File No. 1130/1800-20
GC20-1630-7

IBM Systems Reference Library

Catalog of Programs for IBM 1130 Computing System and IBM 1800 Data Acquisition and Control System

(January 1971)

This Catalog contains a complete listing of all Program Products and Type I, II, III, IV, and prior use programs for the IBM 1130 Computer System and 1800 Data Acquisition and Control System available from the Program Information Department, 40 Saw Mill River Road,Hawthorne, New York 10532.

Instructions for ordering Program Products can be obtained from your local IBM Branch Office. Instructions for ordering Type I, II, III, IV and prior use programs are contained in the section of the Introduction entitled, "Completion of the IBM Program Order Form".

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Eighth Edition (December 1970)

Copies of this and other IBM publications can be obtained through IBM branch offices.

A form is provided at the back of this publication for readers' comments. If this form has been removed, address comments to: IBM, Program Information Department, 40 Saw Mill River Road, Hawthorne, New York 10532.

DELETIONS

The following list of Type I programs preceded by an asterisk will be deleted by the Program Information Department on September 4, 1973 because of low usage. Until that date, orders for these programs will be accepted by the Program Information Department.

PROGRAM NUMBER	PROGRAM NAME
*1130-CQ-012	Job Control from the 1130/2250 Using the Satellite Graphic Job Processor
1130-FO-002	FORTRAN Compiler
1130-LM-002	Subroutine Library

The following list of Type II Applications Programs preceded by an asterisk will be deleted by the Program Information Department on September 4, 1973, because of low usage. Until that date, orders for these programs will be accepted by the Program Information Department.

PROGRAM NUMBER	PROGRAM NAME
*1130-CX-33X	Plan Graphics Support Program
1130-CX-38X	Numerical Surface Technical and Contour Map
*1130-DX-01X	Route Accounting System for Dairies and Bakeries
*1130-EM-03X	Mechanism Design System-Kinematics (MDS-Kinematics)
1130-EO-11X	Program for Optical System Design (POSD) (Typewriter Version)
*1130-EO-12X	Program for Optical System Design (POSD) (Typewriter/Printer Version)
1130-EO-14X	Program for Optical System Design (POSD/II)
1130-MF-03X	Work Measurement Aids
*1130-MP-02X	Casing Design Program
*1130-MP-04X	Tarner Material Balance Program

The following Type III Contributed Programs preceded by an asterisk will be withdrawn by the Program Information Department on August 17, 1973. Until that date, orders for these programs will be accepted by PID.

PROGRAM NUMBER	PROGRAM NAME
1130-00.6.001	Subroutine GCOPY - An IBM 2250-4 to 1627 Hard Copy Generator
1130-03.4.004	Interrupt Service Subroutine PCCA-1 For Inclusion in the IBM 1130 Disk Monitor System for Handling Data Transmission Between IBM-1130 and IBM 1070/ 1050 Systems

PROGRAM NUMBER	PROGRAM NAME
*1130-04.0.001	Core-Image Card Patch Program with Keyboard Input
1130-08.6.002	Draw and Plot Subroutines
1130-11.0.001	1030 Data Collection System-Design Assistance and Terminal Configuration Program
1130-12.1.003	Disk Data Transfer Utility Package - 1130 System/360 Model 44 2315 Disk Cartridge Compatability
1130-12.1.005	1130 File Conversion Program Disk Monitor Version 1 to Disk Monitor Version 2 (FCOPY)
*1130-15.2.005	1130 Blending of Initial Furnace Charges
*1130-23.4.004	Romance/Fosdick Post Processor
1130-30.1.003	A Demonstration of Melt Charge Material Blending for the IBM 1130
1800-00.0.002	Object Time I/O Logical Number Generator
1800-03.0.001	1800 TSX Control Card Generator
1800-03.4.002	1800 TSX Typen Modification for In-Core Message Buffering
1800-03.4.003	1800 TSX DISKN Operations Complete Modifications
1800-03.4.007	IBM 1800 TSX With Improved Disk Time Overlap (IDOL)
1800-03.6.001	1800 Macro Update Program
1800-03.7.001	Macro Assembly Program for the 1800
1800-04.0.001	1800 Card Assembler Address Conversion
1800-04.0.002	A Disk/Core Patch Routine for Program Debugging Under 1800 TSX
1800-04.2.001	1800 TSX Mainline Trace Program
1800-04.2.002	1800 TSX Circulating Trace Table Subroutine
1800-05.0.001	Time Subroutine for IBM 1800 TSX System to Expand the Hardware Time A to 16 Programmed Timers 0 - A 15
1800-05.1.002	1800 Palo Alto Laboratory System (PALS) - A Dynamic Monitor for Multiprogrammed On-Line Data Acquisition and Control in Laboratory Automation
1800-08.6.001	Multiplot Multiprogramming Plotter Subroutines for the IBM 1800 Under TSX Using Magnetic Tape for Intermediate Storage
1800-17.2.001	Radiosotope Scan Analysis Program for IBM 1800 Computer
1800-17.4.001	Reduction of Oceanographic Station Data
1800-23.0.001	Automatic Production Reporting Using an 1800 and 1050's
1800-23.5.002	DDC Direct Digit Process Control
1800-23.5.005	1800 DDC-TSX, A Time-Sharing Direct Digital Process Control Program
1800-23.5.006	IBM 1800 Analog Data Acquisition Program
1800-23.5.008	Process Data Preparation Program

The following list of Type IV Contributed Programs preceded by an asterisk will be retired by the Program Information Department on August 17, 1973. Until that date, orders for these programs will be accepted by PID. After that date, only the documentation associated with these programs, recorded on microfiche cards, will be available from PID.

PROGRAM NUMBER	PROGRAM NAME
1130-01.5.003	Dump Standing Orders and Balances
1130-03.4.014	A 2250 Model 1 Simulation Support Package
1130-06.3.002	William and Mary Remote Job Entry Program - 8K Disk System Version (WMRJ8)
1130-06.3.003	William and Mary Remote Job Entry Program - 4K Disk and Card Systems Version (WMRJ4)
1130-12.1.001	FORTRAN Card Code Subset to EBCDIC Code Conversion Subroutine
*1130-12.1.004	AREAL Subroutine
*1130-16.4.003	Three Winding Transformer Rating Package
1130-16.4.012	1130 Load Flow Card Dump and Restore
1130-17.3.001	Quick, A FORTRAN IV Program for the Astrazon Rapid Dyeing Method
1130-17.3.004	FAST
1130-19.0.002	Load Disk with Survivor Dispersion Data
1130-19.0.003	Print Dispersion Data File From User Area
*1130-44.1.001	Multi-Line Interpolation Routine
1500-01.6.001	RAS/1130 Coursewriter II Reassemble Program
1500-03.8.001	Response Analysis Functions for the 1500 System
1500-99.0.001	Function SF for Any 1500 Coursewriter II CAI System
1500-99.0.002	Function EP 1500 CW II Function CAI System
1500-99.0.003	U. T. Coursewriter Function Package
1500-99.0.004	Function KMIN 1500 CWII Function CAI System
1800-03.4.009	Rewind and Unload Subroutine
1800-05.1.001	ASIST - A Submonitor Program for the IBM 1800 TSX-III System
1800-16.4.001	Primary Circuit Analysis for the IBM 1800
1800-16.4.002	1800 Electric Power System Load Flow Program
*1800-25.2.001	Computer Program for a Hospital Blood Bank

The following list of Prior Use Programs preceded by an asterisk will be withdrawn by the Program Information Department on August 17, 1973. Until that date, orders for these programs will be accepted by PID.

PROGRAM NUMBER	PROGRAM NAME
*1131-17.3.101	Clinical Laboratory System
*1131-23.4.101	AUTOPOL/1130
1801-03.4.002	1800 TSX 2311 Operating System
1801-05.1.001	1800 Palo Alto Laboratory System (PALIS) Version II

The following programs have been removed from the Program Information Department at the request of the SHARE User Group. All requests for these programs should be directed to the new distribution agency for SHARE:

SHARE Program Library Agency
Triangle University Computation Center (TUCC)
P. O. Box 12175
Research Triangle Park, N. C. 27709

1130-06.3.001	IBM 1130 REMOTE JOB ENTRY SYSTEM
1130-06.3.005	AN 1130 HIGH SPEED BISYNCHRONOUS COMMUNICATIONS SYSTEM

Introduction

The only authorized IBM agency in the U.S. for the distribution of Program Products, Type I, II, III, IV programs, to be defined below, is the IBM Program Information Department, 40 Saw Mill River Road, Hawthorne, New York.

PROGRAMS AVAILABLE FROM PID

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

PROGRAM PRODUCTS

Program Products perform an end-use function for the user and usually interface with and rely upon a currently available control program. Program Products contain logic directly related to the user's data, and are directly usable or adaptable to meet his specific requirements.

Program Products are licensed to customers under the License Agreement for IBM Program Products (Z120-2065). Under the terms and conditions of the License Agreement, IBM grants nontransferable and nonexclusive licenses to use the Program Products including basic material and related optional materials.

Further information regarding Program Products and their ordering instructions can be obtained by contacting your IBM Branch Office.

Program Product Identification

Each Program Product is assigned a seven-character identification code for ordering purposes. The first two digits (57) identify it as a specific program. The next two digits identify the system under which it will run. The next two characters are a functional mnemonic describing the program class. The last character is an identifier which distinguishes a Program Product from others in its class.

Functional Programs

AS Assembler: A program which prepares an object language program by producing absolute or relocatable machine code from a source program of statements containing symbolic operation codes and symbolic operands.

CB COBOL Compiler: COBOL (Common Business Oriented Language) is a language primarily for commercial data processing. It is the result of work by the Conference on Data System Language (CODASYL), a voluntary cooperative effort by a number of users and manufacturers of data processing equipment.

CP Conversational Prompter: Program that conversationally accepts terminal user commands, dynamically allocates work files and invokes appropriate compiler, if required.

CV Conversion: Programs which facilitate the running of programs written for one type of machine on another type or configuration.

DC Documentor: A program which performs some or all of the functions of producing, maintaining, controlling, and distributing text, tabular, and graph information, including flowcharts.

FO FORTRAN Compiler: FORTRAN (FORmula TRANslation) closely resembles the language of mathematics. FORTRAN permits people who are not trained programmers to prepare programs for a computer. FORTRAN is especially useful in scientific and technical fields where most problems are expressed in mathematical form.

LM Library Material: Supplementary programming developed for inclusion in a library (an organized collection of standard checked-out routines). An example is a mathematical function subroutine.

MI Miscellaneous:

PL PL/1 Compiler: A program which compiles programs written in PL/1 language.

PT Program Test: A program which facilitates the testing and debugging of programs.

RG Report Generator and Report Program Generator: A program which constructs a report or report-writing program in accordance with input specifications of the data file and of the desired report.

RC Remote Computing: Programs which provide access to a computer from multiple remote terminals for immediate or batch processing of individual tasks.

SM Sort/Merge

SU Simulator: A program which permits the running on the machine of a program expressed in the machine language of the simulated machine.

UT Utility: A program or set of programs which assist in the operation of a computer; e.g., storage clearing, intermediate data transmission, simple loaders, dump programs, file organization routines, etc.

APPLICATION PROGRAMS

Business and Management Services
- B1 Service Bureaus
- B2 Consultants

Distribution
- D1 Department Stores and Apparel
- D2 Food and Beverage
- D3 Drugs, Soaps, and Cosmetics
- D4 Hard Goods
- D5 Agribusiness

Finance
- F1 Banks
- F3 Brokerage and Investment
- F4 Savings and Savings and Loan
- F5 All other Financial

Insurance
- N1 Life and Accident and Health
- N2 Property and Liability

Manufacturing
- M1 Aerospace
- M2 Motor Vehicles
- M3 Fabrication and Assembly - Equipment Systems
- M4 Fabrication and Assembly - Other Equipment, Small Aircraft, Rail
- M5 Fabricators
- M6 Construction, Contractors, Arch. Engineers, Ships

Education
- E1 Colleges and Universities
- E2 Junior and Community Colleges
- E3 Elementary and Secondary Schools
- E4 Vocational Schools - Profit-making
- E5 Education Research Services not elsewhere classified
- E6 State Boards of Education

Medical
- H1 Medical and Health Care

Cross-Industry
- XA Statistical Applications
- XC Process Control
- XM Mathematic Applications
- XN Numerical Control Applications
- XT Operations Research
- XP Critical Path Scheduling
- XR Information Retrieval
- XS Simulators
- XX Other

Media
- K1 Media

Process
- P1 Primary Metals
- P2 Forest Products
- P3 Rubber and Plastics
- P4 Textiles
- P5 Glass
- P6 Paint and other Non-metalic Mineral Products
- P7 Petroleum
- P8 Chemicals

Public Utilities
- U1 Utilities
- U2 Communications

Transportation
- T1 Airlines
- T2 Motor Freight
- T3 Railroads
- T4 All other Transportation

DP Leasing Companies
- W1 DP Leasing Companies

DP Equipment Manufacturers
- L1 DP Equipment Manufacturers
- L2 Service Bureau Corporation

OEM
- Z1 Sales of DP equipment to Original Equipment Manufacturers for subsequent resale with their own equipment

State and Local Government
- G1 State Government
- G2 Local Government

Federal
- Y1 Army
- Y2 Navy
- Y3 Air Force
- Y4 Joint Defense
- Y5 Civilian

Engineering
- EC Civil Engineering
- EE Electrical Engineering
- EH Chemical Engineering
- EM Mechanical Engineering
- EN Nuclear Codes
- ET Optics
- EX Other

Exploratory
- EP Mathematics and Applications

TYPE I AND II PROGRAMS

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

TYPE III AND IV PROGRAMS

Type III programs have been submitted by one or more IBM employees. They are programs of general interest submitted for unrestricted distribution. They have met a basic set of programming and documentation standards but are not program tested in

any formal fashion by the IBM Corporation. The user is expected to make the final evaluation as to the usefulness in his own environment. These programs were available for delivery from the Program Information department prior to June 23, 1969.

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

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

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

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

TYPE III PROGRAMS WITH SERVICE A CLASSIFICATION

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

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

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

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

PRIOR USE PROGRAMS

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

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

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

Prior use programs are classified as follows:

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

PROGRAM UPDATE SERVICE

Users ordering the basic program packages for Type I and II programs from PID become "users of record". A "profile" is established for each user of record, containing the users customer number, name and address and other "ship-to" information, and an entry for each Type I and II basic program package ordered. Users of record and provided with the PID Program Update Service based on the entries in these profiles, with the exception of programs having a Program Service Classification of C.

The Program Update Service provides users of record with automatic program maintenance (corrections and/or supplements to the basic program material) for Type I and Type II programs. The Program Update

Service also provides users of record with announcement material and ordering information for that class of program maintenance (e.g., new version, releases, etc.) which must be ordered from PID.

When an orderable replacement package (total or partial) of a Type I or II program is announced, it is not always essential to order it to remain eligible for Program Update Service.

There are situations, however, when continued Program Update Service would not be meaningful unless the replacement package is ordered. In these situations, failure to order results in cancellation of further Program Update Service for this program.

A statement specifying the need to order will always be included in the announcement notification which goes to users of record. Program Update Service is not provided for the optional program material for Type I and II programs or for Type III and IV programs.

IBM CATALOGS OF PROGRAMS

Abstracts and ordering instructions for Program Products and all Type I, II, III, IV and Prior Use programs available from PID are found in the IBM Catalogs of Programs and their Supplements, published periodically by PID. These Catalogs are available from the Mechanicsburg Distribution Center as follows:

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

USER CONTRIBUTED PROGRAMS

Programs written by customer personnel for submission to the Program Library must conform to established standards and procedures. Copies of the Contributed Program Library Standards Manual and Submittal Forms, are available on request from PID.

Contributed programs may be withdrawn from availability at any time, at the request of the program author. In addition, contributed programs are reviewed for deletion by PID when the request activity has fallen below 10 requests in any 12-month period. Programs deleted by PID remain available from PID until a deletion notice is printed in the Catalog or Supplement.

PID ORDER PROCESSING TURN-AROUND TIMES

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

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

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

SHIPPING METHODS

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

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

COMPLETION OF THE IBM PROGRAM ORDER FORM

INTRODUCTION

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

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

IBM PROGRAM ORDER FORM CONTAINS 5 SECTIONS:

- Section 1, Program Package Identification, is used to describe the program material required.
- Section 2, Customer and Order Identification, MUST ALWAYS BE COMPLETED.
- Section 3, User Volume Information, is to be completed when the order requires the submission of user volumes.
- Section 4, User Registration, is completed to register a new PID user, or to modify or delete a user registration.
- Section 5, For IBM Use, MUST ALWAYS BE COMPLETED, by an IBM representative.

Instructions for the completion of each section are given below. Refer to the sample form (Figure 1) presentted at the end of this discussion.

SECTION 1 PROGRAM PACKAGE IDENTIFICATION

This section is used to describe the program packages being ordered. For ordering purposes, a distinction is necessary between a "Single Component" program and a "Multiple Component" program.

The terms Single Component program and Multiple Component program are not functional descriptors. They are a convenient mechanism to facilitate the order.

A Single Component program is fully and completely specified (in columns 1-24) on one line of the PID Order Form (Section 1).

A Multiple Component program is specified by a system line and one or more component lines. The component lines indicate the desired items within the system specified by the system line.

Any combination of single component programs and multiple component programs may be ordered at one time. A total of 25 ordering lines have been provided on the order form. If more than 25 lines are required, the order may be continued on a second form and then a third, etc. The only restriction is that an order for a multiple component program may not be interrupted by an element which is not a member of that multiple component program.

COLUMN 1 BASIC OR OPTIONAL MATERIAL

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

Single Component Program	Enter B or O
Multiple Component Program System Line	Enter B or O

COLUMN 2 MACHINE READABLE

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

Single Component Program	Enter Y or N
Multiple Component Program System Line	Enter Y or N

COLUMN 3 DOCUMENTATION

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

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

Single Component Program	Enter 0 or 1 for Type I and II

	programs
	Enter 0, 1, 2 or 3 for Type III and IV programs
Multiple Component Program	
System Line	Enter 0 or 1.

COLUMNS 4-13 PROGRAM NUMBER

The exact program number, as specified in the ORDERING INFORMATION portion of the Catalog of Programs abstract should be entered in this field (Reminder: A multiple component program is specified by a system line and a series of component lines).

Single Component Program	Enter the program number (e.g. 360AFB15X) in Columns 4-12 or Columns 4-13,as length requires. Omit all special characters such as decimal points or hyphens.
Multiple Component Program	
System Line	Enter the system number (e.g. 360N) in Columns 4-7. Blank in columns 8-13.
Component Line(s)	Blank in Columns 4-7. Enter the component numbers (e.g., AS465, CB452) one per line in Columns 8-12, or Columns 8-13, as the length requires. Omit all special characters such as decimal points or hyphens.

COLUMNS 15-20 PROGRAM NUMBER EXTENSION

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

Single Component Program	Enter as specified in the Catalog of Programs (left justify).
Multiple Component Program	
System Line	Enter as specified in the Catalog of Programs (left justify).

COLUMN 14 ACTION CODE (Type I and II BASIC PROGRAM PACKAGES ONLY)

Column 14 provides the user with the means to maintain his PID profile for Type I and II programs in order to make most effective use of the Program Update Service (see Basic Information). There are 3 specific actions requiring an entry in Column 14. COLUMN 14 SHOULD BE LEFT BLANK IN ALL OTHER CASES. These three actions are:

1. RE-ORDER

Users of record receive announcements of the availability of total system replacements for both single and multiple component programs automatically from PID. To simplify the re-order process for a multiple component program, users may obtain an announced total replacement as follows:

Multiple Component Program	
System Line	Enter R in Column 14.

Users may also simultaneously update their profile for multiple component programs and re-order as follows:

Multiple Component Program	
System Line	Enter R in Column 14.
Component Line(s)	Enter A in Column 14 to add a component to the profile. Enter D in Column 14 to delete a component from the profile.

The system being re-ordered must have its System Number entered in Columns 4-7 of the system line. Any applicable program number extension which is identified in the announcement material must be entered in Columns 15-20. The remainder of Columns 1-24 must also be completed as applicable. Components being added or deleted must be entered in Columns 8-13 of the component lines. The remainder of the component lines is left blank.

The re-order action does not apply to single component programs.

2. ORDER AN ANNOUNCED MAINTENANCE PACKAGE

Users of record receive announcements of the availability of orderable maintenance packages (Types I or II programs) for both single and multiple component programs automatically from PID.

Users wishing to order an announced orderable Types I or II programs maintenance package may do so as follows:

Single Component Program	Enter M in Column 14
Multiple Component Program System Line	Enter M in Column 14

Users may also simultaneously update their profile for a multiple component program and order an announced maintenance package, as follows:

Multiple Component Program System Line	Enter M in Column 14
Component Line(s)	Enter A in Column 14 to add a component to the profile. Enter D in Column 14 to delete a component from the profile.

The program for which maintenance is being ordered must have its number entered in Columns 4-13 (for a single component program) or Columns 4-7 (for a multiple component program). Any applicable program number extension which is identified in the announcement material must be entered in Columns 15-20. The remainder of Columns 1-24 must also be completed as applicable. Components being added or deleted must be entered in Columns 8-13 of the component lines. The remainder of the component lines is left blank.

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

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

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

Single Component Program	Enter D in Column 14
Multiple Component Program System Line	Enter D in Column 14

The program number and any applicable program number extension must be entered in Columns 4-13 (for a single component program) or Columns 4-7 (for a multiple component program) and Columns 15-20 respectively. No other entries in Columns 1-24 are required. No component line entries should be made.

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

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

Single Component Program	Enter the selected medium code.
Multiple Component Program System Line	Enter the selected medium code.

MEDIUM CODE TABLE

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

NOTE 1: DTR*
S/360 card programs will be distributed on DTR's (Distribution Tape Reels) to card users with magnetic tape capability as indicated on the PID user profile (See Section 4). These programs will be distributed in card form to users with no magnetic tape capability. Whenever possible, multiple card programs ordered together will be stacked on one or more DTR's. A retriever will be

placed at the beginning of each DTR, enabling the user to selectively punch out the programs stacked on the DTR:
Card programs which will be volume shared as described above are identified by DTR* in the ordering information portion
Catalog of Programs abstracts. The user may establish or modify the profile entry describing his magnetic tape capability through the use of Section 4 of the Program Order Form.

NOTE 2: Types I, II, III, IV and Prior Use program orders require the user to specify a medium code. However, in the absence of a medium code, a default option is exercised by PID under the following circumstances.

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

The default options are:

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

COLUMNS 23-24 USER VOLUMES REQUIRED

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

Single Component Program	Enter the number of user volumes required for the medium type selected. The number should be entered as two digits (01,02,etc.).
Multiple Component Program System Line	Enter the number of user volumes required for the medium type selected. The number should be entered as two digits (01,02, etc.)

SECTION 2 CUSTOMER AND ORDER IDENTIFICATION

CUSTOMER NUMBER

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

ORDER NUMBER

This number is pre-printed on each form.

PAGE - OF -

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

SECTION 3 USER VOLUME INFORMATION

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

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

2400' MAGNETIC TAPE REELS	DISK PACKS/ CARTRIDGES
1. Customer Number	1. Customer Number
2. *Order Number (Preprinted)	2. *Order Number (Preprinted)
	3. Disk serial number
It is suggested that tape reels be of the aluminum hub variety	Disk packs should be shipped in the standard disk pack

and the tape secured by a tape end retainer	containers (Part #7350520). Disk cartridges should be shipped in the standard cartridge containers (Part #7350600).

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

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

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

SECTION 4 USER REGISTRATION

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

ACTION CODE

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

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

D: DELETE a previous registration. This action causes the deletion of the entire user profile (identified by the 7 digit Customer Number entered in Section 2) from the PID files. No other information is necessary.

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

DP BRANCH OFFICE NUMBER/IBM LOCATION

Enter the IBM DP Branch Office number for the IBM customer or DP Branch Office user. Enter the IBM division, location and department codes for IBM users. Do not make entries in both fields.

MAGNETIC TAPE CAPABILITY

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

"SHIP TO" INFORMATION

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

SECTION 5 FOR IBM USE

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

IBM MANAGEMENT SIGNATURE

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

IBM WORLD TRADE USERS

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

KEYWORD-IN-CONTEXT (KWIC) INDEX

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

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

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

PROGRAM CLASSIFICATION CODES

Included below is a complete listing of classification codes for all types of I, II, III, IV and Prior Use programs 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

/AL/ ALGOL Compiler
/AS/ Assembler
/CB/ COBOL Compiler
/CQ/ Communications Input/Output
/CL/ Control Program
/CV/ Conversion
/DC/ Documentor
/DM/ Data Management
/DN/ Diagnostic
/ED/ Editor
/EU/ Emulator Program
/FO/ FORTRAN
/IO/ Input/Output
/LM/ Library Material
/LD/ Loader
/MI/ Miscellaneous
/OS/ Operating System
/PL/ Programming Language/I Compiler
/PT/ Program Test
/RC/ Remote Computing
/RG/ Report Generator and Report Program Generator
/SI/ Simulator
/SM/ Sort/Merge
/SV/ Supervisor
/UT/ Utility

APPLICATION PROGRAMMING TYPE II

Industry-Oriented Programs

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

Finance
/FB/ Banking
/FF/ Finance Companies
/FI/ Brokerage and Investment
/FX/ Other

Federal Government
/GF/ Government, Federal

Insurance
/IB/ Blue Cross and Blue Shield
/IF/ Fire and Casualty
/IL/ Life
/IX/ Other

Manufacturing
/MA/ Aerospace
/MD/ Drug, Food, Chemical Products
/ME/ Electrical and Machinery
/MF/ Fabrication and Primary Metals
/MP/ Petroleum and Industrial Chemicals
/MR/ Transporation Equipment
/MT/ Textiles and Paper
/MX/ Other

Service
/SC/ Communication
/ST/ Transportation
/SU/ Utilities
/SX/ Other

Universities and Government
/UC/ Colleges and Universities
/UG/ Government, State and Local
/UH/ Hospital and Medical
/US/ Secondary Schools
/UX/ Other

Industry-Independent Programs

Cross Industry Group
/CA/ Statistical Applications
/CC/ Process Control
/CM/ Mathematical Applications
/CN/ Numerical Control Applications
/CO/ Operations Research
/CP/ Critical Path Scheduling
/CR/ Information Retrieval

/CS/ Simulators
/CX/ Other

Engineering
/EC/ Civil Engineering
/EE/ Electrical Engineering
/EH/ Chemical Engineering
/EM/ Mechanical Engineering
/EN/ Nuclear Codes
/EO/ Optics
/EX/ Other

Exploratory
/XP/ Mathematics and Applications

System Engineering
/SE/ System Engineering Techniques

TYPE III AND IV PROGRAMS

Utility (External) Programs 00.
0 Unclassified
1 Multiple Utility
2 Flowcharting
3 Tape Handling
4 Disk Handling
5 Drum and Direct Data Devices
6 Graphic Display Devices

Utility (Internal) Programs 01.
0 Unclassified
1 Loading
2 Clear/Reset Memory
3 Check Sum Accumulative and Correction
4 Internal Housekeeping
5 Dump to Reload; Restore
6 File Organization
7 Self Checking Digit
8 Packed Data Handlers

Diagnostics 02.
0 Unclassified
5 Status Recorders

Programming Systems 03.
0 Unclassified
1 Assemblers
2 Compilers
3 Interpretive Systems
4 Input/Output Control
5 Report Generators
6 Preprocessing and Editing
7 Macros and Macro Generators
8 Functions and Subroutines

Testing and Debugging 04.
0 Unclassified
1 Dumping
2 Tracing
3 Test Data Preparation
4 Testing Systems
5 Break Point Print
6 Memory Verification and Searching

Executive Routines 05.
0 Unclassified
1 Monitor
2 Supervisor
3 Disassembly and Derelativizing
4 Relativizing
5 Relocation

Data Handling 06.
0 Unclassified
1 Sorting
2 Merging
3 Data Transmission
4 Table Operations
5 Conversion and/or Scaling
6 Character and Symbol Manipulation
7 Information Classification, Storage and Retrieval
8 Processing of List Type Data Structures

Input 07.
0 Unclassified
1 Binary
2 Octal
3 Decimal
4 BCD
5 Hexadecimal
6 Composite

Output 08.
0 Unclassified
1 Binary
2 Octal
3 Decimal
4 BCD
5 Hexadecimal
6 Plotting
7 Display
8 Composite

Systems Analysis 10.
0 Unclassified
1 Network Design
2 File and Core Requirement
3 Systems Design
4 Configurator

Simulation of Computers and Components 11.
0 Unclassified
1 Computers
2 Peripheral Equipment
3 System Component or Feature
4 Pseudo-Computer

Conversion of Programs and Data 12.
0 Unclassified
1 Data Conversion
2 Computer Language Translators

Statistical 13.
0 Unclassified
1 Descriptive
2 Univariate and Multivariate Parametric
3 Non-Parametric
4 Time Series and Auto Correlation
5 Probability Distribution Sampling, and Random Number Generators
6 Correlation and Regression Analysis
7 Analysis of Variance and Covariance
8 Sequential Analysis
9 Discriminant Analysis

Management Science/Operations Research 15.
0 Unclassified
1 Simulations
2 Linear Programming
3 Non-Linear Programming
4 Scheduling/Critical/Path/Pert
5 Games, Game Like Models and Game Theory
6 General Problem Solvers
7 Inventory Control

Engineering 16.
0 Unclassified
1 Aeronautical
2 Civil
3 Chemical
4 Electrical
5 Mechanical and Hydraulic
6 Petroleum
7 Nuclear
8 General

Sciences 17.
0 Unclassified
1 General
2 Nuclear Physics
3 Chemistry
4 Geology, Oceanography, and Geophysics
5 Biology
6 Social and Behavioral
7 Astronomy and Celestial Navigation

Nuclear Codes 18.
0 Unclassified

Financial 19.
0 Unclassified
1 Investing and Borrowing
2 Capital Stock
3 Taxes
4 Cash Custody and Forecasting
5 General Accounting
6 Auditing
7 Banking Operations

Cost Accounting 20.
0 Unclassified
1 Material Only
2 Labor Only
3 Work in Progress

Payroll and Benefits 21.
0 Unclassified
1 Payroll
2 Employee Benefits
3 Profit Sharing
4 Retirement
5 Insurance
6 Credit Union

Personnel 22.
0 Unclassified
1 Recruiting and Hiring
2 Inventorying Employees
3 Training
4 Performance Review
5 Administering Wages and Salary

Manufacturing 23.
0 Unclassified
1 Scheduling/Loading
2 Job Reporting
3 Bill of Materials Processors
4 Numerical Control
5 Control Systems

Quality Assurance Reliability 24.
0 Unclassified
1 Testing
2 Performance Analysis

Inventory 25.
0 Unclassified
1 Stocking and Issuing
2 Inventory
3 Equipment and Tool Inventory and Maintenance

Purchasing 26.
0 Unclassified
1 Preparing Purchase Orders
2 Matching Invoices
3 Accounts Payable
4 Purchase Analysis

Marketing 27.
0 Unclassified
1 Sales and Billings Forecasting
2 Promotion and Advertising
3 Bid or Request Analysis
4 Distributor or Territory Analysis

Sales Entered and Billed 28.
0 Unclassified
1 Order Entry and Scheduling
2 Invoicing
3 Accounts Receivable
4 Sales and Billing Analysis
5 Backlog Reporting

General Business Services 29.
0 Unclassified
1 Records Retention
2 Forms Management
3 Transportation
4 Printing and Reproduction

Demonstrations 30.
0 Unclassified
1 Display
2 Participation

Arithmetic Routines 40.
0 Unclassified
1 Real Numbers
2 Complex Numbers
3 Decimal
4 Floating Point

Elementary Functions 41.
0 Unclassified
1 Trigonometric
2 Hyperbolic
3 Exponential and Logarithmic
4 Roots and Powers
5 Geometry
6 Logical and Rounded

Polynomials and Special Functions 42.

0 Unclassified
1 Evaluation of Polynomials
2 Roots of Polynomials
3 Evaluation of Special Functions
4 Simultaneous Non-Linear Algebraic Equations
5 Simultaneous Transcendental Equations

Operations on Functions and Solutions of Differential Equations 43.
0 Unclassified
1 Numerical Integration
2 Numerical Solutions of Ordinary Differential Equations
3 Numerical Solutions of Partial Differential Equations
4 Numerical Differentiation

Interpolation and Approximations 44.
0 Unclassified
1 Table Look-Up and Interpolation
2 Curve Fitting
3 Smoothing

Operations on Matrices, Vectors and Simultaneous Linear Equations 45.
0 Unclassified
1 Matrix Operations
2 Eigenvalues and Eigenvectors
3 Determinants
4 Simultaneous Linear Equations
5 Vector Analysis

Insurance 50.
0 Unclassified
1 Life
2 Fire and Casualty
3 Pension and Welfare

Unclassified 99.
0 Miscellaneous

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 order number will then direct you to the corresponding program abstract. The reference code is set up as follows:

System	Order No.
360P	UT-098
1130	00.4.004
360E	19.1.001

Now refer back to the illustration in the section entitled, "Keyword-in-Context Index".

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.

CONTRIBUTED PROGRAM ABSTRACTS

Figure 3 illustrates the format in which the Contributed Program abstracts appear. Explanations are included where the information is not self-explanatory.

(1) Program Order Number.
(2) Program Title.
(3) Additional Author Information and Secondary Classification codes. From left to right in the example:

N-User Organization Affiliation Code
C-Common S-Share
G-Guide N-Non-affiliated

UAN - User Organization Installation Code will appear here if applicable, otherwise will be blank.

XXXX -Submitter's own Program Identification if applicable.

06.5 06.6 -Secondary Classification (maximum of four).

(4) First line of Program Abstract.

LIST OF NEW PROGRAM PRODUCTS

Program Products are appearing in this catalog for the first time. All future catalogs will contain a "List Of New Program Products, including those contained in all previous supplements.

LIST OF NEW TYPE III, IV AND PRIOR USE PROGRAMS

New Types III, IV and Prior Use programs are announced in each Catalog or Supplement in the table entitled, "List of New Types III, IV and Prior Use programs,

Catalogs will contain all new Type III, IV and Prior Use programs, including those contained in all previous supplements, that have been accepted since the last published Catalog. All new Type III, IV and Prior Use Programs which appear in this catalog were accepted prior to December 31, 1970.

Abstracts for these programs can be found in those sections entitled "IBM PROGRAMS" or "CONTRIBUTED PROGRAMS". The code *N appears at the extreme right-end of the title line for each program appearing for the first time.

PROGRAM CORRECTIONS AND REVISIONS OF TYPE I, II, III AND IV PROGRAMS

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

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

material.

Abstract changes for Types I, II, III and IV programs are noted in this Catalog and its supplements. The code *M appears at the extreme right-end of the title line for each abstract that has been modified.

Modifications to program abstracts, documentation and machine readable material for Type III (IBM Employee Contributed) and Type IV (Customer Contributed) programs are listed in a special table entitled "List of Type I, II, III and IV Program Corrections and Revisions" preceding the KWIC Index.

Catalogs will contain all revisions, including those contained in all previous supplements, that have occured since the last published Catalog. All corrections and revisions which appear in this catalog were accepted prior to December 31, 1970.

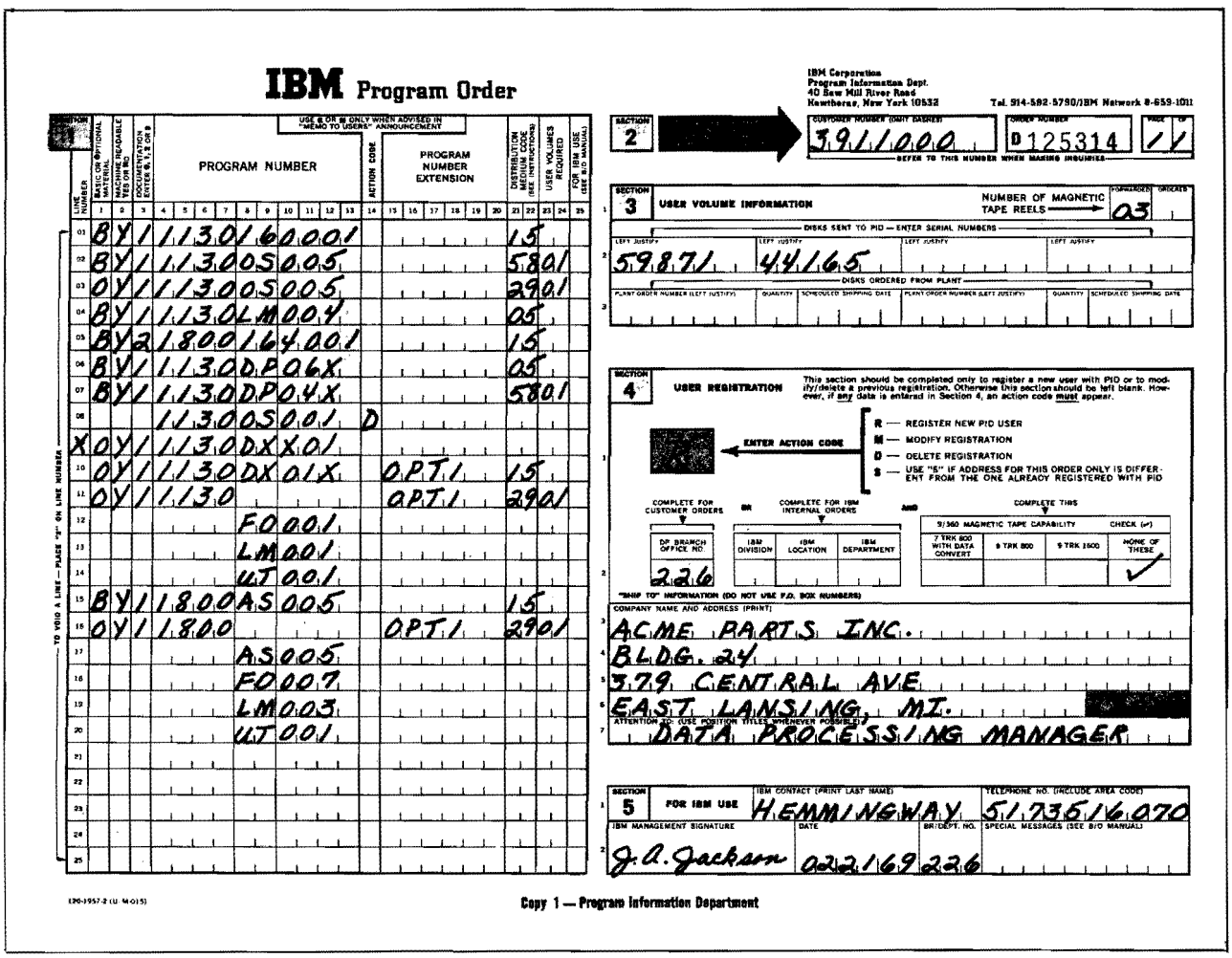
If a user has received the program prior to the date indicated in the List of Type I, II, III and IV Program Corrections and Revisions and would like to receive the updated version, he must reorder the program.

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 TYPE I, II, III AND IV PROGRAMS

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

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



IBM Program Order

IBM Corporation
Program Information Dept.
40 Saw Mill River Road
Hawthorne, New York 10532
Tel. 914-592-5780/IBM Network 8-659-1011

SECTION 2 — CUSTOMER NUMBER (DUNS NUMBER): 391000 — ORDER NUMBER: D125314 — PAGE 1 OF 1 — REFER TO THIS NUMBER WHEN MAKING INQUIRIES

SECTION 3 — USER VOLUME INFORMATION — NUMBER OF MAGNETIC TAPE REELS: ORDERED 03, CREATED

DISKS SENT TO PID — ENTER SERIAL NUMBERS: 59871, 44165

DISKS ORDERED FROM PLANT

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

SECTION 4 — USER REGISTRATION

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

ENTER ACTION CODE

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

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

DP BRANCH OFFICE NO.	IBM DIVISION	IBM LOCATION	IBM DEPARTMENT	9/360 MAGNETIC TAPE CAPABILITY: 7 TRK 800 WITH DATA CONVERT	9 TRK 800	9 TRK 1600	CHECK (✓) NONE OF THESE
226							✓

"SHIP TO" INFORMATION (DO NOT USE P.O. BOX NUMBERS)

COMPANY NAME AND ADDRESS (PRINT):
ACME PARTS INC.
BLDG. 24
379 CENTRAL AVE
EAST LANSING, MI.
ATTENTION TO: (USE POSITION TITLES WHENEVER POSSIBLE)
DATA PROCESSING MANAGER

SECTION 5 — FOR IBM USE — IBM CONTACT (PRINT LAST NAME): HEMMINGWAY — TELEPHONE NO. (INCLUDE AREA CODE): 517 336 16 070

IBM MANAGEMENT SIGNATURE	DATE	BR/DEPT. NO.	SPECIAL MESSAGES (SEE B/O MANUAL)
J.A. Jackson	02 21 69	226	

TO VOID A LINE — PLACE "D" ON LINE NUMBER

USE 6 OR 8 ONLY WHEN ADVISED IN "MEMO TO USERS" ANNOUNCEMENT

LINE NUMBER	BASIC OR OPTIONAL MATERIAL	MACHINE READABLE MEDIUM	DOCUMENTATION (ENTER 0, 1, 2 OR 3)	PROGRAM NUMBER	ACTION CODE	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM CODE (SEE INSTRUCTIONS)	USER VOLUMES REQUIRED	FOR IBM USE (SEE B/O MANUAL)
01	B	Y	1	1130 16 0001			15		
02	B	Y	1	1130 OS 005			5801		
03	O	Y	1	1130 OS 005			2901		
04	B	Y	1	1130 LM 004			05		
05	B	Y	2	1800 16 4001			15		
06	B	Y	1	1130 DP 06X			05		
07	B	Y	1	1130 DP 04X			5801		
08				1130 OS 001	D				
X	O	Y	1	1130 DX X01					
10	O	Y	1	1130 DX 01X		OPT1	15		
11	O	Y	1	1130		OPT1	2901		
12				F0 001					
13				LM 001					
14				UT 001					
15	B	Y	1	1800 AS 005			15		
16	O	Y	1	1800		OPT1	2901		
17				AS 005					
18				F0 007					
19				LM 003					
20				UT 001					
21									
22									
23									
24									
25									

(20-1957-2 (U.S.A.))

Copy 1 — Program Information Department

KEYWORD-IN-CONTEXT (KWIC) INDEX

ABUTMENT

TITLE	PROGRAM NO.	PAGE
#ABUTMENT DESIGN.	1130-16.2.009	048
ACCOUNTING SYSTEM FOR DAIRIES AND BAKERIES.	1130-DX-01X	005
ACCOUNTS RECEIVABLE DEMONSTRATION.	1130-30.1.002	058
ACCURATE NUMERICAL CONTROL ON THE+	1130-23.4.002	055
ACQUISITION AND CONTROL IN LABORATORY+	1800-05.1.002	066
ACQUISITION AND CONTROL SYSTEM. #A+	1800-05.2.001	066
*ADAPTER #IDEAL STR COMMUNICATION IN IBM	1130-03.8.004	033
ADAPTER SUBROUTINE (BSC). #1130 SYNCHRONOUS+	1130-LM-003	009
ADAPTER SUBROUTINE (BSC). #1130 SYNCHRONOUS+	1130-LM-004	010
#ADDITION TO IDEAL FORTRAN (1130-03.8.002).	1130-07.3.001	040
ADDRESS CONVERSION. #1800 CARD ASSEMBLER	1800-04.0.001	064
*ADDRESSES #1130 SELECTIVE DISK COPY	1130-00.4.004	027
*ADMINISTRATION #STUDENT INFORMATION SYSTEM	1130-06.7.001	039
#ADVANCED 1130 CORRUGATOR SCHEDULING+	1130-15.2.003	044
ADVERTISING SYSTEM (AUTOCLAS). #AUTOMATED+	1130-06.6.011	038
*ALGORITHM #ADVANCED 1130 CORRUGATOR	1130-15.2.003	044
ALGORITHM FOR LOSS MINIMIZATION. #THE 1130+	1130-15.6.001	046
ALTO LABORATORY SYSTEM (PALS) - A DYNAMIC+	1800-05.1.002	066

Figure 2

(1) **1130-44.1.001**

(2) **MULTI-LINE INTERPOLATION ROUTINE**

AUTHOR....W. J. Elliott

DIRECT TECHNICAL INQUIRIES TO...
Mrs. J. Silence
Allison Division
GMC Plant 8, Dept. 8895
Indianapolis, Ind.

(3) *** C 3215 MIR 44.2 - - - - - - ***

(4) DESCRIPTION - This routine provide
interpolating between tabulate'
variable and two variables.
Largrange Interpolation, '
primary or secondary i''

PROGRAMMING SYS"
is an 1130 FOR

Figure 3

LIST OF NEW PROGRAM PRODUCTS

LIST OF NEW TYPE III, IV AND PRIOR USE PROGRAMS

All programs which appear on this list were accepted prior to December 31, 1969.

LIST OF TYPE III AND IV PROGRAM CORRECTIONS AND REVISIONS

These changes were requested by the authors.

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

All programs which appear on the following list were accepted prior to December 31, 1969.

PROGRAM NO.	TITLE	CODES
1130-16.3.001	SOCRATES STUDENT SCHEDULING SYSTEM	A B
1800-03.4.006	1800 STORAGE CRT DISPLAY SYSTEM	A B

DELETED TYPE I, II, III, AND IV PROGRAMS

Key to Reason for Deletion
A. Low Usage
B. Withdrawn by the Author

PROGRAM NO.	PROGRAM TITLE	KEY
1130-LM-003	1130 SYNCHRONOUS COMMUNICATION ADAPTER SUBROUTINE (BSC)	B
1130-LM-004	1130 SYNCHRONOUS COMMUNICATION ADAPTER SUBROUTINE (BSC)	B
1130-OS-001	DISK MONITOR PROGRAMMING SYSTEM	B
1130-OS-002	DISK MONITOR PROGRAMMING SYSTEM	B

The Classification Code Index lists available contributed programs by their primary and secondary classification codes. Secondary classification codes are significant codes assigned by the author to classify subroutines and program operations other than those of the primary code. The secondary codes are selected from the program classification codes list (Type III and IV programs), and appear within the contributed program abstract.

Each primary and secondary classification code is listed numerically in the left-hand column. Each contributed program has a line entry for the primary classification code and for each secondary classification code assigned. The primary classification code is preceded by an asterisk (*). Each entry contains the classification code, program title, program number, and page number.

CLASSIFICATION CODE INDEX (CONTRIBUTED PROGRAMS)

KWIC (KEYWORD-IN-CONTEXT) INDEX

KWIC (KEYWORD-IN-CONTEXT) INDEX

KWIC (KEYWORD-IN-CONTEXT) INDEX

KWIC (KEYWORD-IN-CONTEXT) INDEX

5711-M61 *N

1130 CONSTRUCTION ESTIMATING PROGRAM

DESCRIPTION - The Construction Estimating Program is designed for the IBM 1130 Computing System. It provides the ability for a contractor in the construction industry to produce fast, accurate, cost estimates for construction projects. Summaries of estimated costs may be produced for subdivisions of work for a project and for the entire project. Examples from three of the 16 divisions (concrete, masonry, and steel) set forward in the AGC Manual (Uniform System for Construction Specifications, Data Filing and Cost Accounting: Title One-Buildings) have been provided with this package. Linkages are provided for the remaining 13 divisions. Within each division the program permits up to 846 catagories, numbered 101 to 194,201 to 294...901 to 994.

The user must supply unit cost and descriptive data by work item (category) within a division. Programs are provided to store and update this cost data on a disk file. Unit costs may be assigned for labor, material and equipment, as required by each category. These unit costs are extended later by quantity to produce cost summaries by division. Once the program has built the unit cost file, the user causes an estimating cycle to begin by inputting to the program the dimensions from the take-off (from the building plans and specifications) for each category. The program then extends the dimensions into a quantity in the units of measure for a particular category. The program accumulates these quantities on a disk file by category.

Upon command from the user, all of the accumulated quantities are extended by the appropriate unit costs, and the summary for a particular division is printed. Optionally, the summary data may also be punched into cards.

The user must provide a formula in FORTRAN for each category number for which dimensions are to be extended. An example and explicit instructions for the inclusion of these formulas will be provided. A method is also provided for introducing a one-time formula into the system at execution time for cases in which the user has not provided a pre-coded FORTRAN formula.

PROGRAMMING SYSTEMS - The 1130 Construction Estimating Program is programmed in the IBM 1130 FORTRAN language. It operates under the 1130 Problem Language Analyzer (PLAN) (1130-CX-25X), which in turn operates under the 1130 Disk - Monitor System Version 2 (1130-OS-005).

MINIMUM SYSTEM CONFIGURATION - An 1131 Central Processing Unit Model 2B...A 1442 Card Read/Punch Model 6 or 7... An 1132 Printer...One 2315 Disk Cartridge.

BASIC MATERIAL
Unlicensed Documentation: One copy each of the Program Description and Operations Manual...Program Product Specifications.

Licensed Machine Readable: Object program load modules and sample problem.

RELATED OPTIONAL MATERIAL
Licensed Documentation: One copy System Manual.

Licensed Machine Readable: One copy machine readable material consisting of distributed source decks.

Refer to local IBM Branch Office for ordering instructions.

5711-P11 *N

1130 CHARGE MATERIALS ALLOCATION PROCESSOR (CMAP)

DESCRIPTION - There may be many possible combinations of raw materials which may be used to produce metal to given metallurgical specifications. CMAP determines which combination of raw materials results in the lowest cost initial furnace charge, consistent with good operating practice and meeting the metallurgical specifications input by the user.

A linear programming technique is used to solve the problem by calling the routines of the Linear Programming System /1130 (LPS/1130), program product 5711-C01. An input translator accepts the problem data in a format familiar to and convenient for metallurgists and melt shop personnel. An output writer prepares and prints reports in a format familiar to foundry personnel.
The program may be executed as often as necessary to analyze the effect of changes in materials, costs, and specifications, providing data not readily available through manual calculations. An inventory control feature of CMAP will maintain raw material inventory data, giving a user the first phase of an inventory control system.

Features:
. Minimize the cost of initial charges

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. Purchase more economically
. Evaluate operating practices
. Establish a material inventory system
. Use terminology familiar to the user

Customer Responsibility - A basic knowledge of the generation and operation of 1130 Disk Monitor System Version 2 is recommended for ease of CMAP installation. Both 1130 Disk Monitor System Version 2 and Linear Programming System/1130 (program product 5711-C01) must be ordered separately.

Use - The user of an installed CMAP system does not need to be well experienced with computers or linear programming techniques to use the basic features of CMAP.

Input to CMAP consists of a description of the chemical content of each raw material, the cost of each raw material, the available amount of each raw material, and the metallurgical specifications and the weight of the heat to be melted.

A solution is calculated and reports may be printed for the user expressing the solution in shop terminology. The customer may make certain adjustments to fit his special operation practices, if necessary. The adjustments are analyzed by CMAP and additional reports prepared showing the effect of the adjustments. Materials used in the solution may be automatically deducted from the inventory file on disk.

PROGRAMMING SYSTEMS - The source language of CMAP is FORTRAN. CMAP operates under the control of the IBM Disk Monitor System Version 2 and uses the subroutines and programs of LPS/1130 (program product 5711-C01)

MINIMUM SYSTEM CONFIGURATION - CMAP execution requires at least one 1130 Model 2B (8,192 core storage and one disk storage device) and one 1442 Card Read Punch Model 6 or 7 or one 2501 Card Reader.

LPS/1130-CMAP system generation and maintenance require at least an 1130 Model 2B and one 1442 Card Read Punch Model 6 or 7, one 2501 Card Reader and 1442 Card Punch Model 5, or one 2501 Card Reader and 1442 Card Read Punch Model 6 or 7.

The 1130 system used to generate LPS-CMAP must have at least as much core storage and at least as many disk storage drives as the 1130 system on which CMAP will be used.

A configuration recommended for flexibility, ease of generation and operation, and improved performance consists of at least an 1130 Model 2B, a 1442 Card Read Punch Model 6 or 7 and an 1132 Printer.

Compilation of CMAP source decks requires at least an 1130 Model 2B and one 1442 Card Read Punch Model 6 or 7 or one 2501 Card Reader.

To list or punch the optional machine readable material for CMAP (source code tape), a System/360 with one 2400 series tape drive is required.

CMAP will run on a system with up to 32,768 words of core storage. Additional disk storage (up to a total of three disk storage drives) and the 1403 Printer may be used. Additional core storage, above the 8,192-word minimum, is used only by LPS/1130 and results in only a slight improvement in the performance of CMAP. Use of an additional disk storage drive will allow more efficient storage of programs and data. Addition of a third disk storage drive may be made, but does not result in significant improvement in CMAP performance. Minor modifications to the CMAP system generation and execution procedures are required when using additional disk storage or the 1403 Printer. A 2315 Disk Cartridge must be dedicated to the CMAP-LPS system.

When installed on a minimum 8K system, several CMAP programs require the use of the LOCAL and SOCAL facility of the Disk Monitor System due to core requirements. Increase in the core requirements of either 1130 Disk Monitor or LPS/1130 may require additonal CMAP LOCALS. Instructions regarding these additional LOCALS will be provided, as required, in the form of a modification change letter for CMAP.

BASIC MATERIAL
Unlicensed Documentation: One copy Program Description Manual... one copy Operations Manual and TNL.

Licensed Machine Readable: Monitor system control cards, object program load modules, and sample problem.

RELATED OPTIONAL MATERIAL
Licensed Documentation: One copy System Manual and one copy Compilation Listing Manual.

Licensed Machine Readable: Source code.

Refer to local IBM Branch Office for ordering instructions.

5718-H11 *N

IBM 1800 CLINICAL LABORATORY DATA ACQUISITION SYSTEM (CLDAS)

DESCRIPTION - CLDAS is an on-line data acquisition and analysis program designed for the IBM 1800 Data Acquisition and Control System. It provides for the monitoring and automatic acquisition of data from continuous flow type single or multiple channel automatic analyzers commonly found in laboratories today. Data reduction and analysis are then performed to convert the raw instrument readings into final determinations, which are listed for verification and reporting.

Many instruments and channels may be monitored simultaneously. For example, a typical 16K system, could service two 12-channel analyzers and 18 single-channel analyzers.

CLDAS facilitates regrouping of laboratory instruments into new batteries with its Procedure File concept... permits the user to specify the sampling rate for each instrument... continuously monitors and provides operator messages for detected instrument malfunctions... performs the data reduction and analysis required to convert raw instrument readings into final determinations.

The modular design of CLDAS simplifies the addition of new instruments and procedures.

When CLDAS is initially installed, a Procedure File is created by loading parameters uniquely describing each laboratory procedure to be automated. CLDAS then references the Procedure File and creates a second file, called the Worklist File, whenever work requiring a specfic procedure is scheduled. Instruments are automatically sonitored and their readings entered into the Worklist File. Potential problems such as washouts, off scale readings, shoulders or noise spikes are reported via messages to the technologist as the run progresses. At the completion of the run, the results in Worklist File are calibrated and printed for verification and final reporting.

CLDAS is a complex, on-line data acquisition and analysis program which may be tailored to fit a user's environment. A good understanding of the CLDAS program and the TSX system is required for successful installation.

The user is responsible for the direct attachment of laboratory instruments to his IBM 1800 Data Acquisition and Control System. Acceptable voltage levels must be provided to the IBM 1800 from the instruments. Device support programs must be written if devices other than continuous flow automatic analyzers are to be attached. A knowledge of the 1800 and its programming languages is required to write these additional device support programs.

The user must provide the data required to build the Procedure File and establish program parameters which define the laboratory to CLDAS.

PROGRAMMING SYSTEMS - Both IBM 1800 FORTRAN Language and IBM 1800 Assembler Language are used in CLDAS. Programming additions may be written in either language as appropriate.

CLDAS operates under Version 3 Modification Level 6 of the IBM 1800 Time Sharing Executive System (TSX).

MINIMUM SYSTEM CONFIGURATION - The TSX system has minimum system requirements for System Generation as outlined in "IBM 1800 Time Sharing Executive System Concepts and Techniques". The Clinical Laboratory Data Acquisition System has several additional requirements. The 1801 Processor-Controller must have at least 16K core storage (a minimum of 6K of variable core is required in the TSX system). A 1443 Printer is required in addition to the 1816 Console Typewriter. IBM 1800 Process I/O features appropriate for the user's laboratory instruments are required (at least one word of process interrupt contact must be included if plateau type devices are monitored).

BASIC MATERIAL
Unlicensed Documentation: One copy of Program Description Manual... Operations Manual... Programmers Manual... Program Product Specifications.

Licensed Machine Readable: Source program modules.

RELATED OPTIONAL MATERIAL
Licensed Documentation: One copy of HISP System Manual.

Refer to local IBM Branch Office for ordering instructions.

5718-H12 *N

CLINICAL LABORATORY MANAGEMENT SYSTEM (CLMS)

DESCRIPTION - CLMS is a system of files and procedures designed to satisfy the basic information processing requirements of clinical laboratories in modern hosptials. Utilizing the Clincal Laboratory Data Acquisition System (CLDAS) program product (5718-H11) or its equivalent for the data acquisition function, it provides a broad base

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for an information management system. CLMS, with its unique file approach, directs and controls the flow of information from receipt of the initial requisition for a test until the final result has been developed and is ready for reporting.

CLMS processing revolves around a key file, the Master Log, which maintains the status of each test as it progresses through the laboratory cycle. Initial entries in this file are created from test requisitions entering the laboratory. The system uses this file to generate the printed master log and the worklists for the various work stations. As the test runs at the work stations are completed, the system prints quality control listings to permit verification of the final test results before they are made available for reporting. Upon verification, these results are placed by the system into the Master Log. Periodically, the Master Log can be reviewed and a patient report printed for the completed tests. Entries into a charge file may be made at various points in the processing.

The Master Log contains work status indicators which are maintained by the system. These indicators show when a specimen has physically entered the laboratory and is ready for testing, when it has been placed on a worklist for a test run, and when a result has been obtained and is ready for reporting. These indicators are used by the system to direct the laboratory work flow. They are also available to the user for real time response to inquiries on the status of tests.

The Master Log, in the normal course of processing, collects data on most aspects of the laboratory operation; the type and number of tests performed, the technologists performing them, the devices and procedures used, etc. This information is available to the user for the preparation of statistical and other special reports of value in managing the laboratory and planning for its future.

For a description of the laboratory, CLMS utilizes a set of internal files. These files are created by the system from punched cards containing operational data specified by the user. By respecifying the operational data, the user may at any time modify the system to reflect additions, deletions, or rearrangements in his test procedures.

CLMS utilizes the card reader, printer and console typewriter as its principal means of communication with the user. However, all input and output functions of CLMS originate or terminate in a system file. These interfacing files simplify the incorporation of other input-output devices into the system. The user is responsible for any additional device support programs. A knowledge of the 1800 and its programming languages is required to write these additional device support programs.

CLMS uses an internal file, the Patient ID File, for patient data such as name, location, birthdate and sex. The user is responsible for providing the data for the creation and the procedure for maintenance of this file.

CLMS is a series of background batch process programs designed to operate concurrently with the data acquisition function. The user must provide CLDAS or its equivalent for the direct monitoring of his laboratory instruments.

PROGRAMMING SYSTEMS - CLMS operates under the IBM 1800 Time Sharing Executive System (TSX). Both IBM 1800 FORTRAN langauge and IBM 1800 Assembler Language are used in the system. This program product is released to work with TSX Version 3 Modification 8 and all subsequent releases, versions, and modifications unless so stated in a future revision of this document.

MINIMUM SYSTEM CONFIGURATION - The TSX system has minimum system requirements for Systems Generation as outlined in "IBM 1800 Time Sharing Executive System Concepts and Techniques" (C26-3703). CLMS requires that the 1801 Processor-Controller have at least 16K core storage (a minimum of 6244 words of variable core is required in the TSX system). A 1443 printer, 1442 Card Read Punch and an 1816 Console Typewriter are required. An 1818 Disk Storage Model A2 is also required. (While the Model A2 will normally provide adequate storage capacity, it is possible that laboratory volumes could be large enough to necessitate a Model A3. Refer to the Application Description Manual for guidelines in determining disk storage requirements). The user's method of executing the data acquisition function will dictate the IBM 1800 Process I/O features required on the system.

BASIC MATERIAL
Unlicensed Documentation: Program Product Specification Sheet... Program Description Manual... Operations Manual ...System Manual.

Licensed Machine Readable: CLMS source modules, CLDAS inclusion modules, coreload build job control language and the sample data.

Refer to local IBM Branch Office for ordering instructions.

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5718-P01 *N

PROCESS SYSTEMS PROGRAM (TSX/1800) (PROSPRO II)

DESCRIPTION - The IBM Process Systems Program (PROSPRO) II is oriented toward industrial control computer applications which are mostly continuous operations. It offers fill-in-the-blanks tabular programming of the IBM 1800 Data Acquisition and Control System, enhancing without obstructing user access to the Time Sharing Executive (TSX) operating system. PROSPRO II can substantially reduce the programming complexity and effort associated with the installation of process control systems. Applications that involve DDC (Direct Digital Control), supervisory control, operation sequencing, or data acquisition are efficiently served by using the modular features of PROSPRO II. In addition, process data management is provided.

The user specifies the parameters of control strategy and/or data acquisition by filling blanks on three to eleven special forms from which data cards are punched and then entered, on-line, into the 1800 and the PROSPRO Program. Groups of data that pass logic consistency tests are preprocessed into data files and tables of pointers which cause the system to perform the defined actions. Changes in these functions and the control strategy may be made by entering new or different data cards on-line. The completed PROSPRO II special data forms become the organized documentation of that installation.

PROSPRO II provides the capability to perform the following industrial control functions:

- SCAN instrument analog signals and digital switches and transmit instrument command signals (pulse height and pulse train).
- Check selected analog signals for alarm limits on a second-by-second basis and call for additional computation when a limit is violated.
- Process at selected periods of seconds, measured and derived DDC variables for fast closed loop regulation and industrial operation sequencing.
- Process at selected periods of minutes, measured, derived, and DDC variables check limits, take supervisory actions, and update files for current, average, and rate of change values of the variables.
- Perform supervisory actions to choose an alternate strategy, regulate cascaded closed loops, issue operator guide messages, and transfer objectives to the DDC control level or to instrument controllers.
- Execute control algorithm options as specified for DDC and supervisory regulation.
- Display operator requested information on a defined process constant, process variable, closed loop, process unit, or the status of the computer system.
- Accept (or reject with a displayed message) operator entered data and commands.
- Couple or uncouple a chain of cascaded DDC and supervisory control loops from the operator's console.
- Type operator changes made through the console.
- Type alarm messages for process variables.
- Type an alarm status summary log or a control status summary log requested for a process unit.

PROSPRO II consists of four major components:

Preprocessor - The preprocessor operates on-line, interprets and error checks the forms information, and generates compact records of data and pointers to direct the processors to perform the defined actions efficiently.

File Structure - The file structure provides files of information for efficient periodic processing, for random access from the operator's console, and for process data management.

Processors - The processors are mostly disk resident except for DDC, and periodically (or when called) execute the functions as directed by the preprocessed records. These records are either core resident or brought into multi-record core buffers that are prioritized according to their activity.

Operator Communication Facility - Operator communication with the system is provided by the IBM 1892 Model II Process Operator's Console through a set of programs that respond to console interrupts, drive the console lights and displays, and interface the data files and processors. With the maximum facility of two consoles, one console becomes the master.

PROGRAMMING SYSTEMS - PROSPRO II operates under the IBM 1800 Time Sharing Executive operating system (1800-OS-001). The TSX Non-Reentrant Subroutines may be used (1800-LM-009). IBM 1800 FORTRAN and Assembler Language are the source languages for PROSPRO II.

MINIMUM SYSTEM CONFIGURATION - 1801 or 1802 Processor - Controller Model 1D or 2D, 1442 Adapter (4438), three additional Data Channels (3222), Analog Input Data Channel Adapter 1 (1233), Analog Input Data Channel Adapter 2 (1234) Analog-Digital Converter Model 1 (1231), Comparator (2185), Multiplexer/R Control (5256)...1442 Card Read Punch Model 6 or 7...1816 Disk Storage Model A2 or B2...2315 Disk Cartridges...1892 Model II Process Operators Console (RPQ C08400 and prerequisites).

The number required, if any, of the following depends on the application.

Digital Input Data Channel Adapter (3291), Digital and Analog Output Data Channel Adapter (3290) (features 3290/1 may share a data channel), Process Interrupt Adapter (5718), Process Interrupt-Contact (5715), Digital Input Adapter (3262), Digital Input Contact (3285), Digital Output Control (3296), Digital Output Adapter (3295) Electronic "Contact" Operate (3612), Pulse Output (5863)...1053 Printer...1828 Enclosure Model 2...1851 Multiplexer Terminal Model 1 or 2, Multiplexer/R (5252), Differential Amplifier (3286), Signal Conditioning Element...1856 Analog Output Terminal Model 1, Digital to Analog Converter Model 1,2,3, or 4 (3251-3254), Analog Driver Amplifier (1227), Precision Voltage Reference (5527 or 5528).

PROSPRO II will not run with the following IBM 1800 devices installed.

Buffer Register (1507/8), Multiplexer Overlap (5259).

Consideration should be given to an 1810 Disk Storage Model B2 and an 1801 or 1802 Model 2D for best performance. The operation of this system is dependent upon proper interrupt level and data channel priority assignments.

PROSPRO II transmits pulse trains to setpoints of controllers (up-pulses and down-pulses), if any, and a gated analog drive to DDC stations or controllers, if any. For each output there must be a position feedback analog signal to the computer. The setpoint feedback must have the same signal range as the loop's measured input signal but may connect to any terminal address. The DDC feedback signal range must be 20-100 percent of the computer input range and must be connected to the next highest terminal number from the loop's measured input. For each DDC output, there must also be a digital input signal for the DDC/Local switch on the station or controller. The terminal number for this digital input and the terminal number for the analog drive signal gate (ECO or PO) must correspond.

BASIC MATERIAL
Unlicensed Documentation: One copy each of Program Description Manual... Language Specifications and Process Operations Console Manual.

Licensed Machine Readable: Object program modules, configuration-dependent source program modules, and sample problem.

RELATED OPTIONAL MATERIAL
Licensed Documentation: One copy of System Manual.

Licensed Machine Readable: Source program.

Refer to local IBM Branch Office for ordering instructions.

5718-RG1 *N

1800 REPORT PROGRAM GENERATOR

DESCRIPTION - The 1800 Report Program Generator (RPG) significantly enhances the commercial data processing capability of the IBM 1800 Data Acquisition and Control System. The 1800 RPG operates under the IBM 1800 Multiprogramming Executive System (MPX), and provides a language which is easy to learn and specifically oriented to commercial applications such as accounts receivable, payroll, inventory accounting, and sales analysis. In addition, a file conversion utility (DFCNV) enables RPG to be used for generating operating reports from sensor-based disk data files created by FORTRAN-coded on-line programs.

The 1800 RPG consists of a problem-oriented symbolic language, a compiler and a library of subroutines. The user describes his problem by coding, on RPG coding forms, source statements that describe the input and output files, records and fields, and the data processing to be performed. The source statements are then punched into cards. The compiler converts the source statements to an object program with subroutine linkages, which in turn is executed to accomplish the problem solution.

The 1800 RPG uses the same coding forms as System/360 RPG and provides the functional capabilities of 1130 RPG. 1800 RPG is a conversion of 1130 RPG. Language specifications are identical. Minor differences between the two systems exist in the job control language and input/output devices supported.

The 1800 RPG includes:

- Edit codes, to reduce the coding necessary to edit numeric printed data.
- CHAIN operating code, to allow greater flexibility in random references to disk files.
- Subroutines to avoid repeated coding of similar

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calculation routines.
- EXCPT operation code, to permit records to be output at other than fixed points in the RPG processing.
- 1800 Input/Outpnt Subroutines, to create and process sequential and indexed sequential files on the 1810 Disk Storage.

In addition, the following features are also supported:

- The LOCAL function - It is possible to overlay subroutines called by RPG. This function may reduce throughput to save on core.

- Dual I/O Areas - Dual I/O areas are supported for all card and printer devices.

The RPG compiler is a series of batch-process coreloads. Execution is initiated by entering a job in the card reader with an IBQ control card containing the coreload name RPG18. RPG source statements are read from the card reader, processed, and generated into a relocatable object program stored temporarily in disk working storage. The relocatable program can then be executed immediately, stored into relocatable program library, punched into cards, or built into a coreload for later execution, all under control of the MPX Disk Management Program (DMP). Disk file areas can be reserved for the use of RPG applications by the *DFILE or *STOREDATA functions of DMP.

The 1800 RPG compiler can be executed in either the time-sharing mode under MPX System Executive or in the batch-processing mode under the MPX Basic Operating Monitor (BOM). At the user's option, an RPG object program can be executed as an area, main-line, or batch process coreload, and can execute in any core partition except the Specal Area (SPAR) or the System Executive.

The RPG compiler can execute within the 5140-word variable core area required by MPX. The RPG compiler uses the LOCAL feature to execute within the 5140-word area. The LOCAL feature is not necessary if the available variable core area exceeds 7140 words. Additional available variable core area will be used automatically by the RPG compiler to increase throughput.

Approximately 30 cylinders of disk storage are required for the compiler and the supporting subroutine library.

Disk working storage is required for the generated object program and for temporary storage of source statements when they exceed the number which can be contained in available core storage.

PROGRAMMING SYSTEMS - The 1800 RPG compiler is written in 1800 Assembler Language and operates under the 1800 Multiprogramming Executive System (MPX). The Disk Management Program (DMP) of MPX provides utility functions to assist in RPG installation and operation, including loading programs to disk creating of files, and building application program coreloads.

MINIMUM SYSTEM CONFIGURATION -

A. Compiler execution - 1801/1802 Processor-Controller, Model 1C or 2C (16K)... 1810 Disk Storage, Model A2 or B2... two 2315 Disk Cartridges... 1816 Printer-Keyboard or 1053 Printer, Model 3 or 1443 Printer Model 1 or 2...1442 Card Read Punch, Model 6 or 7.

B. Object program execution - 1801/1802 Processor-Controller, Model 1C or 2C (16K)...1810 Disk Storage, Model A2 or B2...1442 Card Read Punch, Model 6 or 7...Output devices as required by the application program.

C. Devices Supported - 1801/1802 Processor-Controller, (up to 32K)...two 1442 Card Read Punches, Model 6 or 7...one 1443 Printer, Model 1 or 2... 1810 Disk Storage, Model A3 or B3...two 1816 Printer-Keyboard and six 1053 Printers, Model 3.

BASIC MATERIAL
Unlicensed Documentation: One copy each of the Operations Manual...Language Specifications Manual...Program Product Specifications.

Licensed Machine Readable: 1800 RPG object program modules and sample problem.

RELATED OPTIONAL MATERIAL
Licensed Documentation: One copy of System Manual, two volumes -- Volume 1 System Manual (hard copy) and Volume 2 Assembly Listings (microfiche only).

Licensed Machine Readable: Source modules.

Refer to local IBM Branch Office for ordering instructions.

5711-C01 *M

LINEAR PROGRAMMING SYSTEM/1130 (LPS/1130)

DESCRIPTION - Mathematical optimization is any mathematical technique for determining the optimum use of various resources to attain a particular objective (such as minimum cost or maximum profit) when there are alternate uses for resources. Linear programming is the most widely used of these techniques and has been used to allocate, assign, schedule, select, or evaluate the uses of limited resources for such jobs as blending, mixing, cutting, trimming, bidding, pricing, purchasing, planning, and the transportation and distribution of raw materials and finished products.

LPS/1130 has a logical processing capacity for 500 rows on an 8K 1130 and 1,500 rows on a 16K or larger 1130. Since problem capacity is limited by disk storage space available, more than one disk may be required to process larger problems. For example, many 500 row problems will require two disks, and many 1,500 row problems will require three disks. Problem size is also limited by the arithmetic accuracy of the 1130.

PROGRAMMING SYSTEMS - The source language of LPS/1130 is primarily FORTRAN with some Assembler Language routines. LPS/1130 operates under the control of the IBM 1130 Disk Monitor System Version 2.

MINIMUM SYSTEM CONFIGURATION - LPS/1130 execution requires at least an 1130 Model 2B (8,192 core storage and one disk storage device) and one of the following:

- 1442 Card Read Punch Model 6 or 7
- 2501 Card Reader
- 1134 Paper Tape Reader

LPS system generation and maintenance requires at least an 1130 Model 2B and one of the following:

- 1442 Card Read Punch Model 6 or 7
- 2501 Card Reader and 1442 Card Punch Model 5
- 2501 Card Reader and 1442 Card Read Punch Model 6 or 7

The 1130 system used to generate LPS must have at least as much core storage and at least as many disk storage drives as the 1130 system on which LPS will be used.

A paper-tape-only configuration may not be used for system generation and maintenance. To run the sample problem on a paper-tape-only LPS system, the cards must be put on paper tape. To do this a 1055 Paper Tape Punch is required in addition.

Compilation of LPS source decks requres at least an 1130 Model 2B and one of the following:

- 1442 Card Read Punch Model 6 or 7
- 2501 Card Reader

LPS can use up to 32,768 words of core storage and up to three disk storage drives. LPS can also use an 1132 Printer, 1403 Printer, 1442 Card Punch Model 5, and a 1055 Paper Tape Punch.

The recommended 1130 system for good performance and easy operation includes a Model 2C (16,384 core storage and one disk storage device), a 2310 Disk Storage Device Model B1, a 1442 Card Read Punch Model 6 or 7 (or a 2501 Card Reader) and an 1132 Printer (or a 1403 Printer.)

LPS versions can be generated for three core sizes: 8K, 16K and 32K (K=1,024.) When executing, LPS uses almost all of the core for which it was generated, except for approximately 530 words used by the 1130 monitor. The programs for the 16K and 32K versions use the same amount of core as the programs for the 8K version (except for several programs which use locals on the 8K version.) The extra core on the 16K and 32K versions is used for larger data storage.

BASIC MATERIAL
Unlicensed Documentation: One copy Operations Manual with TNL.

Licensed Machine Readable: Object Program Load Modules, Mainline Source Programs, and Sample Problem.

RELATED OPTIONAL MATERIAL
Licensed Documentation: One copy System Manual, and Compilation/Assembly Listings Manual.

Refer to local IBM Branch Office for ordering instructions.

1130-CA-06I
STATISTICAL SYSTEM

DESCRIPTION - Statistical System is a collection of four major tools-stepwise regression analysis, factor analysis, analysis of variance, and orthogonal polynomial curve fitting. This flexible Statistical System accepts user supplied control cards (and data) which instruct the system to perform one or more of the above analyses. Many options are available to the user, as described below.

FEATURES -
- Orthogonal Polynomials Curve Fitting -- Derivatives can be obtained... the polynomials are available for unequal point spacing... a scaling option is included... polynomials can be re-entered for evaluation at a specified set of points.
- Analysis of Variance -- Four factors are allowed... balanced designs can be analyzed, using factorial techniques... a program for arranging the analysis of variance table to conform to specific design needs is included.
- Factor Analysis -- Thirty variables are allowed... eigenvalues are produces using the GR Algorithm... matrix output from programs can be used as input for later analyses... orthogonal and oblique reference frames are possible.
- Stepwise Regression -- Matrix output can be used and pooled with other matrices for use as input in later analyses... thirty variables are allowed... deletion and entry of variables are automatic.

In addition, input card format can be specified by the user; many output report options can be selected.

CUSTOMER RESPONSIBILITIES - Before performing analyses with the 1130 Statistical System, the user must prepare a disk with the IBM Disk Monitor System (1130-OS-005) and then generate the 1130 Statistical System under monitor control. After system generation (explained in detail in the Users Manual) analyses are defined by the use of program control cards.

PROGRAMMING SYSTEMS - Distributed in source form, will compile and execute using the IBM 1130 Disk Monitor System (1130-OS-005). The system consists of forty-two routines, thirty-seven written in the IBM 1130 FORTRAN Language (C26-5933) and five use the IBM 1130 Assembler Language (C26-5927).

MINIMUM SYSTEM REQUIREMENTS - 8K words of core, disk, and 1132 Printer (optional) are used with IBM 1130 Computing System.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Users Manual, H20-0333.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130CA06I

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01
OPTIONAL	none	none		none

1130-CM-02I *M
IBM 1130 SCIENTIFIC SUBROUTINE PACKAGE

DESCRIPTION - SSP/1130 is a collection of 121 FORTRAN subroutines which provide a major addition to those built into FORTRAN. They are input/output-free, computational building blocks that can be combined with a users input, output, or computational routines to meet his individual needs. The package has widespread application to the solution of problems in research, development, and design, in both science and engineering, wherever FORTRAN is used. Individual subroutines, or a combiuation of them, can be used to carry out the following functions -

- In Statistics -- Analysis of Variance (factorial design) ... correlation analysis... multiple linear regression... polynomial regression... canonical correlation... factor analysis (principal components, varimax)... discriminant analysis (many groups)... time series analysis... data screening and analysis... non-parametric tests.

- In Matrix Manipulation -- Inversion... Eigenvalues and eigenvectors (real symmetric case)... simultaneous linear algebraic equations... transposition... matrix arithmetic (addition, product, etc.)... partitioning... tabulation and sorting of rows or columns... elementary operations on rows or columns.

- In other mathematical areas -- Integration of given or tabulated functions... integration of up to six first

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order differential equations... Fourier analysis of given or tabulated functions... Bessel and modified Bessel function evaluation... gaama function evaluation... Legendre polynomial evaluation... elliptic, exponential sine, cosine, fresnel integrals... finding real roots of a given function... finding real and complex roots of real polynomial equations... polynomial arithmetic (addition, division, etc.)... polynomial evaluation, integration, differentiation.

FEATURES -

- All subroutines are free of input/output statements.
- Subroutines do not contain permanent maximum dimensions for the data arrays named in their calling sequences.
- Many matrix manipulation subroutines handle symmetric and diagonal matrices (stored in economical, compressed formats) as well as general matrices.
- The use of important subroutines (or groups of them) is illustrated in the program documentation by sample main programs with input/output.
- All subroutines are documented uniformly.

As a library of subroutines, SSP/1130 allows the user to select those functions which he needs, while not being burdened with unneeded routines.

PROGRAMMING SYSTEMS - All subroutines are written in FORTRAN. The subroutines will compile and execute with the IBM 1130 Disk Monitor FORTRAN Compiler (1130-OS-005) and the IBM 1130 Card FORTRAN Compiler (1130-FO-001).

MINIMUM SYSTEM REQUIREMENTS - The machine configuration necessary to run SSP/1130 is dependent upon the use that is to be made of the package. Each of the subroutines is I/O free, compiles to less than 1,200 words of core, and is, therefore, configuration independent. However, many of the routines are intended to be used in conjunction with other subroutines or to solve problems usiug large arrays of data. For this reason, many of the subroutines are not useful with less than 8K words of core.

The following items should be taken into consideration when deciding upon the applicability of the package to a particular machine configuration -

1. The size of problem which may be executed on a given 1130 depends upon the number of subroutines used, the size of the compiled subroutines, the size of the compiled main program, the size of the control program and the data storage requirements.

2. SSP/1130 will be distributed in card form only.

3. The sample programs for SSP/1130 illustrate the same functions as the SSP/360 sample programs. Three of the sample programs: canonical correlation, discriminant analysis and factor analysis, use the overlay facilities of the 1130 Disk Monitor Programming System (*LOCAL) and therefore require a disk system and 8K words of core. The remaining sample programs do not require disk but do require 8K words of core.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Application Description, H20-0225... Programmers Manual, H20-0252.
MACHINE READABLE - Source and sample program.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Systems Manual containing flowcharts for all subroutines.
MACHINE READABLE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130CM02X

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

1130-CO-16I
LINEAR PROGRAMMING MATHEMATICAL OPTIMIZATION SUBROUTINE SYSTEM

DESCRIPTION - Linear Programming-Mathematical Optimization Subroutine System provides the 1130 disk user with a simple, efficient means of solving linear programming problems and a means for implementing a variety of mathematical optimization applications. Mathematical optimization is any mathematical technique for determining the optimum use of various resources such as capital, raw materials, manpower, and plant or other facilities. The technique seeks to attain a particular objective as for example, minimum costs or maximum profit, when there are alternate uses for the resources. Linear programming is the most widely used of these techniques, and has been used to allocate, assign, schedule, select or evaluate the uses of limited resources for various jobs such as blending, mixing, bidding, cutting, trimming, pricing, purchasing,

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planning and the transportation and distribution of raw materials and finished products. For the 1130 configuration specified, LP-MOSS/1130 has a logical processing capacity of 700 rows, including all objective rows, and a number of columns limited only by disk space available. The system uses sophisticated scaling and inversion techniques designed to produce accurate, reliable solutions within the limits of a 31-bit Mantissa. LPS is controlled by procedure control cards (or paper tape records) which specify the solution sequence. Input data originate on cards or paper tape and are stored on the disk for subsequent processing. Several problems may be stored on disk and updated, re-run, or combined. For example, a corporate model can be formed from divisional models, or a total production plan from the plans for individual products. Reports may be on cards, paper tape, typewriter, or printer. Output options include a full solution report, comprehensive solution analysis and parametric analysis reports.

FEATURES - Provide user control fo the LP procedure execution sequence. The LPS procedures provide a programmed access to all of the LP-MOSS subroutines and programs. Large problem capacity (program logic provides for up to 700 rows)... simple, flexible, processing sequence and special solution of simultaneous equations procedure)... simple problem definition (easy to use format and extensive data maintenance functions, specification of a starting solution basis, combination of problems to form master problems)... advanced mathematical methods (automatic, iterative, input scaling for accuracy, revised simplex method) product form of inverse... bounded variable feature for range (less than or equal to and greater than or equal to) constraints and bounded variables to simplify problem description, and to increase problem capacity and solution speed... multiple pricing... efficient triangularization inversion method for accuracy... extensive post-optimal analysis options (discrete parametric analysis for all problem data and acitivity-cost-bound relationship for all variables)... extensive checking (input check for duplicate entries, solution processing check to test for need of early inversion and automatic solution check).

The user must be familiar with the IBM 1130 LP-MOSS input and procedures. The program reference manual is directed to the new user. It provides a tutorial which assumes some familiarity with simultaneous equations or linear programming. The LP-MOSS is ready to run as distributed, complete with sample problem. The user need only load the cards onto a disk.

PROGRAMMING SYSTEMS - LP-MOSS/1130 operates under control of the IBM 1130 Monitor System. The source language is IBM 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1130 Model 2B (with 8,192 words of core storage) and one disk storage drive... 1442 Card Read/Punch or a 1134 Paper Tape Reader or both... 1055 Paper Tape Punch (optional)... 1132 Printer (optional).

The recommended 1130 system for best performance and simplest operation includes a 1442 Card Read/Punch with an 1132 Printer.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Program Reference Manual, H20-0345.
MACHINE READABLE - Object code and sample problem.

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

ORDERING INFORMATION: PROGRAM NUMBER 1130CO16X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01
OPTIONAL	none	DTR 9/1600	29	none
		DTR 9/800	28	none

1130-CE-05X *M
PROJECT CONTROL SYSTEM

DESCRIPTION - Provides a basic tool needed by management to fulfill its responsibilities in the planning, supervising and controlling of project-oriented work. In addition to critical path analysis, the system provides the capablity for summarizing externally prepared resource and cost information. For critical path networks, the 1130 Project Control System will process 2,000 activities either in the form of precedence lists or in IJ(PERT)CPM notation. Its design allows for a simple approach to networking, but also offers many of the features normally found only in programs designed for large computers. Users consistently planning to run networks greater than 1,200 activities with extensive report printing are urged to consider PMS/360 (360A-CP-04X).

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FEATURES - 2,000 work items (or IJ(PERT)CPM activities)... 4,500 precedence relationships... each precedence relationship can be lagged... the number of days and the starting day of the work week can be specified for each item... for in-progress work items, progress can be reported as a percent complete, or as the number of work days remaining... scheduled and actual dates can be assigned to both the beginning and end of each work item... basic resource and cost summarization capability is provided... tabluar and graphic reports are available... card or disk master files may be used... arbitrary non-work days, in addition to regular holidays, can be incorporated into the calendar.

To use 1130 PCS, the user must describe the work items, and their relationships, which constitute the project network. This data is punched into formatted cards for entry into the 1130. Optional data, including resource and cost information, may be entered initially or during a later network updating run. Requests for variety of output reports can be made during any type of 1130 PCS computer run.

PROGRAMMING SYSTEMS - This program is written in both 1130 Basic FORTRAN IV and Assembler Language and runs under the 1130 Disk Monitor System, Version 2. The program is designed to meet the needs of most users without modification; however, it is recognized that special individual requirements do arise. Therefore, the elements of the program written in FORTRAN include those that the user is most likely to modify to suit his own application.

MINIMUM SYSTEM REQUIREMENTS - 1131 Model 2B or larger... 1442 Card Read/Punch Model 6 or 7, or 2501. Card reader and 1442 Card Punch Model 5... 1132 Printer or 1403 Printer Model 6 or 7.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory, Users Manual, H20-0342, Operators Manual, B20-0343.
MACHINE READABLE - Object and sample problem.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Flowcharts and source statements.

ORDERING INFORMATION: PROGRAM NUMBER 1130CP05X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-CQ-00X
REMOTE JOB ENTRY WORK STATION PROGRAM (RJE)

DESCRIPTION - This program uses the 1130 Computing System as a remote work station for entering OS/360 jobs to be executed at a central computing facility, and for receiving the job output.

The 1130 RJE Work Station has three basic functions -
(1) Input of OS/360 jobs and RJE commands through an attached input device.
(2) Data transmission to and from the central processor.
(3) Data output to an attached printer, punch, or disk.

OS/360 jobs are entered through the card reader or from disk storage. Work station commands are entered from the card reader, disk storage, or the console keyboard. Job output is directed to the printer, punch, or disk storage. If desired, disk output can be replaced by a user-written output routine. Messages are sent to the console printer or the printer.

PROGRAMMING SYSTEMS - The work station program operates under the 1130 Disk Monitor System, Version 2. Communication is over a 1200, 2000, or 2400 BPS line, either point-to-point or multippoint, operating in binary synchronous mode. The program operates in conjunction with the RJE program under OS/360 (MVT) at a central System/350 Model 50, 65, 67 (65 mode), 75, 85, or 91, or operates under OS/360 MFT-II at a central System/360 Model 40, 50, 65, 67 (65 Model), 75 or 85.

MINIMUM SYSTEM REQUIREMENTS - The program requires an 1130 with internal disk storage and 8K words of main storage. If user-written output routines are included, at least 16K words of main storage are required. The minimum system also requires a card reader, card punch, line printer, and binary synchronous communications adapter.

I/O system components are utilized as follows:

Card Reader, punch and Printer - The RJE work station program uses the card I/O device(s) and printer assigned by the disk monitor as principal I/O device and principal print

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device.

Disk Input - Disk input can be from either the internal disk cartridges or the 1130. The location of disk input data is specified by control records is the job stream, and can be changed while the work station program is in operation.

Disk output and communication line; these elements of the I/O configuration are established by a special program provided for that purpose and can be changed when the work station program is not in operation. This program, named RJE00, is described in the TNL.

- Disk output - Space on either the internal disk cartridge or any one of the external disk cartridges on the 1130 may be specified.
- Communication line - Point-to-point non-switched, switched, or multipoint may be specified.

Note - 1130's cannot be mixed with other types of terminals on a single multipoint line.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List, Attachment to Users, System/360 Remote Job Entry, C30-2006 and TNL N30-5010.
MACHINE READABLE - Object deck.

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

ORDERING INFORMATION: PROGRAM NUMBER 1130CQ009

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-CQ-012
JOB CONTROL FROM THE 1130/2250 USING THE SATELLITE GRAPHIC JOB PROCESSOR

DESCRIPTION - The Satellite Graphic Job Processor permits a user to define a System/360 job from a 2250 Display Unit attached to a remote 1130 Computing System. The user may also define an 1130 program to be processed in conjunction with, or independent of the System/360 job.

The Satellite Graphic Job Processor, through a series of displays at the 2250, enables the remote 1130/2250 user to perform the following operations:

- Identify himself to the System/360 (LOGON).
- Start execution of a System/360 cataloged procedure (BEGIN PROCEDURE).
- Specify that a System/360 program or procedure is to be executed as a job step (SPECIFY JOB STEP).
- Define data sets to be used by the System/360 program (DESCRIBE DATA).
- Enter 80-character data records to be used by the System/360 program (ENTER DATA).
- Communicate with the System/360 operator (WRITE MESSAGE).
- Start execution of the specified System/360 job (BEGIN JOB).
- Name an 1130 program to run in conjunction with the System/360 job (SPECIFY 1130 PROGRAM).
- Delete a job he is currently defining, but has not yet started (CANCEL JOB).
- Re-examine previously completed job operations (RECALL).
- Conclude his job control operations and free the 2250 for other activities (LOGOFF).

MINIMUM SYSTEM REQUIREMENTS - 16K core storage.

BASIC PROGRAM PACKAGE
DOCUMENTATION - IBM System/360 Operating System and 1130 Disk Monitor System: User's Guide for Job Control from an IBM 1130 System (C27-6938)...Program Material List.. Attachment to Users.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Program Material List...Attachment to Users...Operating Instructions.
MACHINE READABLE - Symbolic modules.

ORDERING INFORMATION: PROGRAM NUMBER 1130CQ012

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-CX-11X *N
NUMERICAL SURFACE TECHNIQUES AND CONTOUR MAP PLOTTING

DESCRIPTION - Expresses faces analytically by equations or numerically by a set of data points. This program provides the user with a number of techniques which may be carried out singly or in various combinations without the requirement of intermediate output. Final output is either numerical data in cards or on typewriter or maps drawn by the IBM 1627 Plotter.

The Programs included in the set are:
modify data sets in disk storage.
- Numerical approximation over a uniform grid -- Takes irregularly spaced data points that define a surface and produces values at the mesh points of a square grid system superimposed on the surface.
- Interpolation to a finer grid -- Takes the values that define a surface at the mesh points of a square grid and, by nonlinear interpolation, defines the surface on a grid with one-half the spacing.
- Smoothing -- Applies a controllable degree of smoothing to the values that define a surface, thereby eliminating unwanted minor irregularities in the surface.
- Surface fitting with orthogonal polynomials -- Fits orthogonal polynomials to either regularly or irregularly distributed data.
- Equation evaluation over a uniform grid -- Produces representative values for a surface by evaluating a defining equation at the mesh points of a square grid.
- Grid-to-grid operations -- Adds, subtracts, multiplies, or divides the values at the common points on two grid networks... an option provides the capability to modify the boundaries of a grid network to conform to the common area of two overlapping grids... another option provides the capability of output the greater or lesser of the two values at each grid point.
- Numerical integration -- Takes a surface defined at the mesh points of a square grid and computes surface areas, projected areas, or volumes by techniques of numerical integration.
- Contouring -- Takes a surface defined by values on a square grid and produces a contour map using the IBM 1627 Plotter.
- Map annotation -- Draws letter, numbers, special symbols of various sizes, map boundaries, and titles of maps.

FEATURES - The program uses a data set concept for disk storage of intermediate results... output data sets are named so that they may be called as input to subsequent subprograms... a nonlinear contouring technique produces maps which closely resemble those produced by and... an option provides for rapid linear contouring of intermediate maps... another option provides for contouring of a series of maps without operator intervention. Data input consists of a series of control points at which two independent variables (X and Y) and up to thirteen dependent variables (Z values) are recorded.

PROGRAMMING SYSTEMS - The program is written in 1130 Assembler Language and 1130 FORTRAN. It is designed to run under control of the 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2B and an IBM 1442 Card Read Punch or an IBM 2501 Card Reader and a 1442 Model 5 Card Punch, and an IBM 1627 Plotter.

SPECIAL ORDERING INFORMATION - Object decks must be ordered to match the user's 1130 system card input/output configuration. For a system using 1442 Model 6 or 7, order program number 1130CX11X; for a 2501/1442 Model 5, order program number 1130CX38X. The optional program material for either configuration must be ordered using program number 1130CX11X.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory...Programmer's Manual (H20-0357)...Operators Manual (H20-0356).
MACHINE READABLE - Object code and sample problem.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Optional Program Material List.
MACHINE READABLE - Source statements.

ORDERING INFORMATION: PROGRAM NUMBER 1130CX11X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		MT 9/1600	29	01

1130-CX-13X *N
CONTINUOUS SYSTEM MODELING PROGRAM (CSMP)

DESCRIPTION - The 1130 CSMP is a "Digital Analog Simulator" program using a block-oriented input language in which the functional blocks represent the elements and

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organization of an Analog Computer. A total of 25 standard functional blocks plus the ability to define special functions are provided. The continuous system model may be developed and tested, and results observed in an on-line interactive mode by means of the console keyboard and output devices. The simplicity of the language statements enables a user to rapidly gain proficiency with the program and facilitiates modification of the model via the console. In addition, the beginner is provided instructional comments via the console printer that can be suppressed as experience is gained. Simplicity and flexibility are the foremost characteristics of the program.

FEATURES - 1130 CSMP is an adaptation of the PACTOLUS Program for the IBM 1620 with additional features, increased versatility, and greater operating ease. The computing speed of the 1130 makes feasible the simulation of more complex processes and provides a greater degree of man-machine interaction.

FEATURES -
- Suppressible operating instructions for the beginner via the console printer.
- Diagnostic comments for on-line correction of errors.
- Ability to associate symbolic labels with functional blocks.
- Ability to interrupt a run, enter modifications, and proceed.
- Optional output of an updated problem deck.

CUSTOMER RESPONSIBILITIES - A basic knowledge of the techniques of block modeling common to engineering and scientific practice is required. The 1130 CSMP Application Description Manual provides an introduction to these techniques. The user must perform the following functions if using 1130 CSMP.

- Develop a block diagram using the elements of 1130 CSMP.
- Translate the diagram into corresponding 1130 CSMP statements.
- Prepare a punched card deck containing input data or alternatively enter such data from the console keyboard.
- Experiment with the simulation configuration and integration interval to assure meaningful results.
- Modify the simulation, using the on-line interaction feature of the program, to achieve the objectives of the simulation study.

PROGRAMMING SYSTEMS - CSMP is furnished in the form of FORTRAN source decks to be compiled and stored on the 2315 Disk Cartridge used with the Model 2B CPU. The program operates entirely under control of the 1130 Monitor System (1130-OS-000). The user is required to have only a minimum knowledge of the computer system. FORTRAN is used as the source language under the 1130 Monitor. Knowledge of FORTRAN is required only if the user desires to augment the complement of functional elements.

MINIMUM SYSTEM REQUIREMENTS - 1131 2B (8K core and disk), 1442 Card Read Punch. The 1627 Plotter is optional but highly desirable for this application. The 1131 should be at or above engineering change level 415-7400.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory. Reference Manual (containing operating instructions), H20-0282.
MACHINE READABLE - Source decks and sample problem deck in card form.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130CX13X

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

1130-CX-14X *M

DATA PRESENTATION SYSTEM

DESCRIPTION - The IBM 1130 Data Presentation System supplies high quality, hard-copy graphic output at exceptionally low cost. This system can be used independently as a graphic report generator or the user can choose one or two levels of subroutines from the system for inclusion in his own graphic output programs. These three levels of access are made even more flexible by several system modification and expansion features. The scope and flexibility of this program makes it valuable in almost ever application of the IBM 1130 Computing System.
System.

The Graphic Report Generator, Level III, is the highest level of the Data Presentation System. The Graphic Report Generator is a self-contained system which requires no further programming to operate. It is controlled by input statements, which may be prepared by a person with no computer training, that describe the plot to be generated

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and data files to be processed.

Level I of the Data Presentation System provides subroutines to generate, scale, and rotate characters and lines using the IBM 1627 Plotter attached to the IBM 1130 Computing System. These routines include interrupt handling and overlapped processing capability.

Level II subroutines utilize the routines of Level I to perform larger, logical tasks like scale annotation and curve fitting. Over 30 subroutines, callable from the program library, are included in Level II.

FEATURES - Many parameters and many options are allowed with this system but probably a small percentage will be used with any one application... standard (system supplied) options reduce even further the number of parameters that must be supplied by the user... each installation has immediate and easy capability to change, without program recompilation, the standard parameters to values more meaningful... parameters to be supplied are logically and symbolically similar to those that would be generated during the planning and layout stage for hand plotting by a draftsman or chart maker... the logical entries are conducive to learning by a user... few stringent regulations must be learned; a table of variable names and standard values should be the only required reference needed for continued use of the system... extensive diagnostics are priuted on either the console or line printer, as desired... up to eight data scales may be drawn in any orientation at any chosen location on the graph; scales may be linear, logarithmic, polar, monthly or calendar date... several graphs may be plotted from data contained in a single data file or in multiple data files; data from different data files may be plotted against each other... the automatic scaling feature of the graphic report generator eliminates the need for manual scanning of data; the minimum and maximum data values are automatically extracted and used to select a scale, within the requirements specified by the user, that is convenient to use and that keeps all data on the graph... scale limits may be user specified to restrict the range of plotting... scales and scale annotations are automatically system generated but may be suppressed, if desired... data may be plotted as point plots, line plots, polynomial series, histograms, or horizontal or vertical bar graphs... the number of data points which may be plotted on one graph is effectively unlimited... existing data can be extracted from card or disk files in a variety of formatted or unformatted arrangements... data may be in any format acceptable to 1130 FORTRAN; in addition, data may be punched in a continuous manner separated with commas... data may be written onto disk by user programs with Data Presentation System subroutines in one collected application and then plotted by the graphic report generator in a subsequent operation... special reference axis may be generated at any output grid coordinate; reference axis serve such functions as the separation of negative and positive areas... alphameric commentary may be plotted at any coordinate on the plotting grid. Characters may be rotated to any angle and may have any X and Y font size .06 inch or larger... the proportionally spaced character set can be modified to any users special requirements... graph elements such as scales, labels or data may be saved from graph to graph to eliminate redundant entry of repetitive information... standard user exits allow easy incorporation of user written modules for purposes of executing functions not provided for in the graphic report generator... the macro language feature allows one time definition of repetitive shapes for permanent storage in a macro file... macro elements may be executed with variable rotation, variable X and y scale factors and at variable locations... additional commands may be added to the system without result of making the graphic report generator an integral part of a larger engineering, design or the graphic report generator an integral part of a larger engineering, design or analysis information system... perspective plots of vectors can be drawn from any vantage point; the data used is a series of vectors defined in three-dimensional (S, Y, Z) coordinates... equations may be evaluated and plotted over a defined range... only the programs that are required to be executed for any run are loaded... features of the graphic report generator which will not be used at any installation can be removed from the program report generator is controlled by user-written commands which describe the plot to be generated and the data to be processed.

PROGRAMMING SYSTEMS - The Data Presentation System runs under 1130 Disk Monitor System Version 2 (1130-OS-005) Modification Level 5 or higher and 1130 Problem Language Analyzer (PLAN) (1130-CX-25X). If only Level I and Level II are to be used, PLAN is not a required component. The Data Presentation System is programmed in the 1130 (Basic) FORTRAN and 1130 Assembly Language.

MINIMUM SYSTEM REQUIREMENTS - 1131 CPU, Model 2B... 1442 Card Read/Punch and 1442 Attachment (#4454) or 2501 Card Reader and features #3630, #8042, and #3854... 1627 Plotter Model 1 or 2, 1627 Attachment (#7187 for Model 1 and #7189 for Model 2).

BASIC PROGRAM PACKAGE

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DOCUMENTATION - Application Directory... Users Manual, H20-0338... Operators Manual, H20-0337.
MACHINE READABLE - Object and sample problem deck.

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

ORDERING INFORMATION: PROGRAM NUMBER 1130CX14X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-CX-25X *M
PROBLEM LANGUAGE ANALYZER (PLAN)

DESCRIPTION - PLAN(1130-CX-25X) is a submonitor and application development support system especially designed to support problem solving and other highly variable applications.

PLAN furnishes five closely related program sets that are mutually dependent. These provide the basic PLAN functions: the submonitor...the PLAN input language interpreter...the PLAN input language definer...the PLAN subroutine package for FORTRAN application programmers...the Diagnostic Supervisor.

Because PLAN is designed to support highly variable applications, it offers a new type of modularity. Program linkage definition and intermediate DASD specifications are deferred until execution time when they can be varied by input data. As a result, much program recoding and reorganization can be avoided.

In further support of this idea, input languages used for application control under PLAN are also defined at the statement level. Both new statement definitions and new program modules can be added to a PLAN application without forcing changes in existing programs and statement definitions.

FEATURES - Free form input...four levels of input statement hierarchy...user controlled error recovery and diagnostic features...powerful input data options, such as default value, override, algebraic and logical expressions for data values, automatic mode conversion and scaling...dynamic program loading...extensive subroutine support for FORTRAN application programmers.

USE - The problem solver (application user) communicates with PLAN through PLAN statements designed by the customer to suit his needs. Each PLAN statement contains a maximum of 450 characters; terminated by a semicolon. A new statement may immediately follow the semicolon. Each statement usually contains both a command and data. Processing a PLAN statement causes execution of one or more program modules, using accumulated data and the partial results available at that time.

Programmers communicate with the PLAN system to obtain program linkage, error handling, data management and utility functions by entering PLAN subroutines through CALL linkages (normally from FORTRAN).

PROGRAMMING SYSTEMS - PLAN runs under 1130 Disk Monitor System Version 2 (1130-OS-005). It is programmed in the 1130 Assembly Language and 1130 FORTRAN Language.

MINIMUM SYSTEM REQUIREMENTS - 1131 Central Processing Unit Model 2B with one card reader and punch unit from the set supported by the 1130 FORTRAN language.

Larger 1131 models, alternate card input/output devices and printers supported by the 1130 Disk Monitor are also supported by PLAN.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory...Program Description Manual (H20-0594)...Operations Manual H20-0595)...Program Material List.
MACHINE READABLE - Object code and sample problem.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Optional Program Material List.
MACHINE READABLE - Source code. Decks and source listings are generated by a self-loading BPS program contained on the tape, using a System/360 Model 2030D or larger with at least one 2400 Series Tape Drive.

ORDERING INFORMATION: PROGRAM NUMBER 1130CX25X

	PROGRAM NUMBER EXTENTION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01

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OPTIONAL	none	DTR	9/800	28	none
		MT	9/1600	29	01

1130-CX-33X
PLAN GRAPHICS SUPPORT PROGRAM

DESCRIPTION - PLAN Graphics Support reduces the time and effort required to implement an interface between the IBM 2250 Display Unit and application programs. In most instances, an application programmer may use this system to avoid coding the graphics portion of an application at a FORTRAN or Assembly Language level. The user may rapidly integrate graphic capability into existing and new applications. This system is an excellent tool to minimize learning and programming time when extending existing applications to include graphic capability.

A user-oriented statement language has been implemented in PLAN Graphics Support via the facilities provided PLAN for language definition. By means of the free format language statement or more conventional fixed format specifications cards, the application programmer can specify the graphic displays and interrupt (Light Pen and Keyboards) controls desired by the application user. During the execution of the application, the display console operator may dynamically control his applications utilizing the interactive graphic capability of the IBM 2250.

The facilities available to the application user (display console operator) via PLAN Graphic Support include:

- Graphic Output -
  Data lists from the application program may be displayed in a desired format using points, characters, lines, arcs, circles, etc. -- the format and control options being previously defined via language statements and specifications cards.

- Graphic Input -
  Data may be created or modified at the console via the Alphameric Keyboard and the Light Pen and passed to an application program.

- Monitoring and Controlling the Application -
  The console user dynamically controls subsequent displays and application functions to be executed via the Light Pen, Programmed Function Keyboard, and the Alphameric Keyboard.

PLAN Graphic Support may be used for a wide variety of applications which can be enhanced with man-machine interaction and graphic display capabilities. In particular, this includes Engineering Analysis, Petroleum Exploration and Production, Management Information Systems, and Data Reduction.

FEATURES -
- Easy-to-use statements for specification of graphic displays and interrupt controls.
- Includes routines for lines, arc, circles, and conic sections.
- Major portion of graphic interface is specified external to the application, allowing for minimal impact on application program code.
  Built-in default options simplify programming.
- Since PLAN Graphics Support and PLAN coexist, all the PLAN functions and facilities are available to the user.
- Open-ended system allows user to build additional capability into PLAN Graphics Support.
- Special routines facilitate maintenance of graphic data.

USE - The application programmer describes the graphic displays and interrupt controls by means of language statement or specification cards. These specifications are normally used as input to an off-line operation during application development to create and store the files necessary to generate the graphic displays. During the running of the application, the previously stored files are used to generate the displays on the IBM 2250, allowing the console user to communicate with his application. Information flowing between PLAN Graphics Support and the application pass through FORTRAN pass through FORTRAN COMMON managed by PLAN.

PROGRAMMING SYSTEMS - PLAN Graphics Support is programmed in FORTRAN IV and requires the following system environments: 1130 Disk Monitor Version 2 (1130-OS-005)...1130/2250 Graphic Subroutine Package, Type II for Basic FORTRAN IV (1130-LM-000)...1130 PLAN (Problem Language Analyzer) Type II (1130-CX-25X).

MINIMUM SYSTEM REQUIREMENTS - 1131 Central Processing Unit and Model 2D or 3D with 1442 Model 6 or 7 Attachment (04454) or 2501 Attachment (08042) and Expansion Adapter (03854), Storage Access Channel (07490)...1133 Multiplex Control Enclosure with Channel Multiplexer (01865), Storage Access Channel II (07492), Disk Control (03201)...1442 Card Read Punch Model 6 or 7 or 2501 Card Reader Model A1 or A2 with 1130/2501 Coupling (03630) and 1442 Card Punch Model 5. In addition to the built-in drive and 2315 Disk Cartridge for system programs, a single 2310 Disk Storage Drive with one 2315 Disk Cartridge (with available space for data

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files)...2250 Display Unit Model 4 with Alphameric Keyboard (#1248), Program Function Keyboard (#5858).

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory...Program Description Manual (H20-0614)...Operations Manual (H20-0616).
MACHINE READABLE - Object code language statements, and sample problem.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Optional Program Material List.
MACHINE READABLE - Source statements and sample problem.

ORDERING INFORMATION: PROGRAM NUMBER 1130CX33X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-DP-04X *N

TYPE COMPOSITION PROGRAM

DESCRIPTION - The 1130 Type Composition Program extends the speed and flexibility of digital computer into the composing rooms of the printing industry. Type compositors can use this program to provide significant time savings in transcribing textual material into a form required by linecasting machines for setting type. The program is designed to allow computer acceptance of perforated paper tape, containing the copy to appear in print and instructions pertaining to a desired printing format, from which a tape suitable for controlling the operations of a linecasting machine is produced and allocated to the proper point in the composing room. The output tape contains the original copy in the form of properly justified lines arranged according to the stylistic and graphic requirements described by the user with the format instructions.

FEATURES -
- Printer-oriented format control language which does not require extensive knowledge of type composition techniques.
- Controllable style limited only by inherent limitations of linecasting machine.
- Consistent graphic quality.
- 1130 Disk Storage offers automatic access to a large number of type fonts and hyphenation exception words.
- Up to 16 input readers and 16 output punches based on font and column width required permits automatic allocation of output tapes.
- Extensive error detection and recovery procedures.
- System installation workbook and several utility programs to aid the user in gathering and loading information concerning users operation.

Printing organizations that use paper tape operated linecasting machine in composing type are potential users of this program. Tape perforator operators will now prepare tape for input to the computer instead of the linecasting machine. Since the computer assumes the burden of all justification decisions, hyphenation decisions, and the insertion of proper linecasting machine control functions, the operators can now concentrate on speed and accuracy of copy perforation with resulting benefits in total type composition speed.

To produce a functioning system the user must gather and incorporate into the system detailed linecaster descriptions and factors relating to the users method of operation and stylistic requirements. A systems installation workbook has been provided to enable the user to gather the required information in a systematic and complete fashion. A series of utility programs are provided for loading this data into the system in the required form. The workbook and utility programs greatly increase the speed and ease with which the user produces a functioning system.

Customers that use 8-channel paper tape systems must load and/or assemble their programs and installation dependent data on a system equipped with a card reader and a disk drive following system generation procedures specified for the card system (1130-DP-04X). The systems cartridge is then transferred to the customers paper tape oriented system for operation, using the 8-channel paper tape skeleton monitor (1130-DP-06X) for system initialization.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - An 1131 Processor Model 2B with 2315 Disk Cartridge... 1442 Card Read/Punch Model 6 or 7. The following RPQ/S for user-provided 6-channel Advanced Feed Hole Paper Tape readers (PTR'S)* and paper tape punches (PTP'S)* are required.

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RPQ 834398	Basic Interface (required to attach any number of PTR's and PTP's).
RPQ 834399	Paper tape attachment (required to attach any number of PTR's and PTP's).

For more than one PTR and PTP -

RPQ 834400	Interface expander (required to attach PTR numbers 2 through 8 and/or PTP numbers 2 through 8).
RPQ E36610	Second interface expander (required to attach PTR numbers 9 through 16 and/or PTP numbers 9 through 16).
RPQ 834401	Additional PTR interface (one required for each PTR numbers 2 through 16).
RPQ 834402	Additional PTP interface (one required for each PTP numbers 2 through 16).

*A maximum of sixteen PTR's and sixteen PTP's may be attached.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Programmers Manual, H20-0287... Operators Manual H20-0288... Systems Manual Volume I, Y20-0040 and Volume II, Y20-0041.
MACHINE READABLE - 24 core image card decks... one relocatable card deck... hyphenation exception works card deck.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - 18 source code programs.

ORDERING INFORMATION: PROGRAM NUMBER 1130DP04X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01
OPTIONAL	none	MT 9/800	28	01
		DTR 9/1600	29	none

1130-DP-06X *N

TCP 8-CHANNEL PAPER TAPE SKELETON MONITOR PROGRAM

DESCRIPTION - The TCP 8-Channel Paper Tape Skeleton Monitor Program is used for system initialization of the 1130 Type Composition Program (1130-DP-04X) on paper tape system. Customers that use 8-channel paper tape systems must load and/or assemble their programs and installation dependent data ou a system equipped with a card reader and disk drive following system generation procedures specified for the card system (1130-DP-04X). The systems cartridge is then transferred to the customers paper tape oriented system for operation, using the 8-channel paper tape skeleton monitor for system initialization.

MINIMUM SYSTEM REQUIREMENTS - An 1131 processor Model 2B with 2315 Disk Cartridge... 1134 Paper Tape Reader... 1055 Paper Tape Punch.

The following RPQ's for user-provided 6-channel Advanced Feed Hoel Paper Tape Readers (PTR's)* and Paper Tape Pnnches (PTP's)* are required.

RPQ 834398	Basic interface (required to attach any number of PTR's and PTP's).
RPQ 834399	Paper tape attachment (required to attach any number of PTR's and PTP's).

For more than one PTR and PTP -

RPQ 834400	Interface expander (required to attach PTR numbers 2 through 8 and/or PTP numbers 2 through 8).
RPQ E36610	Second interface expander (required to attach PTR numbers 9 through 16 and/or PTP numbers 9 through 16).
RPQ 834401	Additional PTR interface (one required for each PTR numbers 2 through 16).
RPQ 834402	Additional PTP interface (one required for each PTP numbers 2 through 16).

*A maximum of sixteen PTR's and sixteen PTP's may be attached.

NOTE - When ordering 1130-DP-06X, the user must also order the basic program package for 1130-DP-04X.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory.
MACHINE READABLE - Core image program.

OPTIONAL PROGRAM PACKAGE - NONE.

ORDERING INFORMATION: PROGRAM NUMBER 1130DP06X

PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT

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BASIC	none	PT	05	none
OPTIONAL	none	none		none

1130-DX-01X *M

ROUTE ACCOUNTING SYSTEM FOR DAIRIES AND BAKERIES

DESCRIPTION - This Application Programming System offers the small-to-medium sized dairy or bakery results not available with any similar system. All necessary functions of the route settlement procedure are provided, to gether with numerous associated reports. Output is detailed, yet can be tailored to the requirements of the user. The programming system peforms the following functions -

- Order listing -- A customized listing of all products carried by a route showing, if desired, a standing order. This listing is used by the route salesman to enter orders for each delivery day.
- Production requirements -- An accumulation of total requirements by product for any given day. This report is sequenced as required for production purposes.
- Load listing -- A final list by route of load order for each product carried. This listing is produced at the same time as the order listing and serves as the source document for all product transactions.
- Product load strips -- A strip for each product listing quantities to be loaded on each truck. Trucks are listed in loading sequence. These strips provide an easy, efficient document for the loading function.
- Route activity -- A detailed listing by route showing all product activity and net sales for one day in units and dollars.
- Route settlement - A customized report by route showing all dollar transactions for one day. Total charges and credits are reported and an ending balance calculated.
- Sales analysis -- Daily report gives total company current day figures. Period summary reports list product activity by route, division, branch and total company.
- File maintenance -- The necessary programs to build and maintain the 2315 Disk Cartridge files which support the system.

Information need only be entered into the system once, thus eliminating all off-line handling and re-processing of input. Input need not be preseguenced.

FEATURES -

- Advance orders up to seven days (one calendar week) before delivery can he held on the 2315 Disk Cartridge. Orders can be entered for a given day of the next week as soon as the route settlement for that same day of the current week has been processed.
- Standing orders for seven days per product per route can be stored on the 2315 Disk Cartridge. Before an individual delivery day, the standing orders for that day of the week are printed for the salesmans review. Adjustments to the standing order are made with "adds" or "cuts" are required to produce a route settlement immediately following the salesmans return to the plant in the afternoon; produce a settlement the morning following each days activity. The IBM 1130 Route Accounting System is adaptable to either of these methods.
- The system accepts as input punched cards in a specific format. Input with a non-standard format prepared off-line by methods such as the IBM 1232 Optical Mark Page Reader or mark sensing will be accepted by the system provided the user modifies the card input sub-program of the data entry program. The program is designed to facilitate this type of modification.
- Where specific price zones exist, the system calculates the value of route sales at the price of the zone in which each route operates.
- No operator intervention or foreknowledge is necessary or required to add records as products become active for the first time on a route or to delete records as products become inactive. These operations are carried entirely by the system.

Maximum modularity and program independence are maintained with few exceptions, any program or programs may be eliminated without affecting the system as a whole. As previously described, the user may be required to write an input subroutine if product transaction input is not in the same format as that required by the system. The programs have been developed for a Model 2A 1130 System with 4,096 words of memory.

Consequently, extensive use of program overlays was required and maximum utilization of core storage was necessary. The options offered allow the user to tailor the system to his own needs, and, based on the decisions regarding each of these options, the programs modify themselves. Further modification of the programs should not be attempted.

PROGRAMMING SYSTEM - Source language is IBM 1130 Basic Assembler. The 1130 Subroutine Library is used when

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appropriate.

MINIMUM SYSTEM REQUIREMENTS - An 1131 Model 2A with disk storage drive... one 2315 Disk Cartridge... A 1132 Printer Model 1 with 1132 Attachment (No. 3616) and Expansion Adapter (No. 3854)... 1442 Card Read/Punch Model 6 with 1442 Model 6 Attachment (No. 4454). The 2315 Disk Cartridge must be used exclusively for processing the 1130 Route Accounting System. No other programs or programming systems can be contained on this cartridge.

Capacity and Timing: The IBM 1130 Route Accounting System is capable of storing and processing a maximum of 150 routes carrying an average of 54 products per route or 125 routes carrying an average of 72 products per route on one 2315 Disk Cartridge. A method is provided for overflow to additional disks. The system will handle a maximum of 126 products per route and 500 products for the entire company. Run timing is dependent on many variables such as number of routes and number of products per route. Run timing may be estimated for an installation by use of the formula, tables and examples included in the application description manual.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Users Manual, H20-0328... Operators Manual, H20-0330.
MACHINE READABLE - Object code and sample problem.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Source deck of card input sub-program of the Data Entry Program and is signified by using Program Number Extension OPT1. Source decks of all programs on tape and is signified by using Program Number Extension OPT2.

ORDERING INFORMATION: PROGRAM NUMBER 1130DX01X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01
OPTIONAL	OPT1	DTR*	00	none
	OPT2	MT 9/800	28	01
		MT 9/1600	29	01

1130-EC-02X

CIVIL ENGINEERING COORDINATE GEOMETRY (COGO)

DESCRIPTION - COGO is a simple, efficient tool designed especially to assist the civil engineer with a wide variety of geometric calculations. With COGO, the engineer can state his problems using familiar terminology common to the engineering field. No knowledge of traditional programming is necessary. The civil engineer requires a simple but efficient means to solve geometric problems now being done laboriously by hand. 1130 COGO provides the solution to his problem by allowing the engineer to enter the data for the job into the computer by typewriter or punched card using a language he is familiar with, and to have solutions automatically printed out for him. COGO is espically useful because it provides the facility for the engineer to try many different methods of solving a problem. COGO can be used for many different types of jobs, e.g., control surveys, highway design, right of way surveys, bridge geometry, subdivision calculations, land surveying, construction layout. COGO can, in fact, be used wherever geometric calculation is required.

FEATURES - 1130 COGO is a new, powerful and versatile coordinate geometry program modeled after and encompassing the capabilities of 1620 COGO. Some 1620 customer written COGO programs now in use may require modifications to run on the 1130 system, since some 1620 COGO commands have been deleted.

The following new features have been added to 1130 COGO:

- Commands to process spirals.
- Commands to process vertical geometry.
- Reference to distances, angles and azimuth by specifying point numbers.
- 999 points may be stored vs. 99 in 1620 COGO I-D.

To use 1130 COGO, the engineer writes a description of the problem and the method to be used to solve it. No special forms are required. The problem may be stated on any piece of paper or a surveying filed book. The data is punched into cards in free form for entry into the 1130, or entered directly from the console typewriter. The programming system provides the engineer with direct communication with the 1130 for the most complete use of his judgement, experience, and imagination in solving each problem. All that is required is that the customer be familiar with the 1130 COGO language. The COGO program is ready to run as distributed. The customer need only load the cards onto disk. If the user wishes to add any of his own special subroutines, he may do so with a minimum

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of effort.

PROGRAMMING SYSTEMS - COGO is written in 1130 FORTRAN and runs under the 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - A card-oriented 8K 1130 Model 2 (with disk). The addition of an 1132 Printer will increase the speed of the system but is not required.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Users Manual H20-0301.
MACHINE READABLE - Appropriate material delivered.

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

ORDERING INFORMATION: PROGRAM NUMBER 1130EC02X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-EC-03X
STRUCTURAL ENGINEERING SYSTEM SOLVER (STRESS)

DESCRIPTION - This program covers many application areas in the field of structural analysis. Most buildings and bridges are designed by consulting engineers or government agencies, but many other types of structures in other industries can also be designed using 1130 STRESS. Some of the other industries and typical applications for each are:

INDUSTRY	TYPICAL APPLICATION
Aerospace	Wing members
Manufacturing	Conveyer framing, plant design
Process	Supporting towers
Utilities	Transmission towers, culvert sections
Federal	Dam design, ship design

FEATURES - STRESS incorporates many features that will make it extremely valuable to the engineer. Included are: a user oriented language for describing the geometry of the structure which is essentially the same as the language used generally in engineering... the facility to solve space frames, trusses, rigid frames, box culverts, runnel sections, plane grids and plane frames... problem sizes up to 125 joints and 250 members... access to the stiffness matrix. To use 1130 STRESS the engineer simply describes the shape of the structure, the properties of the members, the loadings placed on the structure and the output he requires, using the 1130 STRESS Language. Each statement is punched into a card in free form. This deck of statement cards is then read into the computer and the 1130 STRESS SYSTEM provides the specific output that the engineer has requested. All that is required is that the user be familiar with the 1130 STRESS Language. The STRESS program is ready to run as distributed. The user need only load the cards onto a disk.

PROGRAMMING SYSTEMS - FORTRAN is used as the primary source language, with a few subroutines written in 1130 Assembler Language. Knowledge of these programming languages is needed only if the user expects to augment or modify the system. The program operates entirely under the control of the 1130 Disk Monitor System, Version II (1130-OS-005).

MINIMUM SYSTEM REQUIREMENTS - An 1130 with disk (Model 2B) and a 1442 Card Read Punch. The addition of an 1132 Printer, while not required, will appreciably improve the speed of performance. If a printer is not included, the output will consist of punched cards, or will appear on the console typewriter at the user's option.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Users Manual, H20-0340.
MACHINE READABLE - Object code and sample problem.

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

ORDERING INFORMATION: PROGRAM NUMBER 1130EC03X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-EC-09X
1130 RIGID FRAME SELECTION PROGRAM

DESCRIPTION - RFSP assists customers who must design two or three hinged rigid frames and other simpler, structural elements. It contains design logic for steel, laminated wood and reinforced concrete structural elements. RFSP is of direct interest to manufacturers of prefabricated buildings and to consulting engineers and architects. The principal value of the program is its ability to produce a least weight design, within the range of material sizes available to a particular user. Designs produced by RFSP will satisfy one user-specified set of loading and stress specifications, for generalized, non-symmetric frames. In the more typical case, symmetric frames can be designed for three standardized load cases at one time. RFSP uses building profile dimensions, applied loads, and the user's choice of material dimensions to produce a design.

FEATURES -
- Has direct design of least-weight two- and three-hinged rigid frames by automatic, successive approximation, using outside building dimensions and applied loads.
- Allows several inventory policies to be evaluated for a product line, by creating section economy tables from various inventory specifications.
- Provides a convenient language for users to specify design and inventory variables.
- Calculates dimensions and weights of frames and their components.
- Allows for the design of members of other structures, given the results of a structural analysis.
- Supports interactive operation via the 1130 keyboard.

USE - Inventory calculations are made once for each different choice of material types and sizes. Design calculations are made for each different structure, for each different combination of dead, live, and wind load.

Users describe inventory choices, external structure dimensions, and applied loads in a convenient free form language, impolemented under the Problem Language Analyzer (PLAN). These statements determine which inventory, analysis, input and output programs are executed. Results are printed for inspection and may be stored on disk for modification and recalculation.

PROGRAMMING SYSTEMS - RFSP operates under the Problem Language Analyzer Program (PLAN) (1130-CX-25X).

MINIMUM SYSTEMS REQUIREMENTS - 8K 1131 Model 2B Central Processing Unit...1442 Card Read Punch Model 6... one 2315 Disk Cartridge.

EXPANDED 1130 SYSTEMS - RFSP throughput and usefulness are increased by the addition of a line printer, larger main storage, a 2310 Model B1 or B2, and faster main storage, in that order of importance 1131 Models 2C, 2D, 3B, 3C, and 3D may be used. All combinations of 1130 line printers, card readers, and card punches supported by FORTRAN can be used for RFSP.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory...Program Description Operations Manual (H20-0580).
MACHINE READABLE - Object code and sample problem.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Program Material List.
MACHINE READABLE - Source statements.

ORDERING INFORMATION: PROGRAM NUMBER 1130EC09X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-EM-01X
MECHANISM DESIGN SYSTEM

DESCRIPTION - The 1130 MECHANISM DESIGN SYSTEM will design new parts or analyze existing parts. The Spur and Helical gear programs enable the engineer to design a new gear train containing two gears, or to analyze an existing gear train. The programs for gear design compute the parameters of gears with the smallest dimensions that will give stresses below the allowable limits for the materials specified. When designing gears, the engineer may furnish the data about one gear or the shaft center distance of the two gears. In both cases, the computer will generate the information necessary for producing the gears and evaluating the design. The compression and extension spring programs provide for both the design and analysis of round wire helical springs. The torsion spring program provides for the design and analysis of round the rectangular wire helical springs. When designing springs, the user can specify an allowable design stress or allow

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the program to compute the design and limit stresses based on wire diameter. Commonly used material and wire sizes are furnished with the spring programs in the form of tables. The user has the option of using these standard values or providing a minimum and maximum wire size and an incremental value to be used in selecting a workable wire size. The acceptability of each wire size for a given spring design is based primarily on the spring operating at a safe stress level consistent with service requirement. However, once a real spring is calculated, several other checks can be performed. Two such checks are for the spring index and the spring diameter to be within specified limits.

FEATURES - A modifiable command structure is provided which the user can tailor to meet individual requirement... Input can be in patch or conversational mode, while operating in conversational mode (typewriter input), the engineer can readily modify the problem parameters to achieve a satisfactory design... Programs are highly modular and coded in FORTRAN for ease of modification, Calculations not performed in this application can be added to existing program modules or new program modules written, all programs run under the Disk Resident Monitor System (1130-OS-001)... standard data can be called by name through use of the command structure provided new commands can be added to those provided with the system for tables of standard size data, material physical parameters, etc.... American Gear Manufacuting Association (AGMA) and Spring Manufacturers Institute (SMI) tolerance and quality data are available in the command list; thus, the user can utilize that quality data furnished with the program or by adding new commands he can use local practices... new components can be designed or existing components analyzed. Design documentation includes data required for a part drawing and additional calculated data required for design evaluation. A framework is provided for expanding the existing command structure to include functions not covered in these applications, as well as for creating new applications for additional component types. (Examples for the former are type and size synthesis; for the later, cams, different gear types and linkages.)

PROGRAMMING SYSTEMS - Operates under Version 2 of the IBM 1130 Monitor (1130-OS-005) Modification Level 5 or higher and 1130 Problem Language Analyzer (PLAN) (1130-CX-25X). This program is written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1130 Model 2B Computing System with 1442 Model 6 or 7 Card Read/Punch and 2315 Disk. Larger 1130 models, alternate card input/output devices and printers supported by 1130 Disk Monitor are also supported by Mechanism Design.

OPTIONAL SYSTEM REQUIREMENTS - 1132 Printer for more efficient production... Expansion Adapter (#3616)... 1132 Attachment (#3854).

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Users Manual (H20-0365)... Operators Manual (H20-0366).
MACHINE READABLE - Object, sample program and sample reference date.

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

ORDERING INFORMATION: PROGRAM NUMBER 1130EN01X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	NONE	CARDS	15	NONE
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-EN-03X
MECHANISM DESIGN SYSTEM-KINEMATICS (MDS-KINEMATICS)

DESCRIPTION - The kinematics analysis program provides the capability to analyze a wide variety of two- and three-dimensional linkages. It offers the mechanical engineer and mechanism engineer a powerful, easy-to-use program for analyzing linkages. The system performs the kinematic analysis of two- and three- dimensional, simple or complex mechanical linkage systems which may use any combinations of six lower pair types. The linkage mechanism to be analyzed is described in a simple problem descriptive language. From the user's description and metric data about the linkage, the programs will solve the position and motion of the linkage. The format of computed results varies depending on the system configuration. Tabulations of selected results are possible on 1130 systems with two or more disk drives. Plotted results are available only on the 1130 - two disk systems equipped with a 1627 Plotter. Linkage modifications are made readily with the problem language command set furnished with the system. Mathematical procedures are coded in FORTRAN and use vector analysis, which permits direct solution.

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FEATURES -
- Provides for the kinematic analysis of a wide variety of two- and three- dimensional linkages.
- Provides position of bodies in a mechanism defined by a number of points.
- Provides a command structure which is easy for the engineer to lean and use.
- Enables the engineer to quickly ascertain the effect of physical linkage modifications.
- The printed or plotted output is flexible.

USE - This program is controlled by user written commands that describe the problem to be processed. A digital model of the linkage is created from the user's description in disk working storage. This digital model forms the basis for the processing phases which are position and motion solution. Motion solution includes velocity and acceleration analysis.

PROGRAMMING SYSTEMS - Written in basic FORTRAN IV and Assembly Language, and operates under the IBM 1130 Problem Language Analyzer (PLAN) (1130-CX-25X) which in turn operates under the 1130 Disk Monitor System, Version 2. MINIMUM SYSTEM REQUIREMENTS - 1131 Model 2C... 1442 Card Read Punch Model 6...one 2315 Disk Cartridge.

1130 OPTIONAL SYSTEM CONFIGURATIONS - 1627 Plotter...1133 Multiplex Control Enclosure with Channel Multiplexer (#1865)...2310 Disk Storage Model B1...one 2315 Disk Cartridge. The additional disk drive is required for the results tabulation feature.

1130 EXPANDED SYSTEM CONFIGURATIONS - Added speed and throughput may be achieved with a higher speed CPU (1131 Model 3C with 2.2 microsecond cycle time) and selected combinations (made up of the 1132 or 1403 Printer, 1442 Card Read Punch Model 7, 1442 Card Punch Model 5, and 2501 Card Reader).

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory...Program Description Manual (H20-0617)...Operations Manual (H2-0618).
MACHINE READABLE - Object code, MDS phrases and sample problem.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Optional Program Material List.
MACHINE READABLE - Source Code.

ORDERING INFORMATION: PROGRAM NUMBER 1130EN03X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-EO-11X
PROGRAM FOR OPTICAL SYSTEM DESIGN (POSD) (TYPEWRITER VERSION)

DESCRIPTION - POSD removes the drudgery and error-proneness from the innumerable calculations required in the optical design and evaluation process and allows the designer to spend his time exercising creative and critical judgments. The program gives the designer step-by-step assistance from the very early stages of the design through to the final optimization process. In addition, the designer may evaluate the quality of his design at any time he chooses through many data plot or print-out routines or both. Using this program, the optical designer can tackle virtually any lens system including those requiring a high degree of sophistication with the assurance that the lens performance will meet specifications in modeling and manufacture. To produce the programs to handle the above assignment within the confines of 8K core and single disk storage, the entire core and disk have been dedicated to the design task. Everything needed for successful design is stored in the disk including a library of lenses and lens glass tables plus the required elements of the 1130 Monitor and POSD subroutines.

FEATURES - For rough-out and design - Paraxial ray trace and lens scale programs... For design analysis - Third order calculations, fifth order calculations, general ray trace... For design correction - automatic third order correction and six ray method programs... For design evaluation - spot diagram, knife edge and radial energy distribution, lens picture, geometric frequency response (with phase shift), vignetted aperture shape, ray trace/rim ray and surface sag table programs. (These values may be either plotted and/or printed depending upon whether the plotter option is used). A full set of POSD utility programs allow the designer to change data values, enter corrections, scale values up or down, call for plots and terminate unrewarding runs at his own discretion while at all times receiving pertinent data to help him in his decision processes to indicate a direction for the next

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stage of design. The program has built-in flexibility matched explicitly to the 1130 Scientific Computing System. The program is in object deck (binary punched) form and contains the required elements of the 1130 Monitor program, fixed file area definition deck, link control binary decks and two sample problems. All necessary control cards are included in the decks to properly load and operate the program. The program thus is in a "load and start designing" state and requires no other programs to operate.

USER RESPONSIBILITIES - The lens libraries and lens glass tables on disk are the user responsibility. Space is left in the disk file for up to 300 lens surfaces made up of a maximum of 29 lens systems with a maximum of 100 lens surfaces in any one lens system. The user must also create his own glass tables which includes up to 250 different lens glasses with indices of refraction at five different wave-lengths of light for each glass included.

PROGRAMMING SYSTEMS - All 1130 Monitor elements required by POSD are included with the program due to a restriction on Monitor that it be Version 1, Modification Level 2. This restriction is required because future modifications to Monitor may run the program out of core. The program is written entirely in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1130 Model 2B System (8K with disk), 1442 Model 6 or 7 Card Reader/Punch and 2315 Disk Cartridge dedicated to POSD.

OPTIONAL SYSTEM REQUIREMENTS - 1627 Plotter. (NOTE - The optional 2315 Disk Cartridge is not required as lens library and glass table are stored on the Basic Disk.)

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Users Manual, H20-0320... Operators Manual, H20-0324.
MACHINE READABLE - 1130 monitor, fixed area definition, relocatable subroutine binary decks, link control logic binary decks and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130EO11X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01
OPTIONAL	none	none		none

1130-EO-12X
PROGRAM FOR OPTICAL SYSTEM DESIGN (POSD) (TYPEWRITER/PRINTER VERSION)

DESCRIPTION - POSD removes the drudgery and error-proneness from the innumerable calculations required in the optical design and evaluation process and allows the designer to spend his time exercising creative and critical judgments. The program gives the designer step-by-step assistance from the very early stages of the design through to the final optimization process. In addition, the designer may evaluate the quality of his design at any time he chooses through many data plot or print-out routines or both. Using this program, the optical designer can tackle virtually any lens system including those requiring a high degree of sophistication with the assurance that the lens performance will meet specifications in modeling and mannfacture. To produce the programs to handle the above assignment within the confines of 8K core and single disk storage, the entire core and disk have been dedicated to the design task. Everything needed for successful design is stored in the disk including a library of lenses and lens glass tables plus the required elements of the 1130 Monitor and POSD subroutines.

FEATURES - For rough-out and design - Paraxial ray trace and lens scale programs... For design analysis - Third order calculations, fifth order calculations, general ray trace... For design correction - Automatic third order correction and six ray method programs... For design evaluation - Spot diagram, knife edge and radial energy distribution, lens picture, geometric frequency response (with phase shift), vignetted aperture shape, ray trace/rim ray and surface sag table programs, (these values may be either plotted and/or printed depending upon whether the plotter option is used). A full set of POSD utility programs allow the designer to change data values, enter corrections, scale values up or down, call for plots and terminate unrewarding runs at his own discretion while at all times receiving pertinent data to help him in his decision processes to indicate a direction for the next stage of design. The program has built-in flexibility matched explicitly to the 1130 Scientific Computing System. The program is in object deck (binary punched) form and contains the required elements of the 1130 Monitor program, fixed file area definition deck, link control binary decks and two sample problems. All necessary control cards are included in the decks to properly load and operate the program. The program thus is in a "load and start

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designing" state and requires no other programs to operate.

USER RESPONSIBILITIES - The lens libraries and lens glass tables on disk are the user responsibility. Space is left in the disk file for up to 300 lens surfaces made up of a maximum of 29 lens systems with a maximum of 100 lens surfaces in any one lens system. The user must also create his own glass tables which includes up to 250 different lens glasses with indices of refraction at five different wave-lengths of light for each glass included.

PROGRAMMING SYSTEMS - All 1130 Monitor elements required by POSD are included with the program due to a restriction on Monitor that it be Version 1, Modification Level 2. This restriction is required because future modifications to Monitor may run the program out of core. The program is written entirely in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1130 Model 2B system (8K with disk), 1442 Model 6 or 7 Card Reader/Punch and 2315 Disk Cartridge dedicated to POSD.

OPTIONAL SYSTEM REQUIREMENTS - 1627 Plotter... 1132 Printer. (NOTE - The optional 2315 Disk is not required as lens library and glass table are stored on the basic disk.)

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Users Manual, H20-0320... Operators Manual, H20-0324.
MACHINE - 1130 Monitor, fixed area definition, relocatable subroutine binary decks, link control logic binary decks, and sample problem decks.

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

ORDERING INFORMATION: PROGRAM NUMBER 1130EO12X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01
OPTIONAL	none	DTR 9/1600	29	none
		DTR 9/800	28	none

1130-EO-14X
PROGRAM FOR OPTICAL SYSTEM DESIGN (POSD/II)

DESCRIPTION - POSD/II consists of an interrelated set of programs providing a complete facility for the geometric analysis of image forming optical systems, together with a means for automatically correcting such systems. The program has the capacity to analyze systems containing prisms, toric surfaces and diffraction gratings in addition to refracting or reflecting elements. The designer has access to outputs such as spot diagram information, radial energy distributions, and geometric frequency response tables.

FEATURES -
- Maintenance of 30 surfaces in core.
- Thorough set of utility options.
- Ray tracing speeds of .1@.
- Enhanced energy distribution and frequency response data presentation.
- Vignetting control by ray aiming option.
- Energy distribution by 5% energy increments.
- Comprehensive plotting features.
- Automatic Design.
- Index and dispersion variables.
- Boundary Condition Controls.
- Maximum of 20 variables.

USE - The program is under the control of the designer through user written commands. These commands provide data and bring into core the program modules necessary for the required problem solution. In automatic design, the program accepts, as input, target values and parameters. The program is iterative in this mode. If no solution can be found, the designer may set new targets.

PROGRAMMING SYSTEMS - Written in basic FORTRAN IV and operates under the IBM 1130 Problem Language Analyzer (PLAN) which in turn operates under the 1130 Monitor Version 2.

MINIMUM SYSTEM REQUIREMENTS - 1131 Model 2C (16K) Processing Unit...1442 Card Read Punch Model 6...1132 Printer...2310 Disk Storage Drive Model B1...1133 Multiplex Control Enclosure with Channel Multiplex (#1865)...two 2315 Disk Cartridges (dedicated to POSD/II). The 1627 Plotter is required only for POSD/II plotting option.

NOTE - Added speed and throughput may be achieved using the 1131 Model 3C (2.2 microsecond cycle time) and combinations of the 1403 Printer, 1442 Card Read Punch Model 7, 1442 Card Punch Model 5, and 2501 Card Reader.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory...Program

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Description Manual (H20-0577)...Operations Manual (H20-0578).
MACHINE READABLE - Object code, sample job control cards, and sample problem.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Program Material List.
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1130EO14X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-FO-001
FORTRAN COMPILER

DESCRIPTION - This is a coding system with a language that closely resembles the language of mathematics. It is a system primarily for scientific and engineering computations. Since this system is essentially problem-oriented rather than machine-oriented, it provides scientists and engineers with a method of communications that is more familiar, easier to learn, and easier to use than actual machine language.

The FORTRAN processor accepts source program statements as input from cards or paper tape and produces, as output, a machine language program. At object time, the system utilizes advanced techniques, such as relocatable subroutine, highly compressed formats, and flexible input and output command structures which facilitate data conversion operations.

The FORTRAN Compiler provides a high level of language power and flexibility. The units supported at execution time are the 1442 Card Read Punch mdl 6 or 7, printer-keyboard, 1132 Printer, 1134 Paper Tape Reader and 1055 Paper Tape Punch. A source program written in the 1130 FORTRAN language is processed by the FORTRAN Compiler to produce an 1130 machine language program. The 1130 System Loader, input/output routines for I/O function, and the system subprograms will be loaded with the compiled program prior to execution.

The compilation speed for the system includes the time required to - read in source program... Read in compiler phases... Compile and punch card object deck, assuming - (1) 400 card/minute read and 160 col/punch on 1442 Model 7, (2) A 150 statement source program, (3) A 50 card object deck punched, (4) No listings required; the compilation will take approximately 2.75 minutes. This time does not include the time to process the IBM 1130 Subroutine Library. Object execution speed is dependent upon program type, size, I/O functions performed and other factors pertinent to program execution speed.

Available core varies with the number of system subprograms and I/O routines used. In general, (1) Core storage words 0000-0635 will be used by the 1130 System Loader, 580 of which may be used for storing mainline variables at execution time and (2) core storage words 0636-end of memory will be used for the mainline program and any subprograms called by it. If the object program is compressed, however, the system loader will occupy the first 220 words of core storage, of which 160 may be used for data storage.

MINIMUM SYSTEM REQUIREMENTS - For compilation -- a 4K word 1131 Model 1... 1442 Card Read Punch Model 6 or 7.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Basic Program Material List... Sample FORTRAN Program Documentation... Attachment to users... Operators Guide, C26-3629.
MACHINE READABLE - Object code and sample program.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Refer to the text following the program abstract for 1130-UT-002.

ORDERING INFORMATION: PROGRAM NUMBER 1130FO001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none

OPTIONAL Refer to the text following the program abstract for 1130-UT-002.

1130-FO-002
FORTRAN COMPILER

DESCRIPTION - This is a coding system with a language that closely resembles the language of mathematics. It is a system primarily for scientific and engineering computations. Since this system is essentially problem-oriented rather than machine-oriented, it provides scientists and engineers with a method of communications that is more familiar, easier to learn, and easier to use than actual machine language.

The FORTRAN processor accepts source program statements as input from cards or paper tape and produces, as output, a machine language program. At object time, the system utilizes advanced techniques, such as relocatable subroutine, highly compressed formats, and flexible input and output command structures which facilitate data conversion operations.

The FORTRAN Compiler provides a high level of language power and flexibility with minimal machine requirements. The units supported at execution time are the 1442 Card Read Punch Model 6 or 7, printer-keyboard, 1132 Printer, 1134 Paper Tape Reader and 1055 Paper Tape Punch. A source program written in the 1130 FORTRAN Language is processed by the FORTRAN Compiler to produce an 1130 machine language program.

The 1130 System loader, input/output routines for I/O function, and the system subprograms will be loaded with the compiled program prior to execution.

The compilation speed for the tape system includes the time required to read and compile a source program at the rate of 33 statements per minute plus 15 minutes to read the compiler phases. Hence, a 150 statement source program takes approximately 23 minutes to compile assuming - (1) 30 col/source statement, (2) 2000 words of object program, (3) 60 CPS read on the 1134, and (4) 14.8 CPS punch on the 1055. This time does not include the time to process the IBM 1130 Subroutine Library.

MINIMUM SYSTEM REQUIREMENTS - For compilation - a 4K word 1131 Model 1... 1134 Paper Tape Reader and 1055 Paper Tape Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Basic Program Material List... Sample FORTRAN Program Documentation... Operators Guide.
MACHINE READABLE - Sample program... Compiler-Typewriter Phase 1... Compiler-Typewriter Phases 2-26... Compiler-Printer Phase 1... Compiler-Printer Phases 2-26.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Instructions.. Attachment.
MACHINE READABLE - Refer to the text following the program abstract for 1130-UT-002.

ORDERING INFORMATION: PROGRAM NUMBER 1130FO002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	PT	05	none

OPTIONAL Refer to the text following the program abstract for 1130-UT-002.

1130-LM-001
SUBROUTINE LIBRARY

DESCRIPTION - The IBM 1130 Subroutine Library has arithmetic, functional, code conversion, I/O control, selective dump and Synchronous Communications Adapter (STR) subroutines for use by object programs generated by the 1130 Assembler or the 1130 FORTRAN Compiler. The floating-point subroutines in the 1130 Subroutine Library offer two ranges of precision - standard range and extended range. The standard range provides 23 bits of precision. The extended range provides up to 31 bits of precision. The subroutines provided include floating point, fixed point, special function, code conversion, I/O control and selective dump. The subroutines are used by FORTRAN compiler or Assembler object programs to perform floating point, fixed point arithmetic, and functional operations. The conversion of data from one I/O code to another, the control of I/O activity on the devices attached to the system, the selective dumping of memory areas for debugging purposes, and to operate the Synchronous Communications Adapter in STR mode and to perform 4 of 8 code conversion. Two Binary Synchronous Communications subroutines - SCAT2 for point-to-point operation, and SCAT3 for multipoint operation. They meet basic programming requirements - provide standard BSC line control... Receive and transmit data from program specified I/O areas... Allow a programmer to control transmitting, receiving, audible alarm, and disconnect in both SCAT2 and SCAT3, Auto-Answer in SCAT2, and monitoring in SCAT3... Allow overlapped operation with other I/O devices.

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PROGRAMMING SYSTEMS - SCAT2 - Provides the functions to operate the Synchronous Communications Adapter in point-to-point mode between an 1130 and another 1130 with Synchronous Communications Adapter, or System/360 (Models 30, 40, 50, 65, 67 (in 65 mode), 75) with a 2701 Synchronous Data Adapter Type II or a 2703 Transmission Control Unit with Synchronous Base I. SCAT3 - Provides the functions to operate the Synchronous Communications Adapter in multipoint mode as a slave station and System/360 (Models 30, 40, 50, 65, 67 (in 65 mode), 75) with a 2701 Synchronous Data Adapter Type II or a 2703 Transmission Control Unit with Synchronous Base I.

MINIMUM SYSTEM REQUIREMENTS - 4K word Model 1... 1442 Card Read Punch Model 6 or 7, or 1134 Paper Tape Reader and 1055 Paper Tape Punch. The system must be at least at level EC 419682. Machine features and units supported: 4K or 8K word 1131... 1442 Card Read Punch Model 6 or 7... Console printer-keyboard... 2315 Disk Cartridge... 1132 Printer... 1627 Plotter.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Basic Program Material List... Attachment to User... Subroutine Library Manual, C26-5929... System Operators Guide, C26-3629.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE -
DOCUMENTATION - Material List...Operating Instructions.. Attachment.
MACHINE READABLE - Refer to the text following the program abstract for 1130-UT-002.

ORDERING INFORMATION: PROGRAM NUMBER 1130LM001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	Refer to the text following the program abstract for 1130-UT-002.			

1130-LM-002
SUBROUTINE LIBRARY

DESCRIPTION - The IBM 1130 Subroutine Library has arithmetic, functional, code conversion, I/O control, selective dump and Synchronous Communications Adapter (STR) subroutines for use by object programs generated by the 1130 Assembler or the 1130 FORTRAN compiler. The floating-point subroutines in the 1130 Subroutine Library offer two ranges of precision - Standard range and extended range. The standard range provides 23 bits of precision, the extended range provides up to 31 bits of precision. The subroutines provided include floating point, fixed point, special function, code conversion, I/O control and selective dump. The subroutines are used by FORTRAN Compiler or Assembler object programs to perform floating point, fixed point arithmetic, and functional operations; the conversion of data from one I/O code to another; the control of I/O activity on the devices attached to the system; the selective dumping of memory areas for debugging pruposes; and to operate the Synchronous Communications Adapter in STR mode and to perform 4 of 8 code conversion. Two Binary Synchronous Communications subroutines - SCAT2 for point-to-point operation, and SCAT3 for multipoint operation. They meet basic programming requirements - Provide standard BSC line control... Receive and transmit data from program specified I/O areas... Allow a programmer to control transmitting, receiving, audible alarm, and disconnect in both SCAT2 and SCAT3, Auto-Answer in SCAT2, and monitoring in SCAT3... allow overlapped operation with other I/O devices.

PROGRAMMING SYSTEMS - SCAT2 - Provides the functions to operate the Synchronous Communications Adapter in point-to-point mode between an 1130 and another 1130 with Synchronous Communications Adapter, or System/360 (Models 30, 40, 50, 65, 67 (in 65 mode), 75) with a 2701 Synchronous Data Adapter Type II or a 2703 Transmission Control Unit with Synchronous Base I. SCAT3 - Provides the functions to operate the Synchronous Communications Adapter in multipoint mode as a slave station and System/360 (Models 30, 40, 50, 65, 67 (in 65 mode), 75) with a 2701 Synchronous Data Adapter type II or a 2703 Transmission Control Unit with Synchronous Base I.

MINIMUM SYSTEM REQUIREMENTS - 4K word Model 1... 1442 Card Read Punch Model 6 or 7, or 1134 Paper Tape Reader and 1055 Paper Tape Punch. The system must be at least at level EC 419682. Machine features and units supported: a 4K or 8K word 1131... 1134 Paper Tape Reader and 1055 Paper Tape Punch... Console printer-keyboard... 2315 Disk Cartridge... 1132 Printer... 1627 Plotter.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Basic Program Material List... Subroutine Library Manual, C26-5929... System Operators Guide, C26-3629.
MACHINE READABLE - Seven paper tapes containing the

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following - ISS, ILS and Conversion Subroutines... Arithmetic, functional, and FORTRAN I/O subroutines-Standard package... Arithmetic, functional, and FORTRAN I/O Subroutines - extended package.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Instructions.. Attachment.
MACHINE READABLE - Refer to the text following the program abstract for 1130-UT-002.

ORDERING INFORMATION: PROGRAM NUMBER 1130LM002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	PT	05	none
OPTIONAL	Refer to the text following the program abstract for 1130-UT-002.			

1130-LM-008 *M
1130/2250 GRAPHIC SUBROUTINE PACKAGE

DESCRIPTION - The Graphic Subroutine Package (GSP) enables a program written in either 1130 FORTRAN IV or 1130 Assembler Language to display alphameric information or graphic forms on the 2250 screen and to communicate with the 2250 operator. With the GSP an 1130 FORTRAN programmer can use the 2250 Display Unit Model 4 as an input/output device under the 1130 Disk Monitor System, Version 2.

The GPS subroutines are accessed by means of the call statement and provide -
- Image management - Subroutines to initialize graphics, define graphics elements, modify these elements, and terminate graphic activity. Included are subroutines which can alter the visibility (display) (non-display) and light pen control (detect) (non-detect) of graphic elements.
- Image generation - Subroutines to generate the basic display items (line, points and characters) as the content of graphic elements. Scissoring and scaling is performed as specified by the users program.
- Program-operator communication - Subroutines to establish attention sources and process attentions, enter data with the light pen, support the alphameric keyboard, and to control the programmed function keyboard.

MINIMUM SYSTEM REQUIREMENTS - A 16K 1311 Central Processing Unit.

BASIC PROGRAM PACKAGE
DOCUMENTATION - IBM 1130/2250 Graphic Subroutine Package for basic FORTRAN IV. (C27-6934). Basic Program Material List and an Attachment to Users.
MACHINE READABLE - Object code.

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

ORDERING INFORMATION: PROGRAM NUMBER 1130LM008

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		MT 9/1600	29	#1

1130-LM-011
FORTRAN IV SUBROUTINES FOR DATA TRANSMISSION BETWEEN A SYSTEM/360 AND AN 1130 SYSTEM

DESCRIPTION - The Data Transmission Subroutines enable FORTRAN IV programmers to transmit data between a program being processed by an IBM System/360 Operating System and a program being processed by the 1130 Disk Monitor System Version 2. They can also be used by Assembler Language programmers who employ the proper method of CALLing FORTRAN subroutines.

USE - The Transmission Subroutines enable the programmer to perform the following:

- Initialize the communication lines.
- Transmit and receive data via the communication lines.
- Test the status of a previously requested transmit or receive operation.
- Activate a user-written asynchronous routine in the System/360.
- Terminate the communication linkage between the System/360 and the 1130 data transmission programs.

MINIMUM SYSTEM REQUIREMENTS - 8K core storage.

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BASIC PROGRAM PACKAGE
DOCUMENTATION - IBM System/360 Operating System and 1130 Disk Monitor System: System/360-1130 Data Transmission for FORTRAN (C27-6937)...Program Material List...Attachment to Users.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Program Material List...Attachment to Users...Operating Instructions.
MACHINE READABLE - Source modules.

ORDERING INFORMATION: PROGRAM NUMBER 1130LM#11

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/8##	28	none
		DTR 9/16##	29	none

1130-MP-03X
WORK MEASUREMENT AIDS

DESCRIPTION - The Work Measurement Aids package consists of two programs that will assist the industrial engineer in estimating and standards development. The programs are -

- Machinability - Determines optimum machine tool parameters such as speed, feed, horsepower, tool life, and process time for machining operations. The program uses theory of machinability. Output can also be used for cost estimating and as reference material for numerical control programmers. The program can also be used to create routings and provide output which is compatible with S/360 Bill of Material Processor.
- Work measurement sampling - Determines job standards for long cycle operations (over 15 minutes) and the distribution of time to job activities (conventional work sampling). The program accepts work measurement sampling observations and performs the calculations to convert these observations into job standards. The program eliminates a very time consuming and tedious clerical task, which would make the use of this technique costly to do manually.

In addition to these two programs, the Users Manual describes the use of the Stepwise Regression Analysis Program of the IBM 1130 Statistical System (1130-CA-06X) for standard data development. The statistical program is used to help determine the relationship between standard time and the key variables which affect it for a particular class of operations. The criteria for determining the validity of the results is described in the WMA Users Manual.

FEATURES -
- Machinability - The programming system allows for user specification of all reference data such as material data, machine groups speeds and feeds, and operation factors. This provides for results which are consistent with users machining practice. The output provides process time and tool life for three machine settings per machine group, for up to five machine groups. This allows the manufacturing engineer to determine the optimum settings based on evaluation of process time and tool change cost. This is not generally feasible manually.
- Work measurement sampling - Provides an economical method for setting job standards and estimating costs in areas where conventional methods are too costly or time consuming. Conventional work sampling data is also provided. Up to 6,200 work measurement sampling observations may be processed at one time. Provision is made for a maximum of four working shifts, with five scheduled interruptions per shift. Job parameters and input data cards are edited for missing information and inconsistencies. Standard data development provides an accurate statistical approach for development of data used in setting time standards, using an available application program.

PROGRAMMING SYSTEMS - Operates under control of Version 2 of the IBM 1130 Monitor (1130-OS-00S) Modification Level 5 or higher and 1130 Problem Language Analyzer (PLAN) (1130-CX-25X). This application program is written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1130 Model 2B Computing System with 8K, disk storage, and 1442 Card Read/Punch. Optional use of 1132 Printer. Larger 1131 models, alternate card input/output devices and printers supported by 1130 Disk Monitor, are also supported by Work Measurement Aids.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Users Manual (H20-0363)... Operators Manual (H20-0364).
MACHINE READABLE - Object code, sample program and sampl reference data.

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OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Program source decks.

ORDERING INFORMATION: PROGRAM NUMBER 1130MP#3X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	#1
OPTIONAL	none	DTR 9/8##	28	none
	none	DTR 9/16##	29	none

1130-MP-01X *N
ECONOMIC EVALUATION OF PETROLEUM PROJECTS PROGRAM

DESCRIPTION - This program can be used to screen drilling proposals and rank them according to their profitability. Given the investment schedule and production forecast for an exploration and drilling prospect, the programs compute the payout period and rate of return using the discounted cash flow method. The program considers producing rates, investment schedule, expense, taxes, working interest factors, product prices, time value of money and depreciation. It computes rate of return and payout for any given project. A project life of 30 years can be handled. The program will accept directly the output of both the Decline Curve Analysis Program (1130-MP-03X) and the Gas Deliverability Program (1130-MP-07X).

PROGRAMMING SYSTEMS - Program is written in FORTRAN Language described in C26-5933. It is designed to run under control of the 1130 Disk Monitor System Version 2. The IBM 1130 Digmeter Program (1130-MP-15X) containing specific plotting subroutines necessary to running the Economic Evaluation Program must be ordered from PID.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2B, an IBM 1442 Card Read Punch, and an IBM 1627 Plotter. An IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Programmers Manual, H20-0402... Operators Manual, H20-0403.
MACHINE READABLE - FORTRAN source code, including proper monitor control cards, and sample problem input data.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130MP#1X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-MP-02X *N
CASING DESIGN PROGRAM

DESCRIPTION - The IBM Casing Design Program allows the user to design the most economical combination casing string, in terms of grade and weight, that will meet the requirements of a given well. It will accept all possible casing-joint combinations. Each casing joint property card gives the properties of the casing and the joint to be used with it. A form of inventory control may be exercised by entering only the available casing-joint combinations. The program takes into account mud weight, hole deviation, maximum differential pressure expected, minimum length of a given section, and initial joint selection for the bottom section. The user may have the casing string designed from his own inventory of casing. The casing string designed by the program will meet API standards.

PROGRAMMING SYSTEMS - The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2B and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Programmers Manual, H20-0406... Operators Manual, H20-0407.
MACHINE READABLE - FORTRAN source cards, including proper Monitor Control cards, and sample problem input data.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130MP02X

PROGRAM NUMBER DISTRIBUTION MEDIUM USER VOLUME

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	EXTENSION	TYPE	CODE	REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-MP-03X *#
DECLINE CURVE ANALYSIS

DESCRIPTION - This program computes the coefficients in the equation best fitting past production data and the reserves associated with these data. Using a method of least squares for non-linear systems, the coefficients of the equation best fitting past production are determined. By means of the equation, future production rates and future cumulative production are computed. These figures are used to better evaluate a producing property. Output may be on the typewriter, 1132 Printer, or 1627 Plotter. Up to 5# past production periods may be used. The user may select either a hyperbolic decline or an exponential decline. Results of the calculations may be tabulated or plotted. The output is directly available for input to the Economic Evaluation of Petroleum Projects Program (1130-MP-01X).

PROGRAMMING SYSTEMS - The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2. The IBM 1130 Dipmeter Program (1130-MP-15X), containing specific plotting subroutines necessary to running the decline curve analysis program, must be ordered from PID.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2#, an IBM 1442 Card Read Punch, and an IBM 1627 Plotter. An IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Programmers Manual, H2#-#41#... Operators Manual, H2#-#411.
MACHINE READABLE - FORTRAN source cards, including proper monitor control cards, and sample problem input data.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 113#MP#3X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-MP-04X *#
TARNER MATERIAL BALANCE PROGRAM

DESCRIPTION - This program is an aid in predicting the performance of a reservoir and allows calculation of recovery, instantaneous gas-oil ratio, differential gas-oil ratio and total gas, as a function of selected pressure values. An iterative solution technique is utilized.

PROGRAMMING SYSTEMS - The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2.

The IBM 1130 Dipmeter Program (1130-MP-15X), containing specific plotting subroutines necessary to running the Tarner Material Balance Program must be ordered from PID.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2#, an IBM 1442 Card Read Punch and an IBM 1627 Plotter. The IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Programmers Manual, H2#-#41#... Operators Manual, H2#-#415.
MACHINE READABLE - FORTRAN source code, including proper monitor control cards, and sample problem input data.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 113#MP#4X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-MP-05X *#
SCHILTHUIS MATERIAL BALANCE PROGRAM

DESCRIPTION - The Schilthuis Material Balance Equation,

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for a reservoir which is subject to water influx, is evaluated at each past production data point (for up to 2# points). These values are weighted according to oil production and subjected to a least-squares solution to compute a most probable value of the original oil in place. A least squares fit program is provided to furnish coefficients for fitting the laboratory pressure, volume, and temperature data. The program uses Gaussian matrix solution and may be used as a general program. The program is versatile. It may be used for estimates of initial oil and gas present on reservoirs with water drives and with or without gas caps.

PROGRAMMING SYSTEMS - The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1311 Model 2# and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Programmers Manual, H2#-#41#... Operators Manual, H2#-#419.
MACHINE READABLE - FORTRAN source code, including proper monitor control cards, and sample problem input data.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130MP05X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-MP-06X *#
TWO-DIMENSIONAL WATERFLOODING PROGRAM

DESCRIPTION - The Two-Dimensional Waterflooding Program allows the user to determine the pressure distribution throughout a reservoir, taking into consideration the effect of water injection. The pressure distribution data may then be used to compute the rate of frontal advance through the reservoir, and the flood front may be plotted using an on-line plotter. As an additional feature, this program provides for analysis of complete injection patterns in a reservoir in order that the optimum pattern might be selected. The solution considers reservoir geometry, boundary conditions, location of producing and injection wells, rates of injection and production, reservoir conductivity, and reservoir condition. Flood fronts are plotted on an on-line plotter which allows the user to watch the reservoir performance as the computations proceed. The user may stop the flood at any time and change conditions.

PROGRAMMING SYSTEMS - The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2. The IBM 1130 Dipmeter Program (1130-MP-15X), containing specific plotting subroutines necessary to running the waterflood program, must be ordered from PID.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2#, IBM 1442 Card Read Punch, and IBM 1627 Plotter. An IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Programmers Manual, H2#-#422... Operators Manual, H2#-#423.
MACHINE READABLE - FORTRAN source code, including proper monitor control cards, and sample problem input data.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 113#MP#6X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-MP-07X *#
GAS DELIVERABILITY PROGRAM

DESCRIPTION - The IBM Gas Deliverability Program allows the user to project the annual rate at which volumes of gas reserves may be received into gathering systems. A printed report may be obtained by quarters showing a breakdown of the deliverability and daily rates for each well, and production, both daily and cumulative for the reservoir. The program computes absolute open flow and

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future deliverabilities for up to 40 individual wells. Daily production, cumulative production for the year, and total cumulative production are reported quarterly. Output can be read directly by the Economic Evaluation of Petroleum Projects Program (1130-MP-01X).

PROGRAMMING SYSTEMS - The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2B and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Programmers Manual, H20-0426... Operators Manual, H20-0427.
MACHINE READABLE - FORTRAN source code, including proper monitor control cards, and sample problem input data.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130MP07X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-MP-08X *N
MULTI-STAGE FLASH CALCULATION PROGRAM

DESCRIPTION - The IBM Flash Calculation Program is a general purpose flash calculation program that can be used for a variety of the computations made by the petroleum engineer. The program may be used to design surface separators or to determine the physical properties of the oil and gas from a surface facility. A laboratory differential liberation may be simulated. The program will accommodate up to four stages of flash. The feed to the first stage may be entered directly, or computed from separator products. Under user option, the C Sub 7 plus cut can be broken down into five cuts (C Sub 7, C Sub 8, C Sub 9, C Sub 10, and C Sub 11 plus). Specific K values can be entered; or, optionally, the program will compute K values from the NGPA (Natural Gas Processing Association) equilibrium coefficients.

PROGRAMMING SYSTEMS - The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2B and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Programmers Manual, H20-0430... Operators Manual, H20-0431.
MACHINE READABLE - FORTRAN source code, including proper Monitor cards, and sample problem input data.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130MP08X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-MP-09X
VELOCITY FUNCTIONS FROM TIME-DEPTH DATA PROGRAM

DESCRIPTION - The IBM Velocity Functions From Time-Depth Data Program permits a geophysicist to derive a velocity function and to prepare a tabulated time-depth chart from well velocity data. The principal use of the time-depth chart is to provide an easy method for the geophysicist to convert seismic reflection times to depths. Up to 80 time-depth points can be used. Five velocity function equations and a linear interpolation between the time depth points can be selected by the user. Results can be tabulated or plotted. Coefficients developed in this program can serve as input to the Wave-Front Ray-Path Determination Program (1130-MP-10X).

PROGRAMMING SYSTEMS - The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2. The IBM 1130 Dipmeter Program (1130-MP-15X), containing specific plotting subroutines necessary to running the velocity functions program, must be ordered from PID.

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MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2B, an IBM 1442 Card Read Punch, and an IBM 1627 Plotter. An IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory, Programmers Manual, H20-0434, and Operators Manual H20-0435.
MACHINE READABLE - FORTRAN source code, including proper Monitor control cards, and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130MP09X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-MP-10X *N
WAVE-FRONT-RAY-PATH DETERMINATION PROGRAM

DESCRIPTION - This program provides a flexible method to compute and tabulate a seismic wave-front ray-path chart. The geophysicist uses such a chart to restore seismic reflections to their true subsurface position. Thirty ray paths are computed. Results are plotted to scale. Depth and horizontal offsets can be obtained from a tabulation or from a wave-front ray-path plot.

PROGRAMMING SYSTEMS - The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2. The IBM 1130 Dipmeter Program (1130-MP-15X), containing specific plotting subroutines necessary to running the wave front ray path determination program, must be ordered from PID.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2B and an IBM 1442 Card Reader Punch and an IBM 1627 Plotter. An IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory, Programmer's Manual, H20-0438, and Operator's Manual, H20-0439.
MACHINE READABLE - FORTRAN source code, including proper Monitor control cards, and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130MP10X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-MP-11X *N
SYNTHETIC SEISMOGRAM PROGRAM

DESCRIPTION - The IBM Synthetic Seismogram Program computes and plots a one-dimensional seismic model from well log data. The program aids the seismic interpreter in understanding the relationship between the geological section, as represented by a well log, and the seismic results obtained at the location of the wells. The model of the layered earth can contain up to a maximum of 600 levels. Primaries only, multiples only, and combined primaries and multiples for both the transmission loss and no transmission loss cases can be computed. Results are plotted on an IBM 1627 Plotter.

PROGRAMMING SYSTEMS - The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2. The IBM 1130 Dipmeter Program (1130-MP-15X), containing specific plotting subroutines necessary to running the Synthetic Seismogram Program, must be ordered from PID.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2B, an IBM 1442 Card Read Punch, and an IBM 1627 Plotter.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory, Programmers Manual, H20-0442, and Operators Manual, H20-0443.
MACHINE READABLE - FORTRAN source code, including proper Monitor control cards, and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130MP11X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT

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BASIC	none	DTR*	88	none
OPTIONAL	none	none		none

1130-NP-12X *N
GRAVITY AND MAGNETICS CONTINUATIONS, DERIVATIVES AND RESIDUAL PROGRAM

DESCRIPTION - The IBM Gravity And Magnetic Continuations, Derivatives And Residuals Program provides a method for computing - (1) Upward and downward continuations of gravity and magnetic fields... (2) First and second derivatives of these fields... (3) Residuals of arbitrary type for gravity and magnetic values. All gravity and magnetic interpreters should be able to make use of this program to analyze potential field data. The maximum gravity or magnetic station array size is 166 x 188.

PROGRAMMING SYSTEMS - The program, formerly announced as an Assembler Language program, is now written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2B and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory, Programmers Manual, H20-0486, and Operators Manual, H20-0487.
MACHINE READABLE - FORTRAN source code, including proper Monitor control cards, and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130NP12X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	88	none
OPTIONAL	none	none		none

1130-NP-13X *N
THEORETICAL GRAVITY OF A 3-D MASS PROGRAM

DESCRIPTION - The IBM Theoretical Gravity Of A 3-D Mass Program allows the user to establish a synthetic gravity anomaly by computing the theoretical gravity of an assumed mass. It permits the comparison of the synthetic anomaly with an anomaly actually mapped and thereby allows the user to find out the reasonableness of his structural interpretation. The program will type and/or punch the gravity values for a grid of simulated gravity stations. The mass is represented by a three-dimensional array with maximum dimensions of 30 x 30 x 15. Each prism can be assigned on a layer-by-layer basis.

PROGRAMMING SYSTEMS - The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2B and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory, Programmers Manual, H20-0450, and Operators Manual, H20-0451.
MACHINE READABLE - FORTRAN source code, including proper Monitor control cards, and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130NP13X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	88	none
OPTIONAL	none	none		none

1130-NP-14X *N
QUANTITATIVE LOG ANALYSIS PROGRAM

DESCRIPTION - The Quantitative Log Analysis Program permits the user to compute the porosity and water saturation on prospective hydrocarbon zones in a well, using data from several log combinations. It aids in evaluating the zones in a well to enable decisions concerning the setting of casing, testing programs, reserve calculations, etc. The program allows fast quantitative analysis on an unlimited number of prospective hydrocarbon bearing zones in a well. Induction logs, Electric logs, Micrologs, and Sonic logs can all be processed. Both a detailed report giving many

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intermediate results of the calculations and a summary output report are available.

PROGRAMMING SYSTEMS - The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2B and an IBM 1442 Card Read Punch. An IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory, Programmers Manual, H20-0454, and Operators Manual, H20-0455.
MACHINE READABLE - FORTRAN source code, including proper Monitor control cards, and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130NP14X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	88	none
OPTIONAL	none	none		none

1130-NP-15X *N
DIPMETER PROGRAM

DESCRIPTION - The Dipmeter Calculation Program is designed to assist in the analysis of the continuous dipmeter log by calculating the true dip of intervals in a well. Structural information is required in most phases of petroleum exploration and production; and, sometimes, the dipmeter is the only source of this information. This program must be ordered from PID to provide the plotting subroutines used by the IBM 1130 Petroleum Exploration and Engineering Programs. The program allows fast calculation of the magnitude of dip and direction of dip of rock strata in a well bore. Results of the calculations can be presented in typewritten tabular form, or polar coordinate plot, or a Cartesian coordinate plot on the 1627 Plotter.

PROGRAMMING SYSTEMS - The program is written in FORTRAN Language (described in C26-5933). It is designed to run under control of the 1130 Disk Monitor System Version 2.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1131 Model 2B, an IBM 1442 Card Read Punch, and an IBM 1627 Plotter. An IBM 1132 Printer is optional.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory, Programmers Manual, H20-0458, and Operators Manual, H20-0459.
MACHINE READABLE - FORTRAN source code, including proper Monitor control cards, sample problem, and object code for the IBM 1627 Plot subroutines.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Assembly Language and FORTRAN Language source card deck for the IBM 1627 Plot subroutines.

ORDERING INFORMATION: PROGRAM NUMBER 1130NP15X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR*	88	none

1130-OS-001 *N
DISK MONITOR PROGRAMMING SYSTEM

DESCRIPTION - The 1130 Monitor System is a disk-oriented system allowing the user to assemble, compile, and/or execute individual or several programs with a minimum of operator intervention. Jobs to be performed are stacked and separated by control records that identify the jobs. The 1130 Monitor System also provides the flexibility to program for the diverse applications of general engineering.

The 1130 Monitor System is comprised of five separate programs:
- Supervisor.
- Subroutine Library.
- Disk Utility.
- Assembler.
- FORTRAN Compiler.

Job records identify jobs to be performed by the 1130 Monitor System.

- Supervisor control records specify the functions to be

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performed., e.g., Assembly, FORTRAN compilation, execute an assembled or compiled program, call the Disk Utility program. Control records recognized by the function to be performed give further instructions regarding the job, such as LIST DECK, LIST, PRINT SYMBOL TABLE, DUMP, STORE, DUMP LET, etc.
- The Subroutine Library I/O Programs can be called by the user to accomplish the inputting and outputting of data from and to the attached peripheral devices. Included are the 1130 Synchronous Communications Adapter Subroutines (STR) which are used by Assembler Object Programs to operate the Synchronous Communications Adapter in STR MODE and to perform 4 of 8 Code Conversion.
- The following utility programs, each complete with subroutines and loaders, are supplied to the user to enable him to perform operations external to the 1130 Disk Monitor System -

  - Disk Pack Initialization Routine (DPIN)
  - Console Printer Core Dump
  - 1132 Printer Core Dump
  - Console Printer Disk Dump
  - 1132 Printer Disk Dump

MINIMUM SYSTEM REQUIREMENTS - A 4K word 1131 Model 2, and 1442 Card Read Punch Model 6 or 7.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List, Attachment to users, and Monitor Reference Manual, C26-3750.
MACHINE READABLE - Object code and Sample Problems.

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

ORDERING INFORMATION: PROGRAM NUMBER 1130OS001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01
OPTIONAL	none	MT 9/800	28	01
		MT 9/1600	29	01

1130-OS-005 *M

DISK MONITOR PROGRAMMING SYSTEM

DESCRIPTION - The 1130 Monitor System is a disk-oriented system allowing the user to assemble, compile, and/or execute individual or several programs with a minimum of operator intervention. Jobs to be performed are stacked and separated by control records that identify the jobs. The 1130 Monitor System also provides the flexibility to program for the diverse applications of general engineering.

The 1130 Monitor System is comprised of five separate programs -

- Supervisor.
- Subroutine Library.
- Disk Utility.
- FORTRAN to RPG Disk Data File Conversion.
- Assembler.
- FORTRAN Compiler.

Job records identify jobs to be performed by the 1130 Monitor System.

- Supervisor control records specify the functions to be performed., e.g., Assembly, FORTRAN Compilation, execute an assembled or compiled program, call the Disk Utility Program. Control records recognized by the function to be performed give further instructions regarding the job, such as LIST DECK, LIST, PRINT SYMBOL TABLE, DUMP, STORE, DUMP LET, etc.

The System Library contains subroutines to operate the Synchronous Communications Adapter in STR mode and BSC mode. The STR subroutines include line control and 4 of 8 code conversion. The BSC subroutine provides for point-to-point and multipoint transmission with the following basic line control functions provided for: Point-to-point, with contention...Point-to-point switched network...Multipoint, centralized with 1130 as slave...Data Set Clocking or IBM Clocking...inquiry and alternating acknowledgements...Auto answer without identification...Headers...Normal Text (EBCDIC code)...Full Transparent Text (EBCDIC control characters)...Error checking (cycle check)...Disconnect. BSC with the 1130 is program supported on System/360 Models 30, 40,50,65,67 (working in 65 mode) and 75 in DOS/BTAM and OS/BTAM...See IBM System/360 Disk Operating System (DOS/360) and IBM Operating System/360 (OS/360).
- The following utility programs, each complete with subroutines and loaders, are supplied to the user to enable him to perform operations external to the 1130 Disk Monitor System -

  - Disk Pack Initialization Routine (DPIN)
  - Console Printer Core Dump

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  - 1132 Printer Core Dump
  - Console Printer Disk Dump
  - 1132 Printer Disk Dump.

- The FORTRAN to RPG Disk Data File Conversion program operates in a stacked job environment under control of the Disk Monitor System. It provides a conversion path from disk data files created by user programs programmed in FORTRAN (or FORTRAN with Commercial Subroutines) to disk data files accessible by RPG-compiled user programs. An interim stage of punched cards is an option where disk space is not available. The program allows selective field conversion and data rearrangement within the converted record.

NOTE - 1130-OS-005 is Version 2 of the Disk Monitoring System 1130-OS-001 (Version 1). Certain components of the Version 2 package are modified to provide improved facilities and/or performance. They are - "Data Statement" in FORTRAN Dynamic Dump, Faster Loading Of Core Image Programs, Dump Data Directly From User Area, Extended Assembler Mnemonics.

Any 1130 Card/Paper Tape and Printer devices function as principal I/O devices for the 1130 Monitor System. In addition, the keyboard functions as an input device. I/O devices are available through subroutine support to both FORTRAN and Assembler Language users, except the 1231 and Synchronous Communications Adapter, which are available only to Assembler Language users.

Multiple disk drives allow the user to locate the IBM System area, user area, and working storage area together or separately on any drive. Disk drive assignment and disk subroutines will provide maximum flexibility in the use of multiple disk drives.

Basic differences between the 1130 Disk Monitor System, Versions 1 and 2 are-

- Lowest allowable origin with Version 2 is higher than those origins allowable with Version 1.
- All Version 2 disk subroutines provide multiple disk support and accommodate word counts exceeding 32K. There is no DISKO subroutine in Version 2; a LIBF to DISKO is interpreted as a LIBF to DISK1.
- Version 2 does not allow an initial ORG to an odd location in main-lines that require DISK2. An ORG to an even location followed by a BSS or BES of an odd number of words is equivalent to an ORG to an odd location.
- Version 2 may require more core than Version 1, especially FORTRAN core loads.
- The entire resident Monitor, with the exception of Call LINK and Call EXIT Entry Points, INOCS Counter, and Traps at 0028 and 002D, has been relocated. Certain parameters that were formerly in COMMA in Version 1 are in DCOM in Version 2.
- The Core Image Header for Disk Core Image Format (DCI) has been revised and relocated.
- The *FILE Assembler Control Record has been replaced by the Pseudo-Operation File. *FILE (not to be confused with the Supervisor Control Record *FILES) is not recognized in Version 2.
- On a DUP Dump using the 1442-6 or -7, blank cards following the punched cards are not selected to stacker 2.
- Version 2 requires that all cartridges have a 4-Hexadecimal character ID
- 1130 Binary Synchronous (BSC)* capability, provided by two subroutines in the subroutine library, is not contained in Version 2. This capability will be made available with the first modification level update to the Version 2 System.

CUSTOMER RESPONSIBILITIES - Some re-programming may be required for operation of existing programs under Version 2, and to enable judicious timing of their change-over, Version 1 (1130-OS-001) will be available for some time.

MINIMUM SYSTEM REQUIREMENTS - A 4K word 1131 Model 2... 1442 Card Read/Punch-Model 6 or 7, or... 2501 Card Reader and 1442 Card Punch-Model 5.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List, Attachment to users, SRL Publications GC26-3717, GC26-5929 and GC21-5002.
MACHINE READABLE - Object code and sample programs.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List; Attachment to Users.
MACHINE READABLE - Symbolic source codes.

ORDERING INFORMATION: PROGRAM NUMBER 1130OS005

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	2315	58	01
OPTIONAL	none	MT 9/800	28	01
		MT 9/1600	29	01

1130-OS-006
DISK MONITOR PROGRAMMING SYSTEM

DESCRIPTION - The 1130 Monitor System is a disk-oriented system allowing the user to assemble, compile and/or execute individual or several programs with a minimum of operator intervention. Jobs to be performed are stacked and separated by control records that identify the jobs. The 1130 Monitor System also provides the flexibility to program for the diverse applications of general engineering. The 1130 Monitor System is composed of five separate programs-

- Supervisor.
- Subroutine Library.
- Disk Utility.
- Assembler.
- FORTRAN Compiler.
- Job records identify jobs to be performed by the 1130 Monitor System.

Supervisor control records specify the functions to be performed; e.g., assembly, FORTRAN compilation, execute an assembled or compiled program, call the 1130 Disk Utility Program. Control records recognized by the function to be performed give further instructions regarding the job, such as LIST DECK, LIST, PRINT SYMBOL TABLE, DUMP, STORE, DUMP LET, etc.

The System Library contains subroutines to operate the Synchronous Communications Adapter in STR mode and BSC mode. The STR subroutines include line control and 8 of 8 code conversion. The BSC subroutines provide for point-to-point and multipoint transmission with the following basic line control functions provided for: Point-to-point, with contention...Point-to-point switched network...Multipoint, centralized with 1130 as slave...Data Set Clocking or IBM Clocking...inquiry and alternating acknowledgements...Auto answer without identification...Headers...Normal Text (EBCDIC code)...Full Transparent Text (EBCDIC control characters)...Error checking (cycle check)...Disconnect. BSC with the 1130 is program supported on System/360 Models 30, 40,50,65,67 (working in 65 mode) and 75 in DOS/BTAM and OS/BTAM...See IBM System/360 Disk Operating System (DOS/360) and IBM Operating System/360 (OS/360).

The following utility programs, each compile with subroutines and loaders, are supplied to the user to enable him to perform operations external to the 1130 Disk Monitor System:

Disk Pack Initialization Routine (DPIX), Console Printer Core Dump; 1132 Printer Core Dump; Console Printer Disk Dump; 1132 Printer Disk Dump; Paper Tape Reproducing Routines; Paper Tape Utility Routine (PTUTL).

The assembler permits the programmer to code a problem in a language that is more meaningful and easier to handle than the actual machine language.

The FORTRAN Compiler permits the user to utilize the 1130 System for solving problems with only a slight knowledge of the system and a short period of instruction.

The FORTRAN Compiler speeds for a 150 source statement program are approximately 3.8 minutes with a console printer listing assuming an 1134 Reader and 1055 Punch.

FORTRAN object program execution speed is dependent upon program type, size, I/O functions performed, and other factors pertinent to program execution speed. The assembler program speeds for paper tape input with 1134 Reader input are - 120 statements/min. with no listing, 40 statements/min. with 1053 listing, and 16 statements/min. with console printer listing.

NOTE - 1130-OS-006 is version 2 of the Disk Monitoring System 1130-OS-002 . Certain components of the version SYSTEM 1130-OS-002. CERTAIN COMPONENTS OF THE VERSION performance. They are- "DATA STATEMENT" in FORTRAN Dynamic

Dump, faster loading of core image programs, dump data directly from user area, extended assembler mnemonics.

Any 1130 card/paper tape and printer devices function as principal I/O devices for the 1130 Monitor System. In addition, the keyboard functions as an input device. I/O devices are available through subroutine support to both FORTRAN and Assembler Language users, except the 1231 and Synchronous Communications Adapter, which are available only to Assembler Language Users.

Multiple disk drives allow the user to locate the IBM System area, user area, and working storage area together or separately on any drive. Disk drive assignment and disk subroutines will provide maximum flexibility in the use of multiple disk drives.

Basic differences between the 1130 Disk Monitor system, Versions 1 and 2 are:
- Lowest allowable origin with Version 2 is higher than those origins allowable with Version 1.
- All Version 2 disk subroutines provide multiple disk support and accommodate word counts exceeding 32#.

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(There is no DISK0 Subroutine in Version 2; a LIBF to DISK0 is interpreted as a LIBF to DISK1).
- Version 2 does not allow an initial ORG to an odd location in main-lines that require DISK2. An ORG to an even location followed by a BSS or BES of an odd number of words is equivalent to an ORG to an odd location.
- Version 2 may require more than Version 1, especially FORTRAN core loads.
- The entire resident monitor, with the exception of CALL LINK and CALL EXIT entry points, IOCS Version 1, are in DCOR in Version 2.
- The core image header for Disk Core Image Format (DCI) has been revised and relocated.
- The *File Assembly Control Record has been replaced by the pseudo-operation file. *File (not to be confused with the Supervisor Control Record *FILES) is not recognized in Version 2.
- On a DUP Dump using the 1042-6 or -7, blank cards following the punched cards are not selected to stacker 2.
- Version 2 requires that all cartridges have a 4-Hexadecimal Character name

CUSTOMER RESPONSIBILITIES - Some re-programming may be required for operation of existing programs under Version 2, and to enable judicious timing of their change-over, Version 1 (1130-OS-002) will be available for some time.

MINIMUM SYSTEM REQUIREMENTS - A 4K Word 1131 Model 2... 1134 Paper Tape reader and 1055 Paper Tape Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List... Attachment to Users... SRL Publication - 1130 Disk Monitor System, Version 2, Programming and Operator's Guide (C26-3717).
MACHINE READABLE - One paper tape for each of the following - System Loader, Part 1... System Loader, Part 2... Phase ID (PHID) Control Record... Disk Utility Program... FORTRAN Compiler... Assembler... Supervisor, Core Image Loader... End of System Tape Control Record... Standard Precision LIBF and call subroutines... Common IBF and call subroutines... ILS, ISS, Conversion and Utility subroutines... Plotter Subroutines... SCA Subroutines... Cold Start Paper Tape record... DCIP (DISK Cartridge Initialization Program) ... PTUTL (Paper Tape Utility Program)... Paper Tape Reproducing Program... 1132/1403 Printer Core Dump... Console Printer Core Dump.. Sample FORTRAN program... Sample Assembler program.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Program material list, Operating Instructions, and attachment.
MACHINE READABLE - 1130 Disk Monitor symbolic source codes.

ORDERING INFORMATION: PROGRAM NUMBER 1130OS006

	PROGRAM NUMBER EXTENSION	DISTRIBUTION TYPE		MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	MT		05	none
OPTIONAL	none	MT	9/800	28	01
		MT	9/1600	29	01

1130-SE-25X
IBM 1130 COMMERCIAL SUBROUTINE PACKAGE

DESCRIPTION - The 1130 Commercial Subroutine Package provides the scientific user with added capabilities for handling functions and techniques common to commercial programming. This set of twenty-eight subroutines are callable by the FORTRAN programmer in a similar manner to such standard functions as sine, cosine, square root, etc. They are written in FORTRAN and Assembler Language. The will provide the scientific 1130 user with flexibility to add limited commercial applications such as payroll, cost accounting, and many others.

FEATURES -
- Variable length alphameric move.
- Variable length alphameric compare.
- Variable length alphameric edit.
- Variable length alphameric fill.
- Variable length conversion from EBCDIC to Floating-Point.
- Variable length conversion from Floating-Point to EBCDIC.
- Zone manipulation.
- Fill an area with a specified character.
- Stacker select.
- Variable length decimal add.
- Variable length decimal subtract.
- Variable length decimal multiply.
- Variable length decimal divide.
- Variable length decimal compare.
- Sign manipulation.
- Overlapped printing and carriage control.
- Overlapped reading of cards with conversion of card card.
- Overlapped printing on the console printer.
- Conversion from one character per word to two characters/

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word.
- Card punching on the 1442 Model 5,6, or 7.
- Conversion from one character per word to three characters per word.
- Conversion from one digit per word to four digits per word.

PROGRAMMING SYSTEMS - All subroutines are written in the 1130 Assembler Language. The internal format of data is one character per word.

MINIMUM SYSTEM REQUIREMENTS - For execution - An 1131 Model 1B and a 1442 Card Read Punch Model 6 or 7. All devices supported by FORTRAN are supported in the same manner under the 1130 Commercial Subroutine Package. In addition, the following overlap capabilities are provided - printing on the 1132 Printer... is overlapped with all other operations... reading from the 1442 is overlapped with code conversion... printing on the console printer is overlapped with all operations except reading from the keyboard. All I/O must use either FORTRAN I/O exclusively or 1130. Commercial Subroutine Package I/O exclusively.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Reference Manual (including operating instructions, listings, flowcharts and narrative) H20-0241.
MACHINE READABLE - Object code and sample problem.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Source code and sample problems.

ORDERING INFORMATION: PROGRAM NUMBER 1130SE25X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	20	none
		DTR 9/1600	29	none

1130-SP-001 2K
ASSEMBLER PROGRAM (CARDS)

DESCRIPTION - The IBM 1130 Assembler provides the programmer a flexible and meaningful symbolic language that is easier to code than a binary machine language. Source programs are assembled by the processor in two passes. The assembler automatically assigns and keeps a record of storage locations and checks for coding errors. By relieving the programmer of these burdensome tasks, the assembler significantly reduces the amount of programming time and effort required to prepare a program. A compressor program compresses symbolically assembled output into a form suitable for execution. The assembler and its compressor always use all of core storage available on an assembly machine. The programs determine memory size automatically at assembly time and adjust table parameters accordingly.

Approximately 520 labels may be held in a 4k memory. The 1130 assembler provides for assembly of both absolute and relocatable mainline programs, and for assembly of relocatable subroutines. By means of ENT and CALL statements, provision is made for automatic symbolic cross-referencing between programs at load time. The 1130 Assembler can be used to generate subroutines and subprograms for FORTRAN main programs. Similarly, Assembler main programs can call FORTRAN subroutines or subprograms, as well as subroutine library and utility routines. The 1130 Assembler also provides facilities for assembling interrupt processing subroutines which may be incorporated into the system. At object time, the relocating loader normally occupies core storage locations 0000 through 0635. Instructions and data may no be loaded into this area, however, most of this area may be used as input/output buffers and working storage. A core image converter is provided which will convert the relocatable binary object decks of a mainline and all called subroutines, into a single core image binary deck. This deck may then be loaded with a core image loader which has no relocating or cross-referencing abilities. This loader will occupy (approximately) core locations 0000 through 0228. Much of this area may be used as input/ output buffers and working storage. The assembly speeds for the assemblers and compressors are limited by the speed of the I/O devices, although for extremely large programs with many labels (e.g., a 700 label program being assembled on an 8K machine), a slight reduction may be expected in the speed on the order of 10 per cent.

Throughput speed for assembly and compression (not counting processor load time) -
- 1442 Model 6, 67-77 statements/minute (The variation may be ascribed to varying numbers of comments statements which do not require punching).
- 1442 Model 7, 90-100 statements/minute
- Processor load times are as follows - with 1442 mdl 6, Assembler - 12 seconds, Compressor - 9 seconds with 1442 mdl 7, Assembler - 9 seconds, Compressor - 7 seconds.

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MINIMUM SYSTEM REQUIREMENTS - For program generation and execution - A 4K word 1131 Mdl 1... 1442 Card Read Punch mdl 6 or 7.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List... Operators Guide C26-3629... Attachment to Users... Sample assembly documentation.
MACHINE READABLE - Object Code and Sample Program.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Instructions.. Attachment.
MACHINE READABLE - Refer to the text following the program abstract for 1130-UT-002.

ORDERING INFORMATION: PROGRAM NUMBER 1130SP001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	Refer to the text following the program abstract for 1130-UT-002.			

1130-SP-002
ASSEMBLER PROGRAM

DESCRIPTION - The IBM 1130 Assembler provides the programmer a flexible and meaningful symbolic language that is easier to code than a binary machine language. Source programs are assembled by the processor in two passes. The 1130 Assembler automatically assigns and keeps a record of storage locations and checks for coding errors. By relieving the programmer of these burdensome tasks, the 1130 Assembler significantly reduces the amount of programming time and effort required to prepare a program.

A compressor program compressed symbolically programming time and effort required to prepare a program. A compressor program compresses symbolically assembled output into a form suitable for execution.

The 1130 Assembler and its compressor always use all of core storage available on an assembly machine. The programs determine memory size automatically at assembly time and adjust table parameters accordingly. Approximately 520 labels may be held in a 4K memory. The 1130 Assembler provides for assembly of both absolute and relocatable mainline programs, and for assembly of relocatable subroutines. By means of ENT and CALL statements, provision is made for automatic symbolic cross-referencing between programs at load time. The 1130 Assembler can be used to generate subroutines and subprograms for FORTRAN main programs. Similarly, Assembler main programs can call FORTRAN subroutines or subprograms as well as subroutine library and utility routines. The 1130 Assembler also provides facilities for assembling interrupt processing subroutines which may be incorporated into the system.

At object time, the relocating loader normally occupies core storage locations 0000 through 0635. Instructions and data may not be loaded into this area, however, most of this area may be used as input/output buffers and working storage. A core image converter is provided which will convert the relocatable binary object decks of a mainline and all called subroutines, into a single core image binary deck. This deck may then be loaded with a core image loader which has no relocating or cross-referencing abilities. This loader will occupy (approximately) core locations 0000 through 0228. Much of this area may be used as input/output buffers and working storage. The assembly speeds of the I/O devices, although for extremely large programs with many labels (e.g., a 700 label program being assembled on an 8K machine), a slight reduction may be expected in the speed on the order of 10 per cent.

Throughput speed- Paper tape system with 1134 and 1055 -- 6 - 17 statements/minute. The variation may be ascribed to -A. The extent of remarks on the statements, which affect the tape length and hence the read/punch time, and B. Whether or not the optional typewriter listing is requested during the compression. This listing effectively reduces the read speed to 15 characters/second, the typewriter speed.

MINIMUM SYSTEM REQUIREMENTS - For program generation and execution - a 4K word 1131 mdl 1... 1134 Paper Tape Reader and 1055 Paper Tape Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List... Operators Guide C26-3629... Sample assembly documentation.
MACHINE READABLE - One paper tape for each of the following samples - Program... Assembler... Compressor.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Instruction.. Attachment.
MACHINE READABLE - Refer to the text following the

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program abstract for 1130-UT-#02.

ORDERING INFORMATION: PROGRAM NUMBER 1130SP##2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	PT	#5	none
OPTIONAL	Refer to the text following the program abstract for 1130-UT-#02.			

1130-UH-13X
AUTOMATED CHEMISTRY PROGRAM

DESCRIPTION - This program is within the Clinical and Administrative Record System (CARE) for support of the IBM 1000 Data Acquisition System in the Clinical Laboratory. This program processes the punched card output of the IBM 1000 Data Acquisition System. Processing of 1000 punched card output - Establishes the calibration function from control standards... checks the quality of the control standards used... computes the test result... adjusts the test result for instrument drift that might have occurred... adjusts the test result for interaction between specimens (high concentration followed by low concentration)... compares test result with mean and standard deviation of cumulative data for all results for that test... associates each test result with the proper specimen identification number. Setting up a test result file- Sets up a file by specimen number, and tests results for each test ordered... the data from this file can be transferred to and integrated with a patient master record by user-written routines. Print out of quality control report- Prepares a quality control report for review by the laboratory prior to release of test data for distribution to the ward or clinic... The quality control report lists for each specimen processed- test result, dilution factor (if any), abnormal indication for 1 or 2 standard deviations, and specimen number.

FEATURES - This program encompasses the following unique features that produce more reliable test results- Check reliability of control standards... adjust for Analyzer Drift... adjust for interaction of specimens with widely differing concentrations... report quality control information... flag abnormal test results for retesting of these specimens. The output from this program can be combined with the user-provided basic patient data and printed by simple user-written routines to serve as a patient summary sheet for tests processed by 1130 ACP.

USE - This program is loaded into the library and called via job control cards... environmental data are loaded and retained on disk via a maintenance program included with this program; this is a one time operation for a given operating environment... 1000 card output can then be processed.

CUSTOMER RESPONSIBILITIES - The user is responsible for providing basic patient data associating patient number and specimen number... setting up the 1000 by providing a description of which Analyzer Strip Chart Records are associated with which 1004, a description of the test run on each 1004, test number and name, concentration of each calibration-standard, control standards used, and chemistry procedure used.

PROGRAMMING SYSTEMS - These programs are written in FORTRAN IV and Assembler Language. They are designed to operate under the 1130 Disk Monitor System, Version 2.

MINIMUM SYSTEM REQUIREMENTS - An 1131 Model 2B (8K) Central Processing Unit with 2315 Disk Cartridge, 1132 Attachment (No. 3616), Expansion Adapter (No. 3854), 1442 Model 6 or 7 Attachment (no. 4453)... 1442 Card Read/Punch Model 6... 1132 Printer Model 1... 1132 Printer Model 1.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... IBM 1130 Automated Chemistry Program (1130/ACP) Program Description Manual (H20-0542)... Operations Manual (H20-0543).
MACHINE READABLE - Control cards, object modules necessary to store the program in the users area of the 1130 Monitor Disk, and a sample problem (with control cards).

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

ORDERING INFORMATION: PROGRAM NUMBER 1130UH13X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/16##	29	none
		DTR 9/800	28	none

1130-UT-#01
UTILITY ROUTINES

DESCRIPTION - The IBM 1130 Utility Routines are part of the Basic Programming System which can be used by all 1130 installations. These programs make it possible to program the 1130 in a wide range of general engineering applications. The 1130 Utility Routines include- (1) An input/output routine which accepts data from one of two input media (card or paper tape) and outputs data to one or two of four output devices (card, paper tape, 1132 or console printer). When two output devices are required, one must be a print option (console printer or 1132 Printer). (2) Dump routines which permit the user to dump any area of memory. Output can be obtained on cards, console printer or 1132 Printer. (3) Loader routines - relocating loader, core image converter, and core image loader. These routines provide the programmer with a versatile tool for transferring data from on medium to another, and also for performing the repetitive utility functions needed daily for most data processing installations. They also include routines to aid the user in debugging his programs. In addition, they provide the facilities for - (1) loading compressed binary object program cards in either relocatable or core image format, (2) generating object program core maps.

MINIMUM SYSTEM REQUIREMENTS - a 4K word 1131 mdl 1 ... 1442 Card Read Punch mdl 6 or 7.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program material list... Attachment to User... Operators Guide, C26-3629.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Procedures.. Attachments.
MACHINE READABLE - Refer to the text following the program abstract for 1130-UT-#02.

ORDERING INFORMATION: PROGRAM NUMBER 1130UT##1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	Refer to the text following the program abstract for 1130-UT-#02.			

1130-UT-#02 *R
UTILITY ROUTINES

DESCRIPTION - The IBM 1130 Utility Routines are part of the Basic Programming System which can be used by all 1130 installations. These programs make it possible to program the 1130 in a wide range of general engineering applications. The 1130 Utility Routines include - (1) an input/output routine which accepts data from one of two input media (card or paper tape) and outputs data to one or two of four output devices (card, paper tape, 1132 or console printer). When two output devices are required, one must be a print option (console printer or 1132 Printer). (2) Dump routines which permit the user to dump any area of memory. Output can be obtained on cards, console printer or 1132 Printer. (3) Loader Routines - Relocating loader, core image converter, and core image loader. These routines provide the programmer with a versatile tool for transferring data from one medium to another, and also for performing the repetitive utility functions needed daily for most data processing installations. They also include routines to aid the user in debugging his programs. In addition, they provide the facilities for- (1) Loading compressed binary object program cards in either relocatable or core image format, (2) Generating object program core maps.

MINIMUM SYSTEM REQUIREMENTS - A 4K word 1131 mdl 1... 1134 Paper Tape Reader and 1055 Paper Tape Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List... Operators Guide, C26-3629
MACHINE READABLE - One paper tape for each of the following - Relocating Loader... Typewriter... Core Image Converter-Core Map on Typewriter... Core Image Converter-Core Map on Printer... Dump and Console utilities... I/O Utilities... Construct Paper Tape - A routine for compressing subroutines... SOD1... SOD2... DPIB... User Exit Special User EOD... User Exit Overlay Record... One Record Typewriter Dump... Keyboard Routine.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Instructions.. Attachment.
MACHINE READABLE - See the text following this program abstract.

ORDERING INFORMATION: PROGRAM NUMBER 1130UT#02

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	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	PT	05	none

OPTIONAL See below.

OPTIONAL MACHINE READABLE MATERIAL - Source code for all of the following 1130 programs is available on one (1) functional volume:

Program Title	Program Number	Program No. Extension
	1130	OPT1
FORTRAN Compiler (Card)	FO05 1	
FORTRAN Compiler (Paper Tape)	FO05 2	
Subroutine Library (Card)	LI05 1	
Subroutine Library (Paper Tape)	LI05 2	
Card System Error-Detection Aids	SP05 1	
Assembler Program	SP05 2	
Utility Routines (Card)	UT05 1	
Utility Routines (Paper Tape)	UT05 2	

ORDERING INFORMATION: SYSTEM NUMBER 1130

Note: The optional machine readable material for the above 1130 programs, is ordered by specifying a "System Line" (Columns 1-7, 15-24) and "Component Lines" (Columns 8-12) of the Program Order Form. Enter a separate Component Line for each component desired. Respecify the System Line for each different Program Number Extension. Also, specify Program Number Extension "OPT1".

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
OPTIONAL	OPT1	PT 9/800	28	01
		DTR 9/1600	29	none

1800-AS-005
ASSEMBLER LANGUAGE

DESCRIPTION - The IBM 1800 Assembler Language provides the programmer a flexible and meaningful symbolic language that is easier to code than a binary machine language. Source programs are assembled by the processor in two passes. The Assembler automatically assigns and keeps a record of storage locations and checks for coding errors. By relieving the programmer of these burdensome tasks, the Assembler reduces significantly the amount of programming time and effort required to prepare a program. A compressor program is provided with the assembler to compress symbolically assembled output into a form suitable for execution.

The Assembler and its compressor always use all core storage available on an assembly machine. The programs determine memory size automatically at assembly time and adjust table parameters accordingly. The Assembler provides for assembly of both absolute and relocatable mainline programs, and for assembly of relocatable subroutines. By means of ENT and CALL statements, provision is made for automatic symbolic cross-referencing between programs at load time. The Assembler may be used to generate subroutines and subprograms for FORTRAN main programs. Similarly, Assembler main programs may call FORTRAN subroutines or subprograms, as well as subroutine library and utility routines. A core image converter is provided which will convert the relocatable binary object tape of a mainline and all called subroutines into a single core image binary tape. This tape may then be loaded with a core image loader which has no relocating or cross-referencing abilities. the assembly and compression rate will vary with the number of characters per statement in the program.

In general, the total processing time will be proportional to the total number of characters in that input program, plus the Assembler or Compressor load time. (The Assembler load time is 5.5 minutes. The Compressor load time is 3.7 minutes.) For compressing all but very small programs, the compression rate will be about 16 statements (minute) figured on statement size of about 26 characters. For very small subroutines, the rate will be somewhat lower due to the extra time required to punch the loader overlay records. The 1054 reads 15 characters/second and the 1055 punches 15 characters/second.

MINIMUM SYSTEM REQUIREMENTS - For program generation and execution -- a 4,096 word 1800 system processor-controller... 1442 Card Read/Punch Model 6 or 7.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List... Operators Guide C26-3751.
MACHINE READABLE - Assembler deck... Compressor deck... Sample program.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Instructions.. Attachments.
MACHINE READABLE - Refer to the text following the program abstract for 1800-UT-002.

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ORDERING INFORMATION: PROGRAM NUMBER 1800AS005

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none

OPTIONAL Refer to the text following the program abstract for 1800-UT-002.

1800-AS-006 *S
ASSEMBLER LANGUAGE

DESCRIPTION - The IBM 1800 Assembler Language provides the programmer a flexible and meaningful symbolic language that is easier to code than a binary machine language. Source programs are assembled by the processor in two passes. The assembler automatically assigns and keeps a record of storage locations and checks for coding errors. By relieving the programmer of these burdensome tasks, the Assembler reduces significantly the amount of programming time and effort required to prepare a program.

A Compressor program is provided with the assembler to compress symbolically assembled output into a form suitable for execution. The Assembler and its Compressor always use all core storage available on an assembly machine. The programs determine memory size automatically at assembly time and adjust table parameters accordingly. The Assembler provides for assembly of both absolute and relocatable mainline programs, and for assembly of relocatable subroutines. By means of ENT and CALL statements, provision is made for automatic symbolic cross-referencing between programs at load time. The Assembler may be used to generate subroutines and subprograms for FORTRAN main programs. Similarly, Assembler main programs may call fortran subroutines or subprograms, as well as subroutine library and utility routines. A core image converter is provided which will convert the relocatable binary object tape of a mainline and all called subroutines into a single core image binary tape. This tape may then be loaded with a Core Image Loader which has no relocating or cross-referencing abilities.

The assembly and compression rate will vary with the number of characters per statement in the program. In general, the total processing time will be proportional to the total number of characters in that input program, plus the Assembler or compressor load time. (The Assembler load time is 5.5 minutes. The Compressor load time is 3.7 minutes.) For compressing all but very small programs, the compression rate will be about 16 statements (minute, figured on statement size of about 26 characters). For very small subroutines, the rate will be somewhat lower due to the extra time required to punch the loader overlay records. The 1054 reads 15 characters/second and the 1055 punches 15 characters/second.

MINIMUM SYSTEM REQUIREMENTS - For program generation and execution -- a 4,096 word 1800 System Processor-Controller... 1054 Paper Tape Reader and 1055 Paper Tape Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List... Operators Guide C26-3751.
MACHINE READABLE - Unedited Assembler tape... Unedited Compressor tape... Assembler sample program tape.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Instruction.. Attachment.
MACHINE READABLE - Refer to the text following the program abstract for 1800-UT-002.

ORDERING INFORMATION: PROGRAM NUMBERS 1800AS006

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	PT	05	none

OPTIONAL Refer to the text following the program abstract for 1800-UT-002.

1800-CC-01X
IBM 1800/1130 CONTROL OPTIMIZATION PROGRAM

DESCRIPTION - COP/1800-1300 uses a method of "Sectional Linear Programming" to optimize a non-linear mathematical model. The model and objective function are linearized about some starting point using partial derivatives. Linear programming is applied to find the local optimum

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within the area in which the linearized model equations are valid approximations to the true non-linear equations. The model and objective function are re-linearized about the solution and another local optimum is found. Alternate re-linearization and optimizations are performed until a solution is obtained which approximates an optimal solution to the non-linear system.

COP/1800-113X may be used for a variety of optimization studies on the IBM 1800 Data Acquisition and Control System or the IBM 1130 Computing System. On the IBM 1800 Data Acquisition and Control System it may be used to determine optimum steady-state control adjustments in open- or closed-loop process control systems.

FEATURES- For on-line operation, input is on disk storage and output may be printed on disk, written, or both. For off-line operation, input is on punched cards and output is printed... the program will operate in a multi-unit control system as well as a single unit environment... extensive checking features are incorporated... the program uses extended precision floating-point arithmetic... the program uses a modified simplex LP algorithm with special features to permit upper and lower variable bounding, move penalties on independent variables, and target constraints on dependent variables without increasing LP matrix size.

PROGRAMMING SYSTEMS - COP/1800-113X operates under control of the IBM 1800 Time-Sharing Executive System, both process and non-process supervisor, (1800-OS-001) or IBM 1130 Disk Monitor System (1130-OS-002). The program is written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS -
- For on-line use on the 1800- an 1801 or 1802 with a minimum of 8, 192 words of core storage... one 1818 Disk Storage Drive... 1442 Card Read/Punch.
- For off-line use on the 1800- an 1801 or 1802 with a minimum of 8, 192 words of core storage... one 1818 Disk Storage Drive... 1442 Card Read/Punch... 1443 Printer or 1816 Printer-Keyboard.
- For use on the 1130 - an 1131 Model 2B or 3B and either a 1442 Model 6 or 7 or a 2501 and a 1442 Model 5.

Core Storage requirements vary with the size of the optimization problems to be solved. Information required to determine core storage requirements is contained in the application description manual.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Users Manual (H26-8351).
MACHINE READABLE - Source program and sample problem decks.

ORDERING INFORMATION: PROGRAM NUMBER 1800CC01X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-CC-02X
PROSPRO/1800

DESCRIPTION - A real-time on-line system for implementing control of continuous processes. By using the "fill-in-the-blanks" technique, the user can describe the process and develop the control scheme. The system receives its necessary process operating data and control instructions from cards punched according to the entries on standard data forms. The various tables, data records and control schemes required by the system are automatically generated by PROSPRO/1800 and become operational. Expected frequent modifications in the process and the control strategy are easily accommodated by PROSPRO/1800. No knowledge of computer programming is required to complete the forms. However, special programs can be written in Assembler Language or FORTRAN and added.

FEATURES - Organization of engineering and control information by providing "fill-in-the-blanks" forms... versatile programs to process information effectively and to execute control actions consistently... accommodation of special programs (written in FORTRAN or Assembler Language) to fulfill more complex requirements... simplification of program modification and maintenance in addition to initial system generation... uniform and complete system documentation.

DSE - Using the Language Specification Manual, the customer fills out the data forms with information on each variable (processing frequency, maximum and minimum limits, etc.) and control action (constants, type of control, etc.). The information is punched into cards, and entered into the 1800 through the card reader.

PROSPRO/1800 reads the cards and builds various data tables. These data tables provide the necessary logic and constants used during execution of the program. The forms become

CONTINUED FROM PRIOR COLUMN

the documentation of the process control application. Changes may be made by entering new and/or different data cards.

PROGRAMMING SYSTEMS - PROSPRO/1800 operates under the IBM 1800 Time-Sharing Executive System (TSX). The application programs are written in Assembler Language or FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1801 or 1802 Processor-Controller Model 1C or 2C, 1442 Adapter (No. 4038), two Data Channels (No. 3222), Analog Input Data Channel Adapter 1 (No. 1233), Analog Input Data Channel Adapter 2 (No. 1234), Digital and Analog Output Data Channel Adapter (No. 3298), Analog-Digital Converter Model 1 or 2 (No. 1231 or No. 1232), Comparator (No. 2185), Digital Output Control (No. 3296)*, Digital Output Adapter (No. 3295)*, Plus Output (No.5863)*... 1816 Printer Keyboard... 1826 Data Adapter Unit*... 1828 Enclosure*... 1851 Multiplexer Terminal*... 2310 Disk Storage Model A1... 2315 Disk Cartridge... 1442 Card Read/Punch Model 6 or 7. Other input/output units may be specified to satisfy individual user requirements. Consideration should be given to a Model A2 or A3 2310 Disk Storage for applications with large numbers of variables and/or complex control actions and user-written routines.

NOTE- * The number required depends on the specific application.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory... Users Manual, H26-8074...Process Operators Manual, H26-8472.
MACHINE READABLE - System generation decks which control cards and object programs.

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

ORDERING INFORMATION: PROGRAM NUMBER 1800CC02X

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1800-FO-00?
FORTRAN COMPILER

DESCRIPTION - The IBM 1800 FORTRAN Compiler is a coding system with a language that closely resembles the language of mathematics. It is a system designed primarily for scientific and engineering computations. Since this system is essentially problem-oriented rather than machine-oriented, it provides scientists and engineers with a method of communication that is more familiar, easier to learn, and easier to use than actual machine language.

The FORTRAN processor accepts source program statements as input from cards, the typewriter or paper tape and produces, as output, a machine language program. At object time, the system utilizes advanced techniques, such as relocatable subroutines, highly compressed formats and flexible input and output command structures which facilitate data conversion operations. The FORTRAN Language optimizes redundant subscript calculations to produce an efficient object program. The FORTRAN Language provides a high level of language power and flexibility with minimal machine requirements.

MINIMUM SYSTEM REQUIREMENTS - For compilation -- a 4,096 word 1800 System Processor-Controller... 1816 Printer-Keyboard or 1053 Printer or 1403 Printer... 1442 Card Read/Punch Model 6 or 7.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List... Operators Guide C26-3751.
MACHINE READABLE - Unedited compiler deck... FORTRAN Compiler Editor... FORTRAN sample problem.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Instructions.. Attachment.
MACHINE READABLE - Refer to the text following the program abstract for 1800-UT-002.

ORDERING INFORMATION: PROGRAM NUMBER 1800FO0?

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	Refer to the text following the program abstract for 1800-UT-002.			

1800-FO-800
FORTRAN COMPILER

DESCRIPTION - The IBM 1800 FORTRAN Compiler is a coding system with a language that closely resembles the language of mathematics. It is a system designed primarily for scientific and engineering computations. Since this system is essentially problem-oriented rather than machine-oriented, it provides scientists and engineers with a method of communication that is more familiar, easier to learn, and easier to use than actual machine language.

The FORTRAN Processor accepts source program statements as input from cards, the typewriter or paper tape and produces, as output, a machine language program.

At object time, the system utilizes advanced techniques, such as relocatable subroutines, highly compressed formats and flexible input and output command structures which facilitate data conversion operations. The FORTRAN Language optimizes redundant subscript calculations to produce an efficient object program. The FORTRAN Language provides a high level of language power and flexibility with minimal machine requirements.

MINIMUM SYSTEM REQUIREMENTS - For compilation -- a 4,096 word 1800 System Processor-Controller... 1054 Paper Tape Reader and... 1055 Paper Tape Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List... Operators Guide C26-3751.
MACHINE READABLE - Unedited tapes for input phase for 1816/1053... and for 1443... part 2 of FORTRAN Compiler for 1816/1053... and for 1443... FORTRAN Compiler Editor tape... FORTRAN sample program tape.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Instructions.. Attachment.
MACHINE READABLE - Refer to the text following the program abstract for 1800-UT-802.

ORDERING INFORMATION: PROGRAM NUMBER 1800FO800

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	PT	05	none
OPTIONAL	Refer to the text following the program abstract for 1800-UT-802.			

1800-LM-803
SUBROUTINE LIBRARY

DESCRIPTION - The IBM 1800 Subroutine Library provides arithmetic, functional, code conversion, I/O control and selective dump subroutines for use by object program generated by the 1800 Assembler of the 1800 FORTRAN Language. The floating point subroutines in the 1800 subroutine library offer two ranges of precision- standard precision and extended precision. The standard range provides 23 bits of precision; the extended range provides up to 31 bits of precision. The subroutines include Floating-point, Fixed-point, Special Function, Code Conversion, I/O Control and Selective Dump. The subroutines are used by FORTRAN Language or Assembler object program to perform Floating-point, Fixed-point Arithmetic, and functional operations; the conversion of data from one I/O code to another; the control of I/O Activity on the devices attached to the system; and the selective dumping of memory areas for debugging purposes.

MINIMUM SISTEM REQUIREMENTS - An 1800 system with an 1801 or 1802 Processor-Controller with 4,096 words of core storage and applicable I/O equipment is required for execution of the subroutines. The I/O supported devices are- 2401/2402 Magnetic Tape Unit... 1442 Card Read/ Punch... 1443 Printer... 1627 Plotter... 2310 Disk File... Analog Input... Digital Input... Analog/digital Output... 1816/1053 Keyboard-Printer.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List... Operators Guide C26-3751.
MACHINE READABLE - Standard and Extend Precision one and two word calls decks... common one and two work calls decks... EOD1 records... EOD2 records... (unedited) Dump 80 subroutines deck... ISS routines (unedited)... Common 1 word calls and conversion routines which must follow ISS routines... Editor for subroutine decks dump 80 utility program and the ISS routines deck.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Instructions.. Attachment.
MACHINE READABLE - Refer to the text following the program abstract for 1800-UT-802.

ORDERING INFORMATION: PROGRAM NUMBER 1800LM803

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	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	Refer to the text following the program abstract for 1800-UT-802.			

1800-LM-804
SUBROUTINE LIBRARY

DESCRIPTION - The IBM 1800 Subroutine Library provides arithmetic, functional, code conversion, I/O control and selective dump subroutines for use by object program generated by the 1800 Assembler of the 1800 FORTRAN Language. The floating point subroutines in the 1800 Subroutine Library offer two ranges of precision- Standard Precision and Extended Precision. The Standard Range provides 23 bits of precision; the Extended Range provides up to 31 bits of precision. The subroutines include Floating-point, Fixed-point, special function, code conversion, I/O control and selective dump. The subroutines are used by FORTRAN Language or Assembler object program to perform Floating-point, Fixed-point Arithmetic, and Functional operations; the conversion of data from one I/O code to another; the control of I/O activity on the devices attached to the system; and the selective dumping of memory areas for debugging purposes.

MINIMUM SYSTEM REQUIREMENTS - An 1800 system with an 1801 or 1802 Processor-controller with 4,096 words of core storage and applicable I/O equipment is required for execution of the subroutines. The I/O supported devices are- 2401/2402 Magnetic Tape Unit... 1054 Paper Tape Reader... 1055 Paper Tape Punch... 1443 Printer... 1627 Plotter... 2310 Disk file... Analog Input... Digital Input... Analog/digital Output... 1816/1053 Keyboard-Printer.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List... Operators Guide C26-3751.
MACHINE READABLE - Standard and Extend Precision one and two word call tapes... Common one and two word calls tapes... EOD1 Records... EOD2 Records... (unedited) dump 80 subroutines tape... ISS Routines with EOD2 Records (unedited)... Common 1 word calls and conversion routines... Editor subroutine for the Dump 80 subroutines tape and the ISS routines with EOD2 records.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Instructions.. Attachment.
MACHINE READABLE - Refer to the text following the program abstract for 1800-UT-802.

ORDERING INFORMATION: PROGRAM NUMBERS 1800LM804

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	PT	05	none
OPTIONAL	Refer to the text following the program abstract for 1800-UT-802.			

1800-LM-809
1800 TIME SHARING EXECUTIVE NON-REENTRANT ARITHMETIC FUNCTIONAL AND CONVERSION SUBROUTINES

DESCRIPTION - These subroutines are a set of non-reentrant arithmetic, functional and conversion subroutines for use with the 1800 Time-Sharing Executive System. These subroutines are the same in number and function as those reentrant subroutines provided by the 1800 Time-Sharing Executive. They will offer those users of the 1800 TSX System who do not need reentrant coded subroutines faster execution of their program. These routines can be included in the subroutine library of the 1800 TSX System. When used with the Time-Sharing Executive, the subroutines will have the following characteristics -

A. They will not be reentrant. The user will be responsible for not having the subroutine used from more than one level at a time. Errors or potential error resulting from calling a subroutine a second time before completing it the first time will not be detected by the TSX system.

B. FAC (Floating Accumulator) will be located on the work level at its present location.

C. The user will be able to delete those reentrant subroutines by performing DUP functions of delete, store and pack disk. This means that a single system may have a mixture of reentrant and non-reentrant routines.

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PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for the 1800 Time-Sharing Executive System.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Appropriate material delivered.
MACHINE READABLE - Arithmetic, functional, and conversion routines.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1800LM##9

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/##0	20	none
		DTR 9/16##	29	none

1800-CS-001
IBM 1800 TIME-SHARING EXECUTIVE SYSTEM (TSX-PHASE2)

DESCRIPTION - The 1800 Time-Sharing Executive System is a self-contained operating system to be used on an 1800 Data Acquisition and Control computer for process control and data acquisition program supervision. The 1800 TSX is a real-time programming system that affords the user a convenient means of generating and using a complete process control or data acquisition system. The system programs provided are -

- Assembler Program - A one-for-one symbolic assembly program that produces object programs that can be used with the 1800 TSX from symbolic card input.

- FORTRAN Compiler Program - Accepts 1800 FORTRAN Language input in card form and produces object programs that can be used with the 1800 TSX. Both the FORTRAN written and Assembler written programs call on subroutines to perform various arithmetic and input/output functions.

- Disk Utility Program (DUP) - A group of generalized utility and maintenance routines that are useful in the day-to-day operation of TSX. These routines store user programs on disk, delete programs from disk, dump programs from disk, and perform numerous other functions of a utility nature.

- Nonprocess Supervisor - Recognizes certain system control cards and transfers control to the system program specified. It also initializes the nonprocess system when a job control card is recognized.

- Simulator Program - Executes a program in a controlled environment for the purpose of debugging on line.

- Process Supervisor - Controls execution of process programs. It consists of the skeleton executive, error decision programs which diagnose individual errors, and certain other on-line special purpose start-up and analysis routines. The skeleton executive is built up from routines the user has assembled or compiled. Many different options may be specified using equivalence statements when these routines are assembled. The user may include frequently called subroutines and high priority interrupt routines in the skeleton. The control of timers and the scheduling of core loads and interrupt routines are handled by routines supplied by IBM and assembled by the user.

The efficiencies listed in the following sections vary, depending on the machine configuration, disk and core layout, and the user program size and type. Execution times are based on large programs. The 1800 TSX programs have the following approximate core storage and execution times -

- ASSEMBLER. Core Storage - Minimum 3,692 words at the high end of core. Disk Storage - 48 sectors. Speed - With 1442 (Model 7)... no listing, 320 cards/minute, 1443 (Model 1)... listing (52 Character Set), 183 cards/minute, 1443 (Model 2)... listing (52 Character Set), 148 cards/minute, 1053... 17 cards/minute. With 1442 (Model 6)... no listing, 258 cards/minute, 1443 (Model 1)... listing (52 Character Set), 95 cards/minute, 1443 (Model 2)... listing (52 Character Set), 125 cards/minute, 1053... 16 cards/minute.

- FORTRAN COMPILER. Core Storage - Minimum 3,692 words at the high end of core. Disk Storage - 193 sectors. Speed - Assuming a 150 statement program - without punching, 47 statements/minute... with punching (assume 50 cards punched), 38 statements/minute.

CONTINUED FROM PRIOR COLUMN

- DISK UTILITY PROGRAM. Core Storage - 3,692 words at the high end of core. Disk Storage - 60 sectors. Speed - The store operation varies in speed depending on the size of the program and the number and distance of the disk arm movements needed. Normally an assembled program will be stored in 15 or 20 seconds after the store control card is ready by DUP. Other DUP operations will not be performed often in most 1800 installations, so the time they require is not significant to the total use of the 1800.

- NONPROCESS SUPERVISOR (WITH CORE LOAD BUILDER). Core Storage - 3,692 words at the high end of core. Disk Storage - 21 sectors. Speed - The control card analyzer operates at card read speed for most control cards. The core load builder requires from several seconds to about thirty seconds under worst conditions. The normal time for an 8K core load is 7 or 8 seconds.

- SIMULATOR. Core Storage - 3,692 words at high end of core. Disk Storage - 95 sectors. Speed - 125 to 1, ratio of simulator time to execution time. The simulator is diagnostic interpreter which executes a process program before it is allowed to operate as a checked out program on-line.

- PROCESS SUPERVISOR. Core Storage - Minimum system (8K) must provide 4500 words for the in-core skeleton if that skeleton is used off-line with the Nonprocess Monitor. (This means that 3,692 words will be available above the skeleton for the Nonprocess Monitor). If a separate skeleton is used for off-line work, the on-line skeleton may be 5,692 words. (This leaves 2500 words for Cold Start at the high end of core storage). The maximum size of the skeleton is always determined by the balance of core storage above the skeleton 3,692 minimum for Nonprocess Monitor use or for non time-sharing users 2500 word minimum variable core is required due to the Cold Start program. Disk Storage - 46 to 131 sectors. Speed: The reading of core loads by the supervisor is done with disk addresses that are in core when the new core load is called for minimum delay. All process core loads are in core image and are obtained at disk read speed. Interrupts may be permanently in the skeleton in core, on disk as interrupt core loads, or with mainline core loads. The in-core routines are entered most quickly (the routines with the mainline equally quickly) if the mainline containing the interrupt routine is in core when the interrupt occurs, and the interrupt core loads least quickly since they must be read into core after saving the current contents on disk.

Phase 1 users who intend to convert to Phase 2 (Full Time-Sharing Version) must be aware of the implications involved in transition. The prime operation involved will be a complete system regeneration requiring the 1800 system be taken off-line. System generation is defined as -

- Assembler task (temporary assembled skeleton).
- Assemble the System Director.
- Task loads the System Loader.
- System Loader loads the IBM system on disk and prepares interrupt assignment table.
- Define disk storage throught the Disk Utility Program.
- Assemble and/or compile user skeleton programs.
- Skeleton Builder loads the complete skeleton.
- Compile and/or assemble and build core loads.
- Cold start procedure.

It will require a minimum of three hours machine time to perform all of the previous steps (except 5 and 8).

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - The system requires an 1801 or 1802 Processor-Controller with 8K of core storage, one 2311 Disk Storage Drive (Model A1 or C1), a 1053 Printer or 1403 Printer or 1816 Printer-Keyboard, and a 1442 Card Read Punch. Additional units supported are - Processor-Controller with 16, 24 or 32K words of core storage, up to eight 1053 Printers, 2311 Disk Storage Drives (Models A2, A3, C2, or C3), 1442 Card Read Punch, 1443 Printer. The following are supported for the user but not for system generation - 2401/2402 Magnetic Tape Unit, 1054 Paper Tape Reader, 1055 Paper Tape Punch, 1627 Plotter, Analog Input, Digital Input, Analog/Digital Output.

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

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

ORDERING INFORMATION: PROGRAM NUMBER 1800OS001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none

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OPTIONAL	none	MT	9/800	28	#1
		MT	9/1600	29	#1

1800-OS-01# #8

1800 MULTIPROGRAMMING EXECUTIVE SYSTEM

DESCRIPTION - MPX is a real-time multiprogramming operating system capable of increasing the efficiency and throughput of the IBM 1800 Data Acquisition and Control System computer.

It is designed to asynchronously time-share several independent processes with concurrent background batch processing functions. The increased throughput provided by MPX is accomplished through sophisticated input/output handling techniques making the central processing unit available during all I/O operations. The capability exists for the MPX system to be configured into a maximum of 26 unique multiprogramming areas.

The MPX operating system helps to ensure that more of the total system is kept busy performing productive work more of the time. This is accomplished by efficiently allocating the available resources of the system to more than one function, and switching control from one function to another as a delay is encountered while awaiting an event, such as the completion of an input-output operation, or the end of a timing interval.

Among the services provided by MPX to allow concurrent operation are -

- Loading programs and routines into main storage.
- Scheduling the use of programs and routines in main storage.
- Switching control of the processor-controller from one function to another, based on I/O and timer operation.
- Controlling the execution of the various functions in accordance with a user defined hierarchy of priority.

The system also provides for queuing of I/O operations and allows the user to achieve maximum overlap of I/O and computing. On the lowest level of operation, a batch processing monitor is provided. With the batch processing monitor, assemblies, FORTRAN compilations, and user programs can be executed in a stacked job mode.
Advantages -

- High throughput.
- Fast response.
- Efficient use of processor-controller time.
- Ease in time-scheduling program execution.
- Ability to modify in-core user written routines on-line.
- Ability to modify IBM processors on-line.
- Ability for the IBM field engineer to run on-line diagnostics for the 1442, 1443, 2311, 1053, and analog input (Direct Program Control).
- Time-Sharing of foreground and background (Batch Processing Monitor) operations.

The IBM 1800 MPX consists of a System Executive by which data acquisition and process control applications are serviced in a real time mode and a batch processing monitor by which normal data processing is performed in a batch processing mode. MPX operates in a batch processing mode under control of BOM (Basic Operating Monitor) and in a real time mode under control of the system executive. To assist the user in making efficient use of the system, a subroutine library is also included in MPX.

1. System Executive - That portion of the system that resides in core during the execution of various disk resident programs. It includes such functions as handling of interrupts, controlling user-specified sequence of process control programs, and controlling the time-sharing of batched data processing programs. The nucleus of the system executive is the executive director program. The executive director has as its subcomponents -

- Master Interrupt Control Routine (MIC).
- Program Sequence Control Routine (PSC).
- Interval Timer Control Routine (ITC).
- Time-Sharing Control Routine (TSC).

2. Batch Processing Monitor - Provides various batch processing functions, and operates under the control of BOM when control of the system is not held by the system executive. The Batch Processing Monitor Subcomponents are --

- Batch Processing Supervisor - The Batch Processing Supervisor recognizes certain system control cards and transfers to the system program specified. It also initializes the data processing system when a job control card is recognized.
- Disk Management Program (DMP) - The Disk Management Program is a group of generalized on-line utility and maintenance routines that are necessary in the day to day operation of the MPX System. The routines store user programs on disk, delete programs from disk, dump

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programs from disk and perform numerous other functions of a utility nature.
- Assembler Program - A one-for-one symbolic assembly program that produces object programs that can be used with the 1800 MPX from symbolic card input or 2310 Disk input.
- FORTRAN Compiler Program- Accepts 1800 FORTRAN Language input in card form and produces object programs that can be used with the 1800 MPX System. Both the FORTRAN written and Assembler written programs call on subroutines to perform various arithmetic and input-output functions.
- Builder - Builds core loads and the system executive.

3. BOM (Basic Operating Monitor) - Controls the system generation process, provides for the definition of the system to the system generation process, and controls the batch processing operations when MPX is operating in a batch processing mode.

4. Subroutine Library - Consists of input/output, data conversion, arithmetic, functional, selective dump, various machine function and real time system subroutines.

FEATURES - To increase throughput, the MPX enables programs, core storage space, input-output facilities and control of the processor-controller to be allocated and concurrently shared among several process functions. These facilities permit multiprogramming; that is, they permit several process functions to be performed concurrently and to share the basic resources of the computing system.

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - To obtain the full capabilities of the IBM 1800 Multiprogramming Executive System, the machine configuration should be at least -- an 1801/1802 Processor-Controller with a minimum of 24K words of core storage, 1053 Printer or IBM 1816 Printer-Keyboard, 1442 Card Read Punch, 2310 Disk Storage Unit (Model A2 or C2). The system can support an 1801 or 1802 Processor-Controller with 16K of core storage, one 2310 Disk Storage Drive, a 1053 Printer and a 1442 Card Read Punch for very limited MPX functions. In addition to the above, the optional machine units and features supported by the MPX system are -- Process-Controller with 32K words of core storage, up to eight 1053 Printers, up to three 2310 Disk Storage Drives, a 1443 Printer, up to two 2401 Magnetic Tape Units, 1627 Plotter, 1054 Paper Tape Reader, 1055 Paper Tape Punch, Analog Input, Digital Input, Analog/Digital Output, a second 1442 Card Read Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - SRL Publications -- 1800 Multiprogramming Executive Operating System Programmers Guide, C26-3720...Operating Procedures, C26-3725... Error Messages and Recovery Procedures, C26-3727... 1800 Multiprogramming Operating System, Subroutine Library, GC26-3724...1800 Assembler Language, GC26-5882 1130/1800 Macro Assembler Programming, GC26-3733... 1800 1130/1800 Basic FORTRAN IV Language, GC26-3715... Multiprogramming Operating System Communications Adapter Programming, GC26-3757... Program Material List... Attachment to Users.
MACHINE READABLE - Cold Start Cards, Control Cards, High Core Loader Cards, Core to Card Dump Cards, plus the (object coded) MPX System. MPX is available on either one 1316 Disk Pack (2311 users), one or two 2315 Disk Cartridges (1816 users), or one 2500 foot reel of magnetic tape which can be restored to a 1316 Disk Pack. Both 2311 and 1816 users will also receive a small deck of cards in addition to the disk distribution. The Communications Adapter support for 1816 users is contained on the 2315.

OPTION 1 - 2311 system residence, and is specified by using Program Number Extension OPT1.

OPTION 2 - 1816 system residence, and is specified by using Program Number Extension OPT2.

OPTION 3 - 1816 system residence, requiring the Communications Adapter Support, and is specified by using Program Number Extension OPT3.

1816 users requiring the entire MPX system, including the Communications Adapter Support, is specified by using Program Number Extension OPT2 and OPT3.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Attachment.
MACHINE READABLE - Source code for MPX.

ORDERING INFORMATION: PROGRAM NUMBER 1800OS#1#

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	MT 9/800	28	#1
	OPT1	1316 Disk	52	#1
	OPT2	2315	58	#2
	OPT3	2315	58	#1

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OPTIONAL	none	MT	9/800	28	#1
		MT	9/1600	29	#1

1800-UG-86X
VEHICULAR TRAFFIC CONTROL

DESCRIPTION - Traffic Control System is a modular, flexible, and efficient programming system used to control vehicular traffic through proper signal settings in a real-time atmosphere. The advantages of using the 1800 Vehicular Traffic Control System to control traffic can be illustrated best by listing the capabilities of the type of control that this programming system provides that do not exist in conventional techniques and equipment - On-line, real-time system evaluation... Depending on the number of sub-systems, 500 signal setting choices are available when using one sub-system to over 30 choices of traffic patterns when using 16 sub-systems... Capability of reaction in seconds to traffic changes... Optional control strategies for different traffic conditions... Easy adaptation to new traffic control techniques... Adaptability to system growth... Instant access for information and control... Automatic resynchronization of a controller out of synchronization... The computer is available for related applications as time-space diagram plotting, data reduction and analysis, traffic simulation for developing new control strategies, etc., when not controlling the system. It is also capable of positive computer control of all phases of controller actuations... Adherence to strict timing requirements with one second definition on computer commands... Verification of successful operation of the controller through monitoring... Guaranteeing minimum walk, dont walk, and amber time periods... Smooth, synchronous phasing of all signal changes, without destroying normal flow... Pick up and dropping (with message) controllers that are malfunctioning... Real-time detection of special functions and emergency conditions... Printing controller settings and control technique... Automatic generation of traffic statistics upon request... Analysis of detector performance which reports counting failures... Simplified communications between operators or traffic engineers and the entire controlling system... Making allowance for safe experimentation of new methods and techniques of controlling traffic... Redefinition of arteries and boundaries without physical changes. The actual time to drive the controllers through each of their steps is insignificant. The modifications of split, cycle, and offset, in addition to the measurement programs, will take up the majority of the running time of the system.

The Microloop option is also available which provides a powerful new dimension for traffic control. It optimizes control at an individual intersection, while synchronizing it with adjacent intersections. It also has the ability to change any step timing manually, the capability of synchronizing subsystems, and an improved method of measuring stops and delay.

PROGRAMMING SYSTEMS - All programs in the system are written in the 1800 Assembler Language (1800-AS-885). Programs needed for generation and execution are 1800 Assembly Language (1800-AS-805), 1800 Subroutine Library (1800-LB-803), 1800 TSX (optional) (1800-OS-801).

MINIMUM SYSTEM REQUIREMENTS - An 8K 1801 with 1816 Printer-Keyboard, Digital and Analog Output Data Channel Adapter (No. 3290), Digital Input Data Channel Adapter (No. 3291), Digital Input - Contact* (No. 3285), Digital Input - Adapter* (No. 3262), Electronic "Contact" Operate** (No. 3612), Digital Output Adapter** (No. 3295), Digital Output Control** (No. 3296), 1826 Data Adapter Control***, Relay Card Housing (RPQ), Read Relay Cards (RPQ), Contact Operate Cards (RPQ), Power Supply (RPQ), Card Read Punch Adapter (No. 4438), 1442 Card Read Punch, Data Channel (No. 3222), 2310 Disk Storage, 2315 Disk Cartridge.

* The number of intersections and detectors will determine the number of Digital Input Contacts (No. 3285) and the number of Digital Input Adapters (No. 3262) required. One input point is required for each intersection and one for each detector.

** The number of intersections will determine the number of Electronic Contact Operate (No. 3612), Digital Output Adapters (No. 3295) and Digital Output Control Adapters (No. 3296) required. Two output points are required for each intersection.

*** The total number of digital input and output points will determine the number of 1826 Data Adapter Units required.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Application Directory...Users Manual, H20-0335...Operators Manual, H20-0336...Systems Manual, Y28-0882.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800UG86X

CONTINUED FROM PRIOR COLUMN

1800

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-UT-881
UTILITY ROUTINES

DESCRIPTION - These programs will make it possible to program the 1800 in a wide range of data acquisition and real-time control applications. The utility programs include- (1) an input/output routine which accepts data from one of three media (card, paper tape and magnetic tape) and outputs data to one or two of five output devices (card, paper tape, magnetic tape, typewriter and printer). When two output devices are required, one must be a print option (1053 or 1443 Printer). (2) Dump routines which permit the user to dump any area of memory. Output can be obtained on cards, typewriter, printer or magnetic tape. (3) Loader routines - relocating loader, core image converter, core image loader. These routines provide the programmer with a versatile tool for transferring data from one medium to another and also for performing the repetitive utility functions needed daily for most data processing installations.

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - A 4096 word 1800 system Processor-Controller, 1053 Printer, 1442 Card Read Punch (Model 6 or 7).

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List... Operators Guide, C26-3751.
MACHINE READABLE - 19 Utility Decks.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Instructions.. Attachment.
MACHINE READABLE - Refer to the text following the program abstract for 1800-UT-882.

ORDERING INFORMATION: PROGRAM NUMBER 1800UT881

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	Refer to the text following the program abstract for 1800-UT-882.			

1800-UT-882 *M
UTILITY ROUTINES

DESCRIPTION - These programs will make it possible to program the 1800 in a wide range of data acquisition and real-time control applications. The utility programs include- (1) an input/output routine which accepts data from one of three media (card, paper tape and magnetic tape) and outputs data to one or two of five output devices (card, paper tape, magnetic tape, typewriter and printer). When two output devices are required, one must be a print option (1053 or 1443 Printer). (2) Dump routines which permit the user to dump any area of memory., output can be obtained on cards, typewriter, printer or magnetic tape. (3) Loader routines - relocating loader, core image converter, core image loader.

These routines provide the programmer with a versatile tool for transferring data from one medium to another and also for performing the repetitive utility functions needed daily for most data processing installations.

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - A 4096 word 1800 system Processor-Controller, 1053 Printer, 1055 Paper Tape Reader and 1055 Paper Tape Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Program Material List... Operators Guide, C26-3751.
MACHINE READABLE - 18 Utility Tapes.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - Material List...Operating Instructions.. Attachment.
MACHINE READABLE - Refer to the text following this program abstract.

ORDERING INFORMATION: PROGRAM NUMBER 1800UT882

PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT

CONTINUED FROM PRIOR PAGE

BASIC	none	PT	85	none

OPTIONAL See below.

OPTIONAL MACHINE READABLE MATERIAL - Source code for all of the following 1800 programs is available on one (1) functional volume:

Program Title	Program Number	Program No. Extension
	1800	OPT1
Assembler Language (Card)	AS#05	
Assembler Language (Paper Tape)	AS#06	
FORTRAN Compiler (Card)	FO#07	
FORTRAN Compiler (Paper Tape)	FO#08	
Subroutine Library (Card)	LR#03	
Subroutine Library (Paper Tape)	LR#04	
Utility Routines (Card)	UT#01	
Utility Routines (Paper Tape)	UT#02	

ORDERING INFORMATION: SYSTEM NUMBER 1800

Note: The optional machine readable material for the above 1800 programs is ordered by specifying a "System Line" (Columns 1-7, 15-24) and "Component Lines" (Columns 8-12) of the Program Order Form. Enter a separate Component Line for each "component" desired. Respecify the System Line for each different Program Number Extension. Also, specify Program Number Extension "OPT1".

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
OPTIONAL	OPT1	MT 9/800	28	#1
		MT 9/1600	29	#1

1130-00.0.004 *N
DUPLICATION OF CARDS PUNCHED IN CARD CODE

AUTHOR: Barry Mann

DIRECT TECHNICAL INQUIRIES TO:
D. V. Subba Rao
Air Reduction Central Research Laboratory
Murray Hill, New Jersey 07971

*** N - - 06.0 - - - - - - ***

DESCRIPTION - This program provides duplication of punched cards by using the 1442 Read-Punch, when no offline facilities are available. A buffer area is set up in core which is read into and dumped onto blank cards. Storage is in EBCDIC packed. Routine is compatible with 1130 Disk Monitor. Only characters in the EBCDIC subset recognized by HOLEB may be used. Routine has maximum efficiency with FORTRAN source decks or any other cards where the field is well packed and essentially left justified. Any column(s) may be specified to be unpunched in output deck, regardless of input deck. Operator option is available to present number of copies produced on each pass of the input deck.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1130 Model 2 Card System with one disk file and the 1130 Disk Monitor System, although it can be run of a smaller system without the disk file and monitor system.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130000004

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

1130-00.0.005 *N
DECK NUMBERING PROGRAM

AUTHOR: W. R. Wagner

DIRECT TECHNICAL INQUIRIES TO:
W. R. Wagner
Hazeltine Corporation
Research Division
101 Fairchild Avenue
Plainview, New York 11803

*** C 1054 - - - - - - - - ***

DESCRIPTION - To label and consecutively number identification field (columns 73-80) of deck.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language and the operating system required is 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1130 with disk and 1442 Card Read/Punch.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130000005

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

1130-00.0.006 *N
DECK LISTING PROGRAM

AUTHOR: W. R. Wagner

DIRECT TECHNICAL INQUIRIES TO:
W. R. Wagner
Hazeltine Corporation
Research Division
101 Fairchild Avenue
Plainview, New York 11803

*** C 1054 LIST 06.0 - - - - - - ***

DESCRIPTION - To print the contents of a deck of cards at maximum printer speed.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language and operates under the 1130 Disk Monitor System.

CONTINUED FROM PRIOR COLUMN

MINIMUM SYSTEM REQUIREMENTS - An 8K 1130 with disk, 1442 Card Read/Punch, and 1132 Printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130000006

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

1130-00.0.007
XREF, CROSS-REFERENCES 1130 FORTRAN NAMES

AUTHOR: J. E. Lauer

DIRECT TECHNICAL INQUIRIES TO:
J. E. Lauer
Colorado Computing Corp.
Box 38
Boulder, Colorado 80302

*** C 5294 XREF 03.2 04.0 - - - - - ***

DESCRIPTION - XREF outputs a cross-reference list of all names used in executable statements in 1130 FORTRAN programs. IDEAL I/O is used; the program is listed and the reference list is output in alphameric order at full print speed. // and * cards need not be removed. Programs to be processed may be stacked. Source program and 1130-produced flowchart are provided. Sample output is that of XREF itself.

PROGRAMMING SYSTEMS - Programming language is (Source) FORTRAN. Monitor system required is the 1130 Disk Monitor System, Version 2.

MINIMUM SYSTEM REQUIREMENTS - Those required for 1130 Disk Monitor System.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130000007

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-00.0.008 *N
TYPEWRITER CONTROL PROGRAM (TYCON)

AUTHOR: P. Andrews

DIRECT TECHNICAL INQUIRIES TO:
P. Andrews
IBM Corporation
1851 Fulton St.
Fresno, California 93721

*** N - - - - - - - - - ***

DESCRIPTION - The purpose of this program is to enable the 1130 FORTRAN user to exercise all possible control functions of the console typewriter. These functions are carrier return-line feed, space, backspace, tab, shift to red ribbon, shift to black ribbon and underline. One typical use of this program would be to enable the FORTRAN user to shift to red ribbon before typing a negative balance.

PROGRAMMING SYSTEMS - This program is an Assembler written subroutine.

MINIMUM SYSTEM REQUIREMENTS - 1130 system and takes up 65 (decimal) words of core.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130000008

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

1130-00.0.009 *E

SFREF - FORTRAN AND ASSEMBLY LANGUAGE SUBPROGRAM, LINK, AND FILE READ/WRITE CROSS-REFERENCE TABLE BUILDING PROGRAM

AUTHOR: W. T. Blessum

DIRECT TECHNICAL INQUIRIES TO:
W. T. Blessum
Medical Computer Facility
OCI-CCH
Irvine, California

*** E - 00220 - - - - - - - - ***

DESCRIPTION - SFREF produces cross-reference tables from source language FORTRAN and/or Assembly language program segments (Mainline, Subroutine, Function Subprograms) in an associated group ("system"); CALL's, LINF's, CALL LINK's, and DISK references are tabulated along with back-references to each program segment by other segments. Documentation of internally produced systems and analysis of externally produced systems and subsequent ability to modify them is enhanced. "DUMP" (UA to CB), "STORE" (CB to UA), and "DELETE" cards are optionally produced to facilitate housekeeping.

PROGRAMMING SYSTEMS - Written in FORTRAN and Assembly language. ILS and ISS routines are separately identified but FORTRAN references to Function Subprograms are not detected. Uses 1130 OS 00 V2 L4.

MINIMUM SYSTEM REQUIREMENTS - FORTRAN IV and Commercial Subroutines (CSP) are used in an 8K 1130 with Card R/P and Printer; 1800 systems should also be usable.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130000009

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

1130-00.0.011 *E

CDUTL, A GENERAL PURPOSE CARD UTILITY

AUTHOR: G. West

DIRECT TECHNICAL INQUIRIES TO:
W.E. Johnson
Wabash Smelting, Inc.
Wabash, Indiana 46992

*** C 1997 - - - - - - - - - ***

DESCRIPTION - CDUTL is a general purpose card utility which will reproduce, gang punch, enter, sequence and ID, and allow the key board to be used as a card punch. Program will reproduce binary decks.

PROGRAMMING SYSTEMS - Written in BAL it will operate with either V1 or V2 of the 1130 Disk Monitor.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for the 1130 Disk Monitor.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130000011

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-00.0.013 *E

80/80 LIST PROGRAM

AUTHOR: O.V. Osten

DIRECT TECHNICAL INQUIRIES TO:
O.V. Osten
Parks College Computation Center
Parks College
Cahokia, Illinois 62206

*** C 5462 - 06.5 12.1 - - - - - ***

DESCRIPTION - LIST produces an 80-80 listing of cards on the printer. Input can be in either 026 or 029 keypunch code selected by data switches at execution. Output is one card per line using double-buffered and overlapped I/O technique to realize the maximum speed of the hardware. Monitor

CONTINUED FROM PRIOR COLUMN

Control Records may be listed as CARD# is used rather than CARDZ. A subroutine, E6PT3, is included for the conversion of 026 characters.

PROGRAMMING SYSTEMS - Written in 1130 DMPS.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for 1130-OS-005.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130000013

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-00.1.003
PUNCH AND UPDATE PAPER TAPES

AUTHOR: B. L. Bryan

DIRECT TECHNICAL INQUIRIES TO:
B. L. Bryan
IBM Corporation
747 Northern Avenue
Hagerstown, Maryland 21740

*** E - - 06.2 12.0 - - - - - ***

DESCRIPTION - This set of programs was written to add the capability of preparing paper tapes and updating them to the Disk/Paper Tape Operating System (1130-OS-002). There are two basic routines - (1) Keyboard to paper tape and (2) Update paper tape, which has the facility to reproduce an existing paper tape and make deletes, adds and changes in the process.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 4K Disk/Paper Tape 1130.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130001003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	PT	05	none
OPTIONAL	none	none		none

1130-00.1.004 *E

REDIR

AUTHORS: W. Dellinger J. Scott
J. Herndon

DIRECT TECHNICAL INQUIRIES TO:
J. Herndon
East Central State College
Department of Mathematics
Ada, Oklahoma 74821

*** C - - - - - - - - - ***

DESCRIPTION - REDIR is a multiple utility program designed to provide the user with the following options - Binary deck reproduction, 80-80 listing, duplication of control cards, ID and sequence number punching, and reproduction of non binary cards. The program operates at maximum possible speed and will handle large decks of cards.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - S/1130 Disk Monitor System, 1442 Card Reader/Punch, disk, and 4K.

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1130001004

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

1130-08.1.005
GENERAL PURPOSE 1130 UTILITY PROGRAM

AUTHOR: D. Langone

DIRECT TECHNICAL INQUIRIES TO:
D. Langone
H. K. Sineline Co., Inc.
132-142 Hotel St.
Utica, N. Y. 13503

*** M - - - - - - - - - - ***

DESCRIPTION - This program, 01005, is a general purpose utility program that allows the user to offset reproduce, offset intersperse gangpunch, and list on the 1132 Printer single or double spaced. The listing can have spread output fields.

PROGRAMMING SYSTEMS - Written in FORTRAN IV and operates under Version I 1130 Monitor System and Versions I, II, or III of the C.S.P.

MINIMUM SYSTEM REQUIREMENTS - 8K S/1130.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130051005

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-08.1.006
SUBROUTINE TO TEST LAST CARD INDICATOR

AUTHOR: Mr. B. W. Stratton

DIRECT TECHNICAL INQUIRIES TO:
Mr. B. W. Stratton
California State Polytechnic College,
Computer Center
118 Janine Drive
La Habra, California 90631

*** C 5211 - 02. 07.0 08.0 - - - - ***

DESCRIPTION - The purpose of this subroutine is to test the condition of the Last Card Indicator of the 1442. This subroutine, called LCARD, is written for a disk oriented 1130 although it may be modified for systems without disk. LCARD should be of use in programs requiring scanning of the last card (such as tallying programs). LCARD operates similar to IBM subroutines OVERFL, and DIVCK, i.e., setting an integer to 1 or 2.

PROGRAMMING SYSTEMS - Programming language is Assembler Language.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130001006

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-08.2.001
1130 FORTRAN DOCUMENTATION AND FLOWCHARTING PROGRAMS

AUTHOR: L. M. Kaan

DIRECT TECHNICAL INQUIRIES TO:
L. M. Kaan
IBM Corp.
1105 E. Superior St.
Duluth, Minn. 55802

*** M - - - - - - - - - ***

DESCRIPTION - Program documentation and flowcharting is often a problem in smaller data processing installations. Because of the desirability of having good documentation, these programs were written. Input to these programs is in the form of FORTRAN source statements and comments cards. Output from these programs is a complete flowchart of the FORTRAN program. These programs are a modification of 360D-08.2.001, BPS/BOS FORTRAN Flowchart Program.

PROGRAMMING SYSTEMS - 1130 Disk Monitor System, (Version 1 or Version 2).

CONTINUED FROM PRIOR COLUMN

MINIMUM SYSTEM REQUIREMENTS - 1130 8K, 1 disk.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130002001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-08.3.001
1130 CORE-IMAGE PAPER TAPE PATCH PROGRAM FIXE KEYBOARD INPUT

AUTHOR: A. G. Singer

DIRECT TECHNICAL INQUIRIES TO:
A. G. Singer
IBM Corp.
150 Grand St.
White Plains, N. Y. 10605

*** B - - 07.0 - - - - - - ***

DESCRIPTION - This program accepts program patch information from the 1130 Console Keyboard, translates it into 8-channel paper tape format, and punches out paper tape which may subsequently be loaded into core by the programming systems core-image loader. Each section of tape thus contains visual identification punched into the tape consisting of the address where the patch starts plus the total number of 1130 words contained in the section. This program provides a valuable tool to the programmer working with the 1130 paper-tape system. By using this program, he can easily and conveniently alter a program under test or correct assembly errors without having to resort to console entry switch alteration or re-assembly.

MINIMUM SYSTEM REQUIREMENTS - 1130 paper-tape system with console keyboard.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130003001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	PT	05	none
OPTIONAL	none	none		none

1130-08.3.003
MAGNETIC TAPE SUBROUTINES FOR ASSEMBLER AND FORTRAN COMPILED PROGRAMS FOR THE IBM 1130

AUTHOR: M. J. Michel

DIRECT TECHNICAL INQUIRIES TO:
R. W. Allphin
IBM Corp.
180 South Main St.
Providence, R. I. 02901

*** M - - 03.4 06.3 - - - - - ***

DESCRIPTION - These subroutines are designed to perform standard magnetic tape I/O functions on an 1130 system (running under the 1130 Monitor System) for up to eight series 2400 Magnetic Tape Units (connected to the CPU via a 2954 MPQ Selector Channel). The first (MAGT) is for Assembler programs - written in 1130 Assembler Language, the subroutine conforms to the standard ISS format and conventions used on the 1130 system. Read, write, test and associated tape control operations are executed by the routine when it is called by a LIBF sequence in a users program. The routine utilized standard tape error-checking and recovery procedures and passes error codes to the users program in the event of errors and/or special conditions (EOT, EOF, etc.). The other two routines (MAGTZ, MAGTA) are for FORTRAN compiled programs - both provide read, write, and file, rewind and backspace facilities. MAGTZ permits reading and writing from standard FORTRAN read/write statements, hence all FORTRAN formatting, etc., is available to the user. MAGTA is a called subroutine with command, tape unit, block length, and block name as parameters.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language; runs under 1130 Monitor System.

MINIMUM SYSTEM REQUIREMENTS - Those required for the 1130 Monitor System.

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

CONTINUED FROM PRIOR PAGE

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130##3###3

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-##.4.##3
1130 DISK CHARACTERISTICS/MAINTENANCE PROGRAM

AUTHOR: K. A. Foster

DIRECT TECHNICAL INQUIRIES TO:
K. A. Foster
IBM Corp.
Seven Penn Center
Philadelphia, Pa. 19103

*** N - - - - - - - - - - ***

DESCRIPTION - This program offers an efficient method for determining the programming systems and programs stored on a 2315 Disk Cartridge and/or the space available to the user. The program lists all disk characteristics such as name, version, mod level, presence or absence of compilers, and sizes of fixed, user and working areas. It also lists library entries ten to a line, identifies them by type and offers options to print entry points and/or punch delete cards.

PROGRAMMING SYSTEMS - The program is written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - 1130 disk, 1442 Card Read Punch (Model 6 or 7) and 1132 Printer.

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1130##4##3

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/##8	28	none
		DTR 9/16##	29	none

1130-##.4.##4
1130 SELECTIVE DISK COPY

AUTHOR: T. Hess

DIRECT TECHNICAL INQUIRIES TO:
T. Hess
Dames & Moore
Suite 3500
445 So. Figueroa St.
Los Angeles, Calif. 90017

*** N - - - - - - - - - - ***

DESCRIPTION - The 1130 Selective Disk Copy Program enables one to copy data files from one cartridge to another, regardless of the monitor version on either disk. Sector addresses and the count of the number of sectors to be copied are entered via data switches.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language and the monitor system required is 1130-OS-#05 Version 2 Mod. Level 0.

MINIMUM SYSTEM REQUIREMENTS - 8K system with two disk drives.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130###4##4

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-##.4.##5
ID CHANGER FOR 1130 VERSION 2 DISKS

AUTHOR: C. E. Rose

CONTINUED FROM PRIOR COLUMN

DIRECT TECHNICAL INQUIRIES TO:
C. E. Rose
Ball Brothers Research Corp.
Electro-Optics Dept.
Industrial Park
Boulder, Colo. 80302

*** N - #0#1A - - - - - - - - ***

DESCRIPTION - The 1130 IDCHG Program allows the identification number of a Version 2 Monitor disk pack to be altered without resorting to reinitialization with the DCIP. Since the Version 2 Monitor has the capability of changing the ID's of satellite cartridges, this program will be of use primarily to those users having single disk installations.

The program is of particular use when regenerating the Version 2 system by means of a DASH Reload. A DASH Dump of a Version 2 Disk must begin at Section/0### to maintain system integrity and hence, the regeneration deck will include the ID of the original disk.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language and the operating system required is 1130 OS Version 2.

MINIMUM SYSTEM REQUIREMENTS - Those required for 1130 OS Version 2.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130##4#05

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-##.4.#07 *N
1130 DISK-PACK SECURITY PROGRAM

AUTHOR: C. E. Rose

DIRECT TECHNICAL INQUIRIES TO:
Ball Brothers Research Corporation
Electro-Optics Department
Industrial Park
Boulder, Colorado 80302

*** N #0#2A - - - - - - - - ***

DESCRIPTION - This program permits any 1130 disk to be rendered non-functional by means of a user designated code. Anyone in possession of the code can use the same program to easily and quickly restore the disk to normal operating conditions. In "open-shop" situations, the program will be valuable in preventing software annihilation by accidental tamperings.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - The program is self-contained, does not operate under monitor control, and can be used with any disk regardless of the version of the monitor program.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130###0#7

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-##.6.#01 *N
SUBROUTINE GCOPY - AN IBM 2250-4 TO 1627 HARD COPY GENERATOR

AUTHOR: J. B. Damerell

DIRECT TECHNICAL INQUIRIES TO:
J. B. Damerell
IBM Corporation Dept. 538
Neighborhood Road
Kingston, New York 12401

*** N - - #8.7 #8.6 3#.1 - - - - ***

DESCRIPTION - This subroutine is used to produce a hard copy of an IBM 2250-4 Display Unit image on an IBM 1627-1 Plotter. It may be called from FORTRAN or Assembly Language. It contains a feature to allow it to be used with the 1130/2250 Graphic Subroutine Package.

CONTINUED FROM PRIOR PAGE

The subroutine accepts an IBM 2250-4 order list as input data and then performs the required interpretation and conversions to generate an exact copy of the displayed image on the plotter.

PROGRAMMING SYSTEMS - Programming language - 1130 Assembly Language. Monitor system required - 1130/OS #05-00D 2.

MINIMUM SYSTEM REQUIREMENTS - Any 1130 System configuration containing a 1627 and designed to support the IBM 2250-4 Display Unit. It requires approximately 800 words of core space.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130X0600#1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-01.4.001 *M
DCODE - AN OBJECT - TO - SOURCE LISTING PROGRAM FOR THE IBM 1130

AUTHOR: H.D. Wiehe

DIRECT TECHNICAL INQUIRIES TO:
H.D. Wiehe
Dept. of Mathematics
University of Oklahoma
Norman, Oklahoma 73069

*** C 3242 - 04.0 - - - - - - ***

DESCRIPTION - DCODE is an object - to - source listing program designed to accept as input 1130 object programs in card system format and provide pseudo - assembler listings of these programs. Every word in the object program is listed in both command and hexadecimal constant form except subroutines names, which are listed in alphabetic form only. Header information such as entry points and interrupt levels required, and trailer information including execution addresses, etc. is also printed where applicable.

PROGRAMMING SYSTEMS - An 1130 Disk Monitor 1 or 2.

MINIMUM SYSTEM REQUIREMENTS - Input and output devices used are the IBM 1442 Card Reader and the IBM 1132 Printer, but the programs could be converted with relative ease to use other devices.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130X10000#1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-01.4.002 *M
INTERRUPT REQUEST INTERCEPTION SUBROUTINE

AUTHOR: E.V. Osten

DIRECT TECHNICAL INQUIRIES TO:
E.V. Osten
Parks College Computation Center
Parks College
Cahokia, Illinois 62206

*** C 5462 - - - - - - - - ***

DESCRIPTION - Almost any operator action (Pressing PROG STOP etc.) can be corrected, except the accidental pressing of INT REQ on the keyboard. The contents of core are overlayed by the Core Image Loader and then the Monitor Control Record Analyzer phase of the Supervisor. Since our installation often processes jobs taking 24 hours or more, it was apparent that some action would have to be taken to avoid this situation. PRTCT is our answer. When Interrupt Request from the INT REQ key is recognized, control is transferred to PRTCT. The subroutine then compares the data switches against the user's argument. On an exact compare, the interrupt request is honored and a normal flush to the next job occurs. If the switches do not compare, normal processing is resumed.

PROGRAMMING SYSTEMS - Written in 1130 DMFS.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for 1130-OS-005.

CONTINUED FROM PRIOR COLUMN

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130X1600#2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-01.4.001
IBM 1130 FORTRAN STATEMENT NUMBER SEQUENCER

AUTHOR: P. Greenblatt

DIRECT TECHNICAL INQUIRIES TO:
P. Greenblatt
UCLA Campus Computing Network, NDPC Bldg.
405 Hilgard Ave.
Los Angeles, Calif. 90024

*** M - - 08.0 06.1 - - - - - ***

DESCRIPTION - The IBM 1130 FORTRAN Statement Number Sequencer is designed to aid the programmer in keeping track of his statement numbers. The routine is a mainline program that accepts FORTRAN decks as input and produces a listing of all statement numbers used in ascending numerical order as output. Stacked jobs are allowed since the program looks at the block of statements between a // for card and a FORTRAN END card as a unique job.

PROGRAMMING SYSTEMS - This program is written in 1130 FORTRAN Language.

MINIMUM SYSTEM REQUIREMENTS - 8K 1130 (Model 2B) with 1 disk file, a 1442 Card Read/Punch, and a 1132 Printer, using Disk Monitor, (Version 1 Level 5 and Version 2 Level 8). This program uses routines from IDEAL (1130-03.0.002) and CSP (Version 2) (1130-SE-25X).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130X1400#1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-01.5.001
DUMP AND RESTORE MONITOR

AUTHOR: D. R. Odom

DIRECT TECHNICAL INQUIRIES TO:
D. R. Odom
IBM Corp.
6900 Fannin
Houston, Texas

*** R - - 01.1 06.0 - - - - - ***

DESCRIPTION - The IBM 1130 Dump and Restore Program is a two-part utility that brings to the 1130 user the ability to dump the contents of disk monitor (SUP, BUP, FORTRAN Compiler, Assembler, IBM supplied subroutines, and any user written subroutines or data fields stored in the users area) to cards (app. 2500) using the First Phase (DARN-P1). Using the Second Phase (DARN-P2) the user can restore the disk monitor system going card to disk. Using Version 1, Modification Level 2 or 1130-OS-001, DARN-P1 dumped the complete monitor in app. 1 hour, and DARN-P2 restored the monitor in app. 10 minutes. An added feature is the ability not only to dump and restore the disk monitor system, but also to dump and restore any data stored on an 1130 Disk Cartridge.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - This program can be used on any IBM s/1130 with the following minimum configuration:
- 1131 Central Processing Unit, Model 2.
- 1442 Card Reader/Punch, Model 6 or 7.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130X1500#1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT

CONTINUED FROM PRIOR PAGE

	PROGRAM NUMBER EXTENSION	DISTRIBUTION TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-01.5.002
CORE-IMAGE CARD TO CORE-IMAGE PAPER TAPE PROGRAM

AUTHORS: T. Head A. Singer

DIRECT TECHNICAL INQUIRIES TO:
T. Head
IBM Corp.
1000 James St.
Syracuse, N. Y.

*** B - - 00.0 - - - - - - ***

DESCRIPTION - This program reads in condensed core-image program cards, translates the contents thereof to tape format, and punches out condensed core-image 8-channel paper tape which may subsequently be loaded into core via the Programming Systems Core-Image Loader in paper tape form. Any number of core-image decks may thus be translated into loadable paper tape. In addition, several inches of Delete codes will be punched into the tape immediately preceding the "Execute Card" portion of the tape to make subsequent patching operations easier. This feature was included to simplify the patching of core-image tape programs via the Core-Image Paper Tape Patch Program with keyboard input. This program provides a valuable tool to the programmer working with the 1130 paper-tape system.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - 1131 CPU (4096 words), 1442 Model 6 or 7, 1055 Paper Tape Punch, 1134 Paper Tape Reader.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-01.5.002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-01.5.003
DUMP STANDING ORDERS AND BALANCES

AUTHOR: Charles A. Peck
A. L. Grannkog
American Bakeries Company
10 South Riverside Plaza
Chicago, Illinois 60606

*** B - - 01.0 06.7 08.0 - - - - ***

DESCRIPTION - This program provides the user of the IBM 1130 Route Accounting System with the facility to punch standing order quantities from the individual route product records and/or the route balances from the file. This punched output will then provide the ability to reconstruct the files of the system as of the time of the dump. Standing orders (those order quantities in the file for items designated as standing order items in the product master record) are punched in the format of the data entry input card. Therefore, the data entry program can be used to restore the data to a newly created system file. Likewise, the format of the route balance cards is that of the route settlement input card. These cards are coded as miscellaneous charges (code 55) and can be entered as input to the first route settlement run during reconstruction.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language and is a self-loading, monitor-independent program.

MINIMUM SYSTEM REQUIREMENTS - Model 2A 1130 system with 4,096 words of memory.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-01.5.003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-01.5.006 *N
DUMP AND RESTORE MONITOR VERSION TWO

AUTHOR: Carl Hardin

DIRECT TECHNICAL INQUIRIES TO:
J. Scott
Department of Computing Science
Ada, Oklahoma 74820

*** C 5321 - 06* - - - - - - ***

DESCRIPTION - Dump and Restore Monitor Version Two is a two part utility that gives the 1130 user the ability to dump the contents of the disk monitor (Version Two) to cards using the first phase (DDMV2). Using the second phase (RDMV2) the user can restore the disk monitor system by going from card to disk. After the restore operation the contents of DCOR, the resident image, if present, and sector zero are updated to reflect the original information placed on the cartridge by DCIP or DISC, therefore, the user can dump and restore cartridges without regard to differences in disk ID and defective cylinder information.

PROGRAMMING SYSTEMS - Written in BAL.

MINIMUM SYSTEM REQUIREMENTS - Requires a 1442 Model 6 or 7, 8K of core, and 1131 Model B or C.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-01.5.006

	PROGRAM NUMBER EXTENSION	DISTRIBUTION TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-01.6.001 *N
1130 KEYED SEQUENTIAL FILE ORGANIZATION SUBROUTINES

AUTHOR: T. A. Armstrong

DIRECT TECHNICAL INQUIRIES TO:
T. A. Armstrong
IBM Corporation
22720 Michigan Avenue
Dearborn, Michigan 48124

*** B - - 01.0 - - - - - - ***

DESCRIPTION - The 1130 Keyed Sequential File Organization Subroutines provide a sequential file organization with record keys to permit sequential processing. This group of subroutines was designed to allow easy addition of records to an existing Keyed Sequential File, thereby reducing requirements for reorganization.

All subroutines are easy to use, eliminate the need to code lengthy search of randomizing routines, and allow the flexibility to format records in any manner desired. Processing in the sequential mode takes basically the same amount of time as FORTRAN sequential organization. While random processing depends on the size of the prime data area and the number of overflow records, it requires a little over 1 second for a 100 cylinder file.

PROGRAMMING SYSTEMS - Written in FORTRAN and requires 1130-OS-001.

MINIMUM SYSTEM REQUIREMENTS - Any disk 1130 system.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-01.6.001

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

1130-01.6.002
ISFMS - 1130 INDEXED SEQUENTIAL FILE MANAGEMENT SYSTEM ON THE 1130

AUTHOR: Susan T. Friberg

DIRECT TECHNICAL INQUIRIES TO:
Susan T. Friberg
IBM Corporation
33 West First Street
Dayton, Ohio

*** B - - 00.4 06.7 03.4 - - - - ***

CONTINUED FROM PRIOR PAGE

DESCRIPTION - Index Sequential File Management System 1130 is a set of utility programs and subroutines to maintain an indexed sequential file on the 1130. A modifying program is included which tailors the utilities to a specific system. The utilities include: a file program, a program to make additions to the file, a dump program, and subroutines for getting and putting records either randomly or sequentially. The FORTRAN source decks of the utility programs are read by the modifying program as data and are written on the disk. The modifying program accepts information about the size, record layout, key, etc. of the file to be maintained and punches out the set of modified utilities. These may then be compiled and used.

PROGRAMMING SYSTEMS - Written in FORTRAN and tested using the Disk Monitor System (Ver. 1, Mod. 5).

MINIMUM SYSTEM REQUIREMENTS - An 8K 1130 Disk System with 1442 Card Read/Punch.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-16-003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-03.8.007 *M
EASY EDIT (EZEDT)

AUTHOR: D. Langone

DIRECT TECHNICAL INQUIRIES TO:
D. Langone
M. K. Pineline Co., Inc.
132-142 Hotel St.
Utica, N. Y. 13503

*** M - - - - - - - - - - ***

DESCRIPTION - Easy Edit (EZEDT) is a subroutine to be used with the Commercial Subroutine Package. CALL EZEDT Subroutine allows the programmer to edit any output field with just one control variable. This will cut down on the number of statements that the programmer must write to edit an output field as the CALL to EZEDT Subroutine does all of the editing for him. It is an easy routine to learn and use and once used, the programmer may use it in lieu of the PUT, EDIT, and MOVE statements. It also eliminates having to set up a MASK field in your program for editing.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN; uses the Commercial Subroutine Package.

MINIMUM SYSTEM REQUIREMENTS - Those required for the Commercial Subroutine Package.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-03-007

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

1130-03.1.001 *M
SIMULATED ASSEMBLY PROGRAM

AUTHOR: H. Mendelson

DIRECT TECHNICAL INQUIRIES TO:
H. Mendelson
Computer Center
Mc Connell 404
Smith College
Northampton, Massachusetts 01060

*** M 1889 - - - - - - - - - ***

DESCRIPTION - Simulated Assembly Program is a set of three programs used to introduce the students to computing concepts, machine language, and the assembler of the IBM 1130. SAP#1 simulates a computer with 256 numbered core locations, an accumulator, and seven instructions. SAP#2 simulates a computer with 256 core locations, an accumulator, an accumulator extension, and ten instructions. SAP#3 simulates a computer with 512 numbered core locations, an accumulator, an accumulator extension, and eighteen instructions.

CONTINUED FROM PRIOR COLUMN

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 8K, 1132 Printer, and 1442 Card Read/Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-03-001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-03.2.001 *M
1130 8K COGO

AUTHORS: John R. Holt James R. Snyder

DIRECT TECHNICAL INQUIRIES TO:
John R. Holt
IBM Corporation
3033 N. Fairfax Drive
Arlington, Va. 22203

*** M - - 16.2 41.1 44.2 41.5 - - - ***

DESCRIPTION - This is a FORTRAN Language program that solves coordinate geometry problems for engineers and surveyors. Input to the program consists of alphabetic commands which are abbreviations of familiar engineering terminology. The program allows the engineer to balance a traverse, compute a subdivision, calculate a right-of-way, etc. The program is written for a 8K 1130 Model II and operates under the 1130 Monitor System. The program supports a large coordinate table of 1270 points which is stored on disk. The system permits the user, who may be unfamiliar with computers, to solve geometrical problems in his own language on a basic 1130 Disk System. Advantages are - free format, large coordinate table stored on disk, and small machine requirements. The method is - Monitor system controlling geometry subroutines and data tables which reside on disk. The user may easily modify or add to the existing program. The only limitation is the amount of core storage available. All that is required is an understanding of the general flow of the existing program and a knowledge of 1130 FORTRAN. This program is easily converted to paper tape for paper tape users.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN and requires 1130 Monitor System.

MINIMUM SYSTEM REQUIREMENTS - A 1131 Model A2 (4K with Disk) with a 1442 Card Read/Punch (Model 6 or 7), or 1134 Paper Tape Reader and 1055 Paper Tape Punch.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-32-001

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

1130-03.2.002 *M
STUDENT LANGUAGE COMPILER FOR IBM 1130

AUTHORS: E. B. Goodfellow M. Craig
M. Eldridge B. Endrenyi
L. G. Folliot M. E. Jackson

DIRECT TECHNICAL INQUIRIES TO:
B. B. Goodfellow
IBM Corporation
1150 Eglinton Ave., E.
Don Mills, Ontario, Canada

*** M - SL/1 - - - - - - - ***

DESCRIPTION - This sytem translates programs written in Student Language to an interpretive code, and if translation is error free, executes the resulting object code. Student Language is a language based on PL/I and is defined in the manual "Student Language One, Language Specifications". The system was written as an aid to teaching data processing in high schools. The design emphasizes extensive diagnostics and fast compilation for a workload consisting of a large volume of trivial programs. Programs of up to 100 statements can be handled.

PROGRAMMING SYSTEMS - Written in Assembly Language and requires 1130 Disk Monitor (Version 2).

CONTINUED FROM PRIOR PAGE

MINIMUM SYSTEM REQUIREMENTS - 1130 8K disk system with 1442/2501 Reader and 1132/1403 Printer.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

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

ORDERING INFORMATION: PROGRAM NUMBER 1130#032##2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTF 9/8##	28	none
		MT 9/16##	29	#1

1130-#3.3.##1
A PROGRAMMING LANGUAGE/1130

AUTHORS: H. S. Carberry A. G. Nemeth
L. M. Breed C. H. Brenner
S. M. Baucher

DIRECT TECHNICAL INQUIRIES TO:
S. M. Baucher
IBM Corporation
11401 Georgia Avenue
Wheaton, Maryland 20902

*** N - - #3.# 17.# 41.# 45.# - - - ***

DESCRIPTION - APL is a conversational implementation of the Iverson Notation, an extremely concise mathematical notation with simple but rigorous syntax. This concise attribute virtually eliminates the program step in the problem-solving chain of problem - algorithm - program - solution. All operators of the notation and editing capabilities, and the capability to save and retrieve work spaces are provided. The implementation allows data to be structured as scalars, vectors, and matrices with up to 255 elements in any dimension. Numerical values are accurate to six decimal digits, and identifiers are up to 6 alphabetic characters. Input may come from the console typewriters, card reader or a typewriter terminal. The program is independent of the IBM monitor and requires a dedicated disk cartridge. Facilities are provided to generate the system, assign and delete workspaces, and dump/restore individual workspaces and their functions to cards.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - 1131-2# and a 1442 or 2501. (A dedicated disk cartridge is required.) A 2741 Terminal and requisite RPQ are highly desireable.

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

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

ORDERING INFORMATION: PROGRAM NUMBER 1130#033#1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTF 9/8##	28	none
		DTF 9/16##	29	none

1130-#3.4.##1 *#
ASCII PAPTZ PAPER TAPE LIBRARY SUBROUTINE

AUTHOR: D. L. Weimer

DIRECT TECHNICAL INQUIRIES TO:
D. L. Weimer
E. S. Preston & Assoc. Ltd.
939 Goodale Blvd.
Columbus, Ohio 43212

*** N - - #6.3 #7.# #8.# 12.1 - - - ***

DESCRIPTION - A revision to the 1130-OS-##5 PAPTZ Paper Tape Library Subroutine to read and punch ASCII code (also known as USASCII) rather than the PTTC/8 code. This has major advantages in that less storage is required and data may be directly read from and punched for the Model 33 and 35 TTY units utilizing paper tape. All specifications pertaining to the PTTC/8 PAPTZ Routine continue to apply with the following exceptions -

- The ASCII line feed replaces the PTTC/8 new line character.
- The ASCII return and delete (RUBOUT) characters are ignored and cause nothing to be stored when read.
- The following three ASCII characters are punched at the conclusion of each output record - return, line feed and delete (RUBOUT).

CONTINUED FROM PRIOR COLUMN

PROGRAMMING SYSTEMS - Written in 1130 Assembly Language and requires 1130 OS.

MINIMUM SYSTEM REQUIREMENTS - Those required for 1130 OS.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#034##1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	##	none
OPTIONAL	none	none		none

1130-#3.4.##2 *#
CARD INTERRUPT SERVICE SUBROUTINES

AUTHOR: W. B. Wagner

DIRECT TECHNICAL INQUIRIES TO:
W. B. Wagner
Hazeltine Corporation, Research Div.
101 Fairchild Ave.
Plainview, N. Y. 11803

*** C 1954 - #3.# #7.# ##.# - - - - ***

DESCRIPTION - Provides for easy use of ISS CARDS (IBM 1130 Subroutine Library) by FORTRAN programs.

PROGRAMMING SYSTEMS - 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - Any 1130 with a 1442 Card Read Punch.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#034##2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	##	none
OPTIONAL	none	none		none

1130-#3.4.##4 *#
INTERRUPT SERVICE SUBROUTINE PCCA1 FOR INCLUSION IN THE IBM 1130 DISK MONITOR SYSTEM FOR HANDLING DATA TRANSMISSION BETWEEN IBM-1130 AND IBM-1070/1050 SYSTEMS

AUTHOR: E. Meister

DIRECT TECHNICAL INQUIRIES TO:
E. Meister
IBM Germany
P. O. Box 266
7032 Sindelfingen, Germany

*** N - 1#7## #6.3 - - - - - - ***

DESCRIPTION - This Interrupt Service Subroutine is to be included in the IBM 1130 Disk Monitor System and handles the communication of the IBM 1130 with Teleprocessing systems IBM 1070, Model 1 or 2, IBM 1050 on one line.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language and requires 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - IBM 1130, 4,#96 words, one disk drive. IBM 1442 for program input. Communications Channel Adapter CCA (RPQ 835 463, 134 Baud, or RPQ 835 464, 600 Baud). External Interrupt (RPQ Y 47 784) is optional.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#034##4

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	##	none
OPTIONAL	none	none		none

1130-03.4.005
PRINTER CONTROL PROGRAM FOR THE 1132 FOR OPERATION UNDER THE 1130 DISK MONITOR

AUTHOR: C. Morgan

DIRECT TECHNICAL INQUIRIES TO:
C. Morgan
IBM Corporation
7800 Interstate Drive
Little Rock, Ark.

*** M - - 03.0 08.0 - - - - - ***

DESCRIPTION - The purpose of the Printer Control Package (PCP) is more efficient usage of the 1132 Printer. It is a two part package. The first part of the package is a modification of the IBM Type I PRNT1 Printer Control program. The modifications include a scan routine which ends the print operation after the last character is printed. An alpha only list will approach 110 lines per minute. The second part of the package represents a complete set of inter-related control programs. It offers the improvements of the modified PRNT1 in addition to a system of buffer and queue management. The routines are FORTRAN callable and are used in place of PRINT, SKIP, WRIS, WRIE and SKSP.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language and requires the 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - 1130 system with 8K storage; 1132 Printer, plus whatever system configuration is required for operation under the Disk Monitor System.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Q34005

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-03.4.006 *M
ASCII MODIFICATION OF PAPTE FORTRAN PAPER-TAPE FOR DM V.2

AUTHOR: J. E. Lauer

DIRECT TECHNICAL INQUIRIES TO:
J. E. Lauer
Colorado Computing Corp.
Box 38
Boulder, Colo. 80302

*** C 5294 ASC 06.3 07.0 08.0 12.1 - - - ***

DESCRIPTION - PAPTZ replaces and is a modification of Type I PAPTZ, which reads and punches ASCII code in 72 character records for teletype (TWX) transmission. Implementation is similar to 1130-03.4.001. Even parity is used throughout. The four characters which FORTRAN I/O usually converts are not converted. When reading - DEL, NES are not stored in buffer - N1 is end of record. When punching - NES, N1, DEL are output at end of record.

PROGRAMMING SYSTEMS - Written in 1130 Assembly Language and requires 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - System/1130 with 1055 and/or 1134 Paper Tape I/O.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Q34006

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	05	none
OPTIONAL	none	none		none

1130-03.4.007
1130 FORTRAN I/O MODIFICATIONS

AUTHOR: W. K. Spence

DIRECT TECHNICAL INQUIRIES TO:
W. K. Spence
IBM Corporation
P.O. Box 9460

*** M - - 03.0 - - - - - - ***

DESCRIPTION - This set of four (4) subroutines provide

CONTINUED FROM PRIOR COLUMN

1130 FORTRAN with:
- Overlapped reading, printing, and processing in standard FORTRAN.
- Additional printer controls and a print numeric option which allows standard FORTRAN to print up to 110 lines/minute.
- The option of pre-reading and/or re-reading cards using standard FORTRAN formatting.

PROGRAMMING SYSTEMS - Programming language - 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - I/O devices supported by this package are the 1442 CRP, 1132 Printer, console keyboard, and console printer (disk I/O is not affected). Additional core required varies from 400 plus minus words up to 1K, depending on which I/O devices are specified in the FORTRAN IOCS record. To effectively use this package, the minimum configuration recommended is an 8K disk system with an 1132 Printer and/or 1442 CRP. (console keyboard and console printer are supported). (Disk I/O is not affected).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Q34007

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-03.4.008
OVERLAPPED PRINTING FOR IBM 1130 COMMERCIAL APPLICATIONS USING FORTRAN WRITE STATEMENT

AUTHOR: B. J. Swain

DIRECT TECHNICAL INQUIRIES TO:
B. J. Swain
The Shawinigan Engineering Company Limited
Box 3010 Station B
Montreal, Canada

*** M - - - - - - - - - ***

DESCRIPTION - This program is a replacement for the IBM supplied subprogram SFIO, to permit overlapped printing in IBM 1130 commercial FORTRAN programs. Communication to the subprogram which performs the printing operation is achieved through the FORTRAN WRITE statement rather than through the CALL statement, as is normally employed to achieve overlapped printing. The advantage of this method is that limited use can be made of the formatting ability of the FORTRAN Language. Headings can be readily incorporated and the layout of the printed page specified by the use of the format statements.

No attempt is made to support other peripheral devices, such as card reader, keyboard or console printer. Communication with these should be achieved through appropriate call type subroutines. A method of generation of alphabetic literal data is, however, included. No modification to the FORTRAN Compiler or Disk Monitor System supervisor is required. However, the program will operate only in conjunction with Version 2 of the Disk Monitor System.

PROGRAMMING SYSTEMS - Programming language - FORTRAN. Monitor system required - 1130 Disk Monitor, Version 2 only.

MINIMUM SYSTEM REQUIREMENTS - Those required for the 1130 Disk Monitor, Version 2.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Q30008

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-03.4.009 *M
OVERLAPPED 1132 PRINTING AND FULL CARRIAGE CONTROL

AUTHOR: J. Berlin

DIRECT TECHNICAL INQUIRIES TO:
J. Berlin
Jamaica High School
167-01 Gothic Drive
Jamaica, New York 11432

CONTINUED FROM PRIOR PAGE

*** E - - 03.0 06.5 - - - - - ***

DESCRIPTION - The program provides overlapped output and complete carriage control for the 1132 Printer using regular 1130 FORTRAN output statements. This is accomplished by replacing the FORTRAN 1403 output subroutine with a special one to accomplish the functions listed above. An additional subroutine is provided to allow the user to prevent automatic page overflow control and provide the user's program with channel 9 and 12 detection data. Printing speeds are increased between 50 and 60 percent over those of regular FORTRAN output.

PROGRAMMING SYSTEMS - The programs PRNZ and PRTCH were written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1130 with disk and 1132 Printer since Disk Monitor System Version 2 is required. Program will not work on Version 1.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM PACKAGE 1130-03.4.009

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	09	none
OPTIONAL	none	none		none

1130-03.4.010
1130 PRNZ MODIFIED FOR ADDITIONAL CARRIAGE CONTROL

AUTHOR: G. P. Dieter

DIRECT TECHNICAL INQUIRIES TO:
G. P. Dieter
Aerojet-General Corporation
3330 Crow Canyon Road
San Ramon, California 94583

*** C 5410 - - - - - - - - ***

DESCRIPTION - The 1130 library subroutine PRNZ (FORTRAN I/O for the 1403 Printer) has been modified to give the FORTRAN programmer additional control of the carriage of the 1403 Printer. Skipping to any of channels 2 through 9 in the carriage control tape becomes possible through normal FORTRAN format specification. Any of the digits 2 through 9 specified in a format statement as the first character of the line to be printed (similar to the 1H1 specification) will cause the 1403 carriage to skip to the corresponding channel in the carriage tape. The standard FORTRAN carriage control functions are retained.

PROGRAMMING SYSTEMS - Written in FORTRAN; operates under the 1130 Disk Monitor System, Version 2.

MINIMUM SYSTEM REQUIREMENTS - Use of this subroutine requires the 1130 Disk Monitor System, Version 2 as well as a 1403 Printer. The carriage control tape on the 1403 Printer MUST have punches in channels 1 through 9.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code, source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-03.4.010

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-03.4.011 *N
REREAD FOR FREE FORMAT CARD READING IN FORTRAN

AUTHOR: W. P. Stevens

DIRECT TECHNICAL INQUIRIES TO:
W. P. Stevens
IBM Corporation
1730 Cambridge Street
Cambridge, Massachusetts 02138

*** N - - 06.5 07.0 - - - - - ***

DESCRIPTION - The REREAD subroutine allows FORTRAN programs to read data cards two or more times with different format statements and/or variable lists. The REREAD capability can be used to allow essentially format-free reading by reading first for card-type only. This ability removes the restriction that the programmer know the exact order and quantity of the various formats used as input. Reading and rereading are both done with conventional read and format statements. Punching operations are not affected.

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REREAD only affects FORTRAN operation in core and will not affect or enlarge FORTRAN programs executed from the same disk which do not explicitly call "SAVE" or "REREAD".

PROGRAMMING SYSTEMS - Written in Assembler language.

MINIMUM SYSTEM REQUIREMENTS - Card rereading can be done on any 1130 system with a card reader.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-03.4.011

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	09	none
OPTIONAL	none	none		none

1130-03.4.014 *N
A 2250 MODEL 1 SIMULATION SUPPORT PACKAGE

AUTHOR: G.M. Stabler

DIRECT TECHNICAL INQUIRIES TO:
G.M. Stabler
Center for Computing & Information Sciences
Brown University
Providence, R.I. 02912

*** S BUC - 06.3 08.7 11.2 12.1 - - - ***

DESCRIPTION - The 2250 Model 1 Simulation Support Package is a set of 360 and 1130 programs which allow graphics programs written for the 2250 Model 1 or Model 3 Graphics Display Terminal to use the facilities of an 1130/2250 Mod 4 Terminal with no reprogramming. The package supports Assembly Language graphics (GPS) as well as higher level languages (GSP, GPAK), and operates at the access method level.

PROGRAMMING SYSTEMS - Written in Assembly Language and runs under HYT and (in the 1130) under the Disk Monitor. The 360 system must include Graphic Programming Services. Communications between the 360 and the 1130 subsystem are carried out over a high speed (60.6K BAUD) point-to-point line using a high speed Hisynchronous communications access method (BSCAM) which is available from the Type IV library (Program numbers 360D-06.3.012 and 1130-06.3.005).

MINIMUM SYSTEM REQUIREMENTS - A 2250 Model 4 Terminal, and those required to run an 1130 Disk Monitor.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-03.4.014

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	non
OPTIONAL	none	none		non

1130-03.4.015 *N
EXECUTION-TIME FORMAT STATEMENTS

AUTHOR: D.E. Bradly

DIRECT TECHNICAL INQUIRIES TO:
K.G. Hayward
Computer Centre
Mount Allison University
Sackville, N.B.
Canada

*** C 7860 FORM 06.5 07.0 08.0 12.1 - - - ***

DESCRIPTION - This Assembler-coded subroutine package allows FORTRAN programs on the 1130 to read, decode, and use format specifications during regular program execution. All format facilities currently (V2 Mod 6) supported by the FORTRAN compiler are also supported by these routines. Normal FORMAT statements may be used in the source programs. The full flexibility of the READ and WRITE statements is retained, whether they refer to compiled or execution-time format specifications.

PROGRAMMING SYSTEMS - Written in FORTRAN

MINIMUM SYSTEM REQUIREMENTS - A 1442 for format statement input and an 1132 for error message output, calling the same IBM-supplied routines used by FORTRAN object programs for these functions.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.

CONTINUED FROM PRIOR PAGE

MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#34#15

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-03.4.016 *M
FORTRAN I/O ERROR TRAP-SFIO AND SFIOF

AUTHOR: K.G. Hayward

DIRECT TECHNICAL INQUIRIES TO:
K.G. Hayward
Computer Centre
Mount Allison University
Sackville, New Brunswick, Canada

*** C 7#64 SFIO #4.# #7.# #8.# - - - - ***

DESCRIPTION - This subroutine package automates the detection and printing of F-errors and interrupt requests when executing FORTRAN programs. No change is required to the 1130 Monitor Version 2 under which it operates. A one-time change of name must be made to the subroutine SFIO if it is changed in a MOD level. The routine is otherwise transparent to users, operators, and the Monitor system and is relatively independent of MOD level. No special control cards or CALLS's are required. The routines are automatically included in all FORTRAN-generated core-loads.

PROGRAMMING SYSTEMS - Written in FORTRAN and operates using 1130 Monitor Version 2.

MINIMUM SYSTEM REQUIREMENTS - As distributed, the program prints error messages on the 1132, but this can be changed to the console typewriter or 1403 by changing only one card. Otherwise, the routines should work on any 1130 configuration running FORTRAN object programs.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object and source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#34#16

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-03.5.#01
FARGO - ELEVEN-THIRTY REPORT GENERATING OPERATION

AUTHOR: P. G. Bolins

DIRECT TECHNICAL INQUIRIES TO:
P. Campbell
IBM Corporation
GSD Region
1120 Connecticut Ave., N. W.
Washington, D. C.

*** M - FARGO #6.# #7.4 #8.4 #8.3 - - - ***

DESCRIPTION - FARGO is a report generator for IBM 1130. Input to a report must be single file, either card or disk. All input/output in a report is overlapped for optimum throughput. The progras provides print and/or punch output. Specification language is reminiscent of 1401 FARGO, but not so limited. Provides alphanumeric manipulation, full arithmetic facility with decimal scaling, user indicators, condition testing with branching, five levels of total, page numbering, etc. Highly diagnostic compiler gives optional program listing. Compile and go operation. The Report Generator occupies 5 cylinders on the disk.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language and requires the 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - Single disk, 8K, 1442, 1132. Either card or disk.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#35#01

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none

CONTINUED FROM PRIOR COLUMN

OPTIONAL	none	none		none

1130-03.5.#02 *M
1130 FORTRAN AUTOMATIC REPORT-PROGRAM GENERATING OPERATION

AUTHOR: A. P. Mazzaro

DIRECT TECHNICAL INQUIRIES TO:
A. P. Mazzaro
IBM Corporation
518 James Street
Syracuse, New York 13201

*** M - - - - - - - - - ***

DESCRIPTION - 1130 FARGO accepts specification cards almost identical to 1401 FARGO specifications and punches out an 1130 FORTRAN program using 1130 CSP. This program may then be compiled, executed, stored on disk, etc. The capability of FARGO can be extended by inserting FORTRAN source statements in the FARGO specification cards or in the punched FORTRAN deck. Therefore, 1130 FARGO can be used to generate most commercial 1130 programs.

PROGRAMMING SYSTEMS - Written in FORTRAN and requires the 1130 Disk Monitor System and 1130 CSP.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1130 disk system with a 1442-6 or 1442-7 and an 1132, but will support 2501, 1403, and 1442-5 also. For a system with a 2501, 1403, and/or 1442-5, Version Three of 1130 CSP or subroutines P1403, R2501, and/or P1402 as described in "Installation Newsletter" No. 66-05 are required. Highly diagnostic edit phase enables debugging at the FARGO source level.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#35#02

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	#6	none
OPTIONAL	none	none		none

1130-03.5.#03
REPORT PROGRAM GENERATOR FOR THE IBM 1130 COMPUTER SYSTEM

AUTHORS: L. H. P. Cowley O. Boussos
J. P. deCheldere J. Spreter

DIRECT TECHNICAL INQUIRIES TO:
J. P. deCheldere
IBM Corporation
Monterey & Cottel Roads
San Jose, Calif. 95114

*** M - - - - - - - - - ***

DESCRIPTION - 1130 RPG is a language subset of S/360 RPG. The compiler resided as user progras on disk under 1130 Disk Monitor Version 2, has output in disk system format in working storage. File processing is sequential only. Records are fixed length, blocked or unblocked. Two input files with matching record indicators are supported.

PROGRAMMING SYSTEMS - Programming language - Compiler written 1130 BAL. Monitor system required - 1130 Disk Monitor Version 2.

MINIMUM SYSTEM REQUIREMENTS - 1130 8K, 1 disk, 1132 or 1403, and 1442 or 2501 (to Compile). 16K, 32K, 1132, 1403, 2501, 1442, 1131 Printer, Keyboard entry and up to 5 disks are supported.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#35#03

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-03.6.#01
FORTRAN STATEMENT NUMBER SEQUENCING FOR 1130, 1620

AUTHOR: A. Whetstone

DIRECT TECHNICAL INQUIRIES TO:
A. Whetstone
IBM Corporation
520 Capitol Mall

CONTINUED FROM PRIOR PAGE

Sacramento, California

*** N - - - - - - - - - - ***

DESCRIPTION - Process a FORTRAN source language problem, sequencing the statement program, according to input specifications. Optional punch, list. Cross-reference of old to new statement numbers. Also uses new ID specification.

PROGRAMMING SYSTEMS - Programming language - FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - Uses 7,618 words of core. Also, the program requires 126 disk blocks excluding the IDEAL and Commercial routines. I/O devices required - 1442 Card Reader Punch and the 1132 Printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#36##1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-03.6.002 *M

FORTRAN SUBROUTINES SYSTEM WITH FORMAT CONVERSION, DOUBLE INTEGER ARITHMETIC AND I/O OVERLAY FOR COMMERCIAL REPORTS

AUTHOR: P. C. Weiss

DIRECT TECHNICAL INQUIRIES TO:
P. C. Weiss
IBM Corporation
6955 E. Washington Blvd.
Los Angeles, Calif. 90022

*** N - - 38.0 60.0 15.0 29.0 - - - ***

DESCRIPTION - This package of 34 Subroutines and 9 demonstration programs provides the ideal solution to business application programming for the 1130 user with little FORTRAN experience. They make FORTRAN an easy and powerful commercial language and are compatible with IBM commercial subroutines. Subroutines are supplied in card system format (CDS) ready to load onto Card Disk Monitor System. User must convert to paper tape for Papertape Monitor. Format conversion (13 entries) A1 single integer, double integer, A2, A3, and back to A1 with editing, 636 words, single integer to double integer and back, double fix and float, A1 zone testing, 168 words. Double integer arithmetic (6 entries) - add, subtract, multiply, divide sign test, function sign test, 272 words. Overlap I/O in a format (15 entries) - Card read and punch (252 chars), 1132 write with spacing, skip, type, typewrite, console write, console entry, I/O end, A1 conversion. No alterations of IBM programs are required to use this program. Useful non-disk I/O program fit in 4K.

PROGRAMMING SYSTEMS - Written in 1130 Assembler or FORTRAN Language, and requires the 1130 Disk Monitor System. User programs must use one word integers. Standard precision must be used with double integer routines only.

MINIMUM SYSTEM REQUIREMENTS - That which is required for Disk Monitor System.

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1130#38##2

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

1130-03.6.004 *M

IDEAL STR COMMUNICATION IN IBM 1130 FORTRAN WITH BCD, EBCDIC AND BINARY I/O

AUTHOR: P. C. Weiss

DIRECT TECHNICAL INQUIRIES TO:
P. C. Weiss
IBM Corporation
6955 E. Washington Blvd.
Los Angeles, Calif. 90022

*** N - - 86.0 86.3 - - - - - ***

DESCRIPTION - This package of subroutines provides the IBM 1130 FORTRAN user with the required calls to operate the Synchronous Communication Adapter (No. 7698) in STR mode. Both BCD and EBCDIC subset data codes are supported for communication with existing STR terminals. Data I/O is in FORTRAN A1 format. No internal restrictions exist as to transmittal record size, number of subtransmittal records, data buffering or terminating group marks (338 words plus SCAT1 plus STRTB plus HICV). New "IDEAL" I/O subroutines are provided to support concurrent 1132 printing with SCA operation (192 words plus PRNT2), column binary card reading and punching (274 words plus CARD1). Modify CNVRT for 256 character conversion (32 words). Display variable in A and Q (14 words). Disk I/O with SCA (10 words). Six FORTRAN demonstration programs are provided to exercise these routines. Useful non-disk I/O IDEAL FORTRAN communications programs fit 8K systems. Column binary card I/O may be used in any program. User FORTRAN programs must use one word integer option.

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - IBM 1130, 1442 Card Read Punch, Synchronous Communications Adapter.

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1130#38##4

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

1130-03.6.005 *M

FORTRAN COMPUTATIONAL ERROR CHECKING AND PROGRAM TERMINATING SUBROUTINE

AUTHOR: W. R. Wagner

DIRECT TECHNICAL INQUIRIES TO:
W. R. Wagner
Hazeltine Corporation
Research Division
101 Fairchild Avenue
Plainview, N.Y. 11803

*** C 1054 - - 84.4 82.8 - - - - ***

DESCRIPTION Subroutine EXERR will exit from main-line program and print out error messages if any errors had been detected by IBM 1130 FORTRAN Arithmetic and Functional Subroutines. EXERR is specifically intended for use with 1130 Disk Monitor System. If errors are detected, EXERR will link to accompanying program ERRSG which prints the error messages on the 1132 Printer.

PROGRAMMING SYSTEMS - Subroutine EXERR is written in 1130 Assembler Language. The associated program ERRSG is written in 1130 FORTRAN.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#38##5

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-03.6.006 *M

FORTRAN COMPUTATIONAL ERROR CHECKING SUBROUTINE

AUTHOR: W. R. Wagner

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W. R. Wagner
Hazeltine Corporation
Research Division
101 Fairchild Ave.
Plainview, N.Y. 11803

*** C 1054 - - 84.4 82.8 - - - - ***

DESCRIPTION - Subroutine CHECK is used to print out error messages for any errors detected by IBM 1130 FORTRAN Arithmetic and Functional Subroutines.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN Language.

MINIMUM SYSTEM REQUIREMENTS - Subroutine CHECK requires use of accompanying subroutine CHCKC and IBM subroutines OVERFL, DVCHK, FCTST and SFIO and SUBIN. The 1132 or the

CONTINUED FROM PRIOR PAGE

console typewriter may be used. Check contains no disk operations and may be used on either an 1130 Model I or II.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130C38886

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-03.3.007
IBM 1130 CONSOLE PRINTER FUNCTIONAL ROUTINE

AUTHOR: J. D. Oder

DIRECT TECHNICAL INQUIRIES TO:
J. D. Oder
Campus Computing Network
1130 System Support
485 Hilgard Ave.
Los Angeles, Calif. 90024

*** N - - 08.0 - - - - - - ***

DESCRIPTION - This routine is designed to allow the programmer an easy, straight forward method of controlling the functions of the 1130 Console Printer. The name under which this subroutine is stored is "PRNT". Each function allowed is a separate entry to "PRNT". Although the Interrupt Saving feature of this routine allows its use with FORTRAN, CSP, IDEAL, and ALC output, the nature of FORTRAN I/O slightly hinders the usefulness of some of the functions.

PROGRAMMING SYSTEMS - Written in ALC, and requires the 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - 1130 with one disk and a 1442 Card Reader.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130C30007

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-00.0.001
CORE-IMAGE CARD PATCH PROGRAM WITH KEYBOARD INPUT

AUTHOR: A. G. Singer

DIRECT TECHNICAL INQUIRIES TO:
A. G. Singer
IBM Corporation
150 Grand Street
White Plains, N.Y.

*** N - - 01.0 - - - - - - ***

DESCRIPTION - This program accepts program patch information from the 1130 Console Keyboard, translates it to card format, and punches out cards which may subsequently be loaded into core by the programming systems Core-Image Loader. An unlimited number of patch cards may be produced, each containing up to 50 contiguous 1130 words. This program provides a valuable tool to the programmer working with the 1130 card system. By using this program, he can easily and conveniently alter a program under test or correct assembly errors without having to resort to console entry switch alteration or re-assembly.

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - 1131 CPU, 4096 words, 1442 (Model 6 or 7).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130C40001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

CONTINUED FROM PRIOR COLUMN

OPTIONAL none none none

1130-04.0.002 *M
ASSEMBLER LANGUAGE DEBUGGING PROGRAM SEGMENTS

AUTHOR: E.V. Osten

DIRECT TECHNICAL INQUIRIES TO:
E.V. Osten
Parks Computation Center
Parks College
Cahokia, Illinois 62206

*** C 5462 - 04.2 04.5 - - - - - - ***

DESCRIPTION - DBUG1 and DBUGN are segments to be included in the user's Assembly Language source program. When invoked (by a BSI to DBUG1/N), a line is printed. For DBUG1, this line shows the contents of the Accumulator in hexadecimal notation. For DBUGN, this line shows the contents of the Accumulator, Extension, Index Registers, and other information. This provides a 'snapshot' view of the registers at any point(s) during execution of the program.

PROGRAMMING SYSTEMS - Written in 1130 DMPS.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for 1130-OS-005.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130C40002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-04.2.001 *M
IBM 1130 TRACE FOR ASSEMBLER LANGUAGE PROGRAMS

AUTHOR: C. H. Reiling

DIRECT TECHNICAL INQUIRIES TO:
C. H. Reiling
IBM Corporation
33 N. Dearborn St.
Chicago, Ill. 60602

*** N - - 03.0 - - - - - - ***

DESCRIPTION - A subroutine written to facilitate debugging of IBM 1130 Assembler Language programs. TRACE is assembled as a relocatable subroutine which may be called by any user-written program. Tracing of each instruction is initiated by the TRACE interrupt. TRACE prints an analysis of each instruction immediately before it is executed and will halt program execution at a stop-address selected by the user.

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - TRACE uses 1400 words of the CPU. An 1131 CPU is required and an 1132 Printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130C42001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-04.2.002
TRACE PROGRAM FOR IBM 1130 ASSEMBLY LANGUAGE

AUTHOR: D. Brocklebank

DIRECT TECHNICAL INQUIRIES TO:
D. Brocklebank
Lafayette College
Box 808
Easton, Pa. 18042

*** N - - 02.0 05.3 12.2 - - - - ***

DESCRIPTION - During the execution of any 1130 program under the Disk Monitor System, the Assembly Language Trace Routine may be used to produce a disassembled listing of every instruction and the status of all machine registers. An 1132 Printer for trace output, and uses

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the Interrupt Run feature of the processor. Tracing is controllable from the console and/or from the source program itself by use of the commands "CALL TSTOR/CALL TSTRT", and an instruction-address-stop feature is provided. The routine is ideal for analysing FORTRAN object coding and subroutine linkage.

PROGRAMMING SYSTEMS - Written in 1130 Assembly Language and requires 1130 OS.

MINIMUM SYSTEM REQUIREMENTS - The routine requires an 1132 Printer for trace output, and uses the Interrupt Run feature of the processor.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#42#2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-#4.2.#3 *M
1130 DEBUG

AUTHOR: J. J. Golay

DIRECT TECHNICAL INQUIRIES TO:
J. J. Golay
IBM United Kingdom
Hursley Park, Winchester
Hampshire England

*** M - - - - - - - - - - ***

DESCRIPTION - The purpose of this program is to convert the machine language into symbolic language (SAP), to detect any invalid operation code and to provide a print out of the conversion. It runs at the same time as a 1130 users program, utilizing the Interrupt Level 5. Under the control of the console entry switches, it is also possible to list the content of the accumulator and/or its extension and/or any of the 3 index registers.

This program is an extremely useful debugging tool for 1130 users and more particularly to make tests easier in SAP language. It can also be used with any FORTRAN program in order to trace the object instructions generated by the FORTRAN compiler.

PROGRAMMING SYSTEMS - Programming language - SAP 1130.

MINIMUM SYSTEM REQUIREMENTS - 736 words of memory and utilizes a 4K 1130 disk system.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#42#3

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	##	none
OPTIONAL	none	none		none

1130-#4.2.#4 *M
ASSEMBLER/FORTRAN PROGRAM TRACE PROGRAM

AUTHOR: E.V. Osten

DIRECT TECHNICAL INQUIRES TO:
E.V. Osten
Parks College Computation Center
Parks College
Cahokia, Illinois 62206

*** C 5462 - ##.5 - - - - - - ***

DESCRIPTION - The trace portion of this program gains control after each machine instruction (except XIO) is executed. A line is printed indicating the contents of the registers and status along with the instruction, its core address, and the execution address of the trace routine itself. When used in conjunction with a core map, this routine provides a very powerful debugging aid. These traces are similar to those supplied by the FORTRAN compiler insofar as selective tracing under program and data-switch control is provided.

PROGRAMMING SYSTEMS - One program uses FORTRAN I/O - PRN2, BOLE2, and the other uses PRNT3 and ZIPCO.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for 1130-OS-##5.

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BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#42#4

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-#5.1.#2 *M
MODIFICATIONS TO THE 1130 MONITOR SYSTEM

AUTHOR: Mrs. J. O. Silence

DIRECT TECHNICAL INQUIRIES TO:
Mrs. J. O. Silence
Allison Div., GMC Plant
Dept. 8895
Indianapolis, Ind.

*** C 3215 - #3.8 - - - - - - ***

DESCRIPTION - Various subroutines were modified to affect changes in order to acquire an "open shop" batch type operation. Changes were made in areas concerning the single hopper, carriage control, execution error messages, and numeric formatted input.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN and 1130 Assembler.

MINIMUM SYSTEM REQUIREMENTS - An 1130 card system is required.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

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

ORDERING INFORMATION: PROGRAM NUMBER 1130#51#2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTF*	##	none

1130-#5.3.#1
IBM 1130 OBJECT DECK DECODE PROGRAM

AUTHOR: I. Gold

DIRECT TECHNICAL INQUIRIES TO:
I. Gold
175 W. Knox Street
Galesburg, Illinois 61401

*** C ##16 8 #4.# - - - - - - ***

DESCRIPTION - This program produces a pseudo Assembly Language listing from an object deck created by a // DUP *DUMP function. The program is in the form of a mainline program. See listing of program for additional information about required subroutines.

PROGRAMMING SYSTEMS - Written in Assembly Language. The program was tested on a DM1 level 5 Monitor System and should work on any higher level system.

MINIMUM SYSTEM REQUIREMENTS - The program requires a 1442 Card Read/Punch and an 1132 Printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#53#1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-#5.3.#2 *M
IBM CARD READING PROGRAM

AUTHOR: E.V. Osten

DIRECT TECHNICAL INQUIRIES TO:
E.V. Osten

CONTINUED FROM PRIOR PAGE

Parks College Computation Center
Parks College
Cahokia, Illinois 62206

*** C - - - - - - - - - - ***

DESCRIPTION - IPLRD reads a card that has been punched for the Initial Program Load mode of input. The disassembled instructions and their core representations (in hex) are printed on the line printer.

PROGRAMMING SYSTEMS - Written in 1130 DMFS.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for 1130-OS-0005.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130053002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-05.5.001 *N
SECAL - A PROGRAM FOR BUILDING MULTIPLE LOCAL SUBROUTINE MODULES FOR THE IBM 1130

AUTHOR: E. J. Swain

DIRECT TECHNICAL INQUIRIES TO:
E. J. Swain
The Shawinigan Engineering Co., Ltd.
6200 Dorchester Blvd. West
Montreal, Quebec

*** C 7020 - - - - - - - - - ***

DESCRIPTION - SECAL is a program to build subroutine modules for the IBM 1130 by assembling several individual subroutines previously stored on disk. The multiple subroutine module built by this program may then be stored on disk and designated as a LOCAL subroutine, which results in a more efficient use of core space for programs which have a complex subroutine structure. It is coded in FORTRAN except for a few subprograms to perform bit manipulation and direct reading and writing on any part of the disk. These subprograms can be called from FORTRAN and are of general application. Included with the program is a discussion of documentation method based on the use of decision tables, which was used during the writing of this program.

PROGRAMMING SYSTEMS - Written in FORTRAN using Version II of the IBM 1130 Disk Monitor System, and uses 1130 CSP.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1130 having 8K core and one disk.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130055001

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

1130-06.1.001 *N
FORTRAN DISK SORT PROGRAM

AUTHOR: D. C. Hollen

DIRECT TECHNICAL INQUIRIES TO:
D. C. Hollen
IBM Corporation
Garden State Parkway, Exit 136
Cranford, New Jersey 07017

*** N - - 01.6 00.4 - - - - - ***

DESCRIPTION - This program will sort up to 2,000 cards, using the Sort-Exchange Method and the 1130 disk (for intermediate storage). The sorted cards are punched as a new deck, but the program can be easily modified to accept input from a file already on disk, or to leave the sorted cards in another file on disk. Using 1130 FORCOM, this program allows the control field (numeric only) to be located anywhere on the data card, and to contain up to 10 digits. However, with the larger control fields (over 4 digits) there is a corresponding decrease in the maximum number of cards which can be sorted.

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PROGRAMMING SYSTEMS - The program is written in 1130 FORTRAN, and is designed to run under the 1130 Disk Monitor.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1130 with disk and 1442 CRP is required.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130061001

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

1130-06.1.002 *N
QSORT, DSRT 1, DSRT 2 (3 SUBROUTINES)

AUTHOR: R. N. Kubik

DIRECT TECHNICAL INQUIRIES TO:
R. N. Kubik
The Babcock-Wilcox Co.
1201 Kemper Street
Lynchburg, Va.

*** N - - 00.4 - - - - - - ***

DESCRIPTION - Three Sort subprograms are included. First, Sort (QSORT) based on algorithm 271 as published in the ACM Communications requires only a minimum 1130. Second, a Disk Sort (DSRT2) which requires 8K memory and disk. Third, a Disk Sort (DSRT1) which requires 4K memory and disk but is less effecient. These would not be practical for sorting large files.

PROGRAMMING SYSTEMS - Written in FORTRAN and operates under the Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - QSORT requires a 4K 1130; DSRT1 requires 8K storage and a disk DSRT2 requires 4K storage and a disk.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130061002

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

1130-06.1.003 *N
FORTRAN TAG FILE DISK SORT PROGRAM

AUTHORS: D. L. Weimer S. E. Wooley

DIRECT TECHNICAL INQUIRIES TO:
D. L. Weimer
E.S. Preston & Assoc. Ltd.
939 Goodale Blvd.
Columbus, Ohio 43212

*** N - - 01.0 - - - - - - ***

DESCRIPTION - These programs sort either numeric or alphabetic records in ascending order utilizing disk stored tag files program. They can sort a relatively large number of records dependent only upon the size of the disk working storage area. Over 7,000 cards have been sorted successfully. The programs are liberally documented with comment cards. It is not a general purpose program in the usual sense, but it requires only limited alteration to a few explicitly specified cards for adaptation to a specific application. The control fields can be selected in any order starting with the major sort field proceeding through intermediate sorts to the minor sort field. However, the control fields must either all be numeric (I format) or all be alphanumeric (A format).

PROGRAMMING SYSTEMS - They are written in 1130 FORTRAN with a general adaptability to operate separately, as a link to a series of programs to leave a sorted file on disk, or as an operation within a program.

MINIMUM SYSTEM REQUIREMENTS - The machine requirements are basically any 1130 with disk. The programs can easily be modified to any configuration of input and/or output.

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

OPTIONAL PROGRAM PACKAGE - None.

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ORDERING INFORMATION: PROGRAM NUMBER 1130#61#83

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-#6.1.#85 *#
INTEGER SORT SUBROUTINE

AUTHOR: W. R. Wagner

DIRECT TECHNICAL INQUIRIES TO:
W. R. Wagner
Hazeltine Corporation
Research Division
1#1 Fairchild Avenue
Plainview, N.Y. 11#83

*** C 1#54 - #6.4 #3.# - - - - - ***

DESCRIPTION - Computes the order of elements of an integer array sorted either in ascending or descending order.

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - Any 1130 configuration.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#861##4

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-#6.1.#85
PBREG, A FAST SORT/MERGE SUBROUTINE FOR IBM 1130 DISK FILES

AUTHOR: B. J. Swain

DIRECT TECHNICAL INQUIRIES TO:
B. J. Swain
The Shawinigan Engineering Co. Ltd.
Box 3#1# Station B
Montreal, Canada

*** N - - - - - - - - - - ***

DESCRIPTION - This subroutine is a tag sort to order a disk file into ascending or descending sequence as determined by any number of control fields which may be alphabetic or numeric. It is self-adjusting to make use of available storage, and if the sequence length requires, sorts the file by sections, which are subsequently merged. The maximum length is determined by available disk space. Maximum speed is achieved by reduction of manipulation of data on the disk. The subroutine exists in two versions, one compatible with CONET and IDEAL, the other with CSP II. A set of subroutines for blocking disk records is included in the basic package. These are used by the sort subroutine, and may be used separately. The subroutine has been timed on sequences of up to 1#### records with 3 control fields, for which 37 minutes are required to complete the sort.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN and operates under the 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - 1130 Disk Monitor System, 8K core.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source and object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#861##5

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-#6.1.#86 *#
UBAC 1130 DSORT

AUTHOR: Klaus Appel

DIRECT TECHNICAL INQUIRIES TO:
Klaus Appel
Uppsala Data Center

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Box 21#3 75# #2
Uppsala, Sweden

*** N - - - - - - - - - - ***

DESCRIPTION - UBAC 1130 DSORT is a general-purpose program to sort FORTRAN-compatibile disk files. Emphasis is placed on generality of application and speed of execution. DSORT is controlled by 3-4 sort control cards which describe files and records, sorting keys, and collating sequence.

PROGRAMMING SYSTEMS - DSORT operates under the IBM 1130 Disk Monitor System Version 2 and was written in 1130 AL.

MINIMUM SYSTEM REQUIREMENTS - Those required by the 1130 Disk Monitor System (Version 2). (DSORT can use 1-3 disk drives for data storage).

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#861#86

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-#6.1.#87 *#
ORDER - AN IN-CORE TAG SORT

AUTHOR: S. Hughes, Jr.

DIRECT TECHNICAL INQUIRIES TO:
Southwestern Power Administration
Room 375, Federal Building
333 W. 4th Street
Tulsa, Oklahoma 74103

*** C 3118 - - - - - - - - - ***

DESCRIPTION - This subroutine is an in-core sort, which may also be used for tag sorting a disk file. It will sort either a one or two-dimensional integer array into ascending or descending sequence. The array must contain (a) A1 or A2 format and non-integers, or (b) must contain all integer data. The collating sequence for alphameric data is shown by the EBCDIC character codes appendix to the IBM 1130 Functional Characteristics Manual, i.e., blank, special characters, alphabetic and numeric in ascending sequence. A subprogram is also included to compare this sequence properly.

PROGRAMMING SYSTEMS - These two routines are written in 1130 Assembler Language; operates under the 1130 Disk Monitor System, Version 2.

MINIMUM SYSTEM REQUIREMENTS - Any 1130 with monitor system. 2## sort key records of 5 words each will sort in about 2 seconds.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#861#87

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-#6.3.#81
IBM 1130 REMOTE JOB ENTRY SYSTEM

AUTHOR: A. T. Foster

DIRECT TECHNICAL INQUIRIES TO:
A. T. Foster
Room 1-153
MIT
Cambridge, Massachusetts #2139

*** S HCE - #8.# #3.4 - - - - - ***

DESCRIPTION - This program is designed to allow an 1130 computer to act as a Remote Job Entry device to a S/360 which is running under the HASP monitor. The user can send input from either a 1442 Card Reader or the console keyboard. Output is printed on the 1132 Printer. All communications use Synchronous Transmit-Receive methods.

PROGRAMMING SYSTEMS - Written in 1130 Assembly Language and was assembled and tested under 1130 Disk Monitor Version 2.

MINIMUM SYSTEM REQUIREMENTS - The program runs on an 1130

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with at least 8K core, a 1442, an 1132, at least one disk, and the Synchronous Communications Adapter.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#63##1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-06.3.002 *H
WILLIAM AND MARY REMOTE JOB ENTRY PROGRAM - 8K DISK SYSTEM VERSION (WMRJ8)

AUTHORS: Sarah Eckhause S. P. Boyle

DIRECT TECHNICAL INQUIRIES TO:
Sarah Eckhause
Computer Center
College of William & Mary
Williamsburg, Virginia 23185

*** H - ####A #3.# - - - - - - ***

DESCRIPTION - The WMRJ8 program is an 1130 Bisynchronous Telecommunications Program usable on switched telephone lines. The basic function of WMRJ8 is to transmit DOS/360 jobs to such a computer on which the program DROS is operating. For a more detailed description of the flow and purpose of this program please see the introduction in the documentation for the program.

PROGRAMMING SYSTEMS - Specifically it is designed to interface with the IBM Type III program DROS which is written for DOS/360 systems. See the documentation of this Type III program for further detail. The program WMRJ8 is written in 1130 Assembler language and has been compiled and tested using an 1130 8K disk system and Version III of Monitor II.

MINIMUM SYSTEM REQUIREMENTS - It is designed to operate on any 8K disk system using a 1442 Card Reader-Punch, and 1132 Printer, a synchronous communications adapter, and an expansion adapter. It was tested on such a system with a line speed of 2###0 baud. The program can be modified for use with a 2501 Card Reader and a 1442 Card Punch or with a 1403 Printer. See the source listing for suggestions on how to accomplish this.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#63##2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-06.3.003
WILLIAM AND MARY REMOTE JOB ENTRY PROGRAM - 4K DISK AND CARD SYSTEMS VERSION (WMRJ4)

AUTHORS: Sarah Eckhouse S. P. Boyle

DIRECT TECHNICAL INQUIRIES TO:
Sarah Eckhause
Computer Center
College of William & Mary
Williamsbrug, Virginia 23185

*** H ####A - #3.# - - - - - - ***

DESCRIPTION - The WMRJ4 program is an 1130 Bisynchronous Telecommunications Program usable on switched telephone lines designed to operate on 4K disk systems and card systems. The basic function of WMRJ4 is to transmit DOS/360 jobs to such a computer on which the program DROS is operating. The 1130 input stream is on punched cards and the printed and punched output from these jobs may be transmitted to the 1130 site or punched and printed at the 360 computer site.

PROGRAMMING SYSTEMS - Specifically it is designed to interface with the IBM Type III program DROS which is written for DOS/360 systems. The program WMRJ4 is written in 1130 Assembler language and has been compiled and tested using Version 3 of Monitor II, and the last Version of Monitor I.

MINIMUM SYSTEM REQUIREMENTS - It is designed to operate on a system with a 1442 Card Reader-Punch, and 1132 Printer,

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a synchronous communications adapter and an expansion adapter. It was tested on such a system with a line speed of 2### baud.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#63##3

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-06.3.005 *H
AN 1130 HIGH SPEED BISYNCHRONOUS COMMUNICATIONS SYSTEM

AUTHOR: G.M. Stabler

DIRECT TECHNICAL INQUIRIES TO:
G.M Stabler
Center for Computer & Information Sciences
Brown University
Providence, Rhode Island #2912

*** S BSC - #3.# - - - - - - ***

DESCRIPTION - The High Speed Binary Synchronous Communications subroutine is an 1130 program which provides high-level capabilities for tele-communications with a S/360 or another 1130 over a point-to-point high speed (48.8K BAUD) half duplex line.

The system provides support at the GET/PUT level for an arbitrary number of users (message destinations) in either machine. Messages containing data in any format can be sent from any user in one machine to any user in the other, with the routing automatically controlled by the system.

PROGRAMMING SYSTEMS - Written in 1130 DMPS. The package is designed to run in conjunction with the Type 4 S/360 program entitled "A High Speed Bisynchronous Communications Access Method" (360D-06.3.012).

MINIMUM SYSTEMQUIREMENTS - The 1130 configuration requires RPQs 831551 (expansion 1133) and P21859 (communications adapter).

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#63##5

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-06.6.001
IBM 1130 PHOTOCOMPOSITION GRID/FACE UTILITY

AUTHOR: J. Henry

DIRECT TECHNICAL INQUIRIES TO:
J. Henry
IBM Corporation
112 E. Post Road
White Plains, N.Y.

*** H - - 06.4 - - - - - - ***

DESCRIPTION - The 1130 Photocomposition Grid/Face Utility is designed as an installation aid to Linofilm and PHOTON 513 users of 1130 Photocomposition. PHOTON 713 users are referred to the PHOTON 713 output module for the procedure to be used in storing face tables. The utility program stores on the disk cartridge all character width and point size data required by the 1130 Photocomposition Processor to create a justified line. Input to the 1130 Photocomposition Utility may be entered in cards, 8-channel paper tape, or via the console typewriter. Included with the basic information are instructions and worksheets to facilitate the gathering and entering of required data and the necessary instructions for operating the program. Program load procedures and special support programs (typesetting MONITOR and SKELETON) are available with the 1130 Photocomposition Program (1130-06.6.##2). Programs which must be ordered at this time are -

Title	Order Number
- IBM 1130 Photocomposition Program	1130-06.6.##2
- Linofilm Output Module for IBM 1130 Photocomposition Program	1130-06.6.##3
- PHOTON 513 Output Module for IBM 1130 Photocomposition Program	1130-06.6.##4

CONTINUED FROM PRIOR PAGE

- PHOTON 713 Output Module for IBM 1130 Photocomposition Program 1130-06.6.005

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - 1131 Model 2B and either 1134 Paper Tape Reader or 1442 (Model 6 or 7) Card Read/Punch.

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1130066005

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-06.6.002
IBM 1130 PHOTOCOMPOSITION PROGRAM

AUTHORS: J. Henry H. Charlesworth

DIRECT TECHNICAL INQUIRIES TO:
J. Henry
IBM Corporation
112 E. Post Road
White Plains, N.Y. 10601

*** M - - - - - - - - - - ***

DESCRIPTION - The IBM 1130 Photocomposition program provides the user of photocomposition equipment a means of generating fully justified copy in a variety of formats for a number of different photo units. The program has been designed to work in conjunction with any of the "output modules" currently available or other modules which may be written to meet a need not currently satisfied by existing modules. The documentation supplied provides sufficient information in the way of program format to permit the writing of new modules.

When ordering the IBM 1130 Photocomposition Program the user must order the following programs -

- IBM 1130 Type Composition - 1130-DP-04X.
- IBM 1130 Photocomposition Grid/Face Utility Program - 1130-06.6.001.

Appropriate output module to be chosen from the following programs :

- Linofilm Output Module for IBM 1130 Photocomposition Program 1130-06.6.003
- PHOTON 513 Output Module for IBM 1130 Photocomposition Program 1130-06.6.004
- PHOTON 713 Output Module for IBM 1130 Photocomposition Program 1130-06.6.005

MINIMUM SYSTEM REQUIREMENTS - An 1131 Processor Model 2B with 2315 Disk Cartridge... 1442 Card Read Punch Model 6 or 7 and basic BPQ's - BPQ 834398 - Basic Interface (required to attach any number of PTR's and PTP's); BPQ 834399 - Paper Tape Attachment (required to attach any number of PTR's and PTP's).

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1130066002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-06.6.003
LINOFILM OUTPUT MODULE FOR IBM 1130 PHOTOCOMPOSITION PROGRAM

AUTHOR: J. Henry

DIRECT TECHNICAL INQUIRIES TO:
J. Henry
IBM Corporation
112 E. Post Road
White Plains, N.Y. 10601

*** M - - - - - - - - - - ***

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DESCRIPTION - The Linofilm Output Module has been designed to work in conjunction with the IBM 1130 Photocomposition Program to produce a three frame 6-channel paper tape punched in a format capable of driving the Linofilm Photo unit equipped with the 6-channel paper tape adapter. Either the 18 Grid Linofilm Unit or the 28 Grid Linofilm Unit may be driven by the tapes generated by this output module. The Linofilm Output Module, in conjunction with the IBM 1130 Photocomposition program, permits the user to process unjustified tape, prepared on a standard 6-channel tape perforator, and thereby derive an output tape which contains lines of justified copy, with appropriate photo unit function codes, as determined by commands entered with the unjustified input. Users must order both the IBM 1130 Photocomposition Program (1130-06.6.002) and the 1130 Type Composition (1130-DP-04X) when ordering this output module.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - 1131 Processor Model 2B with 2315 Disk Cartridge... 1442 Card Read Punch Model 6 or 7... and Basic BPQ's - BPQ 834398 - Basic Interface (required to attach any number of PTR's and PTP's); BPQ 834399- Paper Tape Attachment (required to attach any number of PTR's and PTP's).

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1130066003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-06.6.004
PHOTON 513 OUTPUT MODULE FOR IBM 1130 PHOTOCOMPOSITION PROGRAM

AUTHOR: J. Henry

DIRECT TECHNICAL INQUIRIES TO:
J. Henry
IBM Corp.
112 East Post Rd.
White Plains, N. Y. 10601

*** M - - - - - - - - - - ***

DESCRIPTION - The PHOTON 513 Output Module has been designed to work in conjunction with the IBM 1130 Photocomposition Program, to produce 6-channel paper tape, punched in a format capable of driving a PHOTON 513 photocomposing machine. Since the PHOTON 513 is available as either a forward or backward reading unit, the material supplied with this program is designed to permit the user to implement a system which will drive either or both. Users must order both the 1130 Photocomposition Program (1130-06.6.002) and the 1130 Type Composition Program (1130-DP-04X) when ordering this output module.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - An 1131 Processor Model 2B with 2315 Disk Cartridge... 1442 Card Read Punch Model Disk Cartridge; 1442 Card Read Punch Model 6 or 7 and Basic BPQ's - BPQ 834398 - Basic Interface (required to attach any number of PTR's and PTP's; BPQ 834399 - Paper Tape Attachment (required to attach any number of PTR's and PTP's).

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1130066004

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-06.6.005
PHOTON 713 OUTPUT MODULE FOR IBM 1130 PHOTOCOMPOSITION PROGRAM

AUTHOR: J. Henry

DIRECT TECHNICAL INQUIRIES TO:

CONTINUED FROM PRIOR PAGE

J. Henry
IBM Corporation
112 E. Post Road
White Plains, N.Y.

*** N - - - - - - - - - - ***

DESCRIPTION - The PHOTON 713 Output Module has been designed to work in conjunction with the 1130 Photocomposition Program to produce 6-channel paper tape, punched in a format capable of driving a Textmaster Photocomposing Machine. The 6-channel format produced meets the input requirements of photo units with production numbers greater than fifty. References in the documentation provide the information necessary to modify the program for production numbers lower than fifty. Users must order both the 1130 Photocomposition Program (1130-06.6.002) and the 1130 Type Composition Program (1130-DP-04X) when ordering this output module.

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - An 1131 Processor Model 2B with 2315 Disk Cartridge... 1442 Card Read Punch 6 Model 6 or 7 and Basic BPQ's - BPQ 834398 - Basic Interface (required to attach any number of PTR's and PTP's; BPQ 834399 - Paper Tape Attachment (required to attach any number of PTP's and PTP's).

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1130066005

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-06.6.005
HOT TYPE - COLD TYPE FLIPPER PROGRAM

AUTHOR: A. G. Singer

DIRECT TECHNICAL INQUIRIES TO:
A. G. Singer
IBM Corporation
112 E. Post Road
White Plains, N.Y.

*** N - - 05.2 - - - - - - ***

DESCRIPTION - This program modification of the 1130 Type Composition Program (1130-DP-04X or 05X, Version 1, Mod. Level 1) enables users of both the 1130 Photocomposition Program (1130-06.6.002) and the 1130 TCP to call into execution one program or the other by punching several special characters at the beginning of the normal 6-channel paper input tape. FLIPR and FLHOR are actually modified version of TCP overlay 2 and HOF, respectively. Following the request, ENTER PROGRAM NAME..., the user can select any of three modes of operation. Keying in the call TCP will condition the system to perform in a manner identical with a stand-alone TCP system. The call PCHP will permit operation identical with a stand-alone Photocomp system. The call FLIPR will require that a special header record precede each tape to indicate whether TCP or PCHP should process the current tape. Only two tape headers are recognized by the program, but simple field modification is possible so that other programs can be called as well. Any intermix of tapes can be handled without the inconvenience of manual program switching.

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - An 1131 Processor Model 2B with 2315 Disk Cartridge, 1442 Card Read Punch Model 6 or 7, and Basic BPQ's. BPQ 834398 - Basic Interface (required to attach any number of PTR's and PTP's). BPQ 834399 - Paper Tape Attachment (required to attach any number of PTR's and PTP's).

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1130066006

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-06.6.007
PHOTON 560 OUTPUT MODULE FOR IBM 1130 PHOTOCOMPOSITION PROGRAM

AUTHORS: Beth Forgosh F. Tillman

DIRECT TECHNICAL INQUIRIES TO:
Beth Forgosh
IBM Corp.
555 Madison Ave.
New York, N. Y.

*** N - - 29.4 - - - - - - ***

DESCRIPTION - A program to work in conjunction with the IBM 1130 Photocomposition Program (1130-06.6.002) to produce a 6-channel paper tape punched in a format capable of driving the Photon 560 Photocomposing Machine. This output module, together with the IBM 1130 Photocomposition Program, permits the user to process unjustified tape, prepared on a standard 6-channel tape perforator, and produce an output tape, with lines of justified copy and all necessary photo unit function codes as determined by commands keyed in with the unjustified input.

MINIMUM SYSTEM REQUIREMENTS - The 1130 configuration required is the same as that specified for the IBM 1130 Photocomposition Program.

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

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

ORDERING INFORMATION: PROGRAM NUMBER 1130066007

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1130-06.6.008
NO SPACEBAND

AUTHOR: R. W. VanNiper

DIRECT TECHNICAL INQUIRIES TO:
R. W. VanNiper
IBM Corp.
3833 N. Fairfax Dr.
Arlington, Va.

*** N - - - - - - - - - ***

DESCRIPTION - The No Spaceband Program is a modification to the Type Composition Program for the 1130 (1130-DP-04X) that eliminates spacebands in justified text. This is accomplished by replacing the spaceband with combinations of five fixed width mats. The advantage of this program is increased line caster throughput by reducing down time caused by spaceband jams and the elimination of spaceband produced text errors. The program minimizes the use of CW and Thin Spacequads. No compilation of the Type Composition Program is required.

PROGRAMMING SYSTEMS - The NOBAND program is written in Assembler Language and utilizes the 1130 Type Composition Program (1130-DP-04X).

MINIMUM SYSTEM REQUIREMENTS - Those required for 1130-DP-04X. The core requirements are 02 positions.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130066008

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-06.6.009 *N
IMPROVED HYPHENATION PACKAGE FOR 1130 TCP

AUTHOR: A. G. Singer

DIRECT TECHNICAL INQUIRIES TO:
A. G. Singer
IBM Corp.
112 E. Post Rd.
White Plains, N. Y.

*** N - - - - - - - - - ***

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DESCRIPTION - Increases in speed of up to 1500 30-character lines per hour can be realized with this Improved Hyphenation Package for the 1130 TCP. A single compressed dictionary, based on word roots wherever possible, replaces the 1130 TCP separate dictionaries for suffix exceptions and probability exceptions. The package consists of the following programs - HTSTR, HLODR, OVERLAY 5, OVERLAY 7, HPREP. In addition, a set of about 3200 exception words is supplied.

Two new utility programs replace HYUP, namely HTSTR and HLODR. HTSTR accepts input from cards or from the keyboard and indicates the results of hyphenation on the console printer and/or by stacker selecting exception cards. HLODR accepts input from the keyboard, from cards, or from 8-channel paper tape and loads the dictionary file accordingly. The new overlays 5 and 7 replace the corresponding overlays as distributed with 1130-DP-04X. HPREP, as before, initializes the dictionary but also initializes a dictionary index within OVERLAY 5. In addition to providing a more convenient method of testing and loading exception words, a significant savings in the time can be gained by using this set of programs. Also, about 60 cylinders of disk storage space is freed for other purposes.

PROGRAMMING SYSTEMS - Utilizes the Type Composition Program (1130-DP-04X).

MINIMUM SYSTEM REQUIREMENTS - That required for Type Composition Program 1130-DP-04X.

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

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

ORDERING INFORMATION: PROGRAM NUMBER 1130*66**9

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTF*	88	none

1130-06.6.011 *S

AUTOMATED CLASSIFIED ADVERTISING SYSTEM (AUTOCLAS)

AUTHORS: K. Teahan L. Crismond

DIRECT TECHNICAL INQUIRIES TO:
K. Teahan
IBM Corp.
2045 Peachtree Rd., N. E.
Atlanta, Ga. 30309

*** N - - 29.9 99.8 - - - - - ***

DESCRIPTION - Programs are to handle classified ads for an offset newspaper using a PHOTON 713 and the IBM Photocomposition Package. The AUTOCLAS Package uses the 1130 disk to store justified ads by classified section number. New ads are sorted by section number and merged with the old. Old ads can be killed or temporarily tagged. When processed, they are dumped on 6 channel paper tape, ready for the PHOTON 713, and formatted with headings and light lines between ads, ads and their status, i.e., killed, or temporarily tagged can be listed on the console.

PROGRAMMING SYSTEMS - Source is written in 1130 Assembler Language, using a special modification of ILS04 and PAPT8, called PAPT6.

MINIMUM SYSTEM REQUIREMENTS - An 1131 Processor (Model 2B) with 2315 Disk Cartridge... 1442 for assembling... 1132 8-Channel Paper Tape Reader, and 1055 8 Channel Paper Tape Punch for punching the programs in disk system format, and basic EPGs... RPQ 834398 Basic Interface (required to attach any number of PTR's and PTP's). RPQ 834399 Paper Tape Attachment (required to attach any number of PTR's and PTP's). The 1442 and 1055 are not necessary after the programs are stored on disk in the user area.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130*66011

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	88	none
OPTIONAL	none	none		none

1130-06.6.012 *S

ERROR CORRECTION-PRINT-MERGE FOR 1130 PHOTOCOMPOSITION INPUT TAPES

CONTINUED FROM PRIOR COLUMN

AUTHOR: W. H. Dukelow

DIRECT TECHNICAL INQUIRIES TO:
W. H. Dukelow
IBM Corp.
1400 Baltimore Ave.
Kansas City, Mo.

*** N - - - - - - - - - ***

DESCRIPTION - The Error Correction-Print-Merge Program provides the user of 1130 Photocomposition (1130-06.6.002) with a means of pre-proofing and correcting input tapes before they are processed.

The Error Correction-Print-Merge Program consists of two phases. In the first (or print) phase, the computer input tape is listed with reference numbers on the 1132 Printer. This listing can be proofread and corrections made to refer to any character by reference numbers. In the second (or correction and merge) phase the correction tape is merged with the original tape to produce a clean computer input tape. Any number of characters may be deleted and/or inserted.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - 1131 Processor (Model 2B), 2315 Disk Cartridge; 1132 Printer; RPQ 834398 Basic Interface (required to attach any number of paper tape readers and paper tape punches); RPQ 834399 (paper tape attachment required to attach any number of paper tape readers and paper tape punches); either 1442 Card Read Punch Model 6 or 7; or 1134 Paper Tape Reader and 1055 Paper Tape Punch. Disk sectors 0-535 are used for program storage and disk work area.

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1130*66012

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTF*	88	none

1130-06.6.013 *S

1130 PHOTOCOMPOSITION - GROCERY AD MIXING ROUTINE

AUTHOR: G. W. Johnson

DIRECT TECHNICAL INQUIRIES TO:
J. Henry
IBM Corporation
112 E. Post Road
White Plains, New York

*** N - - - - - - - - - ***

DESCRIPTION - These modifications to the 1130 Photocomposition Program (1130-06.6.002) will significantly reduce the mark-up time and key strokes required to get several different, common types of display advertising mixes. With the addition of three commands to the existing command structure, the operator will be able to enter a line or multiple lines as a cut in the saved line. This will allow the operator to set "grocery ad mixes" without the mark-up man counting or measuring the type in each line. The three additional commands are: Line save (less than ls), line output (less than lo) and vary clearance (less than vc). These are used in combination with the quad middle command. The inclusion of these commands in the program rules out the use of small caps and ligatures without extensive reorganization of the program.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language (Source decks supplied) and utilizes the 1130 Photocomposition program.

MINIMUM SYSTEM REQUIREMENTS - Those required by the 1130 Photocomposition Program (1130-06.6.002).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130*66013

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	88	none
OPTIONAL	none	none		none

1130-06.6.014 *S
IBM 1130/1800 KEYWORD INDEX GENERATOR

AUTHOR: J. A. Hanapel

DIRECT TECHNICAL INQUIRIES TO:
J. A. Hanapel
IBM Corporation
188 S. Wacker Drive
Chicago, Illinois 60606

*** S - - - - - - - - - - ***

DESCRIPTION - The 1130/1800 Keyword Index Generator is a program which prepares Keyword-in-Context permutions of titles and/or abstracts which appear on input cards. Any keyword may be bypassed in permution by the inclusion of that word in a trivial word file. Output is on cards, and off-line sorting is required.

PROGRAMMING SYSTEMS - The program is written in FORTRAN. It will run under the 1130 Disk Monitor, Version 2, or under the 1800 TSI, Version 3.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1130, or a 16K 1800. One disk drive is required to run the program, as is the 1130 Commercial Subroutine Package, Version 2 or 3.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130006614

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	06	none
OPTIONAL	none	none		none

1130-06.6.015
IBM 1130 & FORTRAN REREAD DEVICE AND FREE FORMAT KEYBOARD INPUT ROUTINES

AUTHOR: H. A. Jones

DIRECT TECHNICAL INQUIRIES TO:
H. A. Jones
Engineering Devision
Pitney-Bowes, Inc.
Stamford, Conn. 06904

*** C 1877 - 07.8 - - - - - - ***

DESCRIPTION - A subprogram named REREAD supplies a reread device which is called via standard FORTRAN formatted read/write statements. A typical commercial application of the device might be as follows: (1) Read a card into an 80A1 array. (2) Determine the format of the card and check that no illegal characters appear in real or integer fields. (3) Write the array to the reread device with an 80A1 format. (4) Read the reread device with any list and format consistent with the data as it originally appeared on the card.

Other subprograms are supplied which illustrate how the reread device may be used to provide a free format keyboard routine. These particular routines have been successfully applied to IBM's Continuous Systems Modeling Program operating on a 16K machine. Paper tape hardware and monitor configuration is not required. However, paper tape I/O devices cannot be operated in the same core load which uses the reread device.

PROGRAMMING SYSTEMS - REREAD is written in Assembly Language. The others are written in FORTRAN. 1130-05-005 (Monitor II) and IBM's Subroutine SFIO are required.

MINIMUM SYSTEM REQUIREMENTS - 1130 8K System with disk, and card I/O.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130006615

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-06.6.016
ALPHAMERIC DATA STATEMENT PRODUCER FOR FORTRAN

AUTHOR: W. S. Cool

DIRECT TECHNICAL INQUIRIES TO:
W. S. Cool

CONTINUED FROM PRIOR COLUMN

Dept. of Biology
Hiram College
P.O. Box 275
Hiram, Ohio 44234

*** S - - 03.6 12.8 - - - - - ***

DESCRIPTION - This program simplifies the production of FORTRAN data statements composed of strings of alphameric constants. Input is one card giving the array name, number of characters in the string and desired output format (A1, A2, or A4) followed by card(s) containing the character string. Output is (1) an Integer (for A1 or A2) or Real (for A4) card with dimension information, (2) one or more comment cards with the array name, number of characters, and the character string itself, and (3) a Data statement in one or more cards with the character string properly subdivided to fill each array element. Two dimensioned arrays may be requested if the 1st dimension is specified. Some error checking is done. Stacked input is allowed.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

MINIMUM SISTEM REQUIREMENTS - 8K 1130 with 1442 CRP under DEV2.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION - PROGRAM NUMBER 1130006616

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-06.6.017 *S
KWIC INDEX GENERATOR

AUTHOR: Laury Flora

DIRECT TECHNICAL INQUIRIES TO:
Laury Flora
2332 Eighth Street
La Verne, California

*** S - - 15.1 27.0 - - - - - ***

DESCRIPTION - This package contains three mainlines and the associated subroutines to generate a Key-Word-In-Context index. Input format is completely general, and will probably accept cards which have already been punched for another purpose. Program operation is controlled through questions and answers on the console keyboard and typewriter.

PROGRAMMING SYSTEMS - Written in FORTRAN, and the three parts of the mainline are linked through Call Link statements.

MINIMUM SYSTEM REQUIREMENTS - Requires an 8K machine with 1132 Printer, 1442 Card Read-Punch, and one disk.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130006617

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-06.6.018 *M
TYPE SUBROUTINE FOR LOWER-CASE OUTPUT ON 1130 CONSOLE PRINTER

AUTHOR: P. Guarneri

DIRECT TECHNICAL INQUIRIES TO:
P.T. Moriarty
Voorhees Technical Institute
458 West 41 Street
New York, New York 10036

*** M - - 12.1 - - - - - - ***

DESCRIPTION - Subroutine Type is a FORTRAN-callable subroutine which allows its user the capability of typing lower-case letters on the Console Typewriter of the 5/1130. The subroutine requires changing the normal typing element on the console so that lower-case letters are available. A "Selectric" typing element is mounted in place of the normal element. This gives the user a wide choice of typing styles which are available through the use of different typing elements.

CONTINUED FROM PRIOR PAGE

PROGRAMMING SYSTEMS - Written in 1130 assembler language, and tested under DMV 2, Mod. 4 of S/1130.

MINIMUM SYSTEM REQUIREMENTS - 8K storage, 1131 Processor, 1442 Card Read/Punch, types uses 424 words of core storage.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#66#10

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-#6.7.##2
A GENERALIZED INDEXED SEQUENTIAL MAIN FILE WITH LINKED OVERFLOW APPLICATION FOR 1130/1800 USERS

AUTHOR: T. O. Gordy

DIRECT TECHNICAL INQUIRIES TO:
T. O. Gordy
IBM Corporation
IBM Education Center
6900 Fannin Street
Houston, Texas 77025

*** N - - - - - - - - - - ***

DESCRIPTION - This set of programs is meant to give the 1130/1800 user an index sequential type file organization that is as general in its applications and as easy to use as possible. It consists of five programs to create, process randomly, process sequentially, add to and delete from the file. An attempt has been made to use and expand upon the ideas and methods in the disk file organization and processing portion of the 1130 commercial programming education guide.

Each of the programs is a main-line program, but can be modified to be a subroutine. There are a minimum number of changes to be made to modify them to apply to different files or systems.

PROGRAMMING SYSTEMS - Programming language - FORTRAN.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#67##2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-#6.7.##3 *N
IBM 1130 INDEX FOR HD2 SYSTEMS

AUTHOR: C. N. Batteau

DIRECT TECHNICAL INQUIRIES TO:
C. F. Obermaier
Vapor Corporation
6428 W. Howard Street
Chicago, Illinois 60648

*** N INDX2 - 08.4 01.8 - - - - - ***

DESCRIPTION - The IBM 1130 INDEX program is written to simplify the user's determination of the programs stored on a disk. It lists by program type the names of all valid entries in the Location Equivalence Table and in the Fixed Location Equivalence Table. It also lists general information about the rest of the disk.

PROGRAMMING SYSTEMS - The program is written in 1130 Version 2 Assembly language.

MINIMUM SYSTEM REQUIREMENTS - Tested on an 1130 Model 3 with 1403 Printer and two 2310 Model B2 Disk Storage Units. It is easily adaptable for use with systems having an 1132 Printer or console typewriter as the principal print device. The program is assembled as a relocatable mainline program and requires 8K words of storage for execution.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#67##3

CONTINUED FROM PRIOR COLUMN

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	##	none
OPTIONAL	none	none		none

1130-#7.#.##1 *N
IBM 1130 FORTRAN UNFORMATTED READ SUBROUTINE

AUTHOR: F. L. Friedman

DIRECT TECHNICAL INQUIRIES TO:
F. L. Friedman
Goucher College
Dept. of Mathematics
Baltimore, Md. 21204

*** N - E78A #6.# #3.# - - - - - ***

DESCRIPTION - The 1130 Unformatted Read Subroutine is designed to permit 1130 FORTRAN programmers and users to read data cards without format. For most efficient usage, this subroutine and its accompanying routine, QQQ should be stored in the users area of an 1130 disk pack to be called out when needed by the compile procedure.

PROGRAMMING SYSTEMS - The subroutine is written in 1130 FORTRAN IV (with the Commercial Subroutine Package).

MINIMUM SYSTEM REQUIREMENTS - Any IBM 1130 with a 1442 Card Reader and with a monitor system containing FORTRAN and the Commercial Subroutine Package.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#78##1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	##	none
OPTIONAL	none	none		none

1130-#7.#.##2 *N
RASEC/RDSEC

AUTHOR: G. Obermaier

DIRECT TECHNICAL INQUIRIES TO:
G. Obermaier
Vapor Corporation
6428 W. Howard
Niles, Illinois 60648

*** N - - - - - - - - - ***

DESCRIPTION - RASEC/RDSEC is a multiple entry point subroutine for the IBM 1130, written to accelerate sequential disk reading for use with the FORTRAN mainline program. RASEC/RDSEC is assembled as a relocatable subroutine which may be called by any user written program. It will sequentially read a disk data file, sector by sector. Its intended use is to read singly written FORTRAN disk records.

PROGRAMMING SYSTEMS - Written in FORTRAN. As written, RASEC/RDSEC may be used only with Version 2 Mod. level 4 Monitor system.

MINIMUM SYSTEM REQUIREMENTS - Same as those required to run under 1130-OS-#05.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#78##2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	##	none
OPTIONAL	none	none		none

1130-#7.#.##3 *N
DATA SWITCH INPUT SUBROUTINES

AUTHOR: E.V. Osten

DIRECT TECHNICAL INQUIRIES TO:
E.V. Osten
Parks College Computation Center
Parks College
Cahokia, Illinois 62206

CONTINUED FROM PRIOR PAGE

*** C 5462 - 87.1 87.3 - - - - - - ***

DESCRIPTION - IDSWT and NDSWT - Two subroutines to read the console entry switches, particularly for FORTRAN programs.

IDSWT - sets the argument equal to the number of the data switch turned on. If more than one switch is on, only the hi-order one is considered. If no switches are on, the value 16 is returned.

NDSWT - returns the value of the binary number contained in the switches.

PROGRAMMING SYSTEMS - Written in 1130 DMPS.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for 1130-OS-005.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130070003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-07.3.001
ADDITION TO IDEAL FORTRAN (1130-03.8.002)

AUTHOR: T. L. Scott

DIRECT TECHNICAL INQUIRIES TO:
T. L. Scott
Platt College of Commerce
Eighth and Felix
St. Joseph, Missouri

*** N - 0002A 07.5 08.3 06.5 08.7 - - - ***

DESCRIPTION - The nine subroutines of this program are designed to increase the flexibility and ease of handling various input and output procedures with the IBM 1130 computing systems. All subroutines are written in FORTRAN IV except for a basic display routine written in Assembler. The subroutines are designed to work with the IDEAL 1130 FORTRAN Subroutine, (03.8.002). Two routines accept left-justified numeric data; two routines move data between one and two dimension arrays; two routines accept numeric data entered at the data switches in hexadecimal format; and three routines display data in the accumulator.

PROGRAMMING SYSTEMS - Programming language - FORTRAN IV except for a basic display routine written in Assembler Language. Dependent subroutine - IDEAL 1130 FORTRAN subroutine - 1130-03.8.002.

MINIMUM SYSTEM REQUIREMENTS - Those required for IDEAL FORTRAN - 1130-03.8.002.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130073001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-00.6.001
PRNTZ - OVERLAPPED OUTPUT ON THE 1132 PRINTER

AUTHOR: G. R. Barthel

DIRECT TECHNICAL INQUIRIES TO:
G. R. Barthel
581 Carmon Road
St. Louis, Mo. 63135

*** N - - 03.4 06.8 29.4 - - - - ***

DESCRIPTION - The program is intended to provide overlapped printing on the 1132 Printer for a FORTRAN program in a manner which is transparent to the user. The standard FORTRAN output statements are used, and programs do not have to be recompiled to use the routine unless they are stored in core image.

The routine may be used in any application which uses the 1132 Printer for output. The routine is an interrupt service subroutine and must replace the standard version of PRNTZ in the system.

PROGRAMMING SYSTEMS - Programming language - 1130 Assembler Language. Monitor system required - 1130 Monitor System, Version 2, of any memory size.

MINIMUM SYSTEM REQUIREMENTS - Those required for the 1130 Disk Monitor System. (The program occupies 378 words of core storage).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130000001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-00.6.002 *N
HIGH SPEED AND OVERLAP 1132 PRINTER ROUTINES FOR 1130 FORTRAN AND BAL USERS

AUTHOR: J. Scott

DIRECT TECHNICAL INQUIRIES TO:
J. Scott
Dept. of Mathematics
East Central State College
Ada, Okla. 74820

*** C 5321 - 03.4 - - - - - - - ***

DESCRIPTION - This print package gives the 1130 FORTRAN user the ability to print up to 112 lines per minute while overlapping with other functions. Use of these routines requires no program or monitor system changes. Programs are enabled by use of an EQUAT card. In addition, two more functions have been added. That of carriage control and carriage overflow is available to user. Included in this package is a modification of the IBM Type one PRNT2 control program which is faster than the original.

PROGRAMMING SYSTEMS - Written in BAL and operates under 1130-OS-005 Level four or higher.

MINIMUM SYSTEM REQUIREMENTS - Requires an 1132 Printer.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code and sample problem.

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Source code and sample problem.

ORDERING INFORMATION: PROGRAM NUMBER 1130000002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/000	28	none
		DTR 9/1600	29	none

1130-00.6.003 *N
PRNTZ - 1132 PRINTER OUTPUT SUBROUTINE

AUTHOR: J.O. Ernst

DIRECT TECHNICAL INQUIRIES TO:
J.O. Ernst
Northern Regional Research Lab.
Peoria, Illinois 61604

*** C 5506 - - - - - - - - - ***

DESCRIPTION - PRNTZ is an interrupt service subroutine written for an IBM 1130 Computing System. The PRNTZ subroutine replaces the original subroutine. This new PRNTZ provides the user with increased speed of operation by overlapping the printing of the line with other operations, and by improving the print scan section to minimize unnecessary print scans.

PROGRAMMING SYSTEMS - The IBM 1130 Disk Monitor system, Version 2, Program Number 1130-OS 005.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for an 1130 Disk Monitor System.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code, source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130000003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT

CONTINUED FROM PRIOR PAGE

BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-08.6.001 *N
DRAW AND PLOT SUBROUTINES

AUTHOR: B. P. Mayoff

DIRECT TECHNICAL INQUIRIES TO:
B. P. Mayoff
IBM Corp.
00 E. Lake St.
Chicago, Ill.

*** N - - 08.6 03.0 - - - - - ***

DESCRIPTION - DRAW is a generalized subroutine for plotting the smoothest straight line between two points. It requires as parameters the coordinates of the current pen location, P sub 1 and those of the second point, P sub 2. DRAW may be used by FORTRAN or SAP mainline programs and in turn calls the subroutine PLOT. PLOT is a basic subroutine which provides the programmer with a simple means of controlling the basic 1627 Plotter functions. Requiring as parameters the desired plotter function and the number of times to repeat the function, it can be of great use to the FORTRAN programmer. PLOT uses the IBM library subroutine PLOT1. Appropriate I/O equipment.

PROGRAMMING SYSTEMS - Written in 1130 Symbolic Assembly Language.

MINIMUM SYSTEM REQUIREMENTS - Basic 1130 with appropriate I/O equipment.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130006900

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

1130-00.6.002
DRAW AND PLOT SUBROUTINES

AUTHOR: B. P. Mayoff

DIRECT TECHNICAL INQUIRIES TO:
B. P. Mayoff
IBM Corporation
00 E. Lake Street
Chicago, Ill.

*** N - - 00.6 03.0 - - - - - ***

DESCRIPTION - DRAW is a generalized subroutine for plotting the smoothest straight line between two points. It requires as parameters the coordinates of the current pen location, P sub 1 and those of the second point, P sub 2. DRAW may be used by FORTRAN or SAP mainline programs and in turn calls the subroutine PLOT. PLOT is a basic subroutine which provides the programmer with a simple means of controlling the basic 1627 Plotter functions Requiring as parameters the desired plotter function and the number of times to repeat the function, it can be of great use to the FORTRAN programmer. PLOT uses the IBM library subroutine PLOT 1. This is the paper tape version of 00.1.001.

PROGRAMMING SYSTEMS - Written in 1130 symbolic Assembly Program Language.

MINIMUM SYSTEM REQUIREMENTS - Basic 1130 with appropriate I/O equipment.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130006902

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	PT	05	none
OPTIONAL	none	none		none

1130-08.7.001 *N
PRINTER GRAPHIC SUBROUTINE PACKAGE

AUTHOR: E.V. Osten

CONTINUED FROM PRIOR COLUMN

DIRECT TECHNICAL INQUIRIES TO:
E.V. Osten
Parks College Computation Center
Parks College
Cahokia, Illinois

*** C 5462 - 00.6 - - - - - - - ***

DESCRIPTION - The Graphic Subroutine Package provides output in the form of a rectangular-coordinate graph on any line printer or the console typewriter. (The logical unit is an argument.) It is much easier to use than the 1627 Plotter. Input data is in the form of tables-- a X vector, and a Y matrix which can be one or two dimensional. Up to nine dependent variables can be plotted against a base (or independent) variable. The graphic output program is contained in one subroutine which can be used alone if more versatility is desired. The user may then calculate the plot control parameters in his own program. Two math and one sort subroutines are of general application. All programs have detailed comments for each logical step to provide easy modification to suit the user. Several example programs are supplied to illustrate usage.

PROGRAMMING SYSTEMS - Written in 1130 DMPS and utilizes program 1130-OS-005 DM-V2.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for the 1130 Disk Monitor.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130007001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-11.0.001 *N
1030 DATA COLLECTION SYSTEM-DESIGN ASSISTANCE AND TERMINAL CONFIGURATOR PROGRAM

AUTHOR: P. J. Pacini

DIRECT TECHNICAL INQUIRIES TO:
P. J. Pacini
IBM Corp.
1204 State St.
LaCrosse, Wisc. 54601

*** N - - 10.0 23.0 27.0 - - - - ***

DESCRIPTION - This program was written to assist the systems engineer in the system design and terminal configuration of a 1030 Data Collection System. On-line, off-line and off-line packed card operations are provided for. Based upon nature of input transactions and characteristics of the peak-load period (time, number of transactions, setup time required), the following are calculated-

- Optimum number of terminals.
- Absolute minimum peak-load period with number of terminals required to achieve.
- Maximum transaction throughput possible in given peak-load period with number of terminals required.
- Maximum setup seconds per terminal to achieve minimum peak-load period or maximum transaction throughput.

Optionally, a detailed listing is produced exhibiting line or punch throughput capabilities and inherent setup time allowance to run at maximum rate. This listing encompasses all practical combinations of ready and non-ready terminals on a line.

PROGRAMMING SYSTEMS - Written in FORTRAN (Source).

MINIMUM SYSTEM REQUIREMENTS - 8K 1130 Disk Monitor System.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130110001

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

1130-11.1.001 *N
LEANS, LEHIGH ANALOG SIMULATOR

AUTHORS: S. M. Morris J. P. Schwer

DIRECT TECHNICAL INQUIRIES TO:

CONTINUED FROM PRIOR PAGE

J. P. Schwar
Lafayette College
Alumni Hall of Engr.
Easton, Pa.

*** B - - 16.8 43.2 - - - - - ***

DESCRIPTION - LEANS, developed at Lehigh University, simulates an analog computer on a digital machine. The program employs the block diagram technique. There is a full array of integrators, summers, constants, multipliers, etc. 100 blocks are permitted, which include- 33 integrators, 5 differentiators, one lag element, one function generator, logic elements, several FORTRAN supplied sub-programs and provisions for multiple runs. LEANS can easily be expanded for a larger machine configuration.

PROGRAMMING SYSTEMS - Written in FORTRAN IV; Operates under 8K Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - Those required by the 1130 8K Disk Monitor System.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130111001

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

1130-12.9.001 *M
PRENM - FORTRAN STATEMENT RENUMBERING PROGRAM FOR THE IBM 1130/1800

AUTHOR: W. T. Blessum

DIRECT TECHNICAL INQUIRIES TO:
W. T. Blessum
Calif. College of Medicine
Univ. of Calif., Irvine
Irvine, Calif. 92664

*** B - U028 00.0 03.2 06.5 - - - - ***

DESCRIPTION - PRENM is designed to produce statement-number-renequenced, decks and/or listings from FORTRAN IV source decks of up to 4000 cards and up to 2000 statement stacks, (2) Printing of converted program, (3) Suppression of punching of output program, (4) Conversion of 026 coded input to 029 coded output and (5) Printing of a table of old and new statement numbers. All statement number references on input cards must be on non-continuation cards for successful conversion; unsuccessful conversion results in an error message and automatic printing of the old/new statement no. table for later manual conversion. Monitor control cards are not allowed in the input.

PROGRAMMING SYSTEMS - Compiled and tested using 1130-OS-005 V2L3 and CSP V3. The program includes a mainline and six subroutine subprograms, all written in FORTRAN and uses commercial subs (CSP) MOVE, BCOMP, PACK, UNPAC, and STACK, and requires (to use) the 1130-OS-005 V2, L3 Monitor System.

MINIMUM SYSTEM REQUIREMENTS - 8K, card, read/punch, console printer, disk, and line printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130120001

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

1130-12.1.001 *M
FORTRAN CARD CODE SUBSET TO EBCDIC CODE CONVERSION SUBROUTINE

AUTHOR: W. E. Wagner

DIRECT TECHNICAL INQUIRIES TO:
W. E. Wagner
Hazeltine Corp., Research Div.
101 Fairchild Ave.
Plainview, New York 11003

*** C 1054 - 06.5 - - - - - - ***

DESCRIPTION - Subroutine CDEBC will convert IBM card code characters to EBCDIC codes within FORTRAN programs using

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IBM Subroutine Library routine HOLB.

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - Any 1130 configuration.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130121001

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

1130-12.1.002 *M
EXTND SUBROUTINE

AUTHORS: R. M. Boucher M. Kent

DIRECT TECHNICAL INQUIRIES TO:
R. M. Boucher
United Illuminating Co.
80 Temple St.
New Haven, Conn. 06505

*** C 1092 0001A 01.8 06.5 - - - - - ***

DESCRIPTION - The 1130 Assembler Language EXTND Subroutine is designed to convert normal precision real variables on disk storage to extended precision variables. Extended precision programs may read normal precision files using this subroutine. It provides a means for the user to mix normal precision and extended precision data computationally as well as making it possible to maintain integer accuracy for large (9 decimal places) sums or products of normal precision numbers. As of the submission date of this program, may be used on all available versions and modification levels of the IBM 1130 Disk Monitor System.

PROGRAMMING SYSTEMS - Written in Assembler Language; operates under 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - Those required by the 1130 Disk Monitor System.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130121002

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

1130-12.1.003 *M
DISK DATA TRANSFER UTILITY PACKAGE - 1130 SYSTEM/360 MODEL 44 2315 DISK CARTRIDGE COMPATIBILITY

AUTHORS: J. C. Wilson W. L. Hoyt

DIRECT TECHNICAL INQUIRIES TO:
J. C. Wilson
IBM Corp.
9000 Lincoln Blvd.
Los Angeles, Calif. 90045

*** B - - - - - - - - - ***

DESCRIPTION - The 1130/44 Disk Data Transfer Utility Package consists of two Assembler Language programs which allow IBM 1130 users to directly transfer data to IBM S/360 Model 44's for processing or printing. The transfer medium is the IBM 2315 Disk Cartridge, common to both systems. With this program package, 1130 users can apply a Model 44 for high speed printing and processing of large data files and for creating data sets to be processed by other S/360 processors.

PROGRAMMING SYSTEMS - Data is written on any attached 2315 by 1130 FORTRAN and Assembler Language programs using the supplied 1130 subroutine.

MINIMUM SYSTEM REQUIREMENTS - Operation requires an 1130 Disk Monitor System minimum configuration using CARDS and DISK1. The Model 44 program requires a Model 44 running 44 PS, Version 2, with two SDSD's or Version 3 with 2311 systems residence.

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

OPTIONAL PROGRAM PACKAGE - None.

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ORDERING INFORMATION: PROGRAM NUMBER 1130I21##3

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-12.1.### *M
ARRAL SUBROUTINE

AUTHOR: R. S. Havourd

DIRECT TECHNICAL INQUIRIES TO:
R. S. Havourd
United Illuminating Company
Temple Street
New Haven, Connecticut #65#6

*** C 1#92 ##I1 #6.5 #6.6 - - - - - ***

DESCRIPTION - The 1130 Basic FORTRAN ARRAL subroutine is designed to supplement routines in the IBM Commercial Subroutine Package where numeric input data contains the sign to the left of the high order significant digit and/or the decimal point is within the data field. It provides a means for the user to read in data in an undefined format and assign values to variables based on data contained within the card. (This feature provides the ability to "re-read" a card.)

PROGRAMMING SYSTEMS - Programming language - FORTRAN. Monitor system required - 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - The ARRAL subroutine was tested on an IBM 1130-2# using DM1, Ver. 6 and is believed to be usable on any system using RDCLIC and supporting FORTRAN statements supported by 1130 DM1.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130I21##4

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-12.1.##5 *M
1130 FILE CONVERSION PROGRAM, DISK MONITOR VERSION 1 TO DISK MONITOR VERSION 2 (FCOPY)

AUTHORS: K. A. Foster P. W. Eberman, Jr.

DIRECT TECHNICAL INQUIRIES TO:
P. W. Eberman, Jr.
IBM Corporation
Seven Penn Center
Philadelphia, Penn. 19103

*** M - - #5.4 #6.5 - - - - - ***

DESCRIPTION - This program was written to enable the 1130 user to easily and efficiently transfer (copy) disk data files from Disk Monitor Version 1 (DMV1) cartridges to Disk Monitor Version 2 (DMV2) cartridges on a two disk or larger IBM 1130 computing system. Without such a program the user has but two options in attempting to transfer his disk data files from DMV1 to DMV2 disk cartridges. He would either have to dump his DMV1 disk files into cards using the DMV1 Disk Utility Program (DUP) (or a program of his own) and then restore them on a DMV2 cartridge using the DMV2 DUP (or a program of his own); or he would have to reconstruct his files from scratch under DMV2.

PROGRAMMING SYSTEMS - Written in 1130 Assembler language (V2#0).

MINIMUM SYSTEM REQUIREMENTS - An 1130 CPU with 8K of core and integral disk drive, 1442-6 or 1442-7 Card Reader, and a 2310-B1 additional disk drive. The program can be easily modified to utilize the 2501 Card Reader, and it will utilize both drives in a 2310-B2 (if available) without modification. The transfer rate is approximately 8## sectors per minute.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130I21##5

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

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OPTIONAL none none none

1130-12.2.##1
1620 ASSIMILATOR FOR 1130

AUTHOR: G. A. B. Trollope

DIRECT TECHNICAL INQUIRIES TO:
G. A. B. Trollope
Hooker Chemical Corp.
P. O. Box 344
Niagara Falls, N. Y. 14302

*** G 1##5 - #6.6 #6.5 - - - - - ***

DESCRIPTION - The Assimilator Program is designed to convert 1620 FORTRAN, 1620 FORTRAN with Format, UTO FORTRAN, and PDG FORTRAN source decks to 1130 FORTRAN IV source decks and will be of value for 1620 FORTRAN II source decks. The program will convert the punch code, justify statements, convert I/O, sense switch and trace statements, and expand format statements to permit the insertion of carriage control characters if required. A Format specifications produce a warning message. Certain PDG statements are converted only to continue. The program requires the IDEAL subroutine pack, supplied, for convenience, in card system format. The program itself consists of a mainline program and one subroutine both written in 1130 FORTRAN IV and compiled and tested on the 1130 Disk Monitor System/Version 1, Mod Levels 1-5.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - 1131 Model 2 CPU with 8192 words of storage, console printer and disk storage, and a 1442 Card Read Punch. Optionally, an 1132 Line Printer may be used to obtain a listing of the original and/or the converted decks.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130I22##1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-13.6.##1 *M
STEP-WISE MULTIPLE REGRESSION PROGRAM

AUTHOR: Mason Rosenthal

DIRECT TECHNICAL INQUIRIES TO:
Mason Rosenthal
IBM Corp.
3## Market St.
San Francisco, Calif.

*** M - - 15.6 - - - - - - ***

DESCRIPTION - This program performs a step-wise regression analysis on up to 9999 sets of observations on one dependent variable and up to 29 explanatory variables. The program allows for nine types of algebraic transformations of original data. Output consists of means, standard deviations, simple correlation coefficients, and step-wise results. Step-wise results consist of the standard error of estimate, the multiple correlation coefficient, F, constant term, and regression coefficients and their standard deviations, students T/S, and beta coefficients. Output of residuals is optional.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 8K and 1130 Monitor FORTRAN features for compilation and execution.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130I36##1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-13.6.##2 *M
PROGRAM TO PLOT CONTOURS OF CONSTANT RESPONSE FOR THE DISK MONITOR 1130

AUTHOR: J. L. Tate

CONTINUED FROM PRIOR PAGE

DIRECT TECHNICAL INQUIRIES TO:
J. L. Tate
W. R. Grace & Co.
Dewey & Almy Chemical Div.
62 Whittemore Ave.
Cambridge, Mass. 02142

*** C 1191 0020a - - - - - - - ***

DESCRIPTION - This program will print contours of constant Y for a quadratic function of up to 20 independent variables (X) including all cross-products. It allows for specifying the X's on the axes and the ranges and increments of all X's and Y. It will print separate plots of all combinations of the X's not on the axes. The program is most useful in presenting the output of a regression analysis or in the pictorial representation of any quadratic mathematical model.

PROGRAMMING SYSTEMS - The program is written in FORTRAN IV and has been compiled and tested on an 1130 Model 2B using Disk Monitor System Version 7, Mod. 4.

MINIMUM SYSTEM REQUIREMENTS - 1131 8K, 1 disk drive, an 1132 Printer and a 1442 CRD.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130136002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-19.6.003 *M
MULTIPLE REGRESSION PROGRAM/1130

AUTHOR: D. S. Gardner

DIRECT TECHNICAL INQUIRIES TO:
D. S. Gardner
General Foods Technical Center
White Plains, N. Y. 10602

*** C 1150 - 12.1 45.1 - - - - - ***

DESCRIPTION - The MRP/1130 performs standard multiple regression computations on a set of data consisting of a maximum of 60 variables and 9999 observations with a residuals and predictions analysis optional to the user. This program was patterned after the Multiple Regression program for the 1620 (1620-01.6.043).

MRP/1130 can also be used to compute and output simple pairwise correlation coefficients in addition to regression problems. All results are stored in one permanent file which can easily be dumped and reloaded for future use. Model definition and variable manipulation are quite easily done.

PROGRAMMING SYSTEMS - All routines are written in FORTRAN, highlighted by subroutines to read data in free format and invert a matrix in place.

MINIMUM SYSTEM REQUIREMENTS - 8K 1130 with disk, card reader and printer, and 1130-OS-001, Version 2 Mod 4.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130136003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-13.7.001 *M
MULTIPLE RANGE TEST FOR CORRELATED AND HETEROSCEDASTIC MEANS

AUTHOR: Mrs. A. D. Hind

DIRECT TECHNICAL INQUIRIES TO:
Mrs. A. D. Hind
Dept. of Biometry
P.O. Box 923 MCV Station
Richmond, Va. 23219

*** F - - - - - - - - - ***

DESCRIPTION - This program performs a Multiple Range Test for a maximum of 15 correlated and heteroscedastic means. It has an option to input either the variance-covariance

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matrix of the estimates of the corresponding treatment means, or the number of replicates in each mean. The procedure used is described in D. B. Duncan's paper "Multiple Range Tests for Correlated and Heteroscedastic Means", Biometrics, 1957, Vol. 13, pages 164-168. The complete package consists of the mainline program, three subroutines and short supplementary program which stores the tables of 5% and 1% Significant Studentized Ranges, required by the main program, on disk.

PROGRAMMING SYSTEMS - Written in FORTRAN IV and has been compiled and tested on an 1130 Model 2B using Disk Monitor System Version 1, Model 5.

MINIMUM SYSTEM REQUIREMENTS - An 1131 CPU Model 2B with 8K words of core, 1 disk drive, an 1132 Printer and a 1442 CRD.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130137001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-15.1.001 *M
PURDUE SUPERMARKET MANAGEMENT GAME FOR THE 1130

AUTHOR: D. A. Nagan

DIRECT TECHNICAL INQUIRIES TO:
D. A. Nagan
IBM Corp.
1399 Franklin Ave.
Garden City, N. Y. 11530

*** M - - 15.5 38.2 27.8 29.8 - - - ***

DESCRIPTION - This program is a management game for 2 - 5 teams to play. Each team represents a supermarket competing in a common marketplace. There are twenty decision areas upon which each team may develop its own unique strategy. The game is an adaptation of a 7090 program and is written in FORTRAN IV.

PROGRAMMING SYSTEMS - Written in FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - An 1130 8K disk system with a 1442 Card Read/Punch and a 1132 Printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130151001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-15.1.002 *M
GASP II - GENERAL ACTIVITY SIMULATION PROGRAM

AUTHOR: P.J. Kiviat

DIRECT TECHNICAL INQUIRIES TO:
P.J. Kiviat
Simulation Associates, Inc.
1263 Westwood Blvd.
Los Angeles, California 90024

*** M - - 83.8 86.8 13.5 - - - - ***

DESCRIPTION - GASP II is a collection of FORTRAN IV functions and subroutines that provide the FORTRAN programmer with a discrete-event simulation capability.

PROGRAMMING SYSTEMS - Written in FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - The GASP II routines have been used successfully on 8K byte 1130 systems and on 1800 and 360 systems.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130151002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT

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BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

113#-15.2.#01 *#
HEURISTIC CORRUGATOR SCHEDULING PROGRAM

AUTHOR: F. Gunnersall

DIRECT TECHNICAL INQUIRIES TO:
F. Gunnersall
IBM Corporation
Monterey & Cottle Roads
San Jose, California 95114

*** # - - 15.6 23.1 28.1 - - - - ***

DESCRIPTION - The Heuristic Corrugator Scheduling Program schedules a box plant corrugator or combiner to produce rectangles of specified dimensions given customer order requirements, corrugator parameters, and roll stock inventory. The method employed is similar to that used by a human scheduler as orders are combined and tested and the best ones chosen. The advantage of the computer program is that it can try a lot more combinations in a shorter period than the human.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 8K card system, 1132 Printer and Disk Monitor System.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 113#152##1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

113#-15.2.##2 *#
LINEAR PROGRAMMING SYSTEM

AUTHOR: D. A. Duffield

DIRECT TECHNICAL INQUIRIES TO:
D. A. Duffield
IBM Corporation
540 E. Main Street
Rochester, New York 14604

*** # - - - - - - - - - - ***

DESCRIPTION - This set of 4 programs minimizes or maximizes a linear functional subject to a set of linear restrictions. The maximum problem size, assuming standard floating point precision is sufficient, is an N by N matrix where the product of N and N does not exceed 2340. The programs are written in FORTRAN and are easily modified for special purpose applications. This package is essentially a re-write and extension of 1620 "Linear Programming I."

PROGRAMMING SYSTEMS - Written in FORTRAN; operates under 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - 1130 Disk Monitor System with core size 8K, 192 words, output units used - 1132 Printer and/or typewriter, card/disk system.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 113#152##2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

113#-15.2.##3
ADVANCED 1130 CORRUGATOR SCHEDULING PROGRAM

AUTHOR: G. H. Hagan

DIRECT TECHNICAL INQUIRIES TO:
G. H. Hagan
IBM Corporation
Gateway Center
Pittsburgh, Pennsylvania 15222

*** # - - 23.1 - - - - - - ***

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DESCRIPTION - The 113# Corrugator Scheduling Program is designed to provide the corrugated paper box industry with an automated method of scheduling the machine which converts rolls of Kraft paper into corrugated container blanks. This machine is known as the "corrugator". The program accepts as input, orders (with their dimensional information) that a corrugated paper box manufacturer is preparing to produce, information on the available inventory of Kraft rolls, and certain operating costs and order profit data. From this input information, the program generates (using an advanced linear programming technique) the schedule which will maximize the box manufacturers profit for this group orders.

PROGRAMMING SYSTEMS - Linear Programming.

MINIMUM SYSTEM REQUIREMENTS -
- An 1131 Model 1B
- The 1132 attachment feature (feature no. 3616)
- The Expansion Adapter (feature no. 3854)
- A 1442 Model 6 or 7
- A 1442 attachment (feature no. 4454)
- An 1132 Printer
- A 2315 Disk Cartridge.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 113#152##3

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

113#-15.2.##4 *#
TRANSPORTATION PROGRAM FOR THE IBM 1130

AUTHOR: D. E. Madden G. Smith
B. Distler

DIRECT TECHNICAL INQUIRIES TO:
D. E. Madden
IBM Corporation
3424 Wilshire Boulevard
Los Angeles, California 90##5

*** # - - 37.2 - - - - - - ***

DESCRIPTION - This program solves the transportation problem, i. e., an optimal solution is obtained to a special class of linear programming problems where "surpluses exist at the originating sites (sources) and are to be transported to locations (destinations) with shortages." The mathematical method of solution is that developed by Ford and Fulkerson (Management Science 3 /1/- 24-32, October, 1956, and, solving the transportation problem, The Rand Corporation, P-895, June 28, 1956). The program is a FORTRAN version of the IBM 1620/ SPS/tape by Madden and Smith.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1130 Disk Monitor System, 8K, 1132 Printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 113#152##4

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

113#-15.2.##5
1130 BLENDING OF INITIAL FURNACE CHARGES

AUTHORS: B. S. Campbell D. W. Topp

DIRECT TECHNICAL INQUIRIES TO:
B. S. Campbell
IBM Scientific & Industry Dev. Center
388 Northwest Highway
Des Plaines, Illinois 6##16

*** # - - 23.# 25.# - - - - - ***

DESCRIPTION - The 113# Blending of Initial Furnace Charges program enables the user to calculate the least-cost initial charge of materials to be melted to given metallurgical and weight limits. It uses linear programming techniques to solve the problem of selecting an initial charge of material from an inventory of available raw materials in a manner that minimizes the total cost of the initial

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charge. This program is designed for the user who may not be familiar with the terminology and techniques of linear programming. Data files are developed for raw material specifications and for heat specifications. These files are maintained on a disk cartridge, providing the basis for a raw material inventory control system.

PROGRAMMING SYSTEMS - Written in FORTRAN and operates with the 1130 Disk Monitor System, Version 1 and LP-MOSS (1130-CO-16X), Version 1, Mod. 1.

MINIMUM SYSTEM REQUIREMENTS - An 1130 Model 2B, 8K core and single disk, 1442 Card Read Punch and 1132 Printer are required for this program. A 2315 Disk Cartridge must be dedicated to this program.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code, source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130152005

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-15.4.001 *N
CPM/PERT FOR IBM 1130

AUTHOR: J. W. Burgemon

DIRECT TECHNICAL INQUIRIES TO:
J. W. Burgemon
IBM Corporation
618 S. Michigan Avenue
Chicago, Illinois 60605

*** N - - 16.2 23.1 - - - - - ***

DESCRIPTION - The purpose of this program is to process network scheduling problems. It provides both basic critical path scheduling (CPM) and probability analysis (PERT). Modification instructions are included to facilitate conversion to other hardware. Features of the program include random node numbering, both activity-oriented and event-oriented PERT reporting, simplified coding for ease of modification, maximums of 999 events, 1000 jobs, multiple start and ending nodes permitted, bar chart report, optional pre-set project completion date and a network loop-catching error routine.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1130 system with card-reader and printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130154001

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

1130-15.4.002 *N
JOB SEQUENCE SCHEDULING AND OPTIMIZATION, TO SOLVE MINIMUM TIME OR MINIMUM DISTANCE PROBLEMS

AUTHOR: J. W. Burgemon N. O. Duke

DIRECT TECHNICAL INQUIRIES TO:
J. W. Burgemon
IBM Corporation
618 S. Michigan Avenue
Chicago, Illinois 60605

*** N - - 29.3 16.1 16.2 23.1 - - - ***

DESCRIPTION - This program, FORTRAN-coded, operates on an 8K card/disk 1130 system. Modification instructions are included to run on a 4K non-disk system. The program solves Heuristically the job sequence optimization problem (traveling salesman problem). The technique may be applied to problems of setup changes, flight planning, grade changes, panel wiring, routine, vehicle scheduling, pin assignment, etc.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 8K card/disk 1130 with printer.

BASIC PROGRAM PACKAGE

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130154002

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

1130-15.4.003
FORTRAN STUDENT SCHEDULING TALLY AND CONFLICT MATRIX

AUTHOR: Bernard F. Hayoff

DIRECT TECHNICAL INQUIRIES TO:
Bernard F. Hayoff
IBM Corporation
Chicago Datacenter
00 East Lake Street
Chicago, Illinois 60601

*** N - - 45.1 - - - - - - ***

DESCRIPTION - Tally and Conflict Matrix programs are functionally the same as Student Scheduling 9/360 Tally and Conflict Matrix. This will allow schools with an 1130 to do a large portion of their class scheduling at home. Tally provides a count of the number of boys and the number of girls requesting each course. These may, optionally, also be tallied by grade. Conflict Matrix points out potential conflicts by showing the number of students requesting any two specified courses. The programs help in preparing an efficient master schedule.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1130 8K disk.

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

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

ORDERING INFORMATION: PROGRAM NUMBER 1130154003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/1600	29	none
		DTR 9/800	28	none

1130-15.4.004 *N
IBM 1130 FORTRAN STUDENT SCHEDULING PROGRAMS

AUTHOR: G. Josephs Mrs. L. McCauley

DIRECT TECHNICAL INQUIRIES TO:
G. Josephs
IBM Corporation
211 Montague Street
Brooklyn, New York 11201

*** N - - - - - - - - - ***

DESCRIPTION - This set of 1130 FORTRAN coded programs can schedule 6,000 students based upon 1,000 available course sections of which 27% are different master class courses. Written in three disk-oriented programs, the first creates the disk master schedule file, the second creates the disk student request file, and the third schedules the student requests against the master schedule. A listing is produced for each scheduled student containing information about his scheduled classes and his seat number. The programs are easily modified to meet individual scheduling requirements. This includes increasing the number of students, class courses and sections, and changing the priority in which the students are scheduled into their requested courses. An optional program to print the master schedule showing room and final seat allocations is also included.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - CPU 1131-2A/4096 words with disk; 1442-6 Card Read/Punch and 1132 Printer. 1130 Disk Monitor System, Version 1.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130154004

PROGRAM NUMBER DISTRIBUTION MEDIUM USER VOLUME

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	EXTENSION	TYPE	CODE	REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-15.4.005 *H
MPCS - MODIFIED PROJECT CONTROL SYSTEM

AUTHOR: N. Nah

DIRECT TECHNICAL INQUIRIES TO:
N. Nah
General Foods Corporation
250 North Street
White Plains, New York 10652

*** C 1150 MPCS 06.1 - - - - - - - ***

DESCRIPTION - The modified set of PCS programs are designed for users of the IBM Project Control System who desire faster execution time on sorting and output. The output consists of the "schedule" and/or "bar chart" reports in calendar days. The modifications are stand alone programs to PCS and do not affect the IBM PCS package. The modifications should be stored on the same disk which contains the PCS package and can be executed after a normal exit from a network generation or updating run. Report runs are accomplished by executing the modified programs. Files created from a PCS run are input to the modifications. The mainline program can be linked to the other output reports offered in the PCS package with slight modification and can also be used on the S/360 PCS package.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 8K S/1130 with card reader and printer. 1130 Disk Monitor - Version 1.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130154005

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-15.4.006
PROJECT CONTROL SYSTEM CHECK ROUTINE

AUTHOR: P. D. Konwiser

DIRECT TECHNICAL INQUIRIES TO:
P. D. Konwiser
IBM Corporation
Real Estate and Construction Division
18 Rye Ridge Plaza
Port Chester, New York

*** F - - - - - - - - - ***

DESCRIPTION - The PCS check routine is a program to check for errors in Project Control System input data. It should be stored on each PCS disk and executed prior to network generation and update runs. The program can save considerable time lost because of errors. It checks for keypunch errors such as invalid card code, incorrect net ID, duplicate work items and node numbers, and incorrect durations. Card count and error count are given. On network generation runs, it will detect gaps in the network caused by missing work items or incorrect node numbers. The check routine is limited to CPM networks and numeric work items only.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN and the monitor system required is Disk Monitor Version 1.

MINIMUM SYSTEM REQUIREMENTS - 8K S/1130 with card reader and printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130154006

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-15.4.007 *H
N.E.L. CHART SCHEDULING PROGRAM

AUTHOR: H. Holler

DIRECT TECHNICAL INQUIRIES TO:
H. Holler
Wright Engineers Limited
1187 West Pender Street
Vancouver 1, B. C. Canada

*** C 7804 - 23.1 - - - - - - ***

DESCRIPTION - A critical path FORTRAN program suited to the 1130 and capable of producing not only the well known critical path tables giving early and late start and finish times, floats etc., but also three more items: A flowchart guiding the input and update data...a detailed barchart topologically equivalent to the flowchart with activity names coded in...a summary barchart for management use.

PROGRAMMING SYSTEMS - The program operates under the IBM 1130 Disk Monitor System, Version 2. Subroutine UNPAC from the 1130 Commercial Subroutine Package (1130-SE-25X) Version 2 is also required to be loaded on disk.

MINIMUM SYSTEM REQUIREMENTS - 1442/6 Card Read Punch, 1132 Printer and 1131 8K Processing Unit with single disk drive.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130154007

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-15.4.008 *H
1130-SK STUDENT SCHEDULING SYSTEM

AUTHOR: R. Prideaux

DIRECT TECHNICAL INQUIRIES TO:
R. Prideaux
c/o Computer Center
SUNY at Oswego
Oswego, New York 13126

*** C 1461 - - - - - - - - ***

DESCRIPTION - The Student Scheduling System consists of seven FORTRAN source programs. All programs are stored on the disk, enabling the user to execute only the programs he needs at a given time. The students to be scheduled are on the disk, and the actual schedule program allows the user to schedule all the students without intervention or to schedule only part of the students at a time. The system is set up to handle a maximum of 2### students, 639 courses, 3### sections, 8 requests per student, and 6 days (18 periods each) for classes. All the above limitations can be increased, and all the programs can easily be modified to satisfy certain individual needs (e.g. format changes). All possible schedules are tried for a student before giving him a conflict. The seven FORTRAN source decks, a deletion deck (containing a sample run) are available.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130154008

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-15.5.001 *H
PURDUE FARM SUPPLY CENTER MANAGEMENT GAME

AUTHORS: E.H. Babb L.P. Bohl

DIRECT TECHNICAL INQUIRIES TO:
E.H. Babb
Dept. of Agricultural Economics
Purdue University
La Fayette, Indiana 47907

*** B - - 15.1 27.8 - - - - ***

DESCRIPTION - The Purdue Farm Supply Center Management Game simulates the competitive market environment in which farm supply centers selling feeds, fertilizers and other agricultural inputs and purchasing grains compete. From one to eight teams can compete directly in a market (set).

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Each team (Center) makes 41 decisions which would normally be made on an annual basis such as price levels for products and services, quantity and quality discounts, hog and layer contracting, personnel, investment, facility expansion and orders. The game can be used to teach business planning techniques, economic and accounting principles or nature of the firm and industry.

PROGRAMMING SYSTEMS - Written in FORTRAN IV and contains 10 subroutines. Read and write statements have been written in variable form for easy adaption to other computer equipment.

MINIMUM SYSTEM REQUIREMENTS - An 1130 8K Disk System with a 1442 Card Reader/Punch and a 1403 Printer. Unused core is 6FF (HEX) words.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130155001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-15.5.002 *M
PURDUE SUPERMARKET MANAGEMENT GAME, 1969

AUTHOR: E.H. Babb

DIRECT TECHNICAL INQUIRIES TO:
E.H. Babb
Department of Agricultural Economics
Purdue University
Lafayette, Indiana 47907

*** M - - 15.1 27.0 27.1 - - - - ***

DESCRIPTION - This program simulates the market environment in which supermarkets compete for sales. From two to five teams (players) can compete directly in a market area (set). Each team makes 20 decisions which would normally be made or reviewed weekly. The game administrator can influence the market environment. The supermarket is departmentalized for produce, meat, groceries and dairy products. The game can be used to teach business planning techniques, economic and accounting principles or characteristics of the firm and the industry.

PROGRAMMING SYSTEMS - This game is written in FORTRAN IV and contains one main and six subroutines. Read and write statements have been written in variable form for easy adaptation to other computer equipment.

MINIMUM SYSTEM REQUIREMENTS - An 1130 8K Disk System with a 1442 Card Read/Punch and a 1403 Printer. Unused core is 792 (HEX) words.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130155002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-15.6.001
THE 1130 COMBINATORIAL ALGORITHM FOR LOSS MINIMIZATION

AUTHOR: G. E. Hagan

DIRECT TECHNICAL INQUIRIES TO:
G. E. Hagan
IBM Corporation
3301 Northwest Highway
Des Plaines, Illinois 60016

*** M - - 23.1 25.2 - - - - - ***

DESCRIPTION - The 1130 Combinatorial Algorithm for Loss Minimization is a program designed to determine all possible combinations of material that can be cut from one single piece of material while keeping waste or trim to a minimum. The program is presently set-up to handle up to 100 possible sizes that may be cut from 1 piece of material. The one hundred is an arbitrary number and may easily be expanded. The program produces all feasible solutions within an input parameter of waste allowed. If zero waste is allowed the program will output all feasible solutions.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

CONTINUED FROM PRIOR COLUMN

MINIMUM SYSTEM REQUIREMENTS - 1130 Disk Monitor System, an 1131 Model 2b, a 1442 Model 6 or 7, an 1132 Printer, a 2315 Disk Cartridge.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130156001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-15.7.001 *M
INVENTORY SIMULATOR - FORTRAN IV

AUTHOR: J. F. Plamman

DIRECT TECHNICAL INQUIRIES TO:
J. F. Plamman
IBM Corporation
101 E. Miller St.
Jefferson City, Mo. 65101

*** M - - - - - - - - - - ***

DESCRIPTION - This program, which allows the simulator options to be selected by means of a control card, is a modified version of the Modular Inventory Simulator, (1410-CS-03X or 1620-CS-00X, Version 1, Modification level 0). The concept of a BETA factor which expresses the relationship of mad and time has been included in this program. The use of an inventory simulator has proven to be a valuable technique for defining the objectives of an inventory system and for pre-testing the decision rules selected to accomplish these objectives.

PROGRAMMING SYSTEMS - Written in FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - Any system with FORTRAN IV Compiler and enough core.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130157001

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

1130-16.6.001 *M
STEEL DESIGN TABLE AND TABLE LOOK UP SUBROUTINE

AUTHOR: P. D. Spindel

DIRECT TECHNICAL INQUIRIES TO:
P. D. Spindel
IBM Corporation
112 E. Post Road
White Plains, New York 10601

*** M - - 06.4 16.2 39.3 - - - - ***

DESCRIPTION - This program loads table of steel section properties on the disk. An accompanying subroutine will search the table and retrieve the most economical (by weight) section. The following sections are included - wide-flange, light beams, American standard beams, bearing piles, junior beams, American standard channels, carbuilding and shipbuilding channels, junior channels and miscellaneous shapes. An accompanying demonstration program demonstrates the use of the subroutine and the table.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1130 4K disk, 634 words (AISCT subroutine), 35 sectors (steel table) of disk storage.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130160001

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

1130-16.2.001
PIER ANALYSIS

AUTHOR: T. T. Pai

DIRECT TECHNICAL INQUIRIES TO:
T. T. Pai
IBM Corporation
7321 N. Lake Street
River Forest, Ill.

*** N - - 17.0 - - - - - - ***

DESCRIPTION - This program is mainly intended for a quick and accurate pier analysis. The pier can have two to six columns, cannot have intermediate hinges. Otherwise, the program will operate without any limitations for either physical dimensions or loading possibilities. Any member or members may be prismatic, regularly haunched and tapered, or irregular. The footings may be continuous or isolated with variable degree of fixity at the base of each column. Loading may be the weight of the pier cap, any vertical or horizontal forces, or forces due to temperature change or shrinkage. The program may also be used to analyze a one to five span continuous beam with or without integral legs, since the height of any column or columns may be zero.

PROGRAMMING SYSTEMS - Written in FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - 8K 1130 with disk, card read punch and line printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130162001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-16.2.003 *M
RETAINING WALL DESIGN

AUTHOR: R. Vanderlyn

DIRECT TECHNICAL INQUIRIES TO:
R. C. Conner
Baker-Hibberley & Assoc., Inc.
Hagerstown, Md.

*** N - - - - - - - - - - ***

DESCRIPTION - The program Retaining Wall Design will design simple retaining walls with a minimum of input. A choice is offered between a partial design holding a specified toe or heel size, or complete design of section. Output includes concrete dimensions and amount of reinforcing required at critical locations. Alternate designs are provided if sliding test is not successful.

PROGRAMMING SYSTEMS - Written in FORTRAN under the 1130 Monitor System.

MINIMUM SYSTEM REQUIREMENTS - 1131 CPU 8K disk, 1132 Printer, 1442 Card Read/Punch.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130162003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	88	none
OPTIONAL	none	none		none

1130-16.2.004
TSOP/1130 VEHICULAR TRAFFIC CONTROL - TRAFFIC SIGNAL OPTIMAL PROGRESSION (TIME-SPACE-OFFSET)

AUTHOR: L. A. Yardeni

DIRECT TECHNICAL INQUIRIES TO:
L. A. Yardeni
IBM Corporation
1000 Westchester Ave.
White Plains, N.Y. 10604

*** N - - 13.0 - - - - - - ***

DESCRIPTION - The documentation of this program describes the basic concepts and operation and the input and output features employed in a computer program, which provides

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the traffic engineer with a tool for either the off-line design of traffic signal progressions for fixed-time control, or the on-line computation of control variables for real-time computer signal control. Weighted least-squares fit models or min-max deviations algorithms can be selected to derive linear uni-speed through bands for given volume requirements and within given limits of speeds and cycle times. Alternative algorithms for offset computation with three-phase design capability are also included in the program.

PROGRAMMING SYSTEMS - Written in FORTRAN IV for IBM 7040/90 IBSYS Monitor processing, in FORTRAN II-D for IBM 1620-40K with IBM 1311 Disk Monitor processing, in FORTRAN IV for the IBM System/360 and in IBM 1130 FORTRAN for the IBM 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1130 Card System with Disk file and 1130 Monitor System.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130162004

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-16.2.005
NON-COMPOSITE WELDED GIRDER DESIGN

AUTHOR: Claude Dimmette

DIRECT TECHNICAL INQUIRIES TO:
Claude Dimmette
David Volkert & Assoc.
5104 MacArthur Blvd.
Washington, D.C. 20016

*** N - - - - - - - - - ***

DESCRIPTION - Given a general description of the problem, the program determines the size of the girder; the thickness of flange plates; the flange plate lengths; the total weight of web plate and flange plates; the minimum width and thickness of longitudinal stiffeners at each twentieth point of span; the maximum spacing, minimum width and thickness of intermediate stiffeners at each twentieth point of span; the deflections due to the weight of steel, concrete, superimposed dead load, and live load, the maximum reaction; and the maximum stresses. A maximum of three plate sizes is provided for each of the top flange and bottom flange. The design provides for use of A7, A36, A373 and low alloy steels. The designer has the option of six solutions per problem, one solution for each of six different depths of web for one solution for each six different depths of web for one particular depth of web.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 8K 1131 CPU and a 1442 Card Read/Punch.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130162005

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-16.2.006
RECTANGULAR REINFORCED CONCRETE COLUMNS

AUTHOR: C. C. Dimmette

DIRECT TECHNICAL INQUIRIES TO:
C. C. Dimmette
David Volkert & Assoc.
5104 MacArthur Blvd.
Washington, D.C. 20016

*** N - - - - - - - - - ***

DESCRIPTION - Given a general description of the problem, the program computes the maximum steel stress, the maximum compression steel stress and all four corner concrete stresses in a rectangular or square reinforced concrete column with an eccentric axial load and outputs these stresses together with the allowable concrete stress, the percentage of steel used, and the distances to the center of gravity of the transformed compressive area from each

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axis.

Method - The criteria for design is in accordance with the formulas and specifications outlined in the A.A.S.H.O. Standard Specifications for Highway Bridges, Eighth Edition, and the Interim Specifications, 1962, 1963 and 1964.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - IBM 1130, 8K, printer, 1442 Card Read/Punch.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130\162\006

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-16.2.007
CURVED BRIDGE BEAM LAYOUT

AUTHOR: C. C. Dimmette

DIRECT TECHNICAL INQUIRIES TO:
C. C. Dimmette
David Volkert and Assoc.
5180 MacArthur Blvd.
Washington, D.C. 20016

*** N - - - 41.5 - - - - - - ***

DESCRIPTION - The purpose of this program is to compute the layout of stringers for a bridge on a horizontal curve. Stringers are to be placed so that interior stringers are always parallel to each other. Fascia stringers may be laid in accordance to one of three elective schemes which are parallels to the interior stringers, as many as possible parallel to the interior stringer or on chords of concentric circles. The program automatically attempts each of these fascia beam layouts in the sequence given, halting upon the first success. Data given as output consists of all dimensions, stations and angle information necessary to prepare a completely detailed stringer layout. No elevation information is given. The method of solution is based on an entirely self-contained, relative system. No coordinate geometry is used, whatsoever.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 8K 1131 CPU and 1442 Card Read/Punch.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130\162\007

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-16.2.008 *N
CUT AND FILL FOR CITY STREETS

AUTHOR: H. P. Coulter, Jr.

DIRECT TECHNICAL INQUIRIES TO:
H. P. Coulter, Jr.
IBM Corporation
711 Hillsboro Street
Raleigh, N.C. 27603

*** N - - - - - - - - - ***

DESCRIPTION - This cut and fill program calculates areas of cut and fill of each city street cross-section. It needs only sidewalk widths and curb elevations to calculate the points of a typical section for each cross-section. The program calculates the slope based on five different slope stakes with indications as to cut or fill at those points, as well as the volume of both cut and fill at those points, and the volume of both cut and fill between consecutive cross-sections with a running total of both cut and fill volumes between the first and last stations in a run. A listing is available of the points calculated for any cross-section.

PROGRAMMING SYSTEMS - Written in FORTRAN under the 1130 Monitor System.

MINIMUM SYSTEM REQUIREMENTS - 4K disk 1130.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130\162\008

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

1130-16.2.009 *N
ABUTMENT DESIGN

AUTHOR: H. J. Anderson, Jr.

DIRECT TECHNICAL INQUIRIES TO:
Victor R. Hamme
Buchart-Horn
Consulting Engineers
York, Pa.

*** N - - - - - - - - - ***

DESCRIPTION - Using a minimum of input the program makes a stability analysis for each of 8 permanent loading conditions, checking soil pressure and factor of safety against sliding and overturning for each condition. Then the program outputs footing dimensions and area and perimeter of steel required to satisfy all 8 loading conditions. The program then repeats this procedure for 8 temporary loading conditions. After this output is obtained, the program designs the tensions and compression steel for the stem.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN under the 1130 Monitor System.

MINIMUM SYSTEM REQUIREMENTS - An 8K disk system with an 1132 Printer and 1442 Card Read/Punch.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130\162\009

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

1130-16.2.010 *N
CIRCULAR REINFORCEMENT CONCRETE

AUTHOR: H. J. Anderson, Jr.

DIRECT TECHNICAL INQUIRIES TO:
Victor R. Hamme
Buchart-Horn Consulting Engineers
55 S. Richland Ave.
York, Pa.

*** N - - - - - - - - - ***

DESCRIPTION - Given a general description of the problem, the program computes the maximum bending moments with corresponding axial loads for a circular reinforced concrete column with given steel areas. This will be done on the basis of either cracked or uncracked section depending on the eccentricity. Output consists of moments, axial loads, and area of steel for each increment of percentage of steel increase and each increment of eccentricity increase.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN and requires 1130 Monitor System.

MINIMUM SYSTEM REQUIREMENTS - Program requires an 8K disk system with an 1132 Printer and 1442 Card Read/Punch.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130\162\010

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

1130-16.2.011
COGO WITH PLOT

AUTHOR: J. Holt

DIRECT TECHNICAL INQUIRIES TO:
J. Holt
IBM Corp.
3833 N. Fairfax Dr.
Arlington, Va. 22203

*** N - - 08.6 - - - - - - ***

DESCRIPTION - COGO with PLOT is an extension of 4K-COGO. In addition to the commands available in 4K-COGO, it includes commands for plotting straight lines, circular arcs, traverses, alphanumeric data, etc., plus other miscellaneous improvements. It is not necessary for the user to know anything about the 1130 Plotter routines to use the commands. The plot is first scaled and then plotted using data from the coordinate table or given with the plot commands. The program may easily be converted to paper tape. The capability is also provided to copy the coordinate table created by the IBM Type II COGO (1130-EC-02X) so that the data can be plotted with this program.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS -An 1130 Model 2B with a single disk drive, a 1442 or 2501 Card Reader, and a 1627 or equivalent plotter.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-16.2.011

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-16.2.012 *M
TEES AND ANGLES DESIGN TABLES

AUTHOR: T. E. James

DIRECT TECHNICAL INQUIRIES TO:
J. R. Dawson
Bethlehem Steel Corp.
B-175M
Bethlehem, Pa. 18016

*** M - - 06.4 07.3 - - - - - ***

DESCRIPTION - The "Tees and Angles Design Tables" is an 1130 FORTRAN program to load decks containing the AISC properties of Structural Tees, Double Angles and Single Angles to disk. The tables of theoretical dimensions and properties of sections limited by width-thickness ratios are then computed, stored, and printed for A36 steel for Structural Tees and Double Angles, and for A242, A440 and A441 steel for Double Angles. The tables created by this program will be useful to those who are designing trusses with a computer.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN and requires 1130 OS, (Ver 1 Mod 5).

MINIMUM SYSTEM REQUIREMENTS - Those required for 1130 OS.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-16.2.012

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-16.2.013 *M
STRESS MODIFICATION TO COMPUTE MEMBER SECTIONAL FORCES

AUTHOR: J. R. Dawson

DIRECT TECHNICAL INQUIRIES TO:
J. R. Dawson
Bethlehem Steel Corp.
B175M
Bethlehem, Pa. 18016

*** M - - 06.7 - - - - - - ***

DESCRIPTION - This modification to STRESS gives internal member forces at user specified equally spaced points along

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members of space or plane frames, and plane grids. The program is to be added to 1130 STRESS Version II and has been tested on Version I and II of the 1130 Monitor. To use the program it must be stored on the users STRESS disk and switch no. 6 turned on. Input cards are placed after the SOLVE card giving the number of sectional points at which forces are to be calculated along the member and telling for which of the members internal force calculations are to be made. Output is axial forces, shear forces, and moments at the member ends and the sectional points in member end coordinates.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN and requires 1130 OS, (Ver 1 Mod 5 or Ver 2 Mod 8).

MINIMUM SYSTEM REQUIREMENTS - Those required for 1130 OS.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-16.2.013

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-16.3.001 *M
1130 DYE SELECTION AND FORMULATION SYSTEM FOR COLOR MATCHING

AUTHORS: C.S. Ellis
V. Mathews
G. Stutz

DIRECT TECHNICAL INQUIRIES TO:
C. S. Ellis
IBM Corp.
427 East Morehead St.
Charlotte, North Carolina 28203

*** M - - - - - - - - - ***

DESCRIPTION - This system tells the dyer which dyes and how much of each should be mixed together to produce a desired color. Where several dyes can be blended to match a shade, keeping appropriate working properties, this technique can produce many alternate formulations (printed in ascending cost sequence), giving a potentially significant dye cost savings. The primary input to the system is reflectance data which describes the undyed material, the desired color, and the individual dyes. The total dye cost and certain quality parameters are provided with each formula, to help the colorists determine before an actual dyeing is made, the technical quality of each predicted matching formula.

PROGRAMMING SYSTEMS - Written in Basic FORTRAN IV and machine language.

MINIMUM SYSTEM REQUIREMENTS - 8K 1130 with disk and printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-16.3.001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-16.3.002 *M
COLORANT DATA PLOTTER

AUTHOR: E. L. Stutz

DIRECT TECHNICAL INQUIRIES TO:
E. L. Stutz
IBM Corporation
P. O. Box 3525
Charlotte, N. C. 28203

*** M - - 17.3 - - - - - - ***

DESCRIPTION - The purpose of this program is verification of primary colorant data used in color matching programs such as the Type III 1130-16.3.001. The program produces a graph of K's. (K)s is a mathematical expression of the characteristics of a color and is a function of the percent of reflected light incident upon a colored sample vs. wavelengths of light within the visible spectrum. These curves of K's vs. wavelength are produced for up to nine concentration levels of a primary colorant and can be analyzed for accuracy. Also produced is a plot of K's vs. concentration at the point of maximum absorption, which should approach a linear relationship, and which can be

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analyzed for linearity as well as for accuracy.

PROGRAMMING SYSTEMS - Programming language is (Source) FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1130, disk, 1442, and either typewriter of 1132 Printer output.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130163##2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-16.4.##1 *N
SHORT CIRCUIT ANALYSIS

AUTHOR: G. Haralampu

DIRECT TECHNICAL INQUIRIES TO:
G. Haralampu
New England Electric System
441 Stuart St.
Boston, Mass.

*** C 1#41 PG39 - - - - - - - - ***

DESCRIPTION - This program is to be used for the determination of currents, voltages and driving point impedances during three phase faults. Complex impedance networks are used. Line-out conditions and line-end faults are optional. Restrictions are 2## busses (49 of which are reserved for radial circuits only), and 3## lines. Negative impedances and parallel lines are not allowed. Program consists of 21 subroutines and a main program.

PROGRAMMING SYSTEMS - Written in FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - IBM 1130, 8K, and a disk drive.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130164##1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-16.4.##2 *N
OVERLOAD RATINGS OF 65 DEG C RISE TRANSFORMERS

AUTHOR: E. M. Gulachenski

DIRECT TECHNICAL INQUIRIES TO:
E. M. Gulachenski
New England Electric System
441 Stuart St.
Boston, Mass. 02116

*** C 1#41 PG84 - - - - - - - - ***

DESCRIPTION - This program will calculate the normal and/or emergency rating of 65 degrees C rise transformers given the transformer nameplate data, manufacturers test results, and the shape of the 24 hour load cycle. The calculated ratings are based on a permitted loss of life which is specified in the input.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 8K, 1442 Card Read/Punch, a 1132 Printer, one disk.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130164##2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-16.4.##3 *N
THREE WINDING TRANSFORMER RATING PACKAGE

AUTHOR: E. M. Gulachenski

DIRECT TECHNICAL INQUIRIES TO:
E. M. Gulachenski
New England Electric System
441 Stuart St.
Boston, Mass. 02116

*** C 1#41 PG56 - - - - - - - - ***

DESCRIPTION - The package consists of three programs and two subroutine programs that will calculate the ratings of the following types of three winding transformers.

- Autotransformers with loaded tertiary windings.
- Transformers with low voltage auto windings.
- Three separate winding transformers.

The calculated rating can be based on the maximum value of hottest spot copper temperature attained during a 24 hour load cycle, or on a specified value of 24 hour loss of life. The input consists of the transformer nameplate information and test data, and the shapes of the 24 hour load cycles for two of the three windings together with a specified peak load for one of these windings.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1130 with 8K memory, one disk, a 1442 Card Read/Punch, a 1132 Printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130164##3

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-16.4.##4
ELECTRIC POWER SYSTEM LOAD FLOW PROGRAM

AUTHOR: L. D. Willis

DIRECT TECHNICAL INQUIRIES TO:
L. D. Willis
IBM Corp., Public Utilities Industries
Monterey & Cottle Roads (Bldg. #25)
San Jose, California 95114

*** N - - 17.1 24.2 - - - - - ***

DESCRIPTION - The program produces the results of a performance calculation on an electric power system under load. These results specifically include the power and reactive flows in transmissions lines and other facilities. The Nodal Iterative method is used, providing great flexibility in progressing from case to case in power system planning and operating studies. Extensive user oriented features are provided, so that the burdens of data preparation and answer interpretation are reduced to a minimum.

PROGRAMMING SYSTEMS - The program is written in Assembler Language. The program is run under 1130 Disk Monitor Version 2.

MINIMUM SYSTEM REQUIREMENTS - CPU 1131-1B (8192 words w/disk), Card Read/Punch 1442-6 or 7, Output on console typewriter or optional printer (1132).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130164##4

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-16.4.##5 *N
TRANSFORMER RATING FOR NORMAL AND EMERGENCY OPERATION WITH COMPLEX LOAD CYCLES

AUTHOR: E. M Gulachenski

DIRECT TECHNICAL INQUIRIES TO:
E. M. Gulachenski
New England Electric System
441 Stuart St.

CONTINUED FROM PRIOR PAGE

Boston, Mass. 02116

*** C 1841 PG62 - - - - - - - - ***

DESCRIPTION - This program will calculate the normal and emergency rating of a transformer based on the shape of the 24 hour load cycle, a given 24 hour average ambient temperature, and the physical and electrical properties of the transformer as determined from the nameplate and the manufacturers test report. The calculated rating can be based on a specified maximum hottest spot copper temperature or on a given loss of life for a 24-hour period. Both types of ratings can be obtained by using the same set of data, and the results are printed out and labeled accordingly.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1130 with 8K memory and one disk, a 1442 Card Read/Punch, and an 1132 Printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-164-005

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTB*	09	none
OPTIONAL	none	none		none

1130-16.4.006
CALCULATION OF ELECTRICAL DISTRIBUTION SYSTEM FAULT CURRENTS

AUTHOR: E. P. McLean Jr.

DIRECT TECHNICAL INQUIRIES TO:
E. P. McLean Jr.
E. P. McLean Engineering Co.
S. Main St.
Moultrie, Ga.

*** M - - 17.0 - - - - - - ***

DESCRIPTION - This program is designed to compute line-to-line, three-phase and line-to-ground maximum, as well as line-to-ground minimum fault currents on radial distribution systems. Computations utilize a table of "R" and "X" values for the appropriate wire sizes. The program has also provided for the use of certain mixed conductors. If a line section contains mixed conductors, the maximum fault currents are calculated based on the largest size conductor and the minimum fault currents are calculated based on the smaller size conductors.

The program will accommodate up to 65 line segments of single-phase, 40 line segments of two-phase (must be in first 04 sections computed), and 30 line segments of three-phase (must be in first 35 sections computed). Calculations can be made for two different transformer sizes and source fault current values during the same pass. For instance, the maximum calculations could be based on zero source impedance and a transformer capacity of 10,000 KVA while, at the same time, minimum line to ground calculations could be based on a known value of average fault current on the high side of the transformers and a smaller transformer capacity. A fault impedance of 05.00 OHMS has been assumed for minimum line to ground faults.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - A 4K 1130 with paper tape reader and punch is required.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-164-006

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	PT	05	none
OPTIONAL	none	none		none

1130-16.4.007 *M
TRANSIENT STABILITY - 12 MACHINES

AUTHOR: R. G. Bigelow

DIRECT TECHNICAL INQUIRIES TO:
R. G. Bigelow
New England Electric System
441 Stuart St.
Boston, Mass. 02116

*** M - - 40.0 - - - - - - ***

CONTINUED FROM PRIOR COLUMN

DESCRIPTION - This program will calculate swing curves (generator phase angle as a function of time) for a system of up to 40 buses and 12 generators.

PROGRAMMING SYSTEMS - Written in FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - 8K 1130, disk drive.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-164-007

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTB*	09	none
OPTIONAL	none	none		none

1130-16.4.008 *M
ELECTRONIC CIRCUIT ANALYSIS PROGRAM

AUTHOR: J. R. Kemp

DIRECT TECHNICAL INQUIRIES TO:
J. R. Kemp
IBM Corp.
200 Spackman Dr.
Huntsville, Ala. 35805

*** M - - - - - - - - - ***

DESCRIPTION - This program (modification of 1620 ECAP) permits operation of 1620 ECAP on the 1130. All options and control functions have been retained allowing 1620 ECAP programs to operate with no modification or re-programming. The well documented 1620 ECAP manual is the basic documentation for this program. Documentation included with this program will point out minor changes in operator procedure.

PROGRAMMING SYSTEMS - The source language has been modified from FORTRAN II-D to FORTRAN IV with normal precision.

MINIMUM SYSTEM REQUIREMENTS - Configuration consists of an 1131-2B, 1132, 1442 Card Read/Punch.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-164-008

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTB*	09	none
OPTIONAL	none	none		none

1130-16.4.009
ELECTRIC POWER SYSTEM LOAD FLOW

AUTHOR: J. R. Kissner

DIRECT TECHNICAL INQUIRIES TO:
J. R. Kissner
The Potomac Edison Co.
Downsville Pike
Hagerstown, Md. 21740

*** C 1559 - - - - - - - - ***

DESCRIPTION - This revision of the "IBM 1130 Electric Power System Load Flow" programs "LFOUT" and "SSOUT" modifies the line spacing in the line-transformer report and permits selection of one or more systems of the network for output. This is advantageous when change cases involve only a small portion of the network. The original programs are in Assembler and revisions have been made on a copy of the original source deck. The revised programs have been assembled using 1130-OS-001, (Modification Level 4). System selection for output is via the first card of the case description which also is listed on every page of output. Printer versions only. Two new programs are provided to preserve a base case and retrieve it for later use. A program to store base case voltage and MW flow in the area formerly reserved for line ratings 3 and 4 now permits listing MW and voltage change from the base case.

PROGRAMMING SYSTEMS - Written in Assembler Language using 1130-OS-001. These revisions are compatible with DM2 and have been tested with the 1969 release of the Load Flow package.

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

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OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#164#09

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-16.4.#10 *M

EDIT PROGRAM FOR 1130 LOAD FLOW DATA CARDS

AUTHOR: Mr. M. G. Meyer

DIRECT TECHNICAL INQUIRIES TO:
Mr. M. G. Meyer
Union Electric Co.
Code 651
P. O. Box 149
St. Louis, Missouri 63166

*** C 3614 EDIT - - - - - - - - ***

DESCRIPTION - The purpose of this program is to perform off-line editing and error-checking of data cards for the 1130 Load Flow Program. It consists of a mainline program and twenty-four subprograms. The program checks both the format of the individual data cards and the order in which they appear in the data deck. It will edit data cards for a change case either immediately after a base case data deck or independently. Upon data switch option, it will either list all data cards as it edits or list only those cards which are in error (marked with asterisks).

PROGRAMMING SYSTEMS - Written in FORTRAN except for the input and output subroutines which are written in Assembler Language to achieve overlapping.

MINIMUM SYSTEM REQUIREMENTS - 1130 Model 2B.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#164#10

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-16.4.#11 *M

ZERO-SEQUENCE SHORT-CIRCUIT ANALYSIS

AUTHOR: Mr. R. G. Bigelow

DIRECT TECHNICAL INQUIRIES TO:
Mr. R. G. Bigelow
New England Power Service Co.
441 Stuart St.
Boston, Mass. #2116

*** C 1141 PG91 - - - - - - - ***

DESCRIPTION - This program calculates the per unit values of "Ground" or "Residual" currents for single-phase-to-ground faults. It also calculates zero-sequence impedance at the point of fault. Calculations are made with complex impedances and include the effects of mutual impedances between branches. The program will handle a zero-sequence network with up to 199 buses and 366 items in the branch table. The branch table contains one item for each branch including sources in the network and two items for each mutual impedance.

PROGRAMMING SYSTEMS - Requires 1130 OS (Version 1).

MINIMUM SYSTEM REQUIREMENTS - 1130, 8K memory, disk.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#164#11

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-16.4.#12 *M

1130 LOAD FLOW CARD DUMP AND RESTORE

AUTHORS: P. J. Candora R. W. Page

CONTINUED FROM PRIOR COLUMN

R. H. Boucher H. McCormack
M. Kent

DIRECT TECHNICAL INQUIRIES TO:
M. M. Boucher
United Illuminating Co.
#8 Temple St.
New Haven, Conn. #6506

*** C 1#92 ##2#A- - - - - - - ***

DESCRIPTION - This package consists of two programs which supplement the IBM 1130 Load Flow Program. These programs provide the ability to store solved load flow cases in card form. This permits the user to start with this "saved" case at some later time and proceed to run a series of change cases. Only the required files in working storage are dumped.

PROGRAMMING SYSTEMS - Written in Assembler Language and requires 1130 Disk Monitor, (Version 1, Modification Levels 3 and 6).

MINIMUM SYSTEM REQUIREMENTS - 1131 Control Processing Unit Model 2B (8K, disk), and 1442 Card Reader/Punch.

NOTE - Modification of the starting address of working storage as a result of dup operations between the dump and restore operations is allowed.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#164#12

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-16.5.#02 *M

MECHANICAL TOLERANCE ANALYSIS PROGRAM (MTAP)

AUTHOR: J.F. Scudder

DIRECT TECHNICAL INQUIRIES TO:
J.F. Scudder
Kodak Apparatus Division
981 Elmgrove Road
Rochester, New York 14650

*** M - - 16.5 24.2 - - - - - ***

DESCRIPTION - MTAP is the name for a computer program that enables the user to evaluate the effects of tolerance build up in mechanical assemblies. The user describes the mechanism to the computer in a language familiar to the designer or engineer. Types of analysis available are nominal, sensitivity, variance, worst case and Monte-Carlo. Levers or other mating parts can be located against flat surfaces, points, or by radii against points. Cam surfaces defined as a series of line segments can be translated to points, and levers can be positioned against cam surfaces to represent non-linear mechanical configurations. Although the program is two dimensional, three dimensional problems can be analyzed by evaluating in each of two perpendicular planes.

The program is useful to designers for establishing tolerances, and for evaluating the expected performance of the product prior to production. Once a product is in production, it is useful for evaluating the effect of design changes.

PROGRAMMING SYSTEMS - The program is written in 1130 FORTRAN, and the input utilizes PLAN (1130-CX-25X) which in turn operates under the 1130 Disk Monitor, Version 2 (1130-OS-#05).

MINIMUM SYSTEM REQUIREMENTS - An 8K 1131 with single disk, 1442 Card Read/Punch - Model 6 or 7 and 1132 Printer. A 1627 Plotter and 1403 Printer are optional. A 16K 1131 is highly recommended since conversion to 8K cuts capacity by 65%.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130#165#02

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-17.3.001 *N

QUICK, A FORTRAN IV PROGRAM FOR THE ASTRAZON RAPID DYEING METHOD

AUTHORS: R. Kuehni Mrs. Lois Windhorst

DIRECT TECHNICAL INQUIRIES TO:
R. Kuehni
or
Mrs. Lois Windhorst
Verona Dyestuffs
Springfield Road
Union, New Jersey

*** N - - 23.0 24.0 - - - - - ***

DESCRIPTION - The Astrazon Rapid Dyeing Method makes possible the calculation of the optimal amount of the cationic retarder for the dyeing of acrylic fibers to insure levelness and economy. It also provides for the calculation of the Safe Starting Temperature, which is the temperature up to which the dyebath can be heated very rapidly without danger of unevenness.

The complete line of Astrazon dyestuffs plus a range of 24 different acrylic fibers are considered in the program.

PROGRAMMING SYSTEMS - Written in FORTRAN IV and requires the Disk Monitor System Version 1, Mod 7.

MINIMUM SYSTEM REQUIREMENTS - IBM 1131 Model 2S CPU (8K, disk), IBM 1442 Card Read Punch, IBM 1132 Model 1 Printer (optional) and Floating Point Arithmetic.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code, source code, and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130173001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-17.3.002 *N

GENERAL PURPOSE CHROMATOGRAPH PEAK INTEGRATION PROGRAM

AUTHOR: K. J. Burkhardt, Jr.

DIRECT TECHNICAL INQUIRIES TO:
K. J. Burkhardt, Jr.
American Cyanamid Co.
Bound Brook, New Jersey

*** C 1039 - 04.0 16.3 23.5 - - - - ***

DESCRIPTION - The output from a vapor phase chromatograph rarely represents any desired analysis information directly. A chromatogram is a graph of voltage verses time where the areas and positions of resultant peaks are a function of the qualitative and quantitative structure of a sample. The conventional manual procedures for integrating these recorder peak areas are both time consuming and extremely inaccurate. If this peak data can somehow be converted to a digital form, this program can integrate these peaks with greater speed and accuracy.

PROGRAMMING SYSTEMS - Written entirely in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - None on any 1130 with at least 8K core, a 1442, and 1331 CPU with Disk.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130173002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-17.3.004 *N

FAST

AUTHOR: J.E. Watters, Jr.

DIRECT TECHNICAL INQUIRIES TO:
J.E. Watters, Jr.
BASF Corporation
Charlotte, N.C.

*** N - - 23.0 - - - - - - ***

DESCRIPTION - "FAST" a FORTRAN program for the Defithern

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Process. The major cause of unevenness in the dyeing of acrylic fibers is the presence of temperature differences in the dyebath during the heating-up phase. In the Defithern Process the exhaustion rate of Basacryl dyes is controlled thermally to ensure production of level dyeings. To accomplish this, dyeings must be controlled at a certain temperature which is dependent on the following: Dyestuff, Shade Depth, Fiber, Dyeing Equipment. It is the purpose of "FAST" to determine this dyeing temperature in addition to the amount of Thermoregulator (Defithermol TB) required. Because of the best exhaustion rate for various dyeing equipment must be determined empirically, the program does compute this variable but allows the dyer the option of selecting a dyeing time of 15, 30, 45, 60, 90, or 120 minutes. In this manner the dyer can optimize on the time parameter basing his decisions on cost and the available dyeing equipment.

The single input card to the program includes dyestuff numbers and corresponding concentrations for a given formula. The desired dyeing time may also be selected on this card.

PROGRAMMING SYSTEMS - Written in FORTRAN and operates using the 1130 Disk Monitor.

MINIMUM SYSTEM REQUIREMENTS - 8K 1130, 1442 Card/Read Punch, Disk, 1132 Printer, System may be operated without benefit of the 1132 Printer by changing the variable NOUT in the Mainline program to a 1 rather than 3. Core Requirements - Common 240, Variables 198, Program 1236. Disk Requirements - Sectors 15.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130173004

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-17.6.001 *N

AUTOMATED TEST CORRECTION AND ITEM ANALYSIS PROGRAM FOR SCORING AND COMBINING EXAMINATIONS - RADIP

AUTHORS: W. T. Blessum B. Jo Anne Coffman
W. Tyler J. van Wormer

DIRECT TECHNICAL INQUIRIES TO:
W. T. Blessum
California College of Medicine
University of California, Irvine
Irvine, California 92664

*** N - P0014 13.1 22.4 24.1 - - - - ***

DESCRIPTION - RADIP is a program for processing objective tests. The two principle types of processing performed are scoring and combining. In the scoring operation, student answers which have been entered on preperforated "port-a-punch" cards are read through a standard card reader along with key cards containing correct answers and scoring formulas. Item analysis is performed for each of the up to nine test parts for up to 35 questions per part. In addition, raw scaled, and percent scores as well as percentile rankings are punched and/or printed for each student. For systems with 1627 Plotters, histograms and smoothed frequency distribution curve of score are produced.

In the combining operation, score cards produced for students from previous scoring operations for up to nine separate tests, each of which can be assigned a distinct relative weight, are combined to produce a single combined score for each student and frequency distributions plotted.

PROGRAMMING SYSTEMS - FORTRAN IV for the 1130 is used throughout. The system operates under 1130 OS. The programming system is designed as a single mainline program with 12 "LOCAL" subroutines; no permanent disk files are utilized in the system.

MINIMUM SYSTEM REQUIREMENTS - 8K 1130 with card read/punch, console printer, keyboard and line printer; a 1627 Plotter is optional.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130176001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-17.6.002 *N
1130 RAW SCORE TEST ANALYSIS PROGRAM

AUTHOR: Dr. C.J. Brenner

DIRECT TECHNICAL INQUIRIES TO:
Dr. C.J. Brenner
Computing Center
Stout State University
Menomonie, Wisconsin 54751

*** N - - 13.0 13.1 - - - - - ***

DESCRIPTION - The 1130 Raw Score Test Analysis Program is a mainline FORTRAN IV routine which is designed to accept punch card output from the IBM 1230 Optical Mark Scoring Reader and 534 Keypunch and then execute a complete raw score analysis. Each group of input data corresponds to the tests administered in a given class. From this data a summary output is produced which gives each subject's student number, raw score, percent correct, class rank, percentile rank, Z-score, and T-score. In addition the total number of points possible on the test, the number of tests scored, the mean and standard deviation, as well as other identifying information are printed. Also available on option is output in the form of a frequency distribution of raw scores with a corresponding graph outputted on the 1132 Printer.

PROGRAMMING SYSTEMS - Written in mainline FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - 8K - 1131 CPU with Disk, 1442 Card Read Punch, 1132 Printer, IBM 1230 Optical Mark Scoring Machine, IBM 534 Card Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code, sample problem and control cards.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130176002

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

1130-17.6.003 *N
1130 TEST ITEM ANALYSIS PROGRAM

AUTHOR: Dr. C. J. Brenner

DIRECT TECHNICAL INQUIRIES TO:
Dr. C. J. Brenner
Computer Center
Stout State University
Menomonie, Wisconsin 54751

*** N - - 13.0 13.1 - - - - - ***

DESCRIPTION - This program is designed to accept punch card output from the IBM 1230 Optical Mark Scoring Machine and 534 Keypunch and then execute a complete item analysis for the test. Each group of input data corresponds to the tests administered in a given class. The item statistics produced from this data include the percentage of people answering A, B, C, D, E, or omitted for each test item, the correct answer for each item, difficulty index for each item, item variance, and item correlation. In addition to the item statistics, overall test summary statistics of Mean, Standard Deviation, Kuder-Richardson 20 Test reliability, and Standard Error of Measurement are produced. Through the use of the statistics produced by this program, classroom teachers should be able to improve the test items included in their examinations, and thus increase the reliability of the tests that they use in the classroom.

PROGRAMMING SYSTEMS - The 1130 Test Item Analysis Program is a mainline FORTRAN IV routine which utilizes one subroutine.

MINIMUM SYSTEM REQUIREMENTS - 1130 2K with 1 disk drive; 1132 Printer, 1442 Card Read/Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130176003

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

1130-17.6.004 *N
APGRD A PROGRAM TO GRADE AND ANALYZE MULTIPLE CHOICE QUIZZES

AUTHORS: Mrs. Arlette L. Puckett Dr. T. Ray Manney

DIRECT TECHNICAL INQUIRIES TO:
Dr. T. Ray Manney
Computer Center
Furman University
Greenville, S.C. 29613

*** N - - - - - - - - - ***

DESCRIPTION - This program grades and analyzes multiple choice quizzes. Students indicate their answers on commercially available mark sense cards which are subsequently processed using a 514 Reproducing Punch having the Mark Sense feature. Quizzes having up to 150 questions can be graded for a maximum of 200 students. For each student the program gives the number of questions wrong, the number right, the percent right, and a list of the questions missed. For each question the analysis portion of the program tabulates the number and proportion of students giving a particular answer and calculates a difficulty and discrimination index. For the class the mean score and standard deviation are calculated, and a histogram is printed.

PROGRAMMING SYSTEMS - The program is written in 1130 FORTRAN and requires Version 2 of the Disk Monitor System, the Commercial Subroutine Package, Version 3, and the Scientific Subroutine Package.

MINIMUM SYSTEM REQUIREMENTS - Two versions of the program are supplied, one for 8K core and the other for 16K core. A 514 Reproducing Punch having the Mark Sense feature, or its equivalent is also required.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130176004

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-19.6.001 *N
DEPRECIATION ANALYSIS PROGRAM - SIMULATED PLANT RECORD BALANCES.

AUTHOR: W. D. Garland

DIRECT TECHNICAL INQUIRIES TO:
W. D. Garland
New England Electric
441 Stuart St.
Boston, Mass. 02116

*** N - - - - - - - - - ***

DESCRIPTION - This program performs the iterative "trial and error" calculations of the simulated plant record method developed by Alex. M. Bauhan (CF. Methods of Estimating Utility Plant Life, Edison Electric Institute, 1952). The analysis method applies empirical survivor dispersions to the adjusted gross additions history of a plant account to produce a series of simulated account balances which would have occurred had plant activity actually followed the given patterns while realizing specific average lives. For each dispersion pattern, the program derives that average life which satisfies programmed criteria regarding the "FIT" of the simulated balances to actual book balances. After all desired dispersions have been tried for an account, a summary of results is produced showing average service life, an index of conformance of simulated to book balances, an index of the extent of retirement experience, and a relative ranking of the results with respect to "Closeness of FIT" to the account balances.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - IBM 1130 (8K), card-reader-punch, disk, printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130198001

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

1130-19.0.002 *M
LOAD DISK WITH SURVIVOR DISPERSION DATA FILES

AUTHOR: W. D. Garland

DIRECT TECHNICAL INQUIRIES TO:
W. D. Garland
New England Electric
441 Stuart St.
Boston, Mass. 02116

*** M - - $6.0 - - - - - - ***

DESCRIPTION - The primary purpose of the program is to read dispersion data from card input (checking ID and card sequence) and to write a disk file for storage in the user area via the disk utility program *STORDATA. The program can also be used to rewrite a file directly in the user area in order to correct file content.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - IBM 1130 (8K), card-reader-punch, disk.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130190002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-19.0.003 *M
PRINT DISPERSION DATA FILE FROM USER AREA

AUTHOR: W. D. Garland

DIRECT TECHNICAL INQUIRIES TO:
W. D. Garland
New England Electric
441 Stuart St.
Boston, Mass. 02116

*** M - - $6.0 - - - - - - ***

DESCRIPTION - This program will access an externally equated user area Dispersion Data File and print the contents in a formated listing on the on-line printer.

NOTE- To store data files on disk, use "Load Disk with Survivor Dispersion Data Files". Program order number 1130-19.0.002.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - IBM 1130 (8K), card reader-punch, disk, printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130190003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-19.0.004
FACIN - PROGRAM FOR THE ANALYSIS OF CAPITAL INVESTMENT

AUTHOR: H. C. Kalnitz

DIRECT TECHNICAL INQUIRIES TO:
H. C. Kalnitz
IBM Corporation
2651 Strang Blvd.
Yorktown Heights, N.Y.

*** M - - - - - - - - - ***

DESCRIPTION - This program is an adaptation of "Capital Investment, Program No. 1620-CS-61X" to the IBM 1130 computer. It is designed to accept various input parameters and data, and from this compute tables of depreciation and salvage values, earnings and interest payments. From these tables a stream of cash flow is generated and this in turn is used to compute a table of rates of return.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 8K 1130 with an 1132 Printer.

CONTINUED FROM PRIOR COLUMN

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130190004

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	75	none
OPTIONAL	none	none		none

1130-19.4.001 *M
GENERAL EXPONENTIAL SMOOTHING MODEL FOR ELECTRIC UTILITY FORECASTING

AUTHOR: W. A. Hont

DIRECT TECHNICAL INQUIRIES TO:
W. A. Hont
United Illuminating Co.
80 Temple Street
New Haven, Connecticut 06506

*** C 1092 GNPP 16.4 - - - - - - ***

DESCRIPTION - Forecasting for Electric Utility Revenues, Sales KWHR, or Peak KW Demand using this program is based on exponentially smoothed moving averages. The model assumes multiplicative trend and ratio seasonal factor with seasonal change evaluated. An indicated trend plot assists analysis for cyclical factors affecting the historical data in order to specify trend for long-range forecasting. Smoothing parameters may be selected using the gradient search subroutine included.

PROGRAMMING SYSTEMS - Programming language - 1130 FORTRAN IV. Monitor system required - 1130 DMS Version 1, MOD. 7 or Version 2, MOD.2.

MINIMUM SYSTEM REQUIREMENTS - 1130 Model 2B, 8K CPU, single disk. Variable I/O assignment and IOCS specify 1442 Card Read-Punch and 1132 Printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130194001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-21.1.001 *M
IBM 1130 HOSPITAL PAYROLL

AUTHOR: J. L. Pastor

DIRECT TECHNICAL INQUIRIES TO:
J. L. Pastor
IBM Corporation
112 N. Post Road 202-6
White Plains, New York 10601

*** M - - - - - - - - - ***

DESCRIPTION - This program maintains an updated file on the parameters which determine the payroll for all hospital employees. It writes checks and furnishes reports on pay distribution to the hospital. It also furnishes quarterly and annual reports in accordance with government regulations. The program is flexible to the needs of the hospital and the demands of government taxing policies.

PROGRAMMING SYSTEMS - Operates under the 1130 Monitor 2.

MINIMUM SYSTEM REQUIREMENTS - A 1131 Model 2B (console printer and keyboard) 8K, #3054 Expansion Adapter, #3616 1132 Printer Attachment, #4458 1442 Card Read Punch

Attachment, 1132 Printer Model 1, 1442 Card Read Punch Model 6, 2310 Model B1 Disk Storage Unit, 029 Card Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130211001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-23.1.001
SHOP SCHEDULING, LOADING AND VARIANCE REPORTS ELEVEN THIRTY

AUTHOR: J. Glasscock

DIRECT TECHNICAL INQUIRIES TO:
J. Glasscock
IBM Corporation
6900 Fannin
Houston, Texas 77025

*** N - - 30.0 - - - - - - ***

DESCRIPTION - This demonstration was written because of the multiplicity of operations and machines in a job shop and it is felt that complete and timely information is needed on shop performance. Availability of this information will permit more effective and efficient scheduling of shop orders. The major benefits that may be obtained from this system are -

- The completed operations report lists the previous days completed operations showing the variance from a standard or estimated time for each operation. It will permit each foreman to review with his men the reason for any variance while it is still fresh in their minds.
- The completed operations report also will allow the expediter to review the operations which he is following closely.
- The load report by work center will enable the pinpointing of work centers which are overloaded and the rescheduling of operations or the provision for additional manpower to alleviate the overload.
- The shop schedule reports will provide the scheduler with an excellent tool for the aforementioned rescheduling task as well as laying out the work to be accomplished in each work center during the next few time periods for grouping of like operations.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1130, 8K, disk, 1132, 1442.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Z31001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-23.1.002 *N
IBM 1130 COMBINATORIAL CORRUGATOR SCHEDULING PROGRAM

AUTHOR: F. R. Gunnersall

DIRECT TECHNICAL INQUIRIES TO:
F. R. Gunnersall
IBM Corporation
Monterey & Cottle Roads
San Jose, Calif. 95114

*** N - COMB - - - - - - - ***

DESCRIPTION - The 1130 Combinatorial Corrugator Scheduling Program, like the 1130 Heuristic Corrugator Scheduling Program (1130-15.2.001) and 1620 Corrugator Scheduling Program (1620-10.3.042), schedules a box-plant corrugator to produce rectangular blanks from specified roll-stock sizes to fit customer order requirements. Two scheduling algorithms are used. The first looks for balanced patterns containing one very large order combined with up to three companion orders. Any orders that can be combined in this fashion with less than a specified trim loss are scheduled. The remaining orders are scheduled with a second algorithm that uses cost, roll stock available, corrugator restrictions and operating costs, cost penalties for short patterns and split orders, and a cost penalty for single-order pattern to schedule on a least-cost-per-square-foot-of-usable-board basis. It is designed for a two cut-off knife corrugator.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - The 1130 Monitor Programming System, and requires an 8K, 1130 with card input, 1132 printer output, and disk memory.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Z31002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	00	none
OPTIONAL	none	none		none

CONTINUED FROM PRIOR COLUMN

1130-23.1.003
AN AUTOMATED VAN LOADING PROGRAM FOR THE IBM 1130

AUTHORS: J. H. Lunn M. N. Plumeau

DIRECT TECHNICAL INQUIRIES TO:
J. H. Lunn
IBM Corporation
Neighborhood Road
Kingston, New York

*** N - - 23.0 - - - - - - ***

DESCRIPTION - The Van Loading program is designed to match a system configuration to a file of the physical characteristics of each component and to then identify the location within the van which will provide the maximum transit protection in terms of each ride, padding, elimination of box shifting and accessible tie downs. This location will be determined by parameters, built into the program, which express the characteristics of each type of van. Output will be punched cards, which, when listed indicate box loading sequence by alternating sides of the carrying space. Other output could be as cards defining vectors for use on a line drawing device.

PROGRAMMING LANGUAGE - Written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - An IBM 1130 System with 8K core storage and disk pack.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Z31003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-23.1.004 *N
TRIM 67 - A HEURISTIC TRIM PROGRAM FOR THE PAPER INDUSTRY

AUTHOR: S. C. Ohlin

DIRECT TECHNICAL INQUIRIES TO:
S. C. Ohlin
IBM Corporation
P. O. Box 4533
Rijswijk ZH, The Netherlands

*** N - - 15.2 23.1 - - - - - ***

DESCRIPTION - TRIM 67 is a Heuristic, one-dimensional trim program for the paper industry. The problem is how to slit large rolls of equal width so that ordered widths (maximum number 30) are obtained in amounts within specified delivery tolerance limits, and so that the waste is as small as possible. Deliveries to stock of ordered or additional widths may be allowed in order to reduce total trim waste. Machine winder limitations are taken into account and, when rewinding is necessary, rewinder demands are satisfied. Trim loss is in most cases as low as that obtained by linear programming methods. The number of patterns (slitter settings) is in general as low as when trimming by hand.

PROGRAMMING SYSTEMS - Programming language is 1130/1800 Basic FORTRAN IV. Operating system required is the Disk Monitor System, Version I or II.

MINIMUM SYSTEM REQUIREMENTS - Those required for the 1130 Disk Monitor System. (Minor alterations would permit running this program on an 1800 or S/360 system).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Z31004

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	00	none
OPTIONAL	none	none		none

1130-23.1.005
OPTIMIZATION OF MATERIAL FOR MAXIMUM CABLE PRODUCTION

AUTHOR: R. J. Gordon

DIRECT TECHNICAL INQUIRIES TO:

CONTINUED FROM PRIOR PAGE

N. J. Gordon
IBM Corporation
43 Harvard Street
Worcester, Mass. 01608

*** N - - 25.1 15.4 - - - - - ***

DESCRIPTION - The program provides a machine loading schedule for the production of multi-conductor cables where an individual conductor length choice is needed. While meeting various order specifications the program provides maximum cable length production and if the order cannot be filled with available wire, it gives requirements for a complete order. At the same time it gives minimum waste, minimum set-ups, minimum spool changes and a maximum of long cable lengths. The program also provides information for cost analysis and a better inventory system for wire available. Inputs to the program include spool lengths according to conductor type, cable lengths desired, minimum acceptable cable lengths, total ordered footage, waste point, and twist loss.

PROGRAMMING SYSTEMS - Written in basic FORTRAN IV and requires the 1130 Disk Monitor, V2 M1.

MINIMUM SYSTEM REQUIREMENTS - 1130 with 8K core, card input and printer output.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Z31005

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-23.3.001 *N
1130 BILL OF MATERIAL MAINTENANCE AND RETRIEVAL SYSTEM

AUTHOR: R. D. Hoag

DIRECT TECHNICAL INQUIRIES TO:
R. D. Hoag
IBM Corporation
1602 W. Third Ave.
Flint, Mich. 48504

*** N - - 25.0 20.0 01.6 - - - - ***

DESCRIPTION - The 1130 Bill of Material Maintenance and Retrieval System is built on the philosophy of the 1440 and System/360 Bill of Material Processors. The system is designed to organize and maintain a central information system linking product structure records with part number master (inventory type) records on disk. The programs are modular and designed for source-level modification. This allows the programs to be tailored to suit the users specific needs and procedures. Full maintenance of master and product/structure records and I/O routines for sequential or random access of records are provided. Single-level and indented explosion and implosion subroutines are provided. Mainline programs which exercise these subroutines are also provided and give a basis for programming these retrieval techniques.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 8K 1130, reader, punch, printer, one disk.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Z33001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-23.3.002
COMPUTER APPROACH TO INVENTORY REQUIREMENTS ON THE 1130 FOR SMALL ASSEMBLY ORIENTED MANUFACTURERS

AUTHOR: G. B. Smith

DIRECT TECHNICAL INQUIRIES TO:
G. B. Buchheit
IBM Corporation
P.O. Box 5000
Denver, Colorado 80217

*** N - - 15.7 25.2 - - - - - ***

CONTINUED FROM PRIOR COLUMN

DESCRIPTION - The programs utilize an Item Master File and a Bill of Material File to produce four standard product structure report (Single level where-used and parts lists, indented parts list and summarized parts lists) and two time-phased inventory planning reports (gross requirements by period and net requirements by period). Programs for loading the required files, assigning low level codes, etc., are supplied. The Item Master File can hold up to 2,500 items and the Bill of Material File can hold up to 10,000 line items.

PROGRAMMING SYSTEMS - All programs are in FORTRAN. Some IDEAL (1130-03.8.002) subroutines and the Commercial Subroutine "STACK" are required and are supplied with the distribution in binary form.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1130 with disk, printer, and card reader is required.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Z33002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-23.4.001 *N
1130 TEKPROPS NUMERICAL CONTROL PROGRAM FOR POINT-TO-POINT CONTROLLERS

AUTHOR: M. J. Matson

DIRECT TECHNICAL INQUIRIES TO:
M. J. Matson
IBM Corporation
2000 S.W. First Ave.
Portland, Oregon 97201

*** N - - - - - - - - - ***

DESCRIPTION - TEKPROPS is a numerical control processor for point-to-point machining. The program includes tabular coding that is an extention of Autoprops II coding. The coding provides for point, line, matrix, and circle patterns, and for pattern translation.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1130 system with 8K disk, card and paper tape I/O.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION PROGRAM NUMBER 1130Z34001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1130-23.4.002 *N
ROMANCE - ROYS METHOD FOR ACCURATE NUMERICAL CONTROL ON THE ELEVEN-THIRTY

AUTHORS: A. C. Cassella D. J. Hebden
R. Hirst I. D. Hussey

DIRECT TECHNICAL INQUIRIES TO:
I. D. Hussey
IBM United Kingdom Ltd.
1 Katharine Street
Croydon, Surrey, England

*** N - ROMA - - - - - - - ***

DESCRIPTION - The ROMANCE program is a numerical control processor designed to facilitate part programming by providing the user with simple methods for tool and pattern definition. Point to point and simple milling operations can be part programmed through ROMANCE. The programmer has point, line, matrix or circle definitions available, and can invert, repeat, translate, rotate or delete from these patterns. Milling operations which are parallel to the X and Y axis can also be defined. Special features include a data check, the facility of calling pre-defined successions of tools, a guard routine which prevents tool collisions with the work-piece, a sort of output records, and a plot of the tool path.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN IV and requires 1130 Disk Monitor System.

CONTINUED FROM PRIOR PAGE

MINIMUM SYSTEM REQUIREMENTS - 8K 1130 CPU, disk and either a 1442 Card Read/Punch or the 1055 and 1134 Tape Units (an 1132 Printer and a 1627 Plotter are optional).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Z34@@2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	@@	none
OPTIONAL	none	none		none

1130-23.4.@@3 *N
1130 FORTRAN CALLABLE SUBROUTINES TO READ AND/OR PUNCH NUMERICAL CONTROL TAPES

AUTHOR: G. A. Wagner

DIRECT TECHNICAL INQUIRIES TO:
G. A. Wagner
IBM Corporation
656 N. Main
Rockford, Ill.

*** C 1130 - 12.1 - - - - - - ***

DESCRIPTION - A set of 1130 FORTRAN and Assembler subroutines which allow the user to read and/or punch any character, one at a time, on paper tape. Subroutines are also included to break a floating point number into a series of P/T characters for subsequent punching. These subroutines were developed to allow the reading and punching of P/T characters which FORTRAN could not normally handle in the numerical control area but can obviously be used in any paper tape application where non-IBM codes are used.

PROGRAMMING SYSTEMS - Written in FORTRAN Assembler.

MINIMUM SYSTEM REQUIREMENTS - 4K 1130, 1055, 1134.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Z34@@3

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	@@	none
OPTIONAL	none	none		none

1130-23.4.@@4 *N
ROMANCE/FOSDICK POST PROCESSOR

AUTHOR: R. Dietz

DIRECT TECHNICAL INQUIRIES TO:
R. Dietz
IBM Corporation
1399 Franklin Avenue
Garden City, New York 11530

*** N - - - - - - - - - - ***

DESCRIPTION - The ROMANCE/FOSDICK Post Processor Program is designed to use the output of ROMANCE (1130-23.4.@@2) to produce N/C tapes for a FOSDICK Model 32P or 42P N/C Jig Borer. Program contains options of punching cards and printing the image of the tape for each controller cycle. A utility program is included to facilitate tape checking.

PROGRAMMING SYSTEMS - Programming language- ASA Basic FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 8K, disk, printer, card, tape punch configuration.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Z34@@4

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	@@	none
OPTIONAL	none	none		none

1130-23.4.@@5
ROMANCE/TAPE-O-MATIC POST PROCESSOR

AUTHOR: Ray Dietz

DIRECT TECHNICAL INQUIRIES TO:
Ray Dietz
IBM Corporation
1399 Franklin Avenue
Garden City, New York 11530

*** N - - - - - - - - - - ***

DESCRIPTION - The ROMANCE/TAPE-O-MATIC Post Processor program is designed to use the output of ROMANCE (1130-23.4.@@2) to produce punched paper tape for the Pratt and Whitney Tape-O-Matic Numeric Drilling Machine, Model B. The tape format is tab sequential and a listing of the tape is provided. Console switch options provide card output in lieu of paper tape, debug facility and printing by pass. A utility program is included with the package to reread and list the tape.

PROGRAMMING SYSTEMS - Written in FORTRAN IV; requires 1130-OS-@@2, V1 M2.

MINIMUM SYSTEM REQUIREMENTS - 1131 Model 2B (8K-Disk), 1442 Card/Read Punch.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Z34@@5

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-23.4.@@6 *N
RCAPS - AN 1130 CONTOURING NUMERICAL CONTROL PROCESSOR

AUTHOR: D.R. Smith

DIRECT TECHNICAL INQUIRIES TO:
D.R. Smith
Rock - Mill Inc.
5602 Pike Road
Rockford, Ill.

*** N - - - - - - - - - - ***

DESCRIPTION - The purpose of RCAPS is to aid in the programming of numerically controlled machine tools. In designing the program, an attempt was made to conform to System/360 AD/APT/AUTOSPOT specifications wherever possible. RCAPS allows four basic types of input cards: Post Processor Commands, Machining Statements, Definition Statements, and Motion Statements. Also included is a Post Processor for a Rock-Mill TM-400 Vertical Milling Machine.

PROGRAMMING SYSTEMS - Written in FORTRAN IV Language, to be used on the 1130 Computer.

MINIMUM SYSTEM REQUIREMENTS - A minimum of 8K words of core storage, 1 Disk and a 1442 Card Read/Punch. An 1132 Printer, 1627 Plotter, and 1055 P/T Punch are optional but highly desirable.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130Z34@@6

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	@@	none
OPTIONAL	none	none		none

1130-25.2.@@1 *N
MANUFACTURING LOT-SIZE DETERMINATION USING LIMIT - FORTRAN IV

AUTHOR: J. P. Plassman

DIRECT TECHNICAL INQUIRIES TO:
J. P. Plassman
IBM Corporation
P.O. Box 206
Jefferson City, Mo. 65101

*** N - - - - - - - - - - ***

DESCRIPTION - This program is a FORTRAN IV version of LIMIT (1401-18.3.@24). This program allows for the calculation of optimum lot-sizes within present capacity limitations

CONTINUED FROM PRIOR PAGE

for set-up. It is designed to present to management the alternatives available in managing aggregate or total mass of the lot-size portion of inventory, and makes possible to obtain the most economical lot sizes when there are limiting effects such as the number of orders that can be processed or the amount of set-up time that is available. Its important feature is that it enables management to look at the total effect on lot size inventory, rather than, of individual EOQ calculations.

PROGRAMMING SYSTEMS - Written in FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - 8K IBM 1130 using the IBM 1130 Monitor FORTRAN. However, since this program is written in FORTRAN IV, it could be run on any system, i.e., S/360, 1800, etc., which has a FORTRAN IV compiler and enough core.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130252#01

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTF*	00	none
OPTIONAL	none	none		none

1130-27.8.001 *E
MARKET RESEARCH TABULATION PACKAGE

AUTHOR: S. L. Reed

DIRECT TECHNICAL INQUIRIES TO:
S. L. Reed
IBM Corporation
112 E. Post Road
White Plains, New York

*** N - - - - - - - - - - - ***

DESCRIPTION - The package can be used for most cross-tabulation work of the type encountered in market research. The answers to a survey must, first, be punched into cards, up to nine separate cards being allowed for an individual respondent. Each data card must contain a three-to-five digit respondent number and a one-to-three character job identification. In addition, a card number is required if there is more than one card per respondent. The above three fields may be anywhere in the data card, but standardization is recommended for control purposes.

PROGRAMMING SYSTEMS - Written in Assembler and requires the 1130 Monitor System.

MINIMUM SYSTEM REQUIREMENTS - The program requires an 1131-2B with 8K CPU and disk storage, one 1132 Printer and a 1442-6 Card Read/Punch. In addition to the above, at least two Alpha-numeric 029-Keypunches (with Extended Character Set) will be required for specification-card preparation; this is in addition to the numeric keypunches needed for data punching. The 026-Keypunches are not satisfactory for specification-card preparation but can be used as an interim measure. The installation must include at least one card sorter equipped to count the cards in each pocket as well as the total number of cards. (An 083 Sorter is preferable to an 082 sorter). At least five disk packs are recommended.

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate Material Delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1130279#01

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTF 9/800	28	none
		DTF 9/1600	29	none

1130-28.2.001
TOTAL OPERATOR ORIENTED RICAR APPLICATION

AUTHORS: D. Fillister Susan Blanchong
J. Darling

DIRECT TECHNICAL INQUIRIES TO:
D. Fillister
IBM Corp
1814 Madison Ave.
Toledo, Ohio 43624

*** N - - - - - - - - - - ***

CONTINUED FROM PRIOR COLUMN

DESCRIPTION - This 1130 package consists of generalized programs for billing, inventory control, accounts receivable and sales analysis using the 8K-1130 Computing System. The application is designed to be operator oriented using the 1130 paper tape-disk system. The creation of invoices, the updating of inventory receipts, and the applying of cash to the accounts receivable is accomplished by the operator entering the necessary information from the console keyboard. As a result of these operations all records are updated and all other reports can be automatically produced on the console printer. Some of the reports included in this package are a below minimum, stock status, sales analysis by item, by customer, by salesman, and by product class, aged trial balance and aged statements. The system is designed to utilize the console switches to tailor the system to a particular customer. Estimated volumes are 2000 customers, 6400 inventory items, 750 invoice lines/day, and 8000 open accounts receivable records.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1130 4K paper tape-disk system.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130282#01

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-28.2.002
1130 PATIENT BILLING

AUTHOR: J. L. Pastor

DIRECT TECHNICAL INQUIRIES TO:
J. L. Pastor
112 E. Post Road
White Plains, New York 10601

*** N - - - - - - - - - - ***

DESCRIPTION - The program accepts patient charges and provides for patient insurance company billing. The package covers admissions, charge posting, census reporting, insurance proration, preparation of detail and summary bills. Also included are updating of room transfers and discharges. The program provides Medicare billing for Part A (SSA 1452C) and Part B (SSA 1554).

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN utilizing 1130 Commercial Subroutines.

MINIMUM SYSTEM REQUIREMENTS - 1131 Model 2B (console printer and keyboard) 8K, #3854 Expansion Adapter, #3616 1132 Printer Attachment, #4454 1442 Card Read-Punch Attachment, 1132 Printer Model 1, 1442 Card Read-Punch Model 6, 2310 Disk Storage Model B1, #29 Card Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code, source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130282#02

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-28.3.001
1130 HOSPITAL ACCOUNTS RECEIVABLE

AUTHOR: J. L. Pastor

DIRECT TECHNICAL INQUIRIES TO:
J. L. Pastor
112 E. Post Road
White Plains, New York

*** N - - - - - - - - - - ***

DESCRIPTION - 1130 Hospital Accounts Receivable offers the smaller hospital user the full power of a stored program computer with rapid accessibility to patient accounts receivable files stored on disk. The program provides for updating of patient account files, printing of statements, aged accounts analysis, Account Status, Insurance Accounts Receivable, deleted accounts for zero or small balance. An accounts receivable control log is used to record the number of accounts and dollar value

CONTINUED FROM PRIOR PAGE

of receivables in the system.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN utilizing 1130 Commercial Subroutines.

MINIMUM SYSTEM REQUIREMENTS - 1131 Model 2B (console printer and keyboard) 8K, #3854 Expansion Adapter, #3616 1132 Printer Attachment, #4654 1442 Card Read-Punch Attachment, 1132 Printer Model 1, 1442 Card Read-Punch Model 6, 2310 Disk Storage Model B1, #29 Card Punch.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code, source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130283001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-29.8.002
1130 TRIM PROGRAM

AUTHORS: J. B. Major L. Pattal

DIRECT TECHNICAL INQUIRIES TO:
J. B. Major
IBM Corp.
5 Place Ville Marie
Montreal, Canada

*** N - - - - - - - - - - ***

DESCRIPTION - This program provides a linear programming solution to the TRIM problem. The TRIM problem can be described as follows: material is available to satisfy group of orders for rolls, if economical. Each order specifies a width, a diameter, a group, a priority and the number of units that are required. The material is produced in fixed widths, each having a fixed cost associated with it. It is assumed that these costs reference reels of some standard diameter. Numerous acceptable solutions are available to fill orders. This program determines the most economical solution.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN IV and operates under the 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - 1130 Model 2B, 1132 Attachment (No. 3616), Expansion Adapter (No. 3854), 1442 (Model 6 or 7), 1442 Attachment (No. 5545), 1132 Printer, 2315 Disk Cartridge.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130290002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-29.4.001 *N
MODIFICATIONS TO COMPOSITION

AUTHORS: A. Domenico R. Van Riper

DIRECT TECHNICAL INQUIRIES TO:
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IBM Corporation
3022 W. Fairfax Drive
Arlington, Virginia 22203

*** N - - 86.8 - - - - - - ***

DESCRIPTION - The 1130 Type Composition Program (DP-84X) is used extensively to drive hot metal linecasting machines. Many printers who have replaced this equipment with the Linofilm Quick device can use the 1130 Type Composition package plus the minor changes outlined in this program to provide continued use of computerized typesetting in their shop. These patches to the 1130 Type Composition Program, Version 1, Level 2 enable the user to drive the Linofilm Quick device in a manner similar to the techniques used in driving a 4-magazine linecaster.

PROGRAMMING SYSTEMS - Programming language - source - 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - Those required to run the 1130 Type Composition Program (DP-84X).

BASIC PROGRAM PACKAGE

CONTINUED FROM PRIOR COLUMN

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130294001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-29.5.002
CARD TO TTS PAPER TAPE CONVERSION PROGRAM FOR 1130 TYPESETTING SYSTEMS

AUTHORS: R. J. Ferguson F. C. Frye

DIRECT TECHNICAL INQUIRIES TO:
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IBM Corp.
7700 Second Ave.
Detroit, Mich. 48202

*** N - - - - - - - - - - ***

DESCRIPTION - This program (CARDTOTTS) was developed for use with the 1130 Type Composition Program (TCP) (1130-DP-84X). It allows the user to convert alphabetic, numeric, alphanumeric, and amount fields from IBM cards to unjustified TTS paper tape for input to TCP. Up to nine card fields of any length may be converted in any order; and the user has options to have the program precede or follow any field with fixed-length dollar sign codes, to capitalize the first character of all alphabetic fields and to insert a comma after any field. The program would have widespread use in commercial printing and typesetting houses by facilitating the typesetting of parts listings, inventory item listings, price listings and other "catalog" work where the master file information has been previously punched into cards. This two pass approach allows a greater amount of final format flexibility by utilizing the 1130 TCP program.

PROGRAMMING SYSTEMS - The mainline program is written in FORTRAN and includes routines from the 1130 Commercial Subroutine Package and IDRAL FORTRAN. An Assembler Language subroutine is called to punch the TTS characters.

MINIMUM SYSTEM REQUIREMENTS - Include the 1130 TCP configuration and a 1442 Card Read/Punch. Final output tapes can be fed to linecasters equipped with TTS operating unit or a Photon 713 (semi-automatic mode only). The program operates under the 1130 Disk Monitor.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130295002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-36.1.001 *N
PAYROLL AND LABOR COST DISTRIBUTION PACKAGE DEMONSTRATION

AUTHOR: B. C. Barabacheff

DIRECT TECHNICAL INQUIRIES TO:
B. C. Barabacheff
IBM Corp.
425 Park Ave.
New York, New York 10022

*** N - - 21.1 26.8 22.0 - - - - ***

DESCRIPTION - This package shows how commercial work can be done on a scientific machine, using exclusively FORTRAN. This package consists of a set of programs that will-
- Organize and maintain employee files and project (or account) files.
- Compute a payroll, update files, print warning statements and pay checks.
- Print payroll registers, and a cost distribution report.

Since this package is written primarily for demonstration purposes it is made available as a single deck of cards (object decks with control cards), which can be used in a load and go operation. Data decks and control cards for execution are also provided. No operator intervention will be necessary other than the option entries that will be typed as instructions in clear language on the console typewriter. As a demonstration feature, it is possible, by flipping a switch on the console, to process a payroll by manual typewriter entry, instead of the usual employee time card entry.

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PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - 1131 8K, Model 2 (disk storage), 1132 Printer, 1442 Card Reader.

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Appropriate material delivered.

ORDERING INFORMATION: PROGRAM NUMBER 1130E3#1##1

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

1130-30.1.##2
BILLING, INVENTORY CONTROL AND ACCOUNTS RECEIVABLE DEMONSTRATION

AUTHOR: Barbara Nutting

DIRECT TECHNICAL INQUIRIES TO:
Barbara Nutting
IBM Corp.
548 Main St., E.
Rochester, N. Y. 14604

*** B - - 26.2 25.2 19.# 29.# - - - ***

DESCRIPTION - This set of fourteen programs performs the basic functions of most commercial applications of the IBM 1130. Output includes invoices, stock status, and aged trial balance. The IBM 1130 Commercial Subroutine Package (1130-SR-25X) is assumed to be accessible when running these programs. Two programs allow entry of unformatted information from the typewriter. The commercial subroutine PUT used in the 1130 BICAR is the original subroutine; the updated version of PUT will not work.

PROGRAMMING SYSTEMS - Thirteen programs are written in FORTRAN; one in Assembler.

MINIMUM SYSTEM REQUIREMENTS - 8K, card, disk, 1132 Printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130E3#1##2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-30.1.##3 *N
A DEMONSTRATION OF MELT CHANGE MATERIAL BLENDING FOR THE IBM 1130

AUTHOR: B. S. Campbell

DIRECT TECHNICAL INQUIRIES TO:
B. S. Campbell
IBM Corp.
Primary Metals Ctr.
IBM Bldg.
Gateway Center
Pittsburgh, Pa. 15222

*** B - - 15.2 - - - - - - ***

DESCRIPTION - A Demonstration of Melt Charge Material Blending for the IBM 1130 demonstrates the capabilities of the IBM 1130 in an area which to date is virtually untouched. Additionally, it highlights an approach to making scientific and mathematical programming techniques available to the user who is not familiar with the mathematics involved or with computers and their uses. The user is allowed to interface with the program in simple terms with which he is familiar. He is, thereby, able to take advantage of sophisticated techniques without the necessity of detailed knowledge of these techniques.

PROGRAMMING SYSTEMS - Written in FORTRAN and operates under the 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - Requires a machine configuration of an 1131, Model 2B (8K core storage and single disk), 1442 Card Read/Punch and the 1132 Printer.

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

OPTIONAL PROGRAM PACKAGE

CONTINUED FROM PRIOR COLUMN

DOCUMENTATION - None.
MACHINE READABLE - Source code.

ORDERING INFORMATION: PROGRAM NUMBER 1130E3#1##3

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

1130-30.1.##4 *N
INDIVIDUALIZED HOMEWORK ASSIGNMENT AND QUIZ GENERATOR (QUIZ AND EXERCISE DEMONSTRATOR Q.E.D.)

AUTHOR: G. G. Heller

DIRECT TECHNICAL INQUIRIES TO:
G. G. Heller
Education Research Dept. - 914
IBM Education Center - Bldg.#85-2
Poughkeepsie, New York 12602

*** B - - 99.# - - - - - - - ***

DESCRIPTION - QED is a FORTRAN program designed to demonstrate an instructional application every schoolteacher can use immediately. When used for production runs, QED can create instant broad-based computer utilization by the entire faculty. The program generates and prints individually unique assignments or quizzes. It reinitializes itself and continues on to print, for the teachers, a key for each assignment or quiz just produced. QED has been experimentally tested in a secondary school environment and good results were obtained with both short answer and multiple choice type questions.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - Include an IBM 1130 8K disk system, including the keyboard and console typewriter with a standard typeball, a 1442 Card Reader-Punch, and an 1132 Printer. For data preparation, an #29 Keypunch is required.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130E3#1##4

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-30.2.##1 *N
SEVEN-ELEVEN DICE GAME

AUTHOR: J. P. Schwar

DIRECT TECHNICAL INQUIRIES TO:
J. P. Schwar
Lafayette College
Alumni Hall of Engr.
Easton, Pa. 18042

*** B - - - - - - - - - ***

DESCRIPTION - The Seven-Eleven Dice Game Program simulates the throw of a pair of dice, with the player entering his bet at the console typewriter. The house rules for the game are that a seven or eleven on the first throw results in a win, while a two or twelve results in a loss. Any other number represents the point that the player must make. If additional throws are necessary, the computer continues to simulate these throws until the point is made (a win) or a seven is thrown (a loss). A running total of the amount won or lost is typed out as the game progresses.

PROGRAMMING SYSTEMS - 1130 FORTRAN IV and uses the IBM Scientific Subroutine RANDU.

MINIMUM SYSTEM REQUIREMENTS - Any 1130 computer having the Disk-Monitor Operating System.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130E3E2##1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-30.2.002 *N
1130 FUNCTION PLOT ON PRINTER

AUTHOR: A. J. Lokenmgard

DIRECT TECHNICAL INQUIRIES TO:
A. J. Lokenmgard
IBM Corporation
1730 Cambridge Street
Cambridge, Mass. 02138

*** N - - 41.0 - - - - - - ***

DESCRIPTION - This is a demonstration program primarily for educational institutions, but can also be used by them in a math or physics curriculum. It demonstrates the high internal speed of the 1130, the use of IBM-supplied subroutines such a Sine, Log, etc., the advantages of a disk machine, and the flexibility of man-machine interaction. The user inserts his function card and data card(s). The program plots the function on the printer, then asks for changes. It also handles undefined regions of a function.

PROGRAMMING SYSTEMS - Programming language - FORTRAN with one Assembler subroutine. Monitor system required - 1130 Monitor.

MINIMUM SYSTEM REQUIREMENTS - 8K disk 1130 with 1442 and 1132.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-30.2.002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	02	none
OPTIONAL	none	none		none

1130-30.2.003
BATTLE OF THE NUMBERS

AUTHOR: W. Wild

DIRECT TECHNICAL INQUIRIES TO:
W. Wild
P.O. Box 3015
Florence, South Carolina 29501

*** N - - 00.0 - - - - - - ***

BATTLE OF THE NUMBERS

DESCRIPTION - The Battle of the Numbers program plays a game between the user and the computer. The players take turns removing objects from a pile and the player that takes the last object loses. Input to the program is via the keyboard. Both the initial number in the pile and the maximum number that can be taken in one move are chosen at random by the computer so that most every game is different.

PROGRAMMING SYSTEMS - The mainline program is written in 1130 Basic FORTRAN IV. The required subroutines are written in 1130 Assembler. All were compiled (or assembled) using the DMY2 system -- Level 3.

MINIMUM SYSTEM REQUIREMENTS - A console typewriter and one disk drive are required to run this program. Minimum of 8K core required for execution. Program is supplied in object deck form for storage in Disk System Format.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-30.2.003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-30.2.004
1130 PERPETUAL CALENDAR DEMONSTRATION PROGRAM

AUTHOR: R.W. Stratton

DIRECT TECHNICAL INQUIRIES TO:
DIRECT TECHNICAL INQUIRIES TO:
R.W. Stratton
110 Janine Drive
La Habra, California 90631

*** C 5211 - 99.0 - - - - - - ***

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DESCRIPTION - This program will type the day of the week for a given date. The date in question is entered via the 1130 Console Typewriter, after which the date is checked for validity. The month must fall between 1 and 12 inclusive; the day between 1 and 26, 29, 30 or 31 (depending on the month); the year, between 1500 and 2699. Otherwise, the 1130 responds by typing a humorous message. The program then echoes the input, indicating a leap year, and types the day of the week. If the date entered is a holiday this is also noted.

PROGRAMMING SYSTEMS - FORTRAN source code.

MINIMUM SYSTEM REQUIREMENTS - The program requires an 1130 with 1442 Card Read Punch. No other equipment is required although the source deck supplied contains 1130 Monitor Version 2 control cards. The 1130 must have at least 8K or the user will have to modify the source program dimensions.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and data deck.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-30.2.004

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-30.2.005 *N
MOON FLIGHT

AUTHOR: J.R. Kissner

DIRECT TECHNICAL INQUIRIES TO:
J.R. Kissner
The Potomac Edison Company
Downsville Pike
Hagerstown, Maryland 21740

*** C 1559 - - - - - - - - ***

DESCRIPTION - Plan your own flight to the moon. Starting from a parking orbit, add an incremental velocity at some point around the orbit, then coast. Loops and figure-eights around the moon are possible. Velocity corrections, permitted at any time, make it possible to orbit the moon and return to earth. The flight may be traced by listing the result of every tenth iteration of the solution on the printer. An after-the-fact plot of the trajectory may be dumped on the printer. For users with on-line plotting devices, a call to a subroutine 'LYPLT' makes available the 'X-Y' coordinates (in miles) after iteration.

PROGRAMMING SYSTEMS - Written in FORTRAN; operates under 1130-OS-005 (Disk Monitor, Version 2).

MINIMUM SYSTEM REQUIREMENTS - 1130 Model 2B (I/O is user's option).

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object and source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130-30.2.005

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-40.0.001 *N
INTEGER MULTIPLE PRECISION SUBROUTINE PACKAGE FOR THE IBM 1130

AUTHORS: H.D. Wiebe T. Smith III

DIRECT TECHNICAL INQUIRIES TO:
H.D. Wiebe
Dept. of Mathematics
University of Oklahoma
Norman, Oklahoma 73069

*** C 3242 - 06.5 - - - - - - ***

DESCRIPTION - The IBM 1130 Integer Multiple Precision Subroutine package is a group of FORTRAN and 1130 Assembler subroutines. Written to allow a FORTRAN program to manipulate integers of arbitrary length (limited only by the available machine storage space). Integers to be manipulated by the subroutines may be stored either in regular FORTRAN IV integers (for integers less than 10,000) or in predefined DIMENSIONed arrays (for integers of any size). The routines are independent of input/output devices, using FORTRAN IV statements in the calling program for input and output.

CONTINUED FROM PRIOR PAGE

PROGRAMMING SYSTEMS - Written in FORTRAN using an 1130 Disk Monitor 1 or 2.

MINIMUM SYSTEM REQUIREMENTS - Any model of the 1130 CPU.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130480001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none

1130-48.2.001 *H
1130 COMPLEX VARIABLES SUBROUTINE PACKAGE

AUTHOR: F. N. Rogers

DIRECT TECHNICAL INQUIRIES TO:
F. N. Rogers
IBM Corp.
515 Olive St.
St. Louis, Mo. 63101

*** N - - 03.0 - - - - - - ***

DESCRIPTION - A series of subroutines to allow the user to do arithmetic with complex numbers through the utilization of arrays. They are in a form to be called by FORTRAN programs. Subroutines are included for addition, subtraction, multiplication, division, absolute value, complex logarithm, exponentiation to real or complex power, and conversion between polar and cartesian forms. Subroutines are also included for matrix manipulation--addition, subtraction, multiplication, determinant, and inversion. This package should be of value to anyone doing programming which involves complex numbers since it simplifies and standardizes their handling.

PROGRAMMING SYSTEMS - Written in FORTRAN and 1130 Assembler Language

MINIMUM SYSTEM REQUIREMENTS - IBM 1130 system.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130482001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-48.4.001 *H
DOUBLE PRECISION FLOATING POINT SUBROUTINES

AUTHOR: James Chrisman

DIRECT TECHNICAL INQUIRIES TO:
James Chrisman
IBM Corp.
101 E. Miller St.
Jefferson City, Mo. 65101

*** N - - 03.0 06.3 - - - - - ***

DESCRIPTION - Ten subroutines written in Assembler Language and two written in FORTRAN have been developed to give up to 19 significant digits of accuracy to 1130 FORTRAN and Assembler. The subroutines are change sign, double move, double load, single load, double store, single store, double add, double subtract, double multiply, double divide, double read, and double print. These subroutines use a pseudo accumulator of 5 words, and 5 words are required for each variable except those used in single load and single store. It is possible to set up double precision constants by use of a simple programming technique.

PROGRAMMING SYSTEMS - Written in FORTRAN and Assembler.

MINIMUM SYSTEM REQUIREMENTS - The arithmetic subroutines require 738 words of core and the I/O subroutines require 614 words. These subroutines could be modified to run on a minimum configuration 1130.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130484001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-48.4.002
1130 DOUBLE EXTENDED PRECISION FLOATING POINT ROUTINES AND ASSOCIATED ARITHMETIC FUNCTIONS

AUTHOR: G. A. Wagner

DIRECT TECHNICAL INQUIRIES TO:
G. A. Wagner
IBM Corporation
652 N. Main Street
Rockford, Illinois 61101

*** N - - 41.6 - - - - - - ***

DESCRIPTION - The arithmetic portion of these routines utilize the unused eight bits of an extended precision word. This extends significance of the mantissa to 39 bits or approximately 12 digits for add, subtract, multiply and divide. Also included are the functions SIN, COS, ATAN, SQRT, and ABS. All names and linkage are the same as their Type I counterparts.

PROGRAMMING SYSTEMS - These routines were written in 1130 Assembler and uses 1130 Monitor, Ver. 1.

MINIMUM SYSTEM REQUIREMENTS - Those required for the 1130 Monitor, Version 1, Mod. 7.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130484002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-41.5.001 *H
STRESS-PLOT

AUTHOR: J. R. Dawson

DIRECT TECHNICAL INQUIRIES TO:
J. R. Dawson
Bethlehem Steel Corp.,B175N
Bethlehem, Pa. 18016

*** N - - 04.3 08.6 - - - - - ***

DESCRIPTION - STRESS-PLOT is an 1130 FORTRAN language program which will plot the geometric configuration of plane structures and an isometric drawing of space structures. The input required is the input cards to 1130 STRESS. By making minor additions to the input deck IBM 360-ICES STRUDL frames can be plotted.

PROGRAMMING SYSTEMS - Written in 1130 FORTRAN and requires 1130 Disk Monitor System.

MINIMUM SYSTEM REQUIREMENTS - Those required for 1130 Disk Monitor System.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130415001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-42.2.001 *H
POLYNOMIAL ZEROS SUBROUTINE

AUTHOR: F. L. Friedman

DIRECT TECHNICAL INQUIRIES TO:
F. L. Friedman
Department of Mathematics
Goucher College
Towson, Maryland 21204

*** N - E210 - - - - - - - ***

DESCRIPTION - This subroutine will find ALL roots, both real and complex, of a polynomial with real coefficients.

CONTINUED FROM PRIOR COLUMN

	EXTENSION	TYPE	CODE	REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

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The basic Bairstow and Newton-Raphson iterative procedures are applied in conjunction with the scaling and conversion rules as recommended (see appendix). A high degree of accuracy, rapid convergence, and great reliability may be realized through the application of this technique. Past usage has shown the routine to have solved over 98 percent of the polynomials tried.

PROGRAMMING SYSTEMS - This program is written in subroutine form in IBM FORTRAN IV for the 1130 and may be run under Version I of the Disk Monitor System. "I presume that it may also be run under Version II, but it has not been tested for this system".

MINIMUM SYSTEM REQUIREMENTS - An 1132 Printer, 1442 Reader and a disk.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130A22001

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

1130-03.2.001 *M
GRAPHIC 1130/2250 CONTINUOUS SYSTEMS MODELING PROGRAM

AUTHOR: J. B. Damerell

DIRECT TECHNICAL INQUIRIES TO:
J. B. Damerell
IBM Corporation
Dept. 9676 COP 0109
Kingston, New York 12401

*** B - - 16.1 16.5 38.1 - - - - ***

DESCRIPTION - This program is a modification of the existing Type II "1130 Continuous Systems Modeling Program". The purpose of the modification is to adapt CSMP to use the 2250-4 Display Unit. Use of the display unit permits the user to directly enter his system model in the CSMP block diagram format. The output plots are also generated on the display screen.

PROGRAMMING SYSTEMS - Programming language - 1130 FORTRAN and 1130 Assembly Language. Monitor system required - 1130 Disk Monitor System - Version II.

MINIMUM SYSTEM REQUIREMENTS - In addition to the disk system requirements - 16K of core memory, a 2250 Display Unit, and a card reader.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130A32001

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

1130-35.1.001
MULTI-LINE INTERPOLATION ROUTINE

AUTHOR: M. J. Elliott

DIRECT TECHNICAL INQUIRIES TO:
Mrs. J. Silence
Allison Division
GMC Plant 8, Dept. 8895
Indianapolis, Ind.

*** C 3215 MIR 44.2 - - - - - - ***

DESCRIPTION - This routine provides a method for interpolating between tabulated functions of a single variable and two variables. The method employed is Lagrange Interpolation, 1st through 3rd degrees, in either primary or secondary independent variable.

PROGRAMMING SYSTEMS - Programmed in 1130 Assembler. This is an 1130 FORTRAN subroutine.

MINIMUM SYSTEM REQUIREMENTS - 1130 with card I/O and 1132 Printer.

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

CONTINUED FROM PRIOR COLUMN

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130A41001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-45.0.001 *M
SIMPLIFIED GAUSS - JORDAN METHOD OF MATRIX INVERSION

AUTHOR: H. Bunce III

DIRECT TECHNICAL INQUIRIES TO:
H. O'Herron
Research Computation Center
U. of Texas Medical Branch
Galveston, Texas 77550

*** C 5526 - 13.0 - - - - - - ***

DESCRIPTION - The purpose of this FORTRAN IV - written subroutine is the calculation of the inverse of any non-singular square matrix. This program is especially valuable in many statistical and operations research problems which require the matrix inverse. The inherent value of this routine as compared to the standard Gauss-Jordon elimination technique is its speed of execution. One limiting condition is the failure of the routine if EACH AND EVERY ELEMENT of the matrix to be inverted contains the numeric value 1 of zero.

PROGRAMMING SYSTEMS - Written in FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - This subroutine will function properly under any operating system which supports a FORTRAN IV compiler.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL INFORMATION: PROGRAM NUMBER 1130A50001

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

1130-45.1.001 *M
MATRIX INVERSION SUBROUTINE

AUTHOR: E.V. Osten

DIRECT TECHNICAL INQUIRIES TO:
E.V. Osten
Parks College Computation Center
Parks College
Cahokia, Illinois 62206

*** C 5462 - 45.3 45.4 - - - - - ***

DESCRIPTION - The reader is referred to the Scientific Subroutine Package manual, H20-0252-3, page 3 for a description of what the author considers to be a serious drawback to the use of programs from this package. In essence, it states that the programmer must completely fill a matrix he has dimensioned. However, in our installation it was frequently desired to declare a matrix its final size and then use only a part of it for testing purposes. ONINV makes this possible by including an extra argument giving dimension information of the matrix to be inverted. There is no change in any other argument. The method of addressing used is applicable to any two-dimensional array and can be used in any of the matrix handling subroutines.

PROGRAMMING SYSTEMS - Written in 1130 DMPS.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for 1130-OS-005.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130A51001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1130-99.6.001 *N
JULIAN CALENDAR FORTRAN FUNCTION SUBROUTINE (JULIAN)

AUTHOR: W. R. Young

DIRECT TECHNICAL INQUIRIES TO:
W. R. Young
Lederle Laboratories
Pearl River, New York 10965

*** N - - - - - - - - - - ***

DESCRIPTION - A function subroutine which calculates a two character code for the day of the week given the year minus 1900 and either the month and the day of the month or the day of the year. Also given the day of the year it will calculate the month and day of the month. Alternatively, given that the day of the year is zero and given the month and the day of the month it will calculate the day of the year. This subroutine can be used to determine whether a day is a working day in a computerized production simulation. Also the day of the year is used as input in a number of automatic data acquisition applications and this routine can be used to give a more intelligible printout of the date. This routine does not take into account the fact that 1988 and 2100 are not leap years but correct answers will be obtained for all years between these two. Cards 48 and 73 must be changed to make this routine operable on the 1800. It requires 89 words of core. A sample program and data utilizing this routine is included. If only date conversions rather than the 2 letter code of the day of the week is desired the routine can be used as a call subroutine (i.e., call Julian year, day of year, month, day).

PROGRAMMING SYSTEMS - Written in Assembler Language for FORTRAN programs which yield the remainder when its first calling parameter is divided by its second calling parameter.

MINIMUM SYSTEM REQUIREMENTS - S/1130 and requires 89 words of core.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130999801

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-99.6.002 *N
BILLERICA 1130 SCHEDULER

AUTHOR: R. Meagher

DIRECT TECHNICAL INQUIRIES TO:
Mr. J. Danahy
Billerica High School
Billerica, Massachusetts 01821

DESCRIPTION - This is a set of 12 programs which are aids in the class scheduling of students. The scheduling program itself is capable of trying all possible requested course combinations before declaring a conflict in the student's requests. The parameters of the scheduler, which allow the scheduling of students, each with a maximum of 14 requests, against a master schedule made up of master courses with up to 1,000 sections spread over these master courses, can be very easily modified. The number of students and master courses allowable is a function of available disk size.

The twelve programs are primarily concerned with two data files. The Master Course File contains a description of every section of every course being offered by the school. The Student Request File contains for each student to be scheduled a description of that student and the course numbers which the student is requesting, with a maximum of 14 requests per student.

The 1130 Tally and Conflict Matrix Programs are valuable aids in determining a Master Schedule. (1130-15.4.003 - Tally and Conflict Matrix Programs).

After the user creates the Master Course File and the Student Request File, the Scheduling Program itself is used to match student requests with the Master Schedule, thus creating the individual student schedules or printing unresolved conflicts on the console typewriter.

The other nine programs are involved with updating of files and printing various lists after completion of scheduling. All programs are described in greater detail in the documentation.

The author wishes to recognize Mr. Gene Josephs of IBM for his previous efforts in 1130 scheduling (the 1130 FORTRAN Student Scheduling Programs, 1130-15.4.004), and Messrs. Joseph Danahy and Carl Tobey for their aid in developing and perfecting the "Billerica 1130 Scheduler."

CONTINUED FROM PRIOR COLUMN

PROGRAMMING SYSTEMS - Written in FORTRAN IV. They were tested and successfully run under Version II Level 6 of the 1130 Monitor.

MINIMUM SYSTEM REQUIREMENTS - An 8K 1130 computer system with a 1442 Model 6 Card Read/Punch and an 1132 Printer.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130999802

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1130-99.6.003 *N
SCHOOL ATTENDANCE PACKAGE FOR THE IBM 1130 USING DISK STORED STUDENT RECORDS

AUTHOR: J. Danahy

DIRECT TECHNICAL INQUIRIES TO:
J. Danahy
Billerica High School
Billerica, Mass.

*** N - - - - - - - - - - ***

DESCRIPTION - The package includes 5 mainline programs which together will meet the attendance reporting needs of most elementary and secondary schools. The programs: (1) create the attendance files, by recording presorted student files on the disk; (2) update the attendance files randomly within homeroom by using a set of 5 sub-routines that record absence, tardiness, dismissals, and transfers within and in and out of the school system; (3) list the attendance files; (4) homeroom lists; and (5) create the attendance registers. The programs are written to handl an attendance register period of 20 days and handle sub-groups of students, for example homerooms with a maximum of 75 students to a subgroup. The program also compiles and stores quarter-to-date and year-to-year totals for each student.

PROGRAMMING SYSTEMS - Written in FORTRAN IV for the 1130, and were tested and run on Version I Mod. level 6 of the monitor.

MINIMUM SYSTEM REQUIREMENTS - A 1442 Reader and an 1132 Printer.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1130999803

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1131-06.6.001 *N
LINOFILM SUPER QUICK OUTPUT MODULE FOR 1130 PHOTOCOMPOSITION PROGRAM

AUTHORS: K. Anderson R. Huebner

DIRECT TECHNICAL INQUIRIES TO:
Janice Henry
IBM Corporation
112 E. Post Road
White Plains, New York 10601

*** N - - - - - - - - - - ***

DESCRIPTION - The Linofilm Super Quick Output Module has been designed to work in conjunction with the 1130 Photocomposition Program to produce 6 channel paper tape punched in a format capable of driving the Super Quick machine. The users must order both the 1130 Photocomposition Program (1130-06.6.002) and the 1130 Type Composition Program (1130-DF-00X) when ordering this output Module.

This program supports the following Super Quick automatic features from tape: Automatic column measure, leading, magnification and change grid. Program can be modified to permit use of photo units without all of the above features.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - Same as for IBM 1130 Photocomposition Program.

CONTINUED FROM PRIOR PAGE

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

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

ORDERING INFORMATION: PROGRAM NUMBER 1131866001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1131-16.2.001 *N
TRAFFIC CONTROL PROGRESSION PROGRAM

AUTHORS: W.D. Brooks M.E. Brown

DIRECT TECHNICAL INQUIRIES TO:
M.E. Brown
Gen Region DACS Center
1111 Connecticut Avenue
Washington, D.C. 20036

*** N - - - - - - - - - - ***

DESCRIPTION - The purpose of this program is to provide a solution for the timings of traffic lights in a progressive system. Given as inputs the distances between signals, the split (red-green) timings, the cycle range and the speed range, the program will solve for the maximum bandwidth at the best cycle-speed combination. It will also apportion the bandwidth for a two way street.

PROGRAMMING SYSTEMS - Written in FORTRAN and uses the Disk Monitor.

MINIMUM SYSTEM REQUIREMENTS - An 1130 with 8K of core is required.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1131162001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1131-21.1.002 *N
1130 4K PAYROLL PACKAGE

AUTHOR: C.E. Brintlinger

DIRECT TECHNICAL INQUIRIES TO:
C.E. Brintlinger
IBM Corporation
18 South Riverside Plaza
Chicago, Illinois 60606

*** N - - - - - - - - - - ***

DESCRIPTION - This program consists of a complete payroll package, designed for easy modification which will run on any 1130 system with a disk and card reader.

PROGRAMMING SYSTEMS - The program is written in FORTRAN IV and uses the 1130 Version 2 Monitor and the Commercial Subroutine Package. Comment cards are used liberally to aid the novice programmer. Different approaches to similar situations are used to illustrate commercial FORTRAN programming techniques.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1131211002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1500-01.6.001 *N
BAS/1130 COURSEWRITER II REASSEMBLE PROGRAM

AUTHOR: R. Bailey

CONTINUED FROM PRIOR COLUMN

DIRECT TECHNICAL INQUIRIES TO:
F.E. Chase
CAI Laboratory
201 Chambers Building
University Park, Penna. 16802

*** N - BAS 06.0 05.5 - - - - - - ***

DESCRIPTION - BAS/1130 is a disk to disk course segment program. It compresses and makes physically sequential Coursewriter Reassemble Program, but BAS/1130 is considerably faster.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language; operates under the 1130 Disk Monitor, Version 2.

MINIMUM SYSTEM REQUIREMENTS - Those required by the version 2 Disk Monitor.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object and source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1500016001

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

1500-03.8.001 *N
RESPONSE ANALYSIS FUNCTIONS FOR THE 1500 SYSTEM

AUTHOR: System Prog. Manager

DIRECT TECHNICAL INQUIRIES TO:
System Prog. Manager
CAI Center
SUNY Stony Brook
Long Island, New York 11790

*** N - - 06.8 - - - - - - ***

DESCRIPTION - These functions are designed to extend the response analysis capability of Coursewriter II. The functions are edit (ed), random number (ra), limit (lt), extract integer (ei), move (mv), mark character strings (mc), mark keywords (mk), reconstitute mask buffer (rm), evaluate string (es), and synthesize message (sm). The function overlay program, which is required by the majority of the functions, is also included.

PROGRAMMING SYSTEMS - Written in Assembler Language and conform to the standards set forth in the manual IBM 1500 Programming Systems User's Guide (Form Y26-3696-2).

MINIMUM SYSTEM REQUIREMENTS - Those required by 1500 OS.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

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

ORDERING INFORMATION: PROGRAM NUMBER 1500038001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	MT 7DC/800	26	01
		MT 9/800	28	01
		MT 9/1600	29	01

1500-99.8.001 *N
FUNCTION SF FOR ANY 1500 COURSEWRITER II CAI SYSTEM

AUTHOR: Terry A. Bahn

DIRECT TECHNICAL INQUIRIES TO:
Terry A. Bahn
CAI Laboratory
201 Chambers Building
University Park, Pennsylvania 16802

*** N - SF 0 03.8 - - - - - - ***

DESCRIPTION - The SF function is a coursewriter function having ten sub-functions (capabilities). It can: (0) Load the contents of a return register into a buffer; (1) Put the month and day into 2 counters; (2) Store counter values in a buffer; (3) Put the clock time in tenth seconds into a counter; (4) Initialize a range of counters; (5) Initialize a range of switches; (6) Load the contents of a buffer into a return register; (7) Generate random numbers; (8) Put the time of day in tenth minutes into a counter; (9) Move the contents of one return register into another.

CONTINUED FROM PRIOR PAGE

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language; operates under 1500 O/S.

MINIMUM SYSTEM REQUIREMENTS - Those required by 1500 O/S.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

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

ORDERING INFORMATION: PROGRAM NUMBER 1500990001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	CARDS	15	none

1500-99.0.002 *M
FUNCTION RP 1500 CW II FUNCTION CAI SYSTEM

AUTHOR: K. Snyder

DIRECT TECHNICAL INQUIRIES TO:
K. Snyder
7618 Wyandotte
Kansas City, Missouri 64114

*** M - KRPS# - - - - - - - - ***

DESCRIPTION - When this function is used, row and column placement of the cursor, latency, and length of response can be specified by the contents of counters (as well as constants) as in the normal RP OP code. The RP Identifier can be specified as a constant value or the contents of Buffer 5. A patch to the 1500 Operating System Interpreter is required. Use of this function on subsequent versions or levels of the operating system requires review of the patch to the Interpreter and four links to Interpreter within the function. These are coverd in detail in the documentation.

PROGRAMMING SYSTEMS - This function operates under Version 3, Modification Level 1 of the 1500 Operating System. The function is used in place of the Courseuriter II OP code, RP. Source Language: 1130 Assembler.

MINIMUM SYSTEM REQUIREMENTS - 1500 system configuration with 1510 and/or 1518 Terminal Devices.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1500990002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1500-99.0.003 *M
U. T. COURSEWRITER FUNCTION PACKAGE

AUTHOR: University of Texas System Staff

DIRECT TECHNICAL INQUIRIES TO:
University of Texas Systems Staff
Computer Assisted Instruction Lab.
University of Texas
Austin, Texas 78712

*** M - - - - - - - - - - ***

DESCRIPTION - This package contains 9 functions designed for use from Courseuriter II, on a 1500 C.A.I. system, V. 3 M. 1. They should be stored in the system function file and executed by an fn statement from a Courseuriter II program. Each can be stored and used independently of the others. The functions are: dt - displays a text on the CTR; edit - edits a test in b0; wxint - moves integer from b0 to a counter; f15 - increases work count of student response; fp - positions a film for a 1512 Image Projector; grov1 overlays graphics to form new graphics, inint - inserts numeric information into b5; key1 - checks b0 for a sequence of letters; and trr - loads contents of one register into another.

PROGRAMMING SYSTEMS - Written in 1130 - compatible 1800 Assembly Language.

MINIMUM SYSTEM REQUIREMENTS - Those required by 1500 OS.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - None.

CONTINUED FROM PRIOR COLUMN

ORDERING INFORMATION: PROGRAM NUMBER 1500990003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1500-99.0.004 *M
FUNCTION KEIN 1500 CWII FUNCTION CAI SYSTEM

AUTHOR: K. Snyder

DIRECT TECHNICAL INQUIRIES TO:
K. Snyder
7618 Wyandotte
Kansas City, Missouri 64114

*** M A KEIN - - - - - - - - ***

DESCRIPTION - This function operates under Version M, Mod # of the 1500 Operating System. This function allows access to information in the user records during the normal execution of a Courseuriter course.

The function has three options, allowing the author to ask for the student's name, the length of time he has been on line, or the third option which does both with only one function call.

PROGRAMMING SYSTEMS - Written in 1130 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - Will operate on any 1500 system regardless of machine configuration.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1500990004

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1500-99.0.001
1500 CARD DUPLICATING PROGRAM

AUTHOR: T. S. Colligan

DIRECT TECHNICAL INQUIRIES TO:
R. Weber
Abbott Laboratories, Inc.
0000 Sheridan Road
North Chicago, Illinois 60064

*** C 3033 - - - - - - - - ***

DESCRIPTION - Provides on-line card duplicating facilities to those installations which have no off-line facility. The program will duplicate binary and monitor control cards on a 1442. It uses all available core storage and will use non-process working storage for storage of input.

PROGRAMMING SYSTEMS - In 1800 Assembler Language and operates under 1800 TSX V3 M1.

MINIMUM SYSTEM REQUIREMENTS - Those required to run 1800 TSX V3 M1.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800000001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-00.0.002 *M
OBJECT TIME I/O LOGICAL NUMBER GENERATOR

AUTHOR: E. H. Sommerfield

DIRECT TECHNICAL INQUIRIES TO:
E. H. Sommerfield
IBM Corporation
D/E43 B/986
Poughkeepsie, New York 12602

*** M - - 87.0 00.7 - - - - - ***

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DESCRIPTION - In order to run any FORTRAN program at another 1800 location the source deck must be sent since the program must be recompiled with the users input/ouput logical assignment. A subroutine was developed to overcome this problem and, in addition, permit determination, during processing, of which devices are on the system as well as their logical number assignment. The device is designated by mnemonics. A table lookup is performed by the subroutine which returns the logical number integer; or N=0 if the device is not SYSGEN'd in. The test example permits the user to display the logical number of every device. The calling sequence is shown in the listing. Object decks can now be distributed since logical numbers are determined during execution rather than during compilation.

PROGRAMMING SYSTEMS - Written in 1800 TSX Assembler Language and uses 1800 TSX.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for 1800 TSX (Storage requirements - 164 words).

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800000002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-##.6.##2
CARD UTILITY PROGRAM USING 1800-OS-#10, MPX

AUTHOR: R. G. Rockwell

DIRECT TECHNICAL INQUIRIES TO:
R. G. Rockwell
IBM Corporation
340 Market Street
B/O 396
San Francisco, California 94111

*** N - - 05.5 12.1 - - - - - ***

DESCRIPTION - The Card Utility Program for 1800/MPX provides a series of card utility functions for the maintenance of card decks. Holerith/EBCDIC source decks and binary object decks may be listed and/or duplicated. Sequence numbers may be added to the punched output and conversion of Holerith from/to EBCDIC may be accomplished by control card options.

PROGRAMMING SYSTEMS - Written in Assembler, runs as a Batch Process Job under MPX, plus subroutines HOLPR and BINDC. The program is a modification of the TSX Version Card Utility Program, 1800.##.1.001.

MINIMUM SYSTEM REQUIREMENTS - A 1443 Line Printer and 1 typewriter. Requires 2500 words of storage.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800000003

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-##.1.001
A CARD UTILITY PROGRAM FOR 1800/TSX

AUTHOR: R. G. Rockwell

DIRECT TECHNICAL INQUIRIES TO:
R. G. Rockwell
IBM Corporation
Dept. 292, Bldg. 023
Monterey and Cottle Roads
San Jose, California 95114

*** N - - - - - - - - - ***

DESCRIPTION - The card utility program for 1800/TSX provides a series of functions to list, reproduce, sequence number and convert Hollerith/EBCDIC data codes. The program runs as a non process coreload under TSX Version 2 or 3 (1800-OS-001).

PROGRAMMING SYSTEMS - Written in 1800 Assembler Language and runs under TSX.

MINIMUM SYSTEM REQUIREMENTS - Those required to run TSX

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Version 2 or Version 3 (1800-OS-001); 1443 Line Printer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800001001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-##.2.001 *N
IBM 1800 FORTRAN FLOWCHART

AUTHOR: E. V. Kemp

DIRECT TECHNICAL INQUIRIES TO:
E. V. Kemp
IBM Corporation
33 W. First Street
Dayton, Ohio 45402

*** N - - - - - - - - - ***

DESCRIPTION - An IBM 1800/1130 FORTRAN program operating under Version 3 of TSX or under 1130 Monitor (with slight modification). Accepts all valid IBM 1800/1130 FORTRAN source statements to draw a flowchart on the IBM 1443/1132 Printer. The program lists all non-executable statements and draws a unique block containing the full statement for each type of executable statement. The program connects the blocks where possible, draws up to 25 nested do loops, prints statement numbers, card numbers, and page numbers. Provisions are made for page headings. The output will differentiate between IBM 1800 processed I/O and other I/O. After completing the flowchart, a sorted statement number versus page number index is printed. Provisions are made for stacked jobs.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800002001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-##.4.001 *N
1800 TSX UTILITY CORELOAD PROGRAM

AUTHOR: K. E. Marks

DIRECT TECHNICAL INQUIRIES TO:
K. E. Marks
IBM Corporation
400 Grand Avenue
Oakland, California 94604

*** N - - - - - - - - - ***

DESCRIPTION - The 1800 TSX Utility Coreload Program provides several useful disk utility functions which can be executed under control of the non-process monitor. These functions are-

- Disk Dump Program.
- Disk Patch Program.
- Disk Duplication Program.
- Disk Address Calculator Program.

All of these functions are contained in a single coreload and are selected by the operator through the console sense switches.

The program must be assembled and then used as the main program for a non-process coreload. When the coreload is executed, operator instructional messages are printed on the console printer.

PROGRAMMING SYSTEMS - Written in 1800 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - Those needed to run 1800 TSX.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800004001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT

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BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-01.0.002 *N
FOR CORE & DISK DUMP UTILITIES MODIFIED TO RUN IN A CORE LOAD AREA OF V-CORE FOR USE WITH 1132 OR 1403 LINE PRINTERS

AUTHOR: K. A. Linick

DIRECT TECHNICAL INQUIRIES TO:
K. A. Linick
Chevrolet - Division
General Motors Corporation
P.O. Box 7498
Cleveland, Ohio 44138

*** N - 8881a - - - - - - - - ***

DESCRIPTION - BOS Utilities use PRNTN to output on the line printer, and runs in a core load area or V-core. Useful in debugging on line programs if run in a core load area. Main line or Interrupt core load. Operating instructions are the same as the BOS Utilities for BPX found in IBM form C26-3725-8 pages 38 & 39, "IBM 1800 Multiprogramming Executive Operating System Operating Procedures".

PROGRAMMING SYSTEMS - Written in 1800 Assembler language; runs with M.P.X. V1 M2 1800-OS-818.

MINIMUM SYSTEM REQUIREMENTS - Are the same as IBM 1800 BPX system with a line printer.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800#1800#2

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-01.6.001
PRINTL - NONPROCESS PROGRAM FOR 1800 DISK DATA FILE AND CORE LOAD PLACEMENT MAINTENANCE

AUTHOR: T. L. Sak

DIRECT TECHNICAL INQUIRIES TO:
T. L. Sak
IBM Corporation
6980 Fannin Street
Houston, Texas 77025

*** N - - - - - - - - - ***

DESCRIPTION - This program provides the 1800 user, operating under TSX, with a degree of control over the disk placement of core loads and disk files, not afforded him by the TSX Disk Utility Program. It requires less than 1000 words of core, and is designed to be run on-line, as a non-process program under Time-Sharing. The program will run on 1800's with up to three disk drives. This program should prove extremely useful to 1800 users concerned with program and file disk placement, for the sake of either access timing of disk space economy.

PROGRAMMING SYSTEMS - Written in 1800 Assembler Language and uses TSX Version III, Modification Level 2.

MINIMUM SYSTEMS REQUIREMENTS - Those required for TSX.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800#16##1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-01.6.001 *N
BINARY DATA ARRAY MULTIPLEXER ROUTINE

AUTHOR: H. O'Herron, Jr.

DIRECT TECHNICAL INQUIRIES TO:
H. O'Herron, Jr.
Research Computation Center
The University of Texas Medical Bra

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*** C 5256 - #6.8 - - - - - - -

DESCRIPTION - This subprogram package reduces the core requirements for storing large amounts of indicator information and thereby simulating a much larger computer than acutally exists. The core savings enables a 16K computer, for instance, to handle binary information as if it were a 256K computer. Two entry points are provided, one to multiplex binary data and one to recover binary data.

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - Although BITX was written for an IBM 1800 with TSX V3M6, the coding is compatable with an 1130 system. This routine occupies 91 words of core.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800#1800#1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-03.0.001
1800 TSI CONTROL CARD GENERATOR

AUTHOR: S. E. Weaver

DIRECT TECHNICAL INQUIRIES TO:
S. E. Weaver
IBM Corporation
Monterey and Cottle Roads
San Jose, California 95114

*** N - - - - - - - - - ***

DESCRIPTION - This program generated all control cards necessary to commence a system generation for the 1800 TSI Operating System (1800-OS-001). All input data is defined on pre-printed keypunch forms designed to minimize and centralize all required parameters. The control card output consists of Non Process Monitor DUP Control Cards...System Loader Assignment and Dedit cards...Task Group 1 and 2 Equate EQU Cards...System Director Equate EQU Cards. Major advantages of the program are the guaranteeing of proper formatting and punching of control cards and the provision for consistent information in the many interdependent parameters required by the TSX System. The object program executes under the control of system generation task.

PROGRAMMING SYSTEMS - Written in 1800 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - 1801 or 1802 PC with 16K or 32K core storage, 2310 A1 Disk, 1442 Card Read/Punch and 1053 Typewriter.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800#1800#1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-03.0.002
MODIFICATIONS TO INCLUDE THE 1132 PRINTER IN THE IBM 1800 TIME SHARING EXECUTIVE SYSTEM TSX 1800-OS-001

AUTHOR: R. G. Birtch

DIRECT TECHNICAL INQUIRIES TO:
R. G. Birtch
IBM Corporation
Ltd.
Place Ville Marie
Montreal, Quebec

*** N - - - - - - - - - ***

DESCRIPTION - The modifications to the IBM 1800 Time Sharing Executive System (TSX) 1800-OS-001 permit the use of the IBM 1132 Printer (RPQ#80870) as a standard feature on the 1800 Computer System. With these modifications the 1132 Printer can be called from both Assembler and FORTRAN programs and can be used as the system and/or list printer.

PROGRAMMING SYSTEMS - 1800 Assembler Language and runs

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under the 1800 TSX.

MINIMUM SYSTEM REQUIREMENTS - Those required to run IBM 1800 Time Sharing Executive System (TSX).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800033002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-03.4.001 *N
MAGOF

AUTHOR: J. L. Abbott

DIRECT TECHNICAL INQUIRIES TO:
J. L. Abbott
Scripps Institution of Oceanography.
La Jolla, California 92037

*** N - - 86.3 83.8 - - - - - ***

DESCRIPTION- MAGOF is a subroutine for the IBM 1800 which allows the MAGT subroutine to be called by a FORTRAN statement, thus making the full flexibility of the 2401/2402 Magnetic Tape units available to the FORTRAN user. All parameters and input and output data are assumed to be one word integers.

PROGRAMMING SYSTEMS - Written in 1800 Assembly Language.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800034001

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

1800-03.4.002 *N
1800 TSX TYPER MODIFICATION FOR IN-CORE MESSAGE BUFFERING

AUTHOR: K. E. Marks

DIRECT TECHNICAL INQUIRIES TO:
K. E. Marks
IBM Corporation
401 Grand Avenue
Oakland, Calif. 94604

*** N - - - - - - - - - ***

DESCRIPTION - This program provides a modification to the 1800 TSX System (1800-OS-001) which will allow buffering of 1053 messages in core rather than on disk. This will eliminate the wait loops which can occur on the call level and the typewriter levels whenever message buffering to disk takes place. Options selectable by the user through use of equate cards at assembly time are (1) amount of core allocated for buffering for each 1053, (2) priority messages, (3) action taken when buffer overflows. This program must be inserted in the 1800 TSX Task program before assembly of Task.

PROGRAMMING SYSTEMS - Written in 1800 Assembler Language and runs under 1800 TSX.

MINIMUM SYSTEM REQUIREMENTS - 16K core storage. Also skeleton requirements vary from 23 to 177 words in addition to TSX requirements.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800034002

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

1800-03.4.003 *N
1800 TSX DISKN OPERATIONS COMPLETE MODIFICATION

AUTHOR: K. E. Marks

DIRECT TECHNICAL INQUIRIES TO:
K. E. Marks
IBM Corp.
401 Grand Ave.
Oakland, Calif. 94604

*** N - - - - - - - - - ***

DESCRIPTION - This program provides a modification to the 1800 TSX System DISKN subroutine which will allow the user to specify a subroutine to be executed upon completion of the called disk operation. This modification which must be inserted in the source deck of the 1800 TSX Task program.

PROGRAMMING SYSTEMS - Written in 1800 Assembler Language and runs under 1800 TSX.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800034003

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

1800-03.4.004 *N
IBM 1800/1896 COMMUNICATION AND CONTROL SYSTEM

AUTHOR: W. E. Rawson R. L. Smith
C. H. Reiling

DIRECT TECHNICAL INQUIRIES TO:
W. E. Rawson
IBM Corp.
33 N. Dearborn St.
Chicago, Illinois 60602

*** N - - - - - - - - - ***

DESCRIPTION - The 1800/1896 Process Communication and Control System is a Teleprocessing support package for the 1800 system utilizing the 1896 Communications Adapter (RPQ C88413). The system works within TSX and provides support for up to sixteen lines with sixteen terminals per line. The system is designed to support 1078, 1053, 1030, and 2740 Terminals, and 1800-360, 1800 - 1800 communication. It is currently fully implemented only for 1078 Terminals. Features include printed output via FORTRAN WRITE statements, queued I/O, on-line diagnostics, all user interface via FORTRAN, and automatic code conversion.

PROGRAMMING SYSTEMS - Requires IBM 1800 Time Sharing Executive System.

MINIMUM SYSTEM REQUIREMENTS - 16K core storage. Also, skeleton requirements vary from 2000 to 3000 words in addition to TSX requirements. Interrupt requirements are exclusive use of level zero and the program-settable interrupts of two lower levels. Up to sixteen typewriters are supported with FORTRAN WRITE statements.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800034004

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	MT 9/800	28	01
		DTR 9/1600	29	none
OPTIONAL	none	none		none

1800-03.4.005 *N
I/O SUPPORT ROUTINES FOR THE IBM 2311 UNDER IBM 1800 TSX

AUTHOR: S. F. Seroussi

DIRECT TECHNICAL INQUIRIES TO:
S. F. Seroussi
The Mitre Corp.
Command & Management Systems
Planning & Engineering
D-74
Bedford, Mass. 01730

*** C 1579 - - - - - - - - ***

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DESCRIPTION - The I/O support routines for the IBM 2311 Disk Storage under IBM 1800 TSX, (Version 3 Modification Level 1), provide special programming to allow the RPQ disk drives to perform as if they were attached to an IBM S/360. To accomplish this purpose, a set of programs, written in 1800 Assembler Language, are provided for incorporation into the system skeleton. These programs provide a set of calling sequences for most of the operations that can be performed on the 2311 Disk Units and, at the same time, process the interrupts generated by these units and inform the user of the final status of the operation requested. The 2841-2311 Interrupt Service subroutine has been given at system generation time an IAC number of 28 assigned to level 1, bit 8. The interrupt subroutine entered through the system, determines the type of return received from the last I/O operation by sensing the channel and device to obtain their status indicators.

PROGRAMMING SYSTEMS - Written in 1800 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - Those required for 1800 TSX with the addition of the S/360 Selector Channel and 2841-2311 RPQ's.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800#34##5

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-03.4.006 *M

1800 STORAGE CRT DISPLAY SYSTEM

AUTHOR: K. E. Harks

DIRECT TECHNICAL INQUIRIES TO:
K. E. Harks
IBM Corp.
881 Grand Ave.
Oakland, Calif. 94624

*** M - - - ##.7 ##.6 - - - **

DESCRIPTION - The 1800 Storage CRT Display System consists of a set of subroutines to be used for generation of displays on storage oscilloscopes interfaced to an 1800 system through the digital-to-analog converters and electronic contact operate features. These subroutines enable generation of characters for text display, scaling and plotting of vectors for waveform or graph display, conversion and display of floating point numbers, and plotting of axes for graphs. The user must assemble equate cards punched with values to specify his hardware configuration, common areas, masking requirements, display area size definition, and character and line size definition.

PROGRAMMING SYSTEMS - The subroutines are written in Assembler Language and are provided in source form only.

MINIMUM SYSTEM REQUIREMENTS - The routines are written to support a variable number of displays up to sixteen, but can be easily modified to expand this maximum value. The BCO points for each display must all be in the same BCO group. Only two DAC's with the Buffer Register feature are required.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800#34##6

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-03.4.007 *M

IBM 1800 TSX WITH IMPROVED DISK TIME OVERLAP (IDOL)

AUTHOR: G. Schwerdtner

DIRECT TECHNICAL INQUIRIES TO:
G. Schwerdtner
IBM Germany
Dept. 880
P. O. Box 266
7032 Sindelfingen, Germany

*** M - - - - - - - - - ***

DESCRIPTION - This program adds multiprogramming

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capabilities to TSX (V3 M2) without changing any TSX function. The user may write programmed interrupt routines which use disk so that the disk waiting time is utilized to process on lower levels. It works on multiple levels and disks. After initiating a disk operation by special call, the level is left and the routine is continued on its level after operation is completed. Instead, a branch to users routine on disk level can be caused. If the disk is found busy, the routine is also discontinued. It is resumed as soon as the disk is not busy. If more than one routine is waiting for a disk, the one with the highest priority is resumed first.

PROGRAMMING SYSTEMS - The program consists of additional cards for task, two ASM subroutines and a sample. It occupies about 168 additional words, and works on any configuration without additional interrupt levels.

MINIMUM SYSTEM REQUIREMENTS - Those needed to run 1800 TSX (Version 3 Level 2).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800#34##7

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-03.4.009 *M

REWIND AND UNLOAD SUBROUTINE

AUTHOR: M. O'Herron, Jr.

DIRECT TECHNICAL INQUIRIES TO:
M. O'Herron, Jr.
Research Computation Center
The University of Texas Medical Branch
Galveston, Texas 77550

*** C 5256 ## ##.3 ##.# - - - - - ***

DESCRIPTION - The purpose of this subroutine is to provide FORTRAN Programming with the ability to rewind and unload a magnetic tape drive in one operation. The ability to unload a tape drive provides security for newly written data since the tape drive must now be manually reloaded and restarted.

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - Either one or two 7- or 9-track tape drives may be in the system. This subroutine was coded in IBM 1800 Assembler and will not run on an 1130 Computer. Since only basic hardware instrucitons are used, UNLOD should work under any 1800 Operating System.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800#34##9

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-03.6.001

1800 MACRO UPDATE PROGRAM

AUTHORS: G. P. Pitman N. L. Johnsen

DIRECT TECHNICAL INQUIRIES TO:
F. P. Pitman
IBM Corporation
Monterey and Cottle Roads
San Jose, California 95114

*** M - - - - - - - - - ***

DESCRIPTION - This program is a Macro Update Program (MUP). It is to be used in conjunction with the 1800 Macro Assembler Program (Ref. 1800-03.7.001). This program permits updating of system macros defined by the referenced processor. The program permits insertion and deletion of statements within a macro or of entire macros with a single statement. It also permits the removing and renaming of macros. The Macro Update Program facilitates the maintenance of large or small programs, residing on disk and system macros.

PROGRAMMING SYSTEMS - Programming Language - 1800 Assembler. Monitor system required - TSX II or TSX III.

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MINIMUM SYSTEM REQUIREMENTS - 4200 words of variable core; this is the only configuration restriction.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800036001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-03.7.001
MACRO ASSEMBLY PROGRAM FOR THE 1800

AUTHOR: G. P. Fitsos

DIRECT TECHNICAL INQUIRIES TO:
G. P. Fitsos
IBM Corp.
Monterey & Cottle Road
San Jose, Calif.

*** M - - - - - - - - - - ***

DESCRIPTION - This program provides macro capabilities for the IBM 1800 TSX II and TSX III systems. Included in this assembler are conditional assembly pseudo operations, list control pseudo operations and the ability to define system and user macros with equal ease. The program is a modification and an extension of the current assembler and as such is consistent with it in syntax and language usage.

PROGRAMMING SYSTEMS - Written in 1800 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - There are two versions of this program, the Standard and Fast versions. The Standard version of this program operates within the minimum configuration required for the TSX system (e.g., 8K core and 1 disk). The Fast version requires an additional 500 words of core over the minimum system.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800037001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-04.8.001
1800 CARD ASSEMBLER ADDRESS CONVERSION

AUTHOR: H. T. Bridges

DIRECT TECHNICAL INQUIRIES TO:
H. T. Bridges
IBM Corporation
1120 Connecticut Ave. N.W.
Washington, D. C. 20036

*** C - ADCN2 00.0 - - - - - - ***

DESCRIPTION - This program produces a listing of an assembled 1800 list deck and indicates the corresponding instruction addresses for the core image and relocatable loaders. The addresses are printed in hexadecimal format. Considerable time has been saved when debugging by referring to a listing produced by this program, rather than having to do hexadecimal arithmetic to convert every significant address. It can also be used to quickly find the program location of wait instructions.

PROGRAMMING SYSTEMS - Written in Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - Any 1800 with 1442 Card Read/Punch.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800040001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-04.8.002
A DISK/CORE PATCH ROUTINE FOR PROGRAM DEBUGGING UNDER 1800 TSX

AUTHORS: L. S. Adler R. H. Pomerance

DIRECT TECHNICAL INQUIRIES TO:
R. G. Bockwell
IBM Corporation
Dept. 292, Bldg. 023
San Jose, California 95114

*** M - - - - - - - - - - ***

DESCRIPTION - The CORE/DISK Patch Routine provides a utility function under the TSX nonprocess monitor to make program corrections to core (skeleton) and disk resident program areas without reassembly and rebuilding. The program and the action taken are selected by a control card which uses the program name for identification. The patch cards use a standard format, and allow the use of a relocation factor, so that corrections may be prepared directly from the program listings and the coreload maps.

PROGRAMMING SYSTEMS - Programming language - 1800 Assembler Language. Operating system required - TSX.

MINIMUM SYSTEM REQUIREMENTS - Those required for TSX, provided there is at least one typewriter on the system. The program requires 1300 words of variable core, plus library subroutines TYPEN, HOLEB, HOLPR, EBPRT, HNBIN, BINHX, and PBT.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800040002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-04.1.001 *M
IBM 1800 CONSOLE INTERRUPT PROGRAM

AUTHOR: K. E. Marks

DIRECT TECHNICAL INQUIRIES TO:
K. E. Marks
IBM Corporation
401 Grand Avenue
Oakland, California 94604

*** M - - - 04.2 01.0 - - - - ***

DESCRIPTION - The IBM 1800 Console Interrupt Program consists of a group of subroutines which enable operator controlled execution of several functions which are useful in debugging, modifying, and communicating with programs being executed under the process mode. These functions are (1) entry of HEX, decimal, and floating point data, (2) dump of HEX, decimal, and floating point data to console printer and list printer, (3) set up of full trace or check-stop trace, (4) setting of program switches in the common area, (5) execution of any user program. All features are optional and can be selected or omitted through use of user coded equate cards assembled with the Console Interrupt Program. The user must assemble the program and build the coreloads on skeleton including the Console Interrupt Program.

PROGRAMMING SYSTEMS - Written in 1800 Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - From 9 to 200 words of core storage in addition to the skeleton.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800041001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTB*	00	none
OPTIONAL	none	none		none

1800-04.2.001 *M
1800 TSX MAINLINE TRACE PROGRAM

AUTHOR: K. E. Marks

DIRECT TECHNICAL INQUIRIES TO:
K. E. Marks
IBM Corporation
401 Grand Avenue

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Oakland, Calif. 94604

*** M - - - - - - - - - - ***

DESCRIPTION - The 1800 TSX Mainline Trace Program consists of two subroutines which can be built with a mainline coreload to enable either full trace or checkstop trace of that mainline. The TRACE Set-Up subroutine (TRSUP) is called by a statement in the mainline, and communicates with the operator to set up the trace limits. The Trace Interrupt subroutine (TRACI) is then executed for every mainline level instruction.

PROGRAMMING SYSTEMS - Written in 1800 Assembler Language; operates under 1800 TSX.

MINIMUM SYSTEM REQUIREMENTS - Those required for TSX.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800#42#01

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-#4.2.#02 *M
1800 TSX CIRCULATING TRACE TABLE SUBROUTINE

AUTHOR: K. E. Marks

DIRECT TECHNICAL INQUIRIES TO:
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IBM Corporation
488 Grand Avenue
Oakland, California 94604

*** M - - - - - - - - - - ***

DESCRIPTION - The Circulating Trace Table Subroutine (TRTSX) is used to create a dynamic trace record of programs being executed under the 1800 Time Sharing Executive System. TRTSX calls are assembled or compiled with process programs. Whenever one of these programs is then executed, TRTSX generates a four word trace record in the Trace Table in skeleton common. This record contains the current interrupt level being processed, the system clock value, the address of the call, and the user data parameter. If the table is filled, the oldest record is replaced with the new trace record. Size of the table and location in common is optional. This table can be dumped at any time to provide a time dependent trace of programs executed.

PROGRAMMING SYSTEMS - Operates under IBM 1800 Time Sharing Executive System (TSX).

MINIMUM SYSTEM REQUIREMENTS - Those required to run IBM 1800 Time Sharing Executive System (TSX).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800#42#02

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-#5.#.#01 *M
TIMS SUBROUTINE FOR IBM 1800 TSX SYSTEM TO EXPAND THE HARDWARE TIMER A TO 16 PROGRAMMED TIMERS # - A 15

AUTHOR: E. A. Meister

DIRECT TECHNICAL INQUIRIES TO:
E. A. Meister
IBM Germany
Department 480
P. O. Box 266
7032 Sindelfingen, Germany

*** M - - #3.# - - - - - - ***

DESCRIPTION - This timer subroutine replaces the standard 1800 TSX Timer subroutine and expands the hardware timer A to 16 programmed timers A # - A 15. Using the standard TSX timer calling sequence timer A # or timer B is affected. In addition timers A 1 - A 15 are operating independent from each other and may be used for single or repeated subroutine calls in specified time intervals. A patch to interval timer control program will avoid stopping and resetting hardware timer A. This Timer program enables the user of 1800 TSX System to control the operation of

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a great number of customer systems with different data rates and different on-off status. The program allows to supply a separate timer to each System and operate it in any combination with high flexibility.

PROGRAMMING SYSTEMS - Written in Assembler Language; operates under IBM TSX.

MINIMUM SYSTEM REQUIREMENTS - The same as for IBM 1800 TSX System. Core storage required - 366 words.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800#5###1

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-#5.1.#01 *M
ASIST - A SUBMONITOR PROGRAM FOR THE IBM 1800 TSX-III SYSTEM

AUTHOR: E. Donchin

DIRECT TECHNICAL INQUIRIES TO:
E. Donchin
NASA - Ames Research Center
Neurobiology Branch, M239-6
Moffett Field, California 94035

*** C 5#62 - - - - - - - - - ***

DESCRIPTION - "ASIST" is a program operating under the IBM TSX-III System that enables the user to run process programs in a batch mode. Using the 1816 Keyboard and the console switches, the user can-

- Enter any process program stored in FLET into the queue by typing its name on the keyboard and specifying its desired priority.
- Delete any program from the queue.
- Call time sharing for a specified interval.
- Call VIAQ.

MINIMUM SYSTEM REQUIREMENTS - IBM 1800 with a 1053/1816 Typewriter-Keyboard and one disk pack.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800#51#01

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-#5.1.#02 *M
1800 PALO ALTO LABORATORY SYSTEM (PALS) - A DYNAMIC MONITOR FOR MULTIPROGRAMMED ON-LINE DATA ACQUISITION AND CONTROL IN LABORATORY AUTOMATION

AUTHOR: C. H. Sederholm

DIRECT TECHNICAL INQUIRIES TO:
C. H. Sederholm
IBM Corporation
2670 Hanover Street
Palo Alto, California 94304

*** M - #3.4 #3.7 17.1 - - - - - ***

DESCRIPTION - The 1800 Palo Alto Laboratory System is a monitor system for laboratory automation which provides a sophisticated and versatile interface to analytical instruments. The flexibility of the instrument interface arises from both software and hardware features. The system encourages the use of a special digital multiplexer channel SPQ. The system also features a high level, problem oriented Macro Assembly Language, whose output code operates in a multiprogrammed environment.

MINIMUM SYSTEM REQUIREMENTS - 16K core, 1 2311 Disk, 1442 Card Read/Punch, 1443 Printer, 1816 Typewriter, and the recommended multiplexer channel. Relocatable system modules to support the above plus plotter, process interrupts, three disks, and user-program monitoring are written in 1800 Assembler Language, linked at system load time, and occupy about 12K. To use less core, subsets of system modules may be chosen and loaded without reassembling. Initial program generation requires a revised TSX Assembler, but the system is otherwise independent of TSX and other monitors.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800S51002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
		DTR 9/1600	29	none
		DTR 9/800	26	none
		MT 7DC/800	26	#1
OPTIONAL		none		none

1800-05.2.001
A MULTIPROGRAMMING EXECUTIVE TIME SHARING SYSTEM FOR THE IBM 1800 DATA ACQUISITION AND CONTROL SYSTEM

AUTHOR: C. W. Bowman W. A. Haruk
S. Palinosky D. Gloughlin

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IBM Corporation
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Bldg. 002-1
Owego, New York 13827

*** N - - - - - - - - - - ***

DESCRIPTION - As many as 16 terminals (utilizing up to 24 process interrupts) may be controlled in a multiprogrammed mode through the Multiprogramming Executive Time Sharing System. At system generation, core storage is divided into a maximum of 17 memory blocks. The system occupies memory block 1 and is always resident in core. Other (user) memory blocks may contain a process or non-process program. The system schedules interleaved, multiprogrammed execution of the memory block programs, and of multiple routines within a memory block. Thirty common I/O and code conversion subroutines are available through the system. External interrupts and I/O calls are queued. The program in any memory block may have its execution initiated or halted without affecting the execution of programs running in other memory blocks.

PROGRAMMING SYSTEMS - Written in 1800 Assembler Language and occupies from 4 to 16K of storage, depending on the 1800 system configuration.

MINIMUM SYSTEM REQUIREMENTS - An 1801 or 1802 Processor/Controller with a 32K memory, 2310-A1 Disk Storage, 1442 Card Read Punch, and an 1816 Printer-Keyboard is required. Digital I/O, 2310-A2 or -A3, 1443 Printer, 2401/2402 Magnetic Tape (9-track), 2260 Display Stations and 1054/1055 Paper Tape Units are also supported.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800S52001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-06.6.001 *M
BIT HANDLING SUBROUTINE PACKAGE FOR THE IBM 1800 TIME-SHARING EXECUTIVE SYSTEM

AUTHOR: R. F. Niedrauer

DIRECT TECHNICAL INQUIRIES TO:
R. F. Niedrauer
IBM Corporation
1800 DACS Support Center
Monterey & Cottle Roads
San Jose, California 95114

*** N - - 03.8 - - - - - - ***

DESCRIPTION - Three subroutines are available for bit testing, setting, and manipulation. They are written in 1800 Assembly Language and are designed to operate under TSX. After assembly and a DUP*STORE function, these routines may be called by FORTRAN or Assembly Language programs. Each routine masks interrupts, stores "A", "Q", used index registers, and machine status. Routines occupy a total of 166 words.

PROGRAMMING SYSTEMS - Written in 1800 Assembly Language to function independently under the IBM 1800 Time-Sharing Executive System (1800-05-001).

MINIMUM SYSTEM REQUIREMENTS - Those required for IBM 1800 Time-Sharing Executive System.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800S66001

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

1800-06.7.001 *M
LOGICAL AND RELATIONAL PACKAGE

AUTHOR: H. O'Heeron, Jr.

DIRECT TECHNICAL INQUIRIES TO:
H. O'Heeron, Jr.
Research Computation Center
The University of Texas Medical Branch
Galveston, Texas 77550

*** C 5256 - 23.5 51.6 - - - - - -

DESCRIPTION - This package is designed to provide the 1800 (TSX V3M5) and 1130 systems with some of the logical and relational comparison and evaluation capabilities of FORTRAN IV-H. Having been written as function sub-programs, in 1800 Assembler to be compatible with the 1130 system, this single package greatly reduces the coding necessary to implement Boolean searches for sets of records or (as in process programs) environmental conditions. Also included is a FORTRAN subroutine to translate the output of the above package into literal alphameric words for printing convenience.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for 1800 TSX V3M6.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800S67001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
		DTR 7DC/800	26	none
		DTR 9/800	26	none
		DTR 9/1600	29	none
OPTIONAL	none	none		none

1800-07.6.001
KEYBOARD ENTRY OVERLAP SUBROUTINES FOR 1800 TSX WITH AN 1816 KEYBOARD PRINTER

AUTHOR: N. G. Rockwell

DIRECT TECHNICAL INQUIRIES TO:
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IBM Corporation
Control Systems Development Center
Dept. 292, Bldg.823
Monterey and Cottle Roads
San Jose, California 95114

*** N - - 06.3 - - - - - - ***

DESCRIPTION - The Keyboard Entry Overlap Subroutines for TSX Version 3 allow the use of the 1816 Printer Keyboard for data entry without hindering normally established programs for TSX. A skeleton interrupt into a core buffer without interferring with the use of the Variable Core for other programs while the data is being entered. Upon recognition of the EOM character, the keyboard complete routine may optionally insert a coreload name in the program queue and terminate time sharing. The data entered resides in the core buffer with a protection key to prevent overwriting until a program transfers the data to the Variable Core region. The transfer of data is accomplished by either a core image transfer routine for Assembler level programs or by a FORTRAN callable subroutine which converts the data to A format. The transfer subroutines are included as part of the Overlap subroutines.

PROGRAMMING SYSTEMS - The subroutines are written in 1800 Assembler Language and require 1800 TSX.

MINIMUM SYSTEM REQUIREMENTS - 64 plus BFSIZ words in the skeleton for the interrupt service subroutine, KYRBQ; 74 words of Variable Core area for the Assembler transfer subroutine, KYBFI; and 112 words of Variable Core area for FORTRAN transfer subroutine, KYDTA. In addition, subroutine KYDTA requires TSX system subroutine HELEB. Only one 1816 Keyboard-Printer is supported by these

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subroutines.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800878#01

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-07.2.001 *N
VARIABLE FORMAT SUBROUTINE

AUTHOR: M. O'Herron

DIRECT TECHNICAL INQUIRIES TO:
M. O'Herron
Research Computation Center
The University of Texas Medical Branch
Galveston, Texas 77550

*** C 5256 - 06.6 12.1 - - - - - ***

DESCRIPTION - This routine allows the data input format, from cards, to be specified and changed during execution. The unique advantage of such a routine is the ability to store the main program in core image on disk and redefine the data input format without altering the program.

PROGRAMMING SYSTEMS - Since the coding language used was 1130/1800 Basic FORTRAN IV, this routine should run in the 1130 as well as the 1800 system. "VARFMT" is currently in use in an 1800 installation operating with TSX V3#6.

MINIMUM SYSTEM REQUIREMENTS - Same as those required for 1800 TSX V3#6.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800872#01

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1800-08.6.001
MULTIPLOT MULTIPROGRAMMING PLOTTER SUBROUTINES FOR THE IBM 1800 UNDER TSX USING MAGNETIC TAPE FOR INTERMEDIATE STORAGE

AUTHOR: W. P. Drescher

DIRECT TECHNICAL INQUIRIES TO:
R. E. Marks
IBM Corporation
401 Grand Avenue
Oakland, California 94610

*** N - - - - - - - - - ***

DESCRIPTION - These subroutines replace the TSX PLOTI subroutine and permit multiprogrammed plotter operation. The program runs in two phases; Phase I generates a plotter command sequence on magnetic tape in 160 word blocks and Phase II transfers the information from tape to plotter. Phase II may be run concurrently with any other program including Phase I, if two tape drives are available. Phase II will multiprogram with any programs below the plotter level including interrupt programs. Plotter operation can be either direct or multiprogrammed, under operator option.

PROGRAMMING SYSTEMS - Programming language - Source - 1800 Assembler Language. Operating system required - 1800 TSX.

MINIMUM SYSTEM REQUIREMENTS - 1802 with at least one tape drive and 1627 Plotter assigned to a lower interrupt level than the magnetic tape. Storage requirements - These subroutines will add approximately 800 words to the skeleton. MAGT will be included INSKEL.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800806#01

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none

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OPTIONAL	none	none	none

1800-08.7.001
INTERFACE SUBROUTINES FOR 1800/STORAGE OSCILLOSCOPE USING TSX-III OPERATING SYSTEM

AUTHOR: R. G. Rockwell

DIRECT TECHNICAL INQUIRIES TO:
R. G. Rockwell
IBM Corporation
Department 292- S. J.
Monterey & Cottle Roads
San Jose, California 95114

*** N - - 08.6 08.6 - - - - - ***

DESCRIPTION - Using analog output on the IBM 1800, the Interface Subroutine Set provides the user with the ability to use a standard storage oscilloscope as a graphic display device. The PLOTI Subroutine in the TSX Library is modified to drive either a 1627 or a pair of D/A converters for X and Y axis control. FORTRAN subroutines are included for erase and beam position control of the storage scope. The 1800 must have two (2) DAC's and an available pulse or ECO point for erase control.

PROGRAMMING SYSTEMS - 1800 Assembler with some FORTRAN, operating under TSX-III.

MINIMUM SYSTEM REQUIREMENTS - Those required for TSX-III. (Core requirements are approximately 47# words if all interface routines are used).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800887#01

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-13.2.001 *N
IBM S/1800 MULTIVARIATE ANALYSIS OF VARIANCE PROGRAM

AUTHOR: M. C. Trivedi

DIRECT TECHNICAL INQUIRIES TO:
M. C. Trivedi
Stramenburgh Laboratories
P.O. Box 1718
Rochester, New York 14603

*** N - 0001 13.6 13.7 - - - - - ***

DESCRIPTION - Multivariate Analysis of Variance Program performs univariate and multivariate analysis of variance, of covariance and regression. It provides an exact solution in either orthogonal or non-orthogonal case. Options include single or multiple degree of freedom contrasts in the main effects or intersections, transformations of variables, and orthogonal polynomial contrasts with equally or unequally spaced points. Re-analysis may be done with different criteria, covariates, contrasts and models.

PROGRAMMING SYSTEMS - This program is written in IBM 1800 FORTRAN IV D. It has 28 subroutines and 26 links.

MINIMUM SYSTEM REQUIREMENTS - IBM System 1800 with at least 16K memory, 1 disk, 1442 Card Read and Punch unit and an 1132 or 1443 Printer (magnetic tape is optional).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800132#01

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	80	none
OPTIONAL	none	none		none

1800-15.1.001
"DSL", AN IBM 1800 PROGRAM FOR THE SIMULATION OF CONTINUOUS PROCESS DYNAMICS FEATURING USER-INTERACTION AND ON-LINE GRAPHICS

AUTHORS: W. E. Sya D. G. Wyman

DIRECT TECHNICAL INQUIRIES TO:
Dr. S. M. Roberts
Process Ind. Dev. IBM S&ID Center

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6900 Fannin St.
Houston, Texas 77025

*** M - - 11.1 12.2 16.0 43.2 - - -

DESCRIPTION - DSL (Digital Simulation Language) is a program written for the IBM 1800 which may be used in the simulation of continuous process dynamics. The input language may be described as non-procedural, applications oriented, and free format in data and structure. A translator converts the DSL or intermixed FORTRAN statements, expressed at the analog-block level or as a system of ordinary differential equations, to a properly sequenced FORTRAN subroutine representing the simulation model. Program features allow extensive user interaction and on-line graphics at execution time. Fourth-order Runge-Kutta with automatic interval control is one of six integration methods included.

PROGRAMMING SYSTEMS - DSL is written in FORTRAN Language. The program may be executed within the 1800 TSX III Monitor System in on-line or off-line mode with 16K variable core.

MINIMUM SYSTEM REQUIREMENTS - Those required to run 1800-OS-001 (TSX). Data input may be by card or typewriter with output on a printer, typewriter, 1627 Plotter, or CRT Storage Scope. (Program 1800-00.7.001 must be ordered to use the scope with DSL).

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

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

ORDERING INFORMATION: PROGRAM NUMBER 1800151001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/600	28	none
		DTR 9/1600	29	none

1800-15.2.001
LINEAR PROGRAMMING - MATHEMATICAL OPTIMIZATION SUBROUTINE SYSTEM CONVERTED FOR 1800 TSX

AUTHOR: E. L. Stutz H. W. Muller

DIRECT TECHNICAL INQUIRIES TO:
E. L. Stutz
IBM Corporation
P. O. Box 3525
Charlotte, North Carolina 28203

*** M - - 23.1 15.6 45.1 45.4 - - - ***

DESCRIPTION - This FORTRAN program is a conversion of the Type II 1130 LP/MOSS to run under 1800 TSX-III as a nonprocess program. This 1800 LP/MOSS program will have the entire capabilities of 1130 LP/MOSS as described in its literature if the user can, when executing LP/MOSS, dedicate up to an entire disk pack to the storage of the Core Image program links and half of another pack to the LP file. Less disk utilization will result in smaller LP problem capacities and/or fewer of the packages capabilities. The program is modular and the user will have some degree of control over both file size and number of core loads. The largest core load occupies approximately 9,550 words when only nonprocess task is in core. In order to use this program, it is necessary to have the 1130 LP/MOSS Program Reference Manual (H20-0345). The manual is not distributed by PID with this program package, contact your local Branch Office.

PROGRAMMING SYSTEMS - Written in FORTRAN.

MINIMUM SYSTEM REQUIREMENTS - A 16K 1800 with 1-1053 or a printer, 1-1442 or 1-1054 and 1-2310 with two drives.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800152001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1800-16.4.001 *N
PRIMARY CIRCUIT ANALYSIS FOR THE IBM 1800

AUTHOR: A. J. Pupillo

DIRECT TECHNICAL INQUIRIES TO:
A. J. Pupillo

CONTINUED FROM PRIOR COLUMN

New York State Electric & Gas Corporation
Computer Applications
4588 Vestal Parkway East
Binghamton, New York

*** C 1528 - - - - - - - - - ***

DESCRIPTION - The Primary Circuit Analysis (PCA) computer program has been designed to provide a rapid and accurate means of analyzing primary feeders. It is designed to run as a non-process program under TSX (Time-Sharing Executive) System, and makes use of disk-oriented data storage and acquisition system. The complexity of primary distribution circuits, together with the large number of circuits in a distribution system make it impractical to perform the volume of field testing and calculating that would be needed to adequately monitor performance. The importance of the Primary Distribution Circuit system in providing reliable service and the large capital investment in these circuits, demands improved method of analysis. In designing a computer program to this end, we felt that the most important use would be for monitoring primary circuit voltage performance, and for obtaining operating aids such as phase balance and regulator settings. In addition, since all of the information is readily available, we decided to incorporate the calculations of short circuit currents as another phase of the computer program. This part of the program would calculate the four short circuit currents needed to design an accurately functioning protection scheme for primary lines.

PROGRAMMING SYSTEMS - Written in FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - A 16K disk IBM 1800 Data Acquisition and Control System with card reader, 1443 Printer, and 1816 Printer Keyboard.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800164001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	##	none
OPTIONAL	none	none		none

1800-16.4.002
1800 ELECTRIC POWER SYSTEM LOAD FLOW PROGRAM

AUTHOR: A. P. Glinn L. D. Willis

DIRECT TECHNICAL INQUIRIES TO:
A. J. Canders
New York State Electric & Gas Corporation
4588 Vestal Parkway East
Binghamton, New York

*** C 1528 - - - - - - - - ***

DESCRIPTION - This program is an outgrowth of the 1130 Load Flow Program which has been designed to produce the results of a performance calculation on an electric power system under load, these results specifically to include the power and reactive flows in transmission lines and other facilities. The program uses the Modal Iterative method, generally accepted by the electric utility industry as the most flexible for use in progressing from case to case in power system planning and operating studies. Extensive user-oriented features are included, so that the burdens of data preparation and answer interpretation are reduced to a minimum. The use of a disk-oriented data storage and acquisition system permits the solution of extremely large power system networks without extensive core requirement.

The program is divided into four major segments:

- An input program which accepts and re-structures user data for optimum use in later programs.
- A solution program, an iterative solution of the basic equations of performance.
- An output program which generates a user-oriented report.
- A change program which permits changes in network configuration and/or operating changes, with automatic progression to the next case.

Also included are 2 programs which allow the user to save case results in card form.

PROGRAMMING SYSTEMS - Assembler Language, Operating under an IBM 1800 Time Sharing Executive System (TSX).

MINIMUM SYSTEM REQUIREMENTS - Those required for TSX.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800164002

CONTINUED FROM PRIOR PAGE

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	MT 9/1600	29	01
		MT 9/800	28	01
OPTIONAL	none	none		none

1800-17.2.001 *H

RADIOISOTOPE SCAN ANALYSIS PROGRAM FOR IBM 1800 COMPUTER

AUTHOR: A. C. Spraa

DIRECT TECHNICAL INQUIRIES TO:
A. C. Spraa
IBM Corp. ASDD Medical Applications
IBM Dept. 249 Bldg.602
Rochester, Minnesota 55901

*** N - - - - - - - - - - ***

DESCRIPTION - The Radioisotope Scan Analysis Program accepts data from a Scintillation Scanner (a rectilinear motion, radioisotope scanning device). The program assumes that it is supplied with a process interrupt each time the scanner has traversed a distance of .1 inches and that the sum of the counts (8 BITS) detected over this distance is available on a digital input line. The program assumes another process interrupt (same level) will occur when the scanner reverses direction. An 1816 Keyboard is used to enter patient identification information and for other communication with the system. The scan processing consists of a method of smoothing, contrast plots on either 1053 or 1443 Printers, iso-count lines and perspective views on the IBM 1627 Plotter. Additional processing programs can be added to the system quite easily.

PROGRAMMING SYSTEMS - The program consists of Assembly Language and FORTRAN programs and uses the IBM 1800 TSX V3 #4.

MINIMUM SYSTEM REQUIREMENTS - 16K 1800 computer system with digital input, one process interrupt level with two input points, one 1816 Printer-Keyboard, one disk with at least 100 cylinders of fixed area. The following equipment is supported by the program: additional 1053 printers, 1443 Printer, 1627 Plotter, additional disk storage.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800172001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	88	none
OPTIONAL	none	none		none

1800-17.4.001 *H

REDUCTION OF OCEANOGRAPHIC STATION DATA

AUTHOR: E. H. Coughran

DIRECT TECHNICAL INQUIRIES TO:
E. H. Coughran
IBM Scientific Center
Scripps Institution of Oceanography
La Jolla, California 92037

*** N - - - - - - - - - - ***

DESCRIPTION - FORTRAN program for IBM 1800 to accept hydrographic measurements from oceanographic stations and calculate pressure, potential temperature, density, density gradient, sigma t, potential density, thermosteric anomoly, specific volume anomoly, and geopotential anomoly, can accept data from Nansen Bottles or from continuous reading instruments.

PROGRAMMING SYSTEMS - Written in FORTRAN using IBM 1800 TSX.

MINIMUM SYSTEM REQUIREMENTS - Runs on 1800 with 24K core equipped with 1442 Reader and 1443 Printer.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Main program "Ocean", seven subroutines, a setup of control cards and a test problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800174001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	88	none

CONTINUED FROM PRIOR COLUMN

OPTIONAL	none	none	none

1800-23.6.001

AUTOMATIC PRODUCTION REPORTING USING AN 1800 AND 1050'S

AUTHOR: G. T. Buckland B. Teague M. J. Hanucy

DIRECT TECHNICAL INQUIRIES TO:
G. T. Buckland
IBM Corporation
200 E. Camperdown Way
Greenville, South Carolina 29602

*** N - APR - - - - - - - ***

DESCRIPTION - This program controls and implements the Automatic Production Reporting functions for three carton weighing stations, using an 1800 as master controller of three scales and three 1050 stations. Scale input is via RPQ and 1058 communication is via RPQ across standard 2-wire telephone cable - both under computer control. Functions at each station are as follows: the program reads the scale, reads a card from the carton at the station, computes a net weight, assigns a unique number to the carton, logs constant plus computed data, punches inventory cards, and prints labels. The program at present is a self-contained, stand-alone program which controls the above sequence of events, contains I/O interrupt routines, and handles errors (with error messages) for all stations and scales.

PROGRAMMING SYSTEMS - The program is written in 1800 Assembler requiring less than 8K storage.

MINIMUM SYSTEM REQUIREMENTS - 1800, three 1058 stations, and three customer-supplied scales.

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

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

ORDERING INFORMATION: PROGRAM NUMBER 1800236001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	DTR 9/1600	29	none
		DTR 9/800	28	none

1800-23.5.001 *H

GAS CHROMATOGRAPH MONITORING PROGRAM

AUTHOR: R. D. McCullough

DIRECT TECHNICAL INQUIRIES TO:
R. D. McCullough
IBM Corp.
7900 Fannin
Houston, Texas 77025

*** N - - 17.3 16.3 16.6 - - - - ***

DESCRIPTION - This is a generalized set of programs which allows the user to monitor laboratory chromatographs on a real time basis using an IBM 1800. It is capable of reading analog voltage output from chromatographs at various amplication levels, operating contacts, (for column switching and backflushing), detecting peaks, identifying peaks, calculating analysis results, and reporting these results on 1053's with minimum laboratory personnel involvement. Also included is a set of maintenance programs that allow a user to add, modify, or delete chromatographic methods by input of data cards to the system instead of reprogramming.

PROGRAMMING SYSTEMS - Uses 1800 TSX. Written in FORTRAN and Assembly Language.

MINIMUM SYSTEM REQUIREMENTS - 16K 1800 (2 or 4 microsecond), one 2310, one 1442, one or more 1053's, digital input points, digital, output points, process interrupt, IBM 1894-11 auto gain high speed analog input front end, one or more 1892's.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800235001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	88	none
OPTIONAL	none	none		none

1800-23.5.002 *M

RPC DIRECT DIGIT PROCESS CONTROL

AUTHORS: G. W. Markham D. O. Johnson
A. Dubinsky

DIRECT TECHNICAL INQUIRIES TO:
G. W. Markham
IBM Corp., Bldg. 18
Monterey & Cottle Rds.
San Jose, Calif. 95114

*** N - - 06.3 - - - - - - ***

DESCRIPTION - This program allows the 1800 Control and Data Acquisition System to replace conventional analog controllers in control of a process, i.e., perform direct digital process control. Operator communication is also implemented.

PROGRAMMING SYSTEMS - Written in symbolic Assembly Language.

MINIMUM SYSTEM REQUIREMENTS - 16K, 1053 Printer, 1-2310 Disk, and several RPQ's, including the process operators console, are required. The program will run independently in a dedicated system.

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Listing and flowcharts.

ORDERING INFORMATION: PROGRAM NUMBER 1800235002

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR*	00	none
OPTIONAL	none	MT 7/556	22	#1
		MT 7/800	24	#1

1800-23.5.003 *M

MASS SPECTROMETER MONITORING PROGRAM

AUTHOR: R. D. McCullough

DIRECT TECHNICAL INQUIRIES TO:
R. D. McCullough
IBM Corp.
5900 Fannin St.
Houston, Texas 77025

*** N - - 16.3 16.6 17.3 - - - - ***

DESCRIPTION - This is a generalized set of programs which allows the user to monitor Mass Spectrometers on a real time basis using an IBM 1800. 1800 TSX, FORTRAN, and Assembly Language programs are employed. It enables the user to read analog voltages from Mass Spectrometers, operate pushbutton-type contacts (to specify the operating mode of each Mass Spectrometer), detect and identify peaks, develop a table of mass number versus peak height, and report these results on one or more output typewriters. These functions are provided with minimum involvement of laboratory personnel.

PROGRAMMING SYSTEMS - Written to operate under the IBM 1800 TIME-Shared Executive System.

MINIMUM SYSTEM REQUIREMENTS - S/1800 (2 or 4 microsecond), 16K core storage, one IBM 2310 Disk Storage Unit, one IBM 1442 Card Read/Punch, one or more output typewriters (IBM 1816 and/or 1053), one IBM 1804-11 Front End Interface, digital input points, digital output points, and three process interrupt points per Mass Spectrometer.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800235003

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

1800-23.5.004 *M

1800 INSTRON TENSILE TESTER MONITORING PROGRAM

AUTHOR: L. L. Spencer

DIRECT TECHNICAL INQUIRIES TO:
Mrs. Linda Lee Spencer
IBM Corp.
DACS Center, Bldg. 878
Monterey and Cottle Roads
San Jose, Calif. 95114

CONTINUED FROM PRIOR COLUMN

*** N - - 16.3 17.3 - - - - - ***

DESCRIPTION - This is a set of programs which allows the user to monitor laboratory Instron Tensile Testers on a real time basis using an IBM 1800. It reads the Instron signals using digital input, analog input, or the IBM 1804. It then detects the significant curve values, calculates run results and prints these results on 1053's. Yarn identification is entered for each run on the Soroban Keyboard. A set of disk maintenance programs is included to permit addition, deletion, or listing of Yarn testing methods by input data cards, rather than by reprogramming.

PROGRAMMING SYSTEMS - Uses 1800 TSX, FORTRAN, and Assembler Language.

MINIMUM SYSTEM REQUIREMENTS - 16K 1800 (2 or 4 microsecond)... 2310, 1442, 1816 Console, 1053 (one per Instron), one Soroban keyboard per Instron, digital input or analog input (AIPIS) or IBM-1804 (one point per Instron), digital input (one point for each two Sorobans), digital output (BCD-3 bits per Instron), process interrupt (one bit per Soroban keyboard).

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800235004

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

1800-23.5.005 *M

1800 DDCTSX, A TIME-SHARING DIRECT DIGITAL PROCESS CONTROL PROGRAM

AUTHOR: G. W. Markham L. S. Adler
R. M. Pomerance R. G. Rockwell

DIRECT TECHNICAL INQUIRIES TO:
Dr. J. D. Ekland
Process Industry Dev.
IBM 1800 Center
380 Northwest Highway
Des Plaines, Illinois 60016

*** N - - 16.3 23.4 - - - - - ***

DESCRIPTION - This program allows the 1800 Control and Data Acquisition System to replace conventional analog controllers in control of a process, i.e., perform direct digital process control. Operator communication is also implemented.

PROGRAMMING SYSTEMS - Written in symbolic Assembly Language and requires TSX system.

MINIMUM SYSTEM REQUIREMENTS - The IBM 1800 Time-Sharing Executive System (1800-OS-001, Version 3), 24K of core storage, one 1053 Printer, one 2310 Disk File, and several RPQ's including the Process Operators Console (1802-10).

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

OPTIONAL PROGRAM PACKAGE
DOCUMENTATION - None.
MACHINE READABLE - Flowchart, listings and source code.

ORDERING INFORMATION: PROGRAM NUMBER 1800235005

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	MT 9/1600	29	#1
		MT 9/800	28	#1

1800-23.5.006 *M

IBM 1800 ANALOG DATA ACQUISITION PROGRAM

AUTHOR: R. v. Kloosterlein

DIRECT TECHNICAL INQUIRIES TO:
R. v. Kloosterlein
IBM Germany, Dept.480
7032 Sindelfingen/Germany

*** N - - 07.0 06.5 - - - - - ***

DESCRIPTION - This program for the IBM 1800 Data Acquisition and Control System reads and processes analog input data. It may be used for data acquisition from any continuous process. The main functions are: reading analog input points, digital smoothing, conversion to engineering units, limit checking with alarm message printing, averaging, updating several data files which can be used by other

CONTINUED FROM PRIOR PAGE

programs. These functions are controlled by the Scan File on disk in which the user specifies all information and processing options for every analog input point.

PROGRAMMING SYSTEMS - The program is written in Assembler Language. It runs under TSX control and resides in the skeleton, using approximately 5K words of core storage.

MINIMUM SYSTEM REQUIREMENTS - 1801 or 1802 with 16K core storage, 2310 Disk, 1442 Card Unit, 1053 or 1816 Printer, analog input with comparator.

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

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800235006

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

1800-23.5.009
PROCESS DATA PREPARATION PROGRAM

AUTHORS: B. S. Pomerance R. E. Rockwell

DIRECT TECHNICAL INQUIRIES TO:
G. W. Markham
IBM, Dept. C76, Bldg. 500
Monterey and Cottle Roads
San Jose, California 95114

*** N - - 06.7 - - - - - - ***

DESCRIPTION - This program will prepare the data for the installation of a process control system. Data forms for installation and control information are printed. Data punched from these forms is stored on a disk file. File maintenance modules allow corrections, additions and deletions to the data files. A Report Printing module can be used to prepare operator data sheets, wiring lists, etc. Process Variable Records for the DDC (1800-23.5.002) and DDC-TSX (1800-23.5.005) can be produced, and the on line records can be 'back-translated' into Engineering language.

PROGRAMMING SYSTEMS - Written in FORTRAN for an 1800 TSX installation.

MINIMUM SYSTEM REQUIREMENTS - TSX configuration with approximately 6700 words of variable core.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code, source code and sample problem.

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

ORDERING INFORMATION: PROGRAM NUMBER 1800235000

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	05	none
OPTIONAL	none	DTR 9/800	28	none
		DTR 9/1600	29	none

1800-25.2.001 *N
COMPUTER PROGRAM FOR A HOSPITAL BLOOD BANK

AUTHOR: R.A. Stewart, M.D.

DIRECT TECHNICAL INQUIRIES TO:
R.A. Stewart, M.D.
University of Kentucky, Medical Center
Lexington, Kentucky 40506

*** N - - 06.7 17.5 - - - - - ***

DESCRIPTION - Computer program for maintaining records for a hospital blood bank.

PROGRAMMING SYSTEMS - Written in 1800 FORTRAN and 1800 Assembler language and uses 1800 TSX. Requires MIOP (available from DACS Centers) and HAGOP (1800-03.4.001) Type 3 programs available from IBM, Program Information Department.

MINIMUM SYSTEM REQUIREMENTS - 16K 1801, 1-1818, 1-1442, 1-1443, and 1-1816.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

CONTINUED FROM PRIOR COLUMN

ORDERING INFORMATION: PROGRAM NUMBER 1800252001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR 9/800	28	none
		DTR 9/1600	29	none
		MT 7DC/800	26	#1
OPTIONAL	none	none		none

1800-03.2.001 *N
CONTROL SYSTEMS ANALYSIS PROGRAM

AUTHORS: W. Agostinis D.G. Fisher

DIRECT TECHNICAL INQUIRIES TO:
B. Ramstead
Data Acquisition, Control and Simulation Centre
Dept. of Chemical and Petroleum Engineering
University of Alberta
Edmonton, Alberta Canada

*** C 7052 CSP 05.2 - - - - - - ***

DESCRIPTION - This program package is a complete generalized system for solving differential equations from either state matrix or Laplace transform formulations. It is specifically oriented to assist with the design and analysis of linear time-invariant control systems. If the input is the classical transfer function block diagram format the program produces an equivalent state variable matrix equation. Alternatively the state matrices can be entered directly. Regardless of the form of input, the program calculates the coefficient matrices for the state difference equations and produces the time domain values for any specified state and/or output variables as a printer listing, IBM 1627 plot or storage scope display. Some important features of the system are that it handles time delays, it is self-documenting and the changing of parameters and initiation or reruns can be completely conversational if there is an 1816 Keyboard/Typewriter on the user's system.

PROGRAMMING SYSTEMS - With the exception of a few plotter subroutines and one 1816 servicing routine which are written in 1800 assembler the complete package (mainline programs and subroutine consisting of approximately 8500 cards) is in FORTRAN and was implemented under TSX V3M5. The package has also been modified to run on and VM 360/67, OS system.

MINIMUM SYSTEM REQUIREMENTS - An 1800 with TSX, 16K variable core, and approximately 400 sectors of disk space. However many advantages of the package are lost if a storage scope and/or a 1627 Plotter and an 1816 Keyboard/Typewriter are not available.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1800431001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	CODE	USER VOLUME REQUIREMENT
BASIC	none	DTR 7DC/800	26	none
		DTR 9/800	28	none
		DTR 9/1600	29	none
OPTIONAL	none	none		none

1801-03.9.001 *N
MODIFICATIONS TO INCLUDE THE 1132 PRINTER IN THE IBM MULTIPROGRAMMING SYSTEM (MPX) 1800-OS-018

AUTHOR: Lee Jackson

DIRECT TECHNICAL INQUIRIES TO:
Lee Jackson
IBM Corporation
2925 Euclid Ave.
Cleveland, Ohio 44115

*** N - - - - - - - - - ***

DESCRIPTION - The modifications to the IBM 1800 Multiprogramming Executive System (MPX) 1800-OS-018 permit the use of the IBM 1132 Printer (RPQ C08078) as a standard feature on the 1800 computer system. With these modifications the 1132 Printer can be called from both Assembler and FORTRAN programs and can be used as the system and/or list printer. The 1132 is not supported in the special print routine (trace, etc.). These functions will come out on the 1816/1053.

PROGRAMMING SYSTEMS - The modifications consist mainly of an 1132 Printer IOCS subroutine written in 1800 Assembler Language and designed to be inserted into the BOM source file by the use of the *SERPLE function of DMP.

MINIMUM SYSTEM REQUIREMENTS - The same as those required for 1800-OS-018 and a 1132 Printer.

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BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1981034001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

1981-05.1.001 *N

1800 PALO ALTO LABORATORY SYSTEM (PALS) VERSION II

AUTHORS: Diana H. Bloch, Theodore R. Lunebrink, Christian J. Jenny, Charles H. Sederholm

DIRECT TECHNICAL INQUIRIES TO:
Christian J. Jenny
IBM Scientific Center
2670 Hanover Street
Palo Alto, Calif. 94304

*** N IPA PALS2 03.4 03.7 17.1 17.3 - - - ***

DESCRIPTION - The Palo Alto Laboratory System (PALS) Version II is a multiprogramming monitor system, specifically designed for laboratory automation, providing a sophisticated and versatile interface with a group of analytical instruments and similar devices. The timesharing system allocates core and disk dynamically depending on the different users needs. The system also features a problem-oriented laboratory language, an interactive job control language and support for independent asynchronous data transfer between the computer and multiple scientific instruments.

PROGRAMMING SYSTEMS - PALS is independent of any other monitor system.

MINIMUM SYSTEM REQUIREMENTS - 16K core, 1818 A2 or B2 Disk Drive, 1442 Card Read/Punch, 1816 Typewriter, 1443 Printer. Relocatable system modules support up to three disk drives (A3 or B3), 1627 Plotter, process interrupts, timers and analog input. The system encourages but does not require the use of the special purpose multiplexer channel RPQ.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Object code, source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1981051001

	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
		MT 7DC/800	26	01
		MT 9/800	28	01
		MT 9/1600	29	01
OPTIONAL	none	none		none

1981-23.1.001 *N

PAPER MACHINE TRIM SYSTEM

AUTHOR: H.P. Coulter

DIRECT TECHNICAL INQUIRIES TO:
H.P. Coulter
IBM Corporation
Bldg. 005, South Road
Poughkeepsie, New York 12602

*** N - - - - - - - - - ***

DESCRIPTION - This set of programs allows the user to trim large problems with up to 45 sizes using a linear program, or small problems using a heuristic approach. Both programs use the same input and produce punched output, which can be used as input to a schedule program which produces one page per pattern, with customer identification for each roll. If one does not have a 1443 Printer, changes must be made in the FORTRAN source code to allow use of the 1816 or 1053 Printers. One should order program #1130-23.1.004 documentation (only) for use with this system.

PROGRAMMING SYSTEMS - Written in FORTRAN IV.

MINIMUM SYSTEM REQUIREMENTS - The same as those for 1800 TSX.

BASIC PROGRAM PACKAGE
DOCUMENTATION - Write-up.
MACHINE READABLE - Source code and sample problem.

OPTIONAL PROGRAM PACKAGE - None.

ORDERING INFORMATION: PROGRAM NUMBER 1981231001

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	PROGRAM NUMBER EXTENSION	DISTRIBUTION MEDIUM TYPE	MEDIUM CODE	USER VOLUME REQUIREMENT
BASIC	none	CARDS	15	none
OPTIONAL	none	none		none

DELETIONS

The following list of Type I programs preceded by an asterisk will be deleted by the Program Information Department on September 4, 1973 because of low usage. Until that date, orders for these programs will be accepted by the Program Information Department.

PROGRAM NUMBER	PROGRAM NAME
*1130-CQ-012	Job Control from the 1130/2250 Using the Satellite Graphic Job Processor
1130-FO-002	FORTRAN Compiler
1130-LM-002	Subroutine Library

The following list of Type II Applications Programs preceded by an asterisk will be deleted by the Program Information Department on September 4, 1973, because of low usage. Until that date, orders for these programs will be accepted by the Program Information Department.

PROGRAM NUMBER	PROGRAM NAME
*1130-CX-33X	Plan Graphics Support Program
1130-CX-38X	Numerical Surface Technical and Contour Map
*1130-DX-01X	Route Accounting System for Dairies and Bakeries
*1130-EM-03X	Mechanism Design System-Kinematics (MDS-Kinematics)
1130-EO-11X	Program for Optical System Design (POSD) (Typewriter Version)
*1130-EO-12X	Program for Optical System Design (POSD) (Typewriter/Printer Version)
1130-EO-14X	Program for Optical System Design (POSD/II)
1130-MF-03X	Work Measurement Aids
*1130-MP-02X	Casing Design Program
*1130-MP-04X	Tarner Material Balance Program

The following Type III Contributed Programs preceded by an asterisk will be withdrawn by the Program Information Department on August 17, 1973. Until that date, orders for these programs will be accepted by PID.

PROGRAM NUMBER	PROGRAM NAME
1130-00.6.001	Subroutine GCOPY - An IBM 2250-4 to 1627 Hard Copy Generator
1130-03.4.004	Interrupt Service Subroutine PCCA-1 For Inclusion in the IBM 1130 Disk Monitor System for Handling Data Transmission Between IBM-1130 and IBM 1070/ 1050 Systems

PROGRAM NUMBER	PROGRAM NAME
*1130-04.0.001	Core-Image Card Patch Program with Keyboard Input -
1130-08.6.002	Draw and Plot Subroutines
1130-11.0.001	1030 Data Collection System-Design Assistance and Terminal Configuration Program
1130-12.1.003	Disk Data Transfer Utility Package - 1130 System/360 Model 44 2315 Disk Cartridge Compatability
1130-12.1.005	1130 File Conversion Program Disk Monitor Version 1 to Disk Monitor Version 2 (FCOPY)
*1130-15.2.005	1130 Blending of Initial Furnace Charges
*1130-23.4.004	Romance/Fosdick Post Processor
1130-30.1.003	A Demonstration of Melt Charge Material Blending for the IBM 1130
1800-00.0.002	Object Time I/O Logical Number Generator
1800-03.0.001	1800 TSX Control Card Generator
1800-03.4.002	1800 TSX Typen Modification for In-Core Message Buffering
1800-03.4.003	1800 TSX DISKN Operations Complete Modifications
1800-03.4.007	IBM 1800 TSX With Improved Disk Time Overlap (IDOL)
1800-03.6.001	1800 Macro Update Program
1800-03.7.001	Macro Assembly Program for the 1800
1800-04.0.001	1800 Card Assembler Address Conversion
1800-04.0.002	A Disk/Core Patch Routine for Program Debugging Under 1800 TSX
1800-04.2.001	1800 TSX Mainline Trace Program
1800-04.2.002	1800 TSX Circulating Trace Table Subroutine
1800-05.0.001	Time Subroutine for IBM 1800 TSX System to Expand the Hardware Time A to 16 Programmed Timers 0 - A 15
1800-05.1.002	1800 Palo Alto Laboratory System (PALS) - A Dynamic Monitor for Multiprogrammed On-Line Data Acquisition and Control in Laboratory Automation
1800-08.6.001	Multiplot Multiprogramming Plotter Subroutines for the IBM 1800 Under TSX Using Magnetic Tape for Intermediate Storage
1800-17.2.001	Radiosotope Scan Analysis Program for IBM 1800 Computer
1800-17.4.001	Reduction of Oceanographic Station Data
1800-23.0.001	Automatic Production Reporting Using an 1800 and 1050's
1800-23.5.002	DDC Direct Digit Process Control
1800-23.5.005	1800 DDC-TSX, A Time-Sharing Direct Digital Process Control Program
1800-23.5.006	IBM 1800 Analog Data Acquisition Program
1800-23.5.008	Process Data Preparation Program

The following list of Type IV Contributed Programs preceded by an asterisk will be retired by the Program Information Department on August 17, 1973. Until that date, orders for these programs will be accepted by PID. After that date, only the documentation associated with these programs, recorded on microfiche cards, will be available from PID.

PROGRAM NUMBER	PROGRAM NAME
1130-01.5.003	Dump Standing Orders and Balances
1130-03.4.014	A 2250 Model 1 Simulation Support Package
1130-06.3.002	William and Mary Remote Job Entry Program - 8K Disk System Version (WMRJ8)
1130-06.3.003	William and Mary Remote Job Entry Program - 4K Disk and Card Systems Version (WMRJ4)
1130-12.1.001	FORTRAN Card Code Subset to EBCDIC Code Conversion Subroutine
*1130-12.1.004	AREAL Subroutine
*1130-16.4.003	Three Winding Transformer Rating Package
1130-16.4.012	1130 Load Flow Card Dump and Restore
1130-17.3.001	Quick, A FORTRAN IV Program for the Astrazon Rapid Dyeing Method
1130-17.3.004	FAST
1130-19.0.002	Load Disk with Survivor Dispersion Data
1130-19.0.003	Print Dispersion Data File From User Area
*1130-44.1.001	Multi-Line Interpolation Routine
1500-01.6.001	RAS/1130 Coursewriter II Reassemble Program
1500-03.8.001	Response Analysis Functions for the 1500 System
1500-99.0.001	Function SF for Any 1500 Coursewriter II CAI System
1500-99.0.002	Function EP 1500 CW II Function CAI System
1500-99.0.003	U. T. Coursewriter Function Package
1500-99.0.004	Function KMIN 1500 CWII Function CAI System
1800-03.4.009	Rewind and Unload Subroutine
1800-05.1.001	ASIST - A Submonitor Program for the IBM 1800 TSX-III System
1800-16.4.001	Primary Circuit Analysis for the IBM 1800
1800-16.4.002	1800 Electric Power System Load Flow Program
*1800-25.2.001	Computer Program for a Hospital Blood Bank

The following list of Prior Use Programs preceded by an asterisk will be withdrawn by the Program Information Department on August 17, 1973. Until that date, orders for these programs will be accepted by PID.

PROGRAM NUMBER	PROGRAM NAME
*1131-17.3.101	Clinical Laboratory System
*1131-23.4.101	AUTOPOL/1130
1801-03.4.002	1800 TSX 2311 Operating System
1801-05.1.001	1800 Palo Alto Laboratory System (PALIS) Version II

The following programs have been removed from the Program Information Department at the request of the SHARE User Group. All requests for these programs should be directed to the new distribution agency for SHARE:

SHARE Program Library Agency
Triangle University Computation Center (TUCC)
P. O. Box 12175
Research Triangle Park, N. C. 27709

1130-06.3.001	IBM 1130 REMOTE JOB ENTRY SYSTEM
1130-06.3.005	AN 1130 HIGH SPEED BISYNCHRONOUS COMMUNICATIONS SYSTEM