IBM

Systems Reference Library

IBM 1130 Bibliography

This two-part bibliography indexes and abstracts basic reference literature for planning, installing, programming, and operating the IBM 1130 Computing System.

Part 1 cross-indexes publications dealing with specific system components with machine-type number or feature name.

Part 2 contains the abstracts of publications in form-number sequence.

Requests for form-numbered IBM publications are normally made directly to the IBM representative.

For each major IBM data processing system, a Systems Reference Library (SRL) contains all basic reference literature needed to plan, program, install, and operate the system. An SRL Bibliography Supplement, Form A24-3089, covers publications for IBM teleprocessing and data collection equipment. The *Bibliography of Data Processing Techniques,* Form F20-8172, lists selected IBM technique-oriented publications that are applicable to many types of systems.

Bibliography

The bibliography is always associated with the *1130 SRL Newsletter,* Form N20-1130. When you order the bibliography, you automatically receive the SRL Newsletter. The bibliography lists applicable publications and related materials in machine type number sequence, and contains the abstracts (in form number sequence) for all current 1130 SRL publications.

By reviewing the contents of this bibliography, you may select items of interest for your installation and be aware of other materials that may be useful in the future.

File Numbers, Subject Codes

The cover page of each SRL manual shows the title, abstract, form number, and file number. The file number identifies the system or component discussed and the general subject area.

For publications associated with one or two Libraries, the prefix of the file number is the system type (e.g., 1401/1460-, 7080-). When the publication is included in more than two Libraries, the component type (e.g., 1311-, 7330-) is used, if applicable. In other cases "GENL" (general) is used.

The suffix of the file number is the subject code which designates a general subject area and the suggested filing sequence. Code 15, for example, is used for all publications related to physical planning specifications; code 33 appears on all publications related to IBM sort and merge programs for the system. Application program documentation appears under subject code 60.

In the bibliography, the subject code for any publication appears to the upper right of its abstract. A complete list of publications appears as an accumulative index in subject-code sequence in the *1130 SRL Newsletter,* Form N20-1130.

Technical Newsletters

To keep publications current, additions and other modifications are distributed as Technical Newsletters (TNLS). The TNL masthead carries the file number and form number of the publication to which it applies. Also, all previously issued TNLS are listed so that you may verify receipt of all changes.

SRL Newsletter

The *1130 SRL Newsletter,* Form N20-1130, is issued every four weeks (if changes have occurred during that period) to update the 1130 Bibliography. All current publications are listed in subject code sequence. Each entry shows the form number and title of the publications as well as the form numbers of applicable TNLS. Obsolete publications are listed separately, with replacement form numbers (if any) indicated. Abstracts of new publications are also included.

The SRL Newsletter gives the form number suffix so that you may verify your publications as current. Some publications have more than one current edition, since a reprint that incorporates previously distributed replacement pages is given a new suffix. All current editions and applicable TNLS are listed in the SRL Newsletter.

SRL Subscription Service

A direct-mail service is available to IBM system users to supply new publications, major revisions, and Technical Newsletters for a library that is formed and maintained according to a profile of the user's interests. To subscribe, see your local IBM representative.

IBM Programming Systems

SRL Newsletters also show the current status or programming systems available for a system. Additional data, including ordering instructions, for these and application programs are in the *Catalog of Programs for 1130 Computing System and 1800 Data Acquisition and Control System,* Form C20-1630.

This part of the 1130 Bibliography cross-indexes material on specific system components with machine-type number or feature name. Consult the *IBM 1130 Configurator* (A26-5915) for the type number of each unit and the name of the special feature. System summary and installation (physical planning) publications, which contain information applicable to multiple machine units, are not included in this index.

MACHINE NUMBER	NAME	SUBJECT CODE	FORM NUMBER
1055	Paper Tape Punch	01	A26-5881
		01	A26-5717
		13	A26-3531
1131	Central Processing Unit	01	A26-5881
		01	A26-5717
		13	A26-3531
		13	A26-5606
		19	A26-3645
1132	Printer	01	A26-5881
		01	A26-5717
		13	A26-3531
1134	Paper Tape Reader	01	A26-5881
		01	A26-5717
		13	A26-3531
1231	Optical Mark Page Reader	01	A26-5881
		01	A26-5717
1403	Printer	01	A26-5881
		01	A26-5717
		03	A24-3488
1442	Card Read Punch	01	A26-5881
		01	A26-5717
		13	A26-3531
1627	Plotter	01	A26-5881
		01	A26-5717
		13	A26-3531
2250	Display Unit	01	A26-5881
		01	A26-5717
		03	A27-2723

MACHINE NUMBER	NAME	SUBJECT CODE	FORM NUMBER
2285	Display Copier	03	A27-2730
2310	Disk Storage Drive	01	A26-5881
		01	A26-5717
2501	Card Reader	01	A26-5881
		01	A26-5717
		03	A26-5892
Synchronous Communications Adapter		01	A26-5881

The abstracts of all publications and materials shown in Part I appear below in form-number sequence. The user can determine from the abstract whether the publication is applicable to his needs.

320-1621   Marketing Publications   99
**   KWIC Index**

Keyword index of marketing publications, based on publication titles. Each title is shifted to the right, one keyword at a time, and placed in alphabetic order with all other keywords. Type numbers are treated as keywords; thus a section of the index contains all publications in type number sequence. (188 pages)

A21-9012   1231, 1232 Optical Mark   03
**   Page Readers**

This publication describes the functions, controls, principles of operation, data flow, and programming for the IBM 1231 and 1232 Optical Mark Page Readers. Special features available are explained. Also included is a section on the IBM 534 Model 3 Card Punch. (62 pages)

A24-3089   SRL Bibliography Supplement —   00
**   Teleprocessing and Data Collection**

This three-part reference lists the available reference literature for installing, programming, and operating IBM Teleprocessing equipment, used independently or with several data processing systems. Part 1 lists publications by major subjects. Part 2 is a cross-index of Teleprocessing equipment with the associated data processing system. Part 3 contains the abstract of each Teleprocessing publication in form-number sequence. (24 pages)

A24-3488   Form-Design Considerations —   03
**   System Printers**

This publication contains information to be considered by personnel designing, ordering, or using forms for the IBM 1403, IBM 1443, IBM 2203, IBM 2213, or IBM 5203 Printer. (20 pages)

A26-1575   1130 High Speed Bi-Sync   13
**   Communications Adapter**

This manual describes the operation and programming of the IBM high speed binary synchronous communications adapter as it relates to the 1130 system. A general description of the channel and information concerning the machine interface are also included. (24 pages)

A26-1579   IBM 1130 Custom Feature   13
**   Description — Attachment Channel**
**   RPQ Number 831552**

This manual contains programming and packaging information for the IBM 1130 attachment channel (RPQ). Channel operation and I/O operations associated with the attachment channel are described in detail. The information in this manual is not oriented to any particular control unit or I/O device that may attach to the channel. (36 pages)

A26-3531   1130 Typesetting System (RPQ)   13

This publication describes the IBM 1130 Typesetting System. The 1130 Typesetting System automates the hyphenation and justification functions of the printing and publishing industry. The IBM 1130 Computing System is described briefly, and the features and operations that comprise the 1130 Typesetting System are described in more detail. (36 pages)

A26-3645   1130 Computing System   19
**   Storage Access Channel —**
**   Original Equipment Manufacturers'**
**   Information**

This publication contains information for engineers who plan to attach their equipment to the IBM 1130 Computing System.

Detailed information for the Storage Access Channel is provided, including timing diagrams, line descriptions, and electrical parameters.

The functions of the 1131 and 1133 are also described. The interface points for other IBM devices that normally attach to the 1131 or 1133 are also listed, including voltage and current levels. (60 pages)

A26-5606   1130 OEM Channel RPQs   **13**

This manual describes the operations, controls, and programming of the IBM 1131 OEM Channel RPQs. The RPQs described are:

> OEM Channel (RPQ E36602)
> Control and Status Expander (RPQ 831472)
> Multi-Level Interrupts (RPQ 831472)

A general description of the channel and information concerning machine interface that is not readily available in other publications are included in this manual. The reader should have a prior knowledge of the IBM 1130 Computing System. (28 pages)

A26-5717   1130 Operating Procedures   **01**

This is a guide to the operation of the 1130 Computing System. It covers in detail the usual duties of an operator of an 1130 system when operating 1130 input/output devices and when performing certain functions with the 1131 console control panel. No specific programming system is assumed.

This publication describes the control keys, indicator lights, special features, setup procedures, restart procedures, and principles of operation of all input/output devices available for attachment to the 1130 system. Pictorial illustrations are included throughout the text to clarify procedures, and a glossary is presented in the appendix to clarify terminology. (104 pages)

A26-5756   Disk Pack Handling and   **07**
                Operating Procedures

This manual is a guide for handling IBM disk packs and cartridges. The information contained in this manual applies to the IBM 1316 and 2316 Disk Packs and 2315 Disk Cartridge. (7 pages)

A26-5881   1130 Functional Characteristics   **01**

This manual provides basic programming and operating information for the 1130 Computing System. The functional aspects of the system are explained in detail, and the operational characteristics are described in terms of program instructions, input/output operations, and Central Processing Unit console displays and functions. Intended as a reference manual, the material presented assumes some prior knowledge of stored program computers. (90 pages)

A26-5892   2501 Card Reader, Models A1 and   **03**
                A2 — Component Description and
                Operating Procedures

The operating principles and features of the IBM 2501 Models A1 and A2, as used with System/360 Model 20 Data Processing System or with the IBM 1130 Computing System, are described in this publication. Descriptions of keys, lights, program indicators, program instructions, and machine timings are included. Operator procedures are also described.

A knowledge of the information contained in the functional characteristics manual for the system being used is required for a complete understanding of this publication. (16 pages)

A26-5914   1130 Installation Manual —   **15**
                Physical Planning

This publication contains physical planning information for the installation of an 1130 system. Included are dimensions, weights, cable locations and available lengths, service clearances, and other necessary physical information for each unit of the system. Environmental and electrical requirements are also included. Photographs and drawings are used throughout the text, and a summary table of physical planning specifications is provided. (32 pages)

A26-5915   1130 Configurator   **00**

This two-page publication contains a schematic drawing of the IBM 1130 Computing System, showing the additional units and special features and their respective prerequisites. (2 pages)

A26-5917   1130 System Summary   **00**

The System Summary presents a brief introduction to the IBM 1130 Computing System, including system concepts, components, and programming systems. Intended as a general overall picture of the 1130, the manual helps the reader gain a basic understanding of the system and its use. (14 pages)

A27-2723   1130 Component Description —   **03**
                2250 Display Unit Model 4

This publication contains detailed information about IBM 2250 Display Unit Model 4 programming, operations, and special features. The material is presented with the assumption that the reader has read the *IBM 1130 Functional Characteristics,* Form A26-5881.

The 2250-4 is a programmable display unit that attaches to the 1130 via a storage access channel. It can display lines, points, and characters under control of a display program in 1130 main storage. Character generation is a program function, giving the user complete flexibility in the generation and use of character sets. Storage addressing and display program decoding and execution are performed by the 2250. A fiber-optic light pen, in conjunction with the display program and the logical capabilities of the 2250, enables the performance of computer-aided graphic design operations by the 2250 operator. Two special features, the alphameric keyboard and the programmed function keyboard, facilitate (1) message entry and editing by the 2250 operator and (2) communication between the 2250 operator and the CPU program. (60 pages)

A27-2730   Component Description IBM 2285   03
Display Copier

This publication presents a functional description of, and operator procedures for, the IBM 2285 Display Copier. Each 2285 attaches directly to an IBM 2250 Display Unit Model 1, 3, or 4 that is equipped with an attachment feature. The 2285 provides an 8½-by-11-inch paper copy output of the associated 2250 display upon initiation by the 2250 operator. The 2285 obtains analog signals and power from the 2250 to which it is attached and requires no programming. The following publications may be of interest to the reader:

IBM System/360 Component Description; IBM 2250 Display Unit Model 1, Form A27-2701.

IBM System/360 Component Description; IBM 2250 Display Unit Model 3, IBM 2840 Display Control Model 2, Form A27-2721.

IBM 1130 System Component Description; IBM 2250 Display Unit Model 4, Form A27-2723. (8 pages)

C20-1618   Number Systems   95

The IBM Student Text on Number Systems presents a brief review of the principles of positional notation as applied to the binary and hexadecimal systems of notation. The publication covers the operation of binary and hexadecimal arithmetic, decimal-binary-hexadecimal base conversion, and the principles of base and base-minus-one complementation. (26 pages)

C20-1630   1130 Computing System and 1800   20
Data Acquisition and Control System —
Catalog of Programs

This catalog contains a complete listing of all programs for the IBM 1130 Computing System and IBM 1800 Data Acquisition and Control System that are available from the Program Information Department, 40 Saw Mill River Road, Hawthorne, New York 10532.

Instructions for ordering programs are contained in the section of the Introduction entitled "How to Order Programs." (64 pages)

C20-1642   1130 FORTRAN Programming   50
Techniques

This manual contains an elementary analysis of 1130 FORTRAN object programs and discusses some specific FORTRAN programming techniques for writing more efficient programs. The information contained in this manual is primarily intended for the beginning programmer as an aid to achieving improved 1130 system performance. (20 pages)

C20-1645   Outlines of Statistical Techniques,   99
Applications, and Programs for
Industry, Engineering and Science

This manual outlines nine statistical techniques, giving simple definitions and examples, a summary of input and output, and references to numerous applications and computer programs. The techniques covered are correlation, factor analysis, cluster analysis, regression, discriminant analysis, experimental analysis, evolutionary operation, Bayes formula, and time series analysis. (28 pages)

C20-1665   Examples of Control Cards for   95
FORTRAN Runs

This manual gives examples of the control cards needed to compile and execute FORTRAN programs on several IBM systems. A certain number of control cards interlace a user's FORTRAN program (main plus subprograms). These control cards describe the FORTRAN program to the computer and allow the user to take advantage of the many options available to him.

A list of references is given in this manual for each FORTRAN system. Local custom may prescribe a different set of control cards than those illustrated here. (30 pages)

C20-1690 1130 Computing System — 50
User's Guide

This manual, covering a wide range of subjects that are of interest to 1130 customer personnel, is designed for insertion in a workbook along with user-generated materials. It deals with the steps to be considered in any successful installation program: preinstallation planning, documenting current applications, design of new applications, conversion, program development, testing, and program documentation.

Additional topics discussed include the 1130 system, the 1130 monitor, job management, disk management, core management, file organization, disk data storage, FORTRAN, the Commercial Subroutine Package, sorting, and system evaluation—performance.

It is suggested that the User's Guide be placed in a binder and that dividers be inserted before the various sections. The resulting workbook becomes the single major source of installation guidance when you include your own data processing policies, standards, and control forms. (736 pages)

C20-8011 Random Number Generation 99
and Testing

Random sampling, simulation studies and Monte Carlo methods have been in use for many years. Papers describing various aspects of these topics have appeared in technical journals and textbooks available to a relatively small percentage of computer users. Meanwhile, applications requiring random numbers are becoming more important and more common in business and industry as well as purely scientific areas. Therefore, this manual has been prepared. The manual gives the mathematical development of the power residue method, outlines computer techniques for implementing it, and also offers brief comments on other methods. An appendix provides programming illustrations for binary and decimal computers. (20 pages)

C21-5002 IBM 1130 RPG Language 28

This reference publication contains fundamentals of RPG programming and language specifications for the IBM 1130 Computing System. For information on RPG that is beyond the purpose of this language publication, see *IBM 1130 Disk Monitor System, Version 2, Programming and Operator's Guide,* Form C26-3717.

For the titles and abstracts of associated publications, see the *IBM 1130 Bibliography,* Form A26-5916. (270 pages)

C26-3629 1130 Card/Paper Tape Programming 20
System Operators Guide

This publication provides the information necessary to operate the IBM 1130 Card and Paper Tape Programming Systems: FORTRAN Compiler, Assembler and Compressor, Subroutine Library, and Utility Programs. Primarily intended for the machine operator, the manual describes the loading and restart procedures for the programming systems in detail. (74 pages)

C26-3706 1130 Synchronous Communications 30
Adapter Subroutines

This manual describes the subroutines used in connection with the 1130 Synchronous Communications Adapter, which permits the attachment of the 1130 Computing System to private and commercial common-carrier facilities.

Included in the descriptions are calling sequences for the subroutines and explanations of the parameters involved.

The following publications constitute prerequisite information required for effective use of this publication: *Data Communications Primer,* Form C20-1668, and *General Information — Binary Synchronous Communications,* Form A27-3004. (56 pages)

C26-3709 1130 Disk Monitor System, 36
Version 2 — System Introduction

This publication describes the 1130 Disk Monitor System, Version 2. The 1130 Disk Monitor System, Version 2, is a combined programming and operating system that provides for continuous operation of the 1130 in a stacked-job environment. This monitor system supports the expanded hardware features and the high-speed input/output devices available on the 1130. (8 pages)

C26-3715 1130/1800 Basic FORTRAN IV 25
Language

This publication presents the specifications and programming rules for the basic FORTRAN IV language used under the following programming systems:

        IBM 1130 Card/Paper Tape Programming System

        IBM 1130 Disk Monitor System

        IBM 1130 Disk Monitor System, Version 2

IBM 1800 Card/Paper Tape Programming System
IBM 1800 Time-Sharing Executive System
IBM 1800 Multiprogramming Executive System

Appendix A of this publication lists the FORTRAN statements described and specifies to which of the above programming systems they apply.

This publication should not be used as a FORTRAN primer. For general information about FORTRAN, refer to *IBM FORTRAN II General Information Manual,* Form F28-8074. (68 pages)

C26-3717   1130 Disk Monitor System,   36
Version 2 — Programming and
Operator's Guide

Program Numbers   1130-OS-005
                   1130-OS-006

This manual contains the operating and maintenance procedures for the IBM 1130 Disk Monitor System, Version 2. An introductory section acquaints the user with the IBM 1130 system. A section on programming tips and techniques assists the user in utilizing the monitor system.

Monitor system control records are described in detail. An appendix contains all error messages generated by the system. (191 pages)

C26-3750   1130 Disk Monitor System   36
Reference Manual

This publication describes Version 1 of the 1130 Disk Monitor, a combined operating and programming system. This system includes a supervisor program, a disk utility program, a symbolic assembler, a FORTRAN compiler, and a subroutine library. The latter four programs operate under control of the supervisor program to provide continuous operation.

IBM-supplied subroutine library contains routines for input/output conversion and arithmetic functions. (102 pages)

C26-3755   1130/1800 Plotter Subroutines   30

This publication describes relocatable plotter subroutines for the IBM 1130 and 1800 systems. These subroutines can be used to draw and scale grid lines, to draw special point characters, to draw alphameric characters at various angles, and to plot curves, graphs, charts, and maps. The subroutines can be used in both assembler and FORTRAN language programs. (16 pages)

C26-5927   1130 Assembler Language   21

This publication contains the necessary information to write programs in the IBM 1130 Assembler language. Included are rules for statement writing, mnemonic codes and descriptions of operands, and descriptions of the instructions used to control the assembler program. (44 pages)

C26-5929   1130 Subroutine Library   30

This publication describes the libraries provided with the following programming systems:

          1130 Card/Paper Tape Programming System
          1130 Disk Monitor System, Version 1
          1130 Disk Monitor System, Version 2

These libraries may be referenced within this manual as C/PT, DM1, and DM2, respectively. The library for DM2 is known as the system library. DM2 core addresses are given in symbolic form. Figure 4 lists the absolute equivalents of these symbolic addresses.

The programming system libraries consists of input/output, conversion, arithmetic and functional, and utility subroutines. Included in the descriptions are calling sequences for the subroutines and explanations of the parameters involved.

The section on conversion subroutines describes the codes used to communicate with the 1130 system I/O devices. An appendix lists these codes and shows their relationship to each other. (116 pages)

C27-6934   IBM 1130/2250 Graphic Subroutine   25
Package for Basic Fortran IV

Program Number 1130-LM-008

This publication describes subroutines used for the IBM 2250 Display Unit Model 4 in association with the IBM 1130 Disk Monitor System, Version 2. The Subroutines enable a program written in either 1130 Basic FORTRAN IV or 1130 Assembler language to display alphameric information or graphic forms on the 2250 screen and to communicate with the 2250 operator.

It is assumed that the FORTRAN user of this publication has had experience with the IBM 1130 Disk Monitor System and 1130 Basic FORTRAN IV language. It is assumed that the Assembler-language user of this publication is experienced in both the 1130 FORTRAN IV and Assembler languages. (108 pages)

C27-6937   **IBM System/360 Operating System**   **25**
and 1130 Disk Monitor System

System/360-1130 Data Transmission
for FORTRAN

Program Numbers 360S-LM-542 and 1130-LM-011

This publication describes subroutines that enable a
FORTRAN IV programmer to transmit data between a
program being processed by the IBM System/360 Oper-
ating System and a program being processed by the IBM
1130 Disk Monitor System Version 2. It also describes
how these subroutines can be used by an Assembler
Language programmer.

The subroutines described in this publication make up
what is called the processor-to-processor (PTOP) program.
With these subroutines, the FORTRAN programmer can
perform telecommunication procedures similar to those
available to Assembler Language programmers via the
binary synchronous services of the Basic Telecommunica-
tions Access Method (in the System/360 Operating System)
and the Synchronous Communications Adapter subrou-
tines (in the 1130). The PTOP subroutines are not an
extension of the FORTRAN IV Language, but are to be
used in conjunction with it.

It is assumed that the FORTRAN user of this publica-
tion is experienced in the FORTRAN IV language of both
the IBM System/360 Operating System and the IBM 1130
Disk Monitor System Version 2. It is assumed that the
Assembler Language user of this publication is experienced
in the Assembler Language of both systems. Detailed
knowledge of binary synchronous communications pro-
gramming is unnecessary. (58 pages)

E20-0197   **1130 Route Accounting System for**   **60**
Dairies and Bakeries —
Application Description

This manual contains the general description of programs
designed to perform the route accounting functions for a
dairy or bakery using an IBM 1130 system. These functions
include production reporting, loading documents, route
settlement, and statistical reporting.

Run descriptions, machine and systems configurations, a
general systems chart, and illustrations of reports and files
are also included in this manual. (32 pages)

F20-8172   **Bibliography of Data Processing**   **00**
Techniques

This bibliography and associated classification system pro-
vide a means to identify selected IBM publications which,
either wholly or partly, document information concerning
data processing techniques. The listing of any given publi-
cation in this bibliography, however, does not preclude its
appearance in other reference bibliographies, such as the
System Reference Library.

Part I of this bibliography lists publications by form
number within major subject classification. Part II con-
tains abstracts of the publications in form-number sequence
only. (20 pages)

F28-8074   **FORTRAN General Information**   **25**
Manual

FORTRAN is an automatic coding system developed to pro-
vide a means of expressing problems. It is a symbolic source
language similar to the language of mathematics. This manual
describes FORTRAN II and prepares the reader to use the
facilities it provides. (102 pages)

H20-0139   **1130 Type Composition Program**   **60**
(1130-DP-04X) Version 2 —
Application Description

This program enables type compositors to realize a signifi-
cant time saving in the transcription of original copy into
printed matter. Under the direction of the program, the
computer accepts six-channel paper tape input which con-
tains printer-oriented format control instructions and the
copy that is to appear in print. The program interprets the
format instructions and produces a tape suitable for con-
trolling the operation of a linecasting machine.

This manual contains a general description of the applica-
tion area, machine and system configurations, a general
systems chart, a discussion of preinstallation activities, and
a sample problem. (20 pages)

H20-0140   **1130 Numerical Surface Techniques**   60
and Contour Map Plotting
(1130-CX-11X) — Application
Description

This set of programs is designed for applications that re-
quire the quantitative description of surfaces. These pro-
grams make numerical or analytical approximation to a
set of coordinate values that define a surface. There are
programs in the set that can also be used to display any of
the calculated surfaces as a plotted contour map.

This manual contains a description of the individual
programs in the set, the machine configurations, and a
general systems chart. (16 pages)

H20-0143   **Civil Engineering Coordinate**   60
Geometry (COGO) for the IBM 1130
Model 2 — Application Description

COGO is designed specifically for civil engineering geome-
try problems. Engineers state problems in familiar
vocabulary, and statement input generates problem solution.
Programming, in the usual sense, is unnecessary, and no
intermediate programming is needed.

The program is written for an 8K card 1130 Model 2 and
operates under the 1130 Monitor System.

This manual describes the basic features of the 1130
COGO language and its implementation on the 1130.
(56 pages)

H20-0208   **1800/1130 Control**   60
Optimization Program (COP/1800-1130)
(1800-CC-01X) Application
Description Manual

This is a general purpose, nonlinear optimization program
with features that make it particularly suited to online use
in an optimizing process control system. This manual des-
cribes the program and its features. (40 pages)

H20-0209   **1130 Continuous System Modeling**   60
Program (1130-CX-13X) —
Application Description

This program provides engineers and scientists with a simple
but versatile means for simulating continuous processes. It
is a "digital analog simulator" program using a block-
oriented input language in which the functional blocks rep-
resent the elements and organization of an analog computer.
Features of the 1130 Computing System are used to permit
on-line experimentation with the continuous system model.

The manual contains a general description of the applica-
tion, machine configuration requirements, a general systems
chart, and a sample problem. (19 pages)

H20-0211   **1130 Project Control System —**   60
Application Description

This manual presents a brief description of a project control
system and describes the design, features, and input/output
characteristics of a computer program developed to serve as
the data processing element of such a system. Although the
IBM 1130 Project Control System is designed primarily for
those areas of government and industry concerned with
construction, repair, or maintenance, its features are such
that it can meet the critical-path requirements of a broad
range of users, regardless of industry. (24 pages)

H20-0221   **1130 Commercial Subroutine**   60
Package (1130-SE-25X), Version 2 —
Application Description

The IBM 1130 Commercial Subroutine Package is for 1130
users with a knowledge of FORTRAN. The routines are in-
tended to give commercial capability to users of IBM 1130
FORTRAN; they are not intended to make FORTRAN a
complete commercial language. This manual provides suf-
ficient information to determine the applicability of the
package. (12 pages)

H20-0225   **1130 Scientific Subroutine Package**   60
(1130-CM-02X) —
Application Description

The Scientific Subroutine Package (SSP) is a collection of
FORTRAN subroutines divided, for the sake of presenta-
tion, into three groups: statistics, matrix manipulation,
and other mathematics. This manual gives brief abstracts of
the subroutines and some of their common characteristics.
(20 pages)

H20-0234   **1130 Programs For Optical**   60
Systems Design (POSD) —
Application Description

This system consists of an interrelated series of programs
providing a complete and flexible facility for the geometric
analysis of image-forming optical systems, together with a
means for automatically correcting such systems. Particu-
lar emphasis has been placed on creating an efficient man-
machine relationship. The evaluation techniques available
to the designer encompass both ray tracing and third- and
fifth-order aberration analysis with ray-tracing speeds of
roughly ¼ second per ray surface. The program handles
optical components that make up a lens system. These
components may consist of mirrors, prisms, or any general
reflecting or refracting elements. (24 pages)

H20-0235 1130 Data Presentation System 60
Version 2
Application Description Manual

Program Number 1130-CX-14X

This manual tells prospective users about the capabilities
and advantages of the IBM 1130 Data Presentation System.
It also outlines the user's responsibilities, states machine
requirements, and gives a general processing flowchart.

The most important and novel feature of the IBM 1130
Data Presentation System is a completely programmed
Graphic Report Generator that can operate as an indepen-
dent system. Other system features provide extensive
support for users altering or extending the Graphic Report
Generator, writing special purpose graphic output programs,
or including graphic output in their new and existing appli-
cations. (32 pages)

H20-0237 Structural Engineering System 60
Solver (STRESS) for the IBM 1130
Model 2B — Application Description

This program is designed specifically for the solution of
structural engineering problems. It uses a problem-oriented
input language which enables the structural engineer to
communicate with the computer even though he has no
previous programming experience.

The program can analyze structures with prismatic mem-
bers in two or three dimensions, with either pinned or rigid
joints, and subjected to concentrated or distributed loads,
support motions, or temperature effects.

The program is written for an 8K card 1130 Model 2,
with disk, and operates under the 1130 Monitor System.
(36 pages)

H20-0238 1130 Linear Programming — 60
Mathematical Optimization
Subroutine System —
Application Description

The 1130 Linear Programming — Mathematical Optimiza-
tion Subroutine System provides the 1130 disk user with a
simple, efficient means of solving linear programming prob-
lems and with a powerful tool for implementing other
mathematical optimization applications.

The system contains all the routines necessary to solve a
linear programming problem and to perform an extensive
postoptimal analysis of the problem. The system provides
extensive data generation and maintenance facilities.

To solve a linear programming problem, these routines
are called into core storage by procedure control statements
that define the processing sequence. The control statements
may originate on cards or on paper tape.

The LP-MOSS routines can also be used like subroutines
by a program written in FORTRAN. This is accomplished
by a special command that is translated into valid

FORTRAN statements by a system translator. The com-
mand calls a program into core storage to be executed be-
fore returning control to the next statement in the calling
program.

This manual contains a description of the system, the
machine configuration required, and limits on problem
size. (28 pages)

H20-0241 1130 Commercial Subroutine 60
Package (1130-SE-25X), Version 3 —
Program Reference Manual

The 1130 Commercial Subroutine Package is for IBM 1130
users with the knowledge of FORTRAN. The package is
not intended to make FORTRAN a complete commercial
language, but to supply commercial capability to users of
1130 FORTRAN.

This manual is a combined user's, operator's, and system
manual. (212 pages)

H20-0249 1130 Work Measurement Aids — 60
(1130-MF-03X)
Version 2
Application Description Manual

Work Measurement Aids is a series of programs designed to
help set time standards. The programs are (1) Machinability,
which determines machine tool parameters and calculates
process time for machining operations, and (2) Work
Measurement Sampling, which determines job standards for
long-cycle operations and the distribution of time to job
activities (conventional work sampling).

In addition to these programs, the manual describes the
use of the IBM 1130 Statistical System for Standard Data
Development, another aid to setting standards. This pro-
gram helps determine a relationship (formula) between
standard time and the key variables which affect it for a
particular class of operations. (32 pages)

H20-0252 1130 Scientific Subroutine Package 60
(1130-CM-02X) —
Programmer's Manual

The Scientific Subroutine Package (SSP) is a collection of
121 FORTRAN subroutines divided, for the sake of pre-
sentation, into three groups: statistics, matrix manipula-
tion, and other mathematics. It is a collection of input/
output-free computational building blocks that can be
combined with a user's input, output, or computational
routines to meet his needs. The package can be applied to
the solution of many problems in industry, science, and
engineering. (192 pages)

H20-0268 1130 Mechanism Design System — 60
Gears and Springs (1130-EM-01X)
Version 2
Application Description Manual

A series of mechanical component design and analysis programs is made available to the mechanical engineer through the 1130 Mechanism Design System — Gears and Springs. Spur and helical gears, compression, extension and torsion springs can be designed through use of these FORTRAN-coded programs. Program input, which is provided by the engineer, includes component functional requirements and design restrictions. If the requirements can be met within the specified restrictions, the engineer receives design data necessary for manufacturing and inspecting the component, as well as additional calculated data to evaluate the design.

Local design practices are easily incorporated into this system at the user language level. With these features of FORTRAN-coded programs, free data forms, language modification capability and complete design documentation, the 1130 Mechanism Design System offers an economical and powerful design aid to the mechanical engineer.

This manual is basically divided into five sections. The Introduction reviews the overall role of the IBM 1130 Computing System in mechanism design and analysis. The next section discusses specific spur and helical gear design concepts and the use of IBM-supplied programs. Following this, spring design and analysis concepts and programs are reviewed. Next, machine and programming system requirements and program timing are shown. Appendixes, illustrating detailed gear and spring formulas, and a bibliography are also supplied. (24 pages)

H20-0282 1130 Continuous System Modeling 60
Program (1130-CX-13X) —
Program Reference Manual

This program for the IBM 1130 provides the engineer and scientist with a simple yet versatile means for simulating continuous processes. It provides a large complement of functional elements and a block-oriented language for specifying their interconnection. Features of the 1130 are used to advantage to achieve operational flexibility for on-line experimentation.

This manual contains a general description of the application, detailed programming information, operating instructions, and a sample problem. (52 pages)

H20-0284 1130 Continuous System Modeling 60
Program (1130-CX-13X) —
System Manual

This manual provides detailed information to help the user gain a more thorough knowledge of the programming logic employed in the application.

The manual presents flowcharts, flowchart narratives, a list of switches, and program listings. (108 pages)

H20-0287 1130 Type Composition Program 60
(1130-DP-04X) —
Programmer's Manual

This program enables type compositors to realize a significant time saving in the transcription of original copy into printed matter. Under the direction of the program, the computer accepts six-channel paper tape input containing printer-oriented format control instructions and the copy that is to appear in print. The program interprets the format instructions and produces a tape suitable for controlling the operation of a linecasting machine.

This manual contains a general description of the program, a program systems chart, input/output description, a detailed format control instruction discussion, program modification aids, and sample problems. (183 pages)

H20-0288 1130 Type Composition Program 60
(1130-DP-04X) —
Operator's Manual

This program enables type compositors to realize a significant time saving in the transcription of original copy into printed matter. Under the direction of the program, the computer accepts six-channel paper tape input which contains printer-oriented format control instructions and the copy that is to appear in print. The program interprets the format instructions and produces a tape suitable for controlling the operation of a linecasting machine.

This manual contains program setup instructions, console operating procedures, error messages and restart procedures, and storage maps. (44 pages)

H20-0301 1130 Civil Engineering Coordinate 60
Geometry (COGO) (1130-EC-02X) —
User's Manual

COGO is designed specifically for civil engineering geometry problems. Engineers state problems in familiar vocabulary, and statement input generates problem solution. Programming, in the usual sense, is unnecessary, and no intermediate programming is needed.

The program is written for an 8K card 1130 Model 2 and operates under the 1130 Monitor System.

This manual describes the basic features of the 1130 COGO language and its implementation on the 1130. (84 pages)

H20-0320 1130 Programs for Optical Systems 60
Design (1130-EO-11X and
1130-EO-12X) — User's Manual

This manual is intended to serve as an instruction guide for users of the 1130 Programs for Optical Systems Design (POSD). The program routines within the system are grouped into four major categories: utility, design analysis, system evaluation, and automatic design.

All programs are written in the 1130 FORTRAN language and are assembled under the control of the 1130 Disk Monitor. Loading, execution, and linkage between segments of the POSD system are also under monitor control. Usage of these segments, with associated input and output formats, is described herein. (102 pages)

H20-0324 1130 Programs for Optical 60
Systems Design (1130-EO-11X) —
Operator's Manual

This manual is intended to be used as a reference by users of the POSD system and to serve as an aid during and after machine runs. Detailed descriptions of console operating procedures, program calling sequences, and error messages are contained within. (52 pages)

H20-0328 1130 Route Accounting for Dairies 60
and Bakeries (1130-DX-01X) —
User's Manual

This publication contains procedural instructions for the implementation of the IBM 1130 Route Accounting System for Dairies and Bakeries, a general systems chart, instructions for the creation and maintenance of the required disk files, punched card input/output formats, preprinted form layouts, and disk record layouts. In addition, a general description of each program is given, and a sample problem is furnished.

The reader is assumed to know the functions of the system as given in *1130 Route Accounting System for Dairies and Bakeries, Application Description* (Form E20-0197). (120 pages)

H20-0330 1130 Route Accounting System 60
for Dairies and Bakeries
(1130-DX-01X) — Operator's Manual

This publication contains instructions for the operation of the IBM 1130 Route Accounting System for Dairies and Bakeries. Included are instructions for initialization of the system and operating instructions for each program in the system. (100 pages)

H20-0333 1130 Statistical System 60
(1130-CA-06X) — User's Manual

The 1130 Statistical System performs four major statistical functions — regression analysis, factor analysis, analysis of variance, and polynominal fitting. This manual contains, for each type of analysis performed, a description of the computational algorithms used, the form and content of the control cards, operating instructions, and sample problems. (124 pages)

H20-0337 1130 Data Presentation System 60
(1130-CX-14X) Version 2 —
Operator's Manual

This manual contains instructions for console operators using the Graphic Report Generator and other components of the 1130 Data Presentation System. It also contains general and diagnostic information needed by all users of the system. (43 pages)

H20-0338 1130 Data Presentation System 60
(1130-CX-14X) Version 2 —
Program Description Manual

This system provides versatile graphic support at three distinct levels. The first level provides the programming necessary for controlling IBM 1130 graphic output hardware; the intermediate level provides graphic and coordinate geometry special function routines; at the highest level, the Graphic Report Generator provides the programming required to produce many different graphic presentations of data files. The Program Deck Generator produces edited source decks.

This manual provides the detailed instructions necessary for any individual to use the IBM 1130 Data Presentation System at any level. (160 pages)

H20-0340 Structural Engineering System 60
Solver (STRESS) for the IBM 1130
Model 2B (1130-EC-03X) —
User's Manual

This program is designed specifically for the solution of structural engineering problems. It uses a problem-oriented input language that enables the structural engineer to communicate with the computer even though he has no previous programming experience.

The program can analyze structures with prismatic members in two or three dimensions, with either pinned or rigid joints, and subjected to concentrated or distributed loads, displacements, or temperature effects.

The program is written for an 8K card 1130 Model 2, with disk, and operates under the 1130 Monitor system. (48 pages)

H20-0341 1130 Statistical System 60
(1130-CA-06X) —
Application Description

The IBM 1130 Statistical System consists of a set of four separate statistical routines for polynomial curve fitting, stepwise linear regression, factor analysis, and analysis of variance. The user may process his data by only one of the routines or by multiple routines where the results of processing by one can be used by another. Input and output formats as well as processing options may be specified by the user. (10 pages)

H20-0342 1130 Project Control System 60
(1130-CP-05X) —
Version 2
Program Description Manual

The 1130 Project Control System serves as the data processing element of a system that helps management carry out its functions of planning and supervising projects, within a broader environment of operations and procedures. Although designed primarily for those areas of government and industry concerned with construction, repair, or maintenance, the system will meet the critical path requirements of a broad range of users, irrespective of industry. It will process data from networks planned in either precedence-diagramming or arrow-diagramming methods. The system consists of a set of routines stored on disk. The sequence of processing and system outputs is controlled by the system control card, the type of input data to be processed, and the output report requests submitted at run time. Output reports include status listings, bar charts, and basic resource and cost summarization reports. Updating capability is provided for network restructuring as well as progress reporting for in-process work items. (132 pages)

H20-0343 1130 Project Control System 60
(1130-CP-05X) Version 2 —
Operator's Manual

The 1130 Project Control System serves as the data processing element of a system that helps management carry out its functions of planning and supervising projects, within a broader environment of operations and procedures. Although designed primarily for those areas of government and industry concerned with construction, repair, or maintenance, the system will meet the critical path requirements of a broad range of users, irrespective of industry. The system processes data from networks planned in either precedence-diagramming or arrow-diagramming methods, and consists of a set of routines stored on disk. The sequence of processing and system outputs is controlled by the system control card, the type of input data to be processed, and the output report requests submitted at run time. Output reports include status listings, bar charts, and basic

resource and cost summarization reports. Updating capability is provided for network restructuring as well as progress reporting for in-process work items.

The Operator's Manual describes the procedures for system run setups, console operations, and library maintenance. Programmed halts and disk backup deck procedures are also presented. (12 pages)

H20-0345 1130 Linear Programming — 60
Mathematical Optimization
Subroutine System (1130-LP-MOSS)
(1130-CX-11X) —
Programmer's Manual

This manual contains all the information needed to use the LP-MOSS/1130 Linear Programming System. Chapter 1 is written in tutorial form to present concepts to new users. The rest of the manual describes the system procedures, data formats, and operating instructions. (72 pages)

H20-0351 1800/1130 Control 60
Optimization Program (COP/1800-1130)
Version 2 (1800-CC-01X)
Program Description and
Operations Manual

This is a general purpose, nonlinear optimization program with features that make it particularly suited to online use in an optimizing process control system.

This manual describes the program and its features, procedures for preparing the program for use (system generation) and the use of the program. (72 pages)

H20-0356 1130 Numerical Surface Techniques 60
and Contour Map Plotting
(1130-CX-11X) — Operator's Manual

This set of programs is adaptable to application areas that require the quantitative description of surfaces. Programs are included for making numerical or analytical approximations to a set of coordinate values defining a surface, and for preparing a display of the geometry of the surface in the form of a plotted contour map.

This manual presents program organization, input deck arrangement, operating instructions, a halt-and-message list, and restart procedures. (16 pages)

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H20-0357   1130 Numerical Surface Techniques   60
and Contour Map Plotting
(1130-CX-11X) —
Programmer's Manual

This set of programs is adaptable to application areas that require the quantitative description of surfaces. Programs are included for making numerical or analytical approximations to a set of coordinate values defining a surface, and for preparing a display of the geometry of the surface in the form of a plotted contour map.

This manual contains a general description of the application, a general systems chart, and, for each program, a program abstract, program description, and input/output description. Two sample problems illustrate the use of the individual programs and the interaction between programs.

The reader of this manual is assumed to have a general understanding of disk concepts and an elementary knowledge of the functions of a monitor system (see *IBM 1130 Disk Monitor System, Reference Manual*, C26-3750). (84 pages)

H20-0363   1130 Work Measurement Aids   60
Version 2 (1130-MF-03X) —
Program Description Manual

Work Measurement Aids is a series of programs designed to help set time standards. The programs are (1) Machinability, which determines machine tool parameters and calculates process time for machining operations, and (2) Work Measurement Sampling, which determines job standards for long-cycle cycle operations and the distribution of time to job activities (conventional work sampling).

In addition to these programs, the manual describes the use of the IBM 1130 Statistical System for Standard Data Development, another aid to setting standards. This program helps determine a relationship (formula) between standard time and the key variables which affect it for a particular class of operations.

This manual describes the preparation and maintenance of reference data files, the description of input and output, the calculations performed, program modification aids, and sample problems to illustrate implementation of the applications. The section on "Standard Data Development" illustrates the use of multiple regression to determine standard data and describes the criteria for determining the validity of the results. (144 pages)

H20-0364   1130 Work Measurement Aids   60
(1130-MF-03X) — Version 2
Operator's Manual

This manual contains instructions for operators to run the 1130 Work Measurement Aids programs. It contains general and diagnostic information needed by the users of the system. (20 pages)

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H20-0365   1130 Mechanism Design System —   60
Gears and Springs (1130-EM-01X)
Version 2
Program Description Manual

A series of mechanical component design and analysis programs is made available to the mechanical engineer through the 1130 Mechanism Design System — Gears and Springs. Spur and helical gears, compression, extension, and torsion springs can be designed through use of these FORTRAN-coded programs. Program input, which is provided by the engineer, includes component functional requirements and design restrictions. If the requirements can be met within the specified restrictions, the engineer receives design data necessary for manufacturing and inspecting the component, as well as additional calculated data to evaluate the design.

Since this application runs under the 1130 Problem Language Analyzer (PLAN) (1130-CX-25X), local design practices are easily incorporated into this system at the user-language level. With these features of FORTRAN-coded programs, free data form, language modification capability and complete design documentation, the 1130 Mechanism Design System offers an economical and powerful design aid to the mechanical engineer.

This manual provides a program abstract, a general description of the program, a general system chart, description of input/output, program modification aids, sample problems, and appendices of gear and spring design formulas employed in this application. (178 pages)

H20-0366   1130 Mechanism Design System —   60
Gears and Springs (1130-EM-01X) —
Version 2
Operator's Manual

This manual contains instructions for console operators using the Mechanism Design System. It also contains general and diagnostic information needed by the users of the system. (32 pages)

H20-0401   1130 Economic Evaluation of   60
Petroleum Projects Program
(1130-MP-01X) —
Application Description

This program is designed primarily for evaluating the economic merits of oil and gas production. However, program flexibility allows for the evaluation of other types of investment situations. Four measures of the merits of an investment are calculated with discounted cash flow methods.

This manual contains a general description of the application and the program, the minimum machine requirements, a general systems chart, a brief input/output description, and two sample problems. (24 pages)

**H20-0402   1130 Economic Evaluation of   60
Petroleum Projects Program
(1130-MP-01X) —
Programmer's Manual**

This program is designed primarily for evaluating the economic merits of oil and gas production. However, program flexibility allows for the evaluation of other types of investment situations. Four measures of the merits of an investment are calculated with discounted cash flow methods.

This manual contains a general description of the application, a program systems chart, input/output description, program modification aids, and sample problems. (28 pages)

**H20-0403   1130 Economic Evaluation of   60
Petroleum Projects Program
(1130-MP-01X) —
Operator's Manual**

This program is designed primarily for evaluating the economic merits of oil and gas production. However, program flexibility allows for the evaluation of other types of investment situations. Four measures of the merits of an investment are calculated with discounted cash flow methods.

This manual contains a program setup sheet, console operating instructions, input data organization charts, and a halt-and-message list. (12 pages)

**H20-0405   1130 Casing Design Program   60
(1130-MP-02X) —
Application Description**

This program is designed for users with an 8K IBM 1130 Computing System, Model 2. It provides a flexible method of designing combination casing strings and allows the user to exercise inventory control over the types of casings available for design purposes.

This manual presents a general description of the program, machine and system configuration, general systems chart, a list of input/output files, and a sample problem. (12 pages)

**H20-0406   1130 Casing Design Program   60
(1130-MP-02X) —
Programmer's Manual**

This program is written for use on an IBM 1130 Computing System, Model 2. It will analyze a variety of casing-joint combinations and, with available inventory, design the most economical combination string based on casing weight and grade.

This manual contains general description of the program, a program systems chart, input/output description, and sample problems. (16 pages)

**H20-0407   1130 Casing Design Program   60
(1130-MP-02X) — Operator's Manual**

This program is designed for use on an 8K IBM 1130 Computing System, Model 2. It provides a flexible method of designing combination casing strings and allows the user to exercise inventory control over the types of casings available for design purposes.

This manual contains a program setup sheet, console operating instructions, halt-and-message list, and restart procedures. (12 pages)

**H20-0409   1130 Decline Curve Analysis Program   60
(1130-MP-03X) — Application Description**

This program is used to evaluate the total production over a future period of a petroleum reservoir on the basis of past production.

This manual contains a general description of the various runs, machine configuration, general systems chart, and a sample problem. (16 pages)

**H20-0410   1130 Decline Curve Analysis Program   60
(1130-MP-03X) — Programmer's Manual**

This program is used to evaluate the total production over a future period of a petroleum reservoir on the basis of past production.

This manual contains a general description of the program, program systems charts, input/output description, program modifications aids, and a sample problem. (16 pages)

**H20-0411   1130 Decline Curve Analysis Program   60
(1130-MP-03X) — Operator's Manual**

This program is used to evaluate the total production over a future period of a petroleum reservoir on the basis of past production.

This manual contains a program setup procedure, console operating instructions, halt-and-message list, and restart procedures. (8 pages)

**H20-0413   1130 Tarner Material Balance   60
Program (1130-MP-04X) —
Application Description**

This program is designed to solve the basic material balance equation for a saturated depletion-type reservoir, using Tarner's method to predict future recovery, gas-oil ratio, and gas production, and, if desired, to display the results in graphic form using the IBM 1627 Plotter.

This manual contains a general description of the application, machine configuration, required systems, a general system chart, a list of input/output files, and a sample problem. (16 pages)

H20-0414   1130 Tarner Material Balance   **60**
Program (1130-MP-04X) —
Programmer's Manual

This program is designed to solve the basic material balance
equation for a saturated depletion-type reservoir, using
Tarner's method to predict future recovery, gas-oil ratio,
and gas production, and, if desired, to display the results
in graphic form using the IBM 1627 Plotter.

    This manual contains a general description of the applica-
tion, a program systems, chart, input/output description,
program modification aids, and a sample problem. (20 pages)

H20-0415   1130 Tarner Material Balance   **60**
Program (1130-MP-04X) —
Operator's Manual

This program is designed to solve the basic material balance
equation for a saturated depletion-type reservoir, using
Tarner's method to predict future recovery, gas-oil ratio,
and gas production, and, if desired, to display the results
in graphic form using the IBM 1627 Plotter.

    This manual contains a program setup sheet, console
operating instructions, halt-and-message list, and restart
procedures. (12 pages)

H20-0417   1130 Schilthuis Material Balance   **60**
Program (1130-MP-05X) —
Application Description

This program is useful in giving the petroleum engineer an
estimate of the oil present in an oil reservoir, based on cal-
culation by the Schilthuis method. Cases are considered
for reservoirs with or without gas caps and with or without
a water drive.

    This manual gives a description of the possible applica-
tions of the program, the machine configuration, a general
systems chart, a list of input/output files, and a sample
problem. (24 pages)

H20-0418   1130 Schlithuis Material Balance   **60**
Program (1130-MP-05X) —
Programmer's Manual

This program is useful in giving the petroleum engineer an
estimate of the original oil present in an oil reservoir based
on calculation by the Schilthuis method. Cases are con-
sidered for reservoirs with or without gas caps and with or
without natural water drives.

    This manual gives a complete description of the program
and how it operates to solve the problem. (32 pages)

H20-0419   1130 Schilthuis Material Balance   **60**
Program (1130-MP-05X) —
Operator's Manual

This program is designed primarily to give the petroleum
engineer an estimate of the oil present in an oil reservoir,
based on calculation by the Schilthuis method. This manual
contains a program setup sheet, console operating instruc-
tions, halt-and-message list, and restart procedures. (8 pages)

H20-0421   1130 Two-Dimensional Waterflooding   **60**
Program (1130-MP-06X) —
Application Description

This program allows the user to determine the pressure dis-
tribution throughout a reservoir, taking into consideration
the effect of water injection. The flood front is plotted on
an on-line plotter.

    This manual contains a general description of the appli-
cation, machine and system configuration, general systems
chart, a list of input/output files, sample problem, and
appendix. (421 pages)

H20-0422   1130 Two-Dimensional Waterflooding   **60**
Program (1130-MP-06X) —
Programmer's Manual

This program allows the user to determine the pressure dis-
tribution throughout a reservoir, taking into consideration
the effect of water injection. The flood front is plotted on
an on-line plotter.

    This manual contains a general description of the program,
program system chart, input/output description, program
modification aids, sample problem, and appendix. (28 pages)

H20-0423   1130 Two-Dimensional Waterflooding   **60**
Program (1130-MP-06X) —
Operator's Manual

This program allows the user to determine the pressure dis-
tribution throughout a reservoir, taking into consideration
the effect of water injection. The flood front is plotted on
an on-line plotter.

    This manual presents a program setup sheet, console
operating instructions, halt-and-message list, and restart
procedures. (16 pages)

H20-0425   **1130 Gas Deliverability Program**   **60**
(1130-MP-07X) —
Application Description

This program predicts the gas production from a reservoir.
Pertinent production factors such as allowables are taken
into account. Program output is especially significant for
use in the economic evaluation of a reservoir. A program
option punches output in cards, suitable for input to the
IBM 1130 Economic Evaluation of Petroleum Projects
Program (1130-MP-01X).

This manual contains a general description of the appli-
cation, the minimum machine configuration, a general
systems chart, a list of input/output files, and a sample
problem. (12 pages)

H20-0426   **1130 Gas Deliverability Program**   **60**
(1130-MP-07X) —
Programmer's Manual

This program predicts the gas production from a reservoir.
Pertinent production factors such as allowables are taken
into account. Program output is especially significant for use
in the economic evaluation of a reservoir. A program option
punches output into cards, suitable for input to the IBM
1130 Economic Evaluation of Petroleum Projects Program
(1130-MP-01X).

This manual contains a general description of the pro-
gram systems chart, a description of input/output, program
modification aids, and a sample problem. (24 pages)

H20-0427   **1130 Gas Deliverability Program**   **60**
(1130-MP-07X) — Operator's Manual

This program predicts the gas production from a reservoir.
Pertinent production factors such as allowables are taken
into account. Program output is especially significant for
use in the economic evaluation of a reservoir. A program
option punches output into cards, suitable for input to the
IBM 1130 Economic Evaluation of Petroleum Projects Pro-
gram (1130-MP-01X).

This manual contains control cards details, illustrations
of input card sequence, operating instructions, and a dis-
cussion of messages. (12 pages)

H20-0429   **1130 Multi-Stage Flash Calculation**   **60**
Program (1130-MP-08X) —
Application Description

This program can be used to calculate the products of a
flash distillation with up to four stages of flash separation.

This manual contains a general description of the pro-
gram, machine configuration, general systems chart, a list
of input/output files, and sample problems. (24 pages)

H20-0430   **1130 Multi-Stage Flash Calculation**   **60**
Program (1130-MP-08X) —
Programmer's Manual

This program can be used to calculate the products of a
flash distillation with up to four stages of flash separation.

This manual contains a general description of the pro-
gram, a program systems chart, input/output description,
and sample problems. (36 pages)

H20-0431   **1130 Multi-Stage Flash Calculation**   **60**
Program (1130-MP-08X) —
Operator's Manual

This program can be used to calculate the products of a
flash distillation with up to four stages of flash separation.

This manual contains a program setup sheet, console
operating instructions, halt-and-message list, and restart
procedures. (16 pages)

H20-0433   **1130 Velocity Functions from Time-**   **60**
Depth Data Program (1130-MP-09X) —
Application Description

This program generates the regression coefficients required
for any of five specific geophysical equations (time-depth
equations), makes a chart of one-way time-depth and vari-
ous one-way time-velocities, and makes plots of these.

This manual contains a general description of the applica-
tion, a general systems chart, a list of input/output files,
and a sample problem. (16 pages)

H20-0434   **1130 Velocity Functions from Time-**   **60**
Depth Data Program (1130-MP-09X) —
Programmer's Manual

This program generates the regression coefficients required
for any of five specific geophysical equations (time-depth
equations), makes a chart of one-way time-depth and vari-
ous one-way time-velocities, and makes plots of these.

This manual contains a general description of the program,
a program systems chart, input/output description, and a
sample problem. (24 pages)

H20-0435   **1130 Velocity Functions from Time-**   **60**
Depth Data Program (1130-MP-09X) —
Operator's Manual

This program generates the regression coefficients required
for any of five specific geophysical equations (time-depth
equations), makes a chart of one-way time-depth and vari-
ous one-way time-velocities, and makes plots of these.

This manual contains a program setup sheet, console oper-
ating instructions, halt-and-message list, and restart pro-
cedures. (12 pages)

H20-0437 1130 Wave-Front Ray-Path 60
Determination Program
(1130-MP-10X) —
Application Description

This program is used for calculating the horizontal displacement and vertical depth of segments of a reflected seismic wave-front and for plotting these results.

This manual contains a general description of the application, machine configuration, general machine chart, a list of input/output files, and a sample problem. (16 pages)

H20-0438 1130 Wave-Front Ray-Path 60
Determination Program
(1130-MP-10X) —
Programmer's Manual

This program is used for calculating the horizontal displacement and vertical depth of segments of a reflected seismic wave-front and for plotting these results.

This manual presents a general description of the program, program systems chart, input/output description, and a sample problem. (20 pages)

H20-0439 1130 Wave-Front Ray-Path 60
Determination Program
(1130-MP-10X) —
Operator's Manual

This program is used for calculating the horizontal displacement and vertical depth of segments of a reflected seismic wave front and for plotting these results.

This manual presents a program setup procedure, console operating instructions, halt-and-message list, and restart procedures. (16 pages)

H20-0441 1130 Synthetic Seismogram Program 60
(1130-MP-11X) —
Application Description

This program accepts a digitized sonic or velocity well log as input, generates spike functions, filters these spikes through an arbitrary filter, and plots the results of these calculations on an on-line plotter.

This manual contains a general description of the application, machine and system configuration, a general systems chart, a list of input/output files, and a sample problem. (28 pages)

H20-0442 1130 Synthetic Seismogram Program 60
(1130-MP-11X) —
Programmer's Manual

This program accepts a digitized sonic or velocity well log as input, generates spike functions, filters these spikes through an arbitrary filter, and plots the results of these calculations on an on-line plotter.

This manual contains a general description of the program, a program systems chart, input/output description, program modification aids, and a sample problem. (40 pages)

H20-0443 1130 Synthetic Seismogram Program 60
(1130-MP-11X) — Operator's Manual

This program accepts a digitized sonic or velocity well log as input, generates spike functions, filters these spikes through an arbitrary filter, and plots the results of these calculations on an on-line plotter.

This manual contains a program setup sheet, console operating instructions, halt-and-message list, and restart procedures. (12 pages)

H20-0445 1130 Gravity and Magnetics 60
Continuations, Derivatives, and
Residuals Program (1130-MP-12X) —
Application Description

In areas where adequate independent geological information is available for control, the study of magnetic or gravity data can yield substantial information about the subsurface structure.

Three methods of analysis are presented in this program:
1. The calculation of downward and upward continuations of the potential field.
2. The calculation of the first and second vertical derivatives of the field.
3. The calculation of the residuals.

This manual contains a general description of the application, required systems, machine configurations, general systems chart, a list of input/output files, and a sample problem. (52 pages)

H20-0446   1130 Gravity and Magnetic   60
Continuation, Derivatives, and
Residuals Program (1130-MP-12X) —
Programmer's Manual

In areas where adequate independent geological informa-
tion is available for control, this program aids in the analy-
sis of magnetic and gravity data by calculating:
  1. Downward and upward continuations of the potential
     field.
  2. First and second derivatives.
  3. The residuals.
This manual presents a general description of the pro-
gram, a program systems chart, an input/output descrip-
tion, a sample problem, and a glossary. (56 pages)

H20-0447   1130 Gravity and Magnetics   60
Continuations, Derivatives, and
Residuals Program (1130-MP-12X) —
Operator's Manual

In areas where adequate independent geological informa-
tion is available for control, this program aids in the analy-
sis of magnetic and gravity data by calculating:
  1. Downward and upward continuations of the poten-
     tial field.
  2. First and second derivatives.
  3. The residuals.
This manual contains a program setup sheet, console
operating instructions, halt-and-message list, and restart
procedures. (12 pages)

H20-0449   1130 Theoretical Gravity of a 3-D   60
Mass Program (1130-MP-13X) —
Application Description

This program computes the gravity of a three-dimensional
buried mass of assumed configuration and density contrast.
Values are conventionally computed for a grid of simulated
gravity stations.
  This manual contains a general description of the pro-
gram, machine configuration, general systems charts,
a list of input/output files, and a sample problem. (16 pages)

H20-0450   1130 Theoretical Gravity of a 3-D   60
Mass Program (1130-MP-13X) —
Programmer's Manual

This program computes the gravity of a three-dimensional
buried mass of assumed configuration and density contrast.
  This manual contains a program abstract, program sys-
tems chart, general description, input/output description,
program modification aids, and a sample problem. (24 pages)

H20-0451   1130 Theoretical Gravity of a 3-D   60
Mass Program (1130-MP-13X) —
Operator's Manual

This program computes the gravity of a three-dimensional
buried mass of assumed configuration and density contrast.
  This manual presents a load and setup procedure, console
operating instructions, halt-and-message list, and restart
procedures. (12 pages)

H20-0453   1130 Quantitative Log Analysis   60
Program (1130-MP-14X) —
Application Description

This program permits the subsurface geologist to calculate
porosity and water saturation along with many intermedi-
ate results on prospective hydrocarbon zones in a well.
  This manual contains a general description of the appli-
cation, required systems, machine configuration, general
systems chart, a list of input/output files, sample prob-
lems and a glossary. (24 pages)

H20-0454   1130 Quantitative Log Analysis   60
Program (1130-MP-14X) —
Programmer's Manual

This program permits the subsurface geologist to calculate
porosity and water saturation along with many intermedi-
ate results on prospective hydrocarbon zones in a well.
  This manual contains a general description of the pro-
gram, a program systems chart, input/output description,
program modification aids, sample problems, an appendix,
and a glossary. (32 pages)

H20-0455   1130 Quantitative Log Analysis   60
Program (1130-MP-14X) —
Operator's Manual

This program permits the subsurface geologist to calculate
porosity and water saturation along with many intermedi-
ate results on prospective hydrocarbon zones in a well.
  This manual contains a program setup sheet, console
operating instructions, halt-and-message list, and restart
procedures. (16 pages)

H20-0457   1130 Dipmeter Program   60
(1130-MP-15X) —
Application Description

This program calculates the true dip and direction of dip
of rock strata, using data from a continuous dipmeter of
either Schlumberger's CDM-P or CDM-T, or a PGAC (Pan
Geo Atlas Corporation) dipmeter.
  This manual contains a description of the application,
required systems, machine configuration, general systems
chart, input/output files, a sample problem, and an
appendix. (24 pages)

H20-0458   1130 Dipmeter Program   60
(1130-MP-15X) —
Programmer's Manual

This program calculates the true dip and direction of dip of rock strata, using data from a continuous dipmeter of either Schlumberger's CDM-P or CDM-T, or a PGAC (Pan Geo Atlas Corporation) dipmeter.

This manual contains a description of the application, program systems chart, input/output description, program modification aids, a sample problem, and an appendix. (28 pages)

H20-0459   1130 Dipmeter Program   60
(1130-MP-15X) — Operator's Manual

This program calculates the true dip and direction of dip of rock strata, using data from a continuous dipmeter of either Schlumberger's CDM-P or CDM-T, or a PGAC (Pan Geo Atlas Corporation) dipmeter.

This manual contains a program setup sheet, console operating instructions, halt-and-message list, and restart procedure. (12 pages)

H20-0482   IBM 1130 Automated Chemistry   60
Program (1130 ACP) for the
1080 Data Acquisition System
(1130-UH-13X)
Application Description Manual

The 1130 ACP, a Type II program, is an IBM 1130 program designed to operate under the 1130 Monitor II system. ACP processes the punched card output of the IBM 1080 Data Acquisition System servicing continuous processing analyzer systems and one or more IBM 1084 Sampler Readers, all operating in a clinical laboratory environment. It matches specimen identification numbers with their raw data values, makes the necessary adjustments, and computes specimen concentrations. A quality control report is produced which summarizes the test runs. Each test result and specimen identification number is stored in disk memory. By a user-provided program, the results are stored in the patient file. The 1130 ACP requires 8K core storage, a disk storage drive, a printer, and a card reader.

The purpose of this manual is to provide a general description of the application, a description of the various program runs (including system flowcharts), a description of the input/output files as related to the various runs, the machine configuration required, and a statement of the system advantages. (32 pages)

H20-0490   Problem Language Analyzer (PLAN)   60
(1130-CX-25X, 360A-CX-26X,
360A-CX-27X) Application
Description Manual

The IBM Problem Language Analyzer (PLAN) assists IBM and customer development of a variety of problem-solving computer applications. The value of a computer installation to technical, professional, and management personnel can be significantly increased, using PLAN. Programmers and system designers will also find that PLAN offers new tools for building interactive or fast-changing applications.

This is an introductory manual. The scope, advantages, features, and use of PLAN are presented in only enough detail to permit the reader to judge the impact of PLAN in his own environment. Additional detail will be found in formal documentation of the PLAN programs, and in program descriptions of IBM-written, PLAN-based applications. (36 pages)

H20-0493   Mechanism Design System —   60
Kinematics (1130-EM-03X,
360A-EM-04X and 360A-EM-05X)
Application Description Manual

A programmed system for the kinematic analysis of linkage mechanisms is made available to the mechanical engineer through the Mechanism Design system — Kinematics.

A wide variety of two- and three-dimensional linkage mechanisms can be analyzed with this FORTRAN-coded system. Program input provided by the engineer includes a list of the linkage elements and the connectivity of those elements, metric data that gives size to the elements, and position and motion input data. For mechanisms that can be solved by the system, plotted and printed output is provided to aid the engineer in evaluating his design.

The primary functions of the program are to create a digital model of the linkage mechanism, solve for position and motion, and display the calculated results. The model of the linkage can be stored on disk for later recall. The disk also stores intermediate results for data display after processing is complete. The use of a model facilitates modification of the linkage by simple and direct means.

This manual is divided into five sections. The introduction discusses the overall role of the 1130 Computing System and the System/360 in mechanism design and analysis. The next section discusses specific concepts of kinematic analysis, the programs that make up the system, and a sample problem. The third section gives machine and programming system requirements and estimated program timing. The fourth and fifth sections present glossary and references, respectively. (24 pages)

H20-0495   **Rigid Frame Selection Program**   **60**
                 (RFSP) — Application Description

The Rigid Frame Selection Program (RFSP) provides direct
optimal design procedures for rigid frame construction in
steel, timber, or concrete. Two- and three-hinged frames may
be analyzed and designed using the programs. Cost reduction
can be realized in two ways — material inventory and design.

    Procedures included in the program can be used to design
members for different types of structures, using the results
of analysis programs provided by the user.

    The program operates under a problem-oriented language
supported by the Problem Language ANalyzer (PLAN),
thus allowing the user to create his own input language, if
he so prefers. (32 pages)

H20-0507   **Bibliography of Application**   **99**
                 Publications — Finance Industries

The purpose of this bibliography and the associated classifi-
cation system is to list and categorize IBM application publi-
cations that are pertinent to finance industries. Section I
lists these publications by application or industry. Section II
contains an abstract of each publication, in form number
sequence.

    A periodic Bibliography of Application Publications
(BAP) newsletter N20-1077 is published to keep the bibli-
ography up to date. The newsletter is divided into two sec-
tions. Section I is an updated listing of application publica-
tions by application or industry. This section also includes
any corrections to the bibliography and a list of superseded
publications. Section II contains an abstract of each publica-
tion not included in the last published bibliography. (26 pages)

H20-0520   **1130 Commercial Subroutine**   **60**
                 Package (1130-SE-25X), Version 3 —
                 Application Description

The IBM 1130 Commercial Subroutine Package is for 1130
users with a knowledge of FORTRAN. The routines are
intended to give commercial capability to users of IBM 1130
FORTRAN; they are not intended to make FORTRAN a
complete commercial language. This manual provides suf-
ficient information to determine the applicability of the
package. (16 pages)

H20-0522   **Bibliography of Application**   **99**
                 Publications — Distribution Industries

The purpose of this bibliography and the associated classifi-
cation system is to list and categorize IBM application publi-
cations that are pertinent to distribution industries. Section I
lists these publications by application or industry. Section II
contains an abstract of each publication, in form number
sequence.

    A periodic Bibliography of Application Publications
(BAP) newsletter N20-1853 is published to keep the bibli-
ography up to date. The newsletter is divided into two sec-
tions. Section I is an updated listing of application publica-
tions by application or industry. This section also includes
any corrections to the bibliography and a list of superseded
publications. Section II contains an abstract of each publi-
cation not included in the last published bibliography.
(26 pages)

H20-0530   **Bibliography of Application**   **99**
                 Publications — Public Utility Industries

The purpose of this bibliography and the associated classifi-
cation system is to list and categorize IBM application publi-
cations that are pertinent to public utility industries. Section I
lists these publications by application or industry. Section II
contains an abstract of each publication, in form number
sequence.

    A periodic Bibliography of Application Publications
(BAP) newsletter N20-1866 is published to keep the bibli-
ography up to date. The newsletter is divided into two sec-
tions. Section I is an updated listing of application publica-
tions by application or industry. This section also includes
any corrections to the bibliography and a list of superseded
publications. Section II contains an abstract of each publi-
cation not included in the last published bibliography.
(14 pages)

H20-0531   **Bibliography of Application**   **99**
                 Publications — Printing and
                 Publishing Industries

The purpose of this bibliography and the associated classifi-
cation system is to list and categorize IBM application publi-
cations that are pertinent to printing and publishing indus-
tries. Section I lists these publications by application or in-
dustry. Section II contains an abstract of each publication,
in form number sequence.

    A periodic Bibliography of Application Publications
(BAP) newsletter N20-1867 is published to keep the bibli-
ography up to date. The newsletter is divided into two sec-
tions. Section I is an updated listing of application publica-
tions by application or industry. This section also includes
any corrections to the bibliography and a list of superseded
publications. Section II contains an abstract of each publi-
cation not included in the last published bibliography.
(12 pages)

H20-0535   PLAN Graphics Support   60
for the IBM 2250 on System/360 (OS)
or IBM 1130
(1130-CX-33X and 360A-CX-34X)
Application Description Manual

PLAN Graphics Support is designed to drastically reduce
the time required to convert existing applications or create
new applications for graphic displays: This system sup-
ports Models 1, 3, and 4, of the IBM 2250 Display Unit.

With PLAN Graphics Support, the application program-
mer works at a level that relieves him from detailed graphic
programming. A high level language allows the application
programmer to simply state the format, contents, and con-
trol options that are desired by the console operator (the
application user). By means of the graphics-oriented
language, the application programmer may rapidly extend
his existing application program or create new applications
to include interactive graphic capability.

Among the graphic interface features supported are:

● Graphic Output
  Data generated by the application may be displayed
  using points, characters, vectors, or geometric shapes.

● Graphic Input
  Data may be created or modified at the console and
  passed to the application via the light pen, programmed
  function keyboard, and alphameric keyboard.

● Monitoring and Control
  Intermediate results can be examined in an application.
  The console user dynamically controls the next function
  of the application program to be executed.

PLAN (Problem Language ANalyzer), a Type II program,
is used as a base for PLAN Graphics Support. Since it co-
exists with PLAN, the user has access to all of the func-
tional capability in PLAN. PLAN Graphics Support and
PLAN operate with both in the IBM 1130 and System/360.
(32 pages)

H20-0536   Bibliography of Application   99
Publications — Insurance Industry

The purpose of this bibliography and the associated classifi-
cation systems is to list and categorize IBM application pub-
lications that are pertinent to the insurance industry. Sec-
tion I lists these publications by application or industry.
Section II contains an abstract of each publication, in form
number sequence.

A periodic Bibliography of Application Publications
(BAP) newsletter N20-1869 is published to keep the bibli-
ography up to date. The newsletter is divided into two sec-
tions. Section I is an updated listing of application publica-
tions by application or industry. This section also includes
any corrections to the bibliography and a list of superseded
publications. Section II contains an abstract of each publi-
cation not included in the last published bibliography.
(22 pages)

H20-0542   IBM 1130 Automated Chemistry   60
Program (1130 ACP) for the
1080 Data Acquisition System
(1130-UH-13X)
Version 2
Program Description Manual

The IBM 1130 Automated Chemistry Program (1130 ACP)
is designed to process the punched card output of the IBM
1080 analytical data acquisition system servicing continu-
ous processing analyzers and one or more IBM 1084
Sampler Readers, all operating in a clinical laboratory
environment.

The purpose of this manual is to provide the user with
an understanding of the program necessary to implement
the application. Included are descriptions of the two runs
which make up 1130 ACP, an input/output description,
timing information, program modification aids, and a
sample problem. (64 pages)

H20-0543   IBM 1130 Automated Chemistry   60
Program (1130 ACP) for the
1080 Data Acquisition System
(1130-UH-13X)
Version 2
Operations Manual

The IBM 1130 Automated Chemistry Program 1130 ACP is
designed to process the punched card output of the 1080
Data Acquisition System servicing continuous processing an-
alyzer systems and one or more IBM 1084 Sampler Readers,
all operating in a clinical laboratory environment. The 1130
ACP is composed of two runs, a file creation program and a
process data program. The former is executed at the time
the system is set up and need not be performed again unless
the user wishes to change any of the files. The latter is the
program designed to process the 1080 punched card output.

This basic publication gives the specifications and neces-
sary information for operating 1130 ACP. It includes a de-
scription of retrieval of data from distributed machine-
readable material and cataloging programs in the user's core
image library. Use of this manual requires an operating
knowledge of the IBM 1130 Disk Monitor System, Version
1 job control cards and operating procedures. (36 pages)

H20-0546   IBM 1130 Charge Materials Allocation   60
Processor 1130 CMAP Application
Description Manual

This program provides the IBM 1130 user with a means of calculating the least-cost initial charge of materials to be melted to specified metallurgical and weight limits. The Charge Materials Allocation Processor uses a linear programming technique to solve the problem; the processor selects an initial charge of materials from an inventory of available items in order to minimize the total cost of the initial charge

Since all potential users of the Charge Materials Allocation Processor may not be familiar with linear programming techniques, an input translator is designed to accept data in a format familiar to the user. An output writer presents the solution in reports designed for easy interpretation by the user. The program operates under control of the 1130 Disk Monitor System, Version 2, and utilizes the facilities of the 1130 Linear Programming System 1130 LPS to provide the user with a powerful problem-solving tool.

This manual is an introduction to the program. It contains a general description of the program, examples of input and output data formats, a description of information requirements, and the required machine configuration. (28 pages)

H20-0562   Linear Programming System/1130   65
(LPS/1130)
Program Number: 5711-CO1
Application Description Manual

This program provides the user of the 1130 Disk Monitor System Version 2, with a simple, easy to understand, easy to use means of solving LP problems.

LPS/1130 offers many improvements over LP-MOSS/ 1130 and will take advantage of additional core storage and input-output devices. Input data to LPS/1130 are compatible with those of LP-MOSS/1130 and LPS/360. The system contains all the procedures necessary to solve an LP problem and to perform an extensive postoptimal analysis of the problem. The system provides extensive data generation and maintenance facilities.

This manual contains a description of the system, the required machine configurations, timing estimates, and limits on problem size. (24 pages)

H20-0576   1130 Project Control System   60
Version 2
Application Description Manual

This manual presents a brief description of a project control system, and discusses the design, features, and input/output characteristics of a computer program developed to serve as the data processing element of such a system. Although the IBM 1130 Project Control System is designed primarily for those areas of government and industry concerned with construction, repair, or maintenance, its features are such that it can meet the critical path requirements of a broad range of users, regardless of industry. (24 pages)

H20-0577   Program for Optical System Design/II   60
(POSD/II) (1130-EO-14X, 360A-EO-15X,
360A-EO-16X)
Program Description Manual

This manual provides information detailing the set of options available to POSD/II users and the techniques used in all calculations. A sample problem is used throughout the body of the text for illustrative purposes only. A separate, comprehensive problem is shown in Appendix A to demonstrate the overall capability of the POSD/II system, including output formats.

References are made throughout the test to the Problem Language Analyzer (PLAN) system, an IBM-supplied submonitor program that serves as an interface between various monitor systems and programs such as POSD/II. Through PLAN, users can supplement standard application program versions with their own procedures.

The user is referred to the POSD/II Operator's Manual for specific machine operating instructions. (160 pages)

H20-0578   Program for Optical System Design/II   60
(POSD/II) (1130-EO-14X, 360A-EO-15X,
360A-EO-16X) Operations Manual

This manual is intended to serve as an instruction guide to the operation and use of POSD/II. It presents the specific operating details and summarizes user information extracted from the Program Description Manual. (72 pages)

H20-0580   IBM 1130 Rigid Frame Selection   60
Program (RFSP) (1130-EC-09L) Program
Description and Operations Manual

This manual contains a complete description of RFSP for the
program users. A general outline of the application, its com-
ponents and its organization is followed by detailed instruc-
tions for the utilization of the various features of the pro-
gram. Sample Problems are used for illustration. The appen-
dices describe the analysis and design methodology used in
the program and provide listings of program modules, files,
and tables.

This manual also contains instructions for system opera-
tors using RFSP. Error message listings in this manual are
specific to RFSP. If a message or condition occurs that is not
described herein, the operator should also have available the
Operations Manual for the 1130 PLAN System, Form
H20-0595 and the *1130 Disk Monitor System Reference
Manual,* Form H20-0595 and the *1130 Disk Monitor System
Reference Manual,* Form C26-3717. (228 pages)

H20-0594   Problem Language Analyzer (PLAN)   60
(1130-CX-25X, 360A-CX-26X,
360A-CX-27X)
Program Description Manual

This system provides users with an efficient means of imple-
menting and using meaningful user-oriented (problem-
oriented) languages. This manual is intended to provide
rules for use of the system and technical specifications de-
fining the scope of applicability. It is intended to serve as a
user's and an implementer's reference. (168 pages)

H20-0595   1130 Problem Language Analyzer   60
(PLAN) 1130-CX-25X)
Operations Manual

This manual contains instructions for operators using the
PLAN system. It also contains instructions for tailoring the
system to a user's specific needs and defines system interde-
pendencies. Information pertinent to the preparation of
PLAN input, system halts, and diagnostic messages is pro-
vided. (56 pages)

H20-0598   IBM 1130 Rigid Frame Selection   60
Program (RFSP) (1130-EC-09X)
Application Description Manual

The Rigid Frame Selection Program (RFSP) provides direct
optimal design procedures for rigid frame construction in
steel, timber, or concrete. Two- and three-hinged frames may
be analyzed and designed using the program. Cost reduction
can be realized in two ways -- material inventory and design.

Procedures included in the program can be used to design
members for different types of structures, using the results
of analysis programs provided by the user.

The program operates under a problem-oriented language
supported by the Problem Language ANalyzer (PLAN), thus
allowing the user to create his own input language, if he so
prefers. (64 pages)

H20-0614   PLAN Graphics Support   60
for the IBM 2250 on System/360 (OS)
or IBM 1130
(1130-CX-33X and 360A-CX-34X)
Program Description Manual

The PLAN Graphics Support system provides a high level
language to facilitate use of the IBM 2250 Display Unit
connected to the IBM 1130 system and the System/360.
An interactive graphic interface to an application program
can be specified with a minimum of detailed graphic pro-
gramming. The specifications for the graphic interface can
be saved on external storage and later operated via the
IBM 2250 to provide on-line graphic input and output, as
well as monitor and control an application program.

This manual provides a general description of the system
and a detailed description of input and output. (172
pages)

H20-0616   PLAN Graphics Support   60
for the IBM 2250 on the IBM 1130
(1130-CX-33X)
Operations Manual

This manual contains instructions and procedures to set
up and operate the 1130 PLAN Graphics Support System.
(20 pages)

H20-0617   Mechanism Design System —   60
Kinematics (1130-EM-03X,
360A-EM-04X and 360A-EM-05X)
Program Description Manual

The kinematic analysis program provides the linkage
mechanism analysis capability which complements the
IBM Mechanism Design System for Gears and Springs. A
wide variety of two- and three-dimensional linkages can
be analyzed with this program.

This manual provides the mechanical engineer and
mechanism designer with detailed instructions on preparing
input for the program. (126 pages)

H20-0618   Mechanism Design System —   60
Kinematics (1130-EM-03X,
360A-EM-04X and 360A-EM-05X)
Operation Manual

This manual contains information regarding preparatory
and operating procedures for Mechanism Design System —
Kinematics as applied to the 1130 and System/360.
(56 pages)

H20-0626   Problem Language Analyzer (PLAN)   60
(1130-CX-25X, 360A-CX-26X and
360A-CX-27X)
Users' Introduction

This manual presents the basic ideas and facilities of the
PLAN system, with references to more advanced manuals.
It is organized into four chapters. The first chapter is a
general introduction. Each of the others is an independent
unit addressed to one group of users of the PLAN system
(application users, application designers, or application
programmers). (32 pages)

*__H20-0633__   Linear Programming System/1130   65
(LPS/1130)
Program Product: 5711-CO1
Program Description Manual

This manual describes how to use Linear Programming
System/1130. Chapter 1 is written in tutorial form to pre-
sent concepts to new users. The rest of the manual des-
cribes the system procedures and data formats. (116 pages)

*__H20-0637__   Linear Programming System/1130   65
(LPS/1130)
Program Product: 5711-CO1
Operations Manual

This manual contains the operating instructions for gener-
ating and running LPS/1130 under the IBM 1130 Disk
Monitor, Version 2.
   LPS/1130 is Version 2 of LP-MOSS/1130 and has the
same program number. The change of name is intended to
emphasize the close compatibility with LPS/360. (36
pages)

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*   Note: These publications are made available in conjunction
with an IBM program product. See your IBM representative
for information concerning their availability. If a feature
code is indicated, the document is available under the License
Agreement for IBM Program Products.

R20-1055   Course Selection Guide —   90
Customer Education

The IBM customer education program is designed to pro-
vide organized training for a wide range of customers. The
training needs are as varied as the duties and responsibilities
associated with the job classifications of the students.
   The purpose of this guide is to help you to plan curricula
for people performing the functions of: management, pro-
gramming, systems analysis, and operation.
   Also included is a brief description of programmed in-
structions, an index of programmed instruction and self-
study courses, and abstracts of all the courses listed in the
index. (90 pages)

R20-9111   FORTRAN for 1130 Programmed   90
Instruction — Course Description

This publication describes the course objectives and leng,.
the intended audience, the prerequisites and the course
code. It lists all materials required by the instructor and
the student. Abstracts are included for the educational
materials created specifically for the course. Abstract Ref-
erences are provided for the other materials. (4 pages)

R20-9114   1130 Programming Systems —   90
Course Description

This publication describes the course, its objectives and
length, the intended audience, the prerequisites and the
course code. It lists all materials required by the instructor
and the student. Abstracts are included for the educational
material created specifically for the course. Also, abstract
references are provided for the other materials. (22 pages)

R20-9115   1130 Assembler Language   90
Programming — Course Description

This publication describes the course objectives and length,
the intended audience, the prerequisites, and the course
code. It lists all materials required by the instructor and
the student. Abstracts are included for the educational
materials created specifically for the course. Abstract ref-
erences are provided for the other materials. (4 pages)

R20-9153   1130 Commercial Subroutine   90
Package — Course Description

This publication describes the course objectives and length,
the intended audience, the prerequisites, and the course
code. It lists all materials required by the instructor and
the student. Abstracts are included for the educational
materials created specifically for the course. Also, abstract
references are provided for the other materials. (4 pages)

R20-9206   1130/1800 FORTRAN IV   **90**
Workshop — Course Description

R20-9222   1130 Computing System Linear   **90**
Programming — Mathematical
Optimization Subroutine System
(1130-CO-16X), Type II
Application Program

R20-9224   1130 Computing System Continuous   **90**
System Modeling Program (1130-CX-13X),
Type II Application Program —
Course Description

R20-9243   1130 Basic FORTRAN IV for   **90**
Commercial Users — Programmed
Instruction Course Description

This course describes the course objectives and length, the
intended audience, the prerequisites, and the course code.
It lists all material required by the instructor and the stu-
dent. Abstracts are included for the educational materials
created specifically for the course. Abstract references are
provided for the other material. (4 pages)

X20-1734   1130-1800 Binary Card Template   **80**

This clear plastic template provides an easy method to read
compressed-format program cards when they are punched
in any type IBM card.

X20-1761   Mathematical Programming Input Form   **80**

This is a mathematical programming input form, 25 sheets
to a pad, 8½ x 11, 3-hole punched.

X20-1776   144/10/6 Print Chart (144 Position   **80**
Span at 10 Characters per Inch, and
6 Lines per Vertical Inch)

This 11" x 18" chart is printed in green ink and provides
144 printing positions (at 10 positions per inch horizontally)
for a printer carriage space-setting of 6 lines per inch. The
form essentially follows the layout recommended by the
SHARE organization. This chart may be reproduced using
most standard office copying machines, but when the form
is to be used as reproduction copy for printing documents
and the grid and other preprinted information is to be
"dropped-out", the printer should be instructed to use a
green filter.
     Only black pen ink or typewritten insertions are recom-
mended. (25 sheets per pad)

X20-1778   144/10/8 Print Chart (144 Position   **80**
Span at 10 Characters per Inch, and 8
Lines per Vertical Inch)

This 11" x 18" chart is printed in green ink and provides
144 printing positions (at 10 positions per inch horizontally)
for a printer carriage space-setting of 8 lines per inch. The
format essentially follows the layout recommended by the
SHARE organization. This chart may be reproduced using
most standard office copying machines, but when the form
is to be used as reproduction copy for printing documents
and the grid and other preprinted information is to be
dropped-out, the printer should be instructed to use a green
filter.
     Only black pen ink or typewriter insertions are recom-
mended. (25 sheets per pad)

X20-8020   Flowcharting Template   **80**

This template provides a convenient means for drawing
standard symbols used frequently in flowcharting computer
programs.

X21-9092   Control Card and File   **80**
Description Specifications

This is a form for control card and file description specifica-
tions, 25 sheets to a pad, 8½ x 11, 3-hole punched.

X21-9095   Report Program Generator   **80**
Index Summary

This is a form for the Report Program Generator index sum-
mary, 25 sheets to a pad, 8½ x 11, 3-hole punched.

X26-1587   Decimal/Hexadecimal Integer   **80**
Conversion Chart

This chart is used to convert decimal numbers to hexadec-
imal and hexadecimal numbers to decimal.
     The chart covers the range of integers from 0000 to 4095.
Additional instructions are provided to convert decimal and
hexadecimal numbers beyond this range.
     An additional chart, form X26-1588, is used to convert
fractions in the range of 0.00000000 to 0.99975586.

X26-1588   **Decimal/Hexadecimal Fraction**   **80**
                    Conversion Chart

This chart is used to convert decimal fractions to hexadecimal and hexadecimal fractions to decimal.

The chart covers the range of fractions from 0.00000000 to 0.99975586. Additional instructions are provided to convert decimal and hexadecimal fractions beyond this range.

An additional chart, form X26-1587, is used to convert integers in the range of 0000 to 4095.

X26-3566   **1130 Reference Handbook**   **85**

This publication contains condensed charts of instruction codes, tag bit codes, character codes, and formats, ILSWs, DSWs, and other information useful to programmers and operators. (26 pages)

X26-5994   **1130 Assembler Coding Form**   **80**

This form is used to code 1130 system programs in assembler language. The form includes numbered and ruled fields to facilitate programming and punching. (25 sheets per pad)

X26-5997   **1130 Physical Planning Template**   **80**

This transparent acetate sheet contains templates, drawn to ¼-inch scale, for the units of the 1130 Computing System. (1 sheet)

X28-6383   **FORTRAN IV Reference Data**   **85**

FORTRAN IV information is included for IBM System/360 Basic Programming Support System (BPS Card and BPS Tape), IBM System/360 Tape Operating System (TOS), IBM System/360 Disk Operating System (DOS), IBM System/360 Operating System (E, G, and H), IBM System/ 360 Model 44 Programming System (44PS), IBM System/ 360 Time Sharing System (TSS), IBM 1130 System (1130), IBM 1800 System (1800), and United States of America Standards Institute (USASI). (8 pages)

X28-7327   **FORTRAN Coding Form**   **80**

This form is used when programming in the FORTRAN language. Columns and lines are ruled and numbered to facilitate both programming and card punching. Data from the coding sheet may be transcribed into IBM card form 888-157. (50 sheets per pad)

Y20-0040   **1130 Type Composition Program**   **60**
                    (1130-DP-04X) Version 2 —
                    System Manual, Volume 1

The System Manual for the 1130 Type Composition Program provides detailed information to help the user gain a more thorough knowledge of the programming logic and techniques employed in the application.

Volume 1 presents flowcharts, flowchart narratives, program switch lists, and RPQ descriptions. Volume 2 contains program listings.

The manual is intended for use chiefly by system analysts and programmers who may need to alter the program or otherwise engage in program maintenance. Distribution of this manual is limited, therefore, to persons with alteration, maintenance, and similar requirements. (320 pages)

Y20-0041   **1130 Type Composition Program**   **60**
                    (1130-DP-04X) —
                    System Manual, Volume 2

The system manual for the 1130 Type Composition Program provides detailed information to help the user gain a more thorough knowledge of the programming logic and techniques employed in the application.

Volume 1 presents flowcharts, flowchart narratives, program switch lists, and RPQ descriptions. Volume 2 contains program listings. (342 pages)

Y20-0046   **1130 Economic Evaluation of**   **60**
                    Petroleum Projects Program
                    (1130-MP-01X) Version 2 —
                    System Manual

This manual contains detailed information on programming logic. It provides flowcharts, a flowchart narrative, a switch listing, and a program listing. (48 pages)

Y20-0047   **1130 Casing Design Program**   **60**
                    (1130-MP-02X) — System Manual

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic employed in the application of the Casing Design Program.

It contains a flowchart, flowchart narrative, switch listing, storage requirements, and a program listing. (28 pages)

Y20-0048   **1130 Decline Curve Analysis Program**   **60**
                    (1130-MP-03X) — System Manual

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic employed in the application.

The manual contains a flowchart, flowchart narrative, a list of internal switches used, and the program listings. (32 pages)

Y20-0049   1130 Tarner Material Balance   **60**
Program (1130-MP-04X) —
System Manual

This program is designed to solve the basic material balance equation for a saturated depletion type reservoir using Tarner's method, to predict future recovery, gas-oil ratio, and gas production, and, if desired, to display the results in graphic form using the IBM 1627 Plotter.

This manual contains a flowchart, flowchart narrative, switch list, storage requirements, a program listing, and a storage map. (32 pages)

Y20-0050   1130 Schilthuis Material Balance   **60**
Program (1130-MP-05X) —
System Manual

This program is useful in providing the petroleum engineer with an estimate of the oil present in the oil reservoir on the basis of calculations by the Schilthuis method. Cases are considered for reservoirs with or without an initial free gas cap and with or without natural water drive.

This manual gives complete source-deck listings with comments, flowcharts, and flowchart narratives. It will aid the user in gaining a full understanding of the function and operation of the program. (56 pages)

Y20-0051   1130 Two-Dimensional   **60**
Waterflooding Program
(1130-MP-06X) — System Manual

This program allows the user to determine the pressure distribution throughout a reservoir, taking into consideration the effect of water injection. The flood front is plotted on an on-line plotter.

This manual contains program flowcharts, flowchart narrative, storage requirements, program listings, a storage map, and an appendix. (40 pages)

Y20-0052   1130 Gas Deliverability Program   **60**
(1130-MP-07X) — System Manual

This manual contains detailed information to assist the user in gaining a more thorough knowledge of the programming logic associated with the subject application.

The manual contains a flowchart, flowchart narrative, switch list, storage requirements, program listing, and a storage map. (28 pages)

Y20-0053   1130 Multi-Stage Flash Calculation   **60**
Program (1130-MP-08X) —
System Manual

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic employed in the application.

The manual presents flowcharts, flowchart narrative, switch listing, and program listings. (76 pages)

Y20-0054   1130 Velocity Functions from Time-   **60**
Depth Data Program (1130-MP-09X) —
System Manual

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic employed in the application.

The manual presents program flowcharts, flowchart narrative, storage requirements, program listings, and a storage map. (64 pages)

Y20-0055   1130 Wave-Front Ray-Path   **60**
Determination Program
(1130-MP-10X) —
System Manual

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic employed in the application.

The manual presents, for each run, flowcharts, flowchart narrative, a list of internal sense switches used, storage requirements, and program listings. (40 pages)

Y20-0056   1130 Synthetic Seismogram Program   **60**
(1130-MP-11X) — System Manual

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic employed in the application.

The manual contains program flowcharts, a flowchart narrative, programming notes, switch listings, storage requirements, program listings, and a storage map. (52 pages)

Y20-0057   1130 Gravity and Magnetics   **60**
Continuations, Derivatives, and
Residuals Program (1130-MP-12X) —
System Manual

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic employed in the program.

The manual contains flowcharts, a flowchart narrative, switch listings, and program listings. (48 pages)

Y20-0058 **1130 Theoretical Gravity of a 3-D** **60**
Mass Program (1130-MP-13X) —
System Manual

This manual provides detailed information to assist the user
in gaining a more thorough knowledge of the program-
ming logic employed in the application.

The manual presents a flowchart, flowchart narrative,
switch listings, program notes, storage requirements, pro-
gram listings, and a core storage map. (20 pages)

Y20-0059 **1130 Quantitative Log Analysis** **60**
Program (1130-MP-14X) —
System Manual

This manual provides detailed information to assist the user
in gaining a more thorough knowledge of the program-
ming logic employed in the application.

The manual presents flowcharts, flowchart narrative,
switch listings, storage requirements, program listings,
storage map, and a glossary. (100 pages)

Y20-0060 **1130 Dipmeter Program** **60**
(1130-MP-15X) — System Manual

This manual provides detailed information to assist the user
in gaining a more thorough knowledge of the program-
ming logic employed in the application.

The manual contains a flowchart, flowchart narrative,
a list of internal switches used, and program listings.
(80 pages)

Y20-0064 **Civil Engineering Coordinate** **60**
Geometry (COGO) for IBM 1130
Model 2 (1130-EC-02X) —
System Manual

COGO is designed specifically for civil engineering geometry
problems. Engineers state problems in familiar vocabulary,
and the statement input generates the problem solution.
Programming, in the usual sense, is unnecessary, and no
intermediate programming is needed. The program is writ-
ten for an 8K card 1130 Model 2 and operates under the
1130 Monitor System.

This manual describes the internal structure of the COGO
system programs. (120 pages)

Y20-0072 **1130 Programs for Optical Systems** **60**
Design (1130-EO-11X and
1130-EO-12X) — System Manual

This manual is intended to serve as a programmer's guide
to the POSD system. Flowcharts, symbol and switch defi-
nitions, and calling sequences are given for all routines. The
flowcharts are written in a descriptive fashion and are in-
tended to provide a cross-reference between the program
functions and pertinent material in the User's Manual.
Where applicable, abstracts are included describing par-
ticular programming requirements.

The manual presumes a knowledge of the 1130 POSD
User's Manual, the FORTRAN language, and the 1130
Monitor System. (184 pages)

Y20-0078 **1130 Route Accounting for** **60**
Dairies and Bakeries
(1130-DX-01X) — System Manual

This manual contains detailed information concerning the
program logic of each program in the IBM 1130 Route
Accounting System. Included for each program is a pro-
gram flowchart, a flowchart narrative, and an assembled
program listing. The programming concepts used in all
programs are described. (896 pages)

Y20-0081 **Structural Engineering System** **60**
Solver (STRESS) for the IBM 1130,
Model 2B (1130-EC-03X) —
System Manual

This program is designed specifically for the solution of
structural engineering problems. It uses a problem-oriented
input language which enables the structural engineer to
communicate with the computer even though he has no
previous programming experience.

The program can analyze structures with prismatic mem-
bers in two or three dimensions, with either pinned or
rigid joints, and subjected to concentrated or distributed
loads, support motions, or temperature effects.

The program is written for an 8K card 1130 Model 2,
with disk, and operates under the 1130 Monitor System.

This manual provides detailed information to help the
user understand the internals of 1130 STRESS. It is de-
signed to be used with the program listings for 1130
STRESS. (204 pages)

Y20-0089   **1130 Data Presentation System**   **60**
Version 2, System Manual
Volume I — Flowcharts and Narratives
Program Number 1130-CX-14X

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic employed in the application.

The manual presents the necessary operating instructions for retrieving the optional machine-readable material. Also included are flowchart narratives, program listings, index register, and switch listings. (224 pages)

Y20-0091   **1130 Project Control System**   **60**
(1130-CP-05X) — System Manual

This manual describes the routines and subroutines that make up the IBM 1130 Project Control System. It is divided into the seven logical phases of the system and is intended primarily for the programmer who wishes to gain an understanding of the programming design of the 1130 Project Control System. It will provide him with the necessary information for maintaining and modifying the system if he so desires. (276 pages)

Y20-0093   **1130 Statistical System**   **60**
(1130-CA-06X) — System Manual

This manual provides detailed information on the logic used in each program of the 1130 Statistical System. (125 pages)

Y20-0103   **1130 Numerical Surface**   **60**
Techniques and Contour Map
Plotting (1130-CX-11X) —
System Manual

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic employed in the application. A flowchart, a flowchart narrative, a program listing, a storage map, and a switch listing where applicable are given for each program. (352 pages)

Y20-0104   **1130 Work Measurement Aids**   **60**
(1130-MF-03X) — System Manual

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic. This manual contains flowcharts and flowchart narratives of all programs. (304 pages)

Y20-0109   **1130 Mechanism Design System —**   **60**
Gears and Springs
Version 2, System Manual
Volume I —Flowcharts and Narratives
Program Number 1130-EM-01X

This manual provides detailed information to assist the user in gaining more thorough knowledge of the programming logic employed in the application.

The System Manual is optional information available to the user and includes, for each of the gear and spring programs, flowcharts, flowchart narrative, program variable name identification, and a layout of the core storage common area.

Other optional material available consists of source program listings recorded on magnetic tape. This tape comes with a program for listing, punching, and maintaining the source decks contained on it. (160 pages)

Y20-0110   **1800/1130 Control Optimization**   **60**
Program (COP/1800-1130)
(1800-CC-01X) Version 2
System Manual

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the mathematical methods and programming logic employed in the program.

The manual contains: a description of the overall organization of the program; a description of the linear programming (LP) algorithm employed; a list of program switches used; program flowcharts; and flowchart narrative. (180 pages)

Y20-0141   **1130 Linear Programming —**   **60**
Mathematical Optimization Subroutine
System (1130-LP-MOSS, 1130-CO-16X) —
System Manual

This system manual describes the Linear Programming — Mathematical Optimization Subroutine System (LP-MOSS) for the IBM 1130. Chapter 1 gives a general introduction to the manual. The remaining chapters provide details on the system structure, describe programming conventions, and give reference material pertaining to the system. (652 pages)

Y20-0216   **IBM 1130 Automated Chemistry**   **60**
Program 1130 ACP for the 1080 Data
Acquisition System 1130-UH-13X
System Manual

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic employed in the application. Flowchart narratives, flowcharts, listings of switches, and the program listings are included in this publication. (100 pages)

Y20-0312 Program for Optical System 60
Design/II (POSD/II) (1130-EO-14X,
360A-EO-15X, 360A-EO-16X)
System Manual

This manual is intended to serve as a programmer's guide
to the POSD/II system. Flowcharts, symbol and switch
definitions, and calling sequences are given for all routines.
The flowcharts are written in a descriptive fashion and are
intended to provide a cross-reference between the program
functions and pertinent material in the Program Descrip-
tion Manual. Where applicable, abstracts are included des-
cribing particular programming requirements.

This manual presumes a knowledge of the POSD/II Pro-
gram Description Manual, the FORTRAN language, either
the 1130 Monitor or S/360 DOS or OS Operating System,
and the PLAN submonitor system. (132 pages)

Y20-0316 IBM 1130 Rigid Frame Selection 60
Program (RFSP) (1130-EC-09X)
System Manual – Volume I

This manual is intended to serve as a programmer's guide to
RFSP. Flowcharts and flowchart narratives are given for all
modules. The flowcharts are written in a descriptive fashion
and are intended to provide a cross-reference between the
program functions and pertinent material in the *RFSP Pro-
gram Description and Operations Manual* (H20-0580). A
comprehensive array of tables is included to describe the
PLAN (Problem Language ANalyzer) Dictionary used by
RFSP. This manual presumes a knowledge of the 1130
RFSP and PLAN Program Description Manuals, the FOR-
TRAN language and the 1130 Monitor System.

Volume 2 of the Rigid Frame Selection Program System
Manual has a separate form number (Y20-0366) and con-
tains the Assembly Listings for the program. (502 pages)

Y20-0343 1130 Problem Language ANalyzer 60
(PLAN) (1130-CX-25X)
Volume I – Flowchart Narratives
System Manual

This manual contains detailed information in the form of
flowchart narratives for the 1130 PLAN System. With
this, the user should gain a better understanding of the
logic of the system. (204 pages)

Y20-0344 1130 Problem Language Analyzer 60
(PLAN) (1130-CX-25X) Volume II-
Flowcharts System Manual

This manual contains flowcharts of the 1130 Problem
Language Analyzer. This material when used in conjunc-
tion with the material contained in the System Manual and
with the program listings will allow the user to gain a better
understanding of the logic of the system. (370 pages)

Y20-0349 1130 Problem Language Analyzer 60
(PLAN) (1130-CX-25X) Volume III-
Assembly Listings System Manual

This manual is intended as a reference for those who will
have maintenance responsibility for PLAN. It contains
assembler and compiler listings for all 1130 PLAN subrou-
tines and modules. (596 pages)

Y20-0363 1130 Program for Optical System 60
Design/II (POSD/II) (1130-EO-14X)
System Manual-Assembly Listings

This manual contains the compile and assembly listings for
1130 POSD/II. Refer to Y20-0312 for the flowcharts and
narratives. (210 pages)

Y20-0366 IBM 1130 Rigid Frame Selection 60
Program (FSP) (1130-EC-09X)
System Manual – Volume II

This manual provides the program compilation listings for
the IBM 1130 Rigid Frame Selection Program. The flow-
charts and narratives for this program will be found in the
*IBM 1130 Rigid Frame Selection Program (RFSP) System
Manual – Volume I* (Y20-0316). (296 pages)

Y20-0395 PLAN Graphics Support 60
for the IBM 2250 on the 1130
(1130-CX-33X)
System Manual

This publication describes the internal logic of the IBM
1130/2250 PLAN GRAPHIC SUPPORT. The contents
are intended for use by persons involved in program main-
tenance, and for system programmers who are altering the
program design. The information is not necessary for the
use and operation of the program. (174 pages)

Y20-0397   1130 Mechanism Design System —   60
Kinematics System Manual
Volume II — Compilation Listings
(1130-EM-03X)

This manual provides the program compilation listings
for 1130-EM-03X. (188 pages)

Y20-0430   1130 Project Control System   60
(1130-CP-05X)
Version 2 — Listings
System Manual

This manual contains the compiler listings (and, for a few
routines, assembler listings) for the 1130 Project Control
System, Version 2. The manual should be used in con-
junction with the Version 2 System Manual (Y20-0091).
(200 pages)

Y20-0434   1130 Mechanism Design System —   60
Gears and Springs
Version 2, System Manual
Volume II — Compilation Listings
(1130-EM-01X)

This manual provides compilation listings for the 1130
Mechanism Design System — Gears and Springs. (136
pages)

Y20-0436   1130 Data Presentation System,   60
Version 2
System Manual
Volume II — Assembly Listings
(1130-CX-14X)

This manual provides assembly and compilation listings
for the 1130 Data Presentation System. (228 pages)

*Y20-0438   Linear Programming System/1130   65
(LPS/1130)
Compilation/Assembly Listings Manual
Program Product: 5711-CO1
Feature Code: 8807

This manual contains the compilation/assembly listing for
the distributed portions of the Linear Programming Sys-
tem/1130. (456 pages)

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*   Note: This publication is made available in conjunction with
an IBM program product. See your IBM representative for
information concerning its availability. If a feature code is
indicated, the document is available under the License Agree-
ment for IBM Program Products.

Y21-0010   IBM 1130 RPG   28

Program Number 1130-RG-007
This publication describes the internal logic of the RPG com-
piler for the 1130 Computing System. It is intended for use
by persons involved in program maintenance, and system
programmers who are altering the program design. Program
logic information is not necessary for the use and operation
of the program; therefore, distribution of this publication is
limited to those with the aforementioned requirements.
(170 pages)

Y26-3620   1130/1800 Programming Systems —   20
Card/Paper Tape — Program
Logic Manual

This publication describes the internal logic of the 1130/
1800 Card and Paper Tape Programming Systems: Assem-
bler, FORTRAN Compiler, Library Subroutines, and Utility
Routines. It is intended for use by persons involved in pro-
gram maintenance and system programmers who are altering
the program design. Program logic information is not neces-
sary for the use and operation of the program; therefore,
distribution of this publication is limited to those with the
aforementioned requirements. (155 pages)

Y26-3714   1130 Disk Monitor Programming   36
System, Version 2 — Program Logic Manual

Program Numbers 1130-OS-005
1130-OS-006
This publication describes the internal logic of the IBM
1130 Disk Monitor Programming System, Version 2. The
contents are intended for use by persons involved in pro-
gram maintenance, and for system programmers who are
altering the program design. Program logic information is
not necessary for the use and operation of the program;
therefore, distribution of this manual is limited to those
who are performing the aforementioned functions.
(364 pages)

Y26-3752   1130 Monitor Programming   36
System — Program Logic Manual

This publication describes the internal logic of the IBM
1130 Monitor Programming System. The contents are in-
tended for use by persons involved in program maintenance
and for system programmers who are altering the program
design. Program logic information is not necessary for the
use and operation of the program; therefore, distribution
of this manual is limited to those who are performing the
aforementioned functions. (264 pages)

Y27-7174-0   IBM 1130/2250 Graphic Subroutine   25
Package for Basic FORTRAN IV

Program Number 1130-LM-008
This publication describes the internal logic of the 1130/
2250 Graphic Subroutine Package (GSP) for Basic
FORTRAN IV. The GSP is a group of subroutines that the
FORTRAN programmer uses to write graphics programs for
the IBM 2250 Display Unit, Model 4, attached to the 1130
Computing System. The GSP is not an extension of
FORTRAN. It may also be used by Assembler-language
programs.

   This program logic manual is intended for use by persons
involved in program maintenance and system programmers
who are altering the program design. Its primary purpose is
to serve as a guide to the program listings with which it is to
be used. Since program logic information is not necessary

for using the program, distribution of this publication is
limited to those with the aforementioned requirements.
(176 pages)

Y30-1001   1130 Remote Job Entry   36
Work Station Program —
Program Logic Manual

Program Number 1130-CO-009
This Program Logic Manual describes the internal logic of
the 1130 RJE Work Station Program under Version 2 of
the IBM 1130 Disk Monitor System. This publication is
intended for use by personnel involved in program main-
tenance and by system programmers who are altering the
system design. Program logic information is not necessary
for the use and operation of the program; therefore, distri-
bution of this publication is limited to persons with pro-
gram maintenance or modification responsibilities. (84 pages)

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YOUR COMMENTS, PLEASE . . .

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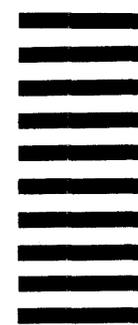IBM system, to your IBM representative or to the IBM branch office serving your locality.

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