, which performs the following functions-  
- Editing of daily transaction data.  
- Preparation of daily transaction register with simultaneous posting of revenue by freight bill number.  
- Preparation of customer statements with simultaneous posting to customer accounts receivable balance.  
- Editing of cash remittance source data.  
- Application of cash by statement, freight bill number, and customer account number.

This program is adaptable by motor freight carriers who use either centralized statement and collection methods or decentralized terminal level methods. Effective control of freight bills is provided regardless of billing method.

PROGRAMMING SYSTEMS - Written in 1440 Autocoder. Users of this program should obtain IBM 1140 Sort 5 (1440-SM-030).

MINIMUM SYSTEM REQUIREMENTS - A 4K system with two 1311 Disk Storage Drives... 1442 Card Read Punch... 1443 Printer... Indexing and Store Register, Print Control, and Scan Disk.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Program write-up... Application Description Manual... Program Information Manual... Operators Manual... Detailed program documentation.  
MACHINE READABLE - Object program decks... Sample problem.

**OPTIONAL PROGRAM PACKAGE**

DOCUMENTATION - None  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1440ST02X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1440-UH-01X  
HOSPITAL PATIENT BILLING

DESCRIPTION - The application program for Patient Billing consists of fourteen IBM 1440 processing runs to provide for the accounting and control of services rendered to patients of a hospital. Processing is done under a monitor which allows for program interrupt to satisfy interim reports such as discharge/demand bills or patient balances.

FEATURES - Processing programs are kept in disk storage and are called in, as needed, by a unique call card. Processed data is punched into input cards, thus preserving basic and resultant data. Running programs can be interrupted from the console to obtain the status of an account.

USE - at the time a patient is admitted, a master record is created and entered to disk storage. Throughout the patients stay in the hospital, all charges, credits, etc. are accrued to the master file. Interim reports such as census and in-house bills are created. Upon discharge, bills can be issued. Final and insurance bills are prepared following the customary three day allowance for late changes to be received at the data processing center. Revenue distribution is available from data retained in disk storage.

PROGRAMMING SYSTEMS - Written in 1440 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 4K 1441 Processing Unit, Model A3 with:

- Indexing and Store Address Register feature.
- 1443 Printer Attachment feature.
- Disk Storage Control feature.
- Console (1447 Model 2) Attachment feature.
- 1442 Card Read Punch.
- 1443 Printer, with Printer Control feature.
- 1447 Console, Model 2, with Sense Switches.

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- 1311 Disk Storage Drive, Model 1.

**BASIC PROGRAM PACKAGE**  
 DOCUMENTATION - Program write-up... Program Manual... listings.  
 MACHINE READABLE - Routine decks for reassemblies.

OPTIONAL PROGRAM PACKAGE - None

ORDERING INFORMATION: PROGRAM NUMBER 1440UH01X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

**1440-UH-02X \*M**  
ACCOUNTS RECEIVABLE FOR HOSPITALS

**DESCRIPTION** - The program accomplishes all functions normally required by hospitals to maintain a well controlled accounts receivable operation. It includes establishment of new accounts, cash posting of receipts, aged trail balance reports, inquiry into account status, statement writing and file maintenance to close accounts. Processing programs are kept in disk storage and are called in, as needed, by a call card. They can be interrupted for inquiry and exception reports. Information necessary to construct the accounts receivable record in disk storage is automatically created by the Patient Billing Procedures (1440-UH-01X) when a patient is discharged, or by key-punched data obtained from out-patient accounting procedures. Cash receipts are posted as received. Statements are written at the discretion of the user. This is accomplished by specifying to the system what portion of the accounts receivable file statements are to be written from. Aged trial balance can be written at any desired interval to provide uniform load distribution. Accounts may be sequenced to provide selective aging analysis.

Note - This program runs under the monitor contained in the IBM 1440 Hospital Patient Billing (No. 1440-UH-01X) application program.

**MINIMUM SYSTEM REQUIREMENTS** - 4K 1441 Processing Unit, Model A3, with:  
 - Indexing and Store Address Register feature.  
 - 1443 Printer Attachment feature.  
 - Disk Storage Control feature.  
 - Console (1447 Model 2) Attachment feature.  
 - 1442 Card Read Punch.  
 - 1447 Console, Model 2, with Sense Switches.  
 - 1311 Disk Storage Drive, Model 1.

**BASIC PROGRAM PACKAGE**  
 DOCUMENTATION - Program write-up... Program Manual... listings.  
 MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None

ORDERING INFORMATION: PROGRAM NUMBER 1440UH02X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

**1440-UH-03X \*M**  
HOSPITAL ACCOUNTS PAYABLE

**DESCRIPTION** - Hospital Accounts Payable consists of nine 1440 processing programs to provide for accounting and control of the accounts payable of a hospital. A 1311 Disk Storage Drive with a 1316 Disk Pack is the medium used for storage of all account payable and distribution records and is organized to record an unlimited number of entries for each payable account. When a payable invoice is received, it is posted to the master payable file until management's decision to pay the invoice. At this time, a check run is made against the master payable file and the invoice is flagged as paid. At a later time, the paid invoice record is removed from the master payable file, and the amount of discount taken on the invoice is punched into the initial invoice card which has been keypunched from the original invoice.

Included in Hospital Accounts Payable are the following programs: Create New Accounts Payable Records, Create New Account Records, Create Vendor Index Table, Edit Invoice and Distribution Records, Post Vendor Invoices, Print Cash Requirement Report, Print Trial Balance, Print Check and Admittance Advice, Close Vendor Invoices.

CONTINUED FROM PRIOR COLUMN

Note - These programs run under the monitor contained in the IBM 1440 Hospital Patient Billing (1440-UH-01X) application program.

PROGRAMMING SYSTEMS - Written in 1440 Autocoder.

**MINIMUM SYSTEM REQUIREMENTS** - A 4K 1441 Processing Unit, Model A3, with- Indexing and Store Address Register, Printer Attachment, Disk Storage Control, Console Attachment (1447, Model 2)... 1442 Card Read Punch... 1443 Printer, with Printer Control... 1447 Console, Model 1, with Sense Switches and a 1447, Model 2... 1311 Disk Storage Drive, Model 1.

**BASIC PROGRAM PACKAGE**  
 DOCUMENTATION - Program write-up... Program manual including listings.  
 MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None

ORDERING INFORMATION: PROGRAM NUMBER 1440UH03X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

**1440-UH-04X \*M**  
HOSPITAL INVENTORY PROGRAM

**DESCRIPTION** - A perpetual inventory provides for a continuous record of supply receipts, issues, and stock on hand. Items requiring management attention are listed on exception reports. On a periodic basis, transactions posted to the inventory records are transferred to general ledger accounts which reflect the aggregate of receipts and issues posted to individual inventory ledger records. A 1311 Disk Storage Drive with a 1316 Disk Pack is used for storage of all inventory item and open purchase order records. The file is organized and controlled sequentially, and because disk packs are interchangeable, there is virtually no limit to the number of items it can handle.

**FEATURES** -

- Comprehensive external and internal control with audit trail.
- Sequential inventory file organization with 5280 items in 40 cylinders.
- Programs on disk under the control of a monitor.
- Automatic flagging of items below minimum inventory levels or out of stock.
- Meaningful reports for stock status, purchase order, transaction register, general stores invoice, item distribution, and control units.
- Inquiry to inventory item and purchase order records.

Note - These programs run under the Monitor contained in the IBM 1440 Hospital Patient Billing (1440-UH-01X) application programs.

**MINIMUM SYSTEM REQUIREMENTS** - A 4K 1441 Processing Unit Model A3 with - Indexing and Store Address Register, 1443 Printer Attachment, Disk Storage Control, 1447 Console Attachment Model 2... 1442 Card Read Punch... 1443 Printer with Printer Control... 1447 Console Model 2 with Sense Switches... 1311 Disk Storage Drive Model 1.

**BASIC PROGRAM PACKAGE**  
 DOCUMENTATION - Program write-up... Reference Manual including program listings.  
 MACHINE READABLE - Source program.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440UH04X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

**1440-UH-05X \*M**  
HOSPITAL GENERAL LEDGER

**DESCRIPTION** - The 1440 Hospital General Ledger program (1440-UH-05X) package reduces the time and effort required by hospitals to program and install a general ledger application. Seven programs are provided which result in three major reports and a uniform chart of accounts. The programs are: Load Master Ledger Accounts, Add and Delete Master Records, General Ledger Posting, Trial Balance Run, Income and Expense Report, General Ledger Inquiry and Cost Analysis Program. Processing Programs are retained

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in disk storage and called in, as needed, by unique call cards. General ledger account masters are kept and maintained in disk storage with the provision, through the inquiry program, to be displayed on the console typewriter.

Note - The programs in this package run under the Monitor contained in the IBM 1440 Hospital Patient Billing application program (1440-UH-01X).

PROGRAMMING SYSTEMS - Written in 1440 Autocoder

MINIMUM SYSTEM REQUIREMENTS - 1441 Processing Unit mdl A3 with Indexing and Store Address Register, 1443 Printer Attachment, Disk Storage Control, Console (1447 mdl 2) Attachment... 1442 Card Read Punch... 1443 Printer with Printer Control... 1447 Console mdl 2 with Sense Switches... 1311 Disk Storage Drive mdl 1.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up... Reference Manual including program listings.  
MACHINE READABLE - Object code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440UH05X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

CONTINUED FROM PRIOR COLUMN

of sections based on one fixed factor. Only one factor is used for all courses. The Conflict Matrix Program determines the number of potential conflicts for a maximum of 100 single and double section courses. A matrix is printed showing this information.

The Student Scheduling Program is divided into two phases.

Phase 1 processes the student request cards against the master schedule stored in the disk file to determine conflicts. Student conflicts are printed showing student information, the course causing the conflict and all courses requested by the student. Scheduled information for students is written into the disk file. At this point, depending on the number of conflicts, the program may go to phase 2 or be terminated.

Phase 2 writes the detail course information for each scheduled student into the student master record area. It schedules lunch for the fourth or fifth period and study halls. The Schedule Printing Program prints the student and course information from the disk file onto the schedule. It will print and total course fees where applicable.

FEATURES -

- Will handle 799 courses, 4 sections per period or 3200 sections maximum. (Expandable with more disk storage).
- Uses eight period day and seven student requests 3000 students per disk pack.
- Prints schedules and punches grade cards at eight to ten students per minute--can schedule lunch and study halls balances the classes and fills classes to specified seat capacity.
- Prints a complete conflict message to provide analysis of the reason for a student conflict.

PROGRAMMING SYSTEMS - Written in 1440 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1440 system with Indexing and Store Address... 1442 Card Read Punch... 1443 Printer with Print Control... 1447 Console with Sense Switches... 1311 Disk Storage Drive.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up... Reference Manual including program listings.  
MACHINE READABLE - Object program... Sample problem.

OPTIONAL PROGRAM PACKAGE

DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1440US01X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1440-UH-06X

\*M

HOSPITAL PAYROLL

DESCRIPTION - Hospital Payroll is designed to accomplish basic payroll functions of a hospital. Recognizing that there are substantial variations in payroll policies among hospitals, the system can be easily modified to specific requirements. Two file data load programs- Employee Load Program and Department Load Program- are used to initialize the payroll disk pack and to set up two-sector employee records for each employee. Three programs are included which perform payroll calculations and printed output. The Payroll Register Program calculates pay for salaried employees, paid bi-monthly, and hourly employees, paid weekly. This program prints the payroll register showing the number of hours worked, and new pay. Departmental totals are printed and punched as desired. The Check and Statement Program prints checks and statements while calculating and checking control totals held in disk storage from the payroll register run. The third program prints a deduction register reflecting employee name and number, current gross, current net, and all deductions taken for the payroll period.

Note - These programs run under the monitor contained in the IBM 1440 Hospital Patient Billing (1440-UH-01X) application program.

PROGRAMMING SYSTEMS - Written in 1440 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1441 Processing Unit, Model A3, with- Indexing and Store Address Register, Printer Attachment, Disk Storage Control, Console Attachment (1447, Model 2)... 1442 Card Read Punch... 1443 Printer, with Printer Control... 1447 Console, Model 1, with Sense Switches and a 1447, model 2... 1311 Disk Storage Drive, model 1.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up... Program Manual including listings.  
MACHINE READABLE - Source program.

OPTIONAL PROGRAM PACKAGE - None

ORDERING INFORMATION: PROGRAM NUMBER 1440UH06X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1440-US-02X

\*M

SECONDARY SCHOOL PROGRAMS (GRADE REPORTING)

DESCRIPTION - Grade Reporting consists of four programs to aid school personnel in preparing grade reports and in compilation of statistics from the grades received by students. Grade cards are used to prepare the grade reports, update student grade records on disk pack and print an honor list. Grade distribution reports are printed reflecting totals of letter grades given by a teacher as received in a course. Failure lists indicating student and course are printed using those grade cards with failing grades.

FEATURES -

- Will handle up to seven course per student.
- Honor list is automatically available after grade report run.
- 6600 students per disk pack.
- Can print parents name and address on the grade report.
- Prints grade reports at 10 to 15 students per minute.
- Grade distributions speed at 300 cards per minute.
- Failure list printing at up to 150 lines per minute.

PROGRAMMING SYSTEMS - Written in 1440 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1440 system with Indexing and Store Address... 1442 Card Read Punch... 1443 Printer with Print Control... 1447 Console with Sense Switches... 1311 Disk Storage Drive.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Program write-up... Reference Manual including program listings.  
MACHINE READABLE - Object program... Sample problem.

OPTIONAL PROGRAM PACKAGE

1440-US-01X

\*M

SECONDARY SCHOOL PROGRAMS (STUDENT SCHEDULING)

DESCRIPTION - Student Scheduling consists of five programs- Course Request Tally, Conflict Matrix, Scheduling, Schedule Printing, and Utility. The Course Request Tally and Conflict Matrix Programs are an aid to the school administrator in building his master schedule. The Tally Program counts the student requests and computes the number

CONTINUED FROM PRIOR PAGE

DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1440US02X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1440-US-03X

SECONDARY SCHOOL PROGRAMS (PAYROLL AND PERSONNEL)

\*M

DESCRIPTION - Payroll and Personnel Programs are an aid to school personnel in preparing the monthly salaried payroll, writing payroll checks, printing deduction register and check reconciliation. The Teacher Contract Program prints pertinent teacher data on contract forms. The Teacher List Program provides school principals with a list of teachers in the school.

FEATURES -

- Will handle up to 10,000 personnel payroll records per disk pack.
- Print payroll register and deduction register at speeds of 50 to 60 employees per minute.
- Print payroll checks at the rate of 35 to 40 per minute.
- Prepare reconciliation report at the rate of approximately 300 checks per minute.
- Prepare teacher contracts at the rate of 30 to 35 per minute.
- Prepare teacher lists at the rate of 150 teachers per minute.
- Sense switch control determines if a pre-payroll or payroll register is desired.
- If a person resigns, his finder card can be held out of the payroll runs to delete him from the payroll. The record will remain on the disk for end of year report writing and can be accessed by replacing the finder card.

PROGRAMMING SYSTEMS - Written in 1440 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1440 system with Indexing and Store Address... 1442 Card Read Punch... 1443 Printer with Print Control... 1447 Console with Sense Switches... 1311 Disk Storage Drive.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up... Reference Manual including program listings.  
MACHINE READABLE - Object program... Sample problem.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1440US03X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1440-US-04X

ATTENDANCE RECORDING FOR SECONDARY SCHOOLS

\*M

DESCRIPTION - Attendance Recording consists of an Attendance Register Writing Program which will aid school personnel in the preparation of attendance registers and in compilation of attendance statistics for state and federal agency report requirements. The Attendance Recording Program uses attendance cards, which are marked by the teacher or attendance clerk and then mark sense punched, to prepare an attendance register and calculate attendance totals and percentages. It will also update the student master record on the disk pack.

FEATURES -

- Will handle up to 25-day attendance period.
- Will handle either half day or whole day attendance recording.
- Will update student master record on the disk pack with year-to-date absences and tardies.
- Cards are not marked when students are present.
- Will handle up to 95 attendance cards per minute.
- Automatically calculates - aggregate attendance, aggregate membership, average daily attendance, average membership, percent of attendance. These calculations are performed for male students, female students, and overall student population.
- Calculates attendance figures for each school and for the entire school district.

PROGRAMMING SYSTEMS - Written in 1440 Autocoder.

CONTINUED FROM PRIOR COLUMN

MINIMUM SYSTEM REQUIREMENTS - A 4K 1440 system with Indexing and Store Address... 1442 Card Read Punch... 1443 Printer with Print Control... 1447 Console with Sense Switches... 1311 Disk Storage Drive.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up... Reference Manual... Program listings.  
MACHINE READABLE - Sample problem... Program decks.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440US04X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1440-UT-040

DISK FILE ORGANIZATION ROUTINES

\*M

DESCRIPTION - These routines will load and maintain 1301 or 1311 Disk Storage Files on a 1440 system. The new version incorporates the additional features of magnetic tape input/output, 1301 Disk Storage and 1444 Card Punch output capabilities. There are two complete sets of routines one set generates object programs for a random sequential file; the other set generates object programs for a control sequential file.

The User's File Organization object programs are generated by the 1401/1440/1460 Autocoder (on Disk) Macro-Generator from a series of 1440 IOCS, Version 2, Library Routines and the Disk File Organization Library routines. The user supplies the appropriate parameters for generation by means of control cards. The object programs for loading and maintaining a random file use the chaining method. By this technique, records are loaded into a disk location determined by a control field within the record. Records whose control data convert to the same disk address are linked together with a chain of addresses. The routines can generate object programs to add records to and delete records from a file. Records may be loaded or unloaded from or to cards, tape, or disk storage. The object programs for loading and maintaining a control sequential file add records to and delete records from the file without destroying the sequence. A sequence-link is used for this purpose. A distribution index is built by the programs. This index makes possible quick access to any given record in the file. Records may be loaded or unloaded from or to cards, tape, or disk storage.

The requirements for generation of the User's File Organization object programs are the same as those for 1401/1440/1460 Autocoder (on Disk), No. 1401-AU-008, and 1440 IOCS, Version 2, No. 2440-IO-010.

PROGRAMMING SYSTEMS - Written in 1440 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - a 4K 1440 system for 1311 usage of 8K 1440 system for 1301 usage with... one 1442 Card Read Punch mdl 1 or 2 or 1442 Card Reader mdl 4... One 1311 Disk Storage Drive or 1301 Disk Storage Array... 1403 Printer mdl 2, 3, 5, 6, 1443 Printer or 1447 Console mdl 2 or 4 (if a log is to be kept during file loading, additions, or deletions, the 1443 Printer is required; in that case, a 1447 Console mdl 1 may be used)... one 1444 Card Punch (required only if punched output is used on a system with 1442 Card Reader mdl 4)... one 7335 Magnetic Tape Unit (required only if tape input or output is used).

Note: The following programs are required - 1401-AU-008; 1440-IO-010; 1440-UT-041.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Program write-up... Listings... Operating Procedures, C24-3134.  
MACHINE READABLE - Option 1 - Common and Random, and is specified by using Program Extension Number OPT1. Option 2 - Common and Control Sequential, and is specified by using Program Extension Number OPT2. Option 3 - Common, Random and Control Sequential, and is specified by using Program Extension Number OPT3.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - Program flowcharts.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440UT040

|       | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|-------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC | OPT1                        | DTR*                 | 00             | none                       |
|       | OPT2                        | DTR*                 | 00             | none                       |

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|               |       |    |      |
|---------------|-------|----|------|
| OPT3          | CARDS | 15 | none |
| OPTIONAL none | none  |    | none |

1440-OT-041

DISK UTILITY PROGRAMS

DESCRIPTION - This system is designed to perform certain frequently required operations on 1440 systems with 1311 or 1301 Disk Storage, without programming effort on the part of the user. The programs provided are -

|                    |                  |
|--------------------|------------------|
| Clear-Disk-Storage | Disk-to-Card     |
| Print-Disk         | Disk-to-Tape     |
| Card-to-Disk       | Disk-Record-Load |
| Tape-to-Disk       | Copy-Disk        |
| Disk-Label         |                  |

Each program is generalized, modifying itself to perform specific operations by information received through control cards. Each program includes an optional disk label checking routine for use with 1311 Disk Storage. They are designed for use on 4K or larger systems; 8K or greater is necessary when processing disk data for which the Track Record special feature is required. These programs perform such functions as clear disk and generate addresses, supply output for file protection purposes, display disk storage on the printer, change data or addresses in disk storage, and on 1311 Disk Storage create the label track or remove the label track, and enter, delete, change, display, and punch disk labels.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1440 system (8K required if Track Record format is used) with... 1442 Card Read Punch Model 1 or 2 or a 1442 Card Reader mdl 4 and a 1444 Card Punch... 1443 Printer... one 1311 Disk Storage Drive or one 1301 Disk Storage Array... and one 7335 Magnetic Tape Unit (tape programs only).

BASIC PROGRAM PACKAGE

DOCUMENTATION - Write-up... Specifications... Operating Instructions.

MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE

DOCUMENTATION - Listings and flowcharts.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440UT041

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1450-FE-20X

MICR ENTRY PROGRAM SUPPORTS 1450 BANK DATA PROCESSING SYSTEM

DESCRIPTION - This program supports the 1450 Bank Data Processing System, which is a product entry for the small bank industry. The 1450 uses the 1259 Eleven Pocket Reader/Sorter. The 1440 Mortgage Loan Accounting (1440-FE-04X), 1440 Savings Accounting (1440-FE-05X), and 1440 Demand Deposit Accounting (1440-FE-03X), Financial Application Programs, are available for use on the 1450 Bank Data Processing System. (1450-FE-02X). The program is to be used in conjunction with the 1440 Demand Deposit Program (1440-FE-03X) to convert MICR paper documents to disk records in the format required to accomplish the complete Demand Deposit Application on the 1450 system.

FEATURES -

- Establishes and maintains control over all items that enter the processing operation.
- Proves each batch of items with its batch control slip.
- Sorts good MICR items into predetermined pockets.
- Segregates rejected items for subsequent correction and re-entry.
- Segregates (no on-us) items.
- Verifies account numbers.
- Verifies transaction codes.
- Captures valid MICR item information on disk packs.
- Prepares batch proof listings.

USE - The program is to be used in place of the 1440 Demand Deposit Conversion run when using the 1450 Bank Data Processing System.

PROGRAMMING SYSTEMS - IBM 1440 Sort 5 (1440-SM-030).

MINIMUM SYSTEM REQUIREMENTS - 1441 Processing Unit Model C4 with cable connected 1259 Reader/Sorter... 1442 Card Read Punch Model 1... 1443 Printer Model 3 or 4 with additional print positions... 1447 Console Model 1 or 2 with sense switches... two 1311 Disk Storage Drives, one

CONTINUED FROM PRIOR COLUMN

Model 6 and one Model 7.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Application Directory... Program Description Manual (H20-0551)... Operations Manual (H20-0552).  
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1450FB20X

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1460-CX-08X

ADMINISTRATIVE TERMINAL SYSTEM

DESCRIPTION - The primary concept of this system is to support a typewriter-like terminal for text processing. Information is entered from the terminals in either free or fixed form. It can be corrected, modified, or rearranged. Output formats are flexible and may be specified from the terminal. Output may be transmitted to any terminal, stored on disk or tape, printed by an on-line printer, written as card images on tape, or punched. Stored information may be recalled for further processing.

FEATURES -

- Data correction, modification, and rearrangement by - backspacing and retyping during entry... retyping beginning with a particular work... replacing a word or phrase... adding to a line or text unit... deleting a line or other text unit... moving of groups of lines or text units... gathering of stored data in any sequence... copying of information by transmission to the originating terminal.
- Storage and retrieval of data from disk files or tape.
- Transmission of data to any terminal.
- Output format controlled from the terminal by - limiting free-form text line length... justification of right-hand margin... intermix of free-form text with fixed format information... placing specified heading and footing lines on all pages of a document... automatic page numbering... controlled vertical spacing...
- Halting to allow operator intervention for text insertion or change of print elements.
- Desk calculator functions - addition, subtraction, multiplication, division, roots, powers, factorials, evaluation of simple algebraic expressions.
- Users may add programs to do simultaneous peripheral operations such as simple tape-to-printer and card-to-tape functions.
- An improved disk storage organization scheme will give improved terminal response on requests involving permanent disk storage.
- 1301 Disk File implementation significantly increases permanent storage capacity.
- Improved storage reporting facilities.

Principal application areas of the Administrative Terminal System are technical manual preparation, proposal writing, test report preparation, financial credit reporting, statistical typing, and similar areas. The system may also be used for source data entry, capturing data directly from a typewriter keyboard. This has particular significance in the computer programming area where program deck control cards and test decks may be selected, modified, combined and made available for running directly from a terminal. The system, when properly instructed, can save every keystroke made by the operator. To alter the text the operator directs the system to locate the characters to be changed and instructs it in what manner these are to be altered. If a copy of a document is requested, the system will produce and transmit it to the terminal.

PROGRAMMING SYSTEMS - The source program language is 1401/1440/1460 Autocoder (on disk).

MINIMUM SYSTEM REQUIREMENTS - 16K 1460 with - Bit Test, Console Attachment, Direct Seek, Disk Storage Control, Indexing and Store Address Register, Transmission Control Unit Adapter on the 1441 Processing Unit Model B6 and an appropriate Model 1461 Input/Output Control... One 1311 Disk Storage Drive Model 1 Direct Seek... 1447 Console Model 1 with Sense Switches... 1447 Console Model 4... 1448 Transmission Control Unit with the 1050/1060 Attachment feature and RPQ E30485 and, as required, Common Carrier Adapter Sets or Line Adapter Sets... a 1402 Card Read Punch Model 3 is required unless another 1401/1440/1460 system is available to load the program on a 1316 Disk Pack.

OPTIONAL SYSTEM REQUIREMENTS - Translate feature on the 1441 Processing Unit... one to four 1311 Disk Storage Drives Model 2 with Direct Seek and Seek Overlap (at least one 1311 Model 2 is strongly recommended)... one to five modules of 1301 Disk Storage (one 1311 Model 2 is

1460

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required)... one to six 729 Magnetic Tape Units Model 2, 4, 5, 6 or 7330 Magnetic Tape Units... 1402 Card Read Punch Model 3... 1403 Printer Model 2 or 3 with the Print Storage feature on the 1461 Input/Output Control and RPQ M13490... line group features and RPQ 811390, as required to attach more than 10 lines to the 1448 Transmission Control Unit. If uppercase and lowercase printing with 120 characters of Courier type (matching the courier 72 Printing Element on the terminals) is desired using a 1403 Printer Model 2, RPQ'S 813148 and 818029 on the 1461 Input/Output Control... RPQ'S 812033, 812034, 898059, 33 each of RPQ E33255, and part 823380 (the chain) on the 1403 Model 2... RPQ 818019 on the 1441 Processing Unit.

TERMINAL REQUIREMENTS - 2741 Communication Terminals (up to 40), with Courier 72 Standard Selectric Printing Elements, and line adapters if required. ATS supports only the correspondence code 2741 Terminals without the Interrupt feature.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Application Directory... Application Description, H20-0129... Terminal Operators Manual, H20-0185... Programmers Manual, H20-0228... Console Operators Manual, H20-0227.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE

DOCUMENTATION - Systems Manual (Program Flowcharts).  
MACHINE READABLE - 1401/1440/1460 Autocoder (on Disk) output file.

ORDERING INFORMATION: PROGRAM NUMBER 1460CX08Y

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION MEDIUM<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|-----------------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                        | 00             | none                       |
| OPTIONAL | none                        | 1316                        | 52             | 02                         |

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1401-01.1.017  
RAPID ASSEMBLY PROGRAM NO. 14043

AUTHOR: C.L. Borstad  
C.H. Williams  
U.S. Bureau of Public Roads  
610 East Fifth Street  
Vancouver, Washington

DESCRIPTION - RAP was written primarily to eliminate the intermediate punching of cards when assembling SPS II programs on a card input-output 1401 system. Provision was made to obtain an object listing, with or without an object one-per-card deck and with or without a condensed deck, at the time the program is being assembled. Duplicate labels are detected and printed during the first pass and at conclusion of the second pass a dump of labels and addresses and unreferenced labels is made. The one-per-card object deck may be assembled as a source deck and may be listed without assembly. A mnemonic of EQU has been added to equate a label to a label previously defined.

MINIMUM SYSTEM REQUIREMENTS - 1401 card system with Advance Programming Package, Print Control Additional, High-Low-Equal Compare and Sense Switches.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401011017

Indicate "E N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE -  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401011035

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-01.1.036 \*M

SPSS - AN IMPROVED SPS - ASSEMBLER

AUTHOR: H. J. Koekoek

DIRECT TECHNICAL INQUIRIES TO:  
H. J. Koekoek  
IBM 1401 Users Club  
Systems Dept.  
P.O. Box 9999  
Amsterdam, The Netherlands

DESCRIPTION - Two pass assembly of source programs directly into condensed cards. Pre-and postlist included. No restrictions. extended error checks. Undefined, etc. Labels printed after pass 1.

PROGRAMMING SYSTEMS - Written in SPS Language.

MINIMUM SYSTEM REQUIREMENTS - 4K affords possibility for usage of over 250 labels per iteration, 8K of over 800. No special features needed. 4K-8K-12K-16K, 1402, 1403.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401011036

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.1.039 \*M

PRE-LIST FOR AUTOCODER SOURCE DECK

AUTHOR: Robert Stern

DIRECT TECHNICAL INQUIRIES TO:  
Robert Stern  
IBM Corporation  
40 Saw Mill River Road  
Hawthorne, New York 10532

DESCRIPTION - This program will make a thorough check on an Autocoder source deck listing each statement and printing any errors found in that statement on the same line. In addition the program will print at the end of the listing a symbol table indicating undefined operands unreferenced and duplicable labels. It will check for page/line out of sequence, invalid label, invalid operation, column 19, flag all non-standard mnemonics as macros, test for all logical errors in the operand and compare columns 73 - 75 to blank.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - Requires 8K storage, Advanced Programming and High-Low-Equal Compare.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401011039

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-01.1.043 \*M

AUTOCODER PRE-LIST

AUTHOR: H. A. Miller, Jr.

DIRECT TECHNICAL INQUIRIES TO:

1401-01.1.018 \*M

TWO - TAPE AUTOCODER ASSEMBLY FOR THE 1401

AUTHOR: R. E. Rosenberger

DIRECT TECHNICAL INQUIRIES TO:  
R. E. Rosenberger  
IBM Corporation  
520 Boylston Street  
Boston 16, Mass.

DESCRIPTION - This program will assemble source programs with restrictions outlined below, on 1401 systems with only two tape units. It provides for unlimited reiterations, and produces an assembly listing and a program deck in the Autocoder condensed format.

PROGRAMMING SYSTEMS - Written in 1401 Autocoder.

MINIMUM SYSTEM REQUIREMENTS 1. 1401 with 4K or larger storage. 2. 1402. 3. 1403 with 132 print positions. 4. Two tape units (729 or 7330). 5. High/Low/Equal Compare feature. 6. Advanced Programming feature.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
Machine Readable - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401011018

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE       | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00                   | none                       |
| OPTIONAL | none                        | MT                   | 7/556 22<br>7/800 24 | 01<br>01                   |

1401-01.1.035 \*M

TAPE SYSTEM LOADER

AUTHOR: R. A. Pesceovich

DIRECT TECHNICAL INQUIRIES TO:  
R. A. Pesceovich  
IBM Corporation  
240 Broadway  
Paterson, New Jersey

DESCRIPTION - The Tape System Loader permits the 1401 user to place several programs on one system tape. The system loader can select a program for loading, add a new program to the system from condensed cards or from Autocoder loadable tape, delete a program from the system, list all the header control records of the programs on the system, place itself on the system tape, and duplicate the system onto another tape.

PROGRAMMING SYSTEMS - Written in 1401 tape Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 8K system with the features and equipment for tape Autocoder. However, it can be easily modified for a 4k 1401 by changing several modify address instructions.

BASIC PROGRAM PACKAGE

CONTINUED FROM PRIOR PAGE

H. A. Miller, Jr.  
IBM Corporation  
1120 Connecticut Avenue, N. W.  
Washington, D. C.

DESCRIPTION - Audits basic Autocoder statements for page-line sequence, identification, valid mnemonic or actual operation including standard Autocoder/IOCS macros, valid symbolic or actual operands including valid D-modifier to mnemonic relationship, logical instruction length, blanks in card columns 73 - 75, and duplicate or undefined labels within the limits of storage.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - Requires 4K 1401, 1402, 1403 Mod. 1 or 2, High-Low-Equal Compare, and Advanced Programming. Label capacity is 666 for 8K, 1333 for 12K and 2000 for 16K. Program has 887 Autocoder source statements occupying 3976 positions of storage.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1401011043

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-01.1.051 \*M  
1401/1460 PACE PRE-ASSEMBLY CHECK AND EDIT

AUTHOR: E. N. Averkamp

DIRECT TECHNICAL INQUIRIES TO:  
E. N. Averkamp  
IBM Corporation  
23 Hitchcock Way  
Santa Barbara, California 93105

DESCRIPTION - PACE brings to the 1401/1460 user an efficient and meaningful diagnostic program. It will check and edit 1401 Autocoder and Autocoder/IOCS source programs by detecting undefined labels, format and parameter errors, coding errors and key punch errors. The printed output provides a label table in alphabetical order followed by a listing of the source program with errors underlined by significant special characters. An edit is also performed on DIOCS and DTF entries for acceptability and spelling. There are three checks of Autocoder statements pertaining to labels, operation codes and operands. The checking results are equal to an Autocoder assembly. Printed output options are available with sense switches. PACE will allow programmers to become more productive by minimizing program testing. Since it averages between 195 and 265 cards per minute depending upon the machine configuration, it will also eliminate a substantial amount of machine time previously used for assembly and program testing.

PROGRAMMING SYSTEMS - Written in Autocoder.  
MINIMUM SYSTEM REQUIREMENTS - 1401/1460 system with a minimum storage of 4,000 positions, 1-1311, High-Low-Equal Compare and Advanced Programming.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401011051

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-01.1.052 \*M  
SFS SINGLE PASS ASSEMBLER

AUTHOR: Robert E. Marden

DIRECT TECHNICAL INQUIRIES TO:  
Robert E. Marden  
The Putnam Management Co.  
60 Congress Street  
Boston, Massachusetts 02101

DESCRIPTION - This program was designed specifically for 4K card systems, and completely eliminates the card for card punching normally associated with card assemblers. No special features are required to use this program.

CONTINUED FROM PRIOR COLUMN

The source deck being assembled is read twice. The first reading sets up an internal label table, the second time through a condensed deck is punched and the listing printed. A label table is also printed with unreferenced and duplicate labels indicated as such. MA, SAR, SBR, MIZ, MCM, BBE, and indexing cannot be assembled with this program. Tape, disk, and drum instructions of any type cannot be assembled. There is a maximum number of labels that can be processed and this varies from 224-252. DSA, DS, DC and DCW cards are placed in memory where they appear in the source deck.  
PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1401 (any model), 1402, and 1403 with no special features is required.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401011052

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.1.056 \*M  
1401/1440 EDIT SYSTEM/360 BASIC ASSEMBLY LANGUAGE

AUTHOR: W. H. Barbee

DIRECT TECHNICAL INQUIRIES TO:  
W. H. Barbee  
IBM Corporation  
P. O. Box 9266  
Raleigh, North Carolina 27603

DESCRIPTION - This program edits System/360 Basic Assembly Language on 1401/1440. It produces a program listing, literal listing, and label listing. The program processes BAL statements; it lists BOS and DOS IOCS macros and job control statements as comments. Error messages are interspersed in the program listing.

PROGRAMMING SYSTEMS - Written in Basic Assembly Language.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1401/1440 with indexing and Store Address registers, 1402/1442 Card Reader, 1403/1443 Printer, and one (1) 1311 Disk Drive.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401011056

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.2.003 \*M  
THREE TAPE SORT PROGRAM

AUTHOR: R. Zuidhof

DIRECT TECHNICAL INQUIRIES TO:  
R. Zuidhof  
Bataafse Inter. Petrol. Maatschappij  
Data Processing Center  
The Hague  
Netherlands

DESCRIPTION - To provide a sort program for 1401 Systems using 3 magnetic tape units. The program consists of four phases and may also be used for merging two tape files which are already in ascending order.

MINIMUM SYSTEM REQUIREMENTS - 4000 positions of core storage, Advanced Programming feature, High-Low-Equal Compare feature, Sense Switches feature, three (3) tape units (7330 or 729 II or IV).

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401012003

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

CONTINUED FROM PRIOR COLUMN

1401-01.2.012

\*M

TTSRT - TWO TAPE SORT

AUTHOR: A. C. Forlenza

DIRECT TECHNICAL INQUIRIES TO:  
A. C. Forlenza  
IBM Corporation  
220 Church Street  
New York 13, New York

DESCRIPTION - This program will sort fixed length, fixed block records on a two-tape 1401 provided the control fields are numeric only. Input and output are on tape. User specifies his record size, control fields, etc., on a single control card. Portion of documentation of program is built into listing using comments and comments cards. Up to 5 numeric control fields are allowed. Maximum input volume is one reel of tape, therefore, actual number of records which can be sorted will vary with block size and record length. Maximum input block size is 1200 characters.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - 4K memory size is needed and sense switches are desirable for use of an operating option in the read error routine. No other special features are required.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401012012

|          | PROGRAM NUMBER | DISTRIBUTION MEDIUM | USER VOLUME |
|----------|----------------|---------------------|-------------|
|          | EXTENSION      | TYPE                | CODE        |
|          | -----          | -----               | -----       |
| BASIC    | none           | DTR*                | 00          |
| OPTIONAL | none           | none                | none        |

1401-01.2.018

\*M

CARD MERGE

AUTHOR: P. B. Mayo

DIRECT TECHNICAL INQUIRIES TO:  
P. B. Mayo  
5622 7th Road South  
Arlington, Virginia

DESCRIPTION - This is a card collating program designed to sequence check, sequence check with selection, merge, merge with selection, match, and match with selection. A maximum of 16 parameter controlled fields may be utilized.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - A 1401 with 4K, Hi-Lo-Eq Compare and Advanced Programming features, a 1402 with Punch Feed Read and Read Feed Stacker Delay features and any model 1403.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401012018

Indicate "E N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-01.2.022

\*M

8K THREE TAPE SORT MERGE

AUTHOR: F. Oberembt

DIRECT TECHNICAL INQUIRIES TO:  
F. Oberembt  
St. Joseph Indian School  
Chamberlain, S.D.

DESCRIPTION - The purpose is to provide an alphanumeric sort program for 1401 system using three magnetic tape units. It is a modification of 1401-01.2.003. Input is fixed length blocked unblocked records. Output is ascending sequence only.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - Advanced Programming, High-Low-Equal Compare sense switches, three tape units (7330 or 729 II or IV.) and 8000 positions of core.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401012022

| PROGRAM NUMBER | DISTRIBUTION MEDIUM | USER VOLUME |
|----------------|---------------------|-------------|
|----------------|---------------------|-------------|

|          | EXTENSION | TYPE  | CODE  | REQUIREMENT |
|----------|-----------|-------|-------|-------------|
|          | -----     | ----- | ----- | -----       |
| BASIC    | none      | DTR*  | 00    | none        |
| OPTIONAL | none      | none  | none  | none        |

1401-01.2.023

IBM 1401/1440/1460/1311 DISK SORT

\*M

AUTHOR: A. E. Seymour

DIRECT TECHNICAL INQUIRIES TO:  
A. E. Seymour  
IBM Corporation  
2000 S.W. First  
Portland, Ore. 97201

DESCRIPTION - This program is a generalized disk sort and will run on 1440/1460/1401. Darts-2 will sort fixed length blocked or unblocked records in sector mode and fixed length records in track mode. Darts-2 will sort ascending or descending alpha or numeric. Darts-2 will provide exits for job to job linkage, monitor linkage, inquiry linkage, can reside on disk or tape, and uses a very small work area. Input and output areas may be physically the same or addressed the same.

PROGRAMMING SYSTEMS - Written in 1401-1440 Autocoder and consists of 2 Programs.

MINIMUM SYSTEM REQUIREMENTS- 8K, Advanced Programming, Hi-Lo-Equal, 1311, 1442-1402.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401012023

|          | PROGRAM NUMBER | DISTRIBUTION MEDIUM | USER VOLUME |
|----------|----------------|---------------------|-------------|
|          | EXTENSION      | TYPE                | CODE        |
|          | -----          | -----               | -----       |
| BASIC    | none           | DTR*                | 00          |
| OPTIONAL | none           | none                | none        |

1401-01.2.025

1401 SORT 7 - 1311 DISK LOAD

\*M

AUTHOR: F. P. Welch

DIRECT TECHNICAL INQUIRIES TO:  
University of California  
Group A0-7  
Los Alamos Scientific Laboratory  
P. O. Box 1663  
Los Alamos, N.M. 87544

DESCRIPTION - Sort 7 may be loaded from disk as well as from tape or cards. In this way, a disk drive can be used in place of a fifth tape unit, and Sort 7 may reside on the same disk pack with other programs.

MINIMUM SYSTEM REQUIREMENTS - Same as for Sort 7, except an IBM 1311 Disk Storage Drive is used instead of fifth tape unit.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401012025

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-01.3.003

GENERAL PURPOSE TAB-BACK PROGRAM

\*M

AUTHOR: B. T. Smith

DIRECT TECHNICAL INQUIRIES TO:  
B. T. Smith  
The Warner Brothers Company  
325 Lafayette Street  
Bridgeport 1, Conn.

DESCRIPTION - To provide tabulations or listings of summary cards or initial data cards for control and verification purposes. This program may have the following 1. Card A up to ten, eights column add field descriptions. 2. Card B A/up to ten positive, ten column add fields, or up to ten negative, eight column add fields, B/ up to three classes of comparing of not more than ten columns for each class of comparing, C/ up to four classes of totals. 3479 core positions are required for this program.

MINIMUM SYSTEM REQUIREMENTS - 4K, 1401 card system, with the Advanced Programming package, and 1403 Printer.

BASIC PROGRAM PACKAGE

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DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401013003

Indicate "E N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-01.3.011 \*M  
ONE CARD 80-80 LIST

AUTHOR: H. Bardin

DIRECT TECHNICAL INQUIRIES TO:

H. Bardin  
New York University  
Engineering Research Division  
Data Processing & Computation Lab  
233 Fordham Landing Road  
Bronx 68, New York

DESCRIPTION - To provide a compact card listing program for use on a 100 or 132 position printer, with the carriage being restored at the start of the job and on forms overflow. Operating procedures place deck to be listed behind program card in read hopper. Load program. To bring last card, press start.

MINIMUM SYSTEM REQUIREMENTS - Any 1401 Model with 3 index registers.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401013011

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.3.018 \*M  
SELF CENTERING QUICK REPORT (QUICKIE)

AUTHOR: M. T. Redfern

DIRECT TECHNICAL INQUIRIES TO:

M. T. Redfern  
Package Machinery Company  
330 Chestnut Street  
East Longmeadow, Mass. 01028

DESCRIPTION - Produce quick geometrically spaced printed report without designing a specific layout, as a listing or tabulation, with or without summary punching, onto one of three specified sizes of paper widths (8 1/2 in., 10 5/8 in., 14 7/8 in.) according to field definition and field control established by preparation of simple control cards.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - A 1401 with 4K storage. No special features required, however, equipment with less than 132 print positions cannot specify use of 14 7/8 in. width paper.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401013018

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.3.022 \*M  
SOME - SPUR OF THE MOMENT REPORTING

AUTHOR: G. W. Junkin

DIRECT TECHNICAL INQUIRIES TO:

G. W. Junkin  
IBM Corporation  
6900 Fannin Street  
Houston, Texas 77025

DESCRIPTION - Provides an easy and quick means of producing a printed report from card input. This permits a short response time for one-time requests and provides a stop-gap program to allow additional time for programming a specific job. Saves program storage space for it is only necessary to retain a maximum of eight setup cards for

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each job instead of an entire program. This program can take the place of many programs for listings and tabulations. Listing, tabulating, and group indicating fields cannot be greater than fourteen fields. Maximum counter size is ten digits in all cases. Minor, intermediate and major breaks are each controlled by one field of thirty columns maximum.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - A 1401 with 4,000 positions of storage and Hi-Low-Equal Compare, 1402 and 1403 Model 1 or 2. Uses 3,988 positions of storage. 275 lines per minute output during a listing job and 400 cards per minute during a tabulate job on a 1401 system without print storage.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401013022

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.3.024 \*M  
1401/1460 PRINT LARGE CONSECUTIVE NUMBERS ON LABELS

AUTHOR: Paul K. Duerr

DIRECT TECHNICAL INQUIRIES TO:

Paul K. Duerr  
IBM Corporation  
Dept. 317  
Owego, New York 13827

DESCRIPTION - The program was designed specifically to explode the size of consecutive numbers to be printed on inch high labels, but any numbers of from one to nine digits may be printed. The numbers printed are all slightly less than 7/8 inch in height. Only digits "0" through "9" and blanks may be printed. A control card is needed for each application. User routines may be easily included.

MINIMUM SYSTEM REQUIREMENTS - The program may be run on any 1401 or 1460. Core size is 1329 locations and no special features are required.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401013024

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.010  
ESCAPE - EFFORTLESS SYSTEM OF CALCULATING AND PRINTING EVERYTHING

AUTHOR: W. J. Teagarden

DIRECT TECHNICAL INQUIRIES TO:

W. J. Teagarden  
Southern Permanente Services  
143 South Alvarado Street  
Los Angeles 57, California

DESCRIPTION - A utility program which provides rapid conversion of 604, 602, and 528 jobs to the 1401. This load and go program also may be used to reproduce cards as well as gang punching, selective reproducing, sequence numbering, listing or combinations of these operations. Two card routines and end-of-file routine may be developed. The effective working storage of the object program is comprised of 20 counters and 20 Storage Units of ten positions each. Multiplication and division can be executed only from counters. Approximately 1800 positions of core are available to build the three routines of 1,000 positions, 500 positions and 300 positions.

MINIMUM SYSTEM REQUIREMENTS - 4K 1401. Punch Feed Read, Multiply-Divide and High-Low-Equal Compare features are required if program is completely used.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014010

Indicate "B N 1" in columns 1-3 and the Program Number

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in columns 4-13 on the IBM Program Order Form.

OPTIONAL none none none

1401-01.4.012

SCOOP I & II - SIMPLIFIED CONVERSION OF OTHER PUNCHES

\*M

1401-01.4.054

REPRO-REPRODUCER SIMULATOR ROUTINE FOR THE IBM 1401

\*M

AUTHOR: Louis P. Poulin  
 DIRECT TECHNICAL INQUIRIES TO:  
 Louis P. Poulin  
 California-Western State  
 Life Insurance Co.  
 2020 1 Street  
 Sacramento 4, California

AUTHOR: R. Weber  
 DIRECT TECHNICAL INQUIRIES TO:  
 R. Weber  
 IBM Corporation  
 1933 W. Wisconsin Avenue  
 Milwaukee 3, Wisconsin

DESCRIPTION - To provide a simple method of converting 90 column cards in descending sequence to 80 column cards (or Magnetic Tape) in ascending sequence.

DESCRIPTION - This program simulates the 514 Reproducer by assembling within core a program to do such operations as (1) Adding Holerith information to the card; (2) Reproducing and shifting fields of information; (3) Skipping over columns; (4) Sequentially numbering cards; (5) Moving zones from one column to another; and (6) Adding of zones to the desired columns.

PROGRAMMING SYSTEMS - Written in RPG.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - 1401 with 4,000 positions of storage and Column Binary device. Scoop II requires the Advanced Programming package. The Interchangeable Brush Block (RPQ NO. 899287) is not required when using SCOOP.

MINIMUM SYSTEM REQUIREMENTS - 1401 Model B, with 1402 Reader Punch, no special features.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014012

ORDERING INFORMATION: PROGRAM NUMBER 1401014054

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.022

TAPE UPDATE UTILITY PROGRAM

AUTHORS: Jerry Kimball Marvin Bader  
 DIRECT TECHNICAL INQUIRIES TO:  
 Jerry Kimball  
 U. S. Army Strategy & Tactics Anal. Group  
 4815 Rugby Avenue  
 Bethesda 14, Maryland

1401-01.4.056

GENERALIZED TABULATE AND/OR SEQUENCE CHECKING PROGRAM

\*M

AUTHOR: L. R. Debuys III  
 DIRECT TECHNICAL INQUIRIES TO:  
 L. R. Debuys III  
 IBM Corporation  
 P. O. Box 19627  
 2640 Canal Street  
 New Orleans, Louisiana

DESCRIPTION - To update a BCD tape of N files, whose records are less than 880 characters. Entire files, or individual records within a file may be deleted, changed, or inserted by the use of control cards and the sense switches.

DESCRIPTION - To eliminate the necessity for many individual programs required at a 1401 installation to take control and balance totals. To provide a rapid means of checking sequence of a file of cards prior to a long 1401 program run.

MINIMUM SYSTEM REQUIREMENTS - Memory 4K Model C 1401 with two Tape Units, 1403 Printer, Advanced Programming, Multiply-Divide, and High-Low-Equal Compare.

PROGRAMMING SYSTEMS - Written in SPS.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up on Microfiche only.  
 MACHINE READABLE - None.

MINIMUM SYSTEM REQUIREMENTS - 1401-1.4K, 1402, 1403 Model 1 or 2.

ORDERING INFORMATION: PROGRAM NUMBER 1401014022

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

Indicate "P N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014056

1401-01.4.051

SELECTIVE REPRODUCE - GANG PUNCH FOR THE 1401

\*M

AUTHOR: R. G. Harmon  
 DIRECT TECHNICAL INQUIRIES TO:  
 R. G. Harmon  
 D. C. Government  
 Finance Division  
 Municipal Center  
 3rd & Indiana Avenue N. W.  
 Washington, D. C.

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

DESCRIPTION - SERLP is a card to card reproduce/gang punch routine with provisions for column splitting. The master gang punch card must be placed behind the program deck whether gang punching or not.

1401-01.4.058

TAPE SEARCH PROGRAM

\*M

AUTHOR: G. Estep  
 DIRECT TECHNICAL INQUIRIES TO:  
 G. Estep  
 American Airlines MSE Center  
 Management Research Division  
 2000 North Mingo Road  
 Tulsa, Oklahoma

MINIMUM SYSTEM REQUIREMENTS - 1400 core storage positions, no special features required.

DESCRIPTION - To search tape files for specific records, and emit via printer, card and/or tape any or all such data contained within the selected records in an organized usable format.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

PROGRAMMING SYSTEMS - Written in SPS.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014051

MINIMUM SYSTEM REQUIREMENTS - 8-16K, 2 tapes, Hi-Lo-Equal Compare, Advanced Programming.

|       | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|-------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC | none                        | DTR*                 | 00             | none                       |

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

CONTRIBUTED PROGRAMS

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OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014059

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.063

MEMORY DUMP IN BANDS OF 100 POS. 20 CARDS \*M

AUTHOR: Uri J. Shafir

DIRECT TECHNICAL INQUIRIES TO:  
Uri J. Shafir  
IBM Israel Ltd.  
P. O. Box 2881  
Tel-Aviv, Israel

DESCRIPTION - This program will print-out the whole memory in bands of 100 positions, with numbering of locations. The printout format is easily readable and well suited for debugging.

PROGRAMMING SYSTEMS - Written in actual (condensed).

MINIMUM SYSTEM REQUIREMENTS - 4K, 1402, 1403 Model 1.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014063

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.068

REER - REPRODUCE, EMIT, ELIMINATE, REPRODUCE \*M

AUTHOR: Evan J. Staudt

DIRECT TECHNICAL INQUIRIES TO:  
Evan J. Staudt  
E. I. du Pont de Nemours & Co.  
Fila Department  
Programming Group  
Brandywine Bldg.  
Wilmington 99, Delaware

DESCRIPTION - This program will reproduce cards, emit characters into output card columns, eliminate input card columns from output card columns, and re-arrange input card columns to output card columns.

PROGRAMMING SYSTEMS - Source language is 1401 SPS.

MINIMUM SYSTEM REQUIREMENTS - High-Low-Equal Compare, Advanced Programming package.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014068

Indicate "E N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-01.4.071

CORE DUMP ROUTINE \*M

AUTHOR: Robert J. Speck

DIRECT TECHNICAL INQUIRIES TO:  
Robert J. Speck  
IBM Corporation  
Civil Programs, FSD  
1111 Connecticut Avenue  
Washington 6, D. C.

DESCRIPTION - This is a subroutine which enables the user to take core dumps under program control while testing his program. Thus, a special program does not have to be loaded into the machine each time a core dump is needed, nor is it necessary to manually dump the read and punch areas. Test time is thereby more efficiently utilized.

PROGRAMMING SYSTEMS - Source - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - 1401 with Advanced Programming and High-Low-Equal Compare.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.

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MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014071

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.094

APTCO - AUTOMATIC PROGRAMMING, TESTING, AND CONDENSING OPERATION \*M

AUTHOR: Frank T. Moy

DIRECT TECHNICAL INQUIRIES TO:  
Frank T. Moy  
Raytheon Co.  
Equipment Division  
Surface Radar and Navigation Operation  
Wayland, Massachusetts

DESCRIPTION - APTCO is a load-and-go program designed to minimize programming, testing, and debugging time required for business programs and yet provide the flexibility to handle a wide variety of problems for a card system 1401, from simple listings, reproductions and gangpunchings to complicated reports requiring extensive use of logic operations. APTCO will automatically handle up to 5 heading lines, 9 total levels, and 198 symbolic labels. In one pass, APTCO will print a listing of the control cards with error indications, print a core dump if desired, and test generated program or run actual details. APTCO will automatically generate multiply/divide subroutine when required and will handle punch feed read problems.

MINIMUM SYSTEM REQUIREMENTS - 4K storage - Additional storage capacity is entirely available for object program.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014094

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.096

UNIVERSAL MEMORY PRINT \*M

AUTHOR: Louis J. Copits

DIRECT TECHNICAL INQUIRIES TO:  
Louis J. Copits  
IBM Corporation  
370 W. 1st Street  
Dayton, Ohio

DESCRIPTION - This program is designed to provide a legible (DOP) memory print. It will automatically modify itself to run on a 1401 of any memory size. Only the 00 bank must be printed from the console. Core from 001 to the upper limit of the object machine is then printed.

PROGRAMMING SYSTEMS - Written in Absolute and SPS.

MINIMUM SYSTEM REQUIREMENTS - 1401, any model, 1402, 1403, Model 2. No 1401 special features are required. Contains 322 SPS instruction and comment cards in 1 per card format. The condensed object deck contains 96 cards. Checked out on 4K, 8K and 16K systems of varying configurations. A single high order core position (i. e. 3999 on 4K system, 15999 on a 16K system) is destroyed, but a work mark there is unchanged.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014096

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

CONTINUED FROM PRIOR COLUMN

1401-01.4.103RELOCATABLE TRACE PROGRAM

\*M

AUTHOR: J. L. Mannaswith  
 DIRECT TECHNICAL INQUIRIES TO:  
 J. L. Mannaswith  
 IBM Corporation  
 100 South Wacker Drive  
 Chicago, Illinois

DESCRIPTION - The program traces tape, card RAMAC, binary and standard 1401 commands. It shows steps, data, address registers and index registers. Output is printed on the 1403 with one line per program step executed. This line contains 1. The location of the step being executed, 2. The actual step, 3. Up to 15 characters of the B field before taking the step, 4. The B field after taking the step, 5. The contents of the A and B address registers after the step, 6. The contents of index registers 1, 2, and 3 at the time of execution. The trace program follows an object program one step at a time by extracting your step, placing it in the appropriate trace analysis routine and actually executing your step within the area occupied by trace.

PROGRAMMING SYSTEMS - Written in machine language.

MINIMUM SYSTEM REQUIREMENTS - 1. 8000 positions of core, 2. Advanced Programming, 3. Any features or devices called for in the object program.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014103

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.107STACK - STORAGE ON TAPE TO ABRIDGE CARD KEEPING

\*M

AUTHOR: I. A. Epp  
 DIRECT TECHNICAL INQUIRIES TO:  
 I. A. Epp  
 IBM Corporation  
 3424 Wilshire Boulevard  
 Los Angeles 5, California

DESCRIPTION - A set of three programs designed to minimize punched card storage by stacking card files on magnetic tape. Size and format of card files are virtually unlimited. The equivalent of up to ten cases of cards may be placed on one 2400-foot reel of tape at 556 cpi. The set consists of-

1. Card to Tape program (CTAP).
2. Update program (updat). In addition to adding, deleting, or replacing files, this program will copy the input tape and will furnish a list of the file-titles with the number of records in the files.
3. Search program (SERCH) to retrieve files in punched and/or printed form.

PROGRAMMING SYSTEMS - Autocoder with IOCS.

MINIMUM SYSTEM REQUIREMENTS - Update - 1401 8K, 2 tapes. Search and Card-to-Tape - 4K, 1 tape. All 3 programs require 1402, 1403, sense switches, Advanced Programming and High-Low-Equal Compare features.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
 DOCUMENTATION - None.  
 MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401014107

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-01.4.108TAPE DUPLICATION

\*M

AUTHOR: R. J. Hoynes  
 DIRECT TECHNICAL INQUIRIES TO:

R. J. Hoynes  
 IBM Corporation  
 205 Whitney Avenue  
 New Haven 10, Connecticut

DESCRIPTION - To duplicate BCD or binary tape records from 13 to 2300 characters in length. With the setting of sense switches it will duplicate single or multiple files, and write a trailer label. The tape to be duplicated is mounted on unit 1 and file protected. The output tape is mounted on unit 2 with a File Protect ring. Sense switches are set for the options desired. Tape one is read into core, tested for size, headers, trailers and noise records and written on tape two. The program will not copy records greater than 2300 characters or less than 12 characters.

PROGRAMMING SYSTEMS - Written in 1401 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - A 1401 Model C, 4K system with two tape units, 1402, 1403, Advanced Programming and binary features (optional).

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014108

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.124MODIFIED DUMP

\*M

AUTHOR: W. A. Delchamps  
 DIRECT TECHNICAL INQUIRIES TO:  
 W. A. Delchamps  
 General Electric Co.  
 Apollo Support Department  
 P. O. Box 294  
 Huntsville, Alabama

DESCRIPTION - This routine is the standard IBM 1401 DUMP modified to provide the following additional conveniences-

1. Logic indicators included in printout.
2. All group marks are changed to lozenges.
3. Blank blocks of memory (X00-X99) are not printed.

MINIMUM SYSTEM REQUIREMENTS - Positions 1-80 initially and 81-399 after contents have been printed.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014124

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.126PRINT DECISION TABLES

\*M

AUTHOR: R. J. Evans  
 DIRECT TECHNICAL INQUIRIES TO:  
 R. J. Evans  
 Medical Service Association of Pennsylvania  
 Camp Hill, Pennsylvania 17011

DESCRIPTION - To print decision tables on 1403 Printer. The principle benefits of this method are the ability to quickly update and produce decision tables which are suitable for photographic reproduction. The input cards (one or two per line) identify the line as a title, setup, condition or action line. The decision table to be printed may contain any number of lines and allows for 15 rules and an else rule. If less than 9 entries are all that are needed, only one card need be prepared per line. Extended or limited entry may be used.

PROGRAMMING SYSTEMS - Written in 1401 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - This program uses 1405 positions of core storage. 4K 1401, Hi-Lo-Equal Compare, Advance Programming features, 1402 Card Reader Punch, 1403 Printer with 132 positions.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up on microfiche only.  
 MACHINE READABLE - None.

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ORDERING INFORMATION: PROGRAM NUMBER 1401014126

Indicate "E N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-01.4.128

1401/1410 AUTOCODER PROGRAM LOGIC DIAGRAMMER

AUTHOR: T. O. Hiltabidle

DIRECT TECHNICAL INQUIRIES TO:  
T. O. Hiltabidle  
IBM Corporation  
2330 St. Paul Street  
Baltimore 18, Maryland

DESCRIPTION - This program will machine document the logic of a 1401 or 1410 symbolic program written in the Autocoder language. The diagrammer consists of two passes. Pass 1 builds up a symbol table from the source cards, pass 2 prints the diagram. The maximum number of labels in the source program being diagrammed varies according to object machine size, from a minimum of 125 labels for 1 4K machine to a maximum of 875 labels in a 16K machine. The program analyzes mnemonic OP codes only. Macro instruction analysis cannot be guaranteed correct.

PROGRAMMING SYSTEMS - Written in 1401 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - This program may be run on any 1401 or 1410 card system with a minimum of 4K storage and one tape drive. Also necessary are the Advanced Programming, High-Low-Equal Compare, Expanded Print special features. Sense switches are required to process 1410 source cards. The program will use all of the available memory space in the object machine.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401014128

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | CARDS                | 15             | none                       |

1401-01.4.130

CARD LIST OVERFLOW

AUTHOR: H. E. Thompson

DIRECT TECHNICAL INQUIRIES TO:  
H. E. Thompson  
Beacon Manufacturing Company  
Swannanoa, North Carolina

DESCRIPTION - This one card program will list 80 column cards, test for overflow conditions and skip forms to carriage channel 1 if a 12 has been sensed in the carriage tape.

PROGRAMMING SYSTEMS - (This one program, of necessity, was written in actual language utilizing no present program procedures or packages.) The user must press HALT key to stop the 1401.

MINIMUM SYSTEM REQUIREMENTS - Any 1401 configuration will accomplish these results.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014130

Indicate "E N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-01.4.131

CONVERT SPS CARD FORMAT TO AUTOCODER CARD FORMAT

AUTHOR: Richard A. Powers

DIRECT TECHNICAL INQUIRIES TO:  
Richard A. Powers  
325 Lafayette Street  
The Warner Brothers Co.  
Bridgeport 1, Conn.

DESCRIPTION - To convert programs previously punched in SPS to Autocoder. Similar routines. IBM 4 tape Autocoder.

PROGRAMMING SYSTEMS - Written in 1401 card Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 4K 1401 with the Advanced Programming package. 2,000 positions of storage are

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required for this program. A minimum of 4K 1401 card system with the Advanced Programming package and 1403 Printer.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014131

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.133

TRACE THAT NEEDS NO SPECIAL FEATURES

AUTHOR: M.N. David

DIRECT TECHNICAL INQUIRIES TO:  
M.N. David  
IBM Ireland Ltd.  
28 Fitzwilliam Place  
Dublin 2, Ireland

DESCRIPTION - This track program is an aid for debugging programs. It can be used on a basic 1401 system, through a program using most special features can be traced. It is specifically meant for systems without Advanced Programming, as there is no other trace program for these systems. It will print out the I address, instruction, the contents of the A field, and the contents of the B field both before and after every instruction in the program to be traced. Procedure description the method involves placing each working area, and printing out the contents of the A and B fields for every program involving data transfer.

PROGRAMMING SYSTEMS - Written in SPS. It can also be used directly in machine language.

MINIMUM SYSTEM REQUIREMENTS - Basic 1401 DPS; no special feature required. Requires 700 to 1,300 core locations depending on refinements.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014133

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.136

WRITE AND READ TAPE CHECK

AUTHOR: Perry Pasquale

DIRECT TECHNICAL INQUIRIES TO:  
Perry Pasquale  
8800 First Avenue  
North Bergen, N.J.

DESCRIPTION - This program may be used to classify the workability of tapes and/or give an indication of the reading and writing temperament of a tape unit. 1 to 6 tape drives may be used. It will-

1. Measure tape from reflective spot to reflective spot.
2. Print errors in feet and inches from load point.
3. Print tape number-3 position-and unit number on which errors has occurred.
4. Store 15 errors for each reel. If there are more than 15 errors, they will print out as they occur.
5. Print out as they occur with sense switch B on before 15 errors.
6. Print a listing of errors at the end of each reel.
7. Rewind after writing and halt. Rewind and unload at the end of reading.

The program will begin by writing a record of 1807 characters - part of which will be the program and the remainder in periods A8821. High density reads or writes 556 characters per inch. Inter-record gap is 3/4 inch. 556 x 3 1/4 inches is 1807 characters plus 3/4 inch inter-record gap. Thus each time a record is read or written it passes 4 inches of tape making it possible to measure tape and indicate position of error.

MINIMUM SYSTEM REQUIREMENTS - 1401 4000 core positions min. Sense switches, High-Low-Equal Compare; indexing.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.



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MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014136

Indicate "E N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-01.4.145 \*M

SELECT DATA RETRIEVAL SYSTEM

AUTHORS: R.A. Regan K.P. Swallow

DIRECT TECHNICAL INQUIRIES TO:  
R.A. Regan  
Organization & Methods Div.  
Standard Oil Co. of California  
225 Bush St.  
San Francisco, Calif. 94120

DESCRIPTION - Retrieve information from magnetic tape files. It will (s)earch, (e)xtract and sort, (l)ist, (e)dit, (c)ount and (t)otal. Search, extract and sort, list, edit, count and total. It compiles an extract program and a report writing program and combines them with sort to form a complete system. Permits up to nine reports from one pass of tape file with up to 5,000 characters in the input record. Features- English language specification statements, multiple reports per pass, automatic editing, fast compiler, unlimited levels of criteria, multi-reel files, single or blocked record, with or without labels, good diagnostics, automatic security check, restart procedures, users exits.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1401 with 8K memory, Adv. Prog., HI-LO-BQ, and 4 tape units.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401014145

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR                  | 7/556<br>7/800 | 22<br>24<br>none<br>none   |

1401-01.4.158 \*M

GENERAL PURPOSE TAPE DUMP

AUTHOR: D.L. Weimer

DIRECT TECHNICAL INQUIRIES TO:  
D.L. Weimer  
E.S. Preston & Assoc., Ltd.  
1620 E. Broad Street  
Columbus, Ohio 43203

DESCRIPTION - This operation will print in a highly legible format the contents of BCD tape records. A maximum of a hundred characters on a line are printed with periods defining left and right margins. The core capacity of the computer is determined at object time and a maximum of (memory size) 959 characters can be dumped from each tape record. The character count of each record is displayed alongside the printed record and a record count is displayed upon each end-of-file. Sense switch options permit arbitrary suppression of printing and halts on end-of-file. Parity error diagnostics are very complete. When a record cannot be correctly read after a cleaning procedure has been utilized, it is printed as it read into core along with an error warning message.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - One magnetic tape drive... 1403 Printer - (132 positions)... 1402 Card Reader... additional Sense Switches... High-Low-Equal Compare... 4K or greater core... Advanced Programming... Modify-Add Instruction... 1407 Inquiry Station (optional).

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014158

Indicate "E N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-01.4.160 \*M

CONVERSION OF SPS TO AUTOCODER

AUTHOR: James W. Harper

DIRECT TECHNICAL INQUIRIES TO:  
James W. Harper

CONTINUED FROM PRIOR COLUMN

IBM Corp.  
1512 Genesee Street  
Utica, N.Y.

DESCRIPTION - A program designed to convert 1401 symbolic programs to the Autocoder format. Input-output commands and DSA'S will not be converted. Special attention should be paid to SS and CC commands to see that their format is acceptable to the Autocoder for a specific machine. Output may be printed only, or printed and punched. All special "OP" codes will be converted so that the output should be ready for an Autocoder assembly once the I/O commands and DSA's are changed. The program should take care of about 98 percent of the conversion effort. This program was designed primarily for 1401 card systems, but should be helpful in the conversion of tape and RAMAC systems if the programs were written in SPS.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - 1401-A3, 1402, 1403 (Model 2 for full printout), sense switches.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014160

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-01.4.165 \*M

SOPHISTICATED SPS TO AUTOCODER CONVERTER

AUTHOR: C.F. Wilkes

DIRECT TECHNICAL INQUIRIES TO:  
C.F. Wilkes  
1550 Elmsford Avenue  
La Babra, Calif. 90632

DESCRIPTION - Two programs are included. SPSAC is designed to convert a program in the SPS source language to a program in the Autocoder source language, which is compatible with the basic Autocoder produced by the IBM Dallas Data Center. An extremely sophisticated Autocoder program is produced, designed to be as close as possible to a program originally written in Autocoder. CONAC is designed to reproduce an SPS condensed card format object program into an Autocoder condensed card format object program, when no source language program is available, and it is desirable to have all object programs in only one format.

PROGRAMMING SYSTEMS - Written in SPS source language.

MINIMUM SYSTEM REQUIREMENTS - 1401 4K, card system.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401014165

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-01.4.176 \*M

1401/1311 DISK ADDRESS UTILITY

AUTHOR: R.J. Taylor

DIRECT TECHNICAL INQUIRIES TO:  
R.J. Taylor  
IBM Corp.  
1776 John F. Kennedy Blvd.  
Philadelphia, Pa. 19103

DESCRIPTION - This program was written to handle 1311 disk maintenance requirements not covered heretofore in any library program, but which occur in most 1311 installations. With the use of this program, it is now possible to change the addressing structure of a disk pack to any natural or unnatural range without altering the data written on the pack. Unnaturally addressed packs, such as the system pack for Autocoder, 1401-AU-008 may now be copied; label tracks may also be copied. The standard disk utility programs do not provide these operations.

Options elected by control cards are- Change addresses without disturbing data, - Change addresses and clear data,- Copy one disk pack to another, and- Compare one

CONTINUED FROM PRIOR PAGE

disk to another.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 4K system with High-Low-Equal Compare and Advanced Programming features and will copy a full pack in approximately six minutes.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014176

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.181 \*M

REPAIR DISK RECORD

AUTHOR: Sidney Wald

DIRECT TECHNICAL INQUIRIES TO:

Sidney Wald  
Fischer and Porter Co.  
7826 Spring Avenue  
Elkins Park, Pa. 19117

DESCRIPTION - To alter the contents of a 1311 Disk Sector, using a control card which contains -a The disk address of the sector, -b The low order position of the portion of the sector to be changed, -c The number of characters to be altered, and -d The replacement data. Any number of such changes may be made with one loading of the program. Control cards may be in any order.

PROGRAMMING SYSTEMS - Written in Fixed/Float Language.

MINIMUM SYSTEM REQUIREMENTS - 1600 position, IBM 1401 with 1403 Printer, 1402 Card Reader and 1 - 1311 Disk Drive.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014181

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.186 \*M

1401/1460-1311 DISK PROGRAM LOADER

AUTHOR: M.A. Moore

DIRECT TECHNICAL INQUIRIES TO:

M.A. Moore  
IBM Corp.  
206 Main St.  
Johnstown, Pa.

DESCRIPTION - The Disk Loader provides the user with means of storing his programs on disk and calling them into core for execution with one card. This card is a one card program which brings in the Loader from disk, which in turn brings in users program from disk. The Loader is almost identical to the Condensed Card Loader except that the Loader reads disk records in the condensed format instead of cards, also it is not relocatable. Overlays are handled the same as with the Condensed Card Loader. Approximately 9 sectors of disk storage are needed for every 800 core positions of program. Programs and Loader need not be on the same pack. Loading is 25 percent faster than with Card Loader. One call card replaces object deck. Loader uses core locations 1-330 and read, punch and print areas can be cleared after program has been loaded. There is no group mark word mark restriction. Call card is compatible with job stacking because a seldom used special character, card code 0-6-8, is in column 80.

PROGRAMMING SYSTEMS - Written in 1401-1311 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 1401 with Modify Address instruction - at least one 1311 - Printer - 1402 Reader Punch. If Modify Address feature is not available, program modification is necessary.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014186

CONTINUED FROM PRIOR COLUMN

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.187 \*M

1311 DISK RECORD FINDER

AUTHOR: S. Wald

DIRECT TECHNICAL INQUIRIES TO:

S. Wald  
7826 Spring Avenue  
Elkins Park, Pa. 19117

DESCRIPTION - To search an IBM 1311 Disk File for records whose control field matches a search argument punched in a control card. Each such record, together with its disk sector address, is printed in block style. Records must be fixed length, multiples of 5 characters and up to 125 characters long. The control field may range in length from 1 to 64 consecutive characters.

PROGRAMMING SYSTEMS - Written in Fixed/Float Language.

MINIMUM SYSTEM REQUIREMENTS - Approximately 5,000 positions. An IBM 1401 with 1403 Printer, 132 print positions, one 1311 Disk Drive with Direct Seek feature.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014187

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-01.4.188 \*M

ONE OF ONE - 80X80 REPRODUCE WITH LAST CARD TEST

AUTHOR: T. J. Carney

DIRECT TECHNICAL INQUIRIES TO:

T. J. Carney  
9th D.P.F. H & S Co.  
2nd Serv. Bn.  
2nd Mar. Div.  
Camp LeJeune, North Carolina

DESCRIPTION - This one card program reads a card and moves the data into the punch area before it punches insuring that the first card out is a valid reproduction of the first data card in. The program does not have to be reloaded if more reproducing is desired. This one card program contains a list card test that will process the last card and give a program halt, eliminating the continuous cycling of the 1402.

MINIMUM SYSTEM REQUIREMENTS - No special features required and uses only 400 positions of storage. Speed is 192 cards per minute.

**BASIC PROGRAM PACKAGE**

DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014188

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.189 \*M

1401/1400/1460 RESEQUENCE AUTOCODER SOURCE PROGRAMS - RASP

AUTHOR: U. Sinclair

DIRECT TECHNICAL INQUIRIES TO:

U. Sinclair  
Programmer-Data Processing Division  
Pocket Books, Inc.  
One West 39th Street  
New York, New York 10018

DESCRIPTION - At various times, it becomes necessary for a resequenced source program deck to be obtained. RASP was devised to permit resequencing before, and completely independent of, valuable assembly processing time. RASP uses 31 core storage positions for actual program operation as well as the read and punch storage areas.

The resultant output deck contains the original source card information from column 6 through 72 and the new sequence numbers in columns 1 through 4, starting with "0101" in the first, or "job".

CONTINUED FROM PRIOR PAGE

MINIMUM SYSTEM REQUIREMENTS - 1401/1440 or 1460 with no special features.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014189

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-01.4.190 \*M

MULTI-PURPOSE 80-80 REPRODUCING

AUTHOR: R. E. Descheneaux

DIRECT TECHNICAL INQUIRIES TO:  
R. E. Descheneaux  
IBM Company Ltd.  
1255 Laird Blvd.  
Montreal, P.Q.  
Canada

DESCRIPTION - This 80/80 Reproducing Program will reproduce each input card into one, two, or three output cards and staker select the output cards. This is an advantage over single card reproducing programs since the handling time for getting several copies out of an input card deck is considerable reduced. Execution time is 73 CPM read in when triple reproducing, 100 CPM read in when double reproducing and 200 CPM read in when single reproducing.

PROGRAMMING SYSTEMS - Language used - Absolute.

MINIMUM SYSTEM REQUIREMENTS - Any size 1401 central processing unit with Sense Switches and a 1402 Card Read Punch.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014190

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.195 \*M

1401 SPS TO SYSTEM/360 BASIC ASSEMBLER

AUTHOR: W. J. Barry

DIRECT TECHNICAL INQUIRIES TO:  
W. J. Barry  
IBM Corporation  
Seven Penn Center Plaza  
Philadelphia, Pa.

DESCRIPTION - A program designed to assist in the reprogramming of 1401 SPS symbolic programs into S/360 Basic Assembler Language.

Translation is made of common 1401 statement into their S/360 equivalent, with flags inserted if generation is questionable.

PROGRAMMING SYSTEMS - Written in 1401 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 1401 or 1460... 8000 positions... Advanced Prog... Hi-Lo-Equal... Sense Switches... 1402 Card Read/Punch... 1403 Printer.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401014195

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-01.4.198 \*M

ANTIC A LIST OF CONDENSED CARDS

AUTHOR: B. Enemark

DIRECT TECHNICAL INQUIRIES TO:  
B. Enemark

CONTINUED FROM PRIOR COLUMN

EDB-Centralen  
Gyldenloevsgade 15  
Copenhagen K, Denmark

DESCRIPTION - ANTIC translates condensed cards of either Autocoder or SPS into single-instruction print. Constants are - to a high degree - separated from instructions. OP-codes are translated into Autocoder or SPS mnemonics, addresses converted to indexed number and - in Autocoder - some digit modifiers are built into the mnemonics - BCV, BW, BSS, BPCB, A. S. O.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 4K 1401 Model 3, 1402 Reader, 1403.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014198

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.205 \*M

CARD SPS TO AUTOCODER FOR 1401/1460

AUTHOR: N. E. Patton

DIRECT TECHNICAL INQUIRIES TO:  
N. E. Patton  
IBM Corporation  
1330 Summit Avenue  
Fort Worth, Texas

DESCRIPTION - This program will convert 1401 SPS source statements to 1401, 1440, or 1460 full Autocoder. SPS source must be in standard SPS source format. It prints a source listing of the SPS statement and the new Autocoder statement side by side, and punches the Autocoder statement with a new sequence no.

PROGRAMMING SYSTEMS - Written in 1401 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 4K 1401 or 8K 1460, 1402, 1403 with no special features. Program occupies 3205 positions. There are 576 source statements.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014205

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.207 \*M

RAPID SELECTIVE TRACE

AUTHOR: L. E. Cohen

DIRECT TECHNICAL INQUIRIES TO:  
L. E. Cohen  
IBM De Mexico, S.A.  
Insurgentes Sur 100  
Mexico, D.F.

DESCRIPTION - This is a powerful debugging, documentation and teaching aid that accurately simulates the functioning of the 1401 under control of any object program and prints out complete information about what the program is doing in an easy-to-read format.

The instruction address, A and B address register contents at the beginning of the execution phase, the instruction, index register contents and up to 18 positions of the A-field and the E-field both before and after instruction execution are given on a single print line. RST operates more rapidly than other similar programs by calculation the A-address only when necessary. Minimum restrictions apply to the traced program. Loaders supplied permit use of trace object program in standard load card or tape formats.

PROGRAMMING SYSTEMS - Basic Autocoder 2K. Any Autocoder processor can be used for assembly.

MINIMUM SYSTEM REQUIREMENTS - 1385 core positions, High-Low-Equal and Advanced Programming. Can be used with 4K machines.

CONTINUED FROM PRIOR PAGE

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014207

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.221

REPRODUCE ONLY CERTAIN COLUMNS ON THE IBM 1401

\*M

AUTHOR: D. E. Erickson

DIRECT TECHNICAL INQUIRIES TO:  
D. E. Erickson  
109 Fercliff Lane  
Hensersonville, North Carolina

DESCRIPTION - To reproduce only certain card columns using the 1402 as a versatile auxiliary card reproducer. There are no restrictions on this program. Any number of columns up to and including 80, adjacent or non-adjacent, can be reproduced by using a control card. This program is set up so that you can reproduce a series of decks. When one deck has been reproduced, place another deck with the proper header card in the read hopper and press start.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014221

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.212

CARD COLLATOR SIMULATOR

\*M

AUTHOR: J. E. Cain

DIRECT TECHNICAL INQUIRIES TO:  
J. E. Cain  
IBM Corporation  
Box 3467  
Santa Barbara, Calif. 93105

DESCRIPTION - This program will perform the collator functions of sequence check, straight merge, merge selecting equals, merge replacing equal, merge equals only, match equals, or pull equals. The control field is designated by a lead card. It may be broken down into 18 sub-fields which may contain 80 columns of a card in any order. Both files are sequence checked, and the control fields may be alphabetic.

PROGRAMMING SYSTEMS - Written in Basic Autocoder 2K.

MINIMUM SYSTEM REQUIREMENTS - 3,244 positions of storage, Hi-Lo-Equal Compare, Punch Feed Read, and the Read Stacker Select Delay device, RPQ No. W92210.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014212

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.225

UTILITY PRINT PROGRAM

\*M

AUTHOR: J. S. Williams

DIRECT TECHNICAL INQUIRIES TO:  
J. S. Williams  
Memorial Sloan-Kettering  
444 E. 68th Street  
New York, New York 10021

DESCRIPTION - This program allows the user to detail list any card file in any desired print format, print edit any or all card fields, accumulate any or all printed fields for: (a) Totaling on control break. (b) Overall totals at end of job, including a card count, sequence check input file, print headings on page overflow, extra space after printing, bypass detail list and print minor summary totals on control break and page overflow on control break. Print capacity - no more than 99 positions of output per line. Card field capacity - maximum of eight (8) fields of printing from card, any number of card columns per field. Sequence checking requires Hi-Low-Equal Compare feature and control break on one of eight fields.

MINIMUM SYSTEM REQUIREMENTS - 4K 1401 with High-Low-Equal Compare.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014225

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.220

1401/1440/1460 JOB CONTROL MONITOR ON DISK

\*M

AUTHOR: N. E. Patton

DIRECT TECHNICAL INQUIRIES TO:  
N. E. Patton  
IBM Corporation  
P.O. Box 1039  
Fort Worth, Texas

DESCRIPTION - JOBCO is a program that resides on 1311 Disk Storage. JOBCO can monitor user program execution by the use of control cards. JOBCO loads user programs on disk in core-image form in the area assigned by the user and can control 1311 Disk Drive on the system and uses file protected addresses to prevent destruction of user programs on disk. JOBCO uses the high order 600 positions of core storage for permanent and transient routines. These routines have the ability to load programs on disk, call programs from disk, delete programs on disk, simulate the load button for execution of card deck programs, and print a core dump as directed by the user. Cylinder overflow is handled by JOBCO. JOBCO allows stacked jobs to be executed as directed by the user.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 1401/1440/1460 systems that have 8, 12, or 16K with Hi-Lo-Equal, indexing, store registers with at least 1 card reader, 1 printer, and 1 1311 Disk Drive.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014220

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.226

GENERALIZED TABULATE WITH OR WITHOUT CONTROL FIELDS

\*M

AUTHOR: E. Staudt

DIRECT TECHNICAL INQUIRIES TO:  
E. Staudt  
Avisun Corporation  
River Road  
New Castle, Del. 19720

DESCRIPTION - The purpose of the program is to eliminate the necessity for many individual programs required at a 1401 installation to tabulate control and balance totals and to provide for up to three control fields total indications as well as a final total. A maximum of five fields per any given card file can be tabbed with or without control field totals and a final total. The user may specify up to three control field levels. The user may also list each card (control fields) with the associated tab fields.

PROGRAMMING SYSTEMS - Written in Basic Autocoder for 4K 1401, compiled with AU-005 with Condense 2.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on microfiche only.  
MACHINE READABLE - None.

CONTINUED FROM PRIOR PAGE

ORDERING INFORMATION: PROGRAM NUMBER 1401014226

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-01.4.227

VARIABLES

AUTHOR: E. Giegler

DIRECT TECHNICAL INQUIRIES TO:

G. Kinble  
Director of Data Processing  
Carleton College  
Northfield, Minn.

DESCRIPTION - VARIABLE - A load and go processor for generating fast running listing programs. Uses a single control card plus heading cards.

MINIMUM SYSTEM REQUIREMENTS - 4K 1401 with sense switches, Expanded Print Edit, and 120 print positions.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014227

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-01.4.230

1401/1460 BRAILLE - TRAN - TRANSLATE ENGLISH TO GRADE 2 BRAILLE AND EMBOSS ON A 1403 PRINTER

AUTHORS: T. Reifsnnyder J. T. Ferro

DIRECT TECHNICAL INQUIRIES TO:

T. Reifsnnyder  
IBM Corporation  
9045 Lincoln Blvd.  
Los Angeles, Calif. 90045

DESCRIPTION - Description of a set of two 1401 programs which require only 4K of core and no special features. The first program takes input from edited English text punched into cards and produces an intermediate deck. The second program uses the intermediate deck as input and embosses Grade 2 Braille directly on a 1403 which has had the ribbon removed and the hammers covered with a strip of soft material. If editing and keypunching are correct, perfect Grade 2 Braille is produced without post-edit. Once a translation has been made, any number of copies of translating and embossing books of text.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - IBM 1401/1460 with 4,000 positions of core storage, 1402 Card Read/Punch, 1403 with 132 print positions.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014230

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-01.4.232

GENERAL PROCESSING UTILITY PROGRAM

AUTHOR: W. Buffa

DIRECT TECHNICAL INQUIRIES TO:

W. Buffa  
IBM Corporation  
112 E. Post Road  
White Plains, New York 10601

DESCRIPTION - The General Processing Utility Program performs many simple utility jobs often called for in a computer installation and is intended to reduce the number of individual utility programs that have to be maintained, each of which performs only one or a few of these jobs. It does card to card, card to printer, card to tape, tape to tape, tape to printer, and tape to card operations in a total of twenty-six options each of which is called for by a combination of sense switch settings. The program is card or tape loadable and is self-initializing between jobs without re-loading.

PROGRAMMING SYSTEMS - Written in 1401/1460 Autocoder Language and has been assembled on the 1460 Disk Autocoder Processor.

CONTINUED FROM PRIOR COLUMN

MINIMUM SYSTEM REQUIREMENTS - 8K, 12K or 16K 1401 or 1460 with at least one, and up to five, tape drives, a 1402 Card Reader and Punch, a 1403 Printer with 132 print positions, and High-Equal-Low Compare.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401014232

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-02.0.013

CARD AUTOCODED PROGRAMMING SYSTEM (CAUTO)

\*M

AUTHOR: Bernard T. Smith

DIRECT TECHNICAL INQUIRIES TO:

Bernard T. Smith  
Warner Brothers Comp.  
325 Lafayette Street  
Bridgeport 1, Connecticut

DESCRIPTION - To assemble, condense, and list programs written in Autocoder Language in one compact and speedy routine. Comparison to SPS 1 & 2 - after loading CAUTO, two passes of the symbolic source program (the first, at up to 800 cards per minute, to load the label table - the second, at up to 300 cards per minute, to punch condensed cards and print a program listing) take the place of five passes with SPS 1 & 2. (The first, at up to 300 cards per minute, to edit the source program about to be assembled. The second, at up to 250 cards per minute, to create intermediate cards which will be discarded after pass three. The third, at up to 250 cards per minute, to punch single instruction absolute cards. The fourth, at up to 300 cards per minute, to print a program listing. The fifth, at up to 600 cards per minute, to condense the absolute program). Comparison to Autocoder Assembly - CAUTO takes from 1/2 to 3/4 for the time required for an Autocoder Assembly, and supplies all the diagnostics supplied by Autocoder with the exception of the alphabetic label sort and the unreferenced label listing. CAUTO has the advantage of not requiring any tape drives to assemble Autocoder programs.

PROGRAMMING SYSTEMS - Written in 1401 SPS.

MINIMUM SYSTEM REQUIREMENTS - 8K 1401 with the Advanced Programming package for assembly of up to 268 labels, in programs up to 15,999 core positions. 12K 1401 with the Advanced Programming package for assembly of up to 713 labels, in programs up to 15,999 core positions. 16K 1401 with the Advanced Programming package for assembly of up to 1157 labels, in programs up to 15,999 core positions. A minimum of 7,999 positions of storage are required for this program. A minimum of 8K, 1401 card system, with the Advanced Programming package and 1403 Printer. This program gives to the 1401 card system user an assembly program with the flexibility and speed of a 1401 tape system assembly program.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401020013

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

\*M 1401-02.0.017

AUTOBLOCK II

\*M

AUTHOR: W. C. Milihoff

DIRECT TECHNICAL INQUIRIES TO:

W. C. Milihoff  
IBM Corporation  
1955 The Alameda  
San Jose, California

DESCRIPTION - AUTOBLOCK II automatically produces cross-reference tables and a documented block diagram, using new symbols in accordance with ASCII standards. It provides three different tables, one of which is the branch-from table, and accepts an unlimited number of branch points, since the program takes full advantage of core size. In addition to the common instructions, AUTOBLOCK II handles IOCS, Macros, Overlays, and the execute instruction. AUTOBLOCK II is an extension and revision of AUTOBLOCK I.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 4K minimum, four-tape, Advanced Programming, High-Low-Equal-Compare.

CONTRIBUTED PROGRAMS

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BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1401020017

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| EASIC    | none                        | DTR*                 | 00             | none                       |
| CPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-02.0.018 \*M  
FARGO ONE-SIXTY-G

AUTHOR: D. L. Fernandez

DIRECT TECHNICAL INQUIRIES TO:  
D. L. Fernandez  
IBM Corporation  
Wilshire Boulevard  
Los Angeles, California

DESCRIPTION - FARGO One-Sixty-G for the 1401, 1460, and 1401G is a greatly expanded new version of a load and go report generator which gives all the capabilities of Basic FARGO plus - (a) Up to six header lines which can be modified at any time within object time. (b) Multiply-Divide with or without the feature. (c) Multiple and/or if/not conditions in defining up to ten card types. (d) Sequence check of input file at any level (if High-Low-Equal is installed). (e) Up to four split control fields with or without stripped zones for defining each of four total level. (f) Total force heading or heading force total, divorced minor and suppress compare of a card type at any total level. (g) And more.....the program is fully compatible with the FARGO-Forty program by C. P. Doolittle, the latest version of FARGO for the 1440.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - Listings.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401020018

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE       | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00                   | none                       |
| OPTIONAL | none                        | MT                   | 7/556 22<br>7/800 24 | 01<br>01                   |

1401-02.0.019 \*M  
AUTOMATIC FLOWCHART TECHNIQUE

AUTHORS: F. D. Lewis W. N. Moll

DIRECT TECHNICAL INQUIRIES TO:  
F. D. Lewis  
IBM Corporation  
Dept. 867  
Neighborhood Road  
Kingston, New York

DESCRIPTION - A program which produces flowcharts from a language similar to 1400 series Autocoder. All information pertaining to one symbol is contained on one keypunch form line. Free form coding of text information is used. The program floats and centers the text within the symbol, thus relieving the writer of this tedious task. Page and connector numbers are assigned automatically by the program. Twelve unique symbols are available, all of which have been approved by the American Standards Association. Flowcharts produced are machine independent. By use of special comment cards, line text information may be produced with options for centering, left, right a full justification.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 1401 4K, two magnetic tapes and Advanced Programming feature.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1401020019

|  | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|--|-----------------------------|----------------------|----------------|----------------------------|
|--|-----------------------------|----------------------|----------------|----------------------------|

CONTINUED FROM PRIOR COLUMN

BASIC none DTR\* 00 none  
OPTIONAL none DTR\* 00 none

1401-02.0.022 \*M  
FLOGEN - IBM 1401 FLOWCHART GENERATOR

AUTHOR: J. R. Buchert, Jr.

DIRECT TECHNICAL INQUIRIES TO:  
J. R. Buchert, Jr.  
IBM Corporation  
1120 Connecticut Avenue, N. W.  
Washington, D. C. 20036

DESCRIPTION - This 1401 program will produce a printed flowchart with block text, comments, block labels, and decision block connector conditions. The program processes single card entries for each block and is capable of producing successive charts of fifty (5 by 10) blocks. A simplified coding system is employed which produces flow charts of ASA approved symbols for any programming system in a form much like 7074 Autochart.  
PROGRAMMING SYSTEMS - Written in 1401 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - An 8K with Model 2 Printer and Advanced Programming feature is required.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401020022

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-02.0.025 \*M  
FORTRAN MODIFICATION WHICH ELIMINATES THE MULTIPLY-DIVIDE SPECIAL FEATURES REQUIREMENTS

AUTHOR: R. Steffanson, Jr.

DIRECT TECHNICAL INQUIRIES TO:  
R. Steffanson, Jr.  
Potlatch Forests, Inc.  
Lewiston, Idaho

DESCRIPTION - By inserting this change into the 1401 FORTRAN II Compiler, programs coded in FORTRAN may be compiled and run on 1401 machines not having the Multiply-Divide special feature. The only programming consideration necessary is that the address in the parameter card should be approximately 1000 positions less than the machine core capacity. Operating convenience is not seriously affected. These advantages of the FORTRAN Compiler are retained: Rapid compile time (around 2 minutes)... Diagnostics... Compile-and-go capability... Optional punched object deck (ready to use)... Compiler may be on cards or tape. Core required for the subroutine reduces by approximately 1000

positions the core available for compiling the source program.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - FORTRAN with this change requires 8K, Hi-Lo-Equal Compare, Advanced Programming, reader-punch, and printer.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401020025

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-02.0.031  
AUTOCHART

AUTHORS: Josephine Carter William Johnson  
Peter Fondis Hedy Stoy

DIRECT TECHNICAL INQUIRIES TO:  
Josephine S. Carter  
IBM Corporation  
40 Saw Hill River Road  
Hawthorne, New York

DESCRIPTION - This program gives 1401 users the ability to produce flowcharts similar to those which currently can only be produced on the IBM 7070/74. The program has ten phases plus a supervisor. It will also accept input prepared for the IBM 7070/74 Autochart programs. File maintenance of the input has not been included in the programs. Initial timing runs indicate that the production

CONTINUED FROM PRIOR PAGE

of each flowchart takes approximately one-half minute, including printing. Restart procedures are included so that the program can be interrupted at the end of any phase and continued at a later time. System tape creation is also included. The program uses the Autochart language for input. It is an easily learned language and is machine independent. The output is a printed chart, standardized for clarity and readability and suitable for reproduction. This is a tool to help the user maintain better program documentation by providing flowcharts which conform to both IBM Corporate Standards and to the proposed American Standards Association Flowchart Standards. It is also very useful in producing various types of graphics and other charts.

PROGRAMMING SYSTEMS - Written in Autochart Language.

MINIMUM SYSTEM REQUIREMENTS - It requires an 8K 1401 with four tape drives, 1402, 1403, Advanced Programming package, Sense Switches, High-Low -Equal Compare, and Multiply-Divide features.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Assembly output for object deck and listing, sample problem input data, and source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401020031

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE       | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------------|----------------------------|
| EASIC    | none                        | HT                   | 7/556 22<br>7/800 24 | 01<br>01                   |
| OPTIONAL | none                        | none                 |                      | none                       |

1401-02.0.035

DISASSEMBLER OF 1401/1400 PROGRAMS FROM OBJECT TO AUTOCODER SOURCE

AUTHOR: Mr. R. Mackinnon

DIRECT TECHNICAL INQUIRIES TO:  
Mr. R. A. Mackinnon  
IBM Corporation  
112 East Post Road  
White Plains, New York 10601

DESCRIPTION - This group of 4 programs was written to assist documentation and conversion efforts where the user has only an object deck from which to work. It converts an object program into meaningful Autocoder source statements, suitable for assembly or flowcharting.

The final output is a listing (a punched deck is optional) in which the statements are labelled as required in the form BX-BXXXXX for instructions, referencing the OP Code location, and CX-CXXXXX for constants, referencing the units position. The instruction operands reference these labels.

PROGRAMMING SYSTEMS - Source - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1401/1400 with 4 tape drives, Sense Switches, Advanced Programming, High-Low -Equal Compare, a 1402 Card Read/Punch, and a 1403 Printer with 132 print positions. If a larger machine is available, the fourth program (Phase III) can be reassembled to take advantage of the larger core, thus cutting down the processing time. The program will utilize a 1407 if one is on line, but does not require it.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401020035

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE       | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------------|----------------------------|
| EASIC    | none                        | HT                   | 7/556 22<br>7/800 24 | 01<br>01                   |
| OPTIONAL | none                        | none                 |                      | none                       |

1401-02.0.036

1401 FARGO TO SYSTEM/360 RPG MODEL 20 CONVERSION PROGRAM

AUTHORS: Fred M. Haney Stephen M. Lichter  
S. Edmonston

DIRECT TECHNICAL INQUIRIES TO:  
Mr. Gus Conoscente  
IBM Corporation  
330 Madison Avenue  
New York, New York

DESCRIPTION - This program converts IBM 1401 Fargo control cards to System/360 Model 20 RPG specification cards.

CONTINUED FROM PRIOR COLUMN

This program can be of great value when converting from 1401 to IBM System/360. Input may be any Fargo program which conforms to the specifications in Fargo for IBM 1401 (C24-1462). Output consists of System/360 Model 20 RPG specification cards and a listing of Fargo specifications which were not converted by the programs.

PROGRAMMING SYSTEMS - Written in 1401 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - The object program requires 16K, Advanced Programming feature, and 2 tape units.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401020036

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE       | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------------|----------------------------|
| BASIC    | none                        | HT                   | 7/566 22<br>7/800 24 | 01<br>01                   |
| OPTIONAL | none                        | none                 |                      | none                       |

1401-02.0.039

SYSTEMS FLOW CHARTER

AUTHOR: Mr. D. L. Fisher

DIRECT TECHNICAL INQUIRIES TO:  
Mr. D. L. Fisher  
IBM Corporation  
Monterey & Cottle Roads  
Bldg. 051  
San Jose, California

DESCRIPTION - The program is a 16K 1401 systems flow charter. The machine must have (1) Index Registers, (2) Hi-Lo-Eq Compare, (3) Advanced Programming (4) 1402, (5) 1403 and (6) 1 Tape (using card program) or 2 tapes using loadable tape. The program will draw systems flow charts, create a "Systems table and program-file cross-reference". The symbols drawn are Clerical Operation, Storage Bin, Wide Program, Off-Page Connector, Adding Machine, Transmittal Tape, Multiple Card File, Tape, Random File, Card, Document, Graphic Display, Terminal, Keyboard, Paper Tape, Comments and Sequence of File. The program has been successfully emulated on an IBM S/360 Model 30. Basic 1401 Autocoder was used except for the TOVLY macro. The program is tape loaded using the tape generated by the Autocoder Assembler.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - Program requires a 1401 with 16K Memory, Advanced Programming, SBE and indexing, sense switches, two tapes, a 1403 Printer and 1402 Card Reader.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401020039

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE       | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------------|----------------------------|
| BASIC    | none                        | HT                   | 7/556 22<br>7/800 24 | 01<br>01                   |
| OPTIONAL | none                        | none                 |                      | none                       |

1401-03.0.010

SQUARE ROOT SUBROUTINE

AUTHOR: Richard D. Barker

DIRECT TECHNICAL INQUIRIES TO:  
Richard D. Barker  
ITK Corporation  
Lexington, Massachusetts

DESCRIPTION - This program will calculate the square root of any six-digit number.

MINIMUM SYSTEM REQUIREMENTS - 600 positions are required to store the program. 403 of these positions are used to store the divide subroutine. 1401 - Any model.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401030010

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE       | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------------|----------------------------|
| BASIC    | none                        | HT                   | 7/556 22<br>7/800 24 | 01<br>01                   |
| OPTIONAL | none                        | none                 |                      | none                       |

CONTRIBUTED PROGRAMS

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EASIC none DTR\* 00 none  
 OPTIONAL none none none

1401-03.0.011 \*M  
CALCULATE NUMBER OF DAYS BETWEEN TWO DATES SUBROUTINE-DTCALC

AUTHOR: William B. Morgan

DIRECT TECHNICAL INQUIRIES TO:  
 William B. Morgan  
 IBM Corporation  
 99 Park Avenue  
 New York, New York

DESCRIPTION - This subroutine calculates the number of calendar days between two dates providing accurate accounting for leap year day. Dates may be in separate adjacent centuries, but cannot be more than 199 years and 365 days apart.

PROGRAMMING SYSTEMS - Source language is SPS.

MINIMUM SYSTEM REQUIREMENTS - 395 positions plus 24 positions for each time a subroutine is used. 1401 - Any model, no special features are required.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401030011

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-03.0.014 \*M  
SQUARE ROOT SUBROUTINE USING ODD INTEGER METHOD

AUTHOR: Burr Preston

DIRECT TECHNICAL INQUIRIES TO:  
 Burr Preston  
 IBM Corporation  
 520 North Dearborn Street  
 Chicago 10, Illinois

DESCRIPTION - This generalized, closed subroutine extracts the square root of any non-negative number. If the argument is negative, the square root of the absolute value of the argument is generated, and control transfers to the main program via an error return. The argument size is variable and limited only by available core. The root contains half an many digits as the argument. An extremely general and easy to use linkage allows the programmer to have no knowledge of the work areas or symbolic labels used by the subroutine.

MINIMUM SYSTEM REQUIREMENTS - 285 positions are required for a 10 digit argument. In general, 255 & 31 positions are required for an argument of length 1. Advanced Programming (index registers, Move Record, Store A and E Registers), High-Low-Equal Compare, and Modify Address. The latter two features may be eliminated by minor program modifications.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401030014

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-03.0.015 \*M  
SQUARE ROOT ROUTINE

AUTHOR: M. J. Kenny

DIRECT TECHNICAL INQUIRIES TO:  
 M. J. Kenny  
 IBM Corporation  
 7321 Lake Street  
 River Forest, Illinois

DESCRIPTION - A closed SPS Square Root Routine using no execution time estimated at 20 to 30 milliseconds depending on the sum of digits in radicand. Method of successive subtractions based on formula S(N) equals (N.N & N)2. Fixed point arithmetic giving a six significant digit answer. Range, largest number is 99999880000036,

CONTINUED FROM PRIOR COLUMN

irrespective of where decimal point is located in the number. Routine has been used on sample problems and a wide range of customer data.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - 262 positions of core. Operates on any 1401.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401030015

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-03.0.036 \*M  
AUTOCODER SERCH FINARY SEARCH MACRO

AUTHOR: R. T. Steffanson

DIRECT TECHNICAL INQUIRIES TO:  
 R. T. Steffanson  
 Potlatch Forests, Inc.  
 Lewiston, Idaho 83501

DESCRIPTION - Binary Search is a highly efficient method of table look-up and has nothing to do with column binary or binary arithmetic. Search Macro generates an open subroutine to conduct a binary search of a table. Search does not set up the table, it merely searches the table and exits to the next sequential instruction if the data record is matched, or exits to an address supplied as a parameter if the data is not matched. Index register 3 contains the address of the table entry which compared equal. Emphasis is on ease of use. Search uses a Macro-generated address table to divide the table of entries into successively smaller halves and does not require the Multiply-Divide special feature. All entries must be of same length and in ascending sequence. Size and number of entries in the table is restricted only by core storage available.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - Storage requirements - varies. Typical requirements are 107 positions for 31 entry table, 149 positions for 4095 entry table. 8 additional positions if Modify Address is not available. Equipment specifications - Advanced Programming, Hi-Lo-Equal Compare. Assembly requires 1401 Autocoder system.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401030036

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-03.0.041 \*M  
1401/1460 SIMULTANEOUS MULTIPLY DIVIDE SUB-ROUTINE

AUTHOR: E. D. Spraker

DIRECT TECHNICAL INQUIRIES TO:  
 E. D. Spraker  
 IBM Corporation  
 1439 Peachtree Street, N. E.  
 Atlanta, Georgia

DESCRIPTION - This programmed sub-routine provides the ability to multiply and divide simultaneously in one operation with algebraic sign control and decimal control up to five additional places. Both the multiplication and division in any combination is accomplished in approximately half the time it takes to use two separate multiply and divide routines. This routine allows use of either multiplication, or division or the combination with complete linkage to users program. It provides for the multiplicand, divisor and multiplier/dividend to be up to 10 positions each and supplies a 20 position signed answer and 10 position remainder.

MINIMUM SYSTEM REQUIREMENTS - Uses less than 260 positions of any 1401-1460 with Advanced Programming.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.



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OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401030041

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-05.0.003 \*M  
MULTIPLE SIMULTANEOUS EQUATION AND MATRIX INVERSION PROGRAM

AUTHOR: H. J. Myers

DIRECT TECHNICAL INQUIRIES TO:  
H. J. Myers  
IBM Corporation  
2330 St. Paul Street  
Baltimore 18, Maryland

DESCRIPTION - Up to 37 simultaneous equations are solved. Matrices up to 38 x 38 may be inverted as will be the coefficient matrix of the simultaneous equations. All calculations are carried out in eight-digit precision. No rounding is performed.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - The program requires the High-Low-Equal Compare, Multiply-Divide and Advanced Programming features and 4, 8, 12 or 16K positions of core storage.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401050003

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-06.0.001 \*M  
SEASONAL ADJUSTMENT OF MONTHLY TIME SERIES

AUTHOR: Fabio Tomchinsky

DIRECT TECHNICAL INQUIRIES TO:  
Fabio Tomchinsky  
IBM Corporation  
230 S. 15th Street  
Philadelphia, Pennsylvania

DESCRIPTION - Computes a preliminary seasonally adjusted series following the conventional ratio to moving average technique. Then it utilizes a weighted fifteen-month moving average as the estimate of the trend cycle curve used to obtain the final seasonally adjusted series. Computes the irregular, cyclical and seasonal components. The program will handle up to 15 years of monthly data with one data card for each year. Each card must have information for all 12 months of a calendar year.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - Card 1401-4K; no special device; SBISKIN method.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401060001

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-06.0.002 \*M  
LINEAR REGRESSION ANALYSIS

AUTHOR: H. Turoff

DIRECT TECHNICAL INQUIRIES TO:  
H. Turoff  
IBM Corporation  
520 Boylston Street  
Boston 16, Massachusetts

CONTINUED FROM PRIOR COLUMN

DESCRIPTION - A Two Pass 1401 FORTRAN Program that will accommodate eight independent variables.

MINIMUM SYSTEM REQUIREMENTS - 1401 8K system. Easily modified to increase the number of variables for use on a larger system 1401 8K.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401060002

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-06.0.003 \*M  
MULTIPLE REGRESSION PROGRAM

AUTHOR: Federal Reserve Bank of Kansas City

DIRECT TECHNICAL INQUIRIES TO:  
Research Department  
Federal Reserve Bank of Kansas City  
Federal Reserve P. O. Station  
Kansas City 6, Missouri

DESCRIPTION - A multiple regression analysis designed to handle up to 10 variables. Computes partial regression and standardized partial regression coefficients, standard errors, T values, partial and multiple correlation coefficients, and the Durbin Watson ratio.

MINIMUM SYSTEM REQUIREMENTS - 1401 card system with 8K memory, Multiply-Divide, Indexing, Store Address Register, Hi-Lo-Equal Compare, Expanded Print Edit.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401060003

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-06.0.004 \*M  
MULTIPLE LINEAR REGRESSION ANALYSIS

AUTHOR: Mary Ann Fisher

DIRECT TECHNICAL INQUIRIES TO:  
Charles Yurasek  
IBM Corporation  
570 Broad Street  
Newark, New Jersey

DESCRIPTION - This program is designed to accomplish a regression analysis of up to 14 independent variables on the smallest 1401 with FORTRAN capabilities. It sacrifices speed and elegance to accommodate larger problems than any other such program now available. Easily modified by user with FORTRAN knowledge. The method used is least squares and statistics are calculated for the evaluation of overall fit and individual components. Data format may be modified by user.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - Requires 8K 1401 with FORTRAN features.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401060004

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-06.0.005 \*M  
MULTIPLE CORRELATION - VARIABLES OF IMPORTANCE DETERMINED VOID

AUTHOR: Dr. J. R. Johnson

CONTINUED FROM PRIOR PAGE

DIRECT TECHNICAL INQUIRIES TO:  
 Dr. J. R. Johnson  
 Industrial Engineering Dept.  
 R. J. Reynolds Tobacco Co.  
 Winston-Salem, North Carolina

DESCRIPTION - To determine the order of importance of the independent variables in a multiple correlation problem, to find the coefficients of multiple correlation for the variables as they are introduced, to find F-tests of significance of these coefficients, to find the coefficients of the regression equation for the variables selected, and (if deserved) to calculate predicted values of the dependent variable. Wherry-Doolittle Method. This program is intended to replace a similar program of identical title dated June, 1963. Up to 100 variables with 220 observations, where the number of observations must exceed the variables. By changing the dimension statement in phase 1, one can add two observations for every variable not needed.

MINIMUM SYSTEM REQUIREMENTS - Storage requirements - 16,000 positions. Modulus is 5 and Mantissa is 8. Equipment Specifications - IBM 1401, 16K with the following features: Advanced Programming, High-Low-Equal Compare, and Multiply-Divide, three tape drives, 1402 Card Reader and Punch, 1403 Printer, and high-speed sorter. A card reproducer is helpful.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up on microfiche only.  
 MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401060005

Indicate "E N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-06.0.006 \*M  
CORL8 THIRTEEN VARIABLE SIMPLE CORRELATION

AUTHOR: Rupert J. Lissner

DIRECT TECHNICAL INQUIRIES TO:  
 Rupert J. Lissner  
 Post Office Box 7256  
 Stanford University  
 Stanford, California

DESCRIPTION - CORL8 will correlate up to thirteen variables and print the correlation coefficients along with headings specified by the user. Through header cards, the user specifies number of variables (12-13), title of each variable (for identification on printed report), and data card location of variables. An optional header card will print up to 78 columns of information at the top of the report. Number of data cards cannot exceed 99,999. If input data is not on cards, the SPS language source deck should be requested, as modifications will be necessary.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - IBM 1401 with Multiply-Divide. 1401 Card Reader/Punch, 1403 Printer. 4K core storage.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
 DOCUMENTATION - None.  
 MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401060006

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | CARDS                | 15             | none                       |

1401-06.0.007 \*M  
REGRESSION ANALYSIS COMPUTER PROGRAM

AUTHOR: Joseph J. Ott

DIRECT TECHNICAL INQUIRIES TO:  
 Joseph J. Ott  
 U. S. Department of Commerce  
 Bureau of Public Roads  
 Washington 25, D. C.

DESCRIPTION - To provide a program for the solution of simple and multiple regression equations involving from 2 to 26 variables and from 2 to 9999 observations. Data to be entered must be in 10 digit form with the decimal point assumed to be between the fifth and sixth digits. No check is made of the matrix to see if there are identical rows or columns

MINIMUM SYSTEM REQUIREMENTS - 16000 positions of core storage. IBM 1401 (or with Compatibility Switch). Advanced Programming package. Four tape units.

BASIC PROGRAM PACKAGE

CONTINUED FROM PRIOR COLUMN

DOCUMENTATION - Write-up on Microfiche only.  
 MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401060007

Indicate "E N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-06.0.008 \*M  
REGAN - 4K REGRESSION ANALYSIS AND CORRELATION COEFFICIENTS PROGRAM

AUTHOR: L. E. Hanneman

DIRECT TECHNICAL INQUIRIES TO:  
 L. E. Hanneman  
 IBM Corporation  
 2116 Grand Avenue  
 Des Moines 12, Iowa

DESCRIPTION - REGAN computes simple correlation coefficients and performs a linear regression analysis utilizing a minimum amount of core space. The program handles up to one hundred observations, and accepts up to eight independent variables and one dependent variable.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1401 with Advanced Programming is required. The program instructions occupy core positions 0100-3098. The matrix occupies positions 3100-3999. Positions 0100-0132 are cleared before printing occurs.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-Up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
 DOCUMENTATION - None.  
 MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401060008

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-06.0.009 \*M  
SEASONAL ADJUSTMENT - CENSUS METHOD II, X-9 VERSION, 4K, LONG PROGRAM

AUTHOR: E. C. Christ

DIRECT TECHNICAL INQUIRIES TO:  
 E. C. Christ  
 Federal Reserve Bank of Philadelphia  
 Department of Research  
 Philadelphia, Pennsylvania

DESCRIPTION - To adjust seasonally monthly time series and to provide additional measures as aids to analyzing the data. The basic procedure may be found in Electronic Computers and Business Indicators by Julius Shiskin, published by the National Bureau of Economic Research as Occasional Paper 57. The X-9 version is generally described in Business Cycle Developments, March 1962, published by the Bureau of the Census, U. S. Department of Congress. Maximum of 15 years of monthly data. Each year must be complete, with no minus or zero values. Monthly values not to exceed 6 digits. Any consecutive 12 months must total less than 10,000,000.

PROGRAMMING SYSTEMS - Written in Fixed/Float Relocatability.

MINIMUM SYSTEM REQUIREMENTS - 4K, 132 Print Positions, card system, no special feature.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401060009

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-06.0.010 \*M  
SEASONAL ADJUSTMENT, CENSUS METHOD II, X-9 VERSION, 4K, SHORT PROGRAM

AUTHOR: E. C. Christ

DIRECT TECHNICAL INQUIRIES TO:  
 E. C. Christ

CONTINUED FROM PRIOR PAGE

Federal Reserve Bank of Philadelphia  
Department of Research  
Philadelphia, Pennsylvania

DESCRIPTION - To seasonally adjust monthly time series and to chart the original and the seasonally adjusted data. The basic procedure may be found in Electronic Computers and Business Indicators by Julius Shiskin, published by the National Bureau of Economic Research as Occasional Paper 57. The X-9 Version is generally described in Business Cycle Developments, March 1962, published by the Bureau of the Census, U. S. Department of Congress. Maximum of 15 years of monthly data. Each year must be complete, with no minus or zero values. Monthly values not to exceed 6 digits. Any consecutive 12 months must total less than 10,000,000.

PROGRAMMING SYSTEMS - Written in Fixed/Float Relocatability.

MINIMUM SYSTEM REQUIREMENTS - 4K, 132 Print Positions, card system, no special features.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401060010

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-06.0.011 \*M  
METHOD OF RECORDING COMPUTER UTILIZATION AND 3 1401  
PROGRAMS TO FACILITATE STATISTICAL ANALYSIS

AUTHOR: J. W. Syrotchen

DIRECT TECHNICAL INQUIRIES TO:  
J. W. Syrotchen  
IBM Corporation  
7700 Second Boulevard  
Detroit, Michigan

DESCRIPTION - This program explains in detail the basic concepts and requirements of a console operations log, specifically oriented to 1401-1410 systems, but is general enough to be adapted for any installation. To supplement the method outlined, three 1401 4K programs are provided to enable a means of analyzing the cards punched from the log. Eight reports are illustrated.

PROGRAMMING SYSTEMS - Written in Basic SPS.

MINIMUM SYSTEM REQUIREMENTS - No special features or devices are used except sense switches and 132 print positions. Basic system configuration necessary to utilize programs, 4K 1401, 1402 and 1403.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401060011

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-06.0.012 \*M  
ANALYSIS OF VARIANCE, 2 TO THE N POWER FACTORIAL DESIGN

AUTHOR: Dr. J. Robert Johnson, Jr.

DIRECT TECHNICAL INQUIRIES TO:  
Dr. J. Robert Johnson, Jr.  
Industrial Engineering Department  
R. J. Reynolds Tobacco Company  
Winston-Salem, North Carolina

DESCRIPTION - Analysis of variance of data for a 2 to the N power factorial design. As given in manual of Experimental Statistics by Freund, Livermore, and Miller, Prentice-Hall, 1960. For N, the number of factors, 2 less than N less than 5. The number of replications must be more than one and less than 26. (There is ample room in storage for expanding the limits on the restrictions.) 9300 positions. Modulus is 5, mantissa is 8.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1401, 12K or 16K, with the following features - Advanced Programming, High-Low-Equal Compare, and Multiply-Divide - card reader and punch - 1403 Printer.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401060012

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-06.0.014 \*M  
ONE-WAY ANALYSIS OF VARIANCE

AUTHOR: M. M. Johnson

DIRECT TECHNICAL INQUIRIES TO:  
M. M. Johnson  
The Bendix Corporation  
Pioneer-Central Division  
Hickory Grove Road  
Davenport, Iowa

DESCRIPTION - Computation of "F Ratio" for One Way Analysis of Variance. The program is designed for both variable and constant sample sizes per column.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - The program is limited to a matrix of 99 columns and 999 rows. Equipment specifications - 8K 1401 card system with a 132 position printer, and standard FORTRAN configuration.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401060014

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-07.0.003 \*M  
POLYNOMIAL CURVE FIT FOR ECONOMIC ANALYSIS AND FORECASTING

AUTHOR: Lawrence Salzman

DIRECT TECHNICAL INQUIRIES TO:  
Lawrence Salzman  
IBM Corporation  
590 Madison Avenue  
New York, New York 10022

DESCRIPTION - This program is written in FORTRAN for a 16K-1401 and is compatible with the 16K-1401 version of the Data Transfer Program for Census Method II, No. 06.0.013. These two programs in conjunction with the 4K-1401 versions of Census Method II No. 06.0.009 form an automated package for forecasting. This program takes time-series data and fits a first, second and/or third degree polynomial to the series. It computes the function, fitting points to the equation and subtracting and dividing the fitted from the observed data. This gives the deviations about an assumed trend which tends toward the cycle for those series that have a cycle. As an option, the trend can be projected 24 time periods into the future, i.e., if monthly data are used this gives a 2-year projection. The coefficients are computed by the least squares technique. The calculations utilize FORTRAN Floating Point Arithmetic. A modified Gaussian elimination technique is used to solve the resulting set of linear equations.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401070003

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-09.2.007  
HIGHWAY EARTHWORK QUANTITIES AND DESIGN DATA

AUTHOR: David Denzer

DIRECT TECHNICAL INQUIRIES TO:  
David Denzer  
State of Illinois  
Division of Highways

CONTINUED FROM PRIOR PAGE

Bureau of Research & Planning  
State Office Building  
Springfield, Illinois

DESCRIPTION - The purpose of the program is to compute cut and fill quantities, mass diagram ordinates, and critical template offsets and elevations, for such projects as highways, levees, and channels, from ground cross sections expressed either by rods and offsets or by elevations and offsets, a profile grade line, and a roadway template of not more than 20 points on each side of centerline. Two cut slopes and three fill slopes of any selected rate of slope may be used. All template points are defined by vertical and horizontal offsets from the preceding point, so that the dimensions of any point may be changed at any cross section station without affecting the relative position of other unchanged points on the template. The program may be used for multiple roadways so long as one-half width can be defined by not more than 20 template points.

MINIMUM SYSTEM REQUIREMENTS - IBM 1401 computer system with 16K Memory.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401092007

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-10.1.002 \*#  
LINEAR PROGRAMMING

AUTHOR: R. Cabell

DIRECT TECHNICAL INQUIRIES TO:  
R. Cabell  
IBM Corporation  
6210 North Atlantic Avenue  
Cocoa Beach, Florida

DESCRIPTION - The program maximizes a linear objective function of N variables, subject to M constraints. The values for M & N must be specified by the user for each problem. The Simplex method is used, but is revised to permit the basis to be carried as only a column matrix.

PROGRAMMING SYSTEMS - Written in SPS-2.

MINIMUM SYSTEM REQUIREMENTS - The program requires 1500 positions. 1401 CPU 2K, 4K, 8K, 12K, or 16K. 1402 Card Reader, 1403 Model I or Model II Printer. No special features are required.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401101002

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-10.1.004 \*#  
LINEAR PROGRAMMING, REVISED SIMPLEX METHOD

AUTHOR: Dr. J. Robert Johnson, Jr.

DIRECT TECHNICAL INQUIRIES TO:  
Dr. J. Robert Johnson, Jr.  
Industrial Engineering Department  
E. J. Reynolds Tobacco Company  
Winston-Salem, North Carolina

DESCRIPTION - To solve a general linear programming problem. Revised Simplex method, product form of the inverse. FORTRAN. Up to 100 equations with any number of unknowns. Storage requirements 16000 positions. Modulus is 5 and mantissa is 8.83 minutes or 21 equations in 53 unknowns the number of variables involved and of the number of iterations than of the number of equations.

MINIMUM SYSTEM REQUIREMENTS - 1401, 16K with the following features: Advanced Programming, High-Low-Equal Compare, and Multiply Divide- three 7330 Tape Drives - card reader and punch - 1403 Printer. 1402 Card Read/Punch.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401101004

Indicate "B N 1" in columns 1-3 and the Program Number

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in columns 4-13 on the IBM Program Order Form.

1401-10.2.003 \*#  
INVENTORY MANAGEMENT SIMULATOR

AUTHOR: K. Kimball Holland

DIRECT TECHNICAL INQUIRIES TO:  
K. Kimball Holland  
Barrows Hall  
Oberlin College  
Oberlin, Ohio

DESCRIPTION - 1401 Inventory Management Simulator is a small size basic inventory management simulator which offers an easy method of simulating the behavior of various inventory policies using historical sales data. Many different policy options are available and the routines are easily modifiable.

MINIMUM SYSTEM REQUIREMENTS - Memory 4K 1401 processor; 1402 Card Reader/Punch; 1403 (132 Print Positions).

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401102003

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.2.006 \*#  
MORTGAGE AMORTIZATION SCHEDULE

AUTHOR: Hartley Fredrickson

DIRECT TECHNICAL INQUIRIES TO:  
Hartley Fredrickson  
IBM Corporation  
348 East South Temple  
Salt Lake City, Utah

DESCRIPTION - This program will be written to amortize a mortgage and print a schedule of this amortization. The printed items for a given date would include - date of each payment, and number of remaining payments. At the end of the program is will print the amount of principal and interest paid. The variables that the user can specify will be - principal amount- interest rateamount of payment, and date of first payment. The program will have the ability to stop it on a certain date, after a certain amount of payment is reached. Or until the mortgage is completely amortized. Extra principal payments may be included is desired.

MINIMUM SYSTEM REQUIREMENTS - 8K 1401 High-Low-Equal Compare, Mult. & Divide and 132 print positions.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401102006

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.2.007 \*#  
MANAGEMENT DECISION MAKING LABORATORY AUTOMATIC PLOTTING OF RESULTS

AUTHOR: Stephen B. Lucas

DIRECT TECHNICAL INQUIRIES TO:  
Stephen B. Lucas  
IBM Corporation  
520 N. Dearborn  
Chicago, Illinois

DESCRIPTION - MADMAP is a program utilizing history and decision cards from each period of play to automatically generate nine graphs of laboratory results on the 1403 Printer. By using this program, the Decision Making Laboratory Administrator eliminates the need for personnel to manually graph results. Any combination of graphs can be selected by sense switches and additional copies made without reloading the program or data. 1401 requirements are the same as those for the IBM 1401 Management Decision Making Laboratory. The object program can be on cards or tape. Graphs available are-- price by area, marketing by area, total marketing, total dollar sales and unit

CONTINUED FROM PRIOR PAGE

sales, research and development and unit cost, production quantity and production as percent of capacity, income, assets and return on assets. In addition, a summary report of income, assets, and return is also written for the use of the administrator.

PROGRAMMING SYSTEMS - Written in Autocoder

MINIMUM SYSTEM REQUIREMENTS - 1401 Processing Unit with 4000 positions of storage, Advanced Programming feature, Hi-Low-Equal Compare feature, Sense Switches feature, Multiply-Divide feature, 1402 Card-Read/Punch, 1403 Printer - 729 or 7330 Magnetic Tape Units (2).

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401102007

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-10.2.010 \*M  
COMMERCIAL AND SAVINGS TELLER SIMULATION USING NABAC MODEL

AUTHORS: J. V. Spikes, Jr. Robert Sykoba

DIRECT TECHNICAL INQUIRIES TO:

J. V. Spikes, Jr.  
IBM Corporation  
112 East Post Road  
White Plains, New York 10601

DESCRIPTION - Program simulates teller operation, providing summary statistics which reflect levels of customer service and teller utilization. Model was developed by NABAC. The simulator utilizes Monte Carlo technique of random selection in the assignment of transaction type and processing time to simulated customers. Customer arrivals are generated assuming arrival within time period fits a poisson distribution function. The user is allowed a maximum of 5 window types, total windows not to exceed 30, and maximums of 29 time periods, 20 transaction types, queue length of 9. Program requires NABAC'S Teller Performance Standards to determine processing time for each customer by transaction type. It is suggested that data on customer arrivals and transaction mix be gathered by a separate program, Teller Simulation Data Conversion and Summarization Program for IBM 1401.

PROGRAMMING SYSTEMS - Written in 1401 Autocoder IOCS.

MINIMUM SYSTEM REQUIREMENTS - 8K, 1401, 2 tape drives, 1402, 1403, Advanced Programming, H-I-E, Multiply Divide.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401102010

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-10.2.011 \*M  
CARBERTSIN - COMPUTER ASSISTED PROJECT EVALUATION AND REVIEW TECHNIQUE SIMULATOR

AUTHOR: R. L. Risley

DIRECT TECHNICAL INQUIRIES TO:

R. L. Risley  
Allison Division  
General Motors Corporation  
Dept. 8095  
Indianapolis, Indiana

DESCRIPTION - To train personnel in the use of PERT network as (1) A planning and control device for complex projects. (2) To enable students to experience the significance of time-cost trade-offs. (3) To acquaint students with the use of the computer as an aid to management.

METHOD - A PERT network is read in followed by control card followed by the student changes to the PERT network. Analysis of the student changes is made, the PERT network is updated, the change in cost is computed and the network is PERTed and a negative slack sort is printed.

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PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - IBM 8K 1401 with Advanced Programming, Multiply/Divide, 1402 and 1403.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401102011

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.2.012 \*M  
1401/1440 DISK MANAGEMENT DECISION MAKING LABORATORY

AUTHOR: S. B. Lucas

DIRECT TECHNICAL INQUIRIES TO:

S. B. Lucas  
IBM Corporation  
520 N. Dearborn Street  
Chicago, Illinois

DESCRIPTION - This program makes available the Management Decision Making Laboratory on a 1401/1311 or 1440/1311 disk system. The program uses the same economic model and generates the same reports as the present 1401 tape version. In addition, parameters and initial history are stored on disk. Program and running history can be stored on disk or run with card input/output. Change card formats are used to easily alter parameters and history on disk. The business index can be increased or decreased and additional industry and confidential reports can be written by sense switch selection. At the end of any decision run, results stored on disk can be plotted, eliminating the need for post-laboratory graphing.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - The minimum 1311 System consists of an 8K 1401 or 1440 with Advanced Programming, High-Low-Equal Compare, and Sense Switches. One 1311 Disk Drive and one 1316 Disk Pack for laboratories in progress are required. 2569 source statements.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401102012

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-10.3.002 \*M  
LESS - LEAST-COST ESTIMATING AND SCHEDULING 8K, 12K, and 16K

AUTHORS: Lou Granato Joe Rose  
Jim Borden

DIRECT TECHNICAL INQUIRIES TO:

Lou Granato  
IBM Corporation  
631 Cooper Street  
Camden 2, New Jersey

DESCRIPTION - This program is a high speed method of determining critical path and related information (float time etc.) for problems where scheduling is important. The program will handle 8K memory - 985 events (12K memory - 1555 events and 16K memory - 2125 events). Any number of jobs (arrows) can be handled. Length of the critical path cannot exceed 7 digits (9999999). Will handle 1000 arrows in approximately 12 minutes including card handling time. This is a three (3) phase, two (2) pass program.

PROGRAMMING SYSTEMS - Written in SPS II.

MINIMUM SYSTEM REQUIREMENTS - 1401 card system with 8, 12 or 16K memory, Multiply Divide feature, Hi-Low-Equal Compare.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103002

CONTRIBUTED PROGRAMS

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|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.3.007 \*M  
PERT

AUTHOR: J. F. Borden

DIRECT TECHNICAL INQUIRIES TO:  
J. F. Borden  
IBM Corporation  
Philadelphia Education Center  
230 South 15th Street  
Philadelphia 2, Pa.

DESCRIPTION - To aid in the planning, coordination and control function of projects where schedules are important. Evaluates and sequences jobs within the overall project with respect to their effect on the overall project and other jobs within the project. Similar to the LESS programs for 1401 and also the existing PERT programs. Provides for the use of three (3) time estimates but does not calculate PR, i.e., the probability associated with meeting predetermined schedule dates.

PROGRAMMING SYSTEMS - Written in SPS; assembled with Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 1401 Model C-3,4,5 or 6 with Multiply-Divide feature, Hi-Low-Equal Compare feature, 1402 Card Read/Punch, 1403 Printer Model 2, 729 Model II or IV Tape Units.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103007

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.3.008 \*M  
FORECASTING BY EXPONENTIAL SMOOTHING

AUTHOR: Jack P. Miess

DIRECT TECHNICAL INQUIRIES TO:  
Jack P. Miess  
IBM Corporation  
P. O. Box 1688  
340 W. Washington Avenue  
Madison, Wisconsin

DESCRIPTION - This program is used to find the correct smoothing parameter for each of a firm's products and then used to forecast monthly demand for one, two, three, and four months in advance for these products. The exponential smoothing method of forecasting is used with optional features of adjustments for seasonal variation and varying number of days in a month.

PROGRAMMING SYSTEMS - Written in 1401 Symbolic Language and Fixed Point Arithmetic was used throughout.

MINIMUM SYSTEM REQUIREMENTS - 1401 with 4K storage 1402 Model 1 1403 Model 2 (132 printing positions) no other special features are required.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103008

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.3.009 \*M  
ASK - INFORMATION RETRIEVAL PROGRAM FOR THE 1401

AUTHOR: Donald Herman

DIRECT TECHNICAL INQUIRIES TO:  
Donald Herman  
Computing Center  
IBM Corporation  
1120 Connecticut Avenue, N. W.

Washington, D. C.

DESCRIPTION - ASK is an information retrieval program. It will select records from tape that satisfy ranges, and, and not, or, or not, conditions. Free form inquiry format is used and multiple inquiries may be processed with one pass of the master tape. Significant features are the ability to make multiple inquiries, the use of free form inquiry, and the omission of any necessity for control cards.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - 4K, 1401, two tape drives, Advanced Programming package, Hi-Low-Equal Compare feature, 1402 Card Reader, 1403 Printer.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103009

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.3.010 \*M  
KWIC SYSTEM

AUTHORS: C. M. Lobron D. H. Myers

DIRECT TECHNICAL INQUIRIES TO:  
C. M. Lobron  
IBM Corporation  
230 S. 15th Street  
Philadelphia, Pa.

DESCRIPTION - The six programs, runs 1 through 6, together with a programming systems sort package, will permit the preparation of a publication consisting of a bibliography, KWIC Index, and Personal Author Index.

PROGRAMMING SYSTEMS - Written in SPS II.

MINIMUM SYSTEM REQUIREMENTS - IBM 1401 system - 4K memory, 6 Sense Switches, 2 tape drives, Hi-Low-Equal Compare feature, Advanced Programming feature (Indexing, Move Record, Store A and B), 1402 Card Read/Punch, and 1403 Printer.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None  
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1401103010

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-10.3.013 \*M  
CRITICAL PATH SCHEDULER (BASIC 1401)

AUTHOR: Henry M. Steele

DIRECT TECHNICAL INQUIRIES TO:  
Henry M. Steele  
IBM Corporation  
2830 Victory Parkway  
Cincinnati 6, Ohio

DESCRIPTION - A program for critical path scheduling on any 1401 system with a 1402 and 1403. Purpose was to use a card input format compatible with the 1620 LESS program and to expand and improve upon the 1401 LESS program. Some of the many changes to 1401 LESS include - Missing node numbers permitted, elimination of memory to nines card preparation for phase 1. Elimination of header and trailer cards for job card input decks, and many report format changes. A four phase program. Phase 1 computes late finish time. Phase 2 computes early start time. Phase 3 computes early finish time. late start time, total float, free float, and the critical path. Phase 4 accumulates project cost and edits fields into report format. Restrictions and range critical path may not exceed 99,999 time units. The maximum event of node number is 711 on a 4K system, 311 on 2K, and 191 on 1.4K.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - 1402 and 1403 on system. No special features are used. Written for a 4K system, but requires only four patches to phase 1 to operate on

CONTINUED FROM PRIOR PAGE

2K or 1.4K system. Program requirements uses all storage available on 1.4K, 2K, and 4K systems.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103013

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.3.015

PIECEWORK-TIMEWORK PAYROLL

AUTHOR: Marilyn M. Jensen

DIRECT TECHNICAL INQUIRIES TO:  
Marilyn M. Jensen  
IBM Corporation  
3223 Wilshire Boulevard  
Santa Monica, California

DESCRIPTION - The Piecework-Timework Payroll Program, Phase 1, computes employee earnings to first gross, and prints a preliminary payroll register for supervisory audit. It provides for an employee working a combination of piecework with a special rate for every job, and timework with either a special rate for every job, or with either a special or regular time rate. Shift differentials are calculated if the work was performed on other than first shift- total hours worked (piecework plus timework) are adjusted if unequal to timecard hours- and lost labor is computer if productive earnings are less than guaranteed earnings. Phase 2 produces the error register. Remaining core may be used to develop more sophisticated error diagnostic routines.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - Without modification, the program requires a 1401 system with 8K, 2-7330 Tape Drives, 1405, 1407, Multiply-Divide, H-L-E Compare, and Advanced Programming. Phase 1 requires 6643 positions of core and 1015 source statements. Phase 2 requires 2211 positions of core with 369 source statements.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103015

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.3.016

CAPITAL INVESTMENT ANALYSIS (8K)

AUTHOR: F. A. Christopher

DIRECT TECHNICAL INQUIRIES TO:  
F. A. Christopher  
IBM Corporation  
401 Grand Avenue  
Oakland 10, California

DESCRIPTION - A 1401 program to calculate the rate of return of an investment based on the discounted cash flow method. This program provides a standard technique for ranking proposed capital expenditures, or, the rate of return may be compared with a minimum acceptable rate to help determine whether or not a proposed project should be undertaken.

PROGRAMMING SYSTEMS - Program is Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - Written for an 8K 1401 with Multiply-Divide, Advanced Programming and Sense Switches.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103016

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.3.023

INVENTORY MANAGEMENT ANALYSIS PROGRAM

AUTHOR: Charlotte Scott

DIRECT TECHNICAL INQUIRIES TO:  
Charlotte Scott  
IBM Corporation  
425 Park Avenue  
New York, New York

DESCRIPTION - The Inventory Management Analysis Program provides analysis and classification by investment value and profit standing. Also, the program provides for the calculation of EOQ, number of orders per year based on order quantity, fixed order points and projected turnover ratios. Individual analysis is made for each inventory type, i.e., finished goods, purchases parts, manufactured parts and raw material. This program provides a means for selecting data for inventory management simulation, by defining the area of greatest potential return.

Stratification of inventory items may be made by correlating demand, cost and net profit. There are many other factors which should be considered for a complete analysis such as storage capacity, obsolescence, shelf life, movement inventory and seasonal demand.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - IBM 1401 card system, 4K, Mult./Divide, 132 print positions.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103023

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.3.024

LOT SIZE INVENTORY MANAGEMENT INTERPOLATION TECHNIQUE (LIMIT)

AUTHORS: J. D. Harty G. W. Plossal  
O. W. Wight W. J. Abramson

DIRECT TECHNICAL INQUIRIES TO:  
J. D. Harty  
Stanley Tools  
111 Elm Street  
New Britain, Conn.

DESCRIPTION - Lot-size Inventory Management Interpolation Technique (LIMIT) is a program which attacks the problem of inventory carrying cost found in the classical EOQ formula by distributing a department or plants setup hours in a more reasonable manner. Output is the best order quantity for all times within the limitation of a prescribed setup cost and matrix for graphing showing the relationship of inventory to set up cost for various points.

PROGRAMMING SYSTEMS - Written in symbolic language.

MINIMUM SYSTEM REQUIREMENTS - 4K, Model 2 1403, Multiply-Divide, Advanced Programming, and Hi-Low-Equal. Reference Apics Research Project No. 1 for more details.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103024

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-10.3.028

CRITICAL PATH LISTING AND RESOURCE ANALYSIS

AUTHOR: R. J. Blair

DIRECT TECHNICAL INQUIRIES TO:  
R. J. Blair  
IBM Corporation  
9250 Wilshire Blvd.  
Beverly Hills, Calif.

DESCRIPTION - This program performs two major functions. First, it lists critical path output in any card format. Second, it performs preliminary analysis of resource requirements prior to resource simulation. This analysis determines the reasonableness of the resource requirements. These requirements may be revised as a result of this analysis before proceeding with resource simulation.

The program has four options:

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- (a) Include total float, free float, resource analysis.
- (b) Include total float, resource analysis.
- (c) Include total float, free float.
- (d) List input cards.

The program options and data field locations are specified by a control card. The program can handle stacked networks.

PROGRAMMING SYSTEMS - Source language is SPS II.

MINIMUM SYSTEM REQUIREMENTS - IBM 4K 1401 with Advanced Programming, Multiply/Divide, and a 1403 with 132 print positions. Program storage requirements 3569 positions of core used.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103028

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.3.035

QUICK KWIC INDEX

\*M

AUTHOR: J. M. Bain

DIRECT TECHNICAL INQUIRIES TO:  
J. M. Bain  
IBM Corporation  
1123 Beaver Hall Hill  
Montreal, Quebec, Canada

DESCRIPTION - This is a one pass program to produce a simple KWIC Index from cards using only one card for each entry to the index. Previous programs have generally required several machine runs to produce a KWIC Index.

PROGRAMMING SYSTEMS - The program is written in Autocoder and uses the full 4000 memory positions.

MINIMUM SYSTEM REQUIREMENTS - The program requires a 4K 1401 with 1402 and 1403 and 4 tape drives. Advanced Programming and High-Low-Equal Compare features are required.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103035

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.3.041

FAST - FULLY AUTOMATIC SCORING TECHNIQUE

\*M

AUTHOR: Mr. C. F. Wilkes

DIRECT TECHNICAL INQUIRIES TO:  
Mr. C. F. Wilkes  
1550 Elmsford Avenue  
La Habra, California 90632

DESCRIPTION - A complete system of test scoring and reporting. The system uses the IBM 1401 Card Data Processing System. The input source document is a mark-sense test answer card. Method- basically, table lookup and computation. Will score up to ten different tests for an individual student, using all normal formulas or scoring techniques. Up to sixteen raw score points summarized into a single output card per student.

PROGRAMMING SYSTEMS - Written in card Autocoder (Basic).

MINIMUM SYSTEM REQUIREMENTS - 4K storage, card system, Column Binary, Advanced Programming, High-Low-Equal Compare, Sense Switches, 1403 Printer Model 2, 1402 Card Read Punch.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103041

|       | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|-------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC | none                        | DTR*                 | 00             | none                       |

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OPTIONAL none none none

1401-10.3.044

PROJECT PROGRESS REPORT PHASE I

\*M

AUTHOR: Mr. E. E. Lambert

DIRECT TECHNICAL INQUIRIES TO:  
Mr. E. E. Lambert  
Computer Coordinator  
Deere & Company  
Moline, Illinois 61265

DESCRIPTION - This program evaluates the progress of projects by individuals with totals for individuals, groups and the entire report. Completed projects can be entered for history and man-days early or late are computed. Future projects can be entered for information and are picked up as current projects when the start date is passed. Current projects are checked, warnings printed on condition, and projected completion dates and man-days deviation from the scheduled completion date and calculated and printed on another condition. Six monthly projections of man-day work load are computed for current and future projects for each individual.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 1401 8K, Multiply-Divide, Advanced Programming package and High-Low-Equal Compare. Program uses 5900 positions of core. 1402 Card Reader; 132 position 1403 Printer.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103044

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-10.3.049

SKILLS INVENTORY SYSTEM

AUTHOR: Mrs. E. K. Pavelle

DIRECT TECHNICAL INQUIRIES TO:  
S. M. Bales  
IBM Corporation  
ASDD  
2651 Strang Blvd.  
Yorktown Heights, New York

DESCRIPTION - The Skills Inventory System is an information retrieval system which allows access to precoded data concerning employee skills and background. The system has the ability to select employees meeting the qualifications for available positions. Statistical analyses may also be performed. A file coded employee information is built which can be updated, searched and retrieved in uncoded form (English rather than codes).

MINIMUM SYSTEM REQUIREMENTS - 8K 4-tape 1401 with Advanced Programming package and High-Low-Equal Compare.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103049

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |      |
|----------|-----------------------------|----------------------|----------------|----------------------------|------|
| BASIC    | none                        | MT                   | 7/556          | 22                         | 01   |
|          |                             |                      | 7/800          | 24                         | 01   |
|          |                             |                      | CARDS          | 15                         | none |
| OPTIONAL | none                        | none                 |                | none                       |      |

1401-10.3.055

INDIVIDUAL LEDGER EXTRACT PROGRAM FOR CREDIT UNIONS

\*M

AUTHOR: J. A. Atkinson

DIRECT TECHNICAL INQUIRIES TO:  
J. A. Atkinson  
IBM Corporation  
Monterey and Cottle Roads  
San Jose, California

DESCRIPTION - This program produces member's statements covering dividend accounting periods. At the start of a new dividend period a new record is started for each account with share and loan balances carried forward. Dividends are calculated and posted. Insurance premiums are calculated. Program occupies 13141 positions and locations 7003 to 10410 and 10666 to 10740 are used for input - output. There are 1783 source statements. This program should be used in conjunction with individual



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ledger update program for credit unions.  
 PROGRAMMING SYSTEMS - Written in 1401 Autocoder.  
 MINIMUM SYSTEM REQUIREMENTS - The program requires 16K, 1401 Processor, 1402 Card Reader, 1403 Printer (132 positions), 3 tape units, High-Low-Equal Compare, Advanced Programming and Sense Switches.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
 DOCUMENTATION - None.  
 MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401103055

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-10.3.056 \*M  
INDIVIDUAL LEDGER UPDATE PROGRAM FOR CREDIT UNIONS

AUTHOR: J. A. Atkinson

DIRECT TECHNICAL INQUIRIES TO:  
 J. A. Atkinson  
 IBM Corporation  
 Monterey and Cottle Roads  
 San Jose, California

DESCRIPTION - This program will post all transactions to each member's account. Will automatically calculate interest to principal for loans repaid monthly. Provides for share to share transfers if accounts involved have the same basic serial number. Program occupies 12837 positions and locations 7574 - 7648 and 7730 11138 are used for input - output. There are 1783 source statements. This program should be used in conjunction with individual ledger extract program for credit unions.

PROGRAMMING SYSTEMS - Written in 1401 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - Program requires 16K 1401 processor, 1402 Card Reader, 1403 Printer, 132 positions), 3 tape units, High-Low-Equal Compare, Advanced Programming and Sense Switches.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
 DOCUMENTATION - None.  
 MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1401103056

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1401-10.3.059 \*M  
CRITICAL PATH MANAGEMENT GAME

AUTHOR: D. G. Douglas, Jr.

DIRECT TECHNICAL INQUIRIES TO:  
 D. G. Douglas, Jr.  
 IBM Corporation  
 570 Broad Street  
 Newark, New Jersey 07102

DESCRIPTION - The Critical Path Management Game consists of three programs which can be used for teaching and demonstrating the techniques of less critical path scheduling. At selected stages during the game participants vary activity durations by manipulation of resources. The objective is to complete project with minimum expenditure. Phase I prepares a master tape used by Phase III. Phase II computes project schedules with output similar to that produced by less programs. Phase III simulates the game project and reports on the status of all activities. The game project is restricted to 100 activities and minor restrictions on node numbering and maximum duration.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - Requires 12K, 1401 with Advanced Programming, Multiply-Divide, High-Low-Equal Compare, 1402 Card Reader, 1403 Printer and at least two magnetic tape units. Phase III requires 11,152 positions.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

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OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103059

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-10.3.063  
FAST - FULLY AUTOMATIC SCORING TECHNIQUE-PHASE I PROGRAM PACKAGE

AUTHOR: Mr. C. F. Wilkes

DIRECT TECHNICAL INQUIRIES TO:  
 Mr. C. F. Wilkes  
 IBM Corporation  
 11141 Georgia Avenue  
 Wheaton, Maryland

DESCRIPTION - FAST programs accept FAST test answer cards, vertically oriented one or two column per side mark-sense cards, on which a test subject marks his responses. These will be scored within the computer. Other input including responses, such as the IBM 1230/31/32 must be interfaced by a user program. In addition, keypunched or IBM 1230/534 punched raw scores can be used if item analysis not desired. Regardless of input method, raw scores are converted to derived scores, listed in various sequences, printed on pressure-sensitive labels, and profile cards produced. Statistical output includes a unit and a five point frequency distribution, and a matrix of covariance produced in three groupings-total group, plus upper and lower 2% groups.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - Can be run on 1401, 1440 or 1460 systems, with 8K, two 1311 Disk Drives, Advanced Programming, High-Low-Equal Compare, Bit-Test, any 1401/40/60 I/O hardware, Column Binary or Card Image feature.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103063

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556 22       | 01                         |
|          |                             | MT                   | 7/800 24       | 01                         |
| OPTIONAL | none                        | none                 | none           | none                       |

1401-10.3.065 \*M  
SOCRATES STUDENT SCHEDULING SYSTEM

AUTHORS: C. F. Wilkes B. J. Nevill  
 J. R. Cottrell M. N. Samuel  
 J. W. Kesselman

DIRECT TECHNICAL INQUIRIES TO:  
 Charles F. Wilkes  
 IBM Corporation  
 11141 Georgia Avenue  
 Wheaton, Maryland

DESCRIPTION - Socrates provides an in-house system for scheduling secondary school students into classes of grades seven through twelve. The system schedules periods zero through ten for two regular semesters simultaneously, or one split-week semester. Features include ability groupings, teacher selection, grade range selection, sex selection, alternate course requests, study hall scheduling, blocked courses, and maximum class balancing consistent with minimum rejects. Includes a complete series of programs to simplify data collection, corrections, scheduling and analysis. File maintenance programs permit individual or mass changes. Output reports include verification listings, simple tally, conflict matrix, analysis of rejects, class load analysis in sequence by room, teacher, period and course, and students schedule listing with card output option.

PROGRAMMING SYSTEMS - Autocoder on disk.

MINIMUM SYSTEM REQUIREMENTS - Minimum 8K 1401/40/60 with Bit Test, High-Low-Equal Compare, Advanced Programming, one 1311 Disk Drive, and any I/O configuration.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103065

CONTRIBUTED PROGRAMS

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| PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|-----------------------------|----------------------|----------------|----------------------------|
| BASIC none                  | MT                   | 7/556 22       | 01                         |
|                             | MT                   | 7/800 24       | 01                         |
| OPTIONAL none               | none                 |                | none                       |

1401-10.3.070

TS80 - SCORE AND ANALYZE TEACHER-MADE TESTS

\*M

AUTHOR: Mr. C. G. Badner

DIRECT TECHNICAL INQUIRIES TO:

Mr. C. G. Badner  
New Trier Township High Schools  
385 Winnetka Avenue  
Winnetka, Illinois 60093

DESCRIPTION - The purpose of this program is to take punched responses from tests scored on an IBM 1230 Test Scoring Machine and analyze and evaluate the test by means of a 1401 computer. Responses extracted are stored on disk, then analyzed and evaluated.

Restrictions are- no more than 80 items, maximum weighted score - 700, speed - approximately 1000 tests per hour.

MINIMUM SYSTEM REQUIREMENTS - 1401 8K, 1402 Reader, 1403 Printer, one 1311 disk, Indexing, and High-Low-Equal Compare.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Write-up.

MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103070

| PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|-----------------------------|----------------------|----------------|----------------------------|
| BASIC none                  | DTR*                 | 00             | none                       |
| OPTIONAL none               | none                 |                | none                       |

1401-10.3.067

TEACHER-MADE-TEST PACKAGE

AUTHORS: Mr. D. W. Taylor Mr. C. W. Cozad

DIRECT TECHNICAL INQUIRIES TO:

Mr. D. W. Taylor  
IBM Corporation  
525 So. Flower Street  
Los Angeles, California 90017

DESCRIPTION - The Teacher-Made-Test program provides a simple and accurate way for the teacher to make use of data processing facilities for the scoring and analysis of tests administered in the classroom. The program not only accomplishes the scoring function, but also the preparation of meaningful test result analyses to aid the teacher in determining individual and class needs. Multiple choice and/or true-false types of objective tests of up to 100 questions can be processed. Input consists of one mark-sense test answer card per student. Output consists of 1. Score listing with right or wrong response record, 2. Item count, and 3. Unit-point frequency distribution. Program can also be used to analyze results of opinion surveys and class elections.

PROGRAMMING SYSTEMS - Written in 1401/40/60 Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 8K, 1401/40/60 with Column Binary or Card Image, High-Low-Equal Compare, Advanced Programming, and one 1311 Disk Drive.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Write-up.

MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103067

| PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|-----------------------------|----------------------|----------------|----------------------------|
| BASIC none                  | CARDS                | 15             | none                       |
| OPTIONAL none               | none                 |                | none                       |

1401-10.3.071

1401 UNIVERSITY ADMISSIONS INFORMATION SYSTEM

AUTHORS: AUTHOR: R. H. Glover

DIRECT TECHNICAL INQUIRIES TO:

DIRECT TECHNICAL INQUIRIES TO:

R. H. Glover  
College Entrance Examination Board  
475 Riverside Drive  
New York City, New York 10027

DESCRIPTION - The 1401 University Admissions Information System (UAIS) provides an effective and comprehensive means of assembling applicant information, of retrieving information in standardized report formats, obtaining detailed descriptions of applicant qualifications, assembling summary data, communicating admissions and financial aid decisions and records of college achievement to secondary schools, automatically sending notifications of missing information and decisions to applicants, and furnishing access to applicant and class information for longitudinal and comparative studies. Included in the system is a generalized information retrieval program that provides record selection and field selection to punch a card, print a listing, or prepare a copy of formatted tape. The system has two update runs, creating an applicant master file and a transcript master file, and seven report runs which produce the outputs previously described.

PROGRAMMING SYSTEMS - Written in Autocoder language.

MINIMUM SYSTEM REQUIREMENTS - 8K storage capacity, 1401 Processing Unit, 1406 Core Storage Unit, Model 2, 4 - 729 or 7330 Magnetic Tape Units, 1 - 1403 Printer, Model 2 600 lpm, 132 characters, 1 - 1402 Card Read Punch, Model 1.

FEATURES - Indexing... Storage Address Register... Move Record... High/Low/Equal Compare... Sense Switches.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Write-up.

MACHINE READABLE - Object code, source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103071

| PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|-----------------------------|----------------------|----------------|----------------------------|
| BASIC none                  | DTR                  | 7/556 22       | none                       |
|                             | DTR                  | 7/800 24       | none                       |
| OPTIONAL none               | none                 |                | none                       |

1401-10.3.068

COOPERATIVE ADMISSIONS INFORMATION SYSTEM

AUTHOR: Mr. R. H. Glover

DIRECT TECHNICAL INQUIRIES TO:

Mr. R. H. Glover  
College Entrance Examination Board  
475 Riverside Dr.  
New York, New York 10027

DESCRIPTION - The system provides an effective and comprehensive means of assembling applicant information, retrieving the information in standardized report formats, obtaining detailed descriptions of applicant academic qualifications, assembling summary data, communicating admissions and financial aid decisions and records of college achievement to secondary schools, and furnishing access to applicant and class information for longitudinal and comparative studies. The system includes two update runs, creating an applicant master file and a transcript master file, and six report runs which produce the reports previously described.

PROGRAMMING SYSTEMS - The programs are written in Autocoder language.

MINIMUM SYSTEM REQUIREMENTS - 12K or 8K (depending on Data Processing runs) 1401 with Indexing, Storage Address Register, Move Record, High-Low-Equal Compare features... 1406 Core Storage unit, Model 2... 4-729 Tape Units... 1403 Printer, Model 2 600 LPM, 132 characters... 1402 Card Read Punch, Model 1.

BASIC PROGRAM PACKAGE

DOCUMENTATION - Write-up.

MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE

DOCUMENTATION - None.

MACHINE READABLE - Source Code.

ORDERING INFORMATION: PROGRAM NUMBER 1401103068

| PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|-----------------------------|----------------------|----------------|----------------------------|
| BASIC none                  | DTR                  | 7/556 22       | none                       |
|                             | DTR                  | 7/800 24       | none                       |
| OPTIONAL none               | MT                   | 7/556 22       | 01                         |

1401-10.3.072

FINANCIAL AID INFORMATION SYSTEM (LOAN SYSTEM)

AUTHORS: AUTHOR: R. H. Glover

CONTINUED FROM PRIOR PAGE

DIRECT TECHNICAL INQUIRIES TO:  
 DIRECT TECHNICAL INQUIRIES TO:  
 R. H. Glover  
 College Entrance Examination Board  
 475 Riverside Drive  
 New York City, New York 10027

DESCRIPTION - The Financial Aid Information System provides colleges with an effective means of improving the student personnel aspects of student aid programs, increasing the utilization of student aid resources, and expanding the managerial capabilities of those responsible for the administration of student financial aid. The system consists of two major segments; the Loan Subsystem and the Student Aid Subsystem. Since each subsystem is designed to operate independently of the other, the documentation for each subsystem has been prepared separately.

The basic functions performed by the Loan Subsystem include the gathering of data on student borrowers and their loans; the production of periodic statements for students summarizing their total borrowing; the generation of periodic invoices for each borrower who has a payment due; the printing of a loan register detailing all loans outstanding; the recording of payments, cancellations and deferments and the production of various supporting documents necessary for the administration, auditing, and reporting of loan activities.

PROGRAMMING SYSTEMS - The programs comprising the system are written in Autocoder Programming Language. The programs have undergone extensive systems testing but have not been used in an operational environment as of the date of this release.

MINIMUM SYSTEM REQUIREMENTS - 8K storage capacity, 1401 Processing Unit, 1406 Core Storage Unit, Model 2, 4 - 729 or 7330 Magnetic Tape Units, 1 - 1403 Printer, Model 2 600 lpm, 132 characters, 1 - 1402 Card Read Punch, Model 1.

FEATURES - Indexing... High/Low/Equal Compare... Storage Address Register... Move Record... Sense Switches.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Object code, source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103072

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR                  | 7/556 22       | none                       |
|          |                             | DTR                  | 7/800 24       | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-10.3.073  
FINANCIAL AID INFORMATION SYSTEM (STUDENT AID SUBSYSTEM)

AUTHOR: W.D. Van Dusen

DIRECT TECHNICAL INQUIRIES TO:  
 A.G. Sidar, Jr.  
 Director - College Scholarship Service  
 475 Riverside Drive  
 New York City, New York 10027

DESCRIPTION - The Financial Aid Information provides colleges with an effective means of improving the student personnel aspects of student aid programs, increasing the utilization of student aid resources, and expanding the managerial capabilities of those responsible for the administration of student financial aid. The system consists of two major segments; the Student Aid Subsystem and the Loan Subsystem. Since each subsystem is designed to operate independently of the other, the documentation for each subsystem has been prepared separately.

The basic functions performed by the Student Aid Subsystem include the collection and recording of academic, personal, and financial data on financial aid applicants, the collection and recording of information concerning student aid funds and resources, the generation of student data cards for use in determining financial aid awards and in counseling students, the generation of student rosters for applicants who meet various selection criteria, the generation of fund reports showing available funds and funds committed, the recording of financial aid award decisions, the generation of notification and reply letters to be sent to aid recipients, and the production of various summary and statistical reports.

PROGRAMMING SYSTEMS - The programs comprising the system are written in Autocoder Programming Language.

MINIMUM SYSTEM REQUIREMENTS - 8K storage capacity, 1401 Processing Unit, 1406 Core Storage Unit, Model 2, 4 - 729 or 7330 Magnetic Tape Units, 1 - 1403 Printer, Model 2 600 lpm, 132 characters, 1-1402 Card Read/Punch, Model 1.

FEATURES - Indexing... High/Low/Equal Compare... Storage Address Register... Move Record... Sense Switches.

CONTINUED FROM PRIOR COLUMN

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Object code, source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401103073

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556 22       | 01                         |
|          |                             | MT                   | 7/800 24       | 01                         |
| OPTIONAL | none                        | none                 |                | none                       |

1401-11.0.005 \*M  
REACTION TIMING PROGRAM FOR IBM 1401

AUTHORS: L. R. Debays J. F. Naughton

DIRECT TECHNICAL INQUIRIES TO:  
 L. R. Debays  
 IBM Corporation  
 2640 Canal Street  
 New Orleans 19, Louisiana

DESCRIPTION - The Reaction Timing Program for the IBM 1401 is designed primarily as a demonstration. However, the program can be used to measure reaction time as a function of waiting time.

PROGRAMMING SYSTEMS - Written in SPS.

MINIMUM SYSTEM REQUIREMENTS - 1401 - 1. 4K (Sense Switches desirable), 1402, 1403 Model 1 or 2.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 140110005

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-11.0.007 \*M  
FALLOUT

AUTHOR: Thomas P. Callahan

DIRECT TECHNICAL INQUIRIES TO:  
 Thomas P. Callahan  
 IBM Corporation  
 701 West Broad Street  
 Bethlehem, Pennsylvania

DESCRIPTION - FALLOUT is a package of demonstration programs designed to emphasize audience participation and visual impact while demonstrating 1401 capabilities. FALLOUT is designed to demonstrate 1401 capabilities to anyone, particularly persons with no data processing knowledge whatsoever. Some capabilities demonstrated are output printing speed, internal storage capacity, internal arithmetic speed, decision-making ability, computer logic, and computer flexibility.

PROGRAMMING SYSTEMS - Source language - SPS.

MINIMUM SYSTEM REQUIREMENTS - 4K card 1401 with Sense Switches required for basic package.

BASIC PROGRAM PACKAGE  
 DOCUMENTATION - Write-up.  
 MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401110007

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-11.0.010 \*M  
THE GAME BRIDG-IT ON THE 1401

AUTHOR: Gunter Wenzel

DIRECT TECHNICAL INQUIRIES TO:  
 Gunter Wenzel  
 IBM Deutschland DP Basic Research  
 Internationale Buero Maschinen GmbH  
 Sindelfingen/Wurttemberg, Germany

CONTINUED FROM PRIOR PAGE

DESCRIPTION - This demonstration program plays the game Bridge-it. It must have the first move and will then succeed in every case against the opponent. The winning strategy is from Oliver Gross, Rand Corporation.

MINIMUM SYSTEM REQUIREMENTS - 1401, 4K, no special features required. The input choice between 1402 and 1407 is possible.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401110010

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-11.0.012

MUSIC-MUSIC SIMULATION ON A 1401 COMPUTER

AUTHOR: M. J. Peskin

DIRECT TECHNICAL INQUIRIES TO:  
M. J. Peskin  
The Mitre Corporation  
Box 208  
Bedford, Massachusetts

DESCRIPTION - MUSIC is a 1401 program which demonstrates a technique for producing music on the 1403 Printer. The distributed deck is set up to play Ravel's Bolero. This write-up describes the procedures by which any desired music may be produced.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - MUSIC will load and operate in 1401s of any size. The object machine, however, must have sense switches and Advanced Programming.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401110012

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-13.1.009

RGCP - REPRODUCE, GANG-PUNCH, COUNT, PRINT

AUTHOR: E. J. Manning

DIRECT TECHNICAL INQUIRIES TO:  
E. J. Manning  
8621 Georgia Avenue  
Silver Spring, Maryland

DESCRIPTION - To reproduce cards, performing operations which would otherwise entail wiring a separate reproducer board, to list cards where a reformatting of the card image is desired, and to serially number cards and/or lines on a page.

MINIMUM SYSTEM REQUIREMENTS - 4K 1401, 1402, 1403 Model 2, Sense Switches B-D, Advanced Programming feature, High-Low-Equal Compare.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401131009

Indicate "E N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-13.1.025

TAPE-TO-TAPE FOR THE SHARE LIBRARY

AUTHORS: A.E. Blossom R. Hoynes

DIRECT TECHNICAL INQUIRIES TO:  
A.E. Blossom  
IBM Corporation  
IC 115 Dept. 649 AAS  
1133 Westchester Avenue  
White Plains, New York 10604

\*\*\* N - - - - - \*\*\*

CONTINUED FROM PRIOR COLUMN

DESCRIPTION - Update SHARE program tapes starting with reel number 5. SHARE members may build tape 5 by duplicating distributions disseminated from the library. The user is referred to the memorandum to SHARE members dated November 14, 1962. This program is the third in a tape to be updated is mounted on unit two with a file protect ring. This tape should be either blank or contain the most current SHARE distributions. The input tape containing the new distributions is file protected and mounted on unit one. Tape two is searched for a tape mark, backspaced over the tape mark, and a tape to tape operation is initiated. Tape one is input. Tape two is output.

PROGRAMMING SYSTEMS - SPS assembled with Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 1401 4K, two tape units, 1402, 1403, column binary, sense switches, and location 3901 is the last core position used.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401131025

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-13.1.026

CARD-TO-TAPE FOR THE SHARE LIBRARY

AUTHORS: A.E. Blossom R.J. Hoynes

DIRECT TECHNICAL INQUIRIES TO:  
A.E. Blossom  
IBM Corporation  
IC 115 Dept. 649 AAS  
1133 Westchester Avenue  
White Plains, New York 10604

\*\*\* N - - - - - \*\*\*

DESCRIPTION - To load source and object program card decks, submitted through the SHARE organization on magnetic tape in blocked format.

PROGRAMMING SYSTEMS - SPS Assembled with Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 1401 4K, one tape unit, 1402 Card Reader, 1403 Printer, column binary, advanced programming and sense switches. The program uses the block of storage from 333 to 1874 plus 1601 locations for a record area.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401131026

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-13.1.027

DELETE-MERGE FOR THE SHARE LIBRARY

AUTHOR: A.E. Blossom

DIRECT TECHNICAL INQUIRIES TO:  
A.E. Blossom  
IBM Corporation  
IC 115 Dept. 649 AAS  
1133 Westchester Avenue  
White Plains, New York 10604

\*\*\* N - - - - - \*\*\*

DESCRIPTION - Permits users of the SHARE library tapes to maintain card decks on these tapes in a current status. The delete and merge method used is straight forward and can be accomplished with a one-phase program on a 1401 Tape System. The only special feature used is column binary. This program is a three tape operation. Unit 1 contains the master reel, unit 2 is the change tape, and unit 3 is the output. The program does not rewind tapes, therefore, the change tape can contain more than one file. Each file is devoted to particular library tape. As written, this program will not add new programs, i.e., if the program does not exist on the master tape (Unit 1), then it cannot be placed on the change tape (Unit 2). Only a direct swap is valid.

PROGRAMMING SYSTEMS - Autocoder.

CONTINUED FROM PRIOR PAGE

MINIMUM SYSTEM REQUIREMENTS - 1401 4K, 1402, three (3) tape units, and column binary.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401131027

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-13.1.028

TAPE-TC-CARD FOR THE SHARE LIBRARY

AUTHORS: A.E. Blossom R.J. Hoynes

DIRECT TECHNICAL INQUIRIES TO:  
A.E. Blossom  
IBM Corporation  
IC 115 Westchester Avenue  
White Plains, New York 10604

\*\*\* N - - - - - \*\*\*

A\*  
DESCRIPTION - To retrieve program card decks from the SHARE Program Library tapes. Designed for use with SHARE Program Library tape only.

MINIMUM SYSTEM REQUIREMENTS - 1401 4K, one tape unit, 1402, column binary feature, 1403 Printer - used only for messages to the operator.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: 1401131028

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-13.1.029

SHARE ORDER CARD LIST AND PUNCH

AUTHORS: A.E. Blossom R.J. Hoynes

DIRECT TECHNICAL INQUIRIES TO:  
A.E. Blossom  
IBM Corporation  
IC 115 Dept. 649 AAS  
1133 Westchester Avenue  
White Plains, New York 10604

\*\*\* N - - - - - \*\*\*

DESCRIPTION - Provide users of the SHARE Program Library Tapes with a listing and/or the order cards preceding each deck on the tape. Designed for use with SHARE Program Library Tapes only.

MINIMUM SYSTEM REQUIREMENTS - 1401 4K, one tape unit, 1403 Printer, 1402 Card Punch, column binary.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401131029

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-13.1.032

DISTRIBUTION TAPE REEL FOR SHARE

AUTHOR: A.E. Blossom

DIRECT TECHNICAL INQUIRIES TO:  
A.E. Blossom  
IBM Corporation  
IC 115 Dept. 649 AAS  
1133 Westchester Ave.  
White Plains, New York 10604

CONTINUED FROM PRIOR COLUMN

DESCRIPTION - This program writes magnetic tape with SHARE Catalog, order and program decks, together with 1401 retrieval routines. The created tape contains an entire SHARE distribution of card material and is duplicated to small 200 foot reels of magnetic tape called a DTR-distribution tape reel. The distribution tape reel (DTR) was the principle reason for writing this package of programs. Together, they provide a convenient and efficient means of disseminating card distribution material to SHARE members. The DTR is a 200 foot reel of magnetic tape used as a distribution medium. Magnetic tape is written with 1401 core loads and data cards to create a 1401 tape loadable retrieval system with five job options - (1) List and punch catalog and order cards. (2) List and punch catalog cards. (3) List and punch order cards. (4) Tape to card retrieval for program card decks. (5) Selective update for SHARE Library tapes.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1401 with three (3) units, sense switches, 1402, 1403, column binary, advanced programming, and HL-LO-EQ.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401131032

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-13.4.002

OPTRAIN - OPERATING TRAINING ON THE 1401

AUTHOR: Sy Berlin

DIRECT TECHNICAL INQUIRIES TO:  
Sy Berlin  
Research Analysis Corp.  
6935 Arlington Road  
Bethesda 14, Maryland

DESCRIPTION - This program thru a random selection of 6 subroutines, puts the operator thru most situations which are programmable. It attempts to make the operator alert on the peripheral gear and tests his knowledge of bit configurations on the console. It is our belief that a good foundation on this computer will be advantageous and expedite training on larger computers where required.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 8K 1401 with Indexing, Sense Switch B and two tape drives.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401134002

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-14.0.002

GENERALIZED PLOT PROGRAM

AUTHORS: H. W. Van Ness R. D. Waring

DIRECT TECHNICAL INQUIRIES TO:  
H. W. Van Ness  
IBM Corporation  
1212 S. W. 6th Avenue  
Portland, Oregon

DESCRIPTION - The 1401 Generalized Plot program has been written to take data from cards, and prepare a graphic representation of that data. It plots to linear scales for both axes with dependent variable (Y-axis) being plotted parallel to the print chain of the 1403. Up to five pieces of data may be plotted on one run and can be taken from numerous configurations of data on the card. Control cards are prepared for the program to indicate scales, origin values, increments data field locations on the card, and heading information.

PROGRAMMING SYSTEMS - The program is written in SPS, and utilizes the Divide subroutine.

MINIMUM SYSTEM REQUIREMENTS - A basic 1401 with 4000 positions of core storage and 132 print positions on the 1403 is required. Provision has been made for plotting at 10 lines to the inch if this special feature is available. Program requirements- Phase 1 uses 30 24

CONTINUED FROM PRIOR PAGE

Locations: Phase 2 uses 3916 locations.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1401140002

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | CARDS                | 15             | none                       |
| OPTIONAL | none                        | CARDS                | 15             | none                       |

1401-14.0.004 \*M  
FOURTEEN @ ONE OFFSET REPRODUCING AND GANGPUNCHING OR  
EMITTING

AUTHOR: A. H. Toreson

DIRECT TECHNICAL INQUIRIES TO:  
A. H. Toreson  
Aerojet General Corporation  
Nimbus, California

DESCRIPTION - To provide a generalized program for the following functions, Straight 80-80 offset reproducing, straight or offset reproducing with gang punching, producing predetermined quantities from single masters. The program, as written, utilizes Modulus 16 arithmetic for address modification. Models with only 4,000 positions of storage will have to make several program changes, explained in the write-up, to satisfy the requirements of Modulus 4 arithmetic. The program will not accommodate processing involving selection or interspersing.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 4000-16,000 position core storage, High-Low-Equal Compare, Sense Switches.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401140004

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1401-14.0.008 \*M  
SUBROUTINE TO CONVERT DOLLARS AND CENTS DIGITS TO CHECK-FORM  
WORDS

AUTHOR: F. M. Edwards

DIRECT TECHNICAL INQUIRIES TO:  
F. M. Edwards  
IBM Corporation  
215 West State Street  
Trenton, New Jersey

DESCRIPTION - A subroutine which converts numerical values of dollars and cents to the traditional spelled-out check form. Values up to and including \$9999.99 can be converted.

PROGRAMMING SYSTEMS - Subroutine is written in 1401 Autocoder and could be included in the systems tape library as a closed subroutine.

MINIMUM SYSTEM REQUIREMENTS - The subroutine requires 1401 with Advanced Programming and High-Low-Equal Compare. The program utilizes 735 positions of core storage (statements).

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401140008

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-14.0.019 \*M  
STANDARD NAME ALTERATION PROGRAM

AUTHOR: M. F. Lynds

DIRECT TECHNICAL INQUIRIES TO:  
M. F. Lynds  
IBM Corporation  
1107 Myra Street

CONTINUED FROM PRIOR COLUMN

Jacksonville, Florida

DESCRIPTION - This subroutine will convert names that are last name first or last name last in a free format to any configuration in a fixed format. The user is given the addresses of the areas which contain the first name, first initial, middle initial, last name, and suffix. All output is left justified in the respective areas. The subroutine will accommodate eight of the more common prefixes to last names and fourteen of the more common suffixes. The option exists to place the suffix one position to the right of the last name. The subroutine is easily modifiable to insert any extra suffixes or prefixes which are desired.

PROGRAMMING SYSTEMS - Utilizes Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 1401 with 4K High-Low-Equal Compare and Advanced Programming.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401140019

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-14.0.024 \*M  
COPY 1401-AU-008 SYSTEMS PACK TO TAPE THEN TAPE TO 360/2311  
IN COMPATIBILITY MODE

AUTHOR: J. A. Winger

DIRECT TECHNICAL INQUIRIES TO:  
J. A. Winger  
IBM Corporation  
1211 South Harrison Street  
Fort Wayne, Indiana

DESCRIPTION - This program will copy a 1401-AU-008 Autocoder systems pack to tape in odd parity on a 1440 or 1401, and by changing sense switch settings, will copy tape to disk on either 1400 series or any 360 equipped with compatibility. Records are read and written on disk in the track sector format. MOVE mode records are written onto tape without modification. LOAD mode records are written onto tape in MOVE mode with an additional record which indicates word mark locations. Because the systems pack contains word-separator characters, current IBM utility programs will not work. There are many different combinations of information on a 1401-AU-008 systems pack; therefore, the author has made the program general enough to handle any situation.

PROGRAMMING SYSTEMS - 1401-AU-008 Autocoder and 1440-IO-010 IOCS.

MINIMUM SYSTEM REQUIREMENTS - Program requires 8K, Advanced Programming, Sense Switches, 120 print positions, 1 disk and 1 tape. Direct Seek is used if available.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1401140024

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1401-14.0.025 \*M  
TALLY ANALYSIS REGISTRATION AND SCHEDULING

AUTHOR: Alice D. Peters

DIRECT TECHNICAL INQUIRIES TO:  
Alice D. Peters  
IBM Corporation  
150 Grand Street  
White Plains, New York

DESCRIPTION - Tally, Analysis, Registration, and Scheduling (TARS - 1401). The programs produce aids to master schedule building (Tally and Conflict Matrix) and, using a master schedule prepared by the school, process student course requests to create student schedules and an updated master schedule.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - Designed for an 8K, 1 disk, 1401 system.

CONTINUED FROM PRIOR PAGE

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1401140025

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1402-10-3-075

SOCRATES STUDENT SCHEDULING - BETA VERSION

AUTHOR: T.J. Vyskocil

DIRECT TECHNICAL INQUIRIES TO:  
T.J. Vyskocil  
IBM Corporation  
1141 Georgia Ave.  
Wheaton, Maryland 20902

\*\*\* N - - - - - \*\*\*

DESCRIPTION - Socrates provides an in-house system for scheduling students into classes of grades five through fourteen. The system schedules periods zero through twenty-nine for two regular semesters. Features include ability grouping, teacher selection, grade range selection, sex selection, location selection, alternate course requests, study hall assignments, course substitution, and maximum semester and class balancing consistent with minimum rejects. Includes a complete series of programs to simplify data collection, corrections, scheduling and analysis. File maintenance programs permit individual or mass changes. Output reports include verification listings, simple tally, conflict matrix, reject analysis, room and teacher utilization, student schedules and class lists.

PROGRAMMING SYSTEMS - Written in 1401-AU-008.

MINIMUM SYSTEM REQUIREMENTS - 12K storage, 1401/40/60 with bit test, high-low-equal Compare, advanced programming, two 1311 Disk Drives, and any I/O configuration.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1402103075

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | MT                   | 7/556 22       | 01                         |
|          |                             | MT                   | 7/000 24       | 01                         |
| OPTIONAL | none                        | none                 |                | none                       |

1440-01.0.001

PACE - PRE-ASSEMBLY CHECK AND EDIT LISTING

AUTHOR: B.N. Averkamp

DIRECT TECHNICAL INQUIRIES TO:  
B.N. Averkamp  
IBM Corp.  
23 Hitchcock Way  
Santa Barbara, Calif. 93105

DESCRIPTION - PACE brings to the 1440 user an efficient and meaningful diagnostic program. It will check and edit 1440 Autocoder and Autocoder/IOCS source programs by detecting underlined labels, format and parameter errors, coding errors and keypunch errors. The printed output provides a label table in alphabetical order followed by a listing of the source program with errors by significant special characters. An edit is also performed on DIOCS and DTF ENTRIES FOR ACCEPTABILITY AND SPELLING. There are three checks of Autocoder statements pertaining to labels, operation codes and operands. The checking results are equal to an Autocoder Assembly.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 1440 4K, one 1311 and Indexing and Store Address Register. Printed output options are available with Sense Switches.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1440010001

CONTINUED FROM PRIOR COLUMN

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1440-01.4.001

RADIO - RANDOM DISK INPUT/OUTPUT SUBROUTINE

AUTHOR: J. W. Weaver

DIRECT TECHNICAL INQUIRIES TO:  
J.W. Weaver  
Gateway Data Systems  
500 No. 1 Gateway Center  
Pittsburgh, Pa. 15222

DESCRIPTION - An Autocoder Library macro which handles 1311 Disk I/O functions and error routines. It can handle cyl. overflow and use Direct Seek, Scan Disk, and Track Record, if available, on up to five drives. The subroutine is generative, providing only the routines called for. It is intended to replace IOCS random giving the user greater ease of programming and flexibility. The routine was patterned after the PAL Wholesale Grocery macro UPPIO to include special features, Cylinder Overflow, Same. Cylinder Test, and IOCS Type Coded Halt. The routine does not do any label checking. The disk control field must be set by the user and is restored after the operation. The SCAN routine can scan 999 sectors in one operation. Storage requirements - from 369 pos. to 841 depending on features used.

MINIMUM SYSTEM REQUIREMENTS - 4K-1440 1442-Model 1 1443 Model 1, one 1311 Disk Drive Indexing and Store Address Register special feature.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440014001

Indicate "B N 1" in columns 1-3 and the Program Number in columns 4-13 on the IBM Program Order Form.

1440-01.6.001

SORT 54 DISK RESIDENT

AUTHOR: Richard S. Beiser

DIRECT TECHNICAL INQUIRIES TO:  
Richard S. Beiser  
IBM Corporation  
6900 Fannin  
Houston, Texas 77025

DESCRIPTION - A modified SORT 54 is resident on 1311 Disk Storage. The SORT is stored in the load mode in a self-loading format. It required 1540 consecutive sectors on any drive, and can be file-protected. The program loader resides in the highest 4K of core. Program loading is accomplished in about 15 seconds. The SORT is a tailored version of SORT 5 for disk-to-disk sorting without disk label checking. This improves performance 20 to 30 percent.

MINIMUM SYSTEM REQUIREMENTS - Compatible with 1440 Controller. 12K memory, 1311 Disk Drive, Direct Seek, console typewriter, Sense Switches.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440016001

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1440-02.3.001

VARIABLE CARD REPRODUCER FOR 1440/1311

AUTHOR: John F. Cole

DIRECT TECHNICAL INQUIRIES TO:  
John F. Cole  
IBM Corporation  
2911 Cedar Springs Road  
Dallas, Texas 75219

DESCRIPTION - A Load-and-Go control card oriented program for reproducing cards on a 1440 disk system which has only one card read-punch. Card images are first written on disk, then read from disk and punched into blank cards. Simple control card provision allows for relocating fields, omitting fields, and/or emitting characters. Optional print control card provides printed analysis of control

CONTINUED FROM PRIOR PAGE

cards, listing input deck and/or listing output deck.  
Deck listings included card counts and column-number  
headings.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440023001

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1440-02.3.002 \*M

ONE CARD 80-80 CARD TO PRINTER PROGRAM WITH BRANCH ON  
OVERFLOW

AUTHOR: J. G. O Reilly

DIRECT TECHNICAL INQUIRIES TO:  
J. G. O Reilly  
155 Honey Lane  
Waltham Abbey, Essex  
England

DESCRIPTION - This program lists cards and branches to  
channel one on sensing channel twelve. Storage requirements  
are 181 positions.

MINIMUM SYSTEM REQUIREMENTS - 1440 with 1443 and 1442/1402.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440023002

Indicate "B N 1" in columns 1-3 and the Program Number  
in columns 4-13 on the IBM Program Order Form.

1440-02.7.004 \*M

CORE DUMP

AUTHOR: W. C. Worthington

DIRECT TECHNICAL INQUIRIES TO:  
W. C. Worthington  
IBM Corporation  
180 South Main Street  
Providence, R. I. 02903

DESCRIPTION - This program gives a core dump for 4K, 8K,  
12K or 16K 1440 systems. It was designed because most  
of the existing memory dumps destroyed a part, or parts,  
of storage as they were loaded. This program uses only  
the first eighty initially and prints all remaining  
positions of storage. Word marks are printed as "ones"  
on the line following each data bank of storage. Group  
marks are printed as G's in the data line and W or M in  
the word mark line depending on the presence or absence  
of an associated word mark. There are two decks available  
- a 4K deck and one for 8K and larger systems.

PROGRAMMING SYSTEM - To facilitate the loading of the  
program and the conservation of core used, the program  
has been written in self-loading, machine language.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440027004

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1440-03.1.001 \*M

REPRODUCE GANG PUNCH SIMULATOR

AUTHOR: Dennis P. Lee

DIRECT TECHNICAL INQUIRIES TO:  
Dennis P. Lee  
C/O Commodity Service Co. (Ja.) Ltd.  
7-9, Harbour Street  
Kingston, Jamaica

DESCRIPTION - This program has been designed to perform  
any/all of the functions of an IBM 519 without programming  
effort on the users part. The system on which the object  
program is to be run must have at least 4000 positions  
of core storage with no special features.

CONTINUED FROM PRIOR COLUMN

PROGRAMMING SYSTEMS - Source language is Autocoder.

MINIMUM SYSTEM REQUIREMENTS - One IBM 1442 Card Read-Punch.  
One IBM 1443 Printer. If the reproducing phases are desired  
the object program also requires one IBM 1311 Disk Storage  
Drive.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440031001

Indicate "B N 1" in columns 1-3 and the Program Number  
in columns 4-13 on the IBM Program Order Form.

1440-10.1.001 \*M

SHI MEAT SYSTEM

AUTHORS: Mr. R. Sharer Mr. R. Grottko

DIRECT TECHNICAL INQUIRIES TO:  
Mr. R. Sharer  
Arthur Andersen and Co.  
69 W. Washington St.  
Chicago, Ill. 60602

DESCRIPTION - This system prepares management reports  
containing cost, sales distribution and efficiency  
information of retail meat departments in a supermarket  
chain. The system also prepares reports for purchasing  
and profit planning. There are about 39 object decks in  
the system.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 8K 1440, 1442, 1443 or 1403/  
120 print positions, console typewriter, 2-2311s, Advanced  
Programming features; no Multiply-Divide.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up on Microfiche only.  
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440101001

Indicate "B N 1" in columns 1-3 and the Program Number  
in columns 4-13 on the IBM Program Order Form.

1440-10.2.002 \*M

1240/1440 PROOF OF DEPOSIT AND CASH LETTER WRITING

AUTHOR: J. L. Brooks

DIRECT TECHNICAL INQUIRIES TO:  
J. L. Brooks  
IBM Corp.  
618 S. Michigan Ave.  
Chicago, Ill.

DESCRIPTION - Deposits, checks, cash slips, control slips  
and substitute documents are entered into the 1412 or 1240.  
An in-proof journal is prepared, a primary distribution  
of the documents is performed, and good data recorded in  
disk storage. The data recorded in disk storage is then  
read and cash letters for kill-pockets prepared. There  
are 1944 source statements.

PROGRAMMING SYSTEMS - For correct compilation of the source  
programs IBM 1440-AU-000 Autocoder must be used.

MINIMUM SYSTEM REQUIREMENTS - 1440 - A 1441-A4 8K CPU with  
no. 4631 Index Registers and Store Registers... No. 5561  
Printer Attachment... No. 3321 Disk Storage Control...  
No. 7880 Serial I/O Adapter... No. 2260 Console Attachment.  
A 1442-1 or 2 Card Read Punch with No. 1632 Card Read Punch  
Adapter. A 1443-2 Printer with No. 5567 Printer Control...  
No. 5559 Print Positions, 24 additional... No. 5585 Print  
Storage... No. 6401 Selective Character Set... A 1447-1  
Console with No. 7600 Sense Switches... A 1412 Magnetic  
Character Reader with 1311-1 Disk Storage Drive... 1311-  
2 Disk Storage Drive.

MINIMUM SYSTEM REQUIREMENTS - 1240 - A 1241 A0 8K CPU with  
No. 4631 Index and Store Registers... No. 5561 Printer  
Attachment... No. 3321 Disk Storage Control... No. 2260  
Console Attachment. A 1442 1 or 2 Card Read Punch with  
No. 1632 Card Read Punch Adapter. A 1443 2 Printer with  
No. 5567 Printer Control... No. 5559 Print Positions  
Additional 24... No. 5585 Print Storage... No. 6401  
Selective Character Set. A 1447-1 Console with No. 7650  
Sense Switches. A 1311-1 Disk Storage Drive 1311-2 Disk  
Storage Drive.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440102002

|       | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|-------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC | none                        | DTR*                 | 00             | none                       |



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OPTIONAL none none none

1440-10.2.003 \*M  
INSTALLMENT LOAN ACCOUNTING

AUTHOR: Mr. Ernest Wong

DIRECT TECHNICAL INQUIRIES TO:

Mr. Ernest Wong  
IBM Corp.  
420 Montgomery St.  
San Francisco, Calif. 94104

DESCRIPTION - The complete installment loan accounting for a small to medium sized bank can be accomplished on the IBM 1440 Data Processing System with this package of 15 program runs. The runs are in 3 main categories, and consist of new loan, daily, and periodic processing. The handling of new loans is done in 4 runs which edit and convert from card to file, print a new loan journal, print an alphabetic reference card, and produce coupons and covers. Daily processing involves master file maintenance, batch proof, posting to master and dealer files, and report output. Periodic (weekly and monthly) runs are made on dealer file maintenance, and print-out of delinquency notices, trial balance, and weekly and monthly reports. Interest rebates are computed by the 78ths method and accrual of unearned income is done by the straight line method.

PROGRAMMING SYSTEMS - Written in 1440 Autocoder with disk IOCS.

MINIMUM SYSTEM REQUIREMENTS - Requires 8K, Indexing and Store Address Register feature, 1442, 1443 with 144 print positions, Sense Switches, and 2 - 1311 Disk Drives. There are 9067 source statements.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - None  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1440102003

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

1440-11.5.005 \*M  
PROPERTY ACCOUNTING SYSTEM FOR HOSPITAL

AUTHOR: Mr. D. R. Statham

DIRECT TECHNICAL INQUIRIES TO:

Mr. D. R. Statham  
1615 W. 25th St.  
Birmingham, Ala. 35234

DESCRIPTION - To depreciate and list all property equipment monthly, while providing for deletions and additions to the file and checking and handling separately items that would over depreciate.

PROGRAMMING SYSTEMS - Programmed using Autocoder and IOCS.

MINIMUM SYSTEM REQUIREMENTS - 4K-1440 with Indexing and Store Register, a 1442 Card Read Punch, a 1443 Printer, 2-1311 Disk Drives, a 1447 Console.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1440115005

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | none                 |                | none                       |

1440-12.3.002 \*M  
LABOR AND MATERIAL PROGRAM

AUTHORS: J. D. Callon J. Witt  
Patricia Roche B. L. Fritch

DIRECT TECHNICAL INQUIRIES TO:

J. D. Callon  
IBM Corporation  
3424 Wilshire Boulevard  
Los Angeles, California 90005

DESCRIPTION - This is a demonstration program which is

CONTINUED FROM PRIOR COLUMN

an extension of the 1440 Bill of Material Processor. It includes -

- . Loading and maintenance of inventory and product structure records.
- . Loading and maintenance of work center and routing records.
- . Gross to net time series planning report with requirements offset by lead time.
- . Gross work center loading by time period.
- . Retrieval reports (explosion and implotions).
- . Calculation and maintenance of low level codes.

This program offers manufacturing companies an excellent base for developing mechanized production control programs. By taking advantage of these standardized routines the user can benefit from earlier implementation as well as minimization of planning and programming expenses. The package makes eight programs available to the user, which enable him to load and maintain his part number and machine group master files with random indexes to these files.

PROGRAMMING SYSTEMS - Written in Autocoder.

MINIMUM SYSTEM REQUIREMENTS - 8K 1440 CPU... 1442 Card Read Punch... 1443 Printer, 120 print position... 1447 Model 2 Console With Sense Switches... (2) 1311 Disk Drives... Indexing and Store Address Register feature.

BASIC PROGRAM PACKAGE  
DOCUMENTATION - Write-up.  
MACHINE READABLE - Appropriate material delivered.

OPTIONAL PROGRAM PACKAGE  
DOCUMENTATION - None.  
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1440123002

|          | PROGRAM NUMBER<br>EXTENSION | DISTRIBUTION<br>TYPE | MEDIUM<br>CODE | USER VOLUME<br>REQUIREMENT |
|----------|-----------------------------|----------------------|----------------|----------------------------|
| BASIC    | none                        | DTR*                 | 00             | none                       |
| OPTIONAL | none                        | DTR*                 | 00             | none                       |

**IBM****Technical Newsletter**

File Number 1401/1440-20

Re: Order No. GC20-1601-10

This Newsletter No. GN20-0013-22

Date December 1971

Previous Newsletter Nos. GN20-0013-21

**CATALOG OF PROGRAMS FOR IBM 1240, 1401, 1420, 1440, 1450 and 1460  
DATA PROCESSING SYSTEMS – December 1971 Supplement**

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This publication is a Supplement to the "Catalog of Programs for IBM 1240, 1401, 1420, 1440 and 1460 Data Processing Systems", GC20-1601-10.

Complete instructions for using the KWIC Index and for ordering programs are included in the Catalog. Programs will not be supplied by authors and should not be requested from them.

**List of Program Deletions**

These programs will be deleted because of low usage

*IBM Corporation, Program Information Department, 40 Saw Mill River, Hawthorne, N. Y. 10532*

Printed in U.S.A.

## PLANNED DELETIONS

The following list of Type I programs will be deleted by the Program Information Department on March 31, 1972, because of low usage. Until that date, orders for these programs will be accepted by the Program Information Department.

|             |   |
|-------------|---|
| 1401-AT-017 | CARD SYSTEM ERROR - DETECTION AIDS  |
| 1401-IO-012 | COMMUNICATIONS IOCS (1026/DOC) FOR THE<br>1401/1460   |
| 1401-LM-011 | 1401/1460 TIMING PROGRAM FOR IBM BASIC<br>OPERATING SYSTEM/360 DISK SORT/MERGE PROGRAM<br>(16K) |
| 1401-OS-092 | 1401/1460 - 1026 OPERATING SYSTEM COMPUTER<br>ASSISTED INSTRUCTION                              |
| 1401-RG-033 | REPORT PROGRAM GENERATOR 2K   |
| 1410-PR-155 | 1410/7010 OPERATING SYSTEM  |

The following list of Type II Applications Programs will be deleted by the Program Information Department on March 31, 1972, because of low usage. Until that date, orders for these programs will be accepted by the Program Information Department.

|             |   |
|-------------|---|
| 1401-CN-03X | AUTOPROPS II NUMERICAL CONTROL PROGRAM                          |
| 1401-CO-13X | 1400-1311 LINEAR PROGRAMMING                                    |
| 1401-CR-01X | SELECTIVE DISSEMINATION OF INFORMATION SYSTEM                   |
| 1401-DW-03X | 1311 WHOLESALE IMPACT   |
| 1401-EX-01X | ENGINEERING SCHEDULING SYSTEM                                   |
| 1401-IF-01X | AUTO RATING FOR FIRE AND CASUALTIES COMPANIES                   |
| 1401-IF-02X | GENERAL DISTRIBUTION PROGRAM                                    |
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