File No. 1410/7000
Form C20-1602-8

IBM Systems Reference Library

Catalog of Programs for IBM 705 - 1410 - 7010 - 7070 - 7072 - 7074 - 7080 - 7740 and 7750 Data Processing Systems

(June 1968)

This Catalog contains a complete listing of all programs for the IBM 705, 1410, 7010, 7070, 7072, 7074, 7080, 7740 and 7750 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, "How to Order Programs".

TABLE OF CONTENTS

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

INTRODUCTION

The Catalogs for the systems listed below, with their form numbers, are currently available from IBM Branch Offices. Individually updated supplemental issues of all Catalogs will be published under the form numbers indicated and can be obtained from IBM Branch Offices as they are published.

Title	Catalog Form No.	Supplement Form No.
Catalog of Programs for IBM 1240, 1401, 1420, 1440, and 1460 Data Processing Systems	C20-1601	N20-0013
Catalog of Programs for IBM 705, 1410, 7010, 7070, 7072, 7074, 7080, 7740 and 7750 Data Processing Systems	C20-1602	N20-0014
Catalog of Programs for IBM 1620 and 1710 Data Processing Systems	C20-1603	N20-0015
Catalog of Programs for IBM 704, 709, 7040, 7044, 7090 and 7094 Data Processing Systems	C20-1604	N20-0016
Catalog of Programs for IBM System/360	C20-1619	N20-0030
Catalog of Programs for IBM 1130 Computer System and IBM 1800 Data Acquisition and Control System	C20-1630	N20-0031
Catalog of Programs for IBM System/360 Model 20	C20-1691	N20-1852

This catalog and its supplements contain a complete listing of all programs available for the IBM 705, 1410, 7010, 7070, 7072, 7074, 7080, 7740 and 7750 Data Processing Systems. To assist you in using this catalog, the abstracts are listed by program order number in numeric and alphabetical sequence.

TYPES OF PROGRAMS

IBM Programs

Type I (Programming Systems) and Type II (Application Programs) are provided by the IBM Corporation as part of its service to customers. The programs have been subjected to formal testing and are maintained by IBM. Modifications are distributed to registered users of the programs by the Program Information Department. IBM makes no warranty, expressed or implied, as to the documentation, function, or performance of these programs and the user of the programs is expected to make the final evaluation as to their usefulness in his own environment.

Abstracts for Type I and Type II programs are contained in the "IBM Programs" section of this Catalog.

Contributed Programs

Type III (IBM Contributed Programs) and Type IV (Customer Contributed Programs) are programs of general interest contributed to the Program Information Department for distribution. These programs and their documents are essentially in the author's original form and have not been subjected to any formal testing. IBM makes no warranty, expressed or implied, as to the documentation, function or performance of these programs and the author is expected to make the final evaluation as to their usefulness in his own environment. There is no committed maintenance for these programs.

Abstracts for Type III and Type IV programs are contained in the "Contributed Programs" section of this Catalog.

USER ORGANIZATIONS

The major user organizations are COMMON, GUIDE, and SHARE. Members of these organizations all have IBM systems installed, on order, or are major users. Members participate in the exchange of systems and programming information. They also provide information to IBM on desired product features and matters of general interest.

COMMON is an organization of users of IBM 1620, 1710, 1130, 1800 and System/360 Data Processing Systems.

GUIDE is an organization of users of IBM 705, 1410, 7010, 7070, 7072, 7024 and 7080 Data Processing Systems and certain models of System/360.

SHARE is an organization of users of IBM 704,709, 7040, 7044, 7090 and 7094 Data Processing Systems and certain models of System/360.

STANDARDS FOR TYPE IV (CUSTOMER-CONTRIBUTED) PROGRAMS

Programs written by customer personnel must conform to established standards and procedures. These criteria differ according to the machine system for which the program is written. Copies of standards and procedures for Type IV (Customer-Contributed) Programs are available through your local IBM Branch Office.

HOW TO ORDER PROGRAMS

Domestic Customers

All program material listed in this Catalog should be ordered through your local IBM Branch Office.

Type I Programming Systems and Type II Application Programming Systems

The IBM Program Order Card Set (Form No. 120-1102) is used for ordering Type I Programming Systems and Type II Application Programming Systems.

Most of the information requested on the card set is self-explanatory except for the following areas:

Program Number - The unique 9 character code representing the specific program.

Division and Branch Office Number should be indicated.

Customer Number - All requests must include a 7-digit customer number.

Figure A shows an example of the IBM Program Order Card Set.

Type III IBM Contributed Programs and Type IV Customer Contributed Programs

The General Program Request Card (Form No. 120-1145) is used for ordering Type III IBM Contributed Programs and Type IV Customer Contributed Programs.

Most of the information requested on the card is self-explanatory except for the following areas.

Program Number - The unique number which appears with the program abstract.

Division and Branch Office Number should always be indicated.

Customer Number - All requests must include a 7-digit customer number.

Figure B shows an example of the General Program Request Card.

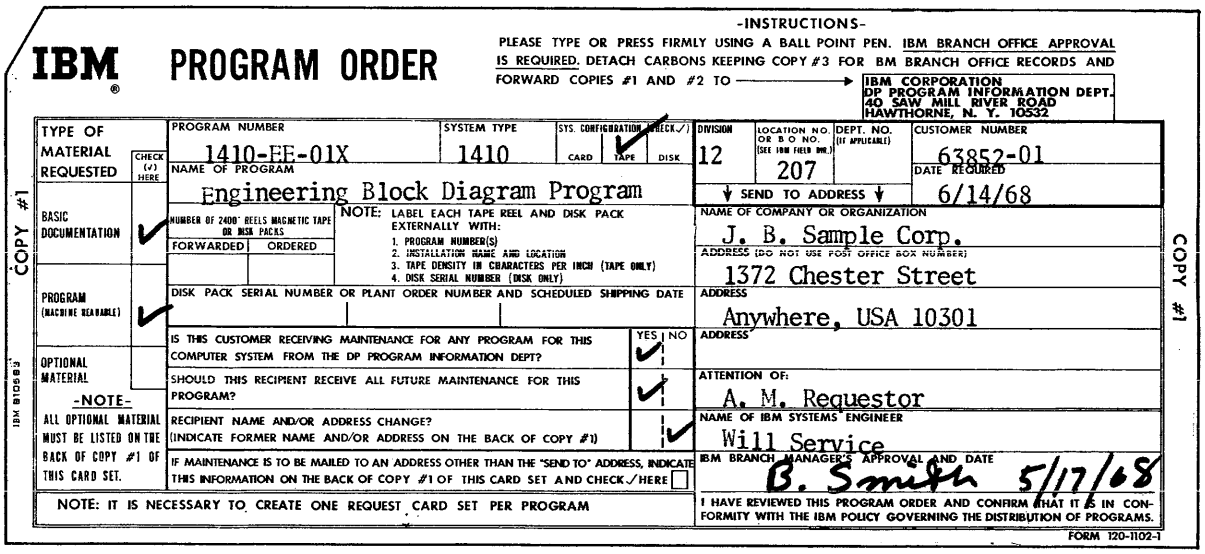
Machine Readable Media

If the program abstract states that the machine readable material is available on tape or disk, enclose the program request with the tape or disk. Indicate the quantity forwarded in the appropriate box.

If magnetic tape is to be ordered, submit the program request to your IBM Representative.

Requests for Documentation Only

Requests for documentation only are honored by the Program Information Department, Hawthorne, New York. Requests for documentation only for Type I and II programs should be made using the IBM Program Order Card Set (Form No. 120-1102). Figure A shows an example of the card. Requests for documentation only for Type III and IV programs should be made using the General Request Card (Form No. 120-1145). Figure B shows an example of the card.



IBM PROGRAM ORDER

-INSTRUCTIONS-
PLEASE TYPE OR PRESS FIRMLY USING A BALL POINT PEN. IBM BRANCH OFFICE APPROVAL IS REQUIRED. DETACH CARBONS KEEPING COPY #3 FOR BM BRANCH OFFICE RECORDS AND FORWARD COPIES #1 AND #2 TO → IBM CORPORATION, DP PROGRAM INFORMATION DEPT., 40 SAW MILL RIVER ROAD, HAWTHORNE, N. Y. 10532

TYPE OF MATERIAL REQUESTED (CHECK (✓) HERE)
- BASIC DOCUMENTATION ✓
- PROGRAM (MACHINE READABLE) ✓
- OPTIONAL MATERIAL

-NOTE- ALL OPTIONAL MATERIAL MUST BE LISTED ON THE BACK OF COPY #1 OF THIS CARD SET.

PROGRAM NUMBER: 1410-EE-01X
SYSTEM TYPE: 1410
SYS. CONFIGURATION (CHECK ✓): CARD | TAPE ✓ | DISK
NAME OF PROGRAM: Engineering Block Diagram Program
NUMBER OF 2400' REELS MAGNETIC TAPE OR DISK PACKS: FORWARDED | ORDERED
NOTE: LABEL EACH TAPE REEL AND DISK PACK EXTERNALLY WITH:
1. PROGRAM NUMBER(S)
2. INSTALLATION NAME AND LOCATION
3. TAPE DENSITY IN CHARACTERS PER INCH (TAPE ONLY)
4. DISK SERIAL NUMBER (DISK ONLY)
DISK PACK SERIAL NUMBER OR PLANT ORDER NUMBER AND SCHEDULED SHIPPING DATE

	YES	NO
IS THIS CUSTOMER RECEIVING MAINTENANCE FOR ANY PROGRAM FOR THIS COMPUTER SYSTEM FROM THE DP PROGRAM INFORMATION DEPT?	✓	
SHOULD THIS RECIPIENT RECEIVE ALL FUTURE MAINTENANCE FOR THIS PROGRAM?	✓	
RECIPIENT NAME AND/OR ADDRESS CHANGE? (INDICATE FORMER NAME AND/OR ADDRESS ON THE BACK OF COPY #1)		✓

IF MAINTENANCE IS TO BE MAILED TO AN ADDRESS OTHER THAN THE "SEND TO" ADDRESS, INDICATE THIS INFORMATION ON THE BACK OF COPY #1 OF THIS CARD SET AND CHECK ✓HERE ☐

NOTE: IT IS NECESSARY TO CREATE ONE REQUEST CARD SET PER PROGRAM

DIVISION: 12
LOCATION NO. OR B O NO. (SEE IBM FIELD DIR.): 207
DEPT. NO. (IF APPLICABLE):
CUSTOMER NUMBER: 63852-01
DATE REQUIRED: 6/14/68

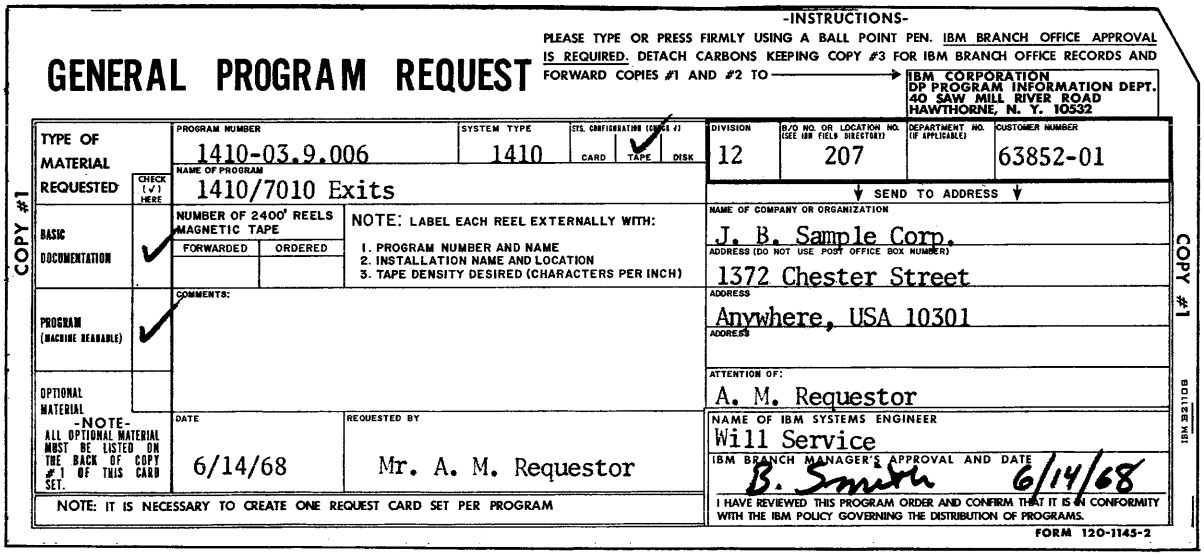
↓ SEND TO ADDRESS ↓

NAME OF COMPANY OR ORGANIZATION: J. B. Sample Corp.
ADDRESS (DO NOT USE POST OFFICE BOX NUMBER): 1372 Chester Street
ADDRESS: Anywhere, USA 10301
ADDRESS:
ATTENTION OF: A. M. Requestor
NAME OF IBM SYSTEMS ENGINEER: Will Service
IBM BRANCH MANAGER'S APPROVAL AND DATE: B. Smith 5/17/68

I HAVE REVIEWED THIS PROGRAM ORDER AND CONFIRM THAT IT IS IN CONFORMITY WITH THE IBM POLICY GOVERNING THE DISTRIBUTION OF PROGRAMS.

COPY #1 (×2)
IBM 810583
FORM 120-1102-1

Figure A.



GENERAL PROGRAM REQUEST

-INSTRUCTIONS-
PLEASE TYPE OR PRESS FIRMLY USING A BALL POINT PEN. IBM BRANCH OFFICE APPROVAL IS REQUIRED. DETACH CARBONS KEEPING COPY #3 FOR IBM BRANCH OFFICE RECORDS AND FORWARD COPIES #1 AND #2 TO → IBM CORPORATION, DP PROGRAM INFORMATION DEPT., 40 SAW MILL RIVER ROAD, HAWTHORNE, N. Y. 10532

TYPE OF MATERIAL REQUESTED (CHECK (✓) HERE)
- BASIC DOCUMENTATION ✓
- PROGRAM (MACHINE READABLE) ✓
- OPTIONAL MATERIAL

-NOTE- ALL OPTIONAL MATERIAL MUST BE LISTED ON THE BACK OF COPY #1 OF THIS CARD SET.

PROGRAM NUMBER: 1410-03.9.006
SYSTEM TYPE: 1410
SYS. CONFIGURATION (CODES ✓): CARD | TAPE ✓ | DISK
NAME OF PROGRAM: 1410/7010 Exits
NUMBER OF 2400' REELS MAGNETIC TAPE: FORWARDED | ORDERED
NOTE: LABEL EACH REEL EXTERNALLY WITH:
1. PROGRAM NUMBER AND NAME
2. INSTALLATION NAME AND LOCATION
3. TAPE DENSITY DESIRED (CHARACTERS PER INCH)
COMMENTS:
DATE: 6/14/68
REQUESTED BY: Mr. A. M. Requestor

NOTE: IT IS NECESSARY TO CREATE ONE REQUEST CARD SET PER PROGRAM

DIVISION: 12
B/O NO. OR LOCATION NO. (SEE IBM FIELD DIRECTORY): 207
DEPARTMENT NO. (IF APPLICABLE):
CUSTOMER NUMBER: 63852-01

↓ SEND TO ADDRESS ↓

NAME OF COMPANY OR ORGANIZATION: J. B. Sample Corp.
ADDRESS (DO NOT USE POST OFFICE BOX NUMBER): 1372 Chester Street
ADDRESS: Anywhere, USA 10301
ADDRESS:
ATTENTION OF: A. M. Requestor
NAME OF IBM SYSTEMS ENGINEER: Will Service
IBM BRANCH MANAGER'S APPROVAL AND DATE: B. Smith 6/14/68

I HAVE REVIEWED THIS PROGRAM ORDER AND CONFIRM THAT IT IS IN CONFORMITY WITH THE IBM POLICY GOVERNING THE DISTRIBUTION OF PROGRAMS.

COPY #1 (×2)
IBM 810583
FORM 120-1145-2

Figure B.

IBM World Trade Users

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

KEY-IN-CONTEXT INDEX

The Keyword-in-Context Index lists available programs arranged alphabetically by the keywords in the program titles. There is an index entry for each significant keyword in the title. Certain words are not accepted as indexing words but will be printed as part of the title. The complete "Stop List" of words not accepted for indexing is included under the heading "Words Prevented from Indexing".

This KWIC Index was prepared by highlighting each keyword of the title in the context of words on either side of it and aligning the keywords of all titles alphabetically in a vertical column. The following example will illustrate the operation:

Notice that the # sign always precedes the first word of the title. A title that is longer than 59 characters will show only the characters that fall on either side of the keyword being highlighted, up to the limits of one line. The comlete title may be found in the Abstract section. The slash(/) is used in place of parentheses. The # placed two spaces in front of the first word indicates that the entry is the second part of a two-line title.

TITLE	SYSTEM	FILE NO.	PAGE
#ADAPT 1401 COMPILER	0705	01.2.002	019
/7340 CAPABILITIES ADDED/, FOR #FORTRAN LOADER-PACKAGE	7070	FO-149	009
WRITE #INVALID ALPHA SEARCH PROGRAM FOR TAPE CHECKPOINT	7070	03.9.001	021
#ARCTANGENT SUBROUTINE	7070	08.1.010	021
ODER DECISION TABLE ASSEMBLER #AUTOC	7070	01.1.002	020
#SYMBOLIC ASSEMBLY FOR 1401	0705	01.1.002	019
#0705/1401A ASSEMBLY PROGRAM	0705	CV-045	001
ROGRAM #AUTO-CORRELATION AND CROSS-CORRELATION P	7070	11.2.002	022
#AUTO-COVARIANCE, POWER SPECTRUM	7070	11.2.001	022
#AUTO-TEST GENERATOR	7070	04.3.003	021
#7070/7074 AUTOCHART	7070	AD-151	008
#BASIC AUTOCODER	7070	AU-072	008
#AUTOCODER DECISION TABLE ASSEMBLER	7070	01.1.002	020
#AUTOCODER MACROS	1410	01.9.001	019
#AUTOCODER 74	7070	AU-074	008
AT -- PROCEDURE FOR AUTOMATIC TESTING #P	7070	AT-082	008
THODS AND STANDARDS AUTOMATION #M.A.S.A. ME	7080	07.9.001	024
#BANK 4 UTILITIES	7080	UT-135	016
#ENGINEERING BLOCK DIAGRAM PROGRAM	1410	EE-01X	003
PROGRAMMING SYSTEM CARD/ TAPE, 1 NON-OVERLAP #BASIC LINEAR	1410	CO-09X	002
PROGRAMMING SYSTEM CARD/ TAPE, 1 OVERLAP #BASIC LINEAR	1410	CO-01X	002
PROGRAMMING SYSTEM CARD/ TAPE, 2 OVERLAP #BASIC LINEAR	1410	CO-07X	002
ILY CYCLE AND #62 CFO /CONSOLIDATED FUNCTIONS ORDINARY/ DA	1410	IL-06X	003
# CHANNEL	1410	CO-01X	002
# CHANNEL	1410	CO-06X	002
# CHANNEL	1410	CO-09X	002
# CHANNELS	1410	CO-07X	002
CH PROGRAM FOR TAPE CHECKPOINT WRITE #INVALID ALPHA SEAR	7070	03.9.001	021
AND 1401 #CLASS SCHEDULING PROGRAM FOR THE 7070/74	7070	12.9.004	023
#LINEAR PROGRAMMING CODE S2	7070	06.1.004	021
#COMMUNICATIONS CONTROL PACKAGE	7740	SV-160	018
#ADAPT 1401 COMPILER	0705	01.2.002	019
#7070/2/4 COMPILER SYSTEMS TAPE	7070	[illegible]-075	010
#COMPILING SYSTEM TAPE	70[illegible]	[illegible]32	014
#P[illegible] COMPONENTS [illegible]R ANALYSIS		[illegible]015	022
[illegible]NSOLE		[illegible]	023

PROGRAM CLASSIFICATION CODES

Included below is a complete listing of classification codes for all types of programs and for each system included in this Catalog.

In addition to assisting you in locating the abstract of each program, this list should prove useful in classifying programs written by IBM or customer personnel and contributed to the program libraries.

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/ FORTRAN - Formula Translation
/IO/ Input/Output
/LM/ 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

Programming Systems 1.0
- 1.1 Assemblers
- 1.2 Compilers
- 1.3 Input/Output Control
- 1.4 Interpretive Systems
- 1.9 Other

Data Handling 2.0
- 2.1 Sorting
- 2.2 Merging
- 2.3 Report Generation

2.4 Data Conversion
2.5 Table Operations
2.6 Information Retrieval
2.7 Teleprocessing (1410 and 7010 and 7740 and 7750)
2.9 Miscellaneous

Utility Routines 3.0
3.1 Loading
3.2 Supervisory
3.3 Clear Memory
3.4 Tape Handling
3.5 Disk Handling
3.9 Miscellaneous

Testing and Debugging Routines 4.0
4.1 Dumping
4.2 Tracing
4.3 Test Data Preparation
4.4 Testing Systems
4.9 Miscellaneous

Hardware Simulation 5.0
5.1 Inter-Machine
5.2 Intra-Machine

Operations Research 6.0
6.1 Linear Programming Routines
6.2 Non-Linear Programming Routines

Scientific and Engineering Applic. 7.0
7.1 Nuclear Engineering
7.2 Civil Engineering
7.3 Hydraulic and Gas
7.4 Petroleum
7.5 Chemical
7.6 Electrical Engineering
7.9 General

Elementary Functions & Prog. Arith. 8.0
8.1 Trigonometric
8.2 Hyperbolic, Exponential, and Logarithmetic
8.3 Roots and Powers of Monomials
8.4 Interpretive Floating Point Arithmetic
8.5 Complex Arithmetic
8.6 Interpolation
8.9 Other

Higher Mathematical Functions 9.0
9.1 Polynomial and Related Routines
9.2 Special Functions
9.3 Numerical Solution of Ordinary Differential Equations
9.4 Numerical Solution of Partial Differential Equations
9.5 Numerical Integration
9.9 Other

Operations on Matrices, Vectors, and Simultaneous Linear Equations 10.0
10.1 Matrix Operations
10.2 Eigenvalues and Eigenvectors
10.3 Determinants
10.4 Simultaneous Linear Equations
10.9 Other

Statistical Applications 11.0
11.1 Curve Fitting and Smoothing
11.2 Auto Correlation
11.3 Correlation and Regression Analysis
11.4 Sequential Analysis
11.5 Analysis of Variance
11.7 Random Number Generators
11.9 Other

Business and Commercial Applic. 12.0
12.1 Inventory Control
12,2 Production Scheduling
12.9 Other

Demonstration Programs 13.0
13.1 Display
13.2 Participation

Management Science 14.0
14.1 Simulations
14.2 Numerical Controls
14.3 Other

Unclassified 99.0

USING THE CATALOG

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:

System	File No.
7070	AT-082
1410	11.9.001
The number of the IBM system for which the program is written.	The IBM Library code for filing and ordering a program.

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; 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 and IV 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.

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 changes in the card decks and tapes.

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 title of the program has been modified when it appears only at the extreme right end of the title line.

*M - This symbol indicates that the text of the abstract has been modified when an additional *M or * alone appears, at the extreme right end of each line of the abstract that has been modified.

*R - This symbol indicates that the entire text of the abstract has been revised.

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, "How to Order Programs".

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

DELETED PROGRAMS

This section consists of a list of programs deleted since the last Supplement to the Catalog and a list of all programs deleted since the last edition of this Catalog.

Included is an alphabetical heading "Reason for Removal". Each letter refers to a key that indicates the specific reasons for removing the program from the Catalog.

Alphabetical Key to Reason for Removal

A - This Program has been deleted because of low usage.

B - This Program has been withdrawn at User Organization Direction.

C - This program has been deleted because of limited usefulness.

D - This program is obsoleted and replaced by file number _____.

F - This program has been withdrawn by the author.

Programs deleted by the letter "D" are followed by a file number code. This code is the file number of the program that replaces the deleted program.

An abstract for the replacement program may be found in the "Abstracts of Available Programs" Sections in this Catalog.

WORDS PREVENTED FROM INDEXING

For the purpose of this index the following words are considered to be too general to be useful for retrieval purposes and are therefore prevented from indexing. This list may be modified as needed to make the index more useful. Note that hyphenated words are treated as one index word, with only the first word being significant.

A
ABOUT
ABOVE
ACCOMPANYING
ACCORDING
ACHIEVED
ACHIEVEMENTS
ACHIEVES
ACQUIRED
ACROSS
ADAPTATION
ADDITIONAL
ADVANTAGE
ADVANTAGES
AFFECT
AFFECTED
AFFECTING
AFFORDING
AFTER
AGAIN
AGAINST
AIMED
ALL
ALLEGED
ALLOW
ALLOWED
ALLOWING
ALLOWS
ALMOST
ALONE
ALONG
ALSO
AMONG
AN
ANALYSES
ANALYSIS
ANALYZING
AND
AND/OR
ANOTHER
ANY
APART
APPARENT
APPARENTLY
APPEAR
APPEARING
APPLICABILITY
APPLICABLE
APPLICATION
APPLICATIONS
APPLIED
APPLY
APPLYING
APPRECIABLE
APPROACH
APPROACHES
APPROACHING
ARE
ARISE
ARISING
AROUND
AS
ASCERTAIN
ASPECT
ASPECTS
AT
ATTAIN
ATTAINED
ATTEMPT
ATTEMPTED
ATTEMPTS
AVAILABILITY
AVAILABLE
AVOIDING
AWAY
B
BAD
BASED
BASIC
BE
BECAUSE
BEEN
BEFORE
BEING
BELONG
BELOW
BEST
BETTER
BETWEEN
BEYOND
BIG
BOTH
BRIEF
BRIEFLY
BRING
BUT
BY
C
CALLED
CAN
CAPABILITIES
CAPABILITY
CAPABLE
CAUSE
CAUSED
CAUSES
CAUSING
CERTAIN
CHALLENGE
CHIEF
CO
COME
COMING
COMPANIES
COMPANY
COMPLETE
COMPLETED
COMPLETELY
COMPRISING
CONCERNED
CONCERNING
CONSIDERATION
CONSIDERATIONS
CONSIDERED
CONSIDERING
CONSISTING
CONVENIENT
CORP
CORPORATION
COULD
CPS
D
DATA
DE
DEG
DEPARTMENT
DEPARTMENTS
DEPENDING
DEPT
DETERMINATION
DETERMINE
DETERMINED
DETERMINING
DI
DID
DISCUSSION
DO
DOES
DOING
DONE
DOUBLE
DOUBLY
DOWN
DR
DUE
DURING
E
EACH
EARLIER
EARLY
EASE
EASILY
EASY
EIGHT
EITHER
ENG
ET
ETC
EXPLANATION
EXTREMELY
F
FAR
FAST
FEW
FEWER
FIFTH
FINAL
FIRST
FIVE
FOR
FOUR
FOURTEEN
FOURTH
FROM
FT
FULL
FULLY
FUNDAMENTALS
FURTHER
G
GAVE
GENERAL
GENERALLY
GIVE
GIVEN
GIVES
GIVING
GOOD
GREATER
GREATLY
GUIDE
H
HAD
HAS
HAVE
HAVING
HE
HIGH
HIGHER
HIGHLY
HIS
HOW
I
IBM
IF
II
III
IMPLICATIONS
IMPORTANCE
IMPORTANT
IMPROVED
IMPROVEMENT
IMPROVEMENTS
IMPROVING
IN
INC
INCLUDE
INCLUDED
INCLUDING
INCORPORATING
INCREASE
INCREASED
INCREASES
INCREASING
INFLUENCE
INFLUENCED
INFLUENCING
INNER
INSIDE
INSTEAD
INTERESTING
INTO
INVOLVING
IS
IT
ITS
ITSELF
IV
J
K
KEPT
L
LARGE
LARGER
LIKE
LIKELY
LONG
LOOK
LOW
LOWER
LTD
M
MADE
MAKE
MAKES
MAKING
MANY
MEANS
MET
METHOD
METHODS
MORE
MOST
MPH
MULTIPLE
MY
N
NEAR
NEARLY
NECESSARY
NEED
NEEDED
NEEDS
NEW
NEWER
NEWLY
NEXT
NINE
NO
NOT
NOW
O
OBSERVED
OBTAINABLE
OBTAINED
OBTAINING
OCCURRING
OF
OFF
ON
ONE
ONLY
ONTO
OR
OTHER
OUR
OUT
OVER
P
PARTICULAR
PER
POOR
POSSIBILITY
POSSIBLE
PRACTICAL
PRELIMINARY
PRESENCE
PRESENT
PRIMARY
PRINCIPLE
PRINCIPLES
PROCEDURE
PROCEDURES
PROGRAM
PROGRAMMING
PROGRAMS
PUT
Q
R
RECENT
REGARDING
RELATED
RELATING
RELATION
RELATIONSHIP
RELATIONSHIPS
RELATIVE
REQUIRE
REQUIRED
REQUIRES
REQUIRING
RESULTING
RESULTS
ROUTINE
S
SCHEME
SCHEMES
SEC
SECONDARY
SEE
SEEMS
SEEN
SELF
SEVEN
SEVENTH
SEVERAL
SHORT
SHORTER
SIGNIFICANCE
SIGNIFICANT
SIMILAR
SIMPLE
SIMPLER
SIMPLY
SINCE
SINGLE
SIX
SIXTH
SLOW
SLOWLY
SMALL
SMALLER
SMALLEST
SO
SOME
SPECIAL
SUBROUTINE
SUCH
SUGGESTED
SUGGESTIONS
SUITABLE
SUMMARY
SURVEY
SYSTEM
SYSTEMS
T
TAKE
TAKEN
TAKING
TECHNIQUE
TECHNIQUES
TEN
THAN
THAT
THE
THEIR
THEM
THEORETICAL
THERE
THEREFROM
THEREON
THESE
THEY
THIRD
THIS
THOSE
THOUGHTS
THREE
THROUGH
THRU
TO
TOGETHER
TOTAL
TOTALLY
TOWARD
TOWARDS
TRI
TWO
U
UNDER
UNTIL
UP
UPON
USAGE
USE
USED
USEFUL
USEFULNESS
USER
USERS
USES
USING
UTILIZATION
UTILIZE
UTILIZING
V
VARIOUS
VARYING
VERSUS
VERY
VI
VIA
VII
VIII
VS
W
WAS
WHAT
WHEN
WHERE
WHEREBY
WHICH
WHILE
WHO
WHOSE
WHY
WILL
WITH
WITHIN
WITHOUT
WOULD
X
XI
XII
XIII
Y
YET
YOUR
Z
2K
4K
8K
10K
12K
14K
16K
0
1
1130
1240
1401
1410
1420
1440
1460
1620
1710
1800
2
3
4
5
6
7
704
705
709
7010
7040
7044
7070
7072
7074
7080
7090
7094
7740
7750
8
9

Keyword-in-Context (KWIC) Index

0705

0705-CV-045 0705/1401A ASSEMBLY PROGRAM
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 0705-CV-045

PURPOSE TO ASSEMBLE, ON THE 705, PROGRAMS WRITTEN IN 1401 SYMBOLIC LANGUAGE TO PRODUCE AS THE END RESULT OF THE ASSEMBLY A LISTING AND PROGRAM CARDS IN 1401 MACHINE LANGUAGE. MACHINE REQUIREMENTS THE 705-1401A ASSEMBLY PROGRAM WILL RUN ON A MODEL I, II, III, TCU, TRC, DS. MAGNETIC TAPE DRIVES REQUIRED THREE /3/ IF CARD READER INPUT. THREE /3/ IF TAPE INPUT-SINGLE ASSEMBLY. FOUR /4/ IF TAPE INPUT-MULTIPLE ASSEMBLIES.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED. THE TAPE SUPPLIED MUST BE 2400 FEET IN LENGTH.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
CARD DECK - CONDENSED PROGRAM DECK.
OPTIONAL PROGRAM MATERIAL -
ONE MAGNETIC TAPE - ASSEMBLY LISTINGS.

0705-IO-047 III IOCS
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 0705-IO-047

PURPOSE IOCS HANDLES READING AND WRITING, CHECKPOINT AND RESTART, ERROR CORRECTION, BEGINNING AND END-OF-REEL AND BEGINNING AND END-OF-FILE PROCESSING, TAPE RECORD BLOCKING AND DE-BLOCKING, AND LABEL CHECKING. MACRO-INSTRUCTIONS AND CONTROL PARAMETERS CODED BY THE PROGRAMMER CAUSE GENERATION OF LINKAGES TO IOCS SUBROUTINES, WHICH IN TURN PERFORM THE SPECIFIED FUNCTIONS. AN INPUT/OUTPUT MEMORY RESTORE SYSTEM /IOMR SB/ OPERATES IN CONJUNCTION WITH IOCS TO RESTORE PROGRAM STATUS FROM PERIODICALLY RECORDED CHECKPOINTS, SO THAT IN THE EVENT OF PROGRAM INTERRUPTION, PREVIOUS PROCESSING NEED NOT BE REPEATED. STORAGE REQUIREMENTS PREASSEMBLED IOCS OCCUPIES 17, 074 LOCATIONS. EQUIPMENT SPECIFICATIONS 705 MODEL III 767 DATA SYNCHRONIZER.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
CARD DECK - CONDENSED PROGRAM DECK.
ONE MAGNETIC TAPE - 705 III IOCS SYSTEM TAPE

OPTIONAL PROGRAM MATERIAL -
ONE MAGNETIC TAPE - ASSEMBLY LISTINGS.

0705-MI-058 LIST 75
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 0705-MI-058

PURPOSE THIS PROGRAM, USING PROGRAM CARDS AS INPUT, PRODUCES A SORTED LISTING OF A PROGRAMS INSTRUCTIONS BY STORAGE LOCATION, STORAGE UNIT, MNEMONIC OPERATION CODE, AND ADDRESS. THIS OUTPUT IS HELPFUL IN ANALYZING A PROGRAM FOR TRANSFER POINTS, MODIFIED INSTRUCTIONS, INSTRUCTIONS THAT SET OR RESET SWITCHES, ETC. EQUIPMENT SPECIFICATIONS 705 MODEL I OR MODEL II 754 TAPE CONTROL.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... LISTINGS.
CARD DECK - CONDENSED PROGRAM DECK.

0705-PR-146 PROCESSOR OPERATING SYSTEM TAPE
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 0705-PR-146

THE FOLLOWING PROGRAMS ARE CONTAINED ON THIS SYSTEM TAPE.
7058 COBOL PROCESSOR 0705-PR-131
7058 PROCESSOR 0705-PR-044
7058 PROCESSOR LIBRARY

7058 COBOL PROCESSOR

705-PR-131

THE 7058 COBOL PROCESSOR CONVERTS SOURCE PROGRAM ENTRIES WRITTEN IN THE COBOL LANGUAGE INTO AUTOCODER ENTRIES FOR ASSEMBLY BY THE 7058 PROCESSOR INTO MACHINE LANGUAGE PROGRAMS FOR THE 705 MODELS I, II AND III, AND THE 7080. IN ADDITION, THE PROCESSOR WILL RECOGNIZE THE COBOL ENTER AUTOCODER STATEMENT IN THE PROCEDURE DIVISION OF A COBOL PROGRAM AND WILL ACCEPT ENTRIES WRITTEN IN AUTOCODER AND THE HIGHER LANGUAGES--FORTRAN, REPORT/FILE, DECISION, ARITHMETIC AND TABLE-CREATING.

MACHINE REQUIREMENTS- THE 7058 COBOL PROCESSOR OPERATES ON A 705 MODEL II, MODEL III OR 7080 WITH A MINIMUM OF EIGHT TAPE UNITS PLUS A CARD READER OR ADDITIONAL TAPE UNIT FOR THE SOURCE PROGRAM. THE AVAILABILITY OF ADDITIONAL TAPE UNITS WILL NORMALLY RESULT IN INCREASED SPEED OF COMPILATION.

7058 PROCESSOR

705-PR-044

7058 PROCESSOR- THIS IS THE BASIC MODULE OF THE 7058 COMPILING SYSTEM IN THE SENSE THAT IT PROVIDES THE ASSEMBLY FACILITY OF THE COMPILING SYSTEM. THE 7058 PROCESSOR COMPILES PROGRAMS WRITTEN IN THE AUTOCODER II LANGUAGE AND THE HIGHER LANGUAGES, FORTRAN, REPORT-FILE, DECISION ARITHMETIC, AND TABLE-CREATING. PROGRAMS CODED FOR COMPILATION BY THE 7058 PROCESSOR ARE, IN MOST RESPECTS, ALSO SUITABLE FOR COMPILATION WITH THE 7080 PROCESSOR.

7058 PROCESSOR LIBRARY

CONTINUED FROM PRIOR COLUMN--

705-PR-044

7058 PROCESSOR LIBRARY- AN EXTENSIVE COLLECTION OF MACRO-INSTRUCTIONS AND SUBROUTINES THAT CAN BE ELICITED BY MEANS OF SOURCE PROGRAM STATEMENTS TO PERFORM A LARGE VARIETY OF GENERAL-PURPOSE AND SPECIAL-PURPOSE FUNCTIONS IN AN OBJECT PROGRAM. AMONG THE FUNCTIONS OF GENERAL-PURPOSE MACRO-INSTRUCTIONS ARE ASSEMBLY CONTROL, DATA TRANSMISSION, DATA TESTING, PROGRAM BRANCH CONTROL, AUTOMATIC DECIMAL POINT ARITHMETIC, ADDRESS MODIFICATION AND TABLE MAINTENANCE. THROUGH THE MEDIUM OF THE 7058 PROCESSOR, LIBRARY MATERIAL CAN BE ADDED, DELETED AND REPLACED.
MACHINE REQUIREMENTS- ANY 705 II, 705 III OR 7080 IN 705 II MODE, 40,000 POSITIONS OF MEMORY. EIGHT 729 OR 727 TAPE UNITS WHICH MAY BE ON ANY SERIAL TAPE UNIT CONTROL OR ON FROM ONE TO FOUR CHANNELS.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP...OPERATING INSTRUCTIONS... LISTINGS.
CARD DECK - SAMPLE PROBLEM DECK.
FOUR MAGNETIC TAPES - OPERATING SYSTEM TAPE /ONE TAPE/... LIBRARY TAPES FOR 705 II, 705 III AND 7080 /THREE TAPES/.

OPTIONAL PROGRAM MATERIAL -
TWENTY FOUR MAGNETIC TAPES - 705-PR-044 ASSEMBLY LISTINGS /TWENTY ONE TAPES/...705-PR-131 ASSEMBLY LISTINGS /THREE TAPES/.
PRINTED LISTING - FOR 705-PR-044.

NOTES -
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH. OPTIONAL PROGRAM MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

0705-SM-052 SORT 54T/
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 0705-SM-052

PURPOSE SORT 54T/ IS A GENERALIZED THREE-WAY MERGE SORTING PROGRAM. IT IS CAPABLE OF MODIFYING ITSELF ACCORDING TO CONTROL CARD SPECIFICATIONS. EQUIPMENT SPECIFICATIONS-IBM 705 MODEL III 777 TAPE RECORD COORDINATOR,7-727 TAPE DRIVES, 717 PRINTER. ADDITIONAL REMARKS SORT 54T/ INCORPORATES CHECKPOINT, RESTART, AND INTERRUPT SORT PROCEDURES. IT ACCEPTS SINGLE OR BLOCKED FIXED LENGTH RECORDS OR SINGLE VARIABLE LENGTH RECORDS.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP.
CARD DECK - CONDENSED PROGRAM DECK.

0705-SM-053 SORT 57/
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 0705-SM-053

PURPOSE SORT 57/ IS A GENERALIZED FOUR-WAY MERGE SORTING PROGRAM. IT IS CAPABLE OF MODIFYING ITSELF ACCORDING TO CONTROL CARD SPECIFICATIONS. EQUIPMENT SPECIFICATIONS-IBM 705 MODEL III, 2-777 TAPE RECORD COORDINATORS 7 727 TAPE DRIVES, 717 PRINTER. ADDITIONAL REMARKS SORT 57/ INCORPORATES CHECKPOINT, RESTART, AND INTERRUPT SORT PROCEDURES. IT ACCEPTS SINGLE OR BLOCKED FIXED LENGTH RECORDS.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP.
CARD DECK - CONDENSED PROGRAM DECK.

0705-SM-054 SORT 80
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 0705-SM-054

PURPOSE A GENERALIZED SORTING PROGRAM THAT WILL SORT FILES OF FIXED- OR VARIABLE-LENGTH DATA RECORDS, SINGLE OR BLOCKED, ON A CONTROL DATA WORD AS LONG AS 100 CHARACTERS AND CONSISTING OF AS MANY AS FIVE FIELDS. TO FACILITATE PROGRAM SCHEDULING, SORT 80 WILL USE WHATEVER TAPE UNITS ARE SPECIFIED IN THE CONTROL INFORMATION SUPPLIED BY THE USER. OPTIONAL FEATURES OF SORT 80 INCLUDE AN EXTENDED SORT MADE FOR SORTING PARTICULARLY LARGE FILES, AND PROVISIONS FOR LABEL PROCESSING AND FOR THE ACCUMULATION AND CHECKING OF HASH TOTALS. EXITS ARE PROVIDED AT LOGICAL POINTS IN THE PROGRAM TO ALLOW THE USER TO INCLUDE ADDITIONAL ROUTINES. SORT 80 ALSO PROVIDES CHECKPOINTS, INTERRUPT AND RESTART PROCEDURES, AND ROUTINE WHICH FACILITATE THE CORRECTION, OR DELETION AND LATER RECOVERY OF UNREADABLE RECORDS. EQUIPMENT SPECIFICATIONS 705 MODEL III OR 7080 767 DATA SYNCHRONIZER 4 TAPE DRIVES
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
SIX MAGNETIC TAPES - ASSEMBLY LISTINGS.

0705-SM-055 MERGE 80
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 0705-SM-055

PURPOSE A GENERALIZED TWO- TO TEN-WAY MERGING PROGRAM THAT WILL MERGE FILES OF FIXED- OR VARIABLE-LENGTH DATA RECORDS, SINGLE OR BLOCKED, ON A CONTROL DATA WORD AS LONG AS 100 CHARACTERS AND CONSISTING OF AS MANY AS FIVE FIELDS. TO FACILITATE PROGRAM SCHEDULING, MERGE 80 WILL USE WHATEVER TAPE UNITS ARE SPECIFIED IN THE CONTROL INFORMATION SUPPLIED BY THE USER. OPTIONAL FEATURES OF MERGE 80 INCLUDE PROVISIONS FOR LABEL PROCESSING AND FOR THE ACCUMULATION AND CHECKING OF HASH TOTALS. EXITS ARE PROVIDED AT LOGICAL POINTS IN THE PROGRAM TO ALLOW THE USER TO INCLUDE ADDITIONAL ROUTINES. MERGE 80 ALSO PROVIDES

CONTINUED FROM PRIOR PAGE--
CHECKPOINT, INTERRUPT AND RESTART PROCEDURES, AND ROUTINES WHICH FACILITATE THE CORRECTION, OR DELETION AND LATER RECOVERY OF UNREADABLE RECORDS. EQUIPMENT SPECIFICATIONS 705 MODEL III OR 7080, 7607 DATA SYNCHRONIZER, 4 TAPE DRIVES. THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... LISTINGS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
THREE MAGNETIC TAPES - ASSEMBLY LISTINGS.

0705-UT-056 UTILITY PROGRAMS /80 SERIES/
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 0705-UT-056

PURPOSE ALL /80 SERIES/ UTILITY PROGRAMS EXCEPT LOAD 80 AND CLRM80 CONTAIN ROUTINES THAT WILL CHECK LABELS SET UP IN CONFORMANCE WITH IBM STANDARDS, IF DESIRED. SINGLE CARD LOAD /LOAD 80/, LOADS STANDARD 705 PROGRAM CARDS FROM THE CARD READER OR A 729 DS TAPE. CLEAR MEMORY /CLRM80/ SETS MEMORY POSITIONS 00160 - 39999 /OR 79999/ TO BLANKS, AND RESETS THE ACCUMULATOR AND ASUS 01 - 11 WITHOUT INTERRUPTING AUTOMATIC OPERATION. EXPANDED LOADS /LOAD 81 AND LOAD 82/ LOAD STANDARD AND/OR EXPANDED FORMAT PROGRAM CARDS FROM ONE OR A COMBINATION OF TWO INPUT UNITS. BOTH PROGRAMS FEATURE THE ABILITY TO LOCATE A SPECIFIED PROGRAM ON A TAPE. TAPE FILE ASSEMBLER /TPF180/ ASSEMBLES TAPE FILES FROM CARDS OR CARD IMAGES ON TAPE. OUTPUT MAY BE FIXED- OR VARIABLE-LENGTH TAPE RECORDS, SINGLE OR BLOCKED. TAPES MUST BE USED ON 729 TAPE UNITS. MEMORY PRINT /MEPR80/ PRODUCES A PRINTED LISTING OF THE CONTENTS OF ANY TAPE MOUNTED ON A 729 TAPE UNIT, EITHER DIRECTLY ON A 717, 720, OR 730 PRINTER OR ON A 729 I TAPE FOR LATER OFF-LINE PRINTING. TAPE DUPLICATION /TPDP80* DUPLICATE/ ANY 767 DATA SYNCHRONIZER-CONTROLLED TAPE OR TAPES, OR ANY SELECTED FILE OR FILES THEREON. EQUIPMENT SPECIFICATIONS 705 MODEL III, OR 7080

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
CARD DECK - CONDENSED PROGRAM DECK.

1410

1410-CO-01X BASIC LINEAR PROGRAMMING
SYSTEM CARD/ TAPE, 1 OVERLAP CHANNEL
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-CO-01X

TO PROVIDE A BASIC LINEAR PROGRAMMING SYSTEM WITH FLEXIBLE INPUT AND OUTPUT FACILITIES. THE CODE INCLUDES AN OPERATING SYSTEM THAT CAN HANDLE MANY USER ADDITIONS AND MODIFICATIONS TO THE BASIC CODE. FEATURES- *VARIABLE PRECISION FLOATING POINT. *BASIC DATA ENTERED IN SHARE STANDARD ELEMENT CARD FORMAT. *ORIGINAL SIMPLEX ALGORITHM WITH SPECIAL FEATURES. *FOUR ESSENTIAL ZERO OR TOLERANCE CONTROLS. *FOUR OUTPUT REPORTS AVAILABLE. *SOURCE LANGUAGE IS IBM 1410 AUTOCODER/IOCS. *OPERATING SYSTEM WITH LIBRARIAN FACILITIES. TO SOLVE PROBLEMS HAVING UP TO 150 ROWS AND 9999 VARIABLES. MACHINE REQUIREMENTS FOR 1410-CO-01X- 40,000 POSITIONS OF STORAGE. 4 MAGNETIC TAPE UNITS ON CHANNEL 1. 1 CARD READER ON CHANNEL 1. 1 IBM 1403 MODEL 2 OR MODEL 3 PRINTER, ON CHANNEL 1 OR 1 ADDITIONAL MAGNETIC TAPE UNIT ON CHANNEL 1. OVERLAP AND PRIORITY SPECIAL FEATURES.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... LISTINGS.
CARD DECK - CONDENSED PROGRAM DECK.
ONE MAGNETIC TAPE - SYSTEM TAPE.

OPTIONAL PROGRAM MATERIAL -
TWO MAGNETIC TAPES - CONTAINING LISTINGS, SOURCE AND OBJECT DECKS.

1410-CO-06X BASIC LINEAR PROGRAMMING
SYSTEM /TAPE ORIENTED/ 1 OVERLAP CHANNEL
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-CO-06X

TO PROVIDE BASIC LINEAR PROGRAMMING SYSTEM WITH FLEXIBLE INPUT AND OUTPUT FACILITIES. THE CODE INCLUDES AN OPERATING SYSTEM THAT CAN HANDLE MANY USER ADDITIONS AND MODIFICATIONS TO THE BASIC CODE. FEATURES- *VARIABLE PRECISION FLOATING POINT. *BASIC DATA ENTERED IN SHARE STANDARD ELEMENT CARD FORMAT. *ORIGINAL SIMPLEX ALGORITHM WITH SPECIAL FEATURES. *FOUR ESSENTIAL ZERO OR TOLERANCE CONTROLS. *FOUR OUTPUT REPORTS AVAILABLE. *SOURCE LANGUAGE IS IBM 1410 SUTOCODER/IOCS. *OPERATING SYSTEM WITH LIBRARIAN FACILITIES. TO SOLVE PROBLEMS HAVING UP TO 150 ROWS AND 9999 VARIABLES. REQUIREMENTS FOR 1410-CO-06X- 40,000 POSITIONS OF STORAGE. 6 MAGNETIC TAPE UNITS ON CHANNEL 1. OVERLAP AND PRIORITY SPECIAL FEATURES. PERIPHERAL IBM 1401 WITH RPQ 898148.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... LISTINGS.
CARD DECKS - CONDENSED PROGRAM DECK.
ONE MAGNETIC TAPE - SYSTEM TAPE.

CONTINUED FROM PRIOR COLUMN--

OPTIONAL PROGRAM MATERIAL -
TWO MAGNETIC TAPES - CONTAINING LISTINGS, SOURCE AND OBJECT DECKS.

1410-CO-07X BASIC LINEAR PROGRAMMING
SYSTEM CARD/ TAPE, 2 OVERLAP CHANNELS
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-CO-07X

TO PROVIDE A BASIC LINEAR PROGRAMMING SYSTEM WITH FLEXIBLE INPUT AND OUTPUT FACILITIES. THE CODE INCLUDES AN OPERATING SYSTEM THAT CAN HANDLE MANY USER ADDITIONS AND MODIFICATIONS TO THE BASIC CODE. FEATURES- *VARIABLE PRECISION FLOATING POINT. *BASIC DATA ENTERED IN SHARE STANDARD ELEMENT CARD FORMAT. *ORIGINAL SIMPLEX ALGORITHM WITH SPECIAL FEATURES. *FOUR ESSENTIAL ZERO OR TOLERANCE CONTROLS. *FOUR OUTPUT REPORTS AVAILABLE. *SOURCE LANGUAGE IS IBM 1410 AUTOCODER/IOCS. *OPERATING SYSTEM WITH LIBRARIAN FACILITIES. TO SOLVE PROBLEMS HAVING UP TO 150 ROWS AND 9999 VARIABLES. REQUIREMENTS FOR 1410-CO-07X- 40,000 POSITIONS OF STORAGE. 4 MAGNETIC TAPE UNITS, AT LEAST ONE OF WHICH MUST BE ON CHANNEL 1. 1 IBM 1403 MODEL 2 OR MODEL 3 PRINTER ON CHANNEL 1, OR 1 ADDITIONAL TAPE UNIT ON EITHER CHANNEL. 2 CHANNELS. OVERLAP AND PRIORITY SPECIAL FEATURES.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... LISTINGS.
CARD DECK - CONDENSED PROGRAM DECK.
ONE MAGNETIC TAPE - SYSTEM TAPE.

OPTIONAL PROGRAM MATERIAL -
TWO MAGNETIC TAPES - CONTAINING LISTINGS, SOURCE AND OBJECT DECKS.

1410-CO-09X BASIC LINEAR PROGRAMMING
SYSTEM CARD/ TAPE, 1 NON-OVERLAP CHANNEL
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-CO-09X

TO PROVIDE A BASIC LINEAR PROGRAMMING SYSTEM WITH FLEXIBLE INPUT AND OUTPUT FACILITIES. THE CODE INCLUDES AN OPERATING SYSTEM THAT CAN HANDLE MANY USER ADDITIONS AND MODIFICATIONS TO THE BASIC CODE. FEATURES- * VARIABLE PRECISION FLOATING POINT. *BASIC DATA ENTERED IN SHARE STANDARD ELEMENT CARD FORMAT. *ORIGINAL SIMPLEX ALGORITHM WITH SPECIAL FEATURES. *FOUR ESSENTIAL ZERO OR TOLERANCE CONTROLS. *FOUR OUTPUT REPORTS AVAILABLE. *SOURCE LANGUAGE IS IBM 1410 AUTOCODER/IOCS. *OPERATING SYSTEM WITH LIBRARIAN FACILITIES. TO SOLVE PROBLEMS HAVING UP TO 150 ROWS AND 9999 VARIABLES. REQUIREMENTS FOR 1410-CO-09X- 40,000 POSITIONS OF STORAGE. 4 MAGNETIC TAPE UNITS ON CHANNEL 1. 1 CARD READER ON CHANNEL 1. 1 IBM 1403 MODEL 2 OR MODEL 3 PRINTER ON CHANNEL 1, OR 1 ADDITIONAL TAPE UNIT ON CHANNEL 1.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... LISTINGS.
CARD DECK - CONDENSED PROGRAM DECK.
ONE MAGNETIC TAPE - SYSTEM TAPE.

OPTIONAL PROGRAM MATERIAL -
TWO MAGNETIC TAPES - CONTAINING LISTINGS, SOURCE AND OBJECT DECKS.

1410-CO-10X 1410/7010 LINEAR PROGRAMMING
SYSTEM
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-CO-10X

THE IBM 1410/7010 LINEAR PROGRAMMING SYSTEM IS A GENERAL PURPOSE SYSTEM DESIGNED TO PROVIDE THE USERS OF IBM 1410 OR 7010 DATA PROCESSING SYSTEMS WITH THE MEANS FOR APPLYING THE SOPHISTICATED MATHEMATICAL TECHNIQUES OF LINEAR PROGRAMMING. THESE TECHNIQUES ARE MOST FREQUENTLY USED TO DETERMINE A MORE ECONOMICAL OR PROFITABLE ALLOCATION OF RESOURCES SUCH AS CAPITAL, RAW MATERIALS, MANPOWER, PLANT CAPACITY, ETC. THEY CAN ALSO BE USED TO ANALYZE THE ECONOMICS OF ALTERNATE AVAILABLE RESOURCES, ALTERNATE PLANNING OBJECTIVES, ALTERNATE PRODUCTION OR DISTRIBUTION TECHNOLOGIES, ETC. THE OPTIMUM BLENDING OF PRODUCTS /GASOLINE, ANIMAL FEEDS, METAL ALLOYS, FLOUR, ETC./ IS ROUTINELY DETERMINED BY THESE TECHNIQUES. THEY ARE ALSO WIDELY USED IN PROCESS INDUSTRIES /PETROLEUM, PAPER, CHEMICAL/ AS WELL AS IN THE AGRICULTURAL PRODUCTS, TEXTILES, FINANCE, AND OTHER INDUSTRIES.
FEATURES ARE-
VARIABLE PRECISION FLOATING POINT.
BASIC DATA ENTERED IN THE SHARE FORMAT.
PARAMETRIC LINEAR PROGRAMMING STUDIES MAY BE MADE FROM AN OPTIMAL SOLUTION.
INVERSION CAPABILITIES.
FLEXIBLE PARTITIONING AVAILABLE.
PRE-SPECIFIED BASIS MAY BE HANDLED.
TEN NUMERICAL TOLERANCE CONTROLS.
FIVE OUTPUT REPORTS AVAILABLE.
INTERRUPT CAPABILITIES INCLUDING CHECKPOINT AND INTERMEDIATE OUTPUT REPORTS.
THE CODE HANDLES UP TO FOUR OBJECTIVE ROWS INDIVIDUALLY OR IN COMBINATION.
UP TO FOUR CONSTANT VECTORS /RHS/ ARE AVAILABLE INDIVIDUALLY OR IN COMBINATION.
PROGRAMMING SYSTEMS- THIS PROGRAM IS WRITTEN IN THE 1410/7010 AUTOCODER LANGUAGE, USES IOCS, AND WAS COMPILED AND OPERATES UNDER THE IBM 1410/7010 OPERATING SYSTEM, 1410-PR-155.
MINIMUM 1410 CARD/TAPE SYSTEM-
IBM 1411 PROCESSING UNIT /40K/ MODEL 3
FEATURE NO. 4659 INPUT/OUTPUT ADAPTER /CHANNEL 1/
FEATURE NO. 5620 PRIORITY
FEATURE NO. 5730 PROCESSING OVERLAP
FEATURE NO. 7823 TAPE INPUT/OUTPUT ADAPTER /CHANNEL 1/
1415 CONSOLE MODEL 1
1414 INPUT/OUTPUT SYNCHRONIZER MODEL 3
FEATURE NO. 7680 SYNCHRONIZER STORAGE -- PRINTER

IBM Programs

CONTINUED FROM PRIOR PAGE--
FEATURE NO. 7681 SYNCHRONIZER STORAGE -- PRINTER, ADDITIONAL
1402 CARD READ PUNCH MODEL 2
1403 PRINTER MODEL 2
1414 INPUT/OUTPUT SYNCHRONIZER MODEL 2
FIVE 7730 MAGNETIC TAPE UNITS MODEL 1
MINIMUM 7010 CARD/TAPE SYSTEM- A MINIMUM 7010 CARD/TAPE SYSTEM IS THE SAME AS THAT SHOWN ABOVE, EXCEPT THAT /1/ THE 1411 PROCESSING UNIT MODEL 3 IS REPLACED BY AN 7114 PROCESSING UNIT /40K/ MODEL 1 WITH FEATURE NO. 7823, AND /2/ THE 1415 CONSOLE MODEL 1 IS REPLACED BY A MODEL 2.
MINIMUM 1410 TAPE-ORIENTED SYSTEM-
IBM 1411 PROCESSING UNIT /40K/ MODEL 3
FEATURE NO. 5620 PRIORITY
FEATURE NO. 5730 PROCESSING OVERLAP
FEATURE NO. 7823 TAPE INPUT/OUTPUT ADAPTER /CHANNEL 1/
1415 CONSOLE MODEL 1
1414 INPUT/OUTPUT SYNCHRONIZER MODEL 1
SEVEN 7330 MAGNETIC TAPE UNITS MODEL 1
MINIMUM 7010 TAPE-ORIENTED SYSTEM- A MINIMUM 7010 TAPE-ORIENTED SYSTEM IS THE SAME AS THAT SHOWN ABOVE, EXCEPT THAT /1/ THE 1411 PROCESSING UNIT MODEL 3 IS REPLACED BY A 7114 PROCESSING UNIT /40K/ MODEL 1 WITH FEATURES NO. 4659 AND NO. 7823, AND /2/ THE 1415 CONSOLE MODEL 1 IS REPLACED BY A MODEL 2. A 1410 OR 7010 TAPE-ORIENTED SYSTEM REQUIRES A PERIPHERAL 1401 SYSTEM.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP...APPLICATION DIRECTORY... APPLICATION DESCRIPTION...USER MANUAL...OPERATOR MANUAL.
MACHINE READABLE - ONE REEL OF MAGNETIC TAPE CONTAINING RELOCATABLE PROGRAM OBJECT MODULES AND A DTR CONTAINING THE LINKAGE LOADER DECK AND TWO SAMPLE PROBLEM DECKS.
OPTIONAL PROGRAM MATERIAL - SYSTEMS MANUAL... ONE FULL REEL OF MAGNETIC TAPE CONTAINING THE AUTOCHART LISTINGS.
THE TAPES NECESSARY TO OBTAIN THE PROGRAM MATERIAL MAY BE SUPPLIED OR ORDERED FROM YOUR IBM REPRESENTATIVE. THE TAPE SHOULD BE 2400 FEET IN LENGTH.

1410-EE-01X ENGINEERING BLOCK DIAGRAM PROGRAM
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-EE-01X

DESCRIPTION- THE 1410 ENGINEERING BLOCK DIAGRAM PROGRAM CONTAINS A SET OF TWO 1410 PROGRAMS TO DRAW AND UPDATE BASIC AND DETAILED LOGIC DIAGRAMS FOR ELECTRONIC SWITCHING SYSTEMS, AND A 1401 AUXILIARY PROGRAM TO PRINT THE DIAGRAM PAGES. THE PROGRAM CAPTURES DATA TRANSCRIBED FROM THE ENGINEERS SKETCH SHEET, ESTABLISHES A MASTER FILE, AND SUBSEQUENTLY PRINTS THE DIAGRAMS AS FINAL ENGINEERING DOCUMENTS. CHANGES CAN BE MADE TO THE DIAGRAMS AND THE MASTER FILE WITH MINIMUM TIME, COST, AND EFFORT. APPLICATION WILL BE FOUND IN ENGINEERING STAFFS WORKING WITH TELEPHONE COMMUNICATION SYSTEMS, CONTROL SYSTEMS, COMPUTER SYSTEMS, AND SIMILAR DESIGN AREAS. ADVANTAGES TO THE USER INCLUDE- REDUCED DRAFTING COSTS... REDUCED CHANGE COSTS... SPEED-UP OF DRAWING PRODUCTION... FAST RESPONSE TO CHANGES... ACCURATE AND CONSISTENT PRODUCTION OF DRAWINGS... ,,CAPTURED,, INFORMATION FOR FUTURE DATA PROCESSING. /FROM ENGINEERING INFORMATION IN THE MASTER FILE, ADDITIONAL USERS PROGRAMS CAN PROVIDE COMPONENT LISTS, WIRE LISTS, LOCATION LISTS, SIGNAL LISTS, AND DESIGN CHECKING ERRATA LISTS./
FEATURES- THE MACHINE PRINTED PAGE PROVIDES-
- UP TO 54 BLOCKS PER PAGE
- UP TO 30 CHARACTERS OF INFORMATION IN A BLOCK
- 16 INPUT/OUTPUT LINES TO AND FROM BLOCKS
- 88 INPUT/OUTPUT LINES TO AND FROM THE DIAGRAM PAGE
- 15 LINES /120 CHARACTERS PER LINE/ FOR FOOTNOTES
- BLOCK PERIMETERS MAY BE REMOVED
- MULTIPLE COPIES READILY PRODUCED

USE- THE ENGINEER SKETCHES HIS DESIGN ON A SPECIAL LOGIC SKETCH SHEET. THE INFORMATION IS TRANSCRIBED AND KEYPUNCHED TO PROVIDE INPUT FOR THE BLOCK-UPDATE PROGRAM, WHICH PROCESSES IT TO PROVIDE INITIAL INFORMATION FOR THE MASTER FILE. THE BLOCK-UPDATE RUN PROVIDES SELECTED PAGES /DIAGRAMS/ FOR THE BLOCK-WRITE PROGRAM, ALONG WITH THE NEW MASTER FILE TAPE AND AN INDEX OF THE MASTER FILE.
THE BLOCK-WRITE PROGRAM PROCESSES THE SELECTED PAGES TAPE TO PRODUCE THE PAGE OUTPUT TAPE, WHICH IS THEN PRINTED BY THE AUXILIARY PROGRAM TO FURNISH THE DESIRED LOGIC DIAGRAMS.
PROGRAMMING SYSTEM- PROGRAMS ARE WRITTEN IN AUTOCODER LANGUAGE, USING IOCS, ASSEMBLED UNDER THE 1410 PROCESSOR OPERATING SYSTEM /1410-PR-108/.
MINIMUM SYSTEM REQUIREMENTS- A 40K 1410 SYSTEM WITH SIX MAGNETIC TAPE UNITS -- IF INPUT/OUTPUT OPERATIONS ARE RUN ON THIS SYSTEM IN COMPATIBILITY MODE, ADD 1402 CARD READ PUNCH AND 1403 PRINTER MODEL 2, SEE RECOMMENDED CHAIN CHARACTERS ABOVE. INPUT/OUTPUT OPERATIONS CAN BE PERFORMED ON A 4K 1401 SYSTEM WITH ADVANCED PROGRAMMING AND HIGH-LOW-EQUAL COMPARE... ONE MAGNETIC TAPE UNIT... 1402 CARD READ PUNCH... 1403 PRINTER MODEL 2, SEE RECOMMENDED CHAIN CHARACTERS ABOVE.
PUNCHING OF THE 1410 OBJECT DECKS FOR PREPARING PROGRAM TAPES REQUIRES A 1.4K 1401 WITH 1402 CARD READ PUNCH... 1403 PRINTER... ONE MAGNETIC TAPE UNIT... PLUS A NO-CHARGE RPQ /NO. 898148/ ON THE 1401 UNIT FOR PROPER PUNCHING OF THE 8-2 PUNCH.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH. OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... APPLICATION DIRECTORY... APPLICATION DESCRIPTION... PROGRAMMERS MANUAL... OPERATORS MANUAL.
MAG. TAPE - ONE REEL CONTAINING... OBJECT DECKS... SOURCE DECKS... LISTINGS FOR THE BLOCK-UPDATE AND BLOCK WRITE PROGRAMS... ONE SET OF SIX CARDS, INCLUDING OBJECT AND SOURCE DECKS FOR 1401 AUXILIARY PROGRAM... CONTROL CARDS... SAMPLE PROBLEM RUNS... 1410 LOAD PROGRAM.

OPTIONAL PROGRAM MATERIAL - SYSTEMS MANUAL.

410-FO-138 FORTRAN SUBROUTINE LIBRARY
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-FO-138

THE DISTRIBUTION OF THE FORTRAN SUBROUTINE LIBRARY IS IN CARDS IN ABSOLUTE FORMAT. THE AUTOCODER MIXED OUTPUT TAPE FOR 1410-FO-138 CONTAINING THE LIBRARY SUBROUTINE AND THE RELOCATABLE LOADER /TOTAL OF 51 FILES/ IS NO LONGER TO BE INCLUDED IN ANSWER TO REQUESTS FOR THE 1410 FORTRAN SUBROUTINE LIBRARY. HOWEVER, THE TAPE IS AVAILABLE AS AN

CONTINUED FROM PRIOR COLUMN--
OPTIONAL PROGRAM ITEM FOR THOSE WHO REQUEST SYMBOLIC LISTINGS AND PROGRAM DECKS. INFORMATION CONTAINED IN MATERIAL AVAILABLE TO USERS OF 1410-PR-108 /ADDENDUM FOR FORTRAN AND FORTRAN SUBROUTINES/ AND 1410-PR-134 /ADDENDUM TO IBM 1410 PROCESSOR OPERATING SYSTEM USING IBM 1301 DISK STORAGE/ APPENDIX C CONTAINS INSTRUCTIONS FOR CONSTRUCTING AND MAINTAINING A FORTRAN LIBRARY TAPE.

1410-IL-06X 62 CFO /CONSOLIDATED FUNCTIONS ORDINARY/ DAILY CYCLE AND VALUATION PROGRAMS
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-IL-06X

DESCRIPTION- THE 27 DAILY CYCLE PROGRAMS 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 SERIES OF 13 VALUATION PROGRAMS, DESIGNED TO OPERATE EXCLUSIVELY IN THE AREA OF VALUATION AND IN THE PREPARATION OF THE POLICY EXHIBIT, 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 SEMI-ANNUALLY, QUARTERLY, OR MONTHLY. ALL INFORMATION FURNISHED BY THESE PROGRAMS COMES EXCLUSIVELY FROM PAID BUSINESS IN THE FILE ON THE VALUATION DATE AND DOES NOT PERTAIN TO SUPPLEMENTARY FILES. POLICY EXHIBIT AND RESERVES RELEASED ARE BASED ON ACTIVITY TO THE POLICY MASTER FILE DURING THE REPORTING PERIOD.
THESE PROGRAMS PROVIDE FOR AUTOMATIC PROCESSING OF ALL SCHEDULED TRANSACTIONS AND REQUESTED PROCESSING OF ALL NON-SCHEDULED TRANSACTIONS INVOLVING ORDINARY LIFE CONTRACTS. EXCEPTIONS TO THIS WILL OCCUR ONLY WHEN THE POLICY IS ISSUED UNDER EXTREMELY UNUSUAL ARRANGEMENTS. THE SYSTEM CONSOLIDATES ALL POLICY INFORMATION INTO A SINGLE MAGNETIC TAPE RECORD AND INTEGRATES ALL PROCESSING FUNCTIONS WITHIN A SINGLE COMPUTER SYSTEM. PROCESSING STARTS 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 PROVIDE LIFE INSURANCE COMPANIES WITH EXCEPTIONAL OPERATIONAL EFFICIENCY, AND- /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. 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 WITH EACH POLICY RECORD ONLY AT THE TIME OF VALUATION, 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, 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, ELIMINATING THE NEED FOR PREPARATORY WORK BEFORE 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 TECHNIQUES... /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- 62 CFO DAILY CYCLE PROGRAMS ASSUME THE DEVELOPMENT OF A COMPLETE POLICY MASTER FILE BY EACH USER. TO HELP IN THE DATA GATHERING NECESSARY FOR A CONSOLIDATED FILE, 1401 PROGRAMS ARE NOW AVAILABLE /1401-IL-01X/ FOR OPERATION IN COMPATIBILITY MODE 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 CONSISTS OF THE FOLLOWING MAJOR AREA- /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 MODIFICATIONS 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.
62 CFO 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.
PROGRAMMING SYSTEMS- THE PROGRAM SOURCE CARDS DISTRIBUTED FOR THIS SYSTEM ARE WRITTEN AS INPUT FOR ASSEMBLY UNDER THE IBM 1410 AUTOCODER WITH IOCS. THE USER IS EXPECTED TO HAVE A CURRENT VERSION OF THE 1410/729 TAPE PROCESSOR SYSTEM /1410-PR-108/ AVAILABLE IN HIS INSTALLATION TO MAKE USE OF THE PROGRAM

IBM Programs

CONTINUED FROM PRIOR PAGE--
MATERIAL.
MINIMUM SYSTEM REQUIREMENTS- 40K 1410 SYSTEM WITH PRIORITY PROCESSING, PROCESS OVERLAP... 1402 CARD READ PUNCH MDL 2... 1403 PRINTER MDL 2... TWO CHANNELS--THREE MAGNETIC TAPE UNITS ON CHANNEL 1 AND TWO MAGNETIC TAPE UNITS ON CHANNEL 2.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH. OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... 62 CFO VOLUME 20 /1410 POLICY MASTER RECORD CODE BOOK/ PLUS VOLUMES 23 THROUGH 36.
CARD DECKS - A PROGRAM, IN OBJECT DECK FORM, DESIGNED TO ADD TO OR CHANGE PROGRAMS ON THE 62 CFO PROGRAM TAPE AND TO DELETE, EXTRACT, LIST OR PUNCH PROGRAMS FROM THAT TAPE.
ONE MAG. TAPE - SOURCE PROGRAM CARDS FOR 40 62 CFO PROGRAMS, THE ,,GET,, AND ,,PUT,, MACRO-INSTRUCTIONS... TWO 1401 RATE TAPE GENERATION PROGRAMS TO BE RUN IN COMPATIBILITY MODE AND MORTALITY TABLES.

1410-PR-108 PROCESSOR OPERATING SYSTEM
TAPE
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-PR-108

THE FOLLOWING PROGRAMS ARE CONTAINED ON THIS SYSTEM TAPE.
1410 AUTOCODER 1410-AU-906
1410 COBOL 1410-CB-912
1410 FORTRAN 1410-FO-913
1410 FORTRAN /SUBROUTINES/ /SEE 1410-FO-913/
1410 FORTRAN 40K PROCESSOR 1410-FO-950
1410 INPUT/OUTPUT CONTROL SYSTEM 1410-IO-926
1410 REPORT PROGRAM GENERATOR 1410-RG-910
1410 SYSTEMS SUPERVISOR 1410-SV-907

AUTOCODER
1410-AU-906

THE 1410 AUTOCODER RELIEVES THE USER FROM WRITING HIS ROUTINES IN MACHINE LANGUAGE. HE CAN WRITE HIS ROUTINE USING A WELL DEFINED SET OF MNEMONIC OPERATION CODES IN CONJUNCTION WITH USEFUL AND SIGNIFICANT LABELS, WHICH HE DEFINES, AND THEN PROCESSES WITH AUTOCODER TO PRODUCE AN OPERATING SYSTEM DECK. HE MAY ALSO WRITE MACRO STATEMENTS AND INCLUDE SUBROUTINES IN THE LIBRARY. A MORE DETAILED DESCRIPTION OF THIS PROGRAM IS CONTAINED IN THE AUTOCODER BULLETIN LISTED IN THE REFERENCES. MACHINE CONFIGURATION 1. 20K STORAGE. 2. FOUR IBM MAGNETIC TAPE UNITS. 3. AN IBM 1402* 4. AN IBM 1403* *OPTIONS ARE AVAILABLE TO TRADE 1, 2, OR 3 MAGNETIC TAPE UNITS FOR THE 1402 AND 1403 UNIT RECORD DEVICES.

COBOL PROCESSOR
1410-CB-912

1410 COBOL PROCESSOR ACCEPTS PROGRAMS WRITTEN IN THE COBOL LANGUAGE AS INPUT AND PRODUCES COMPLETE OBJECT PROGRAMS TO PERFORM THE FUNCTIONS SPECIFIED IN THE SOURCE STATEMENTS.

THE PROCESS INVOLVES A COBOL RUN /WHICH PRODUCES COBOL DIAGNOSTICS AND THE SOURCE PROGRAM TRANSLATED INTO AUTOCODER LANGUAGE AND FORMAT/ FOLLOWED BY AN AUTOCODER RUN /WHICH PRODUCES THE OBJECT PROGRAM ASSEMBLY LISTING AND A CONDENSED DECK/. THE PROCESS IS CONTINUOUS AND COMPLETE IF- 1. NO SERIOUS DIAGNOSTIC ERRORS ARE DISCOVERED, AND 2. IF THE SYSTEM CONFIGURATION PROVIDES TAPE INPUT TO THE AUTOCODER PROCESSOR.

THE MINIMUM MACHINE CONFIGURATION REQUIRED BY THE COBOL PROCESSOR IS- 1. 20K STORAGE 2. IBM 1402 CARD READ-PUNCH MODEL 2 3. IBM 1403 PRINTER, MODEL 2 4. FOUR IBM 729 II, IV, V OR 7330 MAGNETIC TAPE UNITS.

THE LISTING TAPES FOR SUBJECT SYSTEMS ARE THE STANDARD OUTPUT TAPES PRODUCED BY 1410 AUTOCODER AS DESCRIBED IN THE OPERATIONS GUIDE FOR SYSTEM SUPERVISOR AND AUTOCODER. THEY CONTAIN THE SELF LOADING 1401 PROGRAM WHICH PRINTS AND PUNCHES THE CONTENTS OF THE TAPE. THE OPERATING PROCEDURE FOR THIS PROGRAM IS IN THE SYSTEM SUPERVISOR OPERATORS GUIDE. WHILE THE TAPE WILL NORMALLY BE USED TO PRODUCE PRINTED LISTINGS, IT MAY ALSO BE USED TO OBTAIN SYMBOLIC DECKS.

FORTRAN /FORMULA TRANSLATING/ II PROCESSOR
1410-FO-913

THE 1410 FORTRAN /FORMULA TRANSLATING/ II PROCESSOR IS A 1410 MACHINE LANGUAGE PROGRAM. THIS PROGRAM CONVERTS A SOURCE PROGRAM WRITTEN IN THE FORTRAN II LANGUAGE /WHICH CLOSELY RESEMBLES THE LANGUAGE OF MATHEMATICS/ INTO AN OBJECT PROGRAM READY TO RUN ON THE IBM 1410. THE FORTRAN PROCESSOR THUS MAKES IT POSSIBLE FOR PERSONNEL TRAINED IN MATHEMATICS BUT NOT IN PROGRAMMING TO PREPARE PROBLEMS FOR THE COMPUTER.

THE PROCESSOR IS USED IN TWO PHASES. A FORTRAN PHASE AND AN AUTOCODER PHASE. DURING THE FORTRAN PHASE, THE PROCESSOR COMPILES A SYMBOLIC PROGRAM IN AUTOCODER FORMAT. DURING THE AUTOCODER PHASE, THE PROCESSOR CONVERTS THIS AUTOCODER PROGRAM INTO A 1410 OBJECT PROGRAM.

THE MINIMUM MACHINE CONFIGURATION REQUIRED BY THE FORTRAN II PROCESSOR IS- 1. 20K STORAGE 2. FOUR IBM 729 II, IV, V OR 7330 MAGNETIC TAPE UNITS 3. ONE IBM 1402 CARD READ-PUNCH* 4. ONE IBM 1403 PRINTER MODEL 2 *OPTIONS ARE 1410 FORTRAN /SUBROUTINES/ 1410-FO-138 /SEE 1410-FO-913/ AVAILABLE TO TRADE 1, 2, OR 3 MAGNETIC TAPE UNITS FOR THE 1402 AND 1403 UNIT RECORD DEVICES.
OUTPUT TAPES PRODUCED BY 1410 AUTOCODER AS DESCRIBED IN THE OPERATORS GUIDE FOR SYSTEM SUPERVISOR AND AUTOCODER. THEY CONTAIN THE SELF-LOADING 1401 PROGRAM WHICH PRINTS AND PUNCHES THE CONTENTS OF THE TAPE. THE OPERATING PROCEDURE FOR THIS PROGRAM IS IN THE SYSTEM SUPERVISOR OPERATORS GUIDE. WHILE THE TAPE WILL NORMALLY BE USED TO PRODUCE PRINTED LISTINGS, IT MAY ALSO BE USED TO OBTAIN SYMBOLIC AND CONDENSED DECKS.

CONTINUED FROM PRIOR COLUMN--

FORTRAN /40K/ PROCESSOR
1410-FO-950

THE FORTRAN /40K/ PROCESSOR CAN REPLACE THE INITIAL FORTRAN /20K/ PROCESSOR FOR IBM 1410 SYSTEM WITH 40,000 OR MORE CORE-STORAGE POSITIONS. THIS PROCESSOR TAKES ADVANTAGE OF THE LARGER CORE-STORAGE CAPACITIES BY USING LARGER TABLES FOR PROCESSING SOURCE STATEMENTS. THE FORTRAN /40K/ PROCESSOR ALSO PROVIDES MORE COMPLETE DIAGNOSTIC CHECKING AND FASTER COMPILATION THAN THE 20K PROCESSOR. IN A SERIES OF COMPILATION TESTS, USING SAMPLE SOURCE PROGRAMS SUBMITTED BY PERSONNEL IN THE FIELD, TIMING COMPARISONS WERE MADE BETWEEN THE FORTRAN /20K/ PROCESSOR AND THE FORTRAN /40K/ PROCESSOR. THE RESULTS OF THESE COMPARISONS ARE PRESENTED IN THE TABLE BELOW. /THE TESTS WERE MADE ON A 40K 1410 SYSTEM, USING SIX 729 VI MAGNETIC TAPE UNITS/.

	BATCH 1	BATCH 2	BATCH 3	BATCH 4
NO. OF PROGRAMS	9	4	18	1
COMPILED SIZE	60,000	64,000	39,000	60,000
FORTRAN /20K/	79 MIN.	82 MIN.	83 MIN.	85 MIN.
FORTRAN /40K/	12.5 MIN.	18 MIN.	13 MIN.	28 MIN.

THE FORTRAN /40K/ PROCESSOR COMPILES DIRECTLY INTO RELOCATABLE, MACHINE-LANGUAGE OBJECT PROGRAMS. A SYMBOLIC LISTING OF THE OBJECT PROGRAM CAN BE PRODUCED WITH EACH COMPILATION. THE FORTRAN /40K/ PROCESSOR OPERATES UNDER 1410 PROCESSOR OPERATING SYSTEM AND USES THE CURRENT FORTRAN LOADER AND LIBRARY TAPE. FURTHERMORE, PROGRAMS AND SUBPROGRAMS COMPILED WITH THE AUTOCODER OR FORTRAN /20K/ PROCESSOR CAN BE LOADED WITH PROGRAMS AND SUBPROGRAMS COMPILED WITH THE NEW PROCESSOR. FOR COMPILATION OF SOURCE PROGRAMS, 40K 1410 SYSTEM WITH, FOUR MAGNETIC TAPE UNITS /729 OR 7330/, ONE 1402 CARD READ PUNCH MODEL 2 /OR A TAPE UNIT/ AND, ONE 1403 MODEL 2 /OR A TAPE UNIT/. /NOTE- OUTPUT FOR THE PUNCH AND PRINTER CAN BE COMBINED ON ONE TAPE UNIT/. FOR EXECUTION OF OBJECT PROGRAMS- IN ADDITION TO THE MACHINE REQUIREMENTS FOR THE OBJECT PROGRAMS PROCESSING, TWO TAPE UNITS MUST BE PROVIDED. ONE OF THESE UNITS IS FOR THE FORTRAN LOADER AND LIBRARY- THE OTHER IS USED AS A WORK FILE BY THE LOADER AT LOAD TIME AND IS THEN AVAILABLE TO THE OBJECT PROGRAM.

INPUT/OUTPUT CONTROL SYSTEM
1410-IO-926

THIS PROGRAM PROVIDES USERS OF THE IBM PROGRAMMED TRANSMISSION CONTROLS /PTC/ WITH READ, WRITE, CONTROL, AND ERROR DETECTION ROUTINES FOR TRANSFERRING INFORMATION BETWEEN THE IBM 1410 AND THE PTC. THESE ROUTINES ARE COMPLETELY WRITTEN AND TESTED. THIS IOCS ALSO CONTAINS ROUTINES THAT SAVE AND RESTORE THE STATUS OF THE 1410 WHEN AN INTERRUPT OCCURS AND THAT SCHEDULE THE TRANSFER OF CONTROL TO THE USERS DATA-HANDLING ROUTINES. THE 1410 IOCS FOR PTC HAS THE FOLLOWING MINIMUM MACHINE REQUIREMENTS- 20,000 POSITIONS OF CORE STORAGE, PROCESSING OVERLAP AND PRIORITY SPECIAL FEATURES, ONE OR MORE TELECOMMUNICATION DEVICES ATTACHED TO AN IBM 7750 OR AN IBM 1440-1448.

REPORT PROGRAM GENERATOR
1410-RG-910

THE REPORT PROGRAM GENERATOR ACCEPTS REPORT SPECIFICATIONS AND PRODUCES A SYMBOLIC PROGRAM DECK /AUTOCODER FORMAT/ FOR THE DESIRED REPORT PROGRAM. THE GENERATED REPORT PROGRAM CAN PRODUCE A WIDE RANGE OF FORMATS, EXTRACTING ITS DATA FROM A CALCUALTIONS AT ANY POINT IN THE REPORTING PROCESS. RPG-GENERATED PROGRAMS UTILIZE THE 1410 IOCS. MACHINE CONFIGURATION 1. FOR RPG /TO GENERATE THE REPORT PROGRAM/- 20K STORAGE... 1402 CARD READ PUNCH... TWO MAGNETIC TAPE UNITS 2. FOR AUTOCODER /TO ASSEMBLE THE REPORT PROGRAM/- 20K STORAGE...1402 CARD READ PUNCH..TWO MAGNETIC TAPE UNITS 2. FOR AUTOCODER /TO ASSEMBLE THE REPORT PROGRAM/- 20K SORAGE... 1402 CARD READ PUNCH...FOUR MAGNETIC TAPE UNITS...1403 PRINTER, MODEL 2. 3. FOR THE REPORT PROGRAM /TO PRODUCE THE REPORT/ - 20K STORAGE... 1402 CARD READ PUNCH...OTHER I/O UNITS APPROPRIATE TO THE PROGRAM.

SYSTEMS SUPERVISOR
1410-SV-907

THE 1410 SYSTEM SUPERVISOR HAS SEVERAL FUNCTIONS IN THE OPERATION OF THE PROCESSOR OPERATING SYSTEM TAPE. 1. IN THE ROLE OF A SUPERVISOR, IT PICKS UP INFORMATION FROM CONTROL CARDS AND, ACTING UPON THIS INFORMATION, POSITIONS THE SYSTEM TAPE, CALLS IN THE REQUIRED PHASE OR PROGRAM AND THEN TURNS CONTROL OVER TO THE PROGRAM CALLED. 2. THE SYSTEM SUPERVISOR ALSO ACCOMPLISHES THE DUPLICATION OF NEW SYSTEM TAPES AS WELL AS THE MAINTENANCE OF THE SYSTEM TAPE. 3. ANOTHER PART OF THE SYSTEM SUPERVISOR IS THE LIBRARY PRINT PROGRAM, WHICH PRINTS ANY DESIRED SECTION OF THE LIBRARY THAT IS ON THE PROCESSOR OPERATING SYSTEM TAPE. MACHINE CONFIGURATION 1. 20K STORAGE. 2. TWO IBM 729 II, IV, OR 7330 MAGNETIC TAPE UNITS. 3. IBM 1402 CARD READ PUNCH. THE MACHINE CONFIGURATION FOR THE INDIVIDUAL PROGRAMS ON THE PROCESSOR OPERATING SYSTEM TAPE ARE SPECIFIED IN THE ABSTRACTS OF THE PROGRAMS. THE 1410 AUTOCODER HAS THE LARGEST MINIMUM REQUIREMENT.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH. OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP...LISTINGS...FLOWCHARTS... OPERATING INSTRUCTIONS.
CARD DECKS - CONDENSED PROGRAM DECK...SAMPLE PROBLEM DECK... IOCS RESTART DECK.
ONE MAGNETIC TAPE - PROCESSOR OPERATING SYSTEM TAPE.

OPTIONAL PROGRAM MATERIAL -
EIGHT MAGNETIC TAPES - 1410-AU-906 AND 1410-SV-907 ASSEMBLY LISTINGS, /ONE TAPE/...1410-CB-912 ASSEMBLY LISTINGS, /TWO TAPE/...1410-FO-913 ASSEMBLY LISTINGS, /THREE TAPES/ ...1410-FO-950 AUTOCODER LANGUAGE, /ONE TAPE/...1410-RG-910 ASSEMBLY LISTING, /ONE TAPE/.

IBM Programs

1410-PR-134 1410/1301 /DISK/ PROCESSOR
OPERATING SYSTEM TAPE
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-PR-134

THE FOLLOWING PROGRAMS ARE CONTAINED ON THIS SYSTEM TAPE.
1410 AUTOCODER 1410-AU-942
1410 COBOL PROCESSOR 1410-CB-944
1410 FORTRAN II PROCESSOR 1410-FO-945
1410 FORTRAN /SUBROUTINES/ 1410-FO-138 /SEE 1410-FO-945/
1410 INPUT/OUTPUT CONTROL SYSTEMS 1410-IO-926
1410/1301 REPORT PROGRAM GENERATOR 1410-RG-943
1410 SYSTEM SUPERVISOR 1410-SV-941

AUTOCODER
1410-AU-942

1410-AU-942 AUTOCODER. THE 1410 AUTOCODER RELIEVES THE USER FROM WRITING HIS ROUTINES IN MACHINE LANGUAGE. HE CAN WRITE HIS ROUTINES USING A WELL-DEFINED SET OF MNEMONIC OPERATION CODES IN CONJUNCTION WITH USEFUL AND SIGNIFICANT LABELS, WHICH HE DEFINES, AND THEN PROCESSES WITH AUTOCODER TO PRODUCE AN OPERATING SYSTEM DECK. HE MAY ALSO WRITE MACRO STATEMENTS AND INCLUDE SUBROUTINES IN THE LIBRARY. A MORE DETAILED DESCRIPTION OF THIS PROGRAM IS CONTAINED IN THE AUTOCODER BULLETIN LISTED IN THE REFERENCES. THE SOURCE SYMBOLIC PROGRAM IS SET UP IN A PRESCRIBED MANNER AND IS OPERATED ON BY THE AUTOCODER TO PRODUCE AN OPERATING SYSTEM DECK.

THE MINIMUM MACHINE CONFIGURATION REQUIRED BY THIS AUTOCODER PROCESSOR IS-
1. 40K STORAGE, OVERLAP AND PRIORITY
2. 50 CYLINDERS OF 1301 DISK STORAGE AS REQUIRED BY 1410/1301 PROCESSOR OPERATING SYSTEM, NO. 1410-PR-134.
3. ONE IBM 1402 CARD READ-PUNCH*
4. ONE IBM 1403 PRINTER, MODEL 2*

* OPTIONS ARE AVAILABLE TO TRADE 1 OR 2 OR 3 MAGNETIC TAPE UNITS FOR THE 1402 AND 1403 RECORD DEVICES.

1. PRELIMINARY REFERENCE MANUAL IBM 1410 PROCESSOR OPERATING SYSTEM, USING IBM 1301 DISK STORAGE.
2. SAMPLE PROGRAM FOR AUTOCODER AND IOCS, INCLUDING A CARD PROGRAM DECK, LISTING AND INSTRUCTIONS.

COBOL PROCESSOR
1410-CB-944

1410 COBOL PROCESSOR ACCEPTS PROGRAMS WRITTEN IN THE COBOL LANGUAGE AS INPUT AND PRODUCES COMPLETE OBJECT PROGRAMS TO PERFORM THE FUNCTIONS SPECIFIED IN THE SOURCE STATEMENTS. THE PROCESS INVOLVES A COBOL RUN /WHICH PRODUCES COBOL DIAGNOSTICS AND THE SOURCE PROGRAM TRANSLATED INTO AUTOCODER LANGUAGE AND FORMAT/ FOLLOWED BY AN AUTOCODER RUN /WHICH PRODUCES THE OBJECT PROGRAM ASSEMBLY LISTING AND A CONDENSED DECK/. THE PROCESS IS CONTINUOUS AND COMPLETE IF- 1. NO SERIOUS DIAGNOSTIC ERRORS ARE DISCOVERED, AND 2. IF THE SYSTEM CONFIGURATION PROVIDES TAPE INPUT TO THE AUTOCODER PROCESSOR.

THE MINIMUM MACHINE CONFIGURATION REQUIRED BY THE COBOL PROCESSOR IS-- 1. 40K STORAGE 2. PROCESSING OVERLAP AND PRIORITY SPECIAL FEATURES 3. TWO IBM 729 II, 729 IV, 729 V OR 7330 MAGNETIC TAPE UNITS. USERS WHO DO NOT HAVE TAPE UNITS CAN SUBSTITUTE AN IBM 1402 CARD READ-PUNCH, MODEL 2, AND A 1403 PRINTER, MODEL 2, FOR THESE TWO TAPE UNITS.

THE LISTING TAPES FOR SUBJECT SYSTEMS ARE THE STANDARD OUTPUT TAPES PRODUCED BY 1410 AUTOCODER AS DESCRIBED IN THE OPERATORS GUIDE FOR SYSTEM SUPERVISOR AND AUTOCODER. THEY CONTAIN THE SELF-LOADING 1401 PROGRAM WHICH PRINTS AND PUNCHES THE CONTENTS OF THE TAPE. THE OPERATING PROCEDURE FOR THIS PROGRAM IS IN THE SYSTEM SUPERVISOR OPERATORS GUIDE. WHILE THE TAPE WILL NORMALLY BE USED TO PRODUCE PRINTED LISINGS, THEY MAY ALSO BE USED TO OBTAIN SYMBOLIC DECKS.

FORTRAN /FORMULA TRANSLATING/ II PROCESSOR
1410-FO-945

THE 1410 FORTRAN /FORMULA TRANSLATING/ II PROCESSOR IS A 1410 MACHINE LNAGUAGE PROGRAM. THIS PROGRAM CONVERTS A SOURCE PROGRAM WRITTEN IN THE FORTRAN II LANGUAGE /WHICH CLOSELY RESEMBLES THE LANGUAGE OF MATHEMATICS/ INTO AN OBJECT PROGRAM READY TO RUN ON THE IBM 1410. THE FORTRAN PROCESSOR THUS MAKES IT POSSIBLE FOR PERSONNEL TRAINED IN MATHEMATICS BUT NOT IN PROGRAMMING TO PREPARE PROBLEMS FOR THE COMPUTER.

THE PROCESSOR IS USED IN TWO PHASES, A FORTRAN PHASE AND AN AUTOCODER PHASE. DURING THE FORTRAN PHASE, THE PROCESSOR COMPILES A SYMBOLIC PROGRAM IN AUTOCODER FORMAT. DURING THE AUTOCODER PHASE, THE PROCESSOR CONVERTS THIS AUTOCODER PROGRAM INTO A 1410 OBJECT PROGRAM.

THE MINIMUM MACHINE CONFIGURATION REQUIRED BY THE FORTRAN II PROCESSOR IS SPECIFIED IN THE REFERENCE MANUAL C28-0287, IBM 1410 PROCESSOR OPERATING SYSTEM USING IBM 1301 DISK STORAGE.

THE USER OF 1410 FORTRAN, 1410-FO-945, MUST ORDER A COPY OF THE 1410 FORTRAN SUBROUTINE LIBRARY, 1410-FO-138. THIS SUBROUTINE LIBRARY INCLUDES THE RELOCATION LOADER AND SUBROUTINES NECESSARY FOR EXECUTING FORTRAN OBJECT PROGRAMS.

THE LISTING TAPES FOR SUBJECT SYSTEMS ARE THE STANDARD OUTPUT TAPES PRODUCED BY 1410 AUTOCODER AS DESCRIBED IN THE OPERATIONS GUIDE FOR SYSTEM SUPERVISOR AND AUTOCODER. THEY CONTAIN THE SELF LOADING 1401 PROGRAM WHICH PRINTS AND PUNCHES THE CONTENTS OF THE TAPE. THE OPERATING PROCEDURE FOR THIS PROGRAM IS IN THE SYSTEM SUPERVISOR OPERATORS GUIDE. WHILE THE TAPE WILL NORMALLY BE USED TO PRODUCE PRINTED LISTINGS, THEY MAY ALSO BE USED TO OBTAIN SYMBOLIC AND CONDENSED DECKS.

INPUT/OUTPUT CONTROL SYSTEM
1410-IO-926

1410-IO-926 1410 IOCS. THE IBM 1410 INPUT/OUTPUT CONTROL SYSTEM IS A SET OF PRE-WRITTEN ROUTINES THAT WILL PERFORM ALL INPUT/OUTPUT FUNCITONS FOR AN OBJECT PROGRAM. AMONG THESE FUNCTIONS ARE SCHEDULING OF READ AND WRITE OPERATIONS, ERROR DETECTION AND CORRECTION, END-OF-FILE HANDLING, AND BLOCKING AND DEBLOCKING OF RECORDS. SUCH FUNCTIONS NORMALLY REQUIRE APPROXIMATELY 40 PER CENT OF THE INSTRUC-

CONTINUED FROM PRIOR COLUMN--
TIONS IN AN AVERAGE PROGRAM. THE IOCS IS CONTAINED IN THE LIBRARY OF THE PROCESSOR OPERATING SYSTEM.

THE 1410 IOCS INCLUDES MACRO-INSTRUCTIONS AND ROUTINES WHICH PROVIDE PROGRAMMING SUPPORT FOR-
1. UNIT RECORD EQUIPMENT
2. MAGNETIC TAPE UNITS
3. 1405 DISK STORAGE
4. 1301 DISK STORAGE
5. 1414 I/O SYNCHRONIZER, MODELS 4 + 5

THE IOCS NOW INCLUDES AN INDEPENDENT ASSEMBLY FEATURE WHICH ENABLES USERS OF THE 1410 IOCS TO ASSEMBLE SEPARATELY OBJECT PROGRAMS AND AN IOCS THAT WILL SERVE THOSE PROGRAMS. A PARTICULAR ADVANTAGE OF THE FEATURE IS THE SIGNIFICANT REDUCTION OF TIME REQUIRED FOR REASSEMBLY WORK. WHEN THIS FEATURE IS USED, MODIFICATIONS TO OBJECT PROGRAMS DO NOT NECESSITATE REASSEMBLY OF THE IOCS FOR THOSE PROGRAMS, NOR DO CHANGES TO AN IOCS NECESSITATE REASSEMBLY OF THE OBJECT PROGRAM WHICH IT SERVES.

FEATURES PROVIDED IN SUPPORT OF THE 1414 I/O SYNCHRONIZER, MODELS 4 + 5, INCLUDE ROUTINES TO OPEN AND CLOSE INPUT AND OUTPUT AREAS FOR THE RECEIPT AND TRANSMISSION OF DATA, READ AND WRITE INFORMATION FROM AND TO THE 1414 I/O AND FROM CORE STORAGE, SAVE AND RESTORE CPU STATUS WHEN INTERRUPTED, CONTROL TRANSFER TO THE APPROPRIATE REAL-TIME ROUTINE, AND DETECT ERRORS AND WHEN POSSIBLE CORRECT ERRORS. THE ROUTINES IN SUPPORT OF 1301 AND 1405 DISK STORAGE AND THE 1414 I/O SYNCHRONIZER, MODELS 4 + 5, REQUIRE THE PROCESSING OVERLAP AND PRIORITY SPECIAL FEATURES. AFTER THE PROGRAMMER DEFINES HIS PARTICULAR MACHINE CONFIGURATION BY MEANS OF DIOCS AND DTF STATEMENTS, HE CAN USE THE IOCS MACRO-INSTRUCTIONS TO GENERATE, THROUGH THE AUTOCODER PROCESSOR, APPROPRIATE BLOCKING, DEBLOCKING, AND SCHEDULING ROUTINES. LABELLING ROUTINES, AND, WHERE APPLICABLE, CHECKPOINT ROUTINES CAN ALSO BE USED. THE INDEPENDENT ASSEMBLY FEATURE IS INCLUDED THROUGH THE DIOCS ENTRY OPTIONS.

THE 1410 IOCS HAS THE FOLLOWING MINIMUM MACHINE REQUIREMENTS-
20,000 POSITIONS OF CORE STORAGE
1 IBM 1405 DISK STORAGE /REQUIRED ONLY FOR A 1405 IOCS/
1 IBM 1301 DISK STORAGE /REQUIRED ONLY FOR A 1301 IOCS/
ONE OR MORE TELECOMMUNICATION DEVICES ATTACHED TO A 1414 INPUT/OUTPUT SYNCHRONIZER, MODEL 4 OR 5 /REQUIRED ONLY FOR A 1414 IOCS/
PROCESSING OVERLAP AND PRIORITY SPECIAL FEATURES /REQUIRED ONLY FOR 1405, 1301, OR 1414 IOCS/
UNIT RECORD DEVICES /AND/ OR MAGNETIC TAPE UNITS ARE SUPPORTED BY CARD/TAPE FEATURES IN ANY CONFIGURATION.
1. CARD DECK - RESTART PROGRAM IOCS
2. OPERATORS GUIDE

REPORT PROGRAM GENERATAOR
1410-RG-943

1410-RG-943 1410/1301 REPORT PROGRAM GENERATOR. THE 1410 RPG ACCEPTS REPORT SPECIFICATIONS AND PRODUCES A SYMBOLIC PROGRAM DECK /AUTOCODER FORMAT/ FOR THE DESIRED REPORT-WRITING PROGRAM. THE GENERATED REPORT/WRITING PROGRAM CAN PRODUCE REPORTS IN A WIDE RANGE OF FORMATS, EXTRACTING ITS DATA FROM A CARD, TAPE, OR DISK FILE /ONE ONLY/ AND PERFORMING CALCULATIONS AT ANY POINT IN THE REPORTING PROCESS. RPG-GENERATED PROGRAMS UTILIZE 1410 IOCS.

THE CONTROL CARDS AND THE REPORT-SPECIFICATIONS CARDS ARE PLACED IN PROPER ORDER. THE PROCESSOR OPERATING SYSTEM, NO. 1410-PR-134, IS USED IN AN RPG RUN. AN AUTOCODER RUN WILL FOLLOW AUTOMATICALLY TO PRODUCE THE PROGRAM DECK FOR THE REPORT-WRITING PROGRAM. THE OUTPUT OF THE GENERATED PROGRAM CAN BE A PRINTED REPORT AND/OR PUNCHED CARDS OR TAPE IN THE MOVE MODE, EVEN PARITY.

MINIMUM REQUIREMENTS ARE-
1. 40K STORAGE, OVERLAP AND PRIORITY
2. 50 CYLINDERS OF 1301 DISK STORAGE AS REQUIRED BY 1410/1301 PROCESSOR OPERATING SYSTEM, NO. 1410-PR-134.
3. ONE IBM 1402 CARD READ-PUNCH*
4. ONE IBM 1403 PRINTER, MODEL 2*

* OPTIONS ARE AVAILABLE TO TRADE 1 OR 2 OR 3 MAGNETIC TAPE UNITS FOR THE 1402 AND 1403 UNIT RECORD DEVICE.

1. SAMPLE PROBLEM FOR RPG. THIS INCLUDES A CARD PROGRAM DECK, LISTING, AND INSTRUCTIONS.
2. PRELIMINARY REFERENCE MANUAL FOR IBM 1410 PROCESSOR OPERATING SYSTEM, USING IBM 1301 DISK STORAGE.

SYSTEMS SUPERVISOR
1410-SV-941

1410-SV-941 SYSTEM CONTROL. THE PURPOSE OF SYSTEM CONTROL IS TO PROVIDE SUPPORT FOR THE PROCESSORS IN THE PROCESSOR OPERATING SYSTEM. IN THIS CAPACITY IT CONTROLS JOB SEQUENCING, ANALYSIS OF CONTROL INFORMATION, INPUT/OUTPUT OPERATIONS, AND MAINTENANCE OF THE SYSTEM ITSELF. /UPDATING THE SYSTEM LIBRARY TAPE, LOADING THE SYSTEM LIBRARY TAPE ONTO THE 1301, AND PRINTING SPECIFIED PARTS OF THE SYSTEM/. THE SYSTEM CONTROL CONSISTS OF EIGHT PROGRAMS, CONTAINED ON THE SYSTEM. SOME ARE CALLED VIA CONTROL CARDS OR CONTROL INFORMATION SUPPLIED BY THE OPERATOR AND OTHERS ARE CALLED BY OTHER PROGRAMS IN THE PROCESSOR OPERATING SYSTEM.

THE MINIMUM MACHINE CONFIGURATION REQUIRED BY SYSTEM CONTROL FOR SYSTEM MAINTENANCE RUNS AND PROCESSOR RUNS IS-
1. 40K STORAGE
2. OVERLAP AND PRIORITY
*3. TWO IBM 729 II, IV, V, VI OR 7330 MAGNETIC TAPE UNITS
**4. ONE IBM 1402 CARD READ-PUNCH
5. 50 CYLINDERS OF IBM 1301 DISK STORAGE

* ONE OF THESE TAPE UNITS CAN BE REPLACED BY ONE IBM 1403 PRINTER FOR A LIBRARY PRINT RUN.

** THIS ITEM MAY BE REPLACED BY AN ADDITIONAL IBM 729II, IV, V, OR 7330 MAGNETIC TAPE UNIT.

1. 1410/1301 PROCESSOR OPERATING SYSTEM REFERENCE MANUAL.

THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH. OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP...LISTINGS...FLOWCHARTS... OPERATING INSTRUCTIONS.
CARD DECKS - CONDENSED PROGRAM DECK...SAMPLE PROBLEM DECK... IOCS RESTART DECK.
ONE MAGNETIC TAPE - PROCESSOR OPERATING SYSTEM TAPE.

CONTINUED FROM PRIOR PAGE--

OPTIONAL PROGRAM MATERIAL -
EIGHT MAGNETIC TAPES - 1410-AU-942 ASSEMBLY LISTING, /ONE TAPE/...1410-CB-944 ASSEMBLY LISTING, /TWO TAPES/...1410-FO-945 ASSEMBLY LISTINGS, /THREE TAPES/...1410-SV-941 ASSEMBLY LISTINGS, /ONE TAPE/...1410-RG-943 ASSEMBLY LISTINGS, /ONE TAPE/.

1410-PR-155 1410/7010 OPERATING SYSTEMS
TAPE
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-PR-155

USERS OF 1410 AND 7010 SYSTEMS CAN NOW MORE FULLY REALIZE THE CAPABILITIES OF THEIR MACHINES. THE 1410/7010 OPERATING SYSTEM IS A FLEXIBLE PACKAGE OF CONTROL PROGRAMS AND PROCESSING PROGRAMS, DESIGNED TO PROVIDE CUSTOMERS WITH PROGRAMMED CONTROL OF OPERATING PROCEDURES AND WITH FULLY TESTED PROGRAMS THAT SATISFY SUCH BASIC NEEDS AS SORTING AND COMPILING. THE COMPILERS INCLUDED IN THIS MODULAR SYSTEM ARE NEW PROGRAMS--THEY ARE NOTABLY FASTER THAN PREVIOUS VERSIONS OF THESE COMPILERS. USE OF THE OPERATING SYSTEM NOT ONLY MINIMIZES THE NEED FOR MANUAL CONTROL OF THE MACHINE, BUT ALSO REDUCES THE TIME REQUIRED FOR BOTH THE WRITING AND EXECUTION OF PROGRAMS. UNDER CONTROL OF THE SYSTEM MONITOR, AN INSTALLATIONS DAILY WORK LOAD CAN BE BATCHED AND CONTINUOUSLY FED INTO THE SYSTEM. THE BATCH OF WORK CAN INCLUDE ANY NUMBER AND MIXTURE OF JOB TYPES- PRODUCTION RUNS /PAYROLL, INVENTORY, BILLING/- COMPILATIONS- UTILITY OPERATIONS /STORAGE PRINTS, TAPE PRINTS/- SORTING AND MERGING- PROGRAM TESTING.

THE OPERATING SYSTEM PROVIDES SUPPORT FOR A TELE-PROCESSING SYSTEM. ALL PROGRAMS WITHIN THE OPERATING SYSTEM HAVE BEEN WRITTEN TO OPERATE WITHIN THIS TYPE OF PROCESSING ENVIRONMENT. THE 7770 AUDIO RESPONSE UNIT CAN BE USED AS A TELE-PROCESSING DEVICE. THE 7770 HAS THE CAPABILITY OF SENDING VOCAL RESPONSES TO THE PERSON MAKING AN INQUIRY. THE TELE-PROCESSING SUPERVISOR CAN INTERRUPT BATCH PROGRAMS BEING PROCESSED UNDER THE OPERATING SYSTEM TO ANSWER INQUIRIES FROM A 7770. ERROR CHECKING OCCURS ON BOTH INPUT AND OUTPUT. THE ANSWER IS TO THE ORIGINATING 7770. IN ADDITION, THE TELE-PROCESSING SUPERVISOR CAN BE INCORPORATED INTO THE SYSTEM MONITOR, PROVIDING INPUT/OUTPUT CONTROL FOR TELE-PROCESSING DEVICES AND SUPERVISING THE LOADING AND EXECUTION OF PROGRAMS TO HANDLE THAT INPUT/OUTPUT. THE ENTIRE SYSTEM CAN BE ORIENTED EITHER TO TAPE OR TO DISK STORAGE, OR THE USER CAN WORK WITH A COMBINATION OF THE TWO MEDIA--SUCH AS A DISK-ORIENTED MONITOR CONTROLLING COMPILERS THAT USE TAPE FOR WORK FILES.
ADDITIONAL FEATURES-
-1302 DISK FORMAT/ADDRESS GENERATOR
-FILE SAVE PROGRAM, RESTORES DATA TO 1301 OR 1302 DISK STORAGE.
-DISK PRINT PROGRAM, PRINTS THE CONTENTS OF 1301 OR 1302 DISK.
-DATA FILE GENERATOR, GENERATES DATA FILES ON MAGNETIC TAPE, 1301 OR 1302 DISK STORAGE.

OPTIONAL PROGRAM MATERIAL CONSISTS OF 2 TAPES

TAPE1		NO. OF CHARTS
SYSTEM MONITOR		
RESIDENT AND TRANSITIONAL MONITORS	1410-SV-962	45
LINKAGE LOADER	1410-UT-963	36
TELE-PROCESSING SUPERVISOR	1410-SV-964	48
SYSTEM GENERATION PROGRAMS	1410-MI-965	47
BASIC INPUT/OUTPUT CONTROL SYSTEM	1410-IO-966	21
RANDOM-PROCESSING SCHEDULER	1410-IO-967	3
COBOL PROCESSOR	1410-CB-969	17
TAPE 2		NO. OF CHARTS
AUTOCODER PROCESSOR	1410-AU-968	49
FORTRAN PROCESSOR	1410-FO-970	138
GENERALIZED TAPE SORTING PROGRAM	1410-SM-971	34
UTILITY PROGRAMS	1410-UT-973	19
GENERALIZED SORT USING DISK	NO CHARTS AVAILABLE.	

THE MINIMUM MACHINE REQUIREMENTS FOR AN ATTACHED 1015 INQUIRY DISPLAY TERMINAL ARE- FOR A TAPE ORIENTED SYSTEM- 60K 1410/7010.. FIVE MAG. TAPE UNITS...ONE CARD READER...ONE PRINT UNIT...ONE MAG. TAPE UNIT FOR THE TELE-PROCESSING LIBRARY FILE. NOTE- ONE ADDITIONAL TAPE UNIT MAY BE USED IN PLACE OF THE CARD READER, AND ONE ADDITIONAL TAPE UNIT MAY BE USED IN PLACE OF THE PRINTER. FOR A DISK ORIENTED SYSTEM- 80K 1410/7010...TWO MAG. TAPE UNITS, FOR SYSTEM GENERATION, ...ONE CARD READER...ONE PRINT UNIT...ONE MODULE OF 1301 OR 2302 DISK STORAGE...ONE MAGNETIC TAPE UNIT OR DISK AREA FOR THE TELE-PROCESSING LIBRARY FILE. NOTE- WHEN SYSTEM GENERATION IS NOT BEING PERFORMED, ONE OF THE TWO TAPE UNITS REQUIRED FOR SYSTEM GENERATION MAY BE USED IN PLACE OF THE CARD READER, AND ONE OF THE TWO TAPE UNITS MAY BE USED IN PLACE OF THE PRINTER.
MINIMUM MACHINE REQUIREMENTS FOR AN ATTACHED 7770 MODEL 2- TAPE SYSTEM- 60K 1410/7010...FIVE MAGNETIC TAPE UNITS...ONE CARD READER OR AN ADDITIONAL TAPE UNIT...ONE PRINT UNIT OR AN ADDITIONAL TAPE UNIT...AND ONE MAGNETIC TAPE UNIT FOR THE TELE-PROCESSING LIBRARY FILE. A DISK ORIENTED SYSTEM REQUIRES- AN 80K 1410/7010...TWO MAGNETIC TAPE UNITS FOR SYSTEM GENERATION. ..ONE CARD READER...ONE PRINT UNIT...ONE MODULE OF 1301 OR 2302 DISK STORAGE...AND ONE MAGNETIC TAPE UNIT OR DISK AREA FOR THE TELE-PROCESSING LIBRARY FILE. NOTE- WHEN SYSTEM GENERATION IS NOT BEING PERFORMED, ONE OF THE TWO TAPE UNITS REQUIRED FOR GENERATION MAY BE USED IN PLACE OF THE CARD READER, AND ONE OF TWO TAPE UNITS IN PLACE OF THE PRINT UNIT.
THE FILE ORGANIZATION SYSTEM FOR 1301/2302 DISK STORAGE DOES NOT HAVE FLOW CHARTS THE FILE NO. IS 1410-MI-977.
THE IBM 1015 INQUIRY DISPLAY TERMINAL MAY BE USED WITH THE 1410 OR 7010 UNDER THE OPERATING SYSTEM. THE PROGRAMMING SUPPORT CONSISTS OF TWO MODULES, ONE FOR EACH CHANNEL. THE APPROPRIATE MODULE, LIKE MODULES FOR OTHER TELE-PROCESSING DEVICES, IS INCORPORATED INTO THE TELE-PROCESSING SUPERVISOR BY THE USER AT SYSTEM GENERATION. THE 1015 PROVIDES VISUAL DISPLAY OF INFORMATION FROM A CENTRAL FILE STORAGE, ALLOWING THE USER IMMEDIATE ACCESS TO UP-TO-DATE RECORDS FOR CUSTOMER INQUIRY AND MANY OTHER APPLICATIONS WHERE NO HARD COPY IS REQUIRED. THE TERMINAL CONSISTS OF A KEYBOARD BY WHICH THE USER ENTERS INQUIRIES INTO THE COMPUTER AND A CATHODE-RAY TUBE DISPLAY UNIT ON WHICH THE RESPONSE APPEARS. AS WITH OTHER TELE-PROCESSING DEVICES, THE TELE-PROCESSING SUPERVISOR CAN INTERRUPT BATCH PROGRAMS BEING PROCESSED UNDER THE OPERATING SYSTEM TO SERVICE AN INQUIRY FROM THE 1015 TERMINAL. AFTER USER-WRITTEN ROUTINES ANALYZE THE INQUIRY AND COMPOSE A RESPONSE, THE SUPERVISOR CAUSES THE RESPONSE TO BE TRANSMITTED TO THE 1015 THAT ORIGINATED THE INQUIRY. ERROR CHECKING OCCURS ON BOTH INPUT AND OUTPUT.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES

CONTINUED FROM PRIOR COLUMN--
PROVIDED MUST BE 2400 FEET IN LENGTH.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... SAMPLE PROBLEM... LISTINGS.
TWO MAGNETIC TAPES - /ONE TAPE/ SYSTEM TAPE - TAPE ORIENTED SYSTEM... /ONE TAPE/ SYSTEMS TAPE - DISK ORIENTED SYSTEM.

OPTIONAL PROGRAM MATERIAL -
THREE MAGNETIC TAPES - /ONE TAPE/ - HISTORY FILE... /TWO TAPES/ - AUTOCHARTS... LISTINGS.

1410-SE-01X 1410/7010 OPERATING SYSTEM
CONVERSION PROGRAM
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-SE-01X
OSTHE 1410/7010 OPERATING SYSTEM CONVERSION PROGRAM ACCEPTS AS INPUT USERS PROGRAMS WRITTEN IN 1410 AUTOCODER - IOCS. IT AUTOMATICALLY CONVERTS ALL POSSIBLE STATEMENTS TO THE LANGUAGE OF THE 1410/7010 OPERATING SYSTEM AND FLAGS ALL THOSE STATEMENTS ABOUT WHICH IT HAS INSUFFICIENT INFORMATION TO PERFORM THE NECESSARY CONVERSION. IT IS AN EFFECTIVE CONVERSION TOOL FOR BOTH TAPE AND DISK SYSTEMS AND HAS BEEN FIELD TESTED WITH EXCELLENT RESULTS.
FEATURES
- EFFICIENT CONVERSION OF TAPE AND DISK PROGRAMS.
- REDUCED CONVERSION TIME AND COST.
- PERMITS FULL UTILIZATION OF ALL OPERATING SYSTEM ADVANTAGES--FASTER SORTS, MORE EFFICIENT COMPILERS, MODULAR PROGRAMMING, MONITORED OPERATION.
- OPERATES ON ANY SYSTEM WITH OPERATING SYSTEM CAPACITY.
- MODULAR AND EASILY MODIFIED.

USE- THE USERS AUTOCODER- IOCS SOURCE STATEMENTS ARE READ INTO THE SYSTEM BY THE CONVERSION PROGRAM. THE PROGRAM MAKES THE NECESSARY CHANGES TO THE SOURCE DECK, PLACING THE NEW SOURCE CARDS ON A WORK TAPE. THE TAPE IS REWOUND, AND THE CONVERTED DECK PUNCHED. AT THE SAME TIME A LISTING IS PRINTED WHICH CONTAINS BOTH THE OLD /DELETED/ AUTOCODER - IOCS STATEMENTS AND THE NEW /INSERTED/ OPERATING SYSTEM COMPATIBLE STATEMENTS. THE PUNCHED DECK OMITS THE /DELETED/ STATEMENTS. STATEMENTS WHICH MAY REQUIRE SPECIAL DECISIONS ARE FLAGGED TO BE /CHECKED/ AND ARE PUNCHED. EXCEPT FOR THOSE /CHECKED/ STATEMENTS ON WHICH ACTION MUST BE TAKEN, THE NEW SOURCE DECK IS READY FOR AN AUTOCODER ASSEMBLY UNDER THE 1410/7010 OPERATING SYSTEM.
MINIMUM SYSTEM REQUIREMENTS- A 40 K 1410 SYSTEM WITH ONE CHANNEL, OVERLAP AND PRIORITY, A 1402 CARD READ PUNCH, A 1403 PRINTER, AND ONE TAPE UNIT. THE 1402 CARD READ PUNCH AND/OR 1403 PRINTER MAY BE REPLACED BY MAGNETIC TAPE UNITS.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... REFERENCE MANUAL.
CARD DECKS - SAMPLE PROBLEM DECK.
MAGNETIC TAPES - ONE REEL CONTAINING THE OUTPUT OF A PR-106 ASSEMBLY RUN INCLUDING SOURCE AND OBJECT PROGRAM AND PROGRAM LISTINGS.

1410-SI-101 SIMULATION OF THE 650 WITH
THE 1410
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-SI-101

PURPOSE THE 650 SIMULATION PROVIDES MEANS TO RUN 650 PROGRAMS ON A PRODUCTION BASIS. IF THE USER REQUIRES A MORE DETAILED DESCRIPTION ON THE PROGRAM, HE MAY OBTAIN IT BY REQUESTING THE SIMULATION OF IBM 650 ON IBM 1410 BULLETIN. MACHINE CONFIGURATION 1. MINIMUM OF 40,000 CORE LOCATIONS. 2. ONE 1402 READER-PUNCH.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
ONE MAGNETIC TAPE - SYSTEM TAPE /INCLUDES ASSEMBLY LISTINGS + CONDENSED CARDS.

1410-SM-111 SORT/MERGE 11
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-SM-111

PURPOSE SORT-MERGE 11 IS A GENERALIZED UN-BUFFERED TAPE SORTING AND MERGING PROGRAM DESIGNED TO PERMIT EITHER THE SORTING OR THE MERGING OF DATA SO AS TO PRODUCE ORDERED OUTPUT DATA. INPUT RECORDS CAN BE FIXED OR VARIABLE LENGTH, SINGLE OR BLOCKED. OUTPUT CAN BE EITHER IN ASCENDING OR DESCENDING ORDER. ANY ORDER OF MERGE UP TO 5-WAY MAY BE EMPLOYED. USE A MINIMUM OF TWO CONTROL CARDS MUST BE PREPARED BY THE USER MACHINE CONFIGURATION A* 20,000 POSITIONS OF CORE STORAGE B* 4 IBM 729 II, 729 IV, AND/OR 7330 MAGNETIC TAPE UNITS /MAY BE INTER-MIXED/ IF SORT/MERGE 11 IS TO FUNCTION AS A SORT. /TO PERFORM A 2-WAY MERGE, ONLY THREE TAPES ARE NEEDED./ C* IBM 1402 CARD READ-PUNCH MODEL 2. IF STORAGE SIZE IS 40K, 60K OR 80K, SORT/MERGE 11 WILL USE THE ADDITIONAL STORAGE, WHEN NECESSARY, TO INCREASE THE SIZE OF ITS INPUT/OUTPUT AREAS AND WORK AREAS.

THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITEUP ... OPERATING INSTRUCTIONS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
ONE 2400 FOOT MAG. TAPE CONTAINING THE ASSEMBLY LISTINGS.

1410-SM-112 SORT/MERGE 12
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-SM-112

IBM Programs

CONTINUED FROM PRIOR PAGE--

PURPOSE SORT - MERGE 12 IS A GENERALIZED TAPE SORTING AND MERGING PROGRAM WHICH EMPLOYS THE PROCESSING OVERLAP AND PRIORITY SPECIAL FEATURES. IT IS DESIGNED TO PERMIT EITHER THE SORTING OR THE MERGING OF DATA SO AS TO PRODUCE ORDERED OUTPUT DATA. INPUT RECORDS CAN BE FIXED OR VARIABLE LENGTH, SINGLE OR BLOCKED. OUTPUT CAN BE EITHER IN ASCENDING OR DESCENDING ORDER. ANY ORDER OF MERGE UP TO 5-WAY MAY BE EMPLOYED. USE A MINIMUM OF TWO CONTROL CARDS MUST BE PREPARED BY THE USER MACHINE CONFIGURATION A* 20,000 POSITIONS OF CORE STORAGE B* PROCESSING OVERLAP AND PRIORITY SPECIAL FEATURES C* 4 IBM 729 II, 729 IV, AND/OR 7330 MAGNETIC TAPE UNITS /MAY BE INTER-MIXED/ IF SORT/MERGE 12 IS TO FUNCTION AS A SORT. /TO PERFORM A 2-WAY MERGE, ONLY THREE TAPES ARE NEEDED./ D* IBM 1402 CARD READ-PUNCH MODEL 2.

THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITEUP ... OPERATING INSTRUCTIONS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
ONE 2400 FOOT MAG. TAPE CONTAINING THE ASSEMBLY LISTINGS.

1410-SM-137 GENERALIZED SORTING PROGRAM USING IBM 1301 DISK STORAGE
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-SM-137

THE IBM 1410 SORTING PROGRAM USING IBM 1301 DISK STORAGE WILL SORT FIXED-LENGTH OR VARIABLE-LENGTH DATA RECORDS, SINGLE OR BLOCKED. THE PROGRAM IS CONSIDERED A GENERALIZED SORT BECAUSE IT IS CAPABLE OF MODIFYING ITSELF ACCORDING TO THE SPECIFICATIONS DETAILED ON ITS CONTROL CARDS.

THE PROGRAM REQUIRES AN IBM 1410 WITH 40K, 60K, OR 80K CORE STORAGE, THE PROCESSING OVERLAP AND PRIORITY SPECIAL FEATURES, AND ONE OR TWO MODULES OF 1301 DISK STORAGE. AT LEAST ONE TAPE UNIT AND TWO MODULES OF 1301 DISK STORAGE ARE REQUIRED TO ACHIEVE OPTIMUM EFFICIENCY- HOWEVER, THE PROGRAM WILL RUN WITHOUT TAPE UNITS AND WITH ONE DISK STORAGE MODULE.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM MATERIAL LIST...SAMPLE PROBLEM WRITE-UP...FLOWCHARTS...GSP MANUAL USING 1301... GPS MANUAL USING IBM 1301- SORTING TIMES FOR IBM 7010.
MACHINE READABLE - RESTART PROGRAM DECK...DISK LOADER 2 DECK /DSLD2/...SAMPLE PROBLEM CONTROL CARDS AND INPUT MAGNETIC TAPE...MODIFICATION DECK FOR A SINGLE CHANNEL SYSTEM... PROGRAM TAPE... SAMPLE PROBLEM INPUT TAPE.

OPTIONAL PROGRAM MATERIAL - LISTING TAPE.
OPTIONAL MATERIAL DESIRED MUST BE ITEMIZED ON THE ORDER CARD. THE NUMBER OF TAPES NECESSARY TO OBTAIN THE PROGRAM MATERIAL MAY BE SUPPLIED OR ORDERED FROM YOUR IBM REPRESENTATIVE. THE TAPES SHOULD BE 2400 FEET IN LENGTH.

1410-UT-106 INDIVIDUAL UTILITY PROGRAM
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-UT-106

UPOS CONTROL PROGRAM. THIS PROGRAM RESIDES IN STORAGE DURING AN ENTIRE UPOS RUN. IT CONTROLS THE OPERATION OF AND LINKAGES TO THE UTILITY AND OBJECT PROGRAMS BY MEANS OF CONTROL CARDS AS SET UP IN THE CONTROL DECK UNIT BY THE OPERATOR FOR THE TOTAL SYSTEM RUN.

THE IBM 1410 UTILITY PROGRAM OPERATING SYSTEM /UPOS/ OFFERS A FLEXIBLE MEANS OF USING THE UTILITY PROGRAMS PROVIDED FOR THE IBM 1410 DATA PROCESSING SYSTEM, AND SAVES MACHINE TIME BY ELIMINATING EXCESSIVE CARDS AND TAPE HANDLING. THE NUMBER OF CONSOLE MANIPULATIONS IS ALSO REDUCED, THEREBY REDUCING THE POSSIBILITY OF ERRORS. EACH OF THE PROGRAMS CAN BE USED IN CONJUNCTION WITH UPOS OR THEY CAN BE LOADED INDIVIDUALLY THROUGH THE CARD READER /OR CARD READER TAPE/.

THE MINIMUM MACHINE REQUIREMENTS FOR UPOS ARE AS FOLLOWS- CORE-STORAGE POSITIONS 00000-00500, EXCLUSIVE OF THE INDEX REGISTER LOCATIONS AND PRIORITY ROUTINE LOCATIONS /THE TOTAL NUMBER OF CORE-STORAGE POSITIONS REQUIRED DEPENDS ON THE INDIVIDUAL UTILITY PROGRAMS/.
1. IBM 1402 CARD READ-PUNCH, MODEL 2 /A MAGNETIC TAPE UNIT --IBM 729 II, IV, V, VI, OR 7330--CAN BE SUBSTITUTED/.
2. THE TAPE FILE GENERATOR A. THIS PROGRAM PREPARES FIXED-LENGTH, UNBLOCKED RECORDS FROM CARDS OR CARD IMAGE RECORDS ON TAPE.
3. THE TAPE FILE GENERATOR B. THIS PROGRAM, FORMERLY KNOWN AS CIT, PREPARES FIXED-LENGTH, BLOCKED RECORDS FROM CARDS OR CARD IMAGE RECORDS ON TAPE.
4. THE STORAGE PRINT PROGRAM. THIS PROGRAM PRINTS OUT THE CONTENTS OF CORE STORAGE.
5. THE TAPE PRINT PROGRAM. THIS PROGRAM PRINTS A LISTING OF THE DATA CONTAINED ON ANY MAGNETIC TAPE WRITTEN BY AN IBM 1410.
6. THE SNAPSHOT PROGRAM. THIS PROGRAM PRINTS OUT THE CONTENTS OF A SELECTED AREA OF CORE STORAGE FOLLOWING THE EXECUTION OF A SPECIFIED INSTRUCTION IN THE OBJECT PROGRAM.
7. THE BRANCH TRACE PROGRAM. THIS PROGRAM TRACES EACH BRANCH INSTRUCTION IN A 1410 PROGRAM BY PRINTING A LIST OF THE EXECUTED BRANCH INSTRUCTIONS.
8. THE TRACE PROGRAM. THIS PROGRAM TRACES EACH INSTRUCTION WITHIN A SPECIFIED AREA OF A 1410 PROGRAM BY PRINTING A LIST OF THE INSTRUCTIONS /WITH ASSOCIATED DATA/ THAT ARE EXECUTED.
9. THE TAPE COMPARE PROGRAM. THIS PROGRAM COMPARES THE CONTENTS OF TWO TAPE FILES AND LISTS THE RECORDS AND RECORD NUMBERS OF THE RECORDS THAT ARE NOT IDENTICAL.
10. THE TAPE DUPLICATE PROGRAM. THIS PROGRAM COPIES RECORDS FROM ONE TAPE ONTO ANOTHER TAPE.
11. THE STORAGE PUNCH PROGRAM. THIS PROGRAM PUNCHES THE CONTENTS OF A SELECTED AREA OF CORE STORAGE INTO CARDS.
NOTE- ANY OF THE ABOVE PROGRAMS REQUIRING A 1403 PRINTER MAY BE ALTERED WITH A CONTROL CARD TO WRITE THE PRINTED OUTPUT ON A SUBSTITUTE PRINTER TAPE, /SUBPRINTER/. THESE ARE THE PROGRAMS WHICH OPERATE UNDER THE UPOS CONTROL

CONTINUED FROM PRIOR COLUMN--

PROGRAM. THE FOLLOWING PROGRAMS ARE DISTRIBUTED BY IBM AT THE END OF THE UPOS PROGRAM DECK.
12. THE STANDARD 1410 LOAD PROGRAM. THIS PROGRAM LOADS UP TO 60 CHARACTERS CONTAINED ON A LOAD CARD INTO SEQUENTIAL CORE STORAGE LOCATIONS. THIS IS A 9 CARD PROGRAM. THE LAST TWO CARDS ARE AS FOLLOWS-
A. CLEAR STORAGE-THIS CARD CLEARS ALL STORAGE ABOVE LOCATION 00499 TO BLANKS.
B. SET INDEXES - THIS CARD CLEARS ALL INDEX REGISTERS TO BLANKS AND SETS WORD MARKS AT THE HIGH ORDER POSITION OF EACH.
13. THE WRITE-TAPE-MARK-AND-REWIND-PROGRAM. THIS PROGRAM CAUSES A TAPE MARK TO BE WRITTEN AT THE CURRENT POSITION OF A SPECIFIED TAPE AND ALSO CAUSES THE TAPE TO BE REWOUND. THIS IS A ONE CARD PROGRAM, HOWEVER, TWO CARDS ARE DISTRIBUTED BY IBM- THE ONE CARD PROGRAM FOR CHANNEL ONE TAPE, AND THE ONE CARD PROGRAM FOR CHANNEL TWO TAPE.

ALL OF THE INDIVIDUAL UTILITY PROGRAMS REQUIRE THE FOLLOWING MINIMUM REQUIREMENTS- 10,000 POSITIONS OF CORE STORAGE, 1 IBM 1402 CARD READ-PUNCH, MODEL 2 OR 1 IBM 729 II, 729 IV, OR 7330 MAGNETIC TAPE UNIT. PROGRAMS PRODUCING PRINTED OUTPUT ALSO REQUIRE- 1 IBM 1403 PRINTER, MODEL 2 OR 1 IBM 729 II, 729 IV, OR 7330 MAGNETIC TAPE UNIT. IN ADDITION, PROGRAMS USING MAGNETIC TAPES ALSO REQUIRE- 1 OR 2 IBM 729 II, 729 IV, OR 7330 MAGNETIC TAPE UNITS, DEPENDING ON THE PROGRAM. NOTE- TAPE DRIVES MAY BE INTERMIXED. THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... FLOWCHARTS... LISTINGS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
ONE MAGNETIC TAPE - /ASSEMBLY LISTINGS/.

1410-UT-126 1301 DISK STORAGE UTILITY PROGRAMS
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-UT-126

FORMAT TRACK GENERATION PROGRAM. THIS PROGRAM WRITES ONE OR MORE FORMAT TRACKS ACCORDING TO THE SPECIFICATIONS OF THE USER.

HOME ADDRESS AND RECORD ADDRESS GENERATION PROGRAM. THIS PROGRAM WRITES HOME ADDRESS IDENTIFIERS AND RECORD ADDRESSES ON ONE OR MORE TRACKS IN ACCORDANCE WITH THE USERS SPECIFICATIONS. IT IS ALWAYS LOADED INTO STORAGE WITH THE FORMAT TRACK GENERATION PROGRAM. IT MUST BE EXECUTED AFTER THE FORMAT TRACKS HAVE BEEN WRITTEN.

LOAD DISK PROGRAM. THIS PROGRAM LOADS INFORMATION FROM MAGNETIC TAPE INTO SPECIFIED AREAS OF CORE STORAGE.

DUMP DISK PROGRAM. THIS PROGRAM WRITES INFORMATION FROM ONE OR MORE TRACKS OF DISK STORAGE ONTO MAGNETIC TAPE.

RESTORE DISK PROGRAM. THIS PROGRAM RELOADS INTO DISK STORAGE INFORMATION THAT WAS WRITTEN ONTO MAGNETIC TAPE BY THE DUMP DISK PROGRAM.

CLEAR DISK PROGRAM. THIS PROGRAM CLEARS SELECTED AREAS OF DISK STORAGE AND FILLS THOSE AREAS WITH BLANKS OR ANY OTHER 1410 CHARACTER SPECIFIED BY THE USER.

MACHINE CONFIGURATION- ALL 1301 DISK STORAGE UTILITY PROGRAMS REQUIRE THE FOLLOWING MINIMUM MACHINE CONFIGURATION- 20,000 POSITIONS OF CORE STORAGE, PROCESSING OVERLAP SPECIAL FEATURE, 1301 DISK STORAGE UNIT /MODEL 1 OR 2/, 1 IBM 1402 CARD READ-PUNCH, MODEL 2 /A MAGNETIC TAPE UNIT MAY BE SUBSTITUTED/. THE LOAD DISK, DUMP DISK, AND RESTORE DISK PROGRAMS ALSO REQUIRE- 1 IBM 729 /MODEL II, IV, V, OR VI/ OR 7330 MAGNETIC TAPE UNIT.

THE ABOVE UTILITY PROGRAMS ARE SUPPLIED IN CARD-DECK FORM, ORGANIZED SO THAT A UTILITY PROGRAM OPERATING SYSTEM TAPE MAY BE CREATED BY A SIMPLE CARD TO TAPE OPERATION.

THE IBM 1410 UTILITY PROGRAM OPERATING SYSTEM OFFERS A FLEXIBLE MEANS OF USING THE UTILITY PROGRAMS PROVIDED FOR THE IBM 1410 DATA PROCESSING SYSTEM, AND SAVES MACHINE TIME BY ELIMINATING EXCESSIVE CARD AND TAPE HANDLING. THE NUMBER OF CONSOLE MANIPULATIONS ARE ALSO REDUCED, THEREBY REDUCING THE POSSIBILITY OF ERRORS. EACH OF THE PROGRAMS CAN BE USED IN CONJUNCTION WITH UPOS OR THEY CAN BE LOADED INDIVIDUALLY THROUGH THE CARD READER, OR CARD READER TAPE.

THE MINIMUM MACHINE REQUIREMENTS FOR UPOS ARE AS FOLLOWS- CORE-STORAGE POSITIONS 00000-00500, EXCLUSIVE OF THE INDEX REGISTER LOCATIONS AND PRIORITY ROUTINE LOCATIONS /THE TOTAL NUMBER OF CORE-STORAGE POSITIONS REQUIRED DEPENDS ON THE INDIVIDUAL UTILITY PROGRAMS/. 1 IBM 1402 CARD READ-PUNCH, MODEL 2 /A MAGNETIC TAPE UNIT--IBM 729 II, IV, V, VI, OR 7330--CAN BE SUBSTITUTED/.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... FLOWCHARTS... LISTINGS.
CARD DECKS - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
ONE MAGNETIC TAPE - /ASSEMBLY LISTINGS/.

1410-UT-147 MULTIPLE UTILITY PROGRAM
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 1410-UT-147

CONTINUED FROM PRIOR PAGE--

THE MULTIPLE UTILITY PROGRAM PROVIDES THE FOLLOWING OPERATIONS- 1 CARD-TO-TAPE OPERATION, 1 TAPE-TO-CARD OPERATION, 2 TAPE-TO-PRINTER OPERATIONS. ANY COMBINATION OF THESE OPERATIONS MAY BE RUN CONCURRENTLY. THE MULTIPLE UTILITY PROGRAMS ARE CONTROLLED BY PARAMETERS ENTERED IN CONTROL CARDS, CONSOLE ALTERATION, OR BY CONSOLE INQUIRY. THE PROGRAMMER CAN ACTIVATE MODIFICATION EXITS AND INCORPORATE HIS OWN ROUTINES BY INSERTING THE PROPER CARDS BETWEEN THE LAST AND THE NEXT TO THE LAST CARDS OF THE MULTIPLE UTILITY PROGRAM DECK. THE FOLLOWING MINIMUM MACHINE REQUIREMENTS MUST BE MET TO USE THIS PROGRAM- 20,000 POSITIONS OF CORE STORAGE, PROCESSING OVERLAP SPECIAL FEATURE, ONE IBM 1402 CARD READ-PUNCH, MODEL 2, ONE IBM MAGNETIC TAPE UNIT FOR EACH OPERATION TO BE EXECUTED CONCURRENTLY. THESE MAY BE 729 MODEL II, IV, V, OR VI OR 7330 MAGNETIC TAPE UNITS. THE TYPES OF UNITS MAY BE INTERMIXED.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... LISTINGS... FLOWCHARTS... OPERATING INSTRUCTIONS.
CARD DECKS - CONDENSED PROGRAM DECK /ALSO HAS SAMPLE PROBLEM/.
ONE MAGNETIC TAPE - /ASSEMBLY LISTINGS/.

7070

7070-AD-151 7070/7074 AUTOCHART
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-AD-151

AUTOCHART IS A SYSTEM WHICH USES COMPUTERS TO PRODUCE, MAINTAIN, CONTROL, AND DISTRIBUTE PROGRAM FLOWCHARTS AND OTHER TYPES OF TABULAR OR GRAPHIC INFORMATION. THE AUTOCHART USER CODES HIS FLOWCHARTS ON AUTOCHART CODING SHEETS IN A MANNER WHICH IS MACHINE INDEPENDENT. THESE CODING SHEETS ARE THEN KEY PUNCHED AND PROCESSED BY THE 7070/7074 TO PRODUCE FLOWCHARTS WHICH ARE PRINTED OFF-LINE. AN UPDATING RUN WILL ALLOW THE USER TO QUICKLY MODIFY THE FLOWCHARTS, AFTER PROVIDING ONLY THE CHANGES. EACH CHART MAY HAVE UP TO 50 BLOCKS, AND A FILE MAY CONTAIN UP TO 250 CHARTS. ADVANTAGES-EASE OF SPECIFYING THE CHARTS...EASE OF KEEPING THE CHARTS UP TO DATE...PRESENTABILITY OF THE CHARTS.. UNIFORMITY OF LAYOUT AND SYMBOLS...EASE OF PREPARING THE CHARTS FOR PERMANENT DOCUMENTATION OF PUBLICATION...RELEASE OF PROGRAMMER FROM CLERICAL DUTIES.
FEATURES-
SYMBOLS THAT CONFORM TO THE PROPOSED ASA X3.6/12 STANDARD ON FLOWCHART SYMBOLS FOR INFORMATION PROCESSING
SYMBOLS ARE PROVIDED FOR BOTH ON-PAGE AND OFF-PAGE CONNECTORS
POSITIONS OF BLOCKS IN THE CHART CAN BE SPECIFIED AS DESIRED
FLOWLINES ARE DEFINED BY SPECIFYING TERMINAL POINTS OF THE LINE
ROUTING OF LINES IS AUTOMATIC- IF LINES CANNOT BE DRAWN, CONNECTORS ARE GENERATED
BLOCKS CAN BE ALTERED, INSERTED, AND MOVED, AND THE TEXT IN THE BLOCKS CAN BE CHANGED
CROSS REFERENCES BETWEEN CHARTS IN THE SAME FILE ARE UPDATED AUTOMATICALLY WHEN THE CHARTS ARE CHANGED
NONFLOWCHART FIGURES SUCH AS MEMORY MAPS AND DECISION CAN BE MADE BY USING ONLY LINE AND COMMENTS CARDS

MINIMUM MACHINE REQUIREMENTS-A 10K 7070 OR 7074 SYSTEM WITH... TWO CHANNELS WITH SIX 729 MAGNETIC TAPE UNITS...A 1401 SYSTEM WITH 1403 PRINTER MODEL 2 /AND ANY STANDARD UTILITY PRINT PROGRAM THAT ACCEPTS BLOCKED RECORDS/.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... SAMPLE PROBLEM LISTING... OPERATING INSTRUCTIONS.
CARD DECK - SAMPLE PROBLEM DECK.
ONE MAGNETIC TAPE - CONTAINING - SYSTEM IN CARD IMAGE FORMAT... PROGRAM LISTING... SOURCE PROGRAM IN CARD IMAGE FORMAT.

7070-AT-082 PAT -- PROCEDURE FOR AUTOMATIC TESTING
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-AT-082

PURPOSE THE PAT SYSTEM HAS BEEN DESIGNED TO STANDARDIZE TESTING PROCEDURES SO THAT THEY MAY BE JUST AS EFFICIENT IN A CUSTOMER INSTALLATION AS THEY ARE IN A 7070 DATA CENTER WITH NO CHANGE IN TEST PROCEDURES. THE TESTING OF A PROGRAM BY THE PAT SYSTEM IS ACCOMPLISHED IN THREE PHASES. THE FIRST PHASE IS THE CREATION OF THE DATA FILES BY THE TAPE FILE GENERATOR PROGRAM. THE SECOND PHASE IS THE PROCESSING OF THE OBJECT PROGRAM. THE THIRD IS THE RECORDING OF THE RESULTS OF THE TEST THROUGH THE USE OF STORAGE PRINT AND TAPE PRINT PROGRAMS. PAT TESTING ENABLES THE PROCESSING OF UNDEBUGGED PROGRAMS BY REMOTE TESTING YET UNDER PROGRAMMER CONTROL. THE RESULTS INCLUDING THE OUTPUT FROM THE UTILITY PROGRAMS WOULD BE RETURNED TO THE PROGRAMMER FOR DESK DEBUGGING. THE PAT SYSTEM PROVIDES FOR THE TESTING OF PROGRAMS BY CARD OR TAPE PROCESSING.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
CARD DECK - CONDENSED PROGRAM DECK.

7070-AU-072 BASIC AUTOCODER
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-AU-072

THE 7070 BASIC AUTOCODER IS A SYMBOLIC PROGRAMMING SYSTEM DESIGNED TO SIMPLIFY THE PREPARATION OF PROGRAMS FOR THE 7070 DATA PROCESSING SYSTEM. WITH THE INCREASED CAPACITY AND VERSATILITY OF DATA PROCESSING SYSTEMS, MACHINE-LANGUAGE INSTRUCTIONS HAVE INCREASED CORRESPONDINGLY IN BOTH NUMBER AND COMPLEXITY. CODING IN MACHINE LANGUAGE TODAY IS AN EXTREMELY TEDIOUS AND TIME-CONSUMING TASK. THE 7070 BASIC AUTOCODER IS A SYMBOLIC PROGRAMMING SYSTEM DESIGNED TO PERMIT THE PROGRAMMER TO CODE MORE EASILY AND WITH GREATER MEANING THAN IS POSSIBLE WITH NUMERICAL MACHINE LANGUAGE. SYMBOLIC

CONTINUED FROM PRIOR COLUMN--

PROGRAMMING SYSTEMS ALSO PERFORM AUTOMATICALLY MANY BURDENSOME TASKS SUCH AS ASSIGNING AND KEEPING TRACK OF STORAGE LOCATIONS AND CHECKING FOR ERRORS. USE OF THESE SYSTEMS WILL SAVE THE PROGRAMMER A SIGNIFICANT AMOUNT OF VALUABLE PROGRAMMING TIME AND EFFORT. THE 7070 BASIC AUTOCODER IS DESIGNED SPECIFICALLY FOR USE IN 7070 DATA PROCESSING INSTALLATIONS WHICH CONTAIN UNIT-RECORD INPUT/OUTPUT EQUIPMENT ONLY, OR A MAXIMUM OF ONE OR TWO TAPE UNITS. THIS VERSION INCLUDES THE ADDITION OF THE EXECUTE CONTROL STATEMENT, THE ABILITY TO MIX CONDENSED CARD OUTPUT ON THE LISTING TAPE, THE ASSIGNMENT OF RELOCATION INDICATORS, AND THE TYPING OF THE VERSION AND LEVEL OF THE BASIC AUTOCODER PROCESSOR BEING USED.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - OPERATING INSTRUCTIONS... PROGRAM WRITE-UP.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
ONE MAGNETIC TAPE - SOURCE LANGUAGE FILE.

7070-AU-074 AUTOCODER 74
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-AU-074

PURPOSE AUTOCODER 74 IS A SYMBOLIC PROGRAMMING SYSTEM DESIGNED TO SIMPLIFY THE PREPARATION OF PROGRAMS FOR THE 7070 DATA PROCESSING SYSTEM. WITH THE INCREASED CAPACITY AND VERSATILITY OF DATA PROCESSING SYSTEMS, MACHINE-LANGUAGE INSTRUCTIONS HAVE INCREASED CORRESPONDINGLY IN BOTH NUMBER AND COMPLEXITY. CODING IN MACHINE LANGUAGE TODAY IS AN EXTREMELY TEDIOUS AND TIME-CONSUMING TASK. THE 7070 AUTOCODER 74 IS A SYMBOLIC PROGRAMMING SYSTEM DESIGNED TO PERMIT THE PROGRAMMER TO CODE MORE EASILY AND WITH GREATER MEANING THAN IS POSSIBLE WITH NUMERICAL MACHINE LANGUAGE. SYMBOLIC PROGRAMMING SYSTEMS ALSO PERFORM AUTOMATICALLY MANY BURDENSOME TASKS SUCH AS ASSIGNING AND KEEPING TRACK OF STORAGE LOCATIONS AND CHECKING FOR ERRORS. USE OF THESE SYSTEMS WILL SAVE THE PROGRAMMER A SIGNIFICANT AMOUNT OF VALUABLE PROGRAMMING TIME AND EFFORT. AUTOCODER 74 ALLOWS THE USE OF IOCS MACRO-INSTRUCTIONS. MACHINE REQUIREMENTS 4 TAPE UNITS.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
ONE MAGNETIC TAPE - AUTOCODER 74 SYSTEM.

OPTIONAL PROGRAM MATERIAL -
ONE MAGNETIC TAPE - ASSEMBLY LISTINGS.

7070-FO-073 BASIC FORTRAN
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-FO-073

PURPOSE THE IBM FORMULA TRANSLATING SYSTEM, FORTRAN, IS AN AUTOMATIC CODING SYSTEM WHICH CONSISTS OF A SOURCE-LANGUAGE /CLOSELY RESEMBLING THE ORDINARY LANGUAGE OF MATHEMATICS/, AND A PROCESSOR WHICH CONVERTS SOURCE PROGRAMS WRITTEN IN THE FORTRAN LANGUAGE INTO MACHINE-LANGUAGE OBJECT PROGRAMS. MACHINE CONFIGURATION 5,000 WORDS OF CORE STORAGE, IBM 7500 CARD READER /UTILITY PANEL/, IBM 7500 CARD PUNCH /UTILITY PANEL/.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... LISTINGS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
TWO MAGNETIC TAPES - /ONE TAPE/-SOURCE LANGUAGE FILE... /ONE TAPE/ - ASSEMBLY LISTINGS.

7070-FO-116 FORTRAN LOADER FOR THE 7070/72/74
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-FO-116

PURPOSE THE 7070/2/4 FORTRAN LOADER PROVIDES USERS OF 7070/2/4 FORTRAN AND USERS OF 7070/2/4 BASIC FORTRAN WITH THE PRINCIPLE OF RELOCATABILITY TO INSURE THAT SEVERAL ROUTINES CAN BE COMPILED SEPARATELY BUT USED TOGETHER AT OBJECT TIME. USE OF PROGRAM THE 7070/2/4 FORTRAN LOADER HAS BEEN DESIGNED SPECIFICALLY TO LOAD THE FORTRAN OBJECT PROGRAM, THE 7070/2/4 FORTRAN PACKAGE, AND THE USERS COMPILED SUBPROGRAMS, AND SUBROUTINES /WRITTEN IN THE FORTRAN OR AUTOCODER LANGUAGE/ TO PRODUCE A RELOCATED PROGRAM /WITHIN STORAGE OR ON SOME OUTPUT MEDIUM/ AVAILABLE FOR OBJECT TIME PROCESSING. THE PROGRAM IS ADAPTABLE TO EACH USERS REQUIREMENTS BY CHANGING THE CONTROL INFORMATION IN THE LOADER. THE 7070/2/4 FORTRAN LOADER RELOCATES ITSELF INTO UPPER CORE STORAGE AS SPECIFIED BY THE USER. THE LOADER ZEROS ITSELF OUT ONCE ALL PROGRAMS REQUIRED FOR A PARTICULAR OBJECT RUN HAVE BEEN RELOCATED. CAPABILITIES AND LIMITATIONS FORTRAN OBJECT PROGRAMS WHICH ARE OF SUCH SIZE THAT THEY OVERLAY THE LOADER BUT WHICH DO NOT EXCEED CORE STORAGE CAPACITY, AS DEFINED BY THE USER, MAY BE EXECUTED BY WRITING OUT THE RELOCATED PROGRAM ON SOME OUTPUT MEDIUM. THIS IS DONE THROUGH THE USE OF AN ALTERATION SWITCH. THE RELOCATED PROGRAM SHOULD BE READ BACK INTO CORE STORAGE WITH THE IBM 7070/2/4 CONDENSED CARD LOAD PROGRAM WHICH, TOGETHER WITH A ZERO STORAGE PROGRAM, IS WRITTEN OUT PRECEDING THE RELOCATED PROGRAM. STORAGE IS ZEROED UP TO THE POINT INDICATED BY THE USER IN THE LOADER OPTION. THIS OPTION IS AVAILABLE TO ANY PROGRAM-REGARDLESS OF SIZE, BUT NOT EXCEEDING CORE STORAGE CAPACITY. PROGRAMS WHICH EXCEED CORE STORAGE CAPACITY ARE NOT EXECUTABLE AND

CONTINUED FROM PRIOR PAGE--
MUST BE REWRITTEN. UNDER CONTROL OF ANOTHER ALTERATION SWITCH, THE USER HAS THE OPTION TO TYPE OUT A MAP SHOWING THE LOCATIONS OF PROGRAMS AND THEIR DATA AREAS.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS
CARD DECK - PROGRAM DECK

OPTIONAL PROGRAM MATERIAL -
TWO MAGNETIC TAPES - /ONE TAPE/ - ASSEMBLY LISTING... /ONE TAPE/ - SOURCE LANGUAGE FILES.

7070-FO-125 FORTRAN LIBRARY FOR 7070/72/74
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-FO-125

THE 7070/2/4 FORTRAN LIBRARY CONSISTS OF A GROUP OF PRECODED FUNCTION SUBROUTINES PROVIDING THE USERS OF 7070/2/4 BASIC FORTRAN AND 7070/2/4 FORTRAN WITH ABSOLUTE RELOCATABLE OBJECT PROGRAMS TO SUPPLEMENT THE FEATURES OF THE FORTRAN LANGUAGE PRESENTLY AVAILABLE. THESE FUNCTION SUBROUTINES MAY BE CLASSIFIED AS FOLLOWS- 1. TRIGONOMETRIC FUNCTIONS PERFORMING THE OPERATIONS SINE, COSINE, ARCSINE, ARCTANGENT AND HYPERBOLIC TANGENT. 2. BASIC MATHEMATICAL FUNCTIONS EXECUTING THE TASKS OF SQUARE ROOT, CHOOSING LARGEST /MAXIMUM/ VALUE, CHOOSING SMALLEST /MINIMUM/ VALUE, TRANSFER OF SIGN, POSITIVE DIFFERENCE, REMAINDERING AND TRUNCATION. 3. ERROR ROUTINE STANDARDIZING ERROR REPORTING PROCEDURES FOR THE ABOVE FUNCTIONS.

THE 7070/2/4 FORTRAN LIBRARY IS UTILIZED AS PART OF THE FORTRAN OBJECT PROGRAM, TOGETHER WITH THE 7070/2/4 FORTRAN PACKAGE, THE USERS MAIN PROGRAM, COMPILED SUBPROGRAMS, AND SUBROUTINES /WRITTEN IN THE FORTRAN OR AUTOCODER LANGUAGE/. THE 7070/2/4 FORTRAN LOADER/PACKAGE LOADS, RELOCATES AND EXECUTES THE FORTRAN OBJECT PROGRAMS.

THE 7070/2/4 FORTRAN LIBRARY MAY BE UTILIZED WITH ANY OF THE FOLLOWING CONFIGURATIONS- A/ IBM 7070, IBM 7072 OR IBM 7074 B/ CARD ORIENTED, CARD/TAPE OR TAPE ORIENTED SYSTEM C/ 5K OR 10K MAGNETIC CORE STORAGE D/ THE FLOATING POINT ARITHMETIC DEVICE IS OPTIONAL.

AFTER BEING LOADED BY THE 7070/2/4 FORTRAN LOADER, THE 7070/2/4 FORTRAN LIBRARY SUBROUTINES APPEAR IN RELOCATED FORM IN CORE STORAGE. THE USERS COMPILED MAIN PROGRAM WILL CONTAIN A BRANCH LIST SPECIFYING THE REQUIRED LIBRARY SUBROUTINES. THE BRANCH LIST, WHICH IS THE METHOD OF LINKING THE DIFFERENT ROUTINES IN A PROGRAM, IS FILLED IN WITH BRANCH INSTRUCTIONS BY THE FORTRAN LOADER AS IT PLACES THE VARIOUS SUBROUTINES IN STORAGE. ALSO, THE LIBRARY SUBROUTINES ARE THEMSELVES EQUIPPED WITH THE PROPER BRANCH LISTS, TITLE CARDS AND TRANSFER ENTRY CARDS AS REQUIRED BY THE FORTRAN LOADER.

THE 7070/2/4 FORTRAN LIBRARY IS CONSIDERED PART OF THE FORTRAN OBJECT PROGRAM AND, AS SUCH, IS DEPENDENT UPON SOME OF THE ROUTINES OF THE 7070/2/4 FORTRAN PACKAGE. SPECIFICALLY, THE ROUTINES ARE-EXPONENTIATION OF E /EXPF/, THE FLOATING POINT SIMULATION ROUTINES, FLOATING POINT TO FIXED POINT CONVERSION AND FIXED POINT TO FLOATING POINT CONVERSION.

SOME OF THE FORTRAN LIBRARY SUBROUTINES INCORPORATE THEIR OWN ERROR ANALYSIS. THE ROUTINE ERRTYPE EXISTS TO PROVIDE A COMMON ERROR PROCEDURE PRODUCING SIMILAR MESSAGES AND TABULATED HALTS.

THE 7070/2/4 FORTRAN LIBRARY SUPPLEMENTS THE FEATURES OF THE FORTRAN LANGUAGE PRESENTLY USED ON THE 7070/2/4 FORTRAN AND THE 7070/2/4 BASIC FORTRAN PROCESSORS. THE LIBRARY FURTHER IMPLEMENTS THE COMPATIBILITY BETWEEN 7070/2/4 FORTRAN LANGUAGE AND THE FORTRAN LANGUAGE OF ANY HIGHER-SCALE IBM MACHINE.

WHEREVER POSSIBLE, THE CONVENTIONS FOR WRITING LIBRARY FUNCTION SUBROUTINES HAVE BEEN ADHERED TO. THE FOLLOWING PRACTICES ARE PREVALENT THROUGHOUT. 1. THE MACHINE IS ASSUMED TO BE IN THE SENSE MODE FOR THE FIELD OVERFLOW AND SIGN CHANGE LATCHES. THE LIBRARY SUBROUTINES DO NOT DESTROY THESE CONDITIONS. 2. PRIORITY MASKS AND HIGH-LOW-EQUAL COMPARE INDICATORS MAY BE USED FREELY. CONTROL IS NEVER RETURNED TO THE COMPILED FORTRAN PROGRAM IN THE PRIORITY MODE. 3. ALTERATION SWITCHES ARE NOT USED. ELECTRONIC SWITCHES AND INDEX WORDS 1 THROUGH 92 ARE NOT USED UNLESS THEIR CONTENTS ARE SAVED AND THEN RESTORED. ACCUMULATORS ARE USED AS REQUIRED, BUT ACCUMULATOR OVERFLOW, FLOATING-DECIMAL OVERFLOW, AND FLOATING-DECIMAL UNDERFLOW CONDITIONS ARE NOT ALTERED. 4. TRANSFERS TO AND FROM LIBRARY FUNCTION SUBROUTINES ARE CARRIED OUT USING INDEX WORD 94. TRANSFERS TO AND FROM THE 7070/2/4 FORTRAN PACKAGE ARE CARRIED OUT USING INDEX WORD 93. 5. IN PROGRAMS COMPILED BY 7070/2/4 FORTRAN AND 7070/2/4 BASIC FORTRAN, ACCUMULATOR 1 IS USED FOR FLOATING POINT ARITHMETIC AND ACCUMULATOR 2 IS USED FOR FIXED POINT ARITHMETIC. IN SINGLE-ARGUMENT LIBRARY FUNCTION SUBROUTINES, THE ARGUMENT, DEPENDING UPON ITS MODE, SHOULD BE FOUND IN THE PROPER ACCUMULATOR. IN MULTIPLE-ARGUMENT SUBROUTINES, THE ARGUMENTS SHOULD BE FOUND AT THE ADDRESSES 0/X94, 1/X94, ETC. THE RESULT OBTAINED FROM EITHER TYPE OF SUBROUTINE SHOULD BE PLACED IN THE PROPER ACCUMULATOR DEPENDING UPON THE MODE OF THE FUNCTION.

THE AUTOCODER COMPILATION LISTING OF THE 7070/2/4 FORTRAN LIBRARY WILL REFLECT TWO WARNING MESSAGES WHICH SHOULD BE DISREGARDED.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... FLOWCHARTS... LISTINGS.
CARD DECK - CONDENSED PROGRAM DECK.

CONTINUED FROM PRIOR COLUMN--

OPTIONAL PROGRAM MATERIAL -
TWO MAGNETIC TAPES - /ONE TAPE/, SOURCE LANGUAGE FILE... /ONE TAPE/, ASSEMBLY LISTINGS.

7070-FO-149 FORTRAN LOADER-PACKAGE /7340 CAPABILITIES ADDED/, FOR THE 7070/72/74
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-FO-149

THE 7070/2/4 FORTRAN LOADER/PACKAGE /7340 CAPABILITIES ADDED/ PROVIDES USERS OF 7070/2/4 FORTRAN AND USERS OF 7070/2/4 BASIC FORTRAN WITH THE PRINCIPLE OF RELOCATABILITY, TO INSURE THAT SEVERAL ROUTINES CAN BE COMPILED SEPARATELY BUT USED TOGETHER AT OBJECT TIME. ANY INPUT/OUTPUT TAPE PROCESSING CAN BE DONE ON 729 UNITS OR 7340 HYPERTAPE DRIVES IN ANY COMBINATION. A LIBRARY SEARCH FEATURE PROVIDES FOR THE LOADING OF REQUIRED LIBRARY ROUTINES. THIS PROGRAM ALSO CONSISTS OF A SET OF SUBROUTINES WHICH ARE CONSIDERED PART OF THE FORTRAN OBJECT PROGRAM. THESE SUBROUTINES MAY BE CLASSIFIED AS FOLLOWS-
1. INPUT/OUTPUT SUBROUTINES PROVIDE FOR THE READING OF DATA REQUIRED FOR PROCESSING AND THE WRITING OR PUNCHING OF RESULTS AS SPECIFIED. ANY I/O TAPE PROCESSING CAN BE DONE ON 729 UNITS OR 7340 HYPER-TAPE DRIVES IN ANY COMBINATION.
2. EXPONENTIATION SUBROUTINES PERFORM THE OPERATIONS REQUIRED TO RAISE NUMBERS TO A POWER. THREE TYPES ARE PERMISSIBLE IN AN ARITHMETIC STATEMENT, NOT INCLUDING A FIXED-POINT QUANTITY TO A FLOATING-POINT POWER.
3. FUNCTION SUBROUTINES TAKE THE LOGARITHM, TO THE BASE E OR 10 OF A FLOATING-POINT ARGUMENT, PERFORM THE EXPONENTIATION OF E OR 10 RAISED TO A FLOATING-POINT POWER, AND CONVERT NUMBERS FROM FIXED-POINT TO FLOATING-POINT FORM AND VICE VERSA.
4. FLOATING DECIMAL ARITHMETIC SUBROUTINES PERFORM THE FOUR FLOATING-POINT OPERATIONS ON MACHINES NOT EQUIPPED WITH THIS DEVICE.
5. ACCUMULATOR AND QUOTIENT OVERFLOW SUBROUTINE PERFORMS A TEST OF ALL RELEVANT OVERFLOW INDICATORS, TURNS THEM OFF, AND BRANCHES TO THE PROPER LOCATION.
THE 7070/2/4 FORTRAN LOADER/PACKAGE /7340 CAPABILITIES ADDED/ HAS BEEN DESIGNED SPECIFICALLY TO LOAD THE FORTRAN OBJECT PROGRAM TO PRODUCE A RELOCATED PROGRAM/WITHIN STORAGE OR ON SOME OUTPUT MEDIUM/ AVAILABLE FOR OBJECT-TIME PROCESSING. THE FORTRAN OBJECT PROGRAM INCLUDES THE PACKAGE SUBROUTINES, THE USER/S MAIN PROGRAM AND FUNCTION AND SUBROUTINE SUBPROGRAMS. THE FUNCTION AND SUBROUTINE SUBPROGRAMS. THE FUNCTION AND SUBROUTINE SUBPROGRAMS MAY BE COMPILED BY EITHER FORTRAN OR AUTOCODER. THE PACKAGE SUBROUTINES, WHICH ARE NOT RELOCATABLE, ARE LOADED BY THE LOADER PRIOR TO LOADING THE OBJECT PROGRAM. THE PROGRAM IS ADAPTABLE TO EACH USER/S REQUIREMENTS BY CHANGING THE CONTROL INFORMATION AS SPECIFIED IN PART 3 OF THE OPERATOR/S MANUAL IBM 7070 SERIES PROGRAMMING SYSTEMS- BASIC FORTRAN PROCESSOR., FORTRAN OBJECT PROGRAMS, FORM C28-6334, AND THE SUPPLEMENT ATTACHED TO THE TRANSMITTAL LETTER. THE LOADER RELOCATES ITSELF INTO UPPER STORAGE AS SPECIFIED BY THE USER. THE LOADER ZEROS ITSELF OUT ONCE ALL PROGRAMS REQUIRED FOR A PARTICULAR OBJECT RUN HAVE BEEN RELOCATED. AFTER BEING LOADED BY THE LOADER, THE PACKAGE OCCUPIES LOWER STORAGE, BEGNNING WITH LOCATION 0425 AND CONTINUING FOR APPROXIMATELY 1400 LOCATIONS OF STORAGE. THE BRANCH LIST IN THE FORTRAN PACKAGE IS LOCATED IN LOCATIONS 0425-0458.

MACHINE REQUIREMENTS- THE 7070/2/4 FORTRAN LOADER/PACKAGE /7340 CAPABILITIES ADDED/, #7070-FO-149, REQUIRES AN IBM 7070, 7072 OR 7074 DATA PROCESSING SYSTEM WITH AT LEAST 5,000 WORDS OF CORE STORAGE. THE INPUT/OUTPUT EQUIPMENT REQUIRED DEPENDS UPON THE DATA PROCESSING SYSTEM TO BE USED. THE MINIMUM REQUIREMENTS FOR EACH SYSTEM IS AS FOLLOWS-
1. IF A 7070 IS USED, ONE 729 TAPE UNIT IS REQUIRED, OR THE SYSTEM MAY BE CARD ORIENTED.
2. IF A 7072 IS USED, ONE 7330 TAPE UNIT IS REQUIRED.
3. IF A 7074 IS USED, ONE 7340 OR ONE 729 TAPE UNIT IS REQUIRED. OR THE SYSTEM MAY BE CARD ORIENTED.
THE FOLLOWING OPTIONAL EQUIPMENT MAY BE INCLUDED IN THE SYSTEM IF DESIRED-
1. AN ADDITIONAL 5,000 WORDS OF CORE STORAGE MAY BE USED.
2. IF A 7070 OR 7074 IS USED, THE FLOATING-DECIMAL-POINT ARITHMETIC OPTIONAL FEATURE MAY BE ADDED.
3. TAPE UNITS AND/OR UNIT RECORD EQUIPMENT, WHICH ARE APPROPRIATE TO THE SYSTEM AS MENTIONED ABOVE, MAY BE ADDED AS DESIRED. NOTE THAT THE CONCURRENT USE OF A 7640 HYPERTAPE CONTROL UNIT AND ANY INPUT/OUTPUT ADAPTER DEVICE ON THE SAME CHANNEL IS NOT PERMITTED.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... SAMPLE PROBLEM LISTING... OPERATING INSTRUCTIONS.
CARD DECKS - CONDENSED PROGRAM DECK... SAMPLE PROBLEM DECK.

OPTIONAL PROGRAM MATERIAL -
TWO MAGNETIC TAPES - /ONE TAPE/, COMPILATION LISTING... /ONE TAPE/, SOURCE LANGUAGE FILE.

7070-FO-159 FORTRAN OPERATING SYSTEM
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-FO-159

OUTSTANDING ADVANTAGES OF THIS NEW SYSTEM-
-COMPILING TIME IS AT LEAST 20 TIMES FASTER FOR MOST PROGRAMS COMPARED TO FULL FORTRAN.
-ABILITY TO COMPILE WITH IMMEDIATE EXECUTION. INTERMIXING OF COMPILE, COMPILE WITH EXECUTION, AND EXECUTE ONLY JOBS /WITH OR WITHOUT DATA/.
-A THOROUGH DIAGNOSTIC SCAN OF EACH SOURCE PROGRAM PRIOR TO COMPILATION.
-A 1401 UTILITY PROGRAM FOR PERIPHERAL USE.
THE LANGUAGE IS COMPARABLE TO 7070 FULL FORTRAN- THE 7070 FORTRAN OPERATING SYSTEM PROVIDES MANY ADDITIONAL OPTIONS SUCH AS A SYMBOLIC DUMP ROUTINE AND A ROUTINE THAT ALLOWS PROGRAMS TO BE SUBDIVIDED, WITH EACH SECTION OVERLAYING THE PREVIOUS ONE. IT DOES NOT PROCESS TRIPLE SUBSCRIPTING, ARITHMETIC STATEMENT FUNCTIONS, VARIABLE NAMES OF MORE THAN FIVE CHARACTERS, EQUIVALENCE STATEMENTS WITHIN COMMON STATEMENTS, OR LITERAL INFORMATION IN THE ARGUMENT LIST OF A SUBROUTINE CALL STATEMENT.
OTHER CONVENIENCES- THE SYSTEM INCLUDES STORING OF THE USERS FORTRAN PROGRAMS ON THE SYSTEM TAPE FOR ALTER EXECUTION AND THE LOADING AND EXECUTION OF OBJECT PROGRAMS FROM THE PERIPHERAL INPUT TAPE UNIT OR ANY OTHER TAPE UNIT. IT IS COMPLETELY

CONTINUED FROM PRIOR PAGE--
SELF-CONTAINED. THE FORTRAN COMPILER, BASIC AUTOCODER COMPILER, FORTRAN LOADER/PACKAGE, SYSTEMS TAPE EDITOR, UTILITY PACKAGES, AND THE USER/S FORTRAN PROGRAMS ARE ALL ON ONE REEL OF TAPE.
MINIMUM SYSTEM REQUIREMENTS- ANY 10K 7070 SERIES WITH... SEVEN 729 OR 7330 MAGNETIC TAPE UNITS...TWO DATA TRANSMISSION CHANNELS ... AND ONE 7501 CONSOLE CARD READER OR 7500 CARD READER... A 4K 1401 SYSTEM WITH ONE 729 II OR IV OR ONE 7330 MAGNETIC TAPE UNIT, HIGH-LOW-EQUAL COMPARE AND ADVANCE PROGRAMMING FEATURES.

7070-CB-940
IBM 7070 SERIES COBOL/FORTRAN OPERATING SYSTEM COBOL COMPILER

THE IBM 7070 SERIES COBOL/FORTRAN OPERATING SYSTEM/COBOL COMPILER, COMPILES AND EXECUTES COBOL PROGRAMS FOR USE ON THE 7070 SERIES SYSTEMS. COMPILATION INCLUDES EXTENSIVE DIAGNOSTIC ERROR CHECKING.
THE 7070 SERIES COBOL/FORTRAN OPERATING SYSTEM COBOL COMPILER IS A MODULAR COMPONENT OF THE FORTRAN OPERATING SYSTEM /FOS/ TAPE AND IS UNDER THE CONTROL OF THE FORTRAN LOAD AND GO /FLAG/ MONITOR.
THERE ARE LANGUAGE DIFFERENCES BETWEEN THIS COBOL AND THE CURRENT 7070 COBOL /7070-CB-923/. THESE DIFFERENCES EXIST BECAUSE THE NEW COBOL IS ORIENTED TOWARD INDUSTRY STANDARDIZATION.
FEATURES-
COBOL SOURCE PROGRAMS ARE TRANSLATED DIRECTLY INTO OBJECT CODE, AND EXECUTION OF THE OBJECT PROGRAM CAN BE INITIATED WITHOUT INTERRUPTION.
AN OPERATING SYSTEM ENVIRONMENT THAT INCLUDES MOST OF THE FAMILIAR FEATURES OF THE FORTRAN OPERATING SYSTEM, PLUS THE FOLLOWING ADDITIONAL FEATURES-
TRACE MODE OPTION, TO AID THE USER IN DEBUGGING DURING OBJECT-TIME EXECUTION.
A LIST OPTION, TO INDICATE A DATA STORAGE MAP OF THE SOURCE PROGRAM.
MASS STORAGE /DISK/ AND PUNCHED DATA CARD PROCESSING STATEMENTS. THESE FEATURES ENABLE USERS TO INCORPORATE 1301/2302 DISK STORAGE DEVICES AND ON-LINE PUNCHED CARD DATA PROCESSING EQUIPMENT INTO HIS COBOL PROGRAMS. THE MASS STORAGE STATEMENTS PROVIDE FOR PROCESSING SEQUENTIAL OR RANDOMLY ORGANIZED DISK FILES IN SEQUENTIAL ORDER. THE NEW HOLD VERB ALLOWS FOR USER DETERMINED OVERLAP WITHIN HIS DISK PROGRAM. THESE NEW FEATURES IN NO WAY DEGRADE THE COMPILING SPEEDS OF THIS NEW COBOL COMPILER AND OPERATE IN THE SAME COMPILING ENVIRONMENT. THE USER STILL PRECOMPILES HIS I/O PACKAGE, BUT WITH DISK STATEMENTS IF DISK PROCESSING IS DESIRED.
PRECOMPILED IOCS ROUTINE., I.E., THE USER NEED COMPILE HIS IOCS ROUTINES ONLY ONCE. THE PRECOMPILED IOCS CAN THEN BE USED FOR ANY NUMBER OF OBJECT PROGRAMS.
PRECOMPILED SUBPROGRAMS., I.E., THE USER MAY WRITE HIS OWN SUB-PROGRAMS FOR EXECUTION WITH ANY OBJECT PROGRAM DESIRED. HE MAY THEN CALL THESE SUBPROGRAMS FOR INCLUSION IN THE MAIN PROGRAM VIA THE COBOL ,,CALL,, STATEMENT.
PROGRAM SEGMENTATION., I.E., THROUGH THE USE OF THE CHAIN OPTION OF THE FLAG MONITOR, COMPILATION AND EXECUTION OF PROGRAMS THAT EXCEED AVAILABLE MEMORY SIZE IS POSSIBLE.
ADDITIONAL COBOL LANGUAGE FEATURES, WHICH PROVIDE SEVERAL PROGRAMMING CAPABILITIES TO THE PROGRAMMER, ARE-
EXAMINE VERB, WITH ITS ASSOCIATED TALLY REGISTER...
CORRESPONDING OPTION OF THE MOVE, ADD, AND SUBTRACT VERBS...
BLANK CLAUSE... JUSTIFIED RIGHT CLAUSE... DECLARATIVES SECTION /USE VERB/ OF THE PROCEDURE DIVISION.
THE SAME PROGRAMS COMPILED AN AVERAGE OF 30 TIMES FASTER WHEN THE GO OPTION OF THE COBOL/FORTRAN OPERATING SYSTEM WAS USED.
THE GO OPTION REQUESTS THE LOADER TO LOAD THE GENERATED OBJECT PROGRAM FOR IMMEDIATE EXECUTION. THESE TIMINGS INCLUDE LOADER TIME AND THE TIMINGS OF ALL THE TASKS OUTLINED ABOVE EXCEPT JOBTP.
OBJECT PROGRAM EFFICIENCY, IN BOTH CORE REQUIREMENTS AND SPEED OF THE GENERATED PROGRAM, IS EQUIVALENT TO THAT OF PROGRAMS PRODUCED BY THE PRESENT COBOL PROCESSOR.
THE NEW COBOL COMPILER DOES NOT PERMIT THE USE OF 7340 HYPERTAPE DRIVES.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPE PROVIDED MUST BE 2400 FEET IN LENGTH.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - SAMPLE PROBLEM DESCRIPTION FOR FOS AND COBOL...PROGRAM MATERIAL LIST...PROGRAMMING SYSTEMS MANUAL...COBOL/FORTRAN PROGRAMMING SYSTEMS MANUAL... USERS AND OPERATORS GUIDE.
MACHINE READABLE - FOS 1401 OBJECT PERIPHERAL PROGRAM...1401 PATCH CARD TO ELIMINATE USE OF READ RELEASE FEATURE... FOS AND COBOL SAMPLE PROGRAM DECKS...BOOTSTRAP CARDS... DEBLOCKED SYSTEMS TAPE.
OPTIONAL PROGRAM MATERIAL - LISTING OF 1401 PROGRAM...
MACHINE READABLE - FOS 1401 SOURCE PERIPHERAL PROGRAM... FOS LISTING TAPE...FIVE COBOL LISTING TAPES...TWO AUTOCHART LISTING TAPES ONE COBOL AND ONE FOS...ONE FOS SYMBOLICS- INPUT TO MULTIFILE RUN TAPE.

7070-IO-076 SPOOL SYSTEM
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-IO-076

PURPOSE THE SPOOL SYSTEM PROVIDES TWO PROGRAMS WHICH MAY BE RUN SIMULTANEOUSLY WITH THE MAIN PROGRAMS. THIS SYSTEM PROVIDES TAPE-TO-CARD, CARD-TO-TAPE, AND TAPE-TO-PRINTER OPERATIONS. ONE OR TWO OF THESE OPERATIONS MAY TAKE PLACE WHILE THE USERS MAIN PROGRAM IS RUNNING. RESTRICTIONS OPERATES IN CONJUNCTION WITH 7070 IOCS. STORAGE REQUIREMENTS 400 WORDS PLUS IOCS REQUIREMENTS. EQUIPMENT SPECIFICATIONS 7500 CARD READER AND NECESSARY I/O.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
CARD DECKS - SYMBOLIC PROGRAM DECKS.

7070-MI-084 TAPE FILE GENERATOR FOR TESTING
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-MI-084

PURPOSE THE TAPE FILES NEEDED TO TEST PROGRAMS WHICH READ INPUT RECORDS FROM TAPE CAN BE GENERATED FROM CARDS USING THIS UTILITY PROGRAM. PRACTICALLY ANY FORM OF TAPE FILE CAN BE CREATED WITH THIS PROGRAM. EQUIPMENT SPECIFICATIONS 7500 CARD READER 1 729 TAPE DRIVE.

CONTINUED FROM PRIOR COLUMN--

BASIC PROGRAM MATERIAL -
DOCUMENTATION - OPERATING INSTRUCTIONS... PROGRAM WRITE-UP.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
SOURCE LANGUAGE DECK.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

7070-PR-075 7070/2/4 COMPILER SYSTEMS TAPE
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-PR-075

THE FOLLOWING PROGRAMS ARE CONTAINED ON THIS SYSTEM TAPE.
7070 AUTOCODER 7070-AU-900
7070 AUTOCODER 1301/DISK 7070-AU-900
7070 COBOL PROCESSOR 7070-CB-923
7070 FORTRAN 7070-FO-901
7070 INPUT/OUTPUT CONTROL SYSTEM 7070-IO-904
7070-7300 DISC INPUT/OUTPUT CONTROL SYSTEM 7070-IO-905
7070/74 INPUT/OUTPUT CONTROL SYSTEM FOR 1301 AND 2302 DISK STORAGE 7070-IO-940
7074 IOCS FOR 1414 I/O SYNCHRONIZER MODEL 6 7070-IO-947
7074 IOCS FOR 7340 HYPERTAPE DRIVE 7074-IO-948
7070/74 IOCS FOR THE IBM 7750 PROGRAMMED TRANSMISSION CONTROL 7070-IO-949
7070-REPORT PROGRAM GENERATOR 7070-RG-902

AUTOCODER
7070-AU-900

TO SIMPLIFY THE PREPARATION, CORRECTION AND INTERPRETATION OF PROGRAMS WRITTEN IN THE AUTOCODER LANGUAGE, INCLUDING MACRO STATEMENTS AND/OR ONE-FOR-ONE INSTRUCTIONS, INTO AN OPERATIVE MACHINE LANGUAGE PROGRAM FOR THE IBM 7070/2/4 DATA PROCESSING SYSTEMS.

SOURCE LANGUAGE CARDS ARE READ FROM THE CARD READER OR TAPE UNIT WITH OPTION CARDS TO PRODUCE LISTINGS AND OBJECT DECKS ON TAPE WITH PROVISIONS FOR OBTAINING EITHER OR BOTH ON-LINE.

MINIMUM
1. 5,000 WORDS OF CORE STORAGE
2. 6 IBM 729 MODEL II, IV, V, VI, OR 7330 TAPE UNITS
3. CHANNEL 1 OR CHANNELS 1 AND 2

OPTIONAL
1. 10,000 WORDS OF CORE STORAGE
2. IBM 7500 CARD READER /UTILITY PANEL/
3. IBM 7550 CARD PUNCH /UTILITY PANEL/
4. IBM 7400 PRINTER /UTILITY PANEL/
5. UP TO FOUR ADDITIONAL IBM 729 MODEL II, IV, V, VI, OR 7330 TAPE UNITS.

PHASE 1. THIS SECTION READS THE SOURCE PROGRAM, SEPARATES THE ONE-FOR-ONE STATEMENTS FROM THE MACRO STATEMENTS, AND CONSTRUCTS INTERNAL RECORDS REPRESENTING THE STATEMENTS OF THE SOURCE PROGRAM. THE RECORDS OF ONE-FOR-ONE STATEMENTS ARE PASSED DIRECTLY TO PHASE III - THE RECORDS OF THE MACRO STATEMENTS ARE PASSED TO PHASE II.

PHASE II. THE MACRO STATEMENTS ARE READ AND THE APPROPRIATE MACRO GENERATORS ARE CALLED IN FROM THE LIBRARY BY PHASE II. AFTER A GENERATOR HAS FINISHED PROCESSING A STATEMENT, THE CODING PRODUCED IS EITHER PASSED ALONG TO PHASE III /IF IT IS A ONE-FOR-ONE STATEMENT/ OR IS SAVED FOR ANOTHER RECURSION THROUGH PHASE II /IF IT IS A MACRO STATEMENT/.

MACRO LIBRARY. THIS IS A GROUP OF GENERATORS, EACH OF WHICH IS DESIGNED TO ANALYZE A GIVEN MACRO STATEMENT, AND REDUCE IT EITHER TO ONE-FOR-ONE OR MACRO STATMENTS. EACH GENERATOR IS CALLED IN BY PHASE II WHEN IT IS NEEDED, AND CONTROL GIVEN TO IT TO PERFORM ITS ANALYSIS AND GENERATION. INCLUDED AMONG THE MACRO GENERATORS ARE THOSE FOR THE INPUT/OUTPUT CONTROL SYSTEMS, NO. 7070-IO-904, AND NO. 7070-IO-940.

PHASE III. ALL OF THE GENERATED AND INPUT ONE-FOR-ONE STATEMENTS ARE TRANSLATED INTO MACHINE LANGUAGE - CONDENSED CARDS AND A PROGRAM LISTING /INCLUDING ERROR MESSAGES AND A SYMBOLIC CROSS-REFERENCE LISTING/ ARE PRODUCED.

AUTOSORT. THIS IS A SORT PROGRAM, LOCATED AT SEVERAL POINTS ON THE SYSTEM TAPE, WHICH ORDERS THE RECORDS PROCESSED BY AUTOCODER AS NEEDED.

SYSTEMS CONTROL. THIS AREA CONTROLS THE OPERATION OF THE COMPILER SYSTEM. IT HANDLES SUCH FUNCTIONS AS CONTROLLING THE MODE OF THE RUN, CONTROLLING THE ALLOCATION OF TAPE REELS, AND LOCATING AND LOADING CODING BLOCKS OF THE PROCESSOR SYSTEM AS THEY ARE REQUIRED.

AUTOCODER CAN PROCESS ANY PROGRAM WRITTEN FOR BASIC AUTOCODER OR FOUR-TAPE AUTOCODER. IF ADDITIONAL TAPE UNITS ARE AVAILABLE, IT CAN PROCESS STACKED INPUT AND/OR OUTPUT. ADDITIONAL MACRO GENERATORS CAN BE ADDED TO THE SYSTEM TO ALLOW NEW INPUT STATEMENTS. THERE IS GREAT FLEXIBILITY IN ENTERING NEW LOADS, PATCHING EXISTING LOADS, AND DROPPING UNNEEDED LOADS. ONLY ONE MACRO GENERATOR CAN BE ADDED OR DROPPED IN A SINGLE RUN.

AUTOCODER 1301/DISK
7070-AU-900

MODIFICATION OF AUTOCODER, NO. 7070-AU-900, SO THAT THE 7070/2/4 COMPILER SYSTEMS CAN BE STORED ON AND USED FROM THE 1301 DISK STORAGE.

TO PROVIDE THE 7070/2/4 COMPILER SYSTEMS WITH THE CAPABILITY OF COPYING ITSELF ONTO THE 1301 DISK. THE 1301 DISK CAN THEN BE USED AS COMPILER PROGRAM STORAGE INSTEAD OF A SYSTEMS TAPE.

THE COMPILER ON THE 1301 USES THE SAME LOGIC AS THE TAPE SYSTEM AND IS APPLICABLE TO ALL RUNS EXCEPT SYSTEMS RUNS WHICH WILL CONTINUE TO OPERATE WITH TAPE. THE MAJOR OPERATIONAL DIFFERENCE DURING A COMPILE OR GENERATOR RUN IS THE BOOTSTRAP TECHNIQUE. A SMALL DECK OF CONDENSED CARDS USING THE IBM 7070/7074 CONDENSED CARD LOAD PROGRAM WILL INITIATE THE OPERATION OF THE COMPILER. ALL OTHER

IBM Programs

CONTINUED FROM PRIOR PAGE--
OPERATIONAL FEATURES REMAIN UNCHANGED.

MINIMUM
1. 10,000 WORDS OF CORE STORAGE
2. 5 IBM 729 II, IV, V OR VI MAGNETIC TAPE DRIVES
3. 1 IBM 1301 DISK STORAGE MODULE OF WHICH AT LEAST 40 CYLINDERS ARE AVAILABLE FOR COMPILER PROGRAM

OPTIONAL
1. UP TO 4 ADDITIONAL IBM 729 II, IV, V OR VI MAGNETIC TAPE DRIVES
2. IBM 7500 CARD READER
3. IBM 7501 CONSOLE CARD READER
4. IBM 7550 CARD PUNCH
5. IVM 7400 PRINTER
6. UP TO 9 ADDITIONAL IBM 1301 DISK STORAGE MODULES.

COBOL PROCESSOR
7070-CB-923

THE COBOL PROCESSOR TRANSLATES A SOURCE PROGRAM WRITTEN IN ACCORDANCE WITH THE RULES SPECIFIED IN THE IBM COBOL GENERAL INFORMATION MANUAL, FORM F28-8083-1, INTO A 7070 OR 7074 MACHINE - LANGUAGE PROGRAM WHICH, WHEN READ INTO THE COMPUTER, WILL EXECUTE THE INSTRUCTIONS SPECIFIED IN THE SOURCE PROGRAM.

THE PROGRAM IS TO BE USED AS DESCRIBED IN THE REFERENCE MATERIAL LISTED IN THE ACCOMPANYING LETTER WITH THE EXCEPTION OF THE FOLLOWING ITEMS WHOSE IMPLEMENTATION WILL BE DEFERRED -

PROCEDURE DIVISION
1. THE CORESPONDING OPTION OF THE MOVE VERB.
2. THE EXAMINE VERB /INCLUDING THE TALLY REGISTER/.
3. CLASS CONDITIONS IN CONDITIONAL STATEMENTS.
4. NUMERIC LITERALS AS OPERANDS OF DISPLAY STATEMENTS.
5. THE USE OF THE FIGURATIVE CONSTANT ALL.
6. THE ABILITY TO OPTIONALLY ROUND OR TRUNCATE THE RESULTS OF ARITHMETIC COMPUTATIONS. THE ROUND OPTION IS STANDARD - TRUNCATION IS DEFERRED.

ENVIRONMENT DIVISION
1. THE COPY OPTION.
2. THE OPTIONAL CLAUSE OF THE FILE-CONTROL PARAGRAPH.
3. AUTOMATIC ALLOCATION OF OBJECT MACHINE INPUT/OUTPUT DEVICES BASED ON CONFIGURATION GIVEN IN THE OBJECT-COMPUTER PARAGRAPH AND THE ASSIGN CLAUSE OF THE FILE-CONTROL PARAGRAPH.

THE 7070 COBOL PROCESSOR IS DESIGNED TO OPERATE ON A 7070 OR 7074 OF THE FOLLOWING CONFIGURATION-
1. MEMORY SIZE - 10K.
2. INPUT/OUTPUT REQUIREMENTS. SEVEN TAPES ARE REQUIRED BY THE SYSTEM. THE INPUT MEDIUM FOR THE SOURCE PROGRAM MAY BE ONE OF THESE SEVEN TAPES, AN EIGHT TAPE OR A CARD READER.

FORTRAN
7070-FO-901

THE IBM FORMULA TRANSLATING SYSTEM, FORTRAN, IS AN AUTOMATIC CODING SYSTEM WHICH CONSISTS OF A SOURCE-LANGUAGE /CLOSELY RESEMBLING THE ORDINARY LANGUAGE OF MATHEMATICS/, AND A PROCESSOR WHICH, COMPLETELY OR PARTIALLY, CONVERTS SOURCE PROGRAMS WRITTEN IN THE FORTRAN LANGUAGE INTO MACHINE-LANGUAGE OBJECT PROGRAMS.

FORTRAN IS ESSENTIALLY A PROBLEM-ORIENTED LANGUAGE DESIGNED TO FACILITATE THE WRITING OF PROGRAMS WHICH WILL PERFORM SCIENTIFIC AND ENGINEERING TYPE COMPUTATIONS. IT CAN ALSO BE ADOPTED IN THE SOLUTION OF MANY BUSINESS PROBLEMS WHICH CAN BE EXPRESSED IN A MATHEMATICAL FORMULA.

MINIMUM
1. 5,000 WORDS OF CORE STORAGE
2. 6 IBM 729 MODEL II, IV, V, VI OR 7330 TAPE UNITS
3. CHANNEL 1 OR CHANNELS 1 AND 2

OPTIONAL
1. IBM 7500 CARD READER /UTILITY PANEL/
2. IBM 7400 PRINTER /UTILITY PANEL/
3. UP TO FOUR ADDITIONAL IBM 729 MODEL II, IV, V, VI OR 7330 TAPE UNITS.
4. 10,000 WORDS OF CORE STORAGE

PROGRAMS MAY BE COMPILED FOR ANY CONFIGURATION OF 7070 EQUIPMENT. 7070/2/4 FORTRAN ACCEPTS ALL FORTRAN II FEATURES IN A SOURCE PROGRAM.

INPUT/OUTPUT CONTROL SYSTEM
7070-IO-904

TO PROVIDE USERS OF THE IBM 7070/2/4 DATA PROCESSING SYSTEMS WITH ROUTINES FOR READING AND WRITING CARD AND TAPE RECORDS. THE INPUT/OUTPUT CONTROL SYSTEM IS USED IN CONJUNCTION WITH OTHER PROGRAMS TO PROVIDE STANDARDIZED ROUTINES WHICH PERFORM THE INPUT AND OUTPUT FUNCTIONS.

MACHINE REQUIREMENTS AT COMPILE TIME ARE DICTATED BY THE SPECIFICATIONS FOR THE PROGRAM WHICH IS BEING USED IN CONJUNCTION WITH THE INPUT/OUTPUT CONTROL SYSTEM. REFERENCE SHOULD BE MADE TO THE MANUAL OR ABSTRACT DESCRIBING THESE PROGRAMS. THE STORAGE REQUIREMENTS OF THE INPUT/OUTPUT CONTROL SYSTEM VARY FROM 765 TO 2100 WORDS DEPENDING UPON THE NUMBER OF FILES SPECIFIED AND THE PARAMETERS IN THE DIOCS STATEMENT. THE READING AND WRITING OF TAPE RECORDS IS CONTROLLED BY THE INPUT/OUTPUT CONTROL SYSTEM AND WILL OCCUR SIMULTANEOUSLY WITH PROCESSING. MACRO-INSTRUCTIONS ARE PROVIDED FOR PROCESSING WHICH WILL, WHEN REQUIRED, BLOCK AND DEBLOCK DATA RECORDS THAT ARE TO BE WRITTEN ON, OR READ FROM, TAPE. A PROGRAM WHICH USED THE INPUT/OUTPUT CONTROL SYSTEM MAY BE INTERRUPTED AT ANY TIME AND CONTINUED FROM THAT POINT AT ANOTHER TIME BY THE USE OF THESE MACRO-INSTRUCTIONS. MACRO-INSTRUCTIONS ARE PROVIDED FOR PROCESSING UNIT RECORDS. ERROR ROUTINES FOR BOTH TAPE AND UNIT RECORDS ARE PROVIDED. THE INPUT/OUTPUT CONTROL SYSTEM HAS BEEN DESIGNED TO ALLOW THE RUNNING OF SPOOL PROGRAMS WITH PROGRAMS USING THE INPUT/OUTPUT CONTROL SYSTEM.

CONTINUED FROM PRIOR COLUMN--

7300 DISC INPUT/OUTPUT CONTROL SYSTEM
7070-IO-905

THE 7300 DISK IOCS PROVIDES USERS OF THE IBM 7070/2/4 DATA PROCESSING SYSTEMS WITH ROUTINES FOR READING AND WRITING 7300 DISK. USE OF PROGRAM THE INPUT/OUTPUT CONTROL SYSTEM IS USED IN CONJUNCTION WITH OTHER PROGRAMS TO PROVIDE STANDARDIZED ROUTINES WHICH PERFORM THE INPUT AND OUTPUT FUNCTIONS. MACHINE CONFIGURATION 1. MACHINE REQUIREMENTS AT COMPILE TIME ARE DICTATED BY THE SPECIFICATIONS FOR THE PROGRAM WHICH IS BEING USED IN CONJUNCTION WITH THE INPUT/OUTPUT CONTROL SYSTEM. REFERENCE SHOULD BE MADE TO THE MANUAL OR ABSTRACT DESCRIBING THESE PROGRAMS. 2. THE STORAGE REQUIREMENTS OF THE INPUT/OUTPUT CONTROL SYSTEM VARY FROM 765 TO 2100 WORDS, DEPENDING UPON THE NUMBER OF FILES SPECIFIED AND THE PARAMETERS IN THE DIOCS STATEMENT.

7070/74 INPUT/OUTPUT CONTROL SYSTEM FOR 1301 AND 2302 DISK STORAGE
7070-IO-940

IT PROVIDES THE USER WITH PRE-TESTED ROUTINES TO FACILITATE INPUT/OUTPUT FUNCTIONS BETWEEN 7070 AND 1301 DISK STORAGE UNITS OR 7074 AND 1301 AND/OR 2302 DISK STORAGE UNITS. THE FUNCTION OF THE PROGRAM IS TO REDUCE THE PROGRAMMING TIME AND EFFORT REQUIRED FOR PROGRAMS USING DISK STORAGE. THE PROGRAM MAY BE INCORPORATED INTO PROGRAMS USING INPUT/OUTPUT CONTROL SYSTEMS FOR OTHER DEVICES /E.G., 729, 7340 UNITS/.
UNDER CONTROL OF MACRO-INSTRUCTIONS AND FILE SPECIFICATIONS TABLES INCLUDED IN THE SOURCE PROGRAM, THE 1301/2302 IOCS WILL PERFORM THE FOLLOWING FUNCTIONS-
- WRITE FORMAT TRACK.
- WRITE HOME ADDRESS IDENTIFIERS.
- WRITE AND/OR READ DATA IN THE FOLLOWING MODES- SINGLE RECORD... FULL TRACK WITHOUT ADDRESSES... FULL TRACK WITH ADDRESSES... CYLINDER /PROVIDED THE OPTIONAL FEATURE OF CYLINDER OPERATIONS IS PRESENT IN THE 7631 FILE CONTROL UNIT ATTACHED TO THE OBJECT COMPUTER/.
- DETECT AND ATTEMPT TO CORRECT ERRORS RESULTING FROM EITHER DATA TRANSFER BETWEEN THE 7070/7074 AND DISK STORAGE UNITS /E.G., READ/ OR OPERATIONS NOT INVOLVING DATA TRANSFER /E.G., SEEK/.
- SCHEDULE THE NECESSARY INPUT/OUTPUT OPERATIONS TO TAKE MAXIMUM ADVANTAGE OF THE 7070/7074 PRIORITY PROCESSING FEATURE.

THE PROGRAM WILL OPERATE SUCCESSFULLY WITH ANY COMBINATION OF 1301 AND 2302 DISK STORAGE UNITS WITHIN THE CONFIGURATION LIMITS OF STANDARD 7070/7074 SYSTEMS.
SYSTEM REQUIREMENTS ARE A 5K OR 10K 7070 OR 7074 SYSTEM WITH... 7907 DATA CHANNEL... 7631 FILE CONTROL... 1301 OR 2302 DISK STORAGE UNIT MDL 1 OR 2.
OPTIONAL- AN IBM 2302 DISK STORAGE UNIT CANNOT BE ATTACHED TO A STANDARD IBM 7070 DATA PROCESSING SYSTEM... IBM 1301 AND/OR 2302 DISK STORAGE UNITS MAY BE ATTACHED TO A STANDARD 7074 SYSTEM... A MAXIMUM OF TEN MODULES OF DISK STORAGE MAY BE ATTACHED TO EACH CHANNEL OF A 7907 DATA CHANNEL., ALL MODULES USING THE SAME CHANNEL OF A 7907 MUST BE CONNECTED TO THAT CHANNEL THROUGH THE SAME 7631 FILE CONTROL.

7074 IOCS FOR THE 1414 I/O SYNCHRONIZER MODEL 6
7070-IO-947

TO ALLOW PROCESSING OF REAL-TIME MESSAGES AS THEY BECOME AVAILABLE AND PROCESSING OF ANY MAIN-LINE PROGRAM AT ALL OTHER TIMES. THE FOLLOWING FUNCTIONS WILL BE PERFORMED BY THE 1414-VI-IOCS. CONTROL THE READING AND WRITING OF MESSAGES, SCHEDULE THE PROCESSING OF INPUT MESSAGES, CONTROL ENTRY TO REAL-TIME ROUTINES AND SUBSEQUENT RETURN TO THE MAIN-LINE PROGRAM AND DETECT AND CORRECT ERRORS.

A 5K OR 10K 7070 OR 7074 SYSTEM, 7907 DATA CHANNEL /IF THE 1414 MDL 6 AND IBM 1301 DISK STORAGE ARE TO BE OPERATED ON THE SAME CHANNEL, THE DATA CHANNEL SWITCH OPTIONAL FEATURE IS REQUIRED/, 1414 I/O SYNCHRONIZER MODEL 6 AND ONE OR MORE OF THE FOLLOWING INPUT/OUTPUT UNITS, USING MAXIMUM OF SIX BUFFERS ON THE 1414 MODEL 6- IBM 1009 DATA TRANSMISSION UNIT, IBM 1011 PAPER TAPE READER, IBM 1014 REMOTE INQUIRY UNIT AND TELEGRAPH INPUT/OUTPUT UNITS.

7074 IOCS FOR 7340 HYPERTAPE DRIVE
7074-IO-948

THE 7074-7040 IOCS CONTROLS AND FACILITATES THE TRANSMISSION OF DATA BETWEEN THE IBM 7074 SYSTEM AND IBM 7340 HYPERTAPE DRIVES. IOCS PROVIDES EFFICIENT, STANDARDIZED ROUTINES FOR READING AND WRITING TAPE RECORDS. THESE ROUTINES HELP TO REDUCE PROGRAMMING TIME AND EFFORT. 7070 SERIES AUTOCODER MACRO-INSTRUCTIONS ARE USED TO INCLUDE IOCS ROUTINES IN THE USERS PROGRAM- THESE ROUTINES ARE INCORPORATED INTO THE PROGRAM DURING ASSEMBLY BY AUTOCODER. MINIMUM MACHINE REQUIREMENTS ARE- 7074 SYSTEM WITH A 7907 DATA CHANNEL, MODEL 2, 3 OR 4, A 7640 FILE CONTROL UNIT AND ONE OR MORE 7340 HYPERTAPE DRIVES.

7070/74 IOCS FOR THE IBM 7750 PROGRAMMED TRANSMISSION CONTROL 7070-IO-949

THE 7750 IOCS ALLOWS PROCESSING OF REAL-TIME MESSAGES AS THEY BECOME AVAILABLE AND ALLOWS PROCESSING OF MAIN-LINE PROGRAMS AT ALL OTHER TIMES. THE 7750 IOCS IS CAPABLE OF-
---CONTROLLING THE TRANSFER OF MESSAGES BETWEEN THE 7750 AND THE 7070.
---SCHEDULING THE PROCESSING OF INPUT MESSAGES.
---CONTROLLING ENTRY INTO USER-WRITTEN REAL-TIME ROUTINES AND SUBSEQUENT RETURN TO THE MAIN-LINE PROGRAM.
---DETECTING AND CORRECTING ERRORS THAT OCCUR AS A RESULT OF TRANSFERRING DATA FROM THE 7070 TO THE 7750.
---LOADING AND UNLOADING THE 7750.
---PROVIDING USER CONTROL OF THE 7750 THROUGH THE DATA CONTROL PACKAGE.
IN ORDER TO USE THE 7750 IOCS THE PROGRAMMER MUST PROVIDE A MINUMUM OF TWO AND A MAXIMUM OF SIX ROUTES, A DIOCS STATEMENT, AN END DIOCS STATEMENT, AND TWO DDF STATEMENTS. TO COMMUNICATE WITH THE 7750 IOCS, THE PROGRAMMER MUST USE THE MACRO-STATEMENTS LDDCP, PUT 7750, LOAD, ENDLD, OPEN, CLOSE, PUT, LEVRT, IOCTL, AND DUMP, AVAILABLE IN THE AUTOCODER PORTION OF 7070-PR-075.
MINUMUM MACHINE REQUIREMENTS- 5K 7070 OR 7074 SYSTEM WITH ONE IBM 7750 PROGRAMMED TRANSMISSION CONTROL.
NOTE- THE 7750 PROGRAMMED TRANSMISSION CONTROL MUST BE THE ONLY INPUT/OUTPUT DEVICE OPERATING ON THE CHANNEL OF THE 7907 DATA CHANNEL TO WHICH IT IS ATTACHED WHILE THE 7750 IOCS IS IN USE.
REFERENCE MATERIAL-
NOTE- THE 7750 PROGRAMMED TRANSMISSION CONTROL MAY BE USED WITH

IBM Programs

CONTINUED FROM PRIOR PAGE--
OTHER TERMINAL UNITS, INCLUDING TELEGRAPH TERMINALS. INFORMATION INFORMATION ON THESE TERMINALS SHOULD BE OBTAINED FROM THE MANUFACTURERS CONCERNED.

REPORT PROGRAM GENERATOR
7070-RG-902

PROGRAMS FOR WRITING REPORTS FROM DATA ON MAGNETIC TAPES CAN BE CREATED BY THE PROGRAMMING SYSTEM THROUGH THE USE OF THE REPORT PROGRAM GENERATOR.

THE REPORT PROGRAM GENERATOR ACTS AS A PREPROCESSOR TO 7070/2/4 AUTOCODER. INPUT CONSISTS OF THE LAYOUT OF THE DATA TAPE, THE FORMAT OF THE DISIRED REPORT, AND THE CONDITIONS FOR INCLUSION OF ITEMS OF THE DATA.

MINIMUM
1. 5,000 WORDS OF CORE STORAGE.
2. 6 IBM 729 MODEL II, IV, V, VI OR 7330 TAPE UNITS.
3. CHANNEL 1 OR CHANNELS 1 AND 2.

OPTIONAL
1. IBM 7500 CARD READER /UTILITY PANEL/
2. IBM 7550 CARD PUNCH /UTILITY PANEL/
3. IBM 7400 PRINTER /UTILITY PANEL/
4. UP TO FOUR ADDITIONAL IBM 729 MODEL II, IV, V, VI OR 7330 TAPE UNITS.
5. 10,000 WORDS OF CORE STORAGE

THE DATA FILE MAY CONSIST OF FORM 1, 2 OR 3 RECORDS. THE DATA FILE RECORDS MAY INCLUDE NO MORE THAN 99 FIELDS TO BE USED FOR THE REPORT. A GIVEN VARIABLE FIELD TO BE EDITED MAY BE NO MORE THAN 20 CHARACTERS.

IN ADDITION TO THE ABOVE LISTED ITEMS, THE FOLLOWING REFERENCE MATERIAL WILL BE HELPFUL IN IMPLEMENTING THIS SYSTEM.
1. IBM 7070/7074 COMPILER SYSTEMS- REPORT PROGRAM GENERATOR, C28-6113.

THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH. OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... SAMPLE PROBLEM LISTINGS ...OPERATING INSTRUCTIONS... FLOWCHARTS.
CARD DECKS - SAMPLE PROBLEM DECK... BOOTSTRAP DECK.
ONE MAGNETIC TAPE - COMPILER SYSTEM TAPE.

OPTIONAL PROGRAM MATERIAL -
SIXTEEN MAGNETIC TAPES - ASSEMBLY LISTINGS - 7070-CB-923; /7 TAPES/... 7070-AU-900, /6 TAPES/... 7070-FO-901, /2 TAPES/... 7070-RG-902, /1 TAPE/.

7070-SI-079 SIMULATE 650 ON 7070
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-SI-079

PURPOSE PROGRAMS WRITTEN FOR THE 650 /EXCEPT 650 MODEL IV/ MAY BE RUN ON AN IBM 7070 USING THIS PROGRAM. THE MACHINE CONFIGURATION OF THE 7070 SYSTEM MUST BE THE SAME AS A 650 SYSTEM FOR THE PROGRAM TO BE SIMULATED. THE SIMULATION PROGRAM WAS WRITTEN FOR STANDARD 650 SYSTEMS.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
ONE MAGNETIC TAPE - ASSEMBLY LISTINGS.
SYMBOLIC DECK.

7070-SM-077 SORT 90
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-SM-077

PURPOSE TAPE FILES CONTAINING RECORDS FROM 1 THROUGH 999 WORDS IN LENGTH CAN BE SORTED ACCORDING TO A CONTROL WORD THAT MAY HAVE FROM 1 THROUGH 160 CHARACTERS LOCATED IN FROM 1 THROUGH 10 FIELDS. THE TAPE RECORDS MAY BE FIXED- OR VARIABLE-LENGTH IN SINGLE OR BLOCKED FORM. THE MAXIMUM NUMBER OF TAPE RECORDS THAT MAY BE SORTED IS EQUAL TO THE NUMBER OF RECORDS WHICH CAN BE CONTAINED ON 4 FULL REELS OF TAPE. EQUIPMENT SPECIFICATIONS 4 THROUGH 16 MAGNETIC TAPE UNITS. ADDITIONAL COMMENTS THE ORDER OF MERGE OF THE PROGRAM DEPENDS ON THE NUMBER OF TAPE UNITS AVAILABLE. THE ORDER OF THE MERGE MAY BE EITHER 2, 3, 4 OR 5.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... SAMPLE PROBLEM LISTINGS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
TWO MAGNETIC TAPES - ASSEMBLY LISTINGS.

7070-SM-078 MERGE 91
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-SM-078

PURPOSE UP TO 8 TAPE FILES MAY BE MERGED INTO ONE FILE THROUGH THE USE OF THIS PROGRAM. THE RECORD AND CONTROL WORD SPECIFICATIONS ARE THE SAME AS FOR SORT 90. THERE IS NO LIMIT ON THE NUMBER OF REELS THAT MAY BE REQUIRED FOR A FILE. EQUIPMENT SPECIFICATIONS FROM 3 THROUGH 26 MAGNETIC TAPE UNITS ARE REQUIRED BY MERGE 91.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

CONTINUED FROM PRIOR COLUMN--

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... SAMPLE PROBLEM LISTING... OPERATING INSTRUCTIONS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
ONE MAGNETIC TAPE - ASSEMBLY LISTINGS.

7070-SM-148 SERIES GENERALIZED SORTING/MERGING PROGRAM
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-SM-148

THE IBM 7070 SERIES GENERALIZED SORTING/MERGING PROGRAM WILL SORT OR MERGE FIXED LENGTH OR VARIABLE-LENGTH DATA RECORDS, SINGLE OR BLOCKED. THE PROGRAM IS SAID TO BE GENERALIZED BECAUSE IT IS CAPABLE OF MODIFYING ITSELF ACCORDING TO INFORMATION CONTAINED ON CONTROL CARDS. THE PROGRAM IS SUPPLIED IN SYMBOLIC FORM, READY FOR COMPILATION. TO READY THE PROGRAM FOR USE. THE USER MUST-
1. COMPILE THE PROGRAM
2. COMPILE SEPARATELY A SUITABLE IOCS.
3. PREPARE A PROGRAM TAPE USING THE PROGRAM DECKS PRODUCED BY THE TWO COMPILATIONS.

THE PROGRAM REQUIRES AN IBM 7070/7072, OR 7074 DATA PROCESSING SYSTEM WITH 10,000 WORDS OF CORE STORAGE AND FIVE MAGNETIC TAPE UNITS WHICH MAY BE EITHER IBM 729 OR 7330 TAPE UNITS OR IBM 7340 HYPERTAPE DRIVES.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

DOCUMENTATION - PROGRAM WRITE-UP... SAMPLE PROBLEM LISTINGS... FLOWCHARTS.
CARD DECK - SAMPLE PROBLEM DECK.
ONE MAGNETIC TAPE - SYMBOLIC CARD IMAGE ON TAPE.

7070-UT-080 RAMAC UTILITIES
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-UT-080

PURPOSE THESE PROGRAMS PROVIDE FREQUENTLY NEEDED ROUTINES TO ASSIST IN THE USE OF THE 7300 DISK FILES ATTACHED TO THE 7070. THE PROGRAMS ARE 1. CLEAR DISK, 2. DISK TO TAPE, 3. TAPE-TO-DISK. STORAGE REQUIREMENTS 1500 POSITIONS PER PROGRAM. EQUIPMENT SPECIFICATIONS 7300 DISK STORAGE UNIT, 7500 CARD READER, 729 TAPE UNITS.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
SYMBOLIC DECK.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

7070-UT-081 UTILITIES
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-UT-081

PURPOSE THESE UTILITY PROGRAMS PROVIDE FREQUENTLY NEEDED ROUTINES TO ASSIST IN THE TESTING AND OPERATION OF THE USERS 7070 PROGRAMS. THE FOLLOWING ARE INCLUDED CONDENSED CARD LOAD PROGRAM, LOAD PROGRAM RELOCATER, ZERO STORAGE PROGRAMS, TAPE MARK PROGRAM, TAPE REWIND PROGRAM, TAPE FILE GENERATOR PROGRAM, SNAPSHOT PROGRAM, STORAGE PRINT PROGRAM, TAPE PRINT PROGRAM, BRANCH TRACE PROGRAM, TAPE DUPLICATION PROGRAM, TAPE COMPARE PROGRAM, UNLOAD STORAGE PROGRAM.
EQUIPMENT SPECIFICATIONS 7500 CARD READER, 7400 PRINTER, 7550 CARD PUNCH, TAPE DRIVES AS NEEDED.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... LISTINGS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
ONE MAGNETIC TAPE - SOURCE LANGUAGE.

7070-UT-128 UTILITY PROGRAMS FOR THE 7070/74-1301 DISK
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7070-UT-128

THE 7070/704/1301 DISK UTILITY PROGRAMS CONSIST OF SIX ROUTINES TO PERFORM CERTAIN COMMON OPERATIONS RELATED TO THE STORAGE, RETRIEVAL, AND PRESERVATION OF DATA IN IBM 1301 DISK STORAGE. THE SIX ROUTINES PROVIDED ARE-
1. FORMAT TRACK GENERATION
2. HOME ADDRESS AND RECORD ADDRESS GENERATION
3. CLEAR DISK
4. LOAD DISK
5. DUMP DISK
6. RESTORE DISK

THE FORMAT TRACK GENERATION ROUTINE WILL GENERATE FROM SPECIFICATIONS IN CONTROL CARDS, CHARACTERS FOR A FORMAT TRACK AND WILL WRITE THEM ON ONE OR MORE FORMAT TRACKS.

THE HOME ADDRESS AND RECORD ADDRESS GENERATION ROUTINE WILL GENERATE FROM SPECIFICATIONS PROVIDED IN CONTROL CARDS, HOME ADDRESS IDENTIFIERS AND RECORD ADDRESSES AND WILL WRITE THEM ON ONE OR MORE TRACKS.

THE LOAD DISK ROUTINE WILL LOAD THE DATA CONTAINED IN TAPE RECORDS GENERATED BY THE USER INTO AN AREA OF DISK STORAGE DESIGNATED BY CONTROL CARDS.

CONTINUED FROM PRIOR PAGE--

THE DUMP DISK ROUTINE WILL WRITE ALL OF THE DATA IN AN AREA OF DISK STORAGE, DESIGNATED BY CONTROL CARDS, ONTO MAGNETIC TAPE.

THE RESTORE DISK ROUTINE WILL RETURN DATA WRITTEN ON MAGNETIC TAPE BY THE DUMP DISK ROUTINE TO THE DISK STORAGE LOCATIONS FROM WHICH IT WAS UNLOADED.

THE CLEAR DISK ROUTINE WILL FILL RECORD AREAS ON ANY NUMBER OF TRACKS WITH A NUMERICAL CHARACTER SPECIFIED IN CONTROL CARDS.

THE 7070/7074/1301 DISK UTILITY PROGRAMS REQUIRE AN IBM 7070 OR 7074 DATA PROCESSING SYSTEM WITH A MINIMUM OF-
5000 WORDS OF CORE STORAGE
1 1301 DISK STORAGE
1 IBM 7501 CONSOLE CARD READER OR
1 IBM 7500 CARD READER OR
1 IBM 729 II, 729 IV, 729 V, 729 VI, OR 7330 MAGNETIC TAPE UNIT

THE LOAD DISK, DUMP DISK, AND RESTORE DISK PROGRAMS FURTHER REQUIRE AT LEAST-
1 IBM 729 II, 729 IV, 729 V, 729 VI, OR 7330 MAGNETIC TAPE UNIT.
1. PROGRAM DECKS
2. FLOW CHARTS
3. SAMPLE PROBLEM
4. REFERENCE MANUAL

THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... FLOWCHARTS... OPERATING INSTRUCTIONS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
TWO MAGNETIC TAPES - /ONE TAPE/, SYMBOLIC CARD IMAGE... /ONE TAPE/ ASSEMBLY LISTINGS.

7072

7072-UT-085 UTILITY PROGRAMS FOR ADDITIONAL STORAGE
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7072-UT-085

PURPOSE THIS IS A COLLECTION OF 5 COMMONLY USED PROGRAMS. THEY ARE CONDENSED CARD LOAD PROGRAM FOR ADDITIONAL STORAGE THIS PROGRAM IS DESIGNED TO LOAD A PROGRAM WHICH HAS BEEN PUNCHED INTO CARDS IN CONDENSED FORM. IT WILL LOAD CONDENSED CARDS WITH A MAXIMUM OF FIVE WORDS IN EACH CARD INTO SPECIFIED LOCATIONS. EXECUTE CARDS, I. E., CARDS CONTAINING INSTRUCTIONS WHICH ARE TO BE EXECUTED AS SOON AS THEY ARE READ, MAY BE INCLUDED AMONG THE CONDENSED CARDS. LOAD PROGRAM RELOCATOR FOR ADDITIONAL STORAGE THIS PROGRAM WILL ALLOW THE USER TO MOVE THE IBM 7072/7074 CONDENSED CARD LOAD PROGRAM FOR ADDITIONAL STORAGE FROM ITS CURRENT LOCATION TO ANY TWENTY-FIVE CONSECUTIVE LOCATIONS BELOW LOCATION 9999. IT IS NOT NECESSARY TO KNOW THE CURRENT LOCATION OF THE LOAD PROGRAM WHEN IT IS TO BE RELOCATED. ZERO STORAGE PROGRAM FOR ADDITIONAL STORAGE THIS GENERAL ZEROING PROGRAM MAY BE USED TO SET CORE STORAGE TO PLUS ZEROS REGARDLESS OF THE LOCATION OF THE LOAD PROGRAM. THE ZERO STORAGE PROGRAM MAY BE USED EVEN THOUGH THE USER DOES NOT KNOW THE LOCATION OF THE LOAD PROGRAM. TAPE MARK PROGRAM FOR ADDITIONAL STORAGE THIS PROGRAM IS USED TO WRITE A TAPE MARK ON A MAXIMUM OF SIX TAPE UNITS CONNECTED TO ANY ONE CHANNEL. A SEPARATE PROGRAM, WHICH CONSISTS OF ONE CARD, IS REQUIRED FOR EACH CHANNEL. TAPE REWIND PROGRAM FOR ADDITIONAL STORAGE THIS PROGRAM IS USED TO REWIND THE TAPE ON A MAXIMUM OF SIX TAPE UNITS CONNECTED TO ANY ONE CHANNEL. A SEPARATE PROGRAM, WHICH CONSISTS OF ONE CARD, IS REQUIRED FOR EACH CHANNEL. EQUIPMENT SPECIFICATIONS 7072/74 WITH ADDITIONAL STORAGE FEATURE.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
CARD DECK - PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
ONE MAGNETIC TAPE - SOURCE LANGUAGE FILE.

7074-FI-02X PORTFOLIO SELECTION PROGRAM
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7074-FI-02X

THE 7074 PORTFOLIO SELECTION PROGRAM /7074-FI-02X/, WAS DESIGNED TO PROVIDE GUIDANCE TO PORTFOLIO MANAGERS IN DEVELOPING INVESTMENT STRATEGIES, WILL BE ESPECIALLY SIGNIFICANT TO-FINACIAL INSTITUTIONS WHO MANAGE OR COUNSEL PORTFOLIOS FOR OTHERS, CORPORATIONS AND FINANCIAL INSTITUTIONS MANAGING THEIR INSURANCE COMPANIES, CORPORATIONS WITH PENSION AND RETIREMENT OWN PORTFOLIO, COMMERCIAL BANKS, BROKERAGE HOUSES, MUTUAL FUNDS, FUNDS, AND GOVERNMENT AGENCIES MANAGING PENSION FUNDS.
DESCRIPTION- THIS PROGRAM, WRITTEN IN FORTRAN, IMPLEMENTS THE MARKOWITZ FORMULATION AND ALGORITHM TO CALCULATE INVESTMENT PORTFOLIOS GIVING OPTIMAL COMBINATIONS OF EXPECTED RETURN AND RISK, SATISFYING USER-SPECIFIED CONSTRAINTS, AND BASED ON THE USERS PROBABILITY ESTIMATES OF SECURITY PRICES. THESE ESTIMATES MAY BE SPECIFIED DIRECTLY OR INDIRECTLY WITH RESPECT TO ONE OR MORE MARKET INDEXES. THE PROGRAM IS MATHEMATICALLY SIMILAR TO THE IBM 7090 PORTFOLIO SELECTION PROGRAM /7090-FI-03X/, BUT INCORPORATES SUBSTANTIAL IMPROVEMENTS, PARTICULARLY WITH RESPECT TO EDITING OF INPUT DATA.
USE- THE PROGRAM REQUIRES AS INPUT- /1/ FOR EACH ASSET LISTED FOR POTENTIAL INVESTMENT, AN ESTIMATE OF THE INTEREST OR DIVIDEND TO BE REALIZED DURING THE INVESTMENT PERIOD AND A PROBABILITY

CONTINUED FROM PRIOR COLUMN--
ESTIMATE OF THE ASSETS MARKET VALUE AT THE END OF THE INVESTMENT PERIOD--THIS MAY BE MADE DEPENDENT ON THE VALUE OF A MARKET-INDEX WHICH MUST THEN BE SIMILARLY ESTIMATED., /2/ ESTIMATES OF STATISTICAL CORRELATIONS AMONG MARKET VALUES OF THE ASSETS-- THESE WILL BE IMPLICIT AND NEED NOT BE SPECIFIED DIRECTLY WHERE ASSET MARKET VALUES ARE ESTIMATED WITH RESPECT TO A MARKET INDEX., /3/ SPECIFICATION OF RESTRAINTS PLACED BY THE USER ON THE ALLOCATION OF INVESTMENT AMONG THE ASSETS., /4/ SPECIFICATION OF LEVELS OF EXPECTED RETURN FOR WHICH MINIMUM-RISK PORTFOLIOS ARE DESIRED. THE PROGRAM CALCULATES THE MINIMUM-RISK PORTFOLIOS ASSOCIATED WITH THESE LEVELS OF EXPECTED RETURN.
MINIMUM SYSTEM CONFIGURATION- A 10K 7074 SYSTEM WITH A MINIMUM OF SEVEN MAGNETIC TAPE UNITS ON TWO OR MORE CHANNELS. FLOATING DECIMAL ARITHMETIC FEATURE IS NOT REQUIRED. PERIPHERAL EQUIPMENT SUCH AS AN IBM 1401 SYSTEM IS REQUIRED FOR OFF-LINE CARD-TO-TAPE AND TAPE-TO-PRINTER OPERATIONS.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... APPLICATION DIRECTORY... PROGRAM USERS MANUAL... SYSTEM MANUAL.
MAG. TAPE - ONE REEL CONTAINING... SYSTEM AND LISTINGS OF SOURCE AND OBJECT PROGRAMS... ONE SET OF TWO SAMPLE PROBLEM DECKS.

7074-UT-140 UTILITY PROGRAMS FOR THE 7074/7340
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7074-UT-140

THE FOUR 7074-7340 UTILITY PROGRAMS ARE- 1/ IBM 7074-7340 LOAD PROGRAM 2/ IBM 7074-7340 LOAD PROGRAM RELOCATOR 3/ IBM 7074-7340 TAPE PRINT PROGRAM AND 4/ IBM 7074-7340 ZERO STORAGE PROGRAM. THE LOAD PROGRAM WILL LOAD PROGRAMS THAT HAVE BEEN WRITTEN ON 7340 TAPES IN THE FORM OF CONDENSED CARD-IMAGE RECORDS. EXECUTE CARDS MAY BE AMONG THE RECORDS. THE LOAD PROGRAM WILL PERFORM THE REQUIRED OPERATIONS BEFORE CONTINUING THE LOADING PROCESS. INCLUDED IN THE LOAD PROGRAM IS A REREAD OPTION THAT AUTOMATICALLY BACKSPACES AND REREADS A RECORD UP TO TEN TIMES WHEN A READ ERROR IS ENCOUNTERED. THE LOAD PROGRAM RELOCATOR ALLOWS THE USER TO CHANGE THE LOCATION OF THE LOAD PROGRAM IN STORAGE. THE TAPE PRINT PROGRAM MAY BE USED TO PRINT THE CONTENTS OF SELECTED TAPE FILES FROM 729 II, IV, V, VI OR 7340 TAPES. THE LISTING WILL BE EDITED AND MAY BE PRINTED ON-LINE OR WRITTEN ON TAPE FOR OFF-LINE PRINTING. THE ZERO STORAGE PROGRAM MAY BE USED TO SET CORE STORAGE WORDS TO PLUS ZEROS. THE UTILITY PROGRAMS MAY BE USED TO FACILITATE PROGRAM TESTING AND OPERATION. 7074 SYSTEM WITH 7907 DATA CHANNEL 7640 HYPERTAPE CONTROL AND 7340 HYPERTAPE DRIVE. IN ADDITION, FOR THE TAPE PRINT PROGRAM, A 729 II, IV, V, VI MAGNETIC TAPE UNIT OR 7400 PRINTER IS REQUIRED FOR THE OUTPUT.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... FLOWCHARTS... OPERATING INSTRUCTIONS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
TWO MAGNETIC TAPES - /ONE TAPE/ - ASSEMBLY LISTINGS... /ONE TAPE/ SOURCE LANGUAGE FILES.

7074-UT-164 UTILITY PROGRAMS FOR 2302 DISK STORAGE
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7074-UT-164

THEY CONSIST OF THE 7070/7074/1301 DISK UTILITIES, MODIFIED TO HANDLE THE ADDITIONAL ACCESS MECHANISM AND INCREASE STORAGE CAPACITY OF THE 2302. IN ADDITION, THE DUMP DISK AND RESTORE DISK PROGRAMS INCLUDE PLATTER DUMP AND RESTORE, AND HOME ADDRESS OPERATION CAPABILITY.
THE 7074/2302 DISK UTILITY PROGRAMS REQUIRE A 10K 7074 SYSTEM WITH... 7907 DATA CHANNEL... 7631 FILE CONTROL... 2302 DISK STORAGE... 7501 CONSOLE CARD READER OR 7500 CARD READER OR 729 II/IV/V/VI MAGNETIC TAPE UNIT.
THE LOAD DISK, DUMP DISK AND RESTORE DISK PROGRAMS FURTHER REQUIRE AT LEAST ONE 729 II/IV/V/VI MAGNETIC TAPE UNIT.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP...STORAGE MAPS...USERS MANUAL WHICH INCLUDES A SAMPLE PROBLEM.
MACHINE READABLE - 1 TAPE CONTAINING TWO PROGRAM DECKS.

OPTIONAL PROGRAM MATERIAL - 1 SOURCE CARD TAPE...1 LISTING TAPE.

7080-CV-090 INT580
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7080-CV-090

PURPOSE INT580 ENABLES A PROGRAM CODED FOR AN IBM 705 I, II OR III WITH SERIAL INPUT/OUTPUT EQUIPMENT TO OPERATE ON THE IBM 7080, UTILIZING COMMUNICATION CHANNELS AND 729 TAPE UNITS. THE 754, 760 I AND II, 777 757, 758, 759, AND 734 ARE SIMULATED IN MEMORY. 727, 720A, 730A, 717, 722 AND 714 UNITS ARE SIMULATED ON 729 TAPE UNITS. RESTRICTIONS TO FULL SIMULATION ARE COVERED IN THE DETAILED DESCRIPTION OF INTERPRETATION OF EACH UNIT, STARTING AT PAGE 10 OF THE ENCLOSED PRELIMINARY MANUAL /AS AMENDED BY THE ADDENDA, ALSO ENCLOSED/ AND ON PAGE 19 OF THE MANUAL. THESE RESTRICTIONS SHOULD NOT AFFECT MOST OBJECT PROGRAMS. INT580 MAY BE LOADED INTO MEMORY ONCE, AND LEFT THERE UNTIL THAT MEMORY IS NEEDED FOR ANOTHER APPLICATION. LOADING OF AN OBJECT PROGRAM IS INITIATED AFTER INT580 HOUSEKEEPING HAS BEEN ENTERED AND CONTROL CARDS, IF NECESSARY, HAVE BEEN

CONTINUED FROM PRIOR PAGE--
PROCESSED FOR THAT PROGRAM. THE OBJECT PROGRAM IS ENTERED IN THE NORMAL MANNER AND PROCEEDS UNTIL AN INPUT/OUTPUT INSTRUCTION IS ENCOUNTERED. THE I/O INTERPRET FEATURE OF THE 7080, WORKING WITH THE NONSTOP SWITCH CAUSES AN AUTOMATIC INTERRUPT TO INT580, WHERE THE DESIRED OPERATION IS INITIATED OR FULLY ACCOMPLISHED. CONTROL RETURNS TO THE OBJECT PROGRAM UNTIL THE NEXT INTERRUPT. FOR A DETAILED DESCRIPTION OF THE VARIOUS WAYS TO USE INT580, SEE THE ADDENDA FOR VERSION 3 REFERRED TO ABOVE. MACHINE CONFIGURATION THE MINIMUM 7080 CONFIGURATION OF 80K MEMORY AND TWO COMMUNICATION CHANNELS IS REQUIRED. THE PROGRAM AS WRITTEN REQUIRES THE CARD READER FOR ONE CONTROL CARD PER OBJECT PROGRAM, BUT THIS IS EASILY MODIFIED. DRUM SIMULATION WILL REQUIRE AN ADDITIONAL 80K OF MEMORY IF MANY SECTIONS ARE USED. FOUR COMMUNICATION CHANNELS ARE REQUIRED FOR EFFICIENT SIMULATION OF SIMULTANEOUS PRW-WR OPERATIONS ON TWO TRC S.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
ONE MAGNETIC TAPE - RE-ASSEMBLY LISTING.

7080-IO-120 705 III MEMORY RESTORE
SYSTEM FOR USE WITH 7080 SUPERVISORY CONTROL SYSTEM-IOMRSC
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7080-IO-120

IOMRSC IS A MODIFIED VERSION OF IOMRS8 DEVELOPED TO PERMIT ITS USE WITH THE IBM 7080 SUPERVISORY CONTROL SYSTEM SCS80, #7080-SV-115. WITH A FEW MINOR EXCEPTIONS, ALL FEATURES, MESSAGES, AND PROCEDURES ARE THE SAME FOR IOMRSC AND IOMRSB. BOTH SYSTEMS OPERATE ONLY WITH CHECKPOINT RECORDS PRODUCED BY THE IBM 705 III INPUT/OUTPUT CONTROL SYSTEM /IOPKGB/, #0705-IO-047. MODIFICATION LETTER 13, TO 705 III IOCS CONTAINS REQUIRED CHANGES TO PREPARE CHECK-POINT RECORDS SUITABLE FOR USE WITH IOMRSC. IT IS NECESSARY THAT THIS MODIFICATION LETTER BE IMPLEMENTED PRIOR TO THE USE OF ITS CHECKPOINT RECORDS WITH THIS SYSTEM. THIS SYSTEM WILL RESTORE THE CONTENTS OF MEMORY FROM CHECKPOINT RECORDS IN THE SAME MANNER AS IOMRSB. THE PRINCIPAL DIFFERENCE IS AN ADDED ROUTINE TO REPOSITION THE SCS80 PROGRAM TAPE DURING A RESTART. DETAILED OPERATING PROCEDURES ARE AVAILABLE IN THE MANUAL FOR IOMRS. ALL TAPES IN USE BY THE OBJECT PROGRAM MUST BE RE-MOUNTED ON TAPE DRIVES DIALED TO THE ORIGINAL ADDRESSES. IOMRSC REQUIRES THAT THE 7080 CONSOLE 40K CONTROL KEY BE SET FOR 80K MEMORY. BECAUSE OF THIS, IT CANNOT RESTORE OBJECT PROGRAMS WHICH RELY ON MEMORY WRAPAROUND AT 40K. SINCE ONLY THE FIRST 80K OF MEMORY IS RECORDED AT THE TIME THE CHECKPOINT IS WRITTEN, NO ATTEMPT IS MADE TO RESTORE MEMORY ABOVE 80K.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS REQUESTED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH. OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC RPOGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... FLOW CHARTS... LISTINGS.
CARD DECK - CONDENSED PROGRAM DECK.
OPTIONAL PROGRAM MATERIAL -
ONE MAGNETIC TAPE - ASSEMBLY LISTING.

7080-IO-121 MEMORY RESTORE SYSTEM --
CSMRS
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7080-IO-121

THE MEMORY RESTORE SYSTEM RESTARTS AN OBJECT PROGRAM AT AN INTERMEDIATE POINT. THE PROGRAM TO BE RESTARTED MUST CONTAIN ROUTINES FOR 729 IOCS AND/OR HYPERTAPE IOCS. THE IOCS MUST INCLUDE THE MEMORY RECORD SECTION, WHICH TAKES THE CHECKPOINTS REQUIRED FOR THE RESTART. THE MEMORY RESTORE SYSTEM CAN BE PLACED IN THE CONSOLE CARD READER OR ON 729 TAPE OR HYPERTAPE. THE RESTART CAN BE INITIATED FROM MEMORY OR TAPE.
MACHINE REQUIREMENTS- THE MEMORY RESTORE SYSTEM OPERATES ON ANY 7080 DATA PROCESSING SYSTEM USING UP TO FOUR 729 CHANNELS AND/OR 2 CHANNELS OF HYPERTAPE ATTACHED THROUGH A 7908 DATA CHANNEL, MODELS 2-9.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... FLOW CHARTS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
ONE MAGNETIC TAPE - ASSEMBLY LISTING.

7080-PR-132 COMPILING SYSTEM TAPE
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7080-PR-132

THE FOLLOWING PROGRAMS ARE CONTAINED ON THIS SYSTEM TAPE.
7080 PROCESSOR 7080-PR-930
7080 PROCESSOR LIBRARY 7080-LM-931
7080 INPUT/OUTPUT CONTROL SYSTEM LIBRARY 7080-IO-932
7080 COBOL 7080-CB-933
7080 COBOL PROCESSOR LIBRARY 7080-LM-934
7080 INPUT/OUTPUT CONTROL SYSTEM FOR THE 7750 PROGRAMMED TRANSMISSION CONTROL, 7080-IO-932

PROCESSOR
7080-PR-930

7080 PROCESSOR- THIS IS THE BASIC MODULE OF THE 7080 COMPILING SYSTEM IN THE SENSE THAT IT PROVIDES THE ASSEMBLY FACILITY OF THE COMPILING SYSTEM. THE 7080 PROCESSOR COMPILES PROGRAMS WRITTEN IN AUTOCODER AND THE HIGHER LANGUAGES -- FORTRAN, REPORT/FILE, DECISION, ARITHMETIC, AND TABLE-CREATING. PROGRAMS CODED FOR COMPILATION BY THE 7058 PROCESSOR ARE, IN MOST RESPECTS, ACCEPTABLE AS INPUT

CONTINUED FROM PRIOR COLUMN--
TO THE 7080 PROCESSOR. 7080 FORTRAN AS IMPLEMENTED IN VERSION 2 OF THE 7080 PROCESSOR IS AN EXTENSION OF 705 FORTRAN. AREAS OF POSSIBLE INCOMPATIBILITY ARE THE TRUNCATION OF VARIABLE NAMES FROM A MAXIMUM OF TEN CHARACTERS TO SIX, AND PUNCH AND PRINT COMMANDS, WHICH ARE IMPLEMENTED, HOWEVER BY THE USE OF CONTROL CARDS, THE PUNCH AND PRINT COMMANDS CAN BE CONVERTED TO TAPE OPERATIONS. IN 7080 FORTRAN, THE VARIOUS STATEMENTS CONCERNING INPUT AND OUTPUT MAY BE WRITTEN AS READ AND WRITE, AND THE TYPE STATEMENT MAY BE USED. THE OBJECT PROGRAM INPUT/OUTPUT ROUTINES PRODUCED BY 7080 FORTRAN ARE DIFFERENT FROM THOSE OF THE 7080 INPUT/OUTPUT CONTROL SYSTEM. ALL INPUT/OUTPUT OPERATIONS IN NON-FORTRAN PORTIONS OF A PROGRAM MUST BE COMPLETED BEFORE ANY FORTRAN OPERATIONS ARE GIVEN. HOWEVER, FORTRAN WILL COMPLETE ITS OWN OPERATIONS AND WILL RESTORE THE NECESSARY INFORMATION FOR THE NON-FORTRAN PORTION OF THE PROGRAM. THERE ARE ALSO MANY IMPROVEMENTS IN THE TREATMENT OF SUBSCRIPTED VARIABLES. OBJECT PROGRAM OPERATIONS ON THEM WILL MAKE USE OF INDIRECT ADDRESSING, AND ALL SUBSCRIPTING UNDER CONTROL OF A DO STATEMENT WILL BE OPTIMIZED. THEREFORE, 705 FORTRAN PROGRAMS WHEN ASSEMBLED BY 7080 FORTRAN WILL AUTOMATICALLY PRODUCE A MORE EFFICIENT OBJECT RPOGRAM. ALSO, DIMENSIONS OF SUBSCRIPTED VARIABLES MAY BE INTEGER VARIABLES AND VARIED AT ANY POINT IN THE PROGRAM NOT INSIDE THE RANGE OF A DO STATEMENT. WHILE EMPLOYING THE PROVEN LOGIC OF ITS PREDECESSOR, THE 7058 PROCESSOR, THE 7080 PROCESSOR REPRESENTS A CONSIDERABLE ADVANCE OVER IT BOTH AS A PROGRAMMING SYSTEM AND FROM THE POINT OF VIEW OF ITS OPERATION. NEW LANGUAGE FEATURES ALLOW GREATER CONTROL OVER THE FORM OF THE OBJECT PROGRAM AND INCREASE ITS EFFICIENCY. THIS IS PARTICULARLY TRUE WITH RESPECT TO MACRO-GENERATION, WHICH IS FULLY RECURSIVE. PROCESSOR OPERATION IS EXTERMELY FLEXIBLE, MOST OPTIONS BEING AVAILABLE VIA CONTROL CARDS. NOTEWORTHY AMONG THE NEW OPERATING FEATURES ARE PROVISIONS FOR BLOCKED INPUT, SECONDARY INPUT, EDITING RUNS, AND THE INTRODUCTION DURING AN ASSEMBLY RUN OF MACRO-INSTRUCTION LIBRARY CHANGES AND PROCESSOR PHASE MODIFICATIONS. EXITS ARE AVAILABLE TO FACILITATE COMMONLY REQUIRED MODIFICATIONS TO THE SYSTEM. THE DUPLICATION RUN WILL ACCOMODATE PERMANENT CHANGES BOTH TO PROCESSOR PHASES AND THE LIBRARY IN A SINGLE RUN.

PROCESSOR LIBRARY
7080-LM-931

AN EXTENSIVE COLLECTION OF MACRO-INSTRUCTIONS AND SUBROUTINES THAT CAN BE ELICITED BY MEANS OF SOURCE PROGRAM STATEMENTS TO PERFORM A LARGE VARIETY OF GENERAL-PURPOSE AND SPECIAL-PURPOSE FUNCTIONS IN AN OBJECT PROGRAM. AMONG THE FUNCTIONS OF GENERAL-PURPOSE MACRO-INSTRUCTIONS ARE ASSEMBLY CONTROL, DATA TRANSMISSION, DATA TESTING, PROGRAM BRANCH CONTROL, AUTOMATIC DECIMAL POINT ARITHMETIC, ADDRESS MODIFICATION, AND TABLE MAINTENANCE. THROUGH THE MEDIUM OF THE 7080 PROCESSOR, LIBRARY MATERIAL CAN BE ADDED DELETED AND REPLACED. THE 7080 PROCESSOR ACCEPTS AS INPUT BLOCKED OR UNBLOCKED CARD IMAGE RECORDS IN THE FORMAT OF ONE OR MORE OF THE SOURCE LANGUAGES LISTED ABOVE. CHANGES TO THE SOURCE FILE MAY BE ENTERED FROM A SECONDARY INPUT UNIT. THE 7080 PROCESSOR WILL PROCESS THIS INPUT AND PRODUCE AN OUTPUT CONSISTING OF A CARD IMAGE TAPE OF PROGRAM CARDS READY FOR LOADING INTO A 7080, AND A LISTING TAPE SUITABLE FOR PRINTING ON ANY IBM PERIPHERAL PRINTING EQUIPMENT. A TAPE WHICH MAY BE USED AS INPUT TO A REASSEMBLY OR HIGH-SPEED ASSEMBLY RUN IS ALSO PRODUCED. THE PROCESSOR PERMITS THE OPTION OF TERMINATING PROCESSING AT KEY POINTS AND PROVIDING AN ANNOTATED LISTING DESCRIBING ERRORS DETECTED UP TO THE POINT OF TERMINATION, IN EFFECT ALLOWING USE OF THE SYSTEM TO EDIT THE SOURCE PROGRAM BEFORE IT IS COMMITED TO A FULL ASSEMBLY. THIS AND OTHER OPTIONS ARE AVAILABLE BY VARIOUS MEANS INCLUDING CONTROL CARDS AND THE CONSOLE INTERRUPT KEYS. THE 7080 PROCESSOR OPERATES EXCLUSIVELY ON A 7080 IN 7080 NONSTOP MODE AND REQUIRES A MINIMUM OF 80,000 POSITIONS OF MEMORY AND TEN 729 TAPE UNITS WHICH MAY BE ON FROM ONE TO FOUR CHANNELS. THE SYSTEM CAN USE AS MANY AS 80,000 ADDITIONAL MEMORY POSITIONS AND SIX ADDITIONAL TAPE UNITS TO INCREASE THE EFFICIENCY OF COMPILATION. USE OF A CARD READER IS OPTIONAL.

INPUT/OUTPUT CONTROL SYSTEM LIBRARY
7080-IO-932 - DISK

THE 729 IOCS AND 1301/2302 IOCS CAN BE ASSEMBLED EITHER INDEPENDENT OF OR WITH OBJECT PROGRAMS. IF THEY ARE INDEPENDENTLY ASSEMBLED, OBJECT PROGRAMS USING THEM WILL BE PROVIDED WITH LINKAGES TO THE IOCS ROUTINES. WHEN AN OBJECT PROGRAM USES 729 IOCS AND 1301 IOCS, BOTH SYSTEMS MUST BE ASSEMBLED THE SAME WAY, THAT IS, WITH OR INDEPENDENT OF THE PROGRAM. IN THE LATTER CASE, BOTH SYSTEMS MUST BE ASSEMBLED IN THE SAME 7080 PROCESSOR RUN. HOWEVER, THEY NEED NOT OCCUPY CONTIGUOUS MEMORY LOCATIONS THE 729 IOCS PROVIDES ROUTINES THAT RELIEVE THE USER OF THE NEED TO PROGRAM TAPE INPUT/OUTPUT OPERATIONS. SPECIFICALLY, THE 729 IOCS WILL-
1. CONTROL ALL TAPE MOVEMENT TO PERMIT OVERLAP OF READING, WRITING AND PROCESSING.
2. HANDLE RECORDS INDIVIDUALLY, THROUGH THEY MAY BE READ FROM OR WRITTEN ON TAPE IN BLOCKED FORM.
3. CHECK THE HEADER AND TRAILER LABLES OF EACH REEL OF TAPE.
4. PROVIDE CHECKPOINT AND RESTART ROUTINES.
5. DETECT AND CORRECT, WHEN POSSIBLE, TAPE READ AND WRITE ERRORS.
THE 729 IOCS IS TAILORED TO THE REQUIREMENTS OF THE USER BY MEANS OF THE DEFINE INPUT/OUTPUT CONTROL SYSTEM /DIOCS/ MACRO-INSTRUCTION. THE DATA FILES AND TAPE UNITS USED BY THE OBJECT PROGRAM ARE SPECIFIED WITH DESCRIPTIVE MACRO-INSTRUCTIONS. SPECIFIC TAPE FUNCTIONS ARE PERFORMED BY LINKAGE MACRO-INSTRUCTIONS WRITTEN AT APPROPRIATE POINTS IN THE OBJECT PROGRAM. THE 729 IOCS REPLACES OICS80 /7080-IO-086/, AN EARLIER INPUT/OUTPUT CONTROL SYSTEM FOR 729 MAGNETIC TAPE UNITS. A 729 IOCS CAN BE GENERATED FOR OBJECT PROGRAMS THAT NOW USE VERSION 1 OR VERSION 2 OF IOCS80 WITHOUT REASSEMBLING THE OBJECT PROGRAMS. THE 729 IOCS OPERATES ON ANY 7080 DATA PROCESSING SYSTEM WITH TWO OR FOUR TAPE CHANNELS. AS MANY AS TEN TAPE UNITS CAN BE ATTACHED TO ONE CHANNEL.
THE 1301/2302 IOCS PROVIDES ROUTINES THAT RELIEVE THE USER OF THE NEED TO PROGRAM DISK INPUT/OUTPUT OPERATIONS. SPECIFICALLY, THIS IOCS WILL -
1. CONTROL ALL DISK OPERATIONS TO PERMIT OVERLAP OF DISK INPUT/OUTPUT FUNCTIONS WITH EACH OTHER AND WITH PROCESSING.
2. BLOCK AND DEBLOCK RECORDS AND AUTOMATICALLY READ

IBM Programs

CONTINUED FROM PRIOR PAGE--

THEM FROM OR WRITE THEM INTO SEQUENTIAL AREAS OF DISK STORAGE.
3. INSURE THAT RANDOMLY LOCATED DISK RECORDS, WHEN READ, ARE PROCESSED AGAINST THE PROPER TRANSACTION RECORDS, UPDATED CORRECTLY, AND IF DESIRED, WRITTEN BACK INTO DISK STORAGE.
4. DETECT AND CORRECT, WHEN POSSIBLE, DISK READ AND WRITE ERRORS.
THE 1301 IOCS IS TAILORED TO THE REQUIREMENTS OF THE USER BY MEANS OF THE DEFINE INPUT/OUTPUT CONTROL SYSTEM /DIOCS/ MACRO-INSTRUCTION. THE DATA TO BE PROCESSED IS SPECIFIED WITH THE DEFINE DATA FILE /DDF/ MACRO-INSTRUCTION. SPECIFIC 1301 IOCS FUNCTIONS ARE PERFORMED BY LINKAGE MACRO-INSTRUCTIONS WRITTEN AT APPROPRIATE POINTS IN THE OBJECT PROGRAM. THE 1301/2302 IOCS OPERATES ON ANY 7080 DATA PROCESSING SYSTEM WITH ONE OR TWO 7631 FILE CONTROLS ATTACHED TO ANY 7908 DATA CHANNEL. THIS IOCS CONTROLS INPUT/OUTPUT OPERATIONS INVOLVING FROM ONE TO TWENTY 1301 OR 2302 DISK STORAGE UNITS. - A UNIT OF DISK STORAGE IS DEFINED AS A SET OF DISK SURFACES SERVICED BY ONE ACCESS MECHANISM.

COBOL PROCESSOR
7080-CB-933

THE 7080 COBOL PROCESSOR 933 CONVERTS SOURCE PROGRAM ENTRIES WRITTEN IN THE COBOL 61 LANGUAGE INTO AUTOCODER ENTRIES FOR ASSEMBLY BY THE 7080 PROCESSOR INTO A 7080 MACHINE LANGUAGE PROGRAM. IN ADDITION, THE PROCESSOR WILL RECOGNIZE THE COBOL ENTER AUTOCODER STATEMENT IN THE PROCEDURE DIVISION OF A COBOL PROGRAM AND WILL ACCEPT ENTRIES WRITTEN IN AUTOCODER AND THE HIGHER LANGUAGES--FORTRAN, REPORT/FILE, DECISION, ARITHMETIC AND TABLE CREATING. 7080 COBOL PROGRAMS WRITTEN FOR COMPILATION BY THE 705/7080 COBOL PROCESSOR ARE, IN MOST RESPECTS, ACCEPTABLE AS INPUT TO THE 7080 COBOL PROCESSOR. THE 7080 COBOL PROCESSOR IS A SUBSYSTEM OF THE 7080 COMPILING SYSTEM WHICH OPERATES IN CONJUNCTION WITH THE 7080 PROCESSOR.

COBOL PROCESSOR LIBRARY
7080-LM-934

THE COBOL LIBRARY 7080-LM-934 CONSISTS OF MACRO-INSTRUCTIONS AND SUBROUTINES WRITTEN IN AUTOCODER LANGUAGE FOR USE BY THE COBOL PROCESSOR. THIS MATERIAL AUGMENTS THE 7080 PROCESSOR LIBRARY ON THE SYSTEM TAPE. THE COBOL LANGUAGE DEFERRED FEATURES THAT ARE LISTED IN THE BULLETIN 705/7080 COBOL - ADDITIONAL SPECIFICATIONS /FORM J28-L177-2/ ARE NOT AVAILABLE WITH THIS VERSION OF THE COBOL PROCESSOR. THE 7080 COBOL PROCESSOR OPERATES EXCLUSIVELY ON A 7080 IN 7080 NONSTOP MODE AND REQUIRES A MINIMUM OF 80,000 POSITIONS OF MEMORY AND TEN 729 TAPE UNITS WHICH MAY BE ON FROM TWO TO FOUR CHANNELS. THE PROCESSOR CAN USE AS MANY AS 80,000 ADDITIONAL MEMORY POSITIONS TO INCREASE THE EFFICIENCY OF COMPILATION. USE OF A CARD READER IS OPTIONAL.

INPUT/OUTPUT CONTROL SYSTEM FOR THE
7750 PROGRAMMED TRANSMISSION CONTROL
7080-IO-932

THE 7750 IOCS PROVIDES ROUTINES THAT FACILITATE /A/ PROCESSING OF REAL-TIME DATA WHEN SUCH DATA BECOMES AVAILABLE AND /B/ PROCESSING IN ANY MAIN-LINE ROUTINE AT ALL OTHER TIMES. THE 7750 IOCS ROUTINES PERFORM THE FOLLOWING FUNCTIONS /1/ SCHEDULE AND INITIATE THE READING AND WRITING OF MESSAGES, /2/ SCHEDULE THE PROCESSING OF INCOMING MESSAGES, /3/ CONTROL ENTRY TO REAL-TIME ROUTINES AND SUBSEQUENT RETURN TO THE INTERRUPTED MAIN-LINE ROUTINES, /4/ DETECT AND CORRECT, WHERE POSSIBLE, ERRORS OCCURRING BETWEEN THE 7750 AND THE 7080, /5/ PROVIDE FOR INITIAL LOADING OF A 7750 STORED PROGRAM INTO THE 7750, /6/ PERMIT THE DYNAMIC LOADING OF 7750 STORED PROGRAM DATA INTO THE 7750, /7/ ENABLE 7750 STORAGE TO BE UNLOADED INTO 7080 MEMORY, /8/ SEND ORDERS TO THE 7750 STORED PROGRAM FROM THE 7080. THE USER MUST PROVIDE REAL-TIME ROUTINES FOR THE PROCESSING OF DATA. THE NATURE OF THE 7750 IOCS MUST BE SPECIFIED WITH THE DIOCS /DEFINE INPUT/OUTPUT CONTROL SYSTEM/ AND THE DDF /DEFINE DATA FILE/ MACRO-INSTRUCTIONS-OTHER 7750 IOCS MACRO-INSTRUCTIONS ARE WRITTEN AT APPROPRIATE POINTS IN THE USERS PROGRAM TO DIRECT THE PROCESSOR TO GENERATE LINKAGES TO THE ROUTINES THAT PERFORM SPECIFIC INPUT/OUTPUT FUNCTIONS. THE 7750 IOCS CAN BE ASSEMBLED EITHER INDEPENDENT OF OR WITH THE USERS PROGRAMS. WHEN A PROGRAM USES OTHER 7080 IOCS IN ADDITION TO THE 7750 IOCS, ALL THE IOCS MUST BE ASSEMBLED THE SAME WAY, THAT IS, INDEPENDENT OF OR WITH THE PROGRAM. MOREVOER, WHEN ASSEMBLED INDEPENDENTLY, THEY MUST BE ASSEMBLED IN THE SAME PROCESSOR RUN. THEY NEED NOT OCCUPY CONTIGUOUS MEMORY LOCATIONS. MINIMUM MACHINE REQUIREMENTS-7750 PROGRAMMED TRANSMISSION CONTROL ATTACHED TO ANY MODEL 7908 DATA CHANNEL.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD. THE TAPES SUPPLIED SHOULD BE 2400 FEET IN LENGTH AND TESTED AT 556 BPI.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP...OPERATING INSTRUCTIONS... LISTINGS...FLOWCHARTS...SAMPLE PROBLEM.
CARD DECK - SAMPLE PROBLEM DECK.
TWO MAGNETIC TAPES - COMPILER SYSTEM TAPE /ONE TAPE/... PROCESSOR LIBRARY TAPE /ONE TAPE/.

OPTIONAL PROGRAM MATERIAL -
EIGHT MAGNETIC TAPES - 7080-PR-930 ASSEMBLY LISTINGS /FIVE TAPES/...7080-CB-933 ASSEMBLY LISTINGS /THREE TAPES/.

7080-SM-114 SORT 80 FOR 7080 UNDER SUPERVISORY CONTROL S80USC
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7080-SM-114

SORT 80 PROGRAM SPECIFICATIONS AND FEATURES, OPERATING INSTRUCTIONS, ETC., ARE DETAILED IN THE REFERENCE MANUAL /IBM 705 III/7080 GENERALIZED SORTING PROGRAM SORT 80/ FORM C28-6125. ALL OF THE OPERATING AND MODIFICATION FEATURES OF THE BASIC SORT 80 SYSTEM CAN BE UTILIZED TO FULL ADVANTAGE WITH ONE EXCEPTION MEMORY POSITIONS 75000 THROUGH 79999 MUST BE RESERVED FOR USE BY SCS80 AND S80USC EXECUTIVE ROUTINES.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.

CONTINUED FROM PRIOR COLUMN--

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
CARD DECK - PROGRAM CONTROL DECK.
ONE MAGNETIC TAPE - 7080USC/S80USC SYSTEM TAPE.

7080-SM-143 GENERALIZED SORTING PROGRAM
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7080-SM-143

THE 7080 GENERALIZED SORTING PROGRAM SORTS FIXED-LENGTH OR VARIABLE-LENGTH DATA RECORDS. THE LATTER CAN BE IN 7080 FORMAT OR INTER-MACHINE HYPERTAPE FORMAT. THE RECORDS MUST BE IN BLOCKED FORMAT, BUT THE BLOCKING FACTOR CAN BE AS LOW AS ONE. PHASE 3 OF THE PROGRAM CAN BE USED INDEPENDENTLY AS A ONE-TO-TEN-WAY GENERALIZED MERGING PROGRAM THAT WILL MERGE DATA RECORDS IN ANY OF THESE FORMATS. IN ADDITION TO THE FEATURES THAT HAVE BEEN INCORPORATED INTO VERSION 1 OF THE PRESENT PROGRAM, VERSION 2 PROVIDES THE FOLLOWING SIGNIFICANT NEW FEATURES-
1. 7340 HYPERTAPES CAN BE SPECIFIED FOR ANY FUNCTIONS.
2. THE READ-BACKWARD FEATURE OF HYPERTAPE IS UTILIZED WHEN FIXED-LENGTH RECORDS ARE SORTED ON HYPERTAPE MERGE TAPES.
3. RECORDS IN VARIABLE-LENGTH, INTER-MACHINE HYPERTAPE FORMAT CAN BE SORTED OR MERGED.
4. VARIABLE-LENGTH RECORDS IN 7080 FORMAT THAT ARE A MULTIPLE OF 30 CHARACTERS IN LENGTH CAN BE AUTOMATICALLY CONVERTED TO INTER-MACHINE FORMAT BEFORE BEING WRITTEN ON THE OUTPUT HYPERTAPE.

THIS PROGRAM IS DISTRIBUTED IN AUTOCODER LANGUAGE AND MUST BE ASSEMBLED BY THE USER. IT CAN BE ASSEMBLED WITH ANY STANDARD 7080 IOCS THAT INCLUDES THE APPROPRIATE 729 AND/OR 7340 IOCS FOR HANDLING THE INPUT/OUTPUT OF THE PROGRAM. BOTH THE SORT AND IOCS PROGRAMS MUST BE ASSEMBLED BY MEANS OF THE 7080 COMPILING SYSTEM, #7080-PR-132, VERSION 7# LEVEL 2, OR ANY LATER VERSION AND/OR LEVEL. MINIMUM MACHINE REQUIREMENTS- A 80K OR 160K 7080 SYSTEM WITH...FOUR OR MORE 7340 HYPERTAPE DRIVES AND/OR 729 MAGNETIC TAPE UNITS. /AT LEAST THREE OF THE TAPES MUST BE OF THE SAME TYPE./ ONE TO FOUR 729 CHANNELS AND ONE OR TWO 7340 CHANNELS CAN BE UTILIZED, BUT AT LEAST TWO LIKE CHANNELS ARE REQUIRED FOR OPTIMUM EFFICIENCY. THIS NEW VERSION HAS BEEN MODIFIED TO PERMIT USE OF THE IBM 7340 HYPERTAPE DRIVES AND/OR 729 MAGNETIC TAPE UNITS. VERSION 1, ORIGINALLY DESIGNED FOR USE WITH 729 MAGNETIC TAPE UNITS ONLY, IS OBSOLETE. THE TIMING TABLES CONTAINED IN THE REFERENCE MANUAL SHOULD BE USED TO DETERMINE THE SORT TIME OF ANY SPECIFIC APPLICATION. NOTE THAT THE USE OF 7340 HYPERTAPE DRIVES WILL, FOR MOST APPLICATIONS, PROVIDE SUBSTANTIAL SAVINGS OVER THE USE OF 739 MAGNETIC TAPE UNITS.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... FLOW CHARTS... SAMPLE PROBLEM.
CARD DECK - SAMPLE PROBLEM DECK.
ONE MAGNETIC TAPE - SYMBOLIC CARDS ON TAPE.

7080-SV-087 NOSTP
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7080-SV-087

PURPOSE THE NOSTP MACRO-INSTRUCTION AND A SET OF ASSOCIATED SUBROUTINES ENABLE 705 AND 7080 PROGRAMS, RUNNING ON THE 7080, TO UTILIZE THE NON-STOP OPERATION FEATURE OF THAT MACHINE. THE USE OF THESE ROUTINES, IN CONJUNCTION WITH THE NON-STOP OPERATION FEATURE, WILL PERMIT CONTINUOUS OPERATION OF THE 7080 IN AUTOMATIC STATUS.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
CARD DECK - CONDENSED PROGRAM DECK.

7080-SV-115 SUPERVISORY CONTROL SYSTEM SCS80
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7080-SV-115

PURPOSE TO REDUCE THE TIME AND EFFORT REQUIRED TO PERFORM THE SET-UP FUNCTIONS FOR /PRODUCTION/ 7080 RUNS. SCS80 WILL, UPON COMMAND, LOCATE A PROGRAM ON THE PROGRAM TAPE, LOAD IT INTO MEMORY, VERIFY THE CONSOLE SET-UP, AND TRANSFER CONTROL TO THE OBJECT PROGRAM. THE PROGRAM TAPE /S/ USED AT OBJECT TIME WILL CONTAIN A COPY OF MEMORY PRINT /MP7080/ AT THE BEGINNING OF EACH REEL. SCS80 WILL ALSO ASSIST THE 7080 USER IN HOLDING PROGRAM FILE MAINTENANCE TO A MINIMUM. THIS IS ACCOMPLISHED THROUGH THE POWERFUL ABILITY TO /CALL IN/ COMMON PROGRAMS AND/OR ROUTINES IN ORDER TO /COMPLETE/ OBJECT PROGRAMS. NATURALLY, THE COMMON PROGRAMS AND ROUTINES NEED MAINTENANCE ONLY ON THE /SOURCE/ COPY. USE OF PROGRAM SCS80 PROVIDES 1. A PROGRAM LIBRARY MAINTENANCE FACILITY, 2. ABILITY TO SELECT /CURRENT/ PROGRAMS, 3. AN OBJECT TIME ROUTINE. MACHINE CONFIGURATION A. THE LIBRARY MAINTENANCE PROGRAM MEMORY SIZE -80K /MINIMUM/ 6 IBM 729 MAGNETIC TAPE UNITS /MINIMUM/ CONSOLE CARD READER B. THE PRODUCTION OF A CURRENT TAPE MEMORY SIZE - 80K /MINIMUM/ 5 IBM 729 MAGNETIC TAPE UNITS /MINIMUM/ CONSOLE CARD READER C. SCS80 OBJECT TIME ROUTINE MEMORY @0 TO @159 PLUS 2700 CHARACTERS BEGINNING AT A 0 OR 5 LOCATIONS ABOVE @499 1 IBM 729 MAGNETIC TAPE UNIT /MINIMUM/ CONSOLE CARD READER
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
ONE MAGNETIC TAPE - 7080SCS/SCS80 SYSTEM TAPE.

7080-UT-089 UTILITIES
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7080-UT-089

IBM Programs

CONTINUED FROM PRIOR PAGE--

PURPOSE THIS IS A COLLECTION OF EIGHT COMMONLY USED UTILITY PROGRAMS. DATA ASSEMBLER /DA7080/ THE DATA ASSEMBLER IS CAPABLE OF CREATING DATA FILES FROM CARD IMAGE RECORDS ON TAPE. THERE IS PROVISION FOR SEARCHING THE INPUT TAPE FOR THE CORRECT DATA SET AND THEN PROCESSING THROUGH TO AN /END/ CARD. THE FILES CREATED BY DA7080 MAY BE OF FIXED OR VARIABLE LENGTH, BLOCKED OR UNBLOCKED, MULTIFILE OR SINGLE FILE AND LABELED OR UNLABELED. EXPANDED LOAD PROGRAM /EL 7080/ THE EXPANDED LOAD PROGRAM FOR THE 7080 WILL BE CAPABLE OF LOCATING A PROGRAM DECK ON A PRIMARY PROGRAM TAPE, LOADING THE PROGRAM, LOCATING A DECK OF PATCH CARDS ON A SECONDARY UNIT, AND LOADING THE PATCH CARDS. THE EXPANDED LOAD PROGRAM WILL OCCUPY THE UPPER 3000 POSITIONS OF MEMORY AND THE LOWER 380 POSITIONS. IF THE INPUT IS FROM TAPE, THE PROCESSING WILL BE OVERLAPPED BY THE READING OF THE NEXT PROGRAM CARD. EXPANDED LOAD PROGRAM /UL7080/ UL7080 PROVIDES FOR LOADING INFORMATION BETWEEN MEMORY POSITIONS 000240 AND 156799 ON A 160K 7080 OR BETWEEN 000240 AND 076799 ON AN 80K7080. OTHERWISE, THIS PROGRAM IS THE SAME AS EL7080. LOAD PROGRAM /LD7080/ THE LOAD PROGRAM FOR THE 7080 WILL PROVIDE FOR THE FOLLOWING FUNCTIONS 1. CLEAR MEMORY FROM 0240 TO THE END OF MEMORY. 2. CLEAR THE CONTENTS OF BANKS 1, 2, 3, AND 4. 3. SET UP INTERRUPT WORDS 200, 210, 220, 230, 250, 251, 252, AND 253 SO AS TO PREVENT THE MACHINE FROM HANGING FOLLOWING THE LOADING OPERATION DUE TO AN UNANSWERED INTERRUPT SIGNAL. 4. MODIFY ITSELF TO LOAD AN OBJECT PROGRAM FROM ANY CARD READER OR CHANNEL TAPE. 5. LOAD AN OBJECT PROGRAM INTO AN 80K OR A 160K 7080. MEMORY PRINT PROGRAM /MP7080/ THE MEMORY PRINT PROGRAM FOR THE 7080 WILL BE CAPABLE OF PRINTING THE CONTENTS OF BANKS 0 THROUGH 3, THE SETTINGS OF THE ALTERATION SWITCHES, AND MEMORY FROM POSITIONS 500 THROUGH 159999. MEMORY AREAS MAY BE DEFINED AS CONSTANT, INSTRUCTION, AND/OR BIT SWITCH AREAS. THE CONSTANT AND INSTRUCTION AREAS WILL BE SORTED SEQUENTIALLY SO THAT MEMORY WILL BE PRINTED SEQUENTIALLY BY MEMORY POSITION AND NOT BY THE ORDER OF THE PARAMETERS ON THE CONTROL CARDS. DATA PRINT /DP7080/ THE DATA PRINT PROGRAM FOR THE 7080 PROVIDES FOR WRITING RECORDS IN FOUR OUTPUT FORMATS. THE TWO OPTIONS THAT EFFECT THE FORMAT ARE 1. INDEXING THE INDEXING OPTION PROVIDES FOR BREAKING EACH DATA RECORD INTO ONE HUNDRED OR FEWER CHARACTER SEGMENTS AND THEN PRINTING EACH SEGMENT AS TEN GROUPS OF TEN CHARACTERS TO THE LINE. 2. REFERENCING THE REFERENCING OPTION PROVIDES FOR TWO FUNCTIONS. A. ADDITIONAL OUTPUT INFORMATION-WHEN THE REFERENCING OPTION IS USED , A LINE OF PRINT WILL BE PRINTED BEFORE EACH TAPE RECORD IS PROCESSED. THIS LINE OF INFORMATION INDICATES THE TAPE RECORD NUMBER, THE ACTUAL LENGTH OF THE TAPE RECORD, AND OTHER INFORMATION WHICH WAS INDICATED BY THE EXTERNAL MODIFICATION CARD AND/ OR INDICATED BY CERTAIN FIELDS IN THE TAPE RECORD. B. RECORD LENGTH CHECKING-PROVIDES FOR A LENGTH CHECK OF EACH DATA RECORD AND EACH TAPE RECORD. THE FOUR FORMATS ARE 1. A COMBINATION OF INDEXING AND REFERENCING. 2. INDEXING, BUT NO REFERENCING. 3. REFERENCING, BUT NO INDEXING. 4. NEITHER INDEXING NOR REFERENCING. PATCH CONVERSION /PC7080/ THE PATCH CONVERSION PROGRAM PROVIDES FOR THE USE OF CERTAIN MENMONIC OPERATIONS WHEN AN EXPANDED PATCH CARD IS BEING PUNCHED. DATA CONVERSION /DC7080/ THE DATA CONVERSION PROGRAM WILL ALLOW THE USER TO TAKE RECORDS OF ANY FORMAT AND CONVERT THEM TO ANY OTHER FORMAT. THERE IS PROVISION FOR LABELING UNLABELED FILES, BLOCKING UNBLOCKED RECORDS, REBLOCKING BLOCKED RECORDS, DEBLOCKING BLOCKED RECORDS AND PUTTING IBM STANDARDS FOR VARIABLE LENGTH RECORDS ON FILES CONTAINING VARIABLE LENGTH RECORDS. MULTIFILE AND/OR MULTI REEL-TAPES MAY BE CREATED AND TAPES MAY BE DUPLICATED BY DC 7080.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS.
CARD DECK - CONDENSED PROGRAM DECK.

OPTIONAL PROGRAM MATERIAL -
FOUR MAGNETIC TAPES - ASSEMBLY LISTINGS.

7080-UT-129 UTILITY PROGRAMS FOR THE 1301 OR 2302 DISK STORAGE UNITS
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7080-UT-129

THE 7080 UTILITY PROGRAMS CONSIST OF THREE PROGRAMS /EACH COMPOSED OF TWO ROUTINES/ TO PERFORM CERTAIN COMMON OPERATIONS RELATED TO THE STORAGE, RETRIEVAL, AND PRESERVATION OF DATA IN AN IBM 1301 OR 2302. THE PROGRAMS ARE DESIGNED TO BE USED INDEPENDENTLY OR WITH THE TESTING AND OPERATING SYSTEM /TOPS/. THE THREE PROGRAMS PROVIDED ARE-

1. DK7080
   A/ FORMAT TRACK GENERATOR FOR HOME ADDRESS
   B/ RECORD ADDRESS GENERATOR
2. DK7081
   A/ DUMP DISK
   B/ RESTORE DISK
3. DK7082
   A/ LOAD DISK
   B/ CLEAR DISK

THE FORMAT TRACK GENERATION ROUTINE WILL GENERATE FROM SPECIFICATIONS IN CONTROL CARDS, CHARACTERS FOR A FORMAT TRACK AND WILL WRITE THEM ON ONE OR MORE FORMAT TRACKS.

THE HOME ADDRESS AND RECORD ADDRESS GENERATION ROUTINE WILL GENERATE FROM SPECIFICATIONS PROVIDED IN CONTROL CARDS, HOME ADDRESS IDENTIFIERS AND RECORD ADDRESSES AND WILL WRITE THEM ON ONE OR MORE TRACKS.

THE DUMP DISK ROUTINE WILL WRITE ALL OF THE DATA IN AN AREA OF DISK STORAGE, DESIGNATED BY CONTROL CARDS, ONTO MAGNETIC TAPE.

THE RESTORE DISK ROUTINE WILL RETURN DATA WRITTEN ON MAGNETIC TAPE BY THE DUMP DISK ROUTINE TO THE DISK STORAGE LOCATIONS FROM WHICH IT WAS UNLOADED.

THE LOAD DISK ROUTINE WILL LOAD THE DATA CONTAINED IN TAPE RECORDS GENERATED BY THE USER INTO AN AREA OF DISK STORAGE DESIGNATED BY CONTROL CARDS.

CONTINUED FROM PRIOR COLUMN--

THE CLEAR DISK ROUTINE WILL FILL RECORD AREAS ON ANY NUMBER OF TRACKS WITH A NUMERIC, ALPHABETIC, OR SPECIAL CHARACTER SPECIFIED IN CONTROL CARDS.
THE 7080 UTILITY PROGRAMS REQUIRE AN 80K 7080 SYSTEM WITH A 7908 DATA CHANNEL...ONE 1301 OR 2302 DISK STORAGE UNIT WITH 7631 FILE CONTROL, OR ONE 729 II, IV, V, OR VI MAGNETIC TAPE UNIT...ONE 714 OR 7502 CONSOLE CARD READER. /A MAGNETIC TAPE UNIT CAN BE SUBSTITUTED FOR THE CARD READER./ - THE DUMP DISK, RESTORE DISK AND LOAD DISK REQUIRE, AN ADDITIONAL 729 II, IV, V, OR VI MAGNETIC TAPE UNIT.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH. OPTIONAL PROGRAM MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL - PROGRAM MATERIAL LIST...FLOW CHARTS...STORAGE MAPS...SAMPLE PROBLEM...REFERENCE MANUAL.
MACHINE READABLE - PROGRAM CARDS.
OPTIONAL PROGRAM MATERIAL - AUTOCODER SOURCE TAPE...LISTING TAPE.

7080-UT-135 BANK 4 UTILITIES
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7080-UT-135

THE 7080 BANK 4 UTILITIES CONSIST OF FOUR PROGRAMS TO BE USED ON A 7080 SYSTEM WHICH HAS BANK 4 OF CENTRAL STORAGE ACTIVATED. THE PROGRAMS ARE DESIGNED TO BE USED INDEPENDENTLY OR WITH THE TESTING AND OPERATING SYSTEM /TOPS/.
THE FOUR PROGRAMS PROVIDED ARE-

1. MEMORY PRINT - MP7085
2. EXPANDED LOAD - EL7085
3. UPPER LOAD - UL7085
4. BASIC LOAD - LD7080 FOR STANDARD INTERFACE MACHINES

THE MEMORY PRINT PROGRAM WILL PRODUCE, IN A FORMAT SUITABLE FOR SUBSEQUENT OFF-LINE PRINTING, A TAPE LISTING OF THE CONTENTS OF 7080 MEMORY, THE CONTENTS AND SETTINGS OF FIVE BANKS OF CENTRAL STORAGE, AND THE STATUS OF VARIOUS REGISTERS, SWITCHES, TRIGGERS, AND INDICATORS.

THE EXPANDED LOAD PROGRAM WILL LOAD CARDS OR CARD IMAGES IN STANDARD OR EXPANDED FORMAT INTO MEMORY LOCATIONS ABOVE @379. THE PROGRAM ALSO PROVIDES FOR LOADING INTO MEMORY THE VERSION OF THE AUTOMATIC LINKAGE ROUTINE WHICH IS TO BE USED WITH MP7085.

THE UPPER LOAD PROGRAM WILL LOAD CARDS OR CARD IMAGES IN STANDARD OR EXPANDED FORMAT INTO MEMORY LOCATIONS ABOVE @239. THE PROGRAM ALSO PROVIDES FOR LOADING INTO MEMORY THE VERSION OF THE AUTOMATIC LINKAGE ROUTINE WHICH IS TO BE USED WITH MP7085.

THE BASIC LOAD PROGRAM FOR STANDARD INTERFACE MACHINES WILL LOAD CARDS OR CARD IMAGES IN STANDARD FORMAT INTO MEMORY LOCATIONS ABOVE @239. THIS PROGRAM WILL ALSO PERFORM CERTAIN OPTIONAL HOUSEKEEPING FUNCTIONS.

THE 7080 BANK 4 UTILITIES ARE TO BE USED ON A 7080 DATA PROCESSING SYSTEM HAVING AT LEAST 80,000 POSITIONS OF MEMORY AND FIVE BANKS OF CENTRAL STORAGE, AND EQUIPPED WITH AT LEAST TWO IBM 729 II, IV, V, OR VI MAGNETIC TAPE UNITS. /A 714 CARD READER OR 7502 CONSOLE CARD READER MAY BE SUBSTITUTED FOR ONE TAPE UNIT/. MP7085 FURTHER REQUIRES AT LEAST ONE ADDITIONAL 729 II, IV, V, OR VI MAGNETIC TAPE UNIT.

1. PROGRAM DECKS.
2. FLOW CHARTS OF EACH PROGRAM.
3. SAMPLE PROBLEM.
4. REFERENCE MATERIAL.
5. DIRECTIONS FOR RECREATING THE UTILITY TAPE USING 7080 BANK 4 UTILITIES.

THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

7080 BANK 4 UTILITIES
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... LISTINGS... SAMPLE PROBLEM... FLOW CHARTS.
CARD DECKS - CONDENSED PROGRAM DECK... SAMPLE PROBLEM DECK.

OPTIONAL PROGRAM MATERIAL -
TWO MAGNETIC TAPES - /ONE TAPE/ - ASSEMBLY LISTINGS... /ONE TAPE/ - SYMBOLIC CARDS ON TAPE.

7080-UT-144 UTILITY PROGRAMS FOR THE 7340 HYPERTAPE DRIVES
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7080-UT-144

THE 7080 UTILIY PROGRAMS FOR 7340 HYPERTAPE DRIVES ARE THE TWO PROGRAMS LISTED BELOW- BASIC LOAD PROGRAM /LD7080/. THIS PROGRAM LOADS PROGRAM DATA CARDS IN CONDENSED FORMAT FROM A HYPERTAPE DRIVE INTO 7080 MEMORY. IT ALSO PERFORMS THE FOLLOWING OPTIONAL FUNCTIONS- BLANK MEMORY FROM LOCATION 00240 TO THE END OF MEMORY- CLEAR STORAGE BANKS 0-4 TO STORAGE MARKS- SET INTERRUPT WORDS IN BANK 2 OR BANK 4, OR BOTH, TO HAVE INTERRUPTS IGNORED. DATA PRINT PROGRAM /DP7081/. THIS PROGRAM LISTS THE CONTENTS OF ANY 7340 HYPERTAPE OR 729 MAGNETIC TAPE ON ANOTHER 729 MAGNETIC TAPE IN A SUITABLE FORMAT FOR OFF-LINE PRINTING. THE BASIC LOAD PROGRAM LOADS PROGRAM DATA INTO AN IBM 7080 DATA PROCESSING SYSTEM HAVING 80,000 OR 160,000 POSITIONS OF MEMORY AND EQUIPPED WITH A 7908 DATA CHANNEL TO WHICH A 7340 HYPERTAPE DRIVE AND 7640 HYPERTAPE CONTROL ARE ATTACHED. THE DATA PRINT PROGRAM REQUIRES- AN IBM 7080 DATA PROCESSING SYSTEM HAVING 80,000 OR 160,000 POSITIONS OF MEMORY AND -- IF THE INPUT TAPE IS HYPERTAPE -- EQUIPPED WITH A 7908 DATA CHANNEL, 1 IBM 729 II, IV, V, OR VI MAGNETIC TAPE UNIT FROM WHICH THE DATA PRINT PROGRAM IS LOADED. 1 IBM 7501 CONSOLE CARD READER FROM WHICH CONTROL CARDS ARE READ. /THE TAPE CONTAINING THE DATA PRINT PROGRAM OR ANOTHER 729 MAGNETIC TAPE UNIT MAY BE SUBSTITUTED FOR THE CARD READER/, 1 IBM 279 II, IV, V, OR VI MAGNETIC TAPE UNIT FOR OUTPUT TAPES, EITHER 1 IBM 7340 HYPERTAPE DRIVE AND 7640 HYPERTAPE CONTROL, OR 1 IBM 729 II, IV, V, OR VI MAGNETIC TAPE UNIT FOR INPUT TAPES.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR ORDERED FOR EACH ITEM THAT IS ORDERED. THE TAPES MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

CONTINUED FROM PRIOR PAGE--

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... OPERATING INSTRUCTIONS... FLOW CHARTS... SAMPLE PROBLEM.
CARD DECKS - CONDENSED PROGRAM DECK.
OPTIONAL PROGRAM MATERIAL -
TWO MAGNETIC TAPES - /ONE TAPE/ - SYMBOLIC CARDS ON TAPE. /ONE TAPE/ - ASSEMBLY LISTINGS.

7740

7740-CX-09X IBM SCIENTIFIC TERMINAL
SYSTEM FOR SERVICING 1050 TERMINALS
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7740-CX-09X

THE SCIENTIFIC TERMINAL SYSTEM IS A NEW REMOTE COMPUTING CAPABILITY FOR THE 7090-7040 DIRECT COUPLE SYSTEM /DCS/. IT PROVIDES THE FULL FACILITY OF A CENTRALLY LOCATED DIRECT COUPLE SYSTEM TO USERS AT REMOTE LOCATIONS. THE DIRECT COUPLE OPERATING SYSTEM TYPE I SUPPORT MUST BE USED. THIS NEW DIMENSION IN REMOTE COMPUTING -- THIS NEW CONCEPT ENHANCES USE OF THE 7090-7040 DCS, FACILITATING SIMULTANEOUS TERMINAL AND NORMAL COMPUTER CENTER OPERATIONS.
STS PROVIDES IMPROVED SUPPORT IN THE FOLLOWING INDUSTRY AREAS IN WHICH 7090-7040 DCS IS USED.
RESEARCH AND DEVELOPMENT LABORATORIES
UNIVERSITY COMPUTING CENTERS
LARGE SCALE DEFENSE INSTALLATIONS
AEROSPACE COMPANIES
MANUFACTURING COMPANIES
PROCESS INDUSTRIES
COMPUTING SERVICE OPERATIONS
A REMOTE TERMINAL SYSTEM OF THIS TYPE CAN OFFER CONSIDERABLE IMPROVEMENTS IN THE TURNAROUND TIME BETWEEN THE USER AND A CENTRAL COMPUTING SYSTEM BY COMPRESSING DISTANCE AND TIME WITH COMMUNICATION LINES AND POWERFUL COMMUNICATION CONTROL SYSTEM. STS PERFORMS THIS COMPRESSION BY ALLOWING 1050 DATA COMMUNICATION SYSTEM AND 1974-II DATA TRANSMISSION PROCESSOR TERMINALS TO ACT AS INPUT AND OUTPUT DEVICES TO THE 7090-7040 DIRECT COUPLE SYSTEM AND HAVE FULL USE OF THE DIRECT COUPLE OPERATING SYSTEM /DCOS/. STS IS A JOB MODE SYSTEM IN WHICH A PROGRAM STORED IN THE IBM 7740 RELIEVES THE CENTRAL COMPUTER OF ALL LINE HANDLING, JOB BATCHING, AND INPUT/OUTPUT ERROR DETECTION. CARD READING AT 1050 TERMINALS IS LIMITED TO BCD CARDS ONLY WITH OUTPUT ON 1052 PRINTER-KEYBOARD.

FEATURES ARE-
ATTACKS THE PROBLEM OF JOB TURNAROUND TIME.
INCREASE IN OPERATING EFFICIENCY THROUGH 7740 EDIT AND BATCHING CAPABILITIES
INDEPENDENCE BETWEEN DIRECT COUPLE OPERATING SYSTEM AND MECHANICS OF SERVICING MANY COMMUNICATION LINES.
AUTOMATIC ROUTING OF COMPUTED RESULTS AT USERS DISCRETION.
HIGH SPEED BINARY AND BCD INPUT AND OUTPUT USING THE 1974-II TERMINAL.

THE STS WORKS WITH THE DIRECT COUPLE OPERATING SYSTEM /DCOS/ IN SUPPORT OF THE 7090-7040 DIRECT COUPLE SYSTEM /DCS/. AN INTERFACE IN THE FORM OF MODIFICATIONS TO THE DIRECT COUPLE OPERATING SYSTEM /7090-PR-161, V1L2/ IS INCLUDED IN THE STS. THE STS PROGRAM IN THE 7740 COLLECTS INPUT JOBS FROM TERMINALS ON ITS 1311 FILE. COMPLETE JOBS ARE TRANSMITTED TO THE DCS FOR ENTRY INTO ITS JOB QUEUE. JOB OUTPUT IS SIMILARLY HANDLED.

PROGRAMMING SYSTEMS- THE CENTRAL PROGRAM IN STS, WHICH RESIDES IN THE 7740, REQUIRES LOCAL ASSEMBLY ON A 1401 USING 1401-SP-156 TO TAILOR THE PROGRAM TO THE INSTALLATION LINE AND TERMINAL CONFIGURATION. ASSEMBLY OF THE OTHER TWO PORTIONS, RESIDING IN THE 1974-II AND THE 7040/44, IS NOT NORMALLY REQUIRED. THE 1974-II PORTION CAN BE ASSEMBLED UNDER 1401-AU-008 WITH SPECIAL MNEMONICS. THE 7040/44 PORTION IS A MODIFICATION TO PROGRAM DCMUP OF THE 7090-7040 DIRECT COUPLE OPERATING SYSTEM /7090-PR-161/ VERSION 1 MODIFICATION LEVEL 2 CODED IN 7090/94 IBMAP LANGUAGE. ASSEMBLY REQUIRES IBJOB AS CONTAINED IN DCOS, OR IBSYS PROCESSOR OPERATING SYSTEM /7090-PR-130 VERSION 12/.

MINIMUM 7740 SYSTEM REQUIREMENTS- A 16K 7741 MODEL 3 WITH DISK STORAGE ADAPTER /NO. 3309/, SCAN AND LOCATE SECTOR /NO. 6395/, AND RPQ W10994., ATTACHED TO 7040/44 SYSTEM ON A 7904 DATA CHANNEL WITH CONTROL ADAPTER /NO. 1074/... A 1311 DISK STORAGE DRIVE MODEL 5 WITH SCAN DISK /NO. 6396/... A 1051 CONTROL UNIT MODEL 1 WITH FIRST PRINTER /NO. 4408/, FIRST READER /NO. 4411/, AND HOME COMPONENT RECOGNITION /NO. 4605/., 1052 PRINTER-KEYBOARD MODEL 1 WITH PROCESSOR PRINTING ELEMENT /NO. 9579/ /SET H/, AND 12 CHARACTERS/INCH SPACING, /NO. 9105/., 1056 CARD READER MODEL 1 WITH EXTENDED CHARACTER READING /NO. 3861/. TO USE 1050 TERMINALS ONE DATA SET ADAPTER /NO. 1076/ PER FOUR LOW SPEED LINES, A SECOND LOW SPEED GROUP WITH REQUIRED DATA SET ADAPTERS /NO. 1077/ IS REQUIRED IF MORE THAN 28 LOW SPEED LINES ARE ATTACHED... TO USE 1974-II TERMINALS A HIGH SPEED ADAPTER /NO. 4588 FOR THE FIRST AND NO. 4589 FOR THE SECOND/ FOR HIGH SPEED HALF-DUPLEX LINE.

1050 TERMINALS- 1051 CONTROL UNIT MODEL 1 WITH FIRST READER /NO. 4411/ AND FIRST PRINTER /NO. 4408/, AUTOMATIC RIBBON SHIFT AND LINE FEED SELECT /NO. 1295/ AND DATA SET ATTACHMENT OR LINE ADAPTER /NO. 4790/, 1052 PRINTER-KEYBOARD MODEL 1 WITH PROCESSOR PRINTING ELEMENT /NO. 9579/ /SET H/, AND 12 CHARACTERS/INCH SPACING /NO. 9105/, 1056 CARD READER MODEL 1 WITH EXTENDED CHARACTER READING /NO. 3861/. OPTIONAL FEATURES WHICH SHOULD BE CONSIDERED FOR 1050 TERMINALS ARE- AUTOMATIC EOB /NO. 1313/, KEYBOARD REQUEST /NO. 4770/, LINE CORRECTION /NO. 4795/, 13-1/8 INCH PIN FEED PLATEN /NO. 9509/, AND RED/BLACK RIBBON.

NOTE- IT SHOULD BE EMPHASIZED THAT STS IS DEPENDENT UPON DCOS VERSION 1, MODIFICATION LEVEL 2, FOR ITS OPERATION. IF THERE ARE FUTURE VERSIONS OR MODIFICATION LEVELS OF DCOS THEN IT IS POSSIBLE THAT MODIFICATIONS WOULD HAVE TO BE MADE TO ADAPT THE STS SYSTEM TO THE NEW DCOS VERSION. ADEQUATE TIME BEFORE EQUIPMENT INSTALLATION SHOULD BE ALLOCATED SO THAT SUCH MODIFICATIONS AS NECESSARY MAY BE MADE.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD. THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP...APPLICATION DIRECTORY... APPLICATION DESCRIPTION...TERMINAL USERS MANUAL-1050... SYSTEM PROGRAMMERS MANUAL...OPERATORS GUIDE..SYSTEMS MANUAL.

CONTINUED FROM PRIOR COLUMN--
MACHINE READABLE - ONE REEL OF MAGNETIC TAPE CONTAINING THE 7740 SYMBOLIC PROGRAM, 7040 SYMBOLIC PROGRAM AND A SAMPLE PROBLEM.

OPTIONAL PROGRAM MATERIAL - ONE REEL OF MAGNETIC TAPE CONTAINING PROGRAM FLOWCHARTS.

7740-CX-10X IBM SCIENTIFIC TERMINAL
SYSTEM FOR SERVICING 1050 AND 1974-II TERMINALS
ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7740-CX-10X

THE SCIENTIFIC TERMINAL SYSTEM IS A NEW REMOTE COMPUTING CAPABILITY FOR THE 7090-7040 DIRECT COUPLE SYSTEM /DCS/. IT PROVIDES THE FULL FACILITY OF A CENTRALLY LOCATED DIRECT COUPLE SYSTEM TO USERS AT REMOTE LOCATIONS. THE DIRECT COUPLE OPERATING SYSTEM TYPE I SUPPORT MUST BE USED. THIS NEW DIMENSION IN REMOTE COMPUTING -- THIS NEW CONCEPT ENHANCES USE OF THE 7090-7040 DCS, FACILITATING SIMULTANEOUS TERMINAL AND NORMAL COMPUTER CENTER OPERATIONS.
STS PROVIDES IMPROVED SUPPORT IN THE FOLLOWING INDUSTRY AREAS IN WHICH 7090-7040 DCS IS USED.
RESEARCH AND DEVELOPMENT LABORATORIES
UNIVERSITY COMPUTING CENTERS
LARGE SCALE DEFENSE INSTALLATIONS
AEROSPACE COMPANIES
MANUFACTURING COMPANIES
PROCESS INDUSTRIES
COMPUTING SERVICE OPERATIONS
A REMOTE TERMINAL SYSTEM OF THIS TYPE CAN OFFER CONSIDERABLE IMPROVEMENTS IN THE TURNAROUND TIME BETWEEN THE USER AND A CENTRAL COMPUTING SYSTEM BY COMPRESSING DISTANCE AND TIME WITH COMMUNICATION LINES AND POWERFUL COMMUNICATION CONTROL SYSTEM. STS PERFORMS THIS COMPRESSION BY ALLOWING 1050 DATA COMMUNICATION SYSTEM AND 1974-II DATA TRANSMISSION PROCESSOR TERMINALS TO ACT AS INPUT AND OUTPUT DEVICES TO THE 7090-7040 DIRECT COUPLE SYSTEM AND HAVE FULL USE OF THE DIRECT COUPLE OPERATING SYSTEM /DCOS/. STS IS A JOB MODE SYSTEM IN WHICH A PROGRAM STORED IN THE IBM 7740 RELIEVES THE CENTRAL COMPUTER OF ALL LINE HANDLING, JOB BATCHING, AND INPUT/OUTPUT ERROR DETECTION. CARD READING AT 1050 TERMINALS IS LIMITED TO BCD CARDS ONLY WITH OUTPUT ON 1052 PRINTER-KEYBOARD. 1974-II TERMINALS ALLOW BOTH BINARY AND BCD CARD INPUT/OUTPUT AS WELL AS PRINTED OUTPUT ON THE 1980-7 PRINTER.
FEATURES ARE-
ATTACKS THE PROBLEM OF JOB TURNAROUND TIME.
INCREASE IN OPERATING EFFICIENCY THROUGH 7740 EDIT AND BATCHING CAPABILITIES.
INDEPENDENCE BETWEEN DIRECT COUPLE OPERATING SYSTEM AND MECHANICS OF SERVICING MANY COMMUNICATION LINES.
AUTOMATIC ROUTING OF COMPUTED RESULTS AT USERS DISCRETION.
HIGH SPEED BINARY AND BCD INPUT AND OUTPUT USING THE 1974-II TERMINAL.
THE STS WORKS WITH THE DIRECT COUPLE OPERATING SYSTEM /DCOS/ IN SUPPORT OF THE 7090-7040 DIRECT COUPLE SYSTEM /DCS/. AN INTERFACE IN THE FORM OF MODIFICATIONS TO THE DIRECT COUPLE OPERATING SYSTEM /7090-PR-161, V1L2/ IS INCLUDED IN THE STS. THE STS PROGRAM IN THE 7740 COLLECTS INPUT JOBS FROM TERMINALS ON ITS 1311 FILE. COMPLETE JOBS ARE TRANSMITTED TO THE DCS FOR ENTRY INTO ITS JOB QUEUE. JOB OUTPUT IS SIMILARLY HANDLED.
PROGRAMMING SYSTEMS- THE CENTRAL PROGRAM IN STS, WHICH RESIDES IN THE 7740, REQUIRES LOCAL ASSEMBLY ON A 1401 USING 1401-SP-156 TO TAILOR THE PROGRAM TO THE INSTALLATION LINE AND TERMINAL CONFIGURATION. ASSEMBLY OF THE OTHER TWO PORTIONS, RESIDING IN THE 1974-II AND THE 7040/44, IS NOT NORMALLY REQUIRED. THE 1974-II PORTION CAN BE ASSEMBLED UNDER 1401-AU-008 WITH SPECIAL MNEMONICS. THE 7040/44 PORTION IS A MODIFICATION TO PROGRAM DCMUP OF THE 7090-7040 DIRECT COUPLE OPERATING SYSTEM /7090-PR-161/ VERSION 1 MODIFICATION LEVEL 2 CODED IN 7090/94 IBMAP LANGUAGE. ASSEMBLY REQUIRES IBJOB AS CONTAINED IN DCOS, OR IBSYS PROCESSOR OPERATING SYSTEM /7090-PR-130 VERSION 12/.
MINIMUM 7740 SYSTEM REQUIREMENTS- A 16K 7741 MODEL 3 WITH DISK STORAGE ADAPTER /NO. 3309/, SCAN AND LOCATE SECTOR /NO. 6395/, AND RPQ W10994., ATTACHED TO 7040/44 SYSTEM ON A 7904 DATA CHANNEL WITH CONTROL ADAPTER /NO. 1074/... A 1311 DISK STORAGE DRIVE MODEL 5 WITH SCAN DISK /NO. 6396/... A 1051 CONTROL UNIT MODEL 1 WITH FIRST PRINTER /NO. 4408/, FIRST READER /NO. 4411/, AND HOME COMPONENT RECOGNITION /NO. 4605/., 1052 PRINTER-KEYBOARD MODEL 1 WITH PROCESSOR PRINTING ELEMENT /NO. 9579/ /SET H/, AND 12 CHARACTERS/INCH SPACING, /NO. 9105/., 1056 CARD READER MODEL 1 WITH EXTENDED CHARACTER READING /NO. 3861/. TO USE 1050 TERMINALS ONE DATA SET ADAPTER /NO. 1076/ PER FOUR LOW SPEED LINES, A SECOND LOW SPEED GROUP WITH REQUIRED DATA SET ADAPTERS /NO. 1077/ IS REQUIRED IF MORE THAN 28 LOW SPEED LINES ARE ATTACHED... TO USE 1974-II TERMINALS A HIGH SPEED ADAPTER /NO. 4588 FOR THE FIRST AND NO. 4589 FOR THE SECOND/ FOR HIGH SPEED HALF-DUPLEX LINE. 1050 TERMINALS- 1051 CONTROL UNIT MODEL 1 WITH FIRST READER /NO. 4411/ AND FIRST PRINTER /NO. 4408/, AUTOMATIC RIBBON SHIFT AND LINE FEED SELECT /NO. 1295/ AND DATA SET ATTACHMENT OR LINE ADAPTER /NO. 4790/., 1052 PRINTER-KEYBOARD MODEL 1 WITH PROCESSOR PRINTING ELEMENT /NO. 9579/ /SET H/, AND 12 CHARACTERS/INCH SPACING /NO. 9105/., 1056 CARD READER MODEL 1 WITH EXTENDED CHARACTER READING /NO. 3861/. OPTIONAL FEATURES WHICH SHOULD BE CONSIDERED FOR 1050 TERMINALS ARE- AUTOMATIC EOB /NO. 1313/, KEYBOARD REQUEST /NO. 4770/, LINE CORRECTION /NO. 4795/, 13-1/8 INCH PIN FEED PLATEN /NO. 9509/, AND RED/BLACK RIBBON. 1974-II TERMINALS- 1974-II DATA TRANSMISSION PROCESSOR TERMINAL /RPQ 810248/ WITH THE CARD IMAGE SPECIAL FEATURE AND RPQ 843042., 1980-7 PRINTER WITH SELECTIVE CHARACTER SET /H-52 CHARACTERS/., 1442 CARD READ PUNCH MODEL 1 OR 2 WITH RPQ 843040.
NOTE- IT SHOULD BE EMPHASIZED THAT STS IS DEPENDENT UPON DCOS VERSION 1, MODIFICATION LEVEL 2, FOR ITS OPERATION. IF THERE ARE FUTURE VERSIONS OR MODIFICATION LEVELS OF DCOS THEN IT IS POSSIBLE THAT MODIFICATIONS WOULD HAVE TO BE MADE TO ADAPT THE STS SYSTEM TO THE NEW DCOS VERSION. ADEQUATE TIME BEFORE EQUIPMENT INSTALLATION SHOULD BE ALLOCATED SO THAT SUCH MODIFICATIONS, AS NECESSARY MAY BE MADE.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD. THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP...APPLICATION DIRECTORY... APPLICATION DESCRIPTION...TERMINAL USERS MANUAL-1050... SYSTEM PROGRAMMERS MANUAL...OPERATORS GUIDE...SYSTEMS MANUAL...TERMINAL USERS MANUAL-1974-II.
MACHINE READABLE - ONE REEL OF MAGNETIC TAPE CONTAINING THE 7740 SYMBOLIC PROGRAM, 7040 SYMBOLIC PROGRAM, 1974-II SYMBOLIC PROGRAM, 1974-II OBJECT PROGRAM AND A SAMPLE PROBLEM.

CONTINUED FROM PRIOR PAGE--

OPTIONAL PROGRAM MATERIAL - A CARD DECK OF MNEMONIC OP CODES TO UPDATE 1401-AU-008 AUTOCODER FOR 1974-II ASSEMBLIES...ONE REEL OF MAGNETIC TAPE CONTAINING PROGRAM FLOWCHARTS.

7740-SV-160 COMMUNICATIONS CONTROL PACKAGE

ORDER THROUGH LOCAL IBM BRANCH OFFICE
SPECIFY FILE NUMBER 7740-SV-160

NUMBER 7740-SV-160, IS NOW AVAILABLE TO USERS OF 7740 SYSTEMS USING TWO 1311 DISK STORAGE DRIVES. IT HAS THE FEATURES PREVIOUSLY ANNOUNCED, INCLUDING THE OPTION TO ATTACH A 1400 OR 7000 SERIES SYSTEM.
FEATURES- THE MODULAR DESIGN OF THE COMMUNICATION CONTROL PACKAGE ENABLES THE USER TO ADD, SUBSTITUTE, OR ALTER SECTIONS OF THE PROGRAM, THUS TAILORING THE PACKAGE TO HIS SPECIFIC NEED. IT IS ASSEMBLED ON THE 1401 USING THE 7740 ASSEMBLY PROGRAM, NUMBER 1401-SP-156. VERSION 1 INCLUDES PROGRAMS THAT-
- QUEUE MESSAGES ON DISK
- CONTROL TRANSMISSION LINES AND TERMINALS
- HANDLE A MIX OF TERMINAL TYPES WITH A MIX OF TRANSMISSION CODES
- ROUTE MESSAGES TO VALID DESTINATIONS SPECIFIED IN THE MESSAGE HEADER
- PROVIDE DIAGNOSTIC AIDS AND SYSTEMS AWARENESS ROUTINES
- FACILITATE MESSAGE RETRIEVAL AND THE PROTECTION OF MESSAGES FROM LOSS OR ERROR
- HANDLE UNDELIVERABLE MESSAGES
- REPORT NETWORK STATUS TO OPERATOR
- PROVIDE 7740 COMMUNICATIONS WITH AN ATTACHED 1400 OR 7000 SERIES SYSTEM
- TAKE SYSTEM CHECK POINTS ON A 1311 DISK STORAGE DRIVE TO PROVIDE FOR SYSTEM RESTART

VERSION 2 OF THE 7740 COMMUNICATION CONTROL PACKAGE CONTAINS ALL THE FEATURES OF VERSION 1 PLUS THE ADDED CAPABILITIES FOR ONE TO FIVE 1311 DISK STORAGE DRIVES, OR A 7740 SYSTEM WITHOUT DISK BUT WITH AN ATTACHED 1400 OR 7000 SERIES SYSTEM. ALTHOUGH VERSION 2 IS IDENTIFIED BY A SINGLE PROGRAM NUMBER, IT CONSISTS OF EITHER A BASIC PACKAGE FOR DISK ORIENTED SYSTEMS OR AN OPTIONAL PACKAGE FOR HOST ORIENTED SYSTEMS. ONLY THE BASIC OR OPTIONAL PROGRAM MATERIAL NEED BE ORDERED FOR ANY SYSTEM.
THE BASIC PACKAGE FOR 7740 SYSTEMS WITH 1311 DISK STORAGE INCLUDES PROGRAMS THAT-
- CONTROL TRANSMISSION LINES AND TERMINALS
- HANDLE A MIX OF TERMINAL TYPES WITH A MIX OF TRANSMISSION CODES
- PROVIDE DIAGNOSTIC AIDS AND SYSTEMS AWARENESS ROUTINES
- FACILITATE THE PROTECTION OF MESSAGES FROM LOSS OR ERROR
- REPORT NETWORK STATUS TO OPERATOR
- PROVIDE 7740 COMMUNICATIONS WITH AN ATTACHED 1440 OR 7000 SERIES SYSTEM
- QUEUE MESSAGES ON DISK
- ROUTE MESSAGES TO VALID DESTINATIONS SPECIFIED IN THE MESSAGE HEADER
- FACILITATE MESSAGE RETRIEVAL
- HANDLE UNDELIVERABLE MESSAGES
- TAKE SYSTEM CHECKPOINTS ON A 1311 DISK STORAGE DRIVE TO PROVIDE FOR SYSTEM RESTART

THE OPTIONAL PACKAGE FOR 7740 SYSTEMS WITHOUT DISK, BUT WITH AN ATTACHED 1400 OR 7000 SERIES SYSTEM INCLUDES PROGRAMS THAT-
- CONTROL TRANSMISSION LINES AND TERMINALS
- HANDLE A MIX OF TERMINAL TYPES WITH A MIX OF TRANSMISSION CODES
- PROVIDE DIAGNOSTIC AIDS AND SYSTEMS AWARENESS ROUTINES
- FACILITATE THE PROTECTION OF MESSAGES FROM LOSS OR ERROR
- REPORT NETWORK STATUS TO OPERATOR
- PROVIDE 7740 COMMUNICATIONS WITH AN ATTACHED 1400 OR 7000 SERIES SYSTEM
- TRANSFER INCOMING MESSAGES TO AN ATTACHED 1400 OR 7000 SERIES SYSTEM FOR PROCESSING
- RECEIVE MESSAGES FROM AN ATTACHED 1400 OR 7000 SERIES SYSTEM FOR TRANSMISSION
- RETURN UNDELIVERABLE MESSAGES TO THE ATTACHED DATA PROCESSING SYSTEM

THE MODULAR DESIGN OF THE COMMUNICATION CONTROL PACKAGE ENABLES THE USER TO ADD, SUBSTITUTE, OR ALTER SECTIONS OF ANY PROGRAM, THUS TAILORING THE PACKAGE TO HIS SPECIFIC NEED. IT IS ASSEMBLED ON THE 1401 USING THE 7740 ASSEMBLY PROGRAM, NO. 1401-SP-156.
SYSTEM REQUIREMENTS-
MINIMUM- AN 8,192 WORD 7740 COMMUNICATION CONTROL SYSTEM... 1050 DATA COMMUNICATION SYSTEM AS A CONSOLE... 1311 DISK STORAGE DRIVE, /DISK ORIENTED SYSTEM/ OR A 1400 OR 7000 SERIES SYSTEM USED AS A HOST COMPUTER /HOST ORIENTED SYSTEM/.
OPTIONAL- A 16,384 WORD 7740 COMMUNICATION CONTROL SYSTEM... ADDITIONAL 1050 DATA COMMUNICATION SYSTEM USED AS REMOTE TERMINALS... TELEGRAPH TERMINALS OPERATING OVER HALF-DUPLEX OR FULL-DUPLEX LINES USING 5-LEVEL BAUDOT CODE... AN ATTACHED 1440 OR 7000 SERIES SYSTEM /HOST COMPUTER/ USED AS A TERMINAL IN CONJUNCTION WITH AS MANY AS FIVE 1311 DISK STORAGE DRIVES. THE COMMUNICATION BETWEEN THE HOST COMPUTER AND THE 7740 IS EFFECTED BY USING THE APPROPRIATE HOST COMPUTER IOCS.
THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH.
OPTIONAL MATERIAL REQUESTED MUST BE ITEMIZED ON THE ORDER CARD.

BASIC PROGRAM MATERIAL -
DOCUMENTATION - PROGRAM WRITE-UP... REFERENCE MANUAL.
MACHINE READABLE - THREE REELS OF MAGNETIC TAPE.
TAPE 1 CONTAINS CCP SOURCE TAPE FOR DISK-ORIENTED SYST.
TAPE 2 CONTAINS CCP ASSEMBLY LISTING FOR DISK-ORIENTED SYSTEM.
TAPE 3 CONTAINS CCP FLOWCHARTS FOR DISK-ORIENTED SYST.

OPTIONAL PROGRAM MATERIAL - ONE REEL - CCP SOURCE TAPE FOR HOST ORIENTED SYSTEMS... ONE REEL - CCP FLOW CHARTS AND ASSEMBLY LISTING FOR HOST ORIENTED SYSTEM.

WHEN ORDERING OPTIONAL MATERIAL, IT WILL BE ASSUMED THAT THE USER DOES NOT WANT THE BASIC MATERIAL, I.E., DISK-ORIENTED SYST.

0705

0705-01.1.002 SYMBOLIC ASSEMBLY FOR 1401
AVAILABLE 4TH QUARTER 1961.
SPECIFY FILE NUMBER 0705-01.1.002

AUTHORS..INTERNATIONAL HARVESTER COMPANY
SYSTEMS + DATA SERVICES
1601 WEST 22ND STREET
BROADVIEW, ILLINOIS

DIRECT INQUIRIES TO AUTHOR

TO ASSEMBLE 1401 PROGRAMS WRITTEN IN THE IBM SYMBOLIC LANGUAGE ON THE 705. THIS PROGRAM WAS WRITTEN BY E. I. DUPONT, AND MODIFIED FOR 754 TCU BY INTERNATIONAL HARVESTER.

0705-01.2.002 ADAPT 1401 COMPILER
AVAILABLE 4TH QUARTER 1961.
SPECIFY FILE NUMBER 0705-01.2.002

AUTHOR...R. G. BIZZELL
SOUTHERN RAILWAY COMPANY
15TH + K STREETS, N. W.
WASHINGTON, D. C.

DIRECT INQUIRIES TO AUTHOR

A COMPILER TO GENERATE 1401 CONDENSED PROGRAMS ON THE 705, MODEL II, USING EITHER 705 MACRO STATEMENTS OR A NEWLY DEVELOPED STATEMENT LANGUAGE. THE SOHIO 705 - 1401 ASSEMBLY IS INCORPORATED IN THE COMPILER.

0705-06.1.001 LINEAR PROGRAMMING
AVAILABLE 4TH QUARTER 1961.
SPECIFY FILE NUMBER 0705-06.1.001

AUTHOR...DAVID H. BROWN
ESSO STANDARD OIL COMPANY
BATON ROUGE, LA.

DIRECT INQUIRIES TO AUTHOR

PURPOSE SOLVING LINEAR PROGRAMMING PROBLEMS, AND PERFORMING ASSOCIATED MATRIX MULTIPLICATIONS 60TH ORDER.

0705-06.1.002 PRODUCT INVERSE LINEAR PROGRAMMING
AVAILABLE 4TH QUARTER 1961.
SPECIFY FILE NUMBER 0705-06.1.002

AUTHORS..H. E. CLAYTON D. M. SMITH

DIRECT INQUIRIES TO..
H. E. CLAYTON
ESSO STANDARD OIL COMPANY
LINDEN, NEW JERSEY

PURPOSE TO CALCULATE OPTIMUM SOLUTIONS FOR PROBLEMS INVOLVING UP TO 99 LINEAR CONSTRAINTS AND 120 VARIABLES. THE PROGRAM CONTAINS A PARTITIONING FEATURE USEFUL IN SOLVING BLOCK-TRIANGULAR /FOR INSTANCE, MULTI-GRADE BLENDING* PROBLEMS. MULTIPLE PROFIT FUNCTIONS AND/OR MULTIPLE REQUIREMENTS VECTORS CAN BE HANDLED.

0705-10.1.001 MATRIX INVERSION
AVAILABLE 4TH QUARTER 1961.
SPECIFY FILE NUMBER 0705-10.1.001

AUTHOR...F. R. PFAFF
ESSO STANDARD OIL COMPANY
LINDEN, N. J.

DIRECT INQUIRIES TO AUTHOR

PURPOSE TO INVERT A MATRIX AND/OR TO SOLVE SIMULTANEOUS LINEAR EQUATIONS.

0705-11.1.001 LEAST SQUARES POLYNOMIAL CURVE-FITTING ROUTINE
AVAILABLE 4TH QUARTER 1961.
SPECIFY FILE NUMBER 0705-11.1.001

AUTHOR...W. R. BRITTENHAM
A. O. SMITH CORPORATION
EDP SYSTEMS
3533 N. 27TH ST.
MILWAUKEE 1, WISCONSIN

DIRECT INQUIRIES TO AUTHOR

PURPOSE TO PRODUCE THE COEFFICIENTS OF THAT POLYNOMIAL WHICH FITS GIVEN DATA IN THE LEAST SQUARES SENSE, AND TO PLOT THAT POLYNOMIAL AND THE GIVEN POINTS GRAPHICALLY ON THE PRINTER. THE PROGRAM MAKES LOGARITHMIC TRANSFORMATIONS ON GIVEN DATA WHEN REQUIRED.

0705-11.3.001 STEPWISE REGRESSION
AVAILABLE 4TH QUARTER 1961.
SPECIFY FILE NUMBER 0705-11.3.001

AUTHORS..W. G. HYDE F. R. PRAFF R. W. SCHRAGE
D. M. SMITH W. E. ZIEMAN

DIRECT INQUIRIES TO..
W. G. HYDE
ESSO STANDARD OIL COMPANY
LINDEN, NEW JERSEY

CONTINUED FROM PRIOR COLUMN--

PURPOSE TO DEVELOP AN EQUATION EXPRESSING A DEPENDENT VARIABLE, Y, AS A FUNCTION OF AS MANY AS 50 INDEPENDENT VARIABLES, MULTIPLY REGRESSION ANALYSIS.

1410

1410-01.3.001 SYSTEMS CONTROL PROGRAM
AVAILABLE 2ND QUARTER 1965.
SPECIFY FILE NUMBER 1410-01.3.001

AUTHORS..WILLIAM L. HANLEY RICHARD I. SYMONS

DIRECT INQUIRIES TO..
WILLIAM L. HANLEY
IBM CORP.
GP PLANT - DEPT. 728
SAN JOSE, CALIF.

THIS APPLICATION CONSISTS OF TWO SEPARATE PROGRAMS. THE FIRST PROGRAM WILL DEVELOP A SYSTEMS TAPE USING OBJECT PROGRAMS COMPILED IN 1410 IOCS, 1410 COBOL, 1410 AUTOCODER OR 1410 FORTRAN LANGUAGES. THE SECOND PROGRAM IS THE RESIDENT MONITOR THAT ACTUALLY CONTROLS THE USE OF THE SYSTEMS TAPE DURING PROCESSING TIME.
TO MAINTAIN AND UPDATE THE MONITOR REQUIRES A 1410 WITH A MINIMUM CONFIGURATION OF TWO TAPE DRIVES AND A 1402 CARD READER. IF PRINTING OF THE PROGRAM TAPE IS DESIRED, THE SYSTEM MUST ALSO HAVE A 1403 PRINTER. THE MAINTENANCE PROGRAM MAY BE RUN ON A 1401 WITH 2000 POSITIONS OF STORAGE OR THE 1410 WITH 1401 COMPATABILITY SWITCH ON.
THE MAINTENANCE PROGRAM WAS WRITTEN IN 1401 AUTOCODER LANGUAGE, NON IOCS AND THE 1410 MONITOR PROGRAM WAS WRITTEN IN 1410 AUTOCODER LANGUAGE, NON IOCS.

1410-01.9.001 AUTOCODER MACROS
AVAILABLE 2ND QUARTER 1964.
SPECIFY FILE NUMBER 1410-01.9.001

AUTHOR...BARBARA SEWARD

DIRECT INQUIRIES TO..
IVAN KEITHLEY
IBM CORP.
100 SOUTH WACKER DRIVE
CHICAGO 6, ILL.

TO ELIMINATE CODING ERRORS AND SIMPLIFY CODING ON THE 1410. CONFIGURATION- ANY 1410 THAT USES 1410 AUTOCODER. STORAGE REQUIREMENTS- THESE VARY AND ARE LISTED INDIVIDUALLY FOR EACH MACRO IN THE CODING DESCRIPTION.

1410-02.4.002 GENERALIZED EXTRACTION PROGRAM--1410/7010 *N
AVAILABLE 2ND QUARTER 1968.
SPECIFY FILE NUMBER 1410-02.4.002

AUTHOR...MR. W. BUFFA

DIRECT INQUIRIES TO..
MR. W. BUFFA,IBM CORP.,112 E. POST RD.,
WHITE PLAINS, N.Y. 10601

THE GENERALIZED EXTRACTION PROGRAM- A SELF-MODIFYING UTILITY PROGRAM, WRITTEN FOR THE 1410/7010 OPERATING SYSTEM, WHICH WILL EXTRACT OR DELETE RECORDS FROM ANY TAPE FILE BASED ON THE RESULTS OF TABLE SEARCHING AND/OR RANGE TESTING IN ACCORDANCE WITH SPECIFICATIONS SUBMITTED THROUGH THE USE OF CONTROL CARDS. THE OUTPUT FILE CAN BE IN THE SAME FORMAT AS THE INPUT DATA OR IT CAN BE REFORMATTED AND, IN EITHER CASE, ADDITIONAL CONSTANT INFORMATION MAY BE PLACED INTO IT. ADDITIONAL OPTIONS PERMIT THE USER TO GENERATE CONTROL TOTALS ON INPUT AND OUTPUT, CONTROL OUTPUT BLOCKING FACTOR, AND TO SPECIFY PROCESSING LIMITS AND RANDOM SELECTION OF INPUT DATA. THE PROGRAM WILL GENERATE INPUT AND OUTPUT RECORD COUNTS, AND OUTPUT FILE NINES PADDING IF REQUIRED.

PROGRAMMING LANGUAGE- SOURCE-AUTOCODER.

MINIMUM SYSTEM REQUIREMENTS- THE GENERALIZED EXTRACTION PROGRAM--1410/7010, GENEXT, REQUIRES AN IBM 1410 SYSTEM WITH 80,000 POSITIONS OF CORE STORAGE, THREE 729 TAPE UNITS IN ADDITION TO 1410 OPERATING SYSTEM REQUIREMENTS.

NOTES- THE BASIC PROGRAM MATERIAL CAN BE OBTAINED ON ONE 7-TRACK DTR. THE DTR WILL BE SUPPLIED BY PID - NO TAPE SUBMITTAL IS REQUIRED.

1410-03.5.002 FORTRAN SUBROUTINES FOR USING 1301 DISK AS WORK FILES UNDER OP/SYS PR-155
AVAILABLE 1ST QUARTER 1967.
SPECIFY FILE NUMBER 1410-03.5.002

AUTHOR...MR. G.L. JACKSON

DIRECT INQUIRIES TO..
MR. G.L. JACKSON,IBM CORP.,P.O. BOX 567,3610 14TH ST.,
RIVERSIDE, CALIF. 92502

THESE SUB-ROUTINES ARE DESIGNED TO PERMIT USE OF 1301 DISK AS AUXILIARY STORAGE WITH 1410 FORTRAN UNDER OP/SYS PR-155. SOME OF THE BENEFITS TO BE GAINED FROM THEIR USE ARE-
- GREATER CAPACITY FOR STORING ARRAYS.
- ELIMINATION OF TAPES AS WORK FILES.
- ALLOWS AN INPUT DATA FILE TO BE STORED, SORTED, AND USED, YET RETAINED FOR OTHER SUBSEQUENT PROCESSING.
- DATA WILL BE BLOCKED, THEREFORE FASTER THROUGHPUT CAN BE EXPECTED.

OF PRIME CONSIDERATION IN DEVELOPING THESE ROUTINES WAS THE REQUIREMENT FOR BATCH FORTRAN JOBS TO BE SENT IN OVER A T/P LINE WITHOUT THE NEED FOR OPERATOR ATTENTION. OPERATING IN A DISK-ORIENTED 1410 OP/SYS. PR-155, DATA FROM ANY TYPE OF RUN CAN BE PLACED IN DISK WHERE IT CAN BE OPERATED ON BY A FORTRAN JOB. THE AMOUNT OF ARRAYED DATA THAT CAN BE STORED IS LIMITED ONLY BY THE AMOUNT OF DISK SPACE MADE

CONTINUED FROM PRIOR PAGE--
AVAILABLE. MACHINE CONFIGURATION - 1410 60K OR 80K WITH 1301 DISK FILE. THE PR-155 OPERATING SYSTEM MUST BE DISK ORIENTED. TWO AREAS OF DISK FORMATTED 1 X 2800 MUST BE AVAILABLE FOR GENERAL USE. /NOTE- THE AREAS USED IN TEST VERSION WERE TEN CYLINDERS EACH/.

1410-03.9.002 SORT TIMING PROGRAM
AVAILABLE 3RD QUARTER 1963.
SPECIFY FILE NUMBER 1410-03.9.002

AUTHOR...MARSHALL PINE
IBM CORPORATION
P.O. BOX 5200
INGLEWOOD, CALIFORNIA

DIRECT INQUIRIES TO AUTHOR

THE FUNCTION OF THE 1410 SORT TIMING PROGRAM IS TO CALCULATE TIMING ESTIMATIONS FOR SORTING APPLICATIONS ON THE IBM 1410 DATA PROCESSING SYSTEM. THE TIMING ESTIMATIONS CAN BE FOR EITHER 1410 SORT/MERGE 11 OR 1410 SORT/MERGE 12. THE TIMING FORMULAS USED BY THE PROGRAM ARE THOSE PUBLISHED IN TECHNICAL NEWSLETTERS N28-1019 AND N28-1020 AND INCLUDE THE FORMULAS PUBLISHED IN THE SORT/MERGE 12 TIMING TABLES /C28-0293/ FOR MULTIPLE CONTROL FIELDS. IN ADDITION TO THE CALCULATION OF TIMING ESTIMATIONS, THE PROGRAM CAN ALSO DEVELOP AN OPTIMIZING FACTOR FOR THE INTERNAL SORT FACTOR-G, AND IT CAN TAKE INTO CONSIDERATION THE ACCELERATOR SPECIAL FEATURE.

1410-12.9.002 INSTALLMENT PURCHASE PLAN FOR STATE AND LOCAL GOVERNMENT
AVAILABLE 2ND QUARTER 1967.
SPECIFY FILE NUMBER 1410-12.9.002

AUTHOR...MR. J.R. HENRY

DIRECT INQUIRIES TO..
MR. J.R. HENRY,IBM CORP.,101 E. MILLER ST.,
JEFFERSON CITY, MO. 65101

THIS PROGRAM CALCULATES THE INSTALLMENT PAYMENTS UNDER THE STATE AND LOCAL GOVERNMENT INSTALLMENT PURCHASE PLAN. IT CALCULATES AND APPLIES TOWARD PURCHASE ANY OPTION DEPOSIT AND/OR OPTION CREDITS WHICH ARE APPLICABLE. IT WILL ACCEPT ANY ANNUAL OR BIENNIAL FISCAL PERIOD AND WILL CALCULATE INSTALLMENT PAYMENTS OVER ANY PERIOD OF TIME UP TO 60 MONTHS IN LENGTH. MAINTENANCE COSTS ARE TAKEN INTO ACCOUNT DURING THE PURCHASE PERIOD. AN IMPORTANT FEATURE OF THE PROGRAM IS THE COMPARISON OF LEASE COSTS VERSUS PURCHASE COSTS. THE DOWN PAYMENT, DEPOSIT, INSTALLMENT PAYMENTS, AND MAINTENANCE COSTS ARE SUMMED UP AND AN AVERAGE MONTHLY COST IS CALCULATED. COMPARABLE TOTALS AND AVERAGES FOR STRAIGHT-OUT LEASE ARE PRINTED ALONGSIDE THE PURCHASE FIGURES, THUS GIVING A QUICK ACCURATE VISUAL COMPARISON. THE REQUIRED CONFIGURATION IS A 40K 1410 WITH 4 TAPE DRIVES, A CARD READER AND A PRINTER. THE PROGRAM IS WRITTEN IN FORTRAN IV.

1410-14.9.001 CRITICAL PATH - MANPOWER AND RESOURCES SCHEDULING
AVAILABLE 1ST QUARTER 1965.
SPECIFY FILE NUMBER 1410-14.9.001

AUTHORS..R.A. ROOT R.E. MEYERS

DIRECT INQUIRIES TO..
R.A. ROOT
IBM CORP.
3424 WILSHIRE BOULEVARD
LOS ANGELES, CALIF. 90005

THIS IS A SYSTEM COMPRISED OF SEVERAL PROGRAMS. THESE PROGRAMS EDIT INPUT DATA, CALCULATE CRITICAL PATH, MANPOWER AND RESOURCES SCHEDULES, AND GENERATE REPORTS AS DESIRED. THE SYSTEM WILL HANDLE UP TO 10,000 NODES, 0001 THROUGH 9999. IT ACCOMODATES A MINIMUM OF 300 JOBS IN WAITING OR IN PROGRESS AT ANY GIVEN TIME. SIXTY-THREE CRAFTS, EACH WITH THREE SHIFT POOLS, ARE AVAILABLE. MINIMUM CONFIGURATION IS 40K, 1410, SIX TAPES, 1402, AND 1403. ALL PROGRAMS ARE CODED FOR 1410/7010 OPERATING SYSTEM. TAPES MAY BE SUBSTITUTED FOR 1402 AND 1403. USED WITH 1301 DISK FILE THREE TAPES, 1402 AND 1403 /OR TWO TAPES/ ARE REQUIRED. SAMPLE PROBLEM ILLUSTRATES ALL OUTPUT REPORTS.
THE TWO REELS OF TAPE REQUIRED TO OBTAIN THE BASIC PROGRAM MATERIAL MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH.

7070

CONTINUED FROM PRIOR COLUMN--
MACRO FORMAT IS USED FOR CONDITION STATEMENTS- THE LAST LINE OF EACH OF THESE MACROS IS LIMITED TO COLUMN 57 /WITHOUT YES-NO EXITS/. COMMENT CARDS MAY BE USED TO HEAD A TABLE BUT MAY NOT BE USED IN THE CONDITION STUB OR BEFORE THE FIRST ACTION STATEMENT. STORAGE REQUIREMENTS- 7070 DECISION TABLE ASSEMBLER - 4886 WORDS. 1401 DECISION TABLE LIST PROGRAM - 1555 POSITIONS CORE. EQUIPMENT SPECIFICATIONS- 5K 7070 W/6 TAPE UNITS. 4K 1401, HI-LO-EQUAL COMPARE, SENSE SWITCHES, 1402 CARD READER PUNCH.
THE ONE REEL OF TAPE REQUIRED TO OBTAIN THE BASIC PROGRAM MATERIAL MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED. THE TAPE PROVIDED MUST BE 2400 FEET IN LENGTH.

7070-01.9.005 TAXIS
AVAILABLE 1ST QUARTER 1963.
SPECIFY FILE NUMBER 7070-01.9.005

AUTHOR...J. K. KAUFMAN
IBM CORPORATION
618 SOUTH MICHIGAN
CHICAGO 5, ILLINOIS

DIRECT INQUIRIES TO AUTHOR

TO PERFORM CRITICAL PATH ANALYSIS OVER NETWORKS OF UP TO 2000 ACTIVITIES, INVOLVING NO MORE THAN 1000 EVENTS OR NODES. 10 K MEMORY, 7501 CONSOLE CARD READER, 8 TAPES, FOUR ON EACH OF 2 CHANNELS. TAXIS INCLUDES AN UPDATING ROUTINE /TO INTRODUCE CHANGES INTO ANY NUMBER OF OLD NETWORKS/. THE PROCESSED NETWORKS ARE SORTED UP TO 5 TIMES BY KEYS DEFINED BY THE USER, AND WRITTEN IN EDITED FORM FOR LISTING. ESTIMATED TIME FOR A COMPLETE RUN OF 500 ACTIVITIES INCLUDING 2 SORTS IN SLIGHTLY LESS THAN 3 MINUTES. THE INPUT ORDER IS ENTIRELY INDEPENDENT OF NETWORK TOPOLOGICAL ORDER, AND EVENT DESIGNATIONS ARE NAMES /OF UP TO 10 CHARACTERS/ RATHER THAN SERIAL NUMBERS.

THE ONE REEL OF TAPE REQUIRED TO OBTAIN THE BASIC PROGRAM MATERIAL MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED. THE TAPE PROVIDED MUST BE 2400 FEET IN LENGTH.

7070-01.9.007 LOOP MACRO
AVAILABLE 2ND QUARTER 1964.
SPECIFY FILE NUMBER 7070-01.9.007

AUTHOR...D.R. FITZWATER

DIRECT INQUIRIES TO..
THOMAS R. JOHNSTON
AMES LABORATORY
IOWA STATE UNIVERSITY
AMES, IOWA

THE LOOP MACRO WILL GENERATE THE APPROPRIATE AUTOCODER INSTRUCTIONS TO INCREMENT AND TEST FOR BRANCHING, THE SUBSCRIPTED VARIABLES DEFINED BY THE PROGRAMMER OR BY THE INDEX MACRO. MACHINE REQUIREMENTS- IBM 7070/2/4 WITH MAXIMUM OF 10,000 WORDS OF CORE AND AUTOCODER 76 COMPILATION CAPABILITY.

7070-02.5.002 7070/7074 TABLE LOOK UP MACRO FOR THE IBM 7074
AVAILABLE 1ST QUARTER 1965.
SPECIFY FILE NUMBER 7070-02.5.002

AUTHORS..R. CAUCHE C. PERRIER

DIRECT INQUIRIES TO..
R. CAUCHE
IBM CORP.
PARIS 1 BRANCH 96
RUE REAUMUR
PARIS, FRANCE

THIS MACRO GENERATES A SEARCH OF A TABLE OF FIXED OR VARIABLE LENGTH IN ASCENDING SEQUENCE.
IF THE TABLE INCLUDES MORE THAN 100 ARGUMENTS, THE SEARCH STARTS BY BINARY SEARCH WITH A DECREMENT COMPUTED. IT ENDS BY A BASIC 7070 TABLE LOOK UP INSTRUCTION WHEN THE DURATION OF THIS CODE IS LOWER THAN THE NECESSARY TIME TO EXTINGUISH THE TABLE BY THE BINARY SEARCH METHOD. MINIMUM MACHINE CONFIGURATION FOR FULL AUTOCODER. SOURCE LANGUAGE IS MACRO GENERATOR AND FULL AUTOCODER.

7070-02.9.002 LURE -- LIBRARY UPDATING ROUTINE PACKAGE
AVAILABLE 1ST QUARTER 1963.
SPECIFY FILE NUMBER 7070-02.9.002

AUTHORS..DAVID FORST JEAN LISKA

DIRECT INQUIRIES TO..
DAVID FORST
IBM CORP.
N.Y. FINANCIAL OFFICE
2 BROADWAY
NEW YORK, N.Y.

TO GENERATE, MAINTAIN, UPDATE AND DOCUMENT A 7070 LIBRARY TAPE. 1401 MODEL C WITH NO ADVANCED PROGRAMMING OR HIGH-LOW-EQUAL COMPARE FEATURE. A 7070-7074 WITH TWO OR MORE CHANNELS, A MINIMUM OF 4 TAPE DRIVES AND A CONSOLE CARD READER.

THE ONE REEL OF TAPE REQUIRED TO OBTAIN THE BASIC PROGRAM MATERIAL BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED. THE TAPE PROVI MUST BE 2400 FEET IN LENGTH.

7070-03.2.003 TOPSY - TAPE OPERATING SYSTEM
AVAILABLE 1ST QUARTER 1964.
SPECIFY FILE NUMBER 7070-03.2.003

AUTHOR...J.M. GIFFIN

CONTINUED FROM PRIOR PAGE--

DIRECT INQUIRIES TO..
J.A. FLINT
IBM CORP.
202 N.E. MONROE ST.
PEORIA, ILL.

TOPSY IS A TAPE-ORIENTED SUPERVISORY CONTROL SYSTEM WHICH PERMITS USERS TO SEARCH, LOAD, AND EXECUTE PROGRAMS FROM MULTIPLE SOURCES WITH A MINIMUM OF MANUAL INTERVENTION. IT IS DESIGNED TO SCHEDULE THE OPERATION OF A NUMBER OF INDIVIDUAL AND POSSIBLY UNRELATED PROGRAMS AS A CONTINOUS FLOW WORK THROUGH THE COMPUTER, AND TO MAINTAIN A DESCRIPTIVE CONSOLE LOG OF THE WORK FLOW. LOADING AND EXECUTION OF PROGRAMS MAY BE INITIATED BY AN OPERATING STATEMENT READ FROM ANY INPUT DEVICE, OR A PROGRAMMED ENTRY. PROGRAM SEARCHING OF THE SYSTEM TAPE IS BI-DIRECTIONAL AND MAY OPERATE CONCURRENTLY WITH OTHER PROGRAMS.

REQUIRES A 7070/2/4 WITH 3 TAPES, OR 2 TAPES AND A CARD READER, PLUS 2 MORE TAPES FOR TOPSY MAINTENANCE, AND A 1401 PERIPHERAL COMPUTER. RESERVED FOR THE EXCLUSIVE USE OF THE SYSTEM ARE- 190 WORDS OF STORAGE, INDEX WORDS 1, 2, 95, AND 96-PRIORITY BRANCH LOCATION 0159-AND LOCATION 0000. WRITTEN IN AUTOCODER.

BASIC PROGRAM CONSISTS OF TWO TAPES---TAPE 1 CONTAINS THE TOPSY SYSTEM AND TAPE 2 CONTAINS SOURCE CARDS AND ASSEMBLY LISTINGS. THE NUMBER OF TAPES INDICATED MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPES PROVIDED MUST BE 2400 FEET IN LENGTH.

7070-03.9.001 INVALID ALPHA SEARCH PROGRAM FOR TAPE CHECKPOINT WRITE FAILURES FOR 7070/72/74
AVAILABLE 2ND QUARTER 1963.
SPECIFY FILE NUMBER 7070-03.9.001

AUTHOR...ROY W. MAYBERRY
IBM CORP.
424 S. MONROE AVE.
GREEN BAY, WISCONSIN

DIRECT INQUIRIES TO AUTHOR

TO LOCATE ANY ILLEGAL ALPHA CHARACTERS PRESENT IN MEMORY WHEN A USERS PROGRAM HAS BEEN INTERRUPTED BY REPEATED WRITE FAILURES AT TAPE CHECKPOINT. THE CHECK FOR ILLEGAL ALPHA CHARACTERS AT CHECKPOINT WRITE FAILURES IS NOT PROVIDED BY IOCS. THE SEARCH PROGRAM IS LOADED AND EXECUTED IN MEMORY WORDS NOT NORMALLY EMPLOYED BY MOST USER OPERATING PROGRAMS, THUS PERMITTING THE CONTINUATION OF THE INTERRUPTED PROGRAM AFTER THE ILLLEGAL ALPHA CHARACTERS HAVE BEEN CORRECTED. THE INVALID ALPHA SEARCH PROGRAM ASSUMES THE FOLLOWING- 1. A MEMORY SIZE OF 10K. 2. THE INTERRUPTED PROGRAM CONTAINS A UTILITY LOAD PROGRAM IN MEMORY LOCATIONS 0308-0232 AND HAS RESERVED INDEX WORDS 0001 AND 0002 FOR USE BY THE LOAD PROGRAM. 3. THE INTERRUPTED PROGRAM DOES NOT USE MEMORY LOCATIONS 0200-0299 WITH THE EXCEPTION OF 7300 DISK STORAGE PRIORITY STATUS AND BRANCH LOCATIONS. THE ABOVE ASSUMPTIONS MAY BE READILY ALTERED BY THE USER THROUGH ASSEMBLY OF THE SEARCH PROGRAM. MACHINE CONFIGURATIONS- 1. 7070/7072/7074. 2. 10K MAGNETIC CORE STORAGE. 3. CARD/TAPE OR TAPE ORIENTATED SYSTEM. SOURCE LANGUAGE IS AUTOCODER 76. PROGRAM EXECUTE TIME VARIES DIRECTLY WITH NUMBER OF ALPHA WORDS IN MEMORY. THE PROGRAM HAS BEEN THOROUGHLY TESTED OUT AND USED A NUMBER OF TIMES UNDER ACTUAL OPERATING CONDITION.

7070-03.9.004 SEAP- FILE SEARCH AND PRINT FOR THE IBM 7070/72/74
AVAILABLE 4TH QUARTER 1965.
SPECIFY FILE NUMBER 7070-03.9.004

AUTHORS..T. FUJITA Z. SHIMIZU

DIRECT INQUIRIES TO..
T. FUJITA
MITSUI MUTUAL LIFE INSURANCE CO.
OHTEMACHI, TOKYO, JAPAN

SEAP CAN SEARCH ANY TAPE FILE WITH FORM 1, 2 OR 3 TO EXTRACT THE RECORDS SATISFYING GIVEN CONDITIONS. THE CONDITIONS ARE GIVEN BY CONTROL CARDS AND THE OUTPUT IS DUMP LIST OF THE RECORDS FOUND. EACH CONDITION IS A LOGICAL STATEMENT CONCERNING DATA FIELDS WITHIN A RECORD. A SEQUENTIAL OR OTHER RELATIONAL STATEMENT BETWEEN DATA RECORDS IS NOT APPLICABLE TO THIS PROGRAM. ALSO, A RELATIONAL STATEMENT BETWEEN DATA FIELDS WITHIN A RECORD IS NOT APPLICABLE. THE MACHINE REQUIREMENTS ARE- AN IBM 7070/72/74 WITH 10,000 WORDS OF CORE, A MINIMUM OF TWO TAPE DRIVES AND AN IBM 7501 CONSOLE CARD READER.
OPTIONAL PROGRAM MATERIAL CONSISTS OF THE PROGRAM LISTINGS AVAILABLE ON ONE REEL OF MAGNETIC TAPE. THIS TAPE MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPE PROVIDED MUST BE 2400 FEET IN LENGTH.

7070-04.3.003 AUTO-TEST GENERATOR
AVAILABLE 3RD QUARTER 1963.
SPECIFY FILE NUMBER 7070-04.3.003

AUTHORS..W. CRANE H.N. FLIEGELMAN

DIRECT INQUIRIES TO..
W. CRANE
IBM CORPORATION
220 CHURCH ST.
NEW YORK, NEW YORK

THE ATG PROGRAM GENERATES TAPES FOR AUTOMATIC, TAPE-ORIENTED PROGRAM TESTING. IN DOING SO, ALL INPUT IS EDITED, CONTROL CARDS ARE CHECKED, AND DESIRED UITLITY PROGRAMS ARE COMBINED WITH THE USER/S PROGRAMS TO CREATE A SINGLE TAPE FOR QUICK, EFFICIENT, AND FLEXIBLE PROGRAM TESTING. MACHINE CONFIGURATION- MINIMUM 5K 7070, 72, 74 WITH ONE CHANNEL AND 3 TAPES.
MAXIMUM- 10K 7070, 72, 74 WITH 4 CHANNELS, 40 TAPES, 7500 CARD READER, 7501 CONSOLE CARD READER, 7550 CARD PUNCH, 7400 ON-LINE PRINTER. SOURCE LANGUAGE AUTOCODER 76. THIS PROGRAM REPLACES 7070-AT-083.

7070-06.1.003 PERT MANAGEMENT CONTROL SYSTEM
AVAILABLE 1ST QUARTER 1963.
SPECIFY FILE NUMBER 7070-06.1.003

AUTHOR...SHIRLEY INMAN
COMPUTER TECHNIQUES DEPT.
COLLINS RADIO COMPANY
CEDAR RAPIDS, IOWA

DIRECT INQUIRIES TO AUTHOR

PERT 7070 IS A MANAGEMENT CONTROL TOOL WHICH DEFINES AND INTEGRATES THOSE PROCEDURES NECESSARY TO ACCOMPLISH PROGRAM OBJECTIVES ON TIME. THE PROGRAM HAS SEVERAL UNIQUE FEATURES- /1/ THE OUTPUT HAS BEEN ORGANIZED TO INCORPORATE THE BEST ASPECTS OF BOTH EVENT-ORIENTED AND ACTIVITY-ORIENTED PRESENTATIONS- /2/ THOSE ACTIVITIES AND EVENTS ON THE SO-CALLED CRITICAL PATH ARE FLAGGED- /3/ THE PROGRAM PRINTS OUT FOR EACH EVENT OR ACTIVITY THE EXPECTED, LATEST AND COMPLETION DATES, THE ACTIVITY EXPECTED TIME, STANDARD DEVIATION OF THE ACTIVITY TIME ESTIMATES, ACTIVITY OR EVENT SLACK TIME, AND THE PROBABILITY OF COMPLETION OF AN EVENT OR SCHEDULE- /4/ IT HAS THE ABILITY TO PROCESS BOTH MULTIPLE START EVENTS AND MULTIPLE END EVENTS.

THE PERT PROGRAM REQUIRES AN IBM 7070 COMPUTER WITH A STORAGE CAPACITY OF TEN THOUSAND WORDS, FLOATING POINT HARDWARE, AND TWO TAPE CHANNELS, WITH AT LEAST TWO TAPE DRIVES AVAILABLE PER CHANNEL. THE LOAD AND PRINT ROUTINES FOR THE 1401 ARE NECESSARY ADJUNCTS TO THE PERT 7070 PROGRAM. THE 1401 SYSTEM REQUIRED FOR THESE PROGRAMS CONSISTS OF A MODEL C3 WITH A FOUR THOUSAND POSITION CORE STORAGE 1401, A 1402 CARD READ-PUNCH, AND A 1403 PRINTER WITH THE SPECIAL PRINTING CAPACITY OF 132 POSITIONS. THE FOLLOWING SPECIAL FEATURES ARE USED BY THE PROGRAMS- THE STORE ADDRESS REGISTER FEATURE- THE MOVE RECORD FEATURE- THE HIGH-LOW-EQUAL-COMPARE FEATURE- AND THE COMPRESSED TAPE OPERATIONS FEATURE.

7070-06.1.004 LINEAR PROGRAMMING CODE S2
AVAILABLE 1ST QUARTER 1963.
SPECIFY FILE NUMBER 7070-06.1.004

AUTHORS..A.R. WEISS D.C. POTTER A.E. SPECKHARD

DIRECT INQUIRIES TO..
T.B. GLANS
IBM CORP.
112 EAST POST ROAD
WHITE PLAINS, N.Y.

THE LP CODE S2 IS MEANT TO IMPLEMENT THE LINEAR PROGRAMMING REVISED SIMPLEX PRODUCT FORM ANALYSIS ON THE IBM 7070/74. 10K, 2 CHANNELS WITH THREE TAPE DRIVES EACH.

THE ONE REEL OF TAPE REQUIRED TO OBTAIN THE BASIC PROGRAM MATERIAL MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED. THE TAPE PROVIDED MUST BE 2400 FEET IN LENGTH.

7070-07.9.001 DATA PLOTTER
AVAILABLE 2ND QUARTER 1963.
SPECIFY FILE NUMBER 7070-07.9.001

AUTHOR...LEONARD SPAR

DIRECT INQUIRIES TO..
WILLIAM FAWLEY
MARATHON OIL CO.
PROCEDURES RESEARCH DEPARTMENT
FINDLAY, OHIO

TO PRODUCE AN ACCURATE PRINTED GRAPH IN A REASONABLY SHORT TIME FROM NUMERICAL DATA STORED ON MAGNETIC TAPE. THE 7074 PROGRAM CONSISTS OF A MAIN PROGRAM AND FIVE SUBROUTINES. THIS PROGRAM CONVERTS THE DATA UNDER A WIDE RANGE OF OPTIONS TO GRAPHICAL FORM, AND WRITES THE GRAPH AS RECORDS ON MAGNETIC TAPE. THE 1401 PROGRAM CONVERTS THE RECORDS ON THE TAPE TO A PRINTED GRAPH. TIMING- 7074- APPROXIMATELY 30 SECONDS FOR A LARGE GRAPH /600 POINTS/, 5 SECONDS FOR A SMALL GRAPH /60 POINTS/. 1401- APPROXIMATELY 15 SECONDS FOR PRINTING EACH GRAPH.

7074- THE PROGRAM HAS BEEN DESIGNED FOR A TAPE ORIENTED, TWO CHANNEL, 10K CORE IBM 7074. THREE TAPE UNITS ARE REQUIRED FOR BASIC PROCESSING, BUT SIX UNITS ARE NEEDED IF ALL PROGRAM OPTIONS ARE TO BE USED.

1401- A TAPE 1401, EQUIPPED TO SUPPRESS THE PRINTER LINE ADVANCE ON COMMAND IS REQUIRED. A PRINT CHAIN EMPLOYING FIVE SPECIAL CHARACTERS IS NECESSARY FOR THE GRAPH PRINTING. A MAXIMUM OF 1500 POINTS AND FIVE CURVES MAY BE PLOTTED PER GRAPH. THE NUMBER OF GRAPHS TO BE PLOTTED IS NOT LIMITED AND PROVISION IS INCLUDED FOR FLIP-FLOP OF INPUT AND OUTPUT TAPES. TWO SEPARATE Y AXES ALLOW SIMULTANEOUS PLOTTING OF CURVES MEASURED BY DIFFERENT UNITS.

7070-08.1.010 ARCTANGENT SUBROUTINE
AVAILABLE 4TH QUARTER 1961.
SPECIFY FILE NUMBER 7070-08.1.010

AUTHOR...M. ROBERTS
AC SPARK PLUG DIV GMC
MILWAUKEE, WISCONSIN

DIRECT INQUIRIES TO AUTHOR

TO FIND ARCTAN OF ARGUMENT X WHERE X EQUALS Y/X FLOATING HARDWARE, 77 WORDS STORAGE INPUT MUST BE IN NORMALIZED FLOATING POINT NOTATION. ANSWER MAY BE IN EITHER DEGREES OR RADIONS. SIGNS OF Y/X WILL DETERMINE THE QUADRANT OF THE ANSWER.

7070-08.2.003 SUBROUTINE EN FOR IBM 7070
AVAILABLE 4TH QUARTER 1961.
SPECIFY FILE NUMBER 7070-08.2.003

CONTINUED FROM PRIOR PAGE--

AUTHOR...ROLLS ROYCE LTD.
P.O. BOX 31
DERBY ENGLAND

DIRECT INQUIRIES TO AUTHOR

A SUBROUTINE TO COMPUTE THE NATURAL ANTILOGARITHM TO 10 DECIMAL PLACES. THE METHOD IS DESCRIBED IN THE IBM JOURNAL OF RESEARCH AND DEVELOPMENT, APRIL 1957. THE RESULT WILL BE ACCURATE TO 1 IN THE 10TH SIGNIFICANT FIGURE.

7070-08.3.003 NTH ROOT OF X
AVAILABLE 4TH QUARTER 1961.
SPECIFY FILE NUMBER 7070-08.3.003

AUTHOR...ROLLS ROYCE LTD.
P.O. BOX 31
DERBY ENGLAND

DIRECT INQUIRIES TO AUTHOR

A SUBROUTINE TO COMPUTE ANY INTEGRAL, FOUR DIGITS, ROOT OF A SINGLE PRECISION FIXED POINT ARGUMENT. NEWTONS ITERATION PROCESS IS USED. THE ARGUMENT MUST BE POSITIVE AND LESS THAN 1. THE MAXIMUM ERROR IS ABOUT 5 IN THE 10TH DECIMAL PLACE.

7070-09.1.001 7070 POLYNOMIAL ROOT EXTRACTION /TIREX/
AVAILABLE 3RD QUARTER 1962.
SPECIFY FILE NUMBER 7070-09.1.001

AUTHOR...GEORGE E. PRIEST
TEXAS INSTRUMENTS
TECHNICAL COMPUTATIONS
P. O. BOX 5474
DALLAS 22, TEXAS

DIRECT INQUIRIES TO AUTHOR

THIS ROUTINE IS DESIGNED TO SOLVE FOR ALL ZEROS /ROOTS/ OF A POLYNOMIAL IN ONE UNKNOWN WITH REAL COEFFICIENTS. AS THE SOURCE DECK STANDS IT CALLS FOR ONE CARD READER /ALPHA/ AND ONE MAGNETIC TAPE ON UNIT 14. THIS MAY BE EASILY ALTERED IN THE SOURCE PROGRAM. THE ROUTINE REQUIRES 399 STORAGE LOCATIONS WHEN ASSEMBLED PLUS PACKAGE DECK AND SQUARE ROOT SUBROUTINE. THE ROUTINE IS DESIGNED FOR POLYNOMIAL WITH ONLY REAL COEFFICIENTS, HOWEVER IT SOLVES FOR BOTH REAL AND COMPLEX ROOTS.

7070-09.2.001 STEEPEST DESCENT SERIES /SDXX, SDXN, SDDE/
AVAILABLE 3RD QUARTER 1963.
SPECIFY FILE NUMBER 7070-09.2.001

AUTHORS..MR. DONALD I. RUBIN
AMERICAN CYANAMID COMPANY
SCIENTIFIC + TECHNICAL COMPUTING
DATA PROCESSING DIVISION
BERDAN AVENUE
WAYNE, NEW JERSEY

DIRECT INQUIRIES TO AUTHOR

DETERMINES VARIABLE PARAMETERS THAT WILL MINIMIZE A GIVEN FUNCTION. IN /SDXX/ THE FUNCTION IS EXPLICIT AND THE PARTIAL DERIVATIVES OF THE FUNCTION /TO BE MINIMIZED/ WITH RESPECT TO THE VARIABLES IS EXPLICIT. IN /SDXN/ THE PARTIAL DERIVATIVE OF THE FUNCTION WITH RESPECT TO THE VARIABLES IS COMPUTED NUMERICALLY. IN /SDDE/ THE FUNCTION IS DEFINED BY A SET OF DIFFERENTIAL EQUATIONS. SOURCE LANGUAGE- FORTRAN II

FILE #10.9.001 /MBLA/ /GFPA/ FILE #11.3.011 /PEXX/ /PEXN/ /PEDE/ CALL ON FILE #10.1.013 /MILE/ + FILE #10.1.014 /MATMU/. FILE #10.1.013 /MILE/ CALLS ON FILE #10.1.014 /MATMU/. FILE #09.2.001 /SDDE/ /SDXN/ FILE #11.3.011 /PEDE/ CALL ON FILE #09.3.004 /IRK/.

7070-10.1.010 MATRIX INVERSION SUBROUTINE /IBM 7074 FORTRAN/
AVAILABLE 3RD QUARTER 1962.
SPECIFY FILE NUMBER 7070-10.1.010

AUTHOR...R. M. DAVIS
ENGINEERING PROGRAMMING GROUP
HERCULES POWDER COMPANY
BACCHUS WORKS
MAGNA, UTAH

DIRECT INQUIRIES TO AUTHOR

A. PURPOSE THIS SUBROUTINE COMPUTES THE INVERSE OF A MATRIX. THIS SUBROUTINE REQUIRIES THE /SIMULTANEOUS EQUATION SOLVER SUBROUTINE/ /FILE NO 10.4.006/ ALSO CONTRIBUTED BY HERCULES POWDER COMPANY. THIS SUBROUTINE SOLVES FOR A UNIT MATRIX TO INVERT THE ORGINAL.
B. MACHINE REQUIREMENTS FLOATING POINT HARDWARDE
C. GENERAL DESCRIPTION THIS SUBROUTINE COMPUTES THE INVERSE BY USING THE GAUSS REDUCTION METHOD. THIS ROUTINE BUILDS A UNIT MATRIX AND CALLS THE PRIVIOUSLY MENTIONED SUBROUTINE TO SOLVE THIS SYSTEM. A PIVOT SEARCH IS USED TO GAIN ACCURACY AND TO PREVENT A DIVISION BY ZERO. IF ALL OF A COLUMN IS ZERO, AN ERROR MESSAGE IS TYPED ON THE CONSOLE.
D. CAPABILITIES AND LIMITATIONS THIS SUBROUTINE IS DIMENSIONED BY /1/ /VARIABLE DIMENSIONED/. EQUATIONS OF THE FORM SUBSCRIPT EQUALS ROW PLUS /NUMBER OF ROWS/ /COLUMN - 1/ ARE USED TO DIRECT THE SUBROUTINE TO USE THE CORRECT ELEMENTS OF THE ARRAY IN AN OPERATION. RESTRICTIONS ON THE ORDER OF THE MATRIX DEPENDS UPON CORE STORAGE.

7070-10.1.013 MATRIX INVERSION AND LINEAR EQUATIONS /MILE/
AVAILABLE 3RD QUARTER 1963.

CONTINUED FROM PRIOR COLUMN--
SPECIFY FILE NUMBER 7070-10.1.013

AUTHOR...DONALD I RUBIN
AMERICAN CYANAMID COMPANY
SCIENTIFIC + TECHNICAL COMPUTING
DATA PROCESSING DIVISION
BERDAN AVENUE
WAYNE, NEW JERSEY

DIRECT INQUIRIES TO AUTHOR

THE MATRICES CAN BE DEFINED AS BEING IMBEDDED IN LARGER MATRICES. IT CALCULATES WITH ERROR CONTROL. SOURCE LANGUAGE- FORTRAN II.

FILE #10.9.001 /MBLA/ /GFPA/ FILE #11.3.011 /PEXX/ /PEXN/ /PEDE/ CALL ON FILE #10.1.013 /MILE/ + FILE #10.1.014 /MATMU/. FILE #10.1.013 /MILE/ CALLS ON FILE #10.1.014 /MATMU/. FILE #09.2.001 /SDDE/ /SDXN/ FILE #11.3.011 /PEDE/ CALL ON FILE #09.3.004 /IRK/.

7070-10.1.015 PRINCIPAL COMPONENTS FACTOR ANALYSIS
AVAILABLE 4TH QUARTER 1963.
SPECIFY FILE NUMBER 7070-10.1.015

AUTHOR...A.W. BENDIG
DEPARTMENT OF PSYCHOLOGY
UNIVERSITY OF PITTSBURGH
PITTSBURGH 13, PENNSYLVANIA

DIRECT INQUIRIES TO AUTHOR

COMPUTES THE LARGEST LATENT ROOT AND ASSOCIATED VECTOR OF THE MATRIX USING AN ITERATION PROCEDURE DEVELOPED BY PAUL HORST, REDUCES THE RANK OF THE MATRIX BY ONE, COMPUTES THE SECOND LARGEST ROOT AND VECTOR, ETC. PROCESS CONTINUES UNTIL A FIXED NUMBER OF ROOTS AND VECTORS ARE COMPUTED OR UNTIL THE MAGNITUDE OF A ROOT IS LESS THAN ONE. MATRIX DIAGONAL ELEMENTS MAY BE READ IN OR THE PROGRAM WILL INSERT UNITIES INTO THE DIAGONALS. LATENT ROOTS AND VECTORS OF FACTOR LOADINGS /LATENT VECTORS MULTIPLIED BY THE SQUARE ROOT OF THE ASSOCIATED LATENT ROOTS/ ARE PRINTED OUT TO THREE DECIMAL PLACES AND THE LOADINGS ARE ALSO PUNCHED OUT ON CARDS. ALL COMPUTATIONS ARE IN FIXED-POINT ARITHMETIC. MACHINE REQUIREMENTS- 10K CORE STORAGE, THREE TAPE UNITS. SYMBOLIC DECK OPTIONAL. IT WILL BE FORWARDED ONLY WHEN SPECIFICALLY REQUESTED.

7070-10.4.006 SIMULTANEOUS EQUATION SOLVER SUBROUTINE SIMEQ /IBM 7074 FORTRAN/
AVAILABLE 1ST QUARTER 1963.
SPECIFY FILE NUMBER 7070-10.4.006

AUTHOR...MR. R.M. DAVIS
ENGINEERING PROGRAMMING GROUP
HERCULES POWDER COMPANY
BACCHUS WORKS
MAGNA, UTAH

DIRECT INQUIRIES TO AUTHOR

THIS SUBROUTINE COMPUTES THE SOLUTIONS OF N EQUATIONS AND N VARIABLES. IT WILL SOLVE FOR M COLUMNS OF CONSTANTS TO GIVE M SETS OF SOLUTIONS DURING ONE MACHINE COMPUTATION. GAUSS REDUCTION METHOD IS USED. CORE STORAGE IS THE ONLY RESTRICTION, SINCE VARIABLE DIMENSIONING IS USED.

7070-11.2.001 AUTO-COVARIANCE, POWER SPECTRUM
AVAILABLE 2ND QUARTER 1962.
SPECIFY FILE NUMBER 7070-11.2.001

AUTHOR...TERRY P. KINNEY
AC SPARK PLUG DIV. GMC
MILWAUKEE, WISCONSIN

DIRECT INQUIRIES TO AUTHOR

A PRE-ASSEMBLED PROGRAM TO CALCULATE THE AUTO COVARIANCE COEFFICIENTS OF A SET OF DATA POINTS TAKEN AT EQUAL INTERVALS. OPTIONS ARE PROVIDED TO TAKE FIRST DIFFERENCES, REMOVE THE MEAN, REMOVE A LEAST SQUARES REGRESSION LINE, AND TO CALCULATE THE POWER SPECTRUM DENSITY COEFFICIENTS. A METHOD TO SCALE THE DATA IS ALSO PROVIDED. FLOATING POINT HARDWARE, TWO TAPE CHANNELS WITH TWO TAPE UNITS ON CHANNEL 1 AND THREE TAPE UNITS ON CHANNEL 2, 16K STORAGE. THE METHOD USED IS TUKEY S METHOD AS PRESENTED IN THE /THE SAMPLING THEORY OF POWER SPECTRUM EXTIMATES/, SYMPOSIUM ON APPLICATION OF AUTO-CORRELATION ANALYSIS TO PHYSICAL PROBLEMS, NAVEXOS P-735, OFFICE OF NAVAL RESEARCH, DEPT. OF THE NAVY, WASHINGTON D. C., 1949.

7070-11.2.002 AUTO-CORRELATION AND CROSS-CORRELATION PROGRAM
AVAILABLE 2ND QUARTER 1963.
SPECIFY FILE NUMBER 7070-11.2.002

AUTHOR...A.W. BENDIG
COMPUTATION + DATA PROCESSING CTR.
UNIVERSITY OF PITTSBURGH
PITTSBURGH 13, PENNSYLVANIA

DIRECT INQUIRIES TO AUTHOR

COMPUTES AUTOCORRELATION COEFFICIENTS FOR A SINGLE SERIES OF TIME-ORDERED MEASUREMENTS OR CROSSCORRELATION COEFFICIENTS BETWEEN TWO SEPARATE ORDERED SERIES. 5K CORE STORAGE, FLOATING-POINT HARDWARE, I/O TAPE UNITS OR ON-LINE CARD READER AND PRINTER. AUTOCODER-MACHINE LANGUAGE.

7070-11.3.001 STEPWISE MULTIPLE REGRESSION ANALYSIS, MR 1
AVAILABLE 3RD QUARTER 1962.
SPECIFY FILE NUMBER 7070-11.3.001

CONTINUED FROM PRIOR PAGE--

AUTHOR...GARY LOTTO
UNIVERSITY OF PITTSBURGH
COMPUTATION AND DATA PROC. CTR.
UNIVERSITY OF PITTSBURGH
PITTSBURGH 13, PENNSYLVANIA

DIRECT INQUIRIES TO AUTHOR

THIS PROGRAM WILL REPORT THE RESULTS OF A MULTIPLE REGRESSION ANALYSIS FOR UP TO 130 VARIABLES. INDEPENDENT VARIABLES ARE INTRODUCED ONE AT A TIME IN THE ORDER THAT THEY CONTRIBUTE TO REGRESSION ON THE DEPENDENT VARIABLE. THE PROGRAM IS WRITTEN FOR 10K MACHINE WITH FLOATING POINT HARDWARE. IT MAY BE MODIFIED FOR FIXED POINT HARDWARE, A 5K MACHINE, ETC. STORAGE USED IS A FUNCTION OF THE NUMBER OF VARIABLES INCLUDED. OUTPUT IS PRINTED OR PUNCHED. INPUT IS ON CARDS OR TAPE. THE PROGRAM WILL HANDLE UP TO 130 VARIABLES /APPROXIMATELY 85 VARIABLES ON A 5K MACHINE/. THE OPERATOR MAY, BY MANUAL INTERVENTION, PROHIBIT CERTAIN INDEPENDENT VARIABLES FROM ENTERING INTO REGRESSION, FORCE INCLUSION OR DELETION OF CERTAIN VARIABLES, CHANGE THE DEPENDENT VARIABLE, OR CHANGE THE SIGNIFICANCE LEVELS FOR INCLUSION OR DELETION AT ANY TIME.

7070-11.3.003 INTERCORRELATION MATRIX, CORR1
AVAILABLE 4TH QUARTER 1961.
SPECIFY FILE NUMBER 7070-11.3.003

AUTHOR...GARY LOTTO

DIRECT INQUIRIES TO..
UNIVERSITY OF PITTSBURGH
COMPUTATION AND DATA PROC. CTR.
UNIVERSITY OF PITTSBURGH
PITTSBURGH 13, PENNSYLVANIA

THIS PROGRAM WILL REPORT THE VECTOR OF MEANS AND STANDARD DEVIATIONS, THE NUMBER OF CASES, AND THE SYMMETRIC MATRIX OF CORRELATIONS BETWEEN EVERY VARIABLE AND EVERY OTHER OF A SET OF UP TO 130 VARIABLES. THE PROGRAM IS WRITTEN FOR A 10K MACHINE WITH FLOATING POINT HARDWARE AND 1 TAPE UNIT. IT MAY EASILY BE MODIFIED TO USE A 5K MACHINE, AND/OR NO FLOATING POINT HARDWARE /BY SUBROUNTINE SIMULATION/ WITH A SUBSEQUENT REDUCTION IN THE MAXIMUM NUMBER OF VARIABLES THAT MAY BE HANDLED AND WITH A POSSIBLE REDUCTION IN THE SPEED OF A PART OF THE PROGRAM. THE AMOUNT OF STORAGE USED IS A FUNCTION OF THE NUMBER OF VARIABLES INCLUDED. INPUT IS ON TAPE. OUTPUT IS PRINTED OR PUNCHED. THE PROGRAM WILL HANDLE UP TO 130 VARIABLES /APPROX. 85 VARIABLES ON A 5K MACHINE/ WITH THE RESTRICTION THAT THE MAXIMUM SUM OF SQUARES /TREATING THE DATA AS WHOLE NUMBERS/ MUST BE LESS THAN 10 TO THE 10TH. THE MATRIX IS LEFT IN STORAGE FOR FURTHER ANALYSIS, IF DESIRED /SEE, FOR EXAMPLE, MR1/.

7070-11.3.007 MULTIPLE CORRELATION AND REGRESSION ANALYSIS BY THE STEPWISE METHOD 1
AVAILABLE 1ST QUARTER 1962.
SPECIFY FILE NUMBER 7070-11.3.007

AUTHOR...R. E. BOSS
IBM CORPORATION
SYSTEMS ENGINEER-SCIENTIFIC
LOS ANGELES, WILSHIRE OFFICE

DIRECT INQUIRIES TO AUTHOR

PURPOSE THE PROGRAM PROVIDES MEANS, STANDARD DEVIATIONS AND SIMPLE CORRELATION COEFFICIENTS FOR ALL VARIABLES. THE STEPWISE METHOD PROVIDES A FINAL REGRESSION EQUATION CONTAINING ONLY THOSE INDEPENDENT VARIABLES INDICATED TO BE SIGNIFICANT. INTERMEDIATE RESULTS INCLUDE THOSE VARIABLES IN THE REGRESSION, AND THE VARIABLE ADDED TO THE EQUATION TO IMPROVE THE /GOODNESS OF FIT/ AT EACH STEP. OTHER RESULTS INCLUDE THE STANDARD ERROR OF EACH REGRESSION COEFFICIENT AND THE ERROR OF ESTIMATE OF THE DEPENDENT VARIABLE, A MULTIPLE CORRELATION COEFFICIENT, AND A COMPARISON OF ACTUAL DATA AND PREDICTED VALUES. VARIABLE TRANSFORMATIONS ARE AVAILABLE. EQUIPMENT SPECIFICATIONS /A/ 5,000 OR 10,000 WORD 7070 /B/ ON-LINE CARD READER /C/ MINIMUM OF THREE TAPES

7070-11.3.009 STEPWISE MULTIPLE REGRESSION PROGRAM
AVAILABLE 2ND QUARTER 1962.
SPECIFY FILE NUMBER 7070-11.3.009

AUTHORS..MARY ANNE BARNUM CAROL A. BECKNELL DONALD W. MARQUARDT

DIRECT INQUIRIES TO..
D.W. MARQUARDT
E.I. DUPONT DENEMOURS + CO.
ENGINEERING DEPARTMENT
EXPERIMENTAL STATION
WILMINGTON, DELAWARE

THIS PROGRAM COMPUTES MULTIPLE LINEAR REGRESSION EQUATIONS BY THE STEPWISE METHOD. OPTIONS ARE PROVIDED TO TRANSFORM VARIABLES /LOG, SQUARE-ROOT, ETC./, TO CREATE NEW VARIABLES /SQUARES, CROSS-PRODUCTS, ETC./, TO CONTROL PRINTING, TO FORCE INCLUSION OF ALL VARIABLES IN THE EQUATION, AND FOR ARBITRARY WEIGHTING OF THE OBSERVATIONS. THE PROGRAM IS WRITTEN IN FORTRAN ASSUMING A 7070 WITH 5,000 WORDS OF STORAGE, 3 TAPE DRIVES, AN ON-LINE PRINTER, AND A CARD READER. AS WRITTEN, THE PROGRAM CAN BE RUN, IF NECESSARY, WITH ONLY TWO TAPES. THE PROGRAM WILL HANDLE UP TO 40 VARIABLES /INDEPENDENT PLUS DEPENDENT/. OUTPUT INCLUDES A LIST OF TRANSFORMED VARIABLES, MEANS, STANDARD DEVIATIONS, SIMPLE CORRELATION MATRIX, VARIABLE ENTERED OR DELETED AT EACH STEP, COEFFICIENTS OF THE CORRESPONDING EQUATIONS, STANDARD ERROR OF ESTIMATE, MULTIPLE CORRELATION COEFFICIENT, OBSERVED AND PREDICTED VALUES, RESIDUALS, AND OTHER PERTINENT INFORMATION.

7070-11.3.011 NON-LINEAR REGRESSION /PEXX, PEXN, PEDE/
AVAILABLE 3RD QUARTER 1963.
SPECIFY FILE NUMBER 7070-11.3.011

AUTHOR...DONALD I RUBIN
AMERICAN CYANAMID COMPANY
SCIENTIFIC + TECHNICAL COMPUTING
DATA PROCESSING DIVISION
BERDAN AVENUE
WAYNE, NEW JERSEY

DIRECT INQUIRIES TO AUTHOR

THIS IS A SERIES OF TECHNIQUES FOR PERFORMING NON-LINEAR LEAST SQUARES REGRESSION. /PEXX/ THE RESPONSE MODEL IS EXPLICIT AND THE PARTIAL DERIVATIVE OF THE RESPONSE MODEL WITH RESPECT TO THE PARAMETERS IS EXPLICIT. /PEXN/ THE RESPONSE MODEL IS EXPLICIT BUT THE PARTIAL DERIVATIVE WITH RESPECT TO THE PARAMETERS IS PERFORMED NUMERICALLY. /PEDE/ THE RESPONSE IS GIVEN BY A SET OF DIFFERENTIAL EQUATIONS. SOURCE LANGUAGE- FORTRAN II.
FILE #10.9.001 /MBLA/ /GFPA/ FILE #11.3.011 /PEXX/ /PEXN/ /PEDE/ CALL ON FILE #10.1.013 /MILE/ + FILE #10.1.014 /MATMU/. FILE # 10.1.013 /MILE/ CALLS ON FILE # 10.1.014 /MATMU/. FILE #09.2.001

/SDDE/ /SDXN/ FILE #11.3.011 /PEDE/ CALL ON FILE #09.3.004 /IRK/

7070-11.7.002 RANDOM NUMBER GENERATOR SUBROUTINE
AVAILABLE 3RD QUARTER 1963.
SPECIFY FILE NUMBER 7070-11.7.002

AUTHOR...K. ANGSTROM
IBM NORDIC LABORATORIES
ANKDAMMSGATEN 35, SOLNA, SWEEDEN

DIRECT INQUIRIES TO AUTHOR

A SUBROUTINE TO GENERATE RANDOM NUMBERS, EITHER UNIFORMLY OR NORMALLY DISTRIBUTED, IN FIXED OR FLOATING FORM. FLOATING-DECIMAL DEVICE IS REQUIRED. 101 STORAGE LOCATIONS ARE USED.
PROCEDURE DESCRIPTION- A FINBONACCI SERIES IS USED.
SOURCE LANGUAGE- 7070 BASIC AUTOCODER.

7070-12.1.001 THE INVENTORY MANAGEMENT SIMULATOR 7070 FULL FORTRAN VERSION.
AVAILABLE 1ST QUARTER 1963.
SPECIFY FILE NUMBER 7070-12.1.001

AUTHOR...C. J. WELKER
IBM CORPORATION
618 S. MICHIGAN AVENUE
CHICAGO, ILLINOIS

DIRECT INQUIRIES TO AUTHOR

THIS PROGRAM ALLOWS THE USER TO TEST INVENTORY REPLENISHMENT RULES AND DEMAND FORECASTING TECHNIQUES- THE OBJECTIVE IS TO PROVE THE VALIDITY OF METHODS WHICH CAN THEN BE INSTALLED IN THE INVENTORY OPERATING SYSTEM. /INCLUDE MACHINE COMPONENTS, SPECIAL FEATURES, STORAGE REQUIREMENTS, CONTROL PANELS-STANDARD OR SPECIAL/ 10 K CORE MEMORY, CARD READER, FROM ONE TO FIVE TAPE DRIVES /DEPENDENT UPON SUBPROGRAM CONFIGURATION USED/ /MATHEMATICAL METHOD, ACCURACY, SPEED, IF APPROPRIATE/ MATHEMATICAL METHOD- SIMULATION ACCURACY- NOT APPLICABLE SPEED- RUNNING TIMES VARY CONSIDERABLY DEPENDING UPON THE SUBPROGRAM CONFIGURATION USED. HOWEVER, EIGHTY TO ONE-HUNDRED DEMAND TRANSACTIONS PER MINUTE CAN SERVE AS A REASONABLE ESTIMATE.

7070-12.9.004 CLASS SCHEDULING PROGRAM FOR THE 7070/74 AND 1401
AVAILABLE 1ST QUARTER 1963.
SPECIFY FILE NUMBER 7070-12.9.004

AUTHOR...GIB AKIN
IBM DATACENTER
80 EAST LAKE STREET
CHICAGO 1, ILL.

DIRECT INQUIRIES TO AUTHOR

THIS PROGRAM SCHEDULES CLASSES FOR STUDENTS OF SECONDARY SCHOOLS. APPROXIMATELY 100 SCHOOLS HAVE USED THIS PACKAGE FOR SCHEDULING PURPOSES. 1401 WITH 4K, 2 TAPE DRIVES, HIGH-LOW-EQUAL COMPARE, ADVANCED PROGRAMMING AND SENSE SWITCHES. 7070/74 WITH 10K, 2 CHANNELS, 7501 AND AT LEAST 4 TAPES.

THE ONE REEL OF TAPE REQUIRED TO OBTAIN THE BASIC PROGRAM MATERIAL MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED. THE TAPE PROVIDED MUST BE 2400 FEET IN LENGTH.

7070-13.2.001 CONSOLE EXERCISE
AVAILABLE 2ND QUARTER 1963.
SPECIFY FILE NUMBER 7070-13.2.001

AUTHOR...WILLIAM J. DAVIS
IBM CLEVELAND DATA CENTER
2925 EUCLID AVE.
CLEVELAND, OHIO

DIRECT INQUIRIES TO AUTHOR

THE CONSOLE EXERCISE IS DESIGNED TO FAMILIARIZE OPERATORS AND PROGRAMMERS WITH THE CONSOLE OPERATION OF THE 7070/2/4. IT DEMONSTRATES THE USE OF TAPE INITIAL AND FINAL STATUS WORDS, ADDRESS STOPPING, AND THE CE TAPE CONSOLE. IT ALSO DEMONSTRATES ERRORS AND THEIR DETECTION. MACHINE REQUIREMENTS- 7070/2/4. THREE TAPE DRIVES. 7501 CONSOLE CARD READER, AND FLOATING POINT ARITHMETIC.*

CONTINUED FROM PRIOR PAGE--

THE PROGRAM IS SUPPLIED IN BOTH BASIC AUTOCODER UNASSEMBLED FORM AND IN ASSEMBLED 5/CD. FORMAT. AFTER LOADING, THE PROGRAM DEMONSTRATES VARIOUS CONSOLE FEATURES. IT ALLOWS, AT PROGRAMMED HALTS, THE OPERATOR TO TRY VARIOUS FACETS OF THE CONSOLES OPERATION, AS WELL AS SOME METHODS OF ERROR DETECTION AND CORRECTION. OPERATING INSTRUCTIONS ARE SELF CONTAINED IN THE PROGRAM, AND ARE TYPED AS NEEDED.

*7501 AND FLOATING POINT SECTIONS ARE EASILY BYPASSED IF THE PARTICULAR MACHINE IS NOT EQUIPPED WITH THESE FEATURES.

7080

7080-02.1.006 SORTF /SORT FILE/ MACRO FOR 7080 PROCESSOR

AVAILABLE 4TH QUARTER 1963.
SPECIFY FILE NUMBER 7080-02.1.006

AUTHORS..MR. O. TIDWELL MISS A. RENO MR. P.T. REZK

DIRECT INQUIRIES TO..
MISS A.H. WRIGHT
A. T. + T.
699 MAIN ST.
MT. KISCO, N.Y.

TO SORT IN SEQUENCE ANY NUMBER OF RECORDS, ALL THE SAME LENGTH, MULTIPLE OF 5 AND DEFINED AS ENDING IN A RECORD MARK. THE MACRO PROVIDES LINKAGES TO THE PROGRAMMER/S ROUTINES TO READ THE FILE WRITE THE SORTED RECORDS OUT. INTENDED FOR USE WITH MULTI-PHASE PROGRAMMING AND SMALL VOLUMES OF RECORDS, SORTF WILL PROPERLY PROCESS UP TO A FULL REEL OF TAPE, BUT WOULD TAKE AN EXTREMELY LONG TIME FOR SUCH A VOLUME, SINCE THE TIME GOES UP AS THE SQUARE OF THE NUMBER OF RECORDS. FOR EXAMPLE, A FULL REEL OF 80 CHARACTER UNBLOCKED RECORDS WOULD TAKE ABOUT 5 HOURS TO PROCESS ON THE 7080. FOR 7080, 4000 80-CHARACTER RECORDS WILL BE HANDLED MORE EFFICIENTLY THAN BY SORT80 WHEN SETUP TIME IS CONSIDERED. MACHINE REQUIREMENTS-7080, 2 CHANNELS. INTENDED FOR INSERTION INTO 7080 PROCESSOR LIBRARY, VERSION 7 /OR LATER/.

7080-07.9.001 M.A.S.A. METHODS AND STANDARDS AUTOMATION

AVAILABLE 3RD QUARTER 1963.
SPECIFY FILE NUMBER 7080-07.9.001

AUTHORS..F. A. GAFNER D. L. CHAPMAN

DIRECT INQUIRIES TO..
F. A. GAFNER
MAIN PLANT IBM CORPORATION
SOUTH ROAD
POUGHKEEPSIE, NEW YORK

THE PURPOSE OF M.A.S.A. IS TO AID IN THE DEVELOPMENT AND MAINTENANCE OF AN ACCURATE WORK MEASUREMENT SYSTEM. 1. GENERAL-IT PROVIDES A -/LOCKED IN SYSTEM/, BETWEEN METHOD AND TIME IN THAT THE SAME PERSON RECORDS BOTH. IT EXTENDS AND COMPILES THE PREDETERMINED TIME ELEMENTS IN SEQUENCE FOR THE TIMING OF MANUAL MOTIONS + PROCESS TIMES. IT PROVIDES A METHODS DOCUMENT FOR THE OPERATOR DEFINING THE MOTION PATTERN ANALYZED BY THE INDUSTRIAL ENGINEER, AND CREATES LINE NUMBER CONTROL FOR EASE OF MAINTENENCE. MAY PROCESS UP TO 50,000 RECORDS PER RUN. THESE ARE OVERALL RECORDS AND NOT INPUT RECORDS. 7080, 160K, 2 CHANNELS, 20 DRIVES, CARD READER, PRINTER OR TYPEWRITER-1401, 8K, 4 DRIVES, PRINTER AND PUNCH, INDEXING + MULTIPLY-DIVIDE FEATURES. SOURCE LANGUAGE- AUTOCODER. EXECUTION TIME- INPUT CONTROLLED, BY CONTROL CARD TO FIRST 1401 PROGRAM- ALLOWS LIMITING OF INPUT DATA TO ALLOTED 7080 TIME.

7080-08.3.001 SQUARE ROOT MACRO AND SUBROUTINE

AVAILABLE 4TH QUARTER 1963.
SPECIFY FILE NUMBER 7080-08.3.001

AUTHOR...MR. F. W. VOSS
COMPUTER SERVICES DEPT.
IBM DPD HQ
112 EAST POST ROAD
WHITE PLAINS, NEW YORK

DIRECT INQUIRIES TO AUTHOR

THE MACRO CALLS UPON A CLASS B SUBROUTINE WHICH USES NEWTONS ITERATION METHOD TO DETERMINE THE SQUARE ROOT OF A NUMBER FROM ONE TO FIFTEEN SIGNIFICANT DIGITS. FORTRAN FLOATING POINT CODING AND SUBROUTINES ARE NOT REQUIRED. ROOT PRECISION IS CONTROLLED BY DECIMAL DEFINITION OF THE AUTOCODER RCD. THE PROGRAM IS OPERATIVE ON THE IBM 7080. STORAGE REQUIREMENTS ARE-400 POSITIONS FOR THE SUBROUTINE AND 35 POSITIONS IN LINE FOR EACH MACRO ENTRY. THE SOURCE LANGUAGE USED IS 7080 AUTOCODER.

NOTE - SEE "HOW TO ORDER PROGRAMS" IN THE INTRODUCTION TO THIS CATALOG.

List of Program Deletions

ALPHABETIC KEY TO REASONS FOR REMOVAL.

A. THIS PROGRAM HAS BEEN DELETED BECAUSE OF LOW USAGE.
B. THIS PROGRAM HAS BEEN WITHDRAWN AT USER ORGANIZATION DIRECTION.
C. THIS PROGRAM HAS BEEN DELETED BECAUSE OF LIMITED USEFULNESS.
D. THIS PROGRAM IS OBSOLETED AND REPLACED BY ORDER NUMBER -------.
F. THIS PROGRAM HAS BEEN WITHDRAWN BY THE AUTHOR.

Deletions Appearing for the First Time

ORDER NUMBER	TITLE	REASON FOR DELETION
	1410 DELETIONS	
13.2.001	CONSOLE DEMONSTRATION PROGRAM	A
11.3.001	STEPWISE MULTIPLE LINEAR REGRESSION ANALYSIS.	A
03.9.001	MACRO ADD XX, SUBTRACT XX, MULTIPLY XX, DIVIDE XX.	A
02.5.001	TABLE LOOKUP SUBROUTINE.	A
02.1.001	SORT/MERGE 12, INSURANCE SORT MODIFICATION.	A

Previous Deletions

	705 DELETIONS	
01.3.001	HQ USAF TAPE INPUT-OUTPUT PACKAGE	A
	1410 DELETIONS	
01.4.002	1410/7010 RELOCATABLE AUTOPATCH	A
02.4.001	CONVERSION OF DATA CONTROL FIELDS INTO ACTUAL DISK ADDRESSES V 1301	A
02.6.001	TENEX-TAPE EXECUTIVE SYSTEM	A
03.1.002	UPLOD-UPOS LOADER	A
03.1.003	7010 ONE CARD UTILITY SET	A
03.4.001	LABEL AND SERIALLY NUMBER TAPES	A
03.4.002	TAPE PRINT, DUPLICATE, SELECT AND MATCHING	A
03.9.003	CHAIN-SPLITTING AND TAPING A PROGRAM WHICH EXCEEDS 1410 CORE STORAGE CAPACITY	A
03.9.005	FOUR LINE EXECUTE COREDUMP	A
03.9.006	1410/7010 EXITS	A
03.9.007	1410/7010 FLIP	A
03.9.008	1410/7010 TAPE SORT MODIFICATION	A
11.3.002	MULTIPLE REGRESSION PROGRAM	A
11.9.001	CHI SQUARE /5 DIGIT CELLS/	A
12.2.001	NETWORK RENUMBERING ROUTINES	A
12.9.001	ELECTRIC LOAD FLOW FOR IBM 1410 SYSTEM	A
14.1.001	UNIVERSITY ADMINISTRATORS DECISION LABORATORY	A
14.3.001	1410/1301 PERT III PROGRAM-TIME MODULE	A
14.3.003	MOST-MULTIPLE OPERATIONS SCHEDULING TECHNIQUE	A
14.3.004	CAPITAL INVESTMENT ANALYSIS	A
	7070 DELETIONS	
03.1.002	INSTANT PROGRAM-LOADING	A
03.2.004	PEST-PITT EXECUTIVE SYSTEM FOR TAPES	A
03.2.005	PILOT PROGRAM TAPE SYSTEM	A
03.9.003	DUMP1 SORT 90 PHASE-ONE RESTART AND CHECK POINT 7074-7070	A
04.9.002	SCAN	A
08.3.011	POLYNOMIAL ROOT SUBROUTINE	A
08.4.001	DOUBLE PRECISION FLOATING DIVIDE	A
08.4.002	DOUBLE PRECISION FLOATING MULTIPLY	A
08.4.003	DOUBLE PRECISION FLOATING ADD	A
09.1.004	POLYNOMIAL EXPANSION	A
09.3.001	RUNGE-KUTTA-GILL NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS	A
09.5.001	GAUSS NUMERICAL INTEGRATION SUBPROGRAM /IBM 7074 FORTRAN/	A
09.5.002	NUMERICAL INTEGRATION AREA /F/	A
10.1.006	SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS AND/OR MATRIX INVERSION IN DOUBLE PRECISION /SUB/	A
10.1.008	MATRIX TRANSPOSITION SUBROUTINE - FLIP /IBM 7074 FORTRAN/	A
10.1.011	MATRIX MULTIPLICATION SUBROUTINE /IBM 7074 FORTRAN/	A
10.1.012	ORTHOGONAL FACTOR SIMILARITY PROGRAM	A
10.2.001	EIGENVALUE AND EIGENVECTOR ROUTINE	A
10.2.002	EIGENVALUE AND EIGENVECTOR SOLVER SUBROUTINE /IBM 7074 FORTRAN/	A
12.9.001	TRANSPORTATION PROBLEM /DENNIS TECHNIQUE/	A
12.9.003	TRANSPORTATION PROBLEM /DENNIS TECH/ WITH ZERO COSTS ALLOWED AND SHADOW PRICES LISTED IN OUTPUT	A

IBM **Technical Newsletter**

File Number	1410/7000
Re: Form No.	C20-1602-8
This Newsletter No.	N20-0014-14
Date	October 15, 1968
Previous Newsletter Nos.	None

CATALOG OF PROGRAMS FOR IBM 705, 1410, 7010, 7070, 7072, 7074, 7080, 7740 and 7750 DATA PROCESSING SYSTEMS — October 1968 Supplement

This publication is a Supplement to the "Catalog of Programs for IBM 705, 7010, 7070, 7072, 7074, 7080, 7740 and 7750 Data Processing Systems", Form No. C20-1602-8.

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.

This Supplement contains information about changes in the status of the Libraries since the publication of the June, 1968 Catalog, (Form No. C20-1602-8). It incorporates the changes that have occurred since then. It consists of the following sections:

1. Abstracts for the revised programs.
2. A list of program deletions (if applicable).

The following codes appear at the extreme right end of the title line for each abstract that is new or that has been revised in this issue of the Supplement:

*N - This symbol indicates a new program.

*M - This symbol indicates that the title of the program has been modified when it appears only at the extreme right end of the title line.

*M - This symbol indicates that the text of the abstract has been modified when an additional *M or * alone appears at the extreme right end of each line of the abstract that has been modified.

*R - This symbol indicates that the entire text of the abstract has been revised.

IBM Corporation, Program Information Department, 40 Saw Mill River Road, Hawthorne, N.Y. 10532

Contributed Programs

1410

1410-03.9.009 GENERAL PURPOSE 1410/1301 *N
AVAILABLE 3RD QUARTER 1968.
SPECIFY FILE NUMBER 1410-03.9.009

AUTHOR...MR. P.R. WILLIAMS

DIRECT INQUIRIES TO..
MR. P.R. WILLIAMS,IBM CORP.,P.O. BOX 1305,
FORT WALTON BEACH, FLA. 32548

THIS MEMORY PRINT PROGRAM UTILIZES THE ,,WRITE-CYLINDER,, CAPABILITIES OF THE 1410/1301 TO PRESERVE ALL BUT A SMALL FRACTION OF THE STORED PROGRAM. A ,,BOOTSTRAP,, IS READ INTO THE STANDARD LOADER CARD-READ AREA /200-279/ TO INITIALIZE A DISK ADDRESS WORD AND WRITE ALL OF STORAGE /UP TO 80K/ IN A SINGLE DISK CYLINDER. THE PRINT PROGRAM IS THEN LOADED TO READ FROM DISK AND FORMAT FOR PRINTING 100 CHARACTERS PER LINE, WITH TOTALLY BLANK LINES OMITTED. ALL UNPRINTABLE CHARACTERS ARE PRINTED AS TWO-CHARACTER ABBREVIATIONS, USING AUTOCODER LISTING SYMBOLS, AND WORD-MARKS ARE PRINTED AS ONES. IN ADDITION TO THE CARD-READ AREA, THE FIRST 25 POSITIONS OF STORAGE ARE LOST.

PROGRAMMING LANGUAGE- SOURCE LANGUAGE IS AUTOCODER.

MINIMUM SYSTEM REQUIREMENTS- WRITTEN FOR 40K 1410, BUT EASILY MODIFIED FOR ANY SIZE TO 80K. REQUIRES 1301 WITH ,,WRITE-CYLINDER,, FEATURE AND ONE CYLINDER FORMATTED IN 8-BIT MODE, FULL TRACK, FOR TEMPORARY STORAGE ONLY.

NOTES- THE BASIC PROGRAM MATERIAL CAN BE OBTAINED IN CARD FORM OR ON ONE 7-TRACK DTR. THE DTR WILL BE SUPPLIED BY PID - NO TAPE SUBMITTAL IS REQUIRED.

1410-14.3.003 MULTIPLE OPERATIONS *N
SCHEDULING TECHNIQUE
AVAILABLE 3RD QUARTER 1968.
SPECIFY FILE NUMBER 1410-14.3.003

AUTHOR...MR. R.A. STACK

DIRECT INQUIRIES TO..
MR. G.A. SMITH,IBM CORP.,DEPT. 313,618 S. MICHIGAN AVE.,
CHICAGO, ILL. 60605

MOST IS OFFERED AS A SOLUTION TO THE PROBLEM OF SCHEDULING COMPUTER TIME IN ANY INSTALLATION. THE MOST PROGRAMS, USING NETWORK ACTIVITY, PRODUCE A DAY-BY-DAY MACHINE LOADING SCHEDULE FOR AN ENTIRE MONTH. WITH A 40K 1410 AND A RESIDENT MONITOR SIZE OF JUST UNDER 12K, THE LARGEST NETWORK ALLOWED IS 3000 ACTIVITIES. THE USER MAY SCHEDULE THE LOADING OF UP TO 99 LIKE MACHINES IN EACH OF UP TO FIVE LEVELS OF UPWARDS COMPATIBILITY WITHIN UP TO THREE SEPARATE CLASSES OF MACHINES. IN OTHER WORDS, UP TO 99 EACH OF 15 SEPARATE MACHINE TYPES CAN BE SCHEDULED.

THE 1410 PROGRAMS RUN UNDER CONTROL OF THE 1410/7010 OPERATING SYSTEM., THEREFORE THE 1410 MUST HAVE AT LEAST 40K, AND THE PRIORITY AND PROCESS OVERLAP SPECIAL FEATURES. SIX TAPE DRIVES INCLUDING AN MDM FILE, BUT EXCLUDING AN SIU ARE REQUIRED.

THERE ARE TWO 1401 PROGRAMS WHICH REQUIRE TWO TAPE UNITS, 8K, AND A 1401 PRINTER, MODEL 2, IF THE INTERVENING SORT IS TO BE DONE ON THE 1401, A MINIMUM OF TWO EXTRA TAPE UNITS ARE REQUIRED. THE 1410 PROGRAMS ARE WRITTEN IN OPERATING SYSTEM AUTOCODER., ONE 1401 PROGRAM IS WRITTEN IN COBOL /4K/, THE OTHER IN TAPE AUTOCODER.

THE REEL OF TAPE REQUIRED TO OBTAIN THE BASIC PROGRAM MATERIAL MAY BE ORDERED FROM YOUR IBM REPRESENTATIVE OR SUPPLIED FOR EACH ITEM THAT IS ORDERED. THE TAPE PROVIDED MUST BE 2400 FEET IN LENGTH.

NOTE - SEE ''HOW TO ORDER PROGRAMS'' IN THE INTRODUCTION TO CATALOG OF PROGRAMS.

List of Program Deletions

ALPHABETIC KEY TO REASONS FOR REMOVAL.

A. THIS PROGRAM HAS BEEN DELETED BECAUSE OF LOW USAGE.
B. THIS PROGRAM HAS BEEN WITHDRAWN AT USER ORGANIZATION DIRECTION.
C. THIS PROGRAM HAS BEEN DELETED BECAUSE OF LIMITED USEFULNESS.
D. THIS PROGRAM IS OBSOLETED AND REPLACED BY ORDER NUMBER --------.
F. THIS PROGRAM HAS BEEN WITHDRAWN BY THE AUTHOR.

Deletions appearing for the first time.

ORDER NUMBER	TITLE	REASON FOR DELETION
	1410 DELETIONS	
03.5.002	FORTRAN SUBROUTINES FOR USING 1301 DISK AS WORK FILES UNDER OP/SYS PR-155	A
12.9.002	INSTALLMENT PURCHASE PLAN FOR STATE AND LOCAL GOVERNMENT	A
	7070 DELETIONS	
01.9.005	TAXIS	A
02.9.002	LURE -- LIBRARY UPDATING ROUTINE PACKAGE	A
04.3.003	AUTO-TEST GENERATOR	A
11.3.003	INTERCORRELATION MAO-G	+

Printed in U.S.A. N20-0014-14

IBM

International Business Machines Corporation
Data Processing Division
112 East Post Road, White Plains, N.Y. 10601
(USA Only)

IBM World Trade Corporation
821 United Nations Plaza, New York, New York 10017
(International)

READER'S COMMENT FORM

Catalog of Programs for IBM 705, 1410,
7070, 7072, 7074, 7080, 7740, and 7750
Data Processing Systems, June 1968

Form C20-1602-8

Please comment on the usefulness and readability of this publication, suggest additions and deletions, and list specific errors and omissions (give page numbers). All comments and suggestions become the property of IBM. If you wish a reply, be sure to include your name and address.

COMMENTS

fold fold

fold fold

- Thank you for your cooperation. No postage necessary if mailed in the U.S.A.
FOLD ON TWO LINES, STAPLE AND MAIL.

YOUR COMMENTS PLEASE...

Your comments on the other side of this form will help us improve future editions of this publication. Each reply will be carefully reviewed by the persons responsible for writing and publishing this material.

Please note that requests for copies of publications and for assistance in utilizing your IBM system should be directed to your IBM representative or the IBM branch office serving your locality.

fold fold

FIRST CLASS
PERMIT NO. 1359
WHITE PLAINS, N. Y.

BUSINESS REPLY MAIL
NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

POSTAGE WILL BE PAID BY...

IBM Corporation
40 Saw Mill River Road
Hawthorne, New York 10532

Attention: Program Information Department, Catalog of Programs

fold fold

Printed in U.S.A. C20-1602-8

IBM®

International Business Machines Corporation
Data Processing Division
112 East Post Road, White Plains, N.Y. 10601
[USA Only]

IBM World Trade Corporation
821 United Nations Plaza, New York, New York 10017
[International]

Printed in U.S.A. C20-1602-8

International Business Machines Corporation
Data Processing Division
112 East Post Road, White Plains, N.Y. 10601
(USA Only)

IBM World Trade Corporation
821 United Nations Plaza, New York, New York 10017
(International)