



Systems Reference Library

IBM 1410/7010 Bibliography

All available reference literature applicable to the installation and operation of the IBM 1410 and 7010 Data Processing Systems is indexed in this Bibliography. In Part 1, the publications are listed under major subject headings. In putting together a library, it is recommended that this sequence be followed. Part 2 is a cross-index by machine type number. Part 3 provides the abstracts of all publications in form number sequence.

Additional copies of most form-numbered publications can be ordered through the local IBM Sales Representative. Special ordering procedures are indicated in the abstracts.

















Systems Reference Library

For each major IBM data processing system, a Systems Reference Library (SRL) has been established to consolidate all basic reference literature necessary in planning, programming, installing and operating the system. An SRL Bibliography Supplement covers publications for IBM Tele-processing equipment.

Bibliography

The bibliography lists applicable publications and related materials in subject code and machine type number sequence and provides a brief abstract of each publication. By reviewing these indexes and abstracts you may select those items of interest to your installation and keep abreast of other materials which may be useful at some future time.

File Numbers, Subject Codes

The cover page of each SRL bulletin shows the title, abstract, form number, and a file number for the document. 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.

Installation supplies such as coding forms and physical planning templates are listed under subject code 80. Other publications of general interest to a system user are listed under the headings "Supplementary Information", "Student Texts", and "Education Literature".

Technical Newsletters

To keep publications current, additions and other modifications are distributed as Technical Newsletters (TNL). These are identified in the masthead with the file number and form number of the publication to which they apply. All previously issued TNL's are also listed so that you may verify receipt of all changes.

SRL Newsletter

A special SRL Newsletter is issued periodically (every four weeks if changes have occurred during that period) to update the Bibliography. All current publications are listed in subject code sequence showing form number and title of the publication as well as the form number of applicable Technical Newsletters. Obsolete publications are listed separately with new references indicated. Abstracts of new publications are also given.

The form number revision suffix is shown so that you may verify your publications as current. In some cases more than one edition of a publication is current, since a reprint incorporating previously distributed replacement pages is given a new suffix. When this occurs, all current editions and applicable Technical Newsletters are listed in the SRL Newsletter.

SRL Revision Service

A direct mail revision service is available to IBM system users to supply Technical Newsletters and major revisions of publications for a library. For details concerning subscription procedures, see your local IBM representative.

IBM Programming Systems

srl Newsletters also show the current status of programming systems available for a system. Additional data, including ordering instructions, for these and application programs are included in the Catalog of Programs listed under subject code 20.

FIFTH EDITION

This edition, Form A22-6826-4, obsoletes Form A22-6826-3 and all earlier editions.

Specifications contained herein are subject to change from time to time. Any such change will be reported in subsequent revisions or Technical Newsletters. Request for copies of IBM publications should be made to your IBM representative or to the IBM branch office serving your locality.

This manual has been prepared by the BM Systems Development Division, Product Publications, Dept. B98, P. O. Box 390, Poughkeepsie, N. Y. 12602. Address comments concerning the contents of this publication to the above address.

Part 1 of this bibliography lists all current publications pertaining to the $\scriptstyle{\mathrm{IBM}}$ 1410 and 7010 Data Processing Systems. The subject code assists in assembling the materials in a recommended sequence. (Publications in the Systems Reference Library format show this code on the cover.) An asterisk preceding the title of a publication indicates that the publication is of interest to users of other IBM Data Processing Systems. See Part 3 of the bibliography for abstracts of the publications listed.

SUBJECT CODE	г	FORM NUMBER
00	IBM 1410/7010 Systems Reference Library	
	1410/7010 Bibliography	A22-6826
	SRL Bibliography Supplement — Tele-processing and	
	Data Collection	A24-3089
	1410 System Summary	A22-0524
	7010 System Summary	A22-6724
	1410 Configurator	
	7010 Configurator	A22-6723
01	Machine Systems	
	*Standard всь Interchange Code	J22-6690
	1403 Printer Model 3 1410/7010 Systems	A22-0535
	1410 Principles of Operation	
	7010 Principles of Operation	
	Additional Core Storage	G22-6648
03	Input/Output	
	*1011 Paper Tape Reader	A26-5754
	1015 Inquiry Display Terminal Models 1 and 2 with	
	1410/7010 Systems	
	1219 Reader Sorter; 1419 Magnetic Character Reader	
	*1403 Printer Component Description	A24-3073
	1412 Magnetic Character Reader Model 1	G24-1417
	*1412 Magnetic Character Reader Model 1 — Reference	
	Manual	
	1414 Model 8 Input/Output Synchronizer for 1410 System	A22-6714
	*1442 Card Read-Punch Models 1 and 2 and 1442	
	Card Reader Models 3 and 4	
	1442 Model 3 Card Reader for 1410/7010 Systems	
	2321 Data Cell Drive with 1410/7010 Systems	
	*Automatic Punches	D24-1014
05	Magnetic Tape Units and Controls	
	*729, 7330, and 727 Magnetic Tape Units	
	7340 Hypertape Drive Model 2 for 1410 System	A22-6671
07	Direct Access Storage Units and Controls	
	1301/1302 Disk Storage Models 1 and 2 with	
	1410/7010 Systems	A22-6788

SUBJE	СТ	FORM NUMBER
	*1301-1302 Disk Storage Sequential Data Organization	A22-6784
	1311 Disk Storage Drive	
	1311 Disk Storage Drive for 1410/7010 Systems	A22-6704
	1405 Disk Storage with 1410 System	A22-0534
	*Disk Pack Handling and Operating Procedures	A26-5756
09	Tele-processing Equipment	
	1219 Reader Sorter Model 32; 1419 Magnetic Character	
	Reader Model 32	
	1410 as a Tele-processing System	A22-0525
	1414 Model 4 or 5 with 1050 Data Communications System	A00 6760
	for 1410/7010 Systems	A22-0109
10	Auxiliary Equipment	
	1419 Magnetic Character Reader with 1410 System	A22-0536
	*7765 Paper Tape to Magnetic Tape Converter	A22-6570
	1100 Taper Tape to Magnetic Tape Converted	
13	Special and Custom Features	
	Using Channel 2 Tape Units on 1410 System in 1401 Mode,	
	RPQ M10216 - Special System Feature	L22-6781
	1410 Priority Feature	A22-0530
	Floating Point Significant Arithmetic for 1410 System	4.00.0000
	RPQ E10429 — Special System Feature	A22-6693
	7223 Model 13 Console Card Reader for 1410,	T 00 0000
	RPQ 880084 and 880071 — Special System Feature	
	Data Channels 3 and 4 – 7010 System	A22-0740 A99 6740
	Floating Point Arithmetic for 7010 System	A22-07-13
	Memory Protect — Program Relocate and Interval Timer Feature for 7010 System	A 22-6758
	*Magnetic Tape Unit Selection for Data Processing Systems,	1111 0100
	RPQ W89489 — Special Systems Feature	L22-6886
	Program Addressable Clock	G22-6654
	110514111 114410004000 1144111	
15	Physical Planning Specifications	
	*1401/60, 1410 Systems; 7340 Hypertape Drive Model 2	
	Physical Planning Specifications (Tentative)	C22-6674
	*1410 Installation Manual – Physical Planning	C24-1437
	*7000 Series and 1410 Systems Installation Manual	
	Physical Planning, Input/Output Components	C22-6681
	7010 Installation Manual — Physical Planning	C22-6736
	*Physical Planning — General Information Manual	F24-1052
10	Original Equipment Manufacturers' Information	
19	*729п, IV, V, VI Magnetic Tape Units	A22-6643
	*1402 Card Read-Punch	A31-1400
	*1403 Printer	A24-1431
	*1414 Input/Output Synchronizer	A22-6701
	1442 Card Read-Punch Models 1 and 2; 1442 Card	•
	Reader Model 3	A21-9002
	*7330 Magnetic Tape Unit	A22-6619
	7631 File Control	A22-6725
	•	

SUBJECT CODE	•	FORM NUMBER
	1410/7010 Operating System (1410-pr-155) Basic Input/Output Control System (14	C28-0322
	1410/7010 Operating System (1410-PR-155) Random Processor Scheduler (1410-10-967) 1410 Input/Output Control System for Programmed	C28-0323
	Transmission Control (1410-10-926)	C28-0329
	1410 rocs for Card and Tape Systems	
	1410 Input/Output Control System — PSAG	
	1410 rocs Independent Assembly Feature	C28-0286
	1410 Input/Output Control System for the 1414 Input/Output Synchronizer Models 4 and 5	J28-0258
	Intersystem Input/Output Specifications; 1440 with 1410	J20-0200
	or 7010 — Communications 100s	C24-3051
32	Utility Programs	
	Utility Programs — Part v: 1301 Utility Programs	C28-0279
	1410/7010 Programming Systems; 1301/1302 Format/Address	020-0210
	Generator Program — Preliminary Specifications	C28-0356
	1410 Utility Programs — Part 1: Card/Tape Utility Programs 1410 Utility Programs — Part IV: Utility Program Operating	C28-0244
	System	C28-0295
	1410 Multiple Utility Program (1410-ur-147)	C28-0337
	1410/7010 Operating System (1410-pr-155) Utility Programs	C00 0050
	(1410-ит-973)	C28-0353
33	Sort/Merge	
	1410 Generalized Sorting Program Using 1301 Disk Storage	C28-0304
	1410/7010 Operating System — Generalized Sorting Program	
	Using 1301/1302 Disk Storage (1410-sm-972)	C28-0404
	1410 Generalized Sorting Program Using 1301 Disk Storage	C28-0335
	(1410-sm-137) — Sorting Times for the 7010	C20-0333
	Sorting Program (1410-sm-971) — PSAG	C28-0393
	1410/7010 Operating System (1410-pr-155) Generalized Tape	
	Sorting Program (1410-sm-971)	C28-0354
	1410 Tape Sorting/Merging Programs — Sort/Merge 11 Sorting Times for the 1410 with 7330, 729π, 729π,	
	729v, or 729vi Tape Units	C28-0313
	Sort/Merge 12 — Sorting Times for the 7010 with 7330,	C20 000F
	729π, 729π, or 729v Tape Units	
	1410 Tape Sorting/Merging Program — Sort/Merge 12 1410 Tape Sorting/Merging Programs — Part 1: Sort/Merge 11	
	1410 Tape Softing/ Merging Frograms — Part I; Soft/ Merge 11	. j20-0201
34	Disk Storage File Organization	
	1410/7010 Operating System (1410-pr-155)	
	File Organization System for the 1301/1302 Disk Storage	C00 040F
	Preliminary Specifications (1410-мл-977)	C28-0405
36	Supervisor, Monitor	
	1410/7010 Operating System (1410-pr-155) System	
	Generation (1410-мі-965)	C28-0352

SUBJEC CODE	T	FORM NUMBER
	1410/7010 Operating System (1410-pr-155)	
	Resident and Transitional Monitors (1410-sv-962)	
	and Input/Output Control System (1410-10-966)	
	Programming Systems Analysis Guide	C28-0396
	1410/7010 Operating System (1410-pr-155) System Monitor	
	1410/7010 Operating System (1410-pr-155) Tele-processing	020 0020
	Supervisor (1410-sv-964)	C28-0321
48	Miscellaneous Programs	
	1410/7010 Operating System Conversion Program	H20-0601
50	Systems Techniques	
	1410/7010 Operating System; Support for 1302 Disk	
	Storage Models 1 and 2 — Preliminary Specifications	C28-0357
	Storage Models 1 and 2 — Helminiary Specifications	C20-0351
80	Installation Supplies	
	Proportional Record Layout Format Form	X20_1702
	SHARE Print Chart	
	*1301 Physical Planning Templates	
	*Physical Planning Templates — Input/Output Components	
	7010 pps Physical Planning Templates	
	1410 Instruction Card	
	*729, 7330 Magnetic Tape Record Characteristics	
	*1401-1410 Report Program Generator — Input Specification	2122 0100
	Sheet	X24-1339
	*1240, 1401/60, 1410/7010, 1440 Autocoder Coding Sheet	X24-1350
	407, 408, 409, 1403, 1404, 1443 and 2201 Printer Spacing Chart	7121 1000
	(6 lines per inch)	X24-6436
	1410 Program Chart	
	1410 System Order Work Sheet	
	*1011 Paper Tape Reader 5 Track Control Panel Diagram	
	1410 Cable Order Form	
	1410 Physical Planning Templates	
	1401, 1410, 1440 Library Coding Form	
	*cobol Program Sheet	
	*cobol Reference Card	
	*7750 Assembly Program Sheet	
	*FORTRAN Coding Form	
90	Education Literature	
,,		F90 6517
	*Introduction to IBM Data Processing Systems	
	1410 pps Console Operator Course Description	
	*cobol Education Guide	
	*FORTRAN Education Guide	NZƏ-9527
95	Student Text	C20 1000
	1410/7010 pps Student Text	C20-1606

Part 2 — Machine Index

Publications describing the machine components of the 1410 and 7010 Systems are listed by machine number. The machine index is useful for quickly finding reference material about a specific machine unit. The *IBM 1410 System Summary*, A22-0524, and *IBM 7010 System Summary*, A22-6724, which contain general information about the machine components, are not listed in the index. See *IBM 1410 Configurator*, A22-6688, and *IBM 7010 Configurator*, A22-6723, for the number and type of machine components.

MACHINE NUMBER	TITLE	SUBJECT CODE	FORM NUMBER
729	1410 Principles of Operation	. 01	A22-0526
	Magnetic Tape Units		A22-6589
1009	вм Telecommunications Equipment with вм 1410		
	System		A22-0525
1011	1011 Paper Tape Reader		A26-5754
	вм Telecommunications Equipment with вм 1410		
	System		A22-0525
1014	вм Telecommunications Equipment with вм 1410		
	System		A22-0525
1301	1301 Disk Storage	07	A22-6788
1311	1311 Disk Storage Drive		A22-6704
	1311 Disk Storage Drive		A26-5991
1402	1410 Principles of Operation		A22-0526
1403	1410 Principles of Operation		A22-0526
	1403 Printer		A24-3073
1411	1410 Principles of Operation	01	A22-0526
1412	1412 Magnetic Character Reader Model 1		A24-1421
	1412 Magnetic Character Reader Model 1		G24-1417
1414	1410 Principles of Operation		A22-0526
	вм Telecommunications Equipment with вм 141	0	
	System		A22-0525
	1414-8 Input/Output Synchronizer	03	A22-6714
1415	1410 Principles of Operation	01	A22-0526
1419	1419 Magnetic Character Reader with IBM 1410		
	System	10	A22-0536
1442	1442 Model 3 Card Reader	03	A22-6715
	1442 Card Read-Punch Models 1 and 2	03	A24-3119
2321	2321 Data Cell Drive	03	A22-6819
7223	7223 Model 13 Console Card Reader	13	L22-6692
7261	7261 Tape Selection Console	13	L22-6886
7330	1410 Principles of Operation	01	A22-0526
	Magnetic Tape Units	05	A22-6589
7340	7340 Hypertape Drive Model 2 for івм 1410		
	System	05	A22-6671
7631	1301 Disk Storage	07	A22-6788
7770	Telegraph Input/Output		
	вм Telecommunications Equipment with		
	вм 1410 Systems	09	A22-0525

The abstracts for all 1410/7010 system publications and materials are listed by form number. From the abstract, the 1410/7010 user can determine if a particular publication is applicable. The subject code number is shown at the right of the title.

A19-0004 IBM 1219 Reader Sorter Model 32 IBM 1419 Magnetic Character Reader Model 32 for World Trade Use Only

This publication contains detailed information about the keys, lights, switches, mechanical features, and special features of the IBM 1219 Reader Sorter Model 32 and the IBM 1419 Magnetic Character Reader Model 32.

On-line and off-line data-flow and operating theory are fully discussed, with step-by-step procedures for each reader operation. Programming notes and errorcorrection routines are also covered in detail. It should be noted that, in the areas of on-line operation, errorrecovery, and programming notes, this manual refers to the 1401 attachment only.

For additional information, readers are referred to the following publications: IBM 1401/1460 Miscellaneous Input/Output Instructions, Form A24-3068 and IBM 1419 Magnetic Character Reader with IBM 1410 System, Form A22-0536. For information concerning the attachment of the IBM 1219/1419 Model 32 to the IBM System/360 Model 30 or 40, readers are referred to IBM 1419 Model 32 Attached to IBM System/360 Model 30 or 40, Form A19-0023.

A21-9002 IBM 1442 Card Read-Punch Models 1 and 2; 1442 Card Reader Model 3

Contains information that will assist non-IBM engineers who plan to attach the IBM 1442 Card Read Punch Models 1 or 2, or the IBM 1442 Card Reader Model 3 to their equipment. It includes a general description of machine functions, a reference listing of publications and engineering documents, also information concerning machine interface not readily available in other publications. (16 pages)

A22-0524 IBM 1410 System Summary

Brief descriptions are provided of the system concepts and special features, the system units and 1/0 devices, and the programming systems and available programs. Summarizing the fundamental facts about the 1410 system, this publication has the purpose of helping the user achieve a basic understanding of the system and the interrelationships of its many parts. (24 pages)

A22-0525 IBM 1410 as a Tele-processing System 09

The focus of attention in this manual is the 1414-4 or 1414-5 Input/Output Synchronizer. Necessarily, the manual describes the telecommunications devices (1009 Data Transmission Unit, 1014 Remote Inquiry Units, Telegraph Input/Output and the Paper Tape Reader) and the physical data-flow connections between these devices and the 1410, through the 1414.

The first portion of the manual is primarily a description of the equipment. The second portion is primarily a description of how to use it, with emphasis on programming instructions. (36 pages)

A22-0526 IBM 1410 Principles of Operation

This manual describes IBM 1410 Data Processing System operating principles; the description includes the IBM 1411 Processing Unit, the IBM 1415 Console with console 1/0 printer, and the basic 1410 instruction set with timing formulas. Addressing, indexing, and chaining are detailed, as are the 1410 accelerator, processing overlap, and data channel 2 special features.

This manual is: (1) a reference and guide for those familiar with the 1410 system, and (2) an aid for training of programmers and operators. The material is presented in a direct manner; it is assumed that the reader is familiar with the information in IBM 1410 System Summary, Form A22-0524.

The manual also describes the magnetic tape, console 1/0 printer, 1403 printer, and 1402 punched card inputs and outputs, and gives the related 1/0 instructions and timing considerations. Functions of the IBM 1414 Input/Output Synchronizers are included. For information on other I/O devices and features shown on the IBM 1410 Configurator, Form A22-6688, refer to IBM 1410/7010 Bibliography, Form A22-6826. All basic, 1/0, and special feature instructions for the 1410 are collected in a complete list on the IBM 1410 Instruction Card, Form X22-6740.

The information in this manual is machine oriented; that is, the explanations of operations and instructions are primarily in actual machine language. (108 pages)

A22-0530 IBM 1410 Priority Feature

Describes the operation, including the switches and lights, of the Priority Feature (feature code 5620) and Priority Feature Extension (feature code 5621) as it applies to the вм 1410 System. Also included is a description of two new 1410 instructions, Priority Test and Branch and Input/Output No-Op. (16 pages)

A22-0534 IBM 1405 Disk Storage with 1410 System

Describes all 1410 instructions related to the 1405 Disk Storage, with considerations for overlap and end-of-core operations and the conditions that set the 1420 1/o channel status indicators. Description includes the record addressing scheme, mechanical access to records, access times, and the function and operation of additional special-feature access arms. This bulletin revises virtually all the 1405-1410 information in the 1410 Reference Manual, Form A24-1407, now obsolete. (16 pages)

A22-0535 IBM 1403 Printer Model 3 with 1410/7010 Systems

This publication describes the differences in operating and timing considerations between the IBM 1403 Printer, Model 3, and the IBM 1403 Printer, Models 1 and 2. For details on the control instructions and basic operating principles of the IBM 1403 Printer, model unspecified, applicable to all models, see the IBM 1410/7010 Bibliography, Form A22-6826 in the Systems Reference Library. Main difference - 1403 Model 3 prints at 1,100 lines per minute, Models 1 and 2 print at 600 lines per minute. (4 pages)

A22-0536 IBM 1419 Magnetic Character Reader with IBM 1410 System

This publication contains details about the IBM 1419 Magnetic Character Reader that apply to its use online with the IBM 1410 System. The details include: (1) all 1410 instructions controlling the 1419, (2) basic 1419 operation principles, (3) procedures for loading and unloading documents, reading data from the 1419 into the system, restarting after machine stops, and (4) operating controls and lights. (36 pages)

A22-6570 IBM 7765 Paper Tape to Magnetic 10 Tape Converter

The 7765 reference manual deals with the use and capabilities of the 7765 Paper Tape to Magnetic Tape Converter in data processing operations. The manual describes the functions of components of the 7765. The components include the paper tape reader, the paper tape control translate, the converter adapter, the incremental operation write adapter, and the incremental tape drive. There is a section on the control panel describing the functions of each hub and the wiring for 5-track and 8-track paper tape operations. The procedures for roll, reel, and strip feeding are explained. An appendix has been added giving both the 7750 encoder output bit structure and the decoder exit bit structure. (29 pages)

A22-6589 IBM 729, 7330, and 727 Magnetic Tape Units - Principles of Operation

Comprehensive reference manual on the use of IBM 727, 7291, II, III, IV, and 7330 Magnetic Tape Units. Manual includes principles of writing and reading coded data on magnetic tape, tape unit load and unload procedures, operating keys and lights, tape handling, organizing tape records and reels, tape labeling and tape library records, tape error recovery procedures, and associated equipment. (44 pages)

A22-6619 IBM 7330 Magnetic Tape Units 19 **OEMI**

Gives specifications for attaching a control unit to the IBM 7330 Magnetic Tape Units. (12 pages)

A22-6643 IBM 729 II, IV, V, and VI Magnetic Tape Units - OEMI

Includes information and specifications for use by a manufacturer of original equipment to be attached to им 729п, IV, v and VI Magnetic Tape Units. (40 pages)

A22-6671 IBM 7340 Hypertape Drive Model 05 2 for 1410 System

This manual is a comprehensive presentation of the characteristics, functions, and features of the IBM 7340 Hypertape Drive and the IBM 7641 Hypertape Control as used with the IBM 1410 Data Processing System. This manual can be used for individual study, as an instruction aid, and as a reference guide. It is assumed that the user has a basic knowledge of the 1410 Data Processing System. (20 pages)

A22-6688 IBM 1410 Configurator nn

The schematic drawing shows the complete 1410 System with all required and optional features available. The drawing will be revised and re-issued whenever a new feature for the 1410 is announced. (1 page)

A22-6693 Floating Point Significant 13 Arithmetic for 1410 System — RPQ E10429 — Special Systems Feature

This bulletin describes the operating principles of Floating Point Significant Arithmetic, a feature now available for the 1410 on an RPO basis. Results of the six different floating instructions are given, together with governing rules, timing formulas, and diagnostic instructions. (12 pages)

A22-6701 IBM 1414 Input/Output Synchronizer 19 A22-6748 Data Channels 3 and 4 **OFMI**

This manual will assist designers of accessory equinment to be used with IBM 1410-7000 Series Data Processing Systems that normally use IBM 1414 Input/ Output Synchronizers. Connections between the computer and 1414 and between the 1414 and attached input/output devices are shown, together with timing, power and cable requirements, circuits, and physical specifications. (56 pages)

A22-6704 IBM 1311 Disk Storage Drive for 1410/7010 Systems

This publication provides detailed information on addressing and organizing 1311 disk storage, instructions, access time, and special features. (28 pages)

A22-6714 IBM 1414 Model 8 Input/Output 03 Synchronizer for 1410 System

Describes the IBM 1414 Model 8 and the prerequisites for use on channel 2. (2 pages)

A22-6715 IBM 1442 Model 3 Card Reader for 1410/7010 Systems

This publication describes the use and operation of the IBM 1442 Model 3 Card Reader for the IBM 1410 and 7010 Data Processing Systems. Instruction formats, channel status indicators, switches, keys, and lights are also presented. (4 pages)

A22-6723 IBM 7010 Configurator

The schematic drawing shows the complete 7010 System with all required and optional features available. The drawing will be revised and re-issued whenever a new feature for the 7010 is announced. (1 sheet)

A22-6724 IBM 7010 System Summary

Brief descriptions are provided of the system concepts and special features, the system units and 1/0 devices, and the programming systems and available programs. Summarizing the fundamental facts about the 7010 system, this publication has the purpose of helping the user achieve a basic understanding of the system and the interrelationships of its many parts. (24 pages)

A22-6725 IBM 7631 File Control -- OEMI

This manual contains information intended to assist designers of accessory equipment to be used with all models of the 7631 File Control. The following information is included: cable and cable terminal data, line driver and line terminator circuitry, physical specifications, functional explanation of signal lines, operators' and customer engineers' control panel operation and design, operation timing charts, design considerations for driver and terminator circuitry, and functional operating considerations. (64 pages)

A22-6726 IBM 7010 Principles of Operation

Presents the principles of operation of the IBM 7010 Data Processing System. Its purpose is twofold-1) to provide a reference and guide for those already familiar with the system, and 2) to be used as an instruction aid in the development and training of both operators and programmers. The material is presented in a direct manner assuming that the reader is familiar with the information contained in the IBM 7010 System Summary, Form A22-6724.

The manual describes the basic 7010 operating principles, the 7114 processing unit, the complete instruction set, and the 1415-2 console with the 1/o console printer.

The information in this manual is machine oriented; that is, the explanation of operations and illustrations of instruction and instruction use are made primarily in machine language. (73 pages)

7010 System

Describes the third and fourth data channels for the 7010 system. Also included is information relating 7010 instructions to the third and fourth data channels. (2 pages)

A22-6749 Floating Point Arithmetic for 7010 System

Describes the operating principles of the 7010 Floating Point Arithmetic special feature. Included are descriptions of the six floating point arithmetic instructions, five floating point diagnostic instructions and the test and branch instructions related to the floating point operations. (7 pages)

A22-6758 Memory Protect — Program Relocate and Interval Timer Feature for 7010 System

Describes the functions of the Memory Protect-Program Relocate and Interval Timer features. The instructions related directly to the use of these features are included. (4 pages)

A22-6769 IBM 1414 Model 4 or 5 with 1050 **Data Communications System for** 1410/7010 Systems

This bulletin describes the connection of the IBM 1050 Data Communications System to the IBM 1410/7010 Systems via the IBM 1414 Model 4 or 5 Input/Output Synchronizer. Basic concept of the system is presented. Included is a description of the receive and transmit operations using the polling and automatic answering features.

No detailed description of the 1050 Data Communications System, the data set, and the 1414 Model 4 and 5 is presented. This information can be found in one or more of the following publications:

IBM 1410 as a Tele-processing System, Form A22-0525; IBM 1050 Data Communications System, Form A24-3020; IBM 1410 Principles of Operation, Form A22-0526; and IBM 7010 Principles of Operation, Form A22-6726. (8 pages)

A22-6784 IBM 1301 and 1302 Disk Storage Sequential Data Organization

This manual describes a way of storing and retrieving data on IBM 1301 and 1302 Disk Storage that is largely independent of the characteristics of the application. The method will enable the majority of users to install and operate disk storage in an efficient manner with a minimum of detailed study of the data. A common set of programs and techniques can be used for all the data files in disk storage. The approach allows data to be loaded in the most useful sequence, yet allows for random or sequential access to the records. As the data file is loaded an index is created that associates data identifiers with actual track addresses and permits expansion by an easily used overflow technique. Conversion is accomplished in an orderly and efficient transition from data handling methods presently in use.

This manual assumes knowledge of the manual IBM 1301 Disk Storage with IBM 1410 and 7010 Systems, Form A22-6770. (27 pages)

A22-6788 IBM 1301 and 1302 Disk Storage 07 Models 1 and 2 with 1410/7010 Systems

This manual provides information concerning IBM disk storage, including both the IBM 1301, Models 1 and 2 and the IBM 1302 Models 1 and 2 as used with the IBM 1410 and 7010 Data Processing System. Use of this manual assumes a basic knowledge of the preceding listed systems. (26 pages)

A22-6819 IBM 2321 Data Cell Drive with 1410/7010 Data Processing Systems

This manual provides information about the IBM 2321 Data Cell Drive as used with the IBM 1410 and 7010 Data Processing Systems. Use of this manual assumes a basic knowledge of the 1410 and 7010 systems. (25 pages)

A22-6829 IBM 1015 Inquiry Display Terminal 03 Models 1 and 2 with 1410/7010 Systems

This publication describes the functional and operating characteristics of the IBM 1015 Inquiry Display Terminal. (6 pages)

A24-1421 IBM 1412 Magnetic Character Reader Model 1

Describes the features and functions of the IBM 1412 Magnetic Character Reader, Model 1. Explains operating principles, including document feeding, reading, and distribution, as well as control of both on-line and off-line operations. A section on operating procedures is included.

Programming notes and an explanation of 1401 stored program instructions used to control 1412 operations are presented.

Explains the use and operation of four special features: Multiple Column Select - Sort Suppress Feature, Auxiliary Document Counter, Self-Checking Number Verification, and Electronic-Accumulator and Sequence-Checking Feature. (56 pages)

A24-1431 IBM 1403 Printer - OEMI 19

This OEMI manual provides data for the special needs of non-IBM engineers who wish to attach the IBM 1403 Printer to their equipment. It contains supplemental tie-in data not readily available in other IBM publications. Charts of signal connectors and power plug pin assignments are included. (16 pages)

A24-1499 IBM 1219 Reader Sorter IBM 1419 Magnetic Character Reader

This publication contains detailed information about the keys, lights, switches, mechanical features, and special features of the IBM 1219 Reader Sorter and IBM 1419 Magnetic Character Reader. On-line and off-line data flow and operating theory are fully discussed with step-by-step procedures for each reader operation. Programming notes and error-correction routines are also covered in detail.

For additional publication information, refer to the Bibliography for the system to which the IBM 1419 is attached. (68 pages)

A24-3073 IBM 1403 Printer Component 03 Description

This publication contains a description of the various models of the IBM 1403 Printer used with IBM 1401, 1410, 1420, 1460, 7010, 7040, and 7044 Data Processing Systems. The functional and operating characteristics of the printer are presented.

The various special features that can be attached to the 1403 are also included, and timing information for printing and paper movement is shown. (24 pages)

A24-3089 IBM SRL Bibliography Supplement Tele-processing and Data Collection

This bibliography lists the available reference literature for installing, programming, and operating IBM Tele-processing equipment, used independently or with several data processing systems. For publications on data communications equipment and programs associated with a single data processing system, see the bibliography for that system.

Part 1 lists publications by major subjects. This sequence (subject code) may be used in building a library.

Part 2 is a cross-index of Tele-processing equipment with the associated data processing system.

Part 3 contains the abstract of each Tele-processing publication in form-number sequence. Copies of most form-numbered publications may be ordered through the local IBM Sales Representative. (20 pages)

A24-3119 IBM 1442 Card Read-Punch Models 03 1 and 2; 1442 Card Reader Models 3 and 4

This publication describes the operation of the IBM 1442 Card Read Punch, Models 1 and 2, the IBM 1442 Card Reader, Models 3 and 4, with the applicable data processing systems. The functional and operation characteristics of the card read punch are presented. The timing considerations related to the read and punch operations are shown.

Special features that are available for the IBM 1442 Card Read Punch are described, with the instructions for each feature. (18 pages)

A26-5754 IBM 1011 Paper Tape Reader

This manual contains information that describes the operating features, components, control panel, and tape handling and loading procedures for the IBM 1011.

This form replaces and renders obsolete form D24-1044-1, General Information Manual, IBM 1011 Paper Tape Reader, and technical newsletter N24-0032. (24 pages)

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

This manual provides suggested operating and handling procedures for this unique new data processing device and illustrates the manufacturing processes involved in producing precision-engineered disk packs. This edition applies to disk packs that have plastic covers as opposed to the metal covered packs described in form A26-5756. (7 pages)

A26-5991 IBM 1311 Disk Storage Drive

This manual describes the operating principles and features of the IBM 1311 Disk Storage Drive and the IBM 1316 Disk Pack as they are used with all IBM Systems.

Included is a description of the operating keys and lights and of disk pack operating and handling procedures.

The information in this manual is intended to supplement the information contained in the System Reference Manuals for the following IBM Systems: 1240 Bank Data Processing System; 1401 and 1460 Data Processing Systems; 1410 and 7010 Data Processing Systems; 1440 Data Processing System; 1620 Data Processing System; 1710 Control System; 7740 Communication Control System.

Information about addressing disk storage, programming considerations, and special features is contained in the respective System Reference Manuals. (11 pages)

A31-1400 IBM 1402 Card Read-Punch — OEMI

This manual is written for use by non-IBMers who desire to attach the 1402 Card Read Punch to their equipment. Voltage requirements, connector impulses and requirements are included. (16 pages)

C20-1602 Catalog of Programs for IBM 705, 1410, 7010, 7070, 7072, 7074, 7080, 7740, and 7750 Data Processing Systems

This catalog contains a complete listing of all types of programs (Types I, II, III, IV) available for the IBM 705, 1410, 7010, 7070, 7072, 7074, 7080, 7740, and 7750 Data Processing Systems. It obsoletes all previous editions of Catalog of Programs for IBM Data Processing Systems, Form C20-8090, and its supplements. This catalog contains the following sections:

- 1. Introduction and instructions on how to use the catalog and how to order programs.
- 2. A list of new programs (if applicable).
- 3. A list of corrections and revisions to announced programs (if applicable).
- 4. A keyword-in-Context Index (KWIC).
- 5. Abstracts of all available programs.
- 6. A list of deletions (if applicable).

Updated supplemental issues of this catalog will be published periodically. (37 pages)

C20-1606 IBM 1410/7010 Data Processing System - Student Text

This manual is a student text - not a self-study guide. It is designed to permit reading assignments for the 1410/7010 programming course as supplements to the planned classroom instruction. It is intended for use in teaching several aspects of programming: application analysis, system flowcharting, coding, and testing. This student text is not a reference manual and its use requires that the student refer to data available in the Systems Reference Library (SRL). (128 pages)

C22-6674 IBM 1401/60, 1410 Systems 7340 Hypertape Drive Model 2 — Physical Planning Specifications (Tentative)

Describes specifications of size, environment, cable lengths, power consumption, and weight of Hypertape Drive and Control. (2 pages)

C22-6681 IBM 7000 Series and 1410 Data **Processing Systems Installation Manual** Physical Planning Input/Output Components

Describes physical planning for the installation of input/output components used on 1410 or any 7000 series systems. In addition to technical information needed for physical installation planning, it contains recommendations and suggestions to be used as a guide in planning an efficient installation. (52 pages)

C22-6736 IBM 7010 Installation Manual **Physical Planning**

This manual contains pertinent physical information for installing вым 7010 Data Processing Systems, including floor planning and electrical, environmental, and structural requirements. It discusses the physical characteristics of each unit and their effect on installation requirements. Detailed cable and location charts are included, together with illustrations and dimensions on all cable connectors used in the systems. (52 pages)

C24-1437 IBM 1410 Installation Manual **Physical Planning**

This manual contains information necessary for planning the physical installation of a 1410 System. It also contains recommendations and suggestions, to be used as a guide only, for planning an efficient and pleasant installation. (52 pages)

C24-3051 Intersystem Input/Output Specifica-30 tions; 1440 with 1410 or 7010 - Communications Input/Output Control System

This publication provides additional descriptive entries and macro instructions, supplementing basic 1440 10cs and 1440/1448 10cs, that allow connection of the IBM 1440/1448 System to IBM 1410 and 7010 Systems. Machine requirements are specified. User routines and error procedures are described. (8 pages)

C28-0244 IBM 1410 Utility Programs - Part 1: Card/Tape Utility Programs

This publication describes the functions and use of the IBM utility programs for card and tape equipment. The procedures for program control and operation concern the individual use of these programs. The card/tape utility programs as used under control of the Utility Program Operating System, are described in Part IV of this series: Utility Program Operating System, Form C28-0295. (36 pages)

C28-0251 IBM 1410 Input/Output Control 30 System for 1301 Disk Storage

This publication contains the information necessary to understand and use the IBM 1410 Input/Output Control System for 1301 Disk Storage. The functions and use of the 1301 rocs macro-instructions are described. Also described are the DIOCS, DTF, and DA entries needed to incorporate the 1301 rocs into the users' object programs. The publication augments the publication, IBM 1410 Input/Output Control System for Card and Tape Systems, Form C28-0334. (60 pages)

C28-0277 IBM 1410 Input/Output Control System for 1301 Disk Storage Operator's Guide

This publication describes: 1) the action automatically taken by the 1301 rocs when that system encounters an input or output error and 2) the action that must be initiated by the machine operator in the case of error conditions that are not corrected automatically. This bulletin augments the IBM 1410 Data Processing System Bulletin, IBM 1410 Input/Output Control System for 1301 Disk Storage, C28-0251. (8 pages)

C28-0278 IBM 1410 Input/Output Control 30 System for Card and Tape Systems Operator's Guide

This bulletin contains the messages originated by the card and tape routines of the 1410 rocs when an error condition occurs or when an inquiry request is made from the console. Most of the messages offer the operator various options for proceeding with the run. These options are explained in the bulletin. The publication augments the івм 1410 Data Processing System Bulletin, IBM 1410 Input/Output Control System for Card and Tape Systems, Form C28-0334. (8 pages)

C28-0279 IBM Utility Programs — Part V: 32 **1301 Utility Programs**

This manual describes the functions and use of six utility programs for the 1301 Disk Storage: format track generation, home address and record address generation, load disk, dump disk, and clear disk. In addition to descriptions of the functions and use of each of the programs, this publication contains an operator's guide which includes a list of program messages and indicates appropriate operator action. (44 pages)

C28-0286 IBM 1410 IOCS Independent 30 **Assembly Feature**

This publication describes the basic programming principles of the 1410 rocs independent assembly feature, the types of assemblies made possible by the feature, and the necessary coding entries. (8 pages)

This publication describes the functions and use of the IBM 1410 Processor Operating System using IBM 1301 Disk Storage. The first section, intended primarily for programmers, system analysts, and supervisory personnel, describes the components of the operating system, operating configurations, control card formats, card deck arrangements, programming requirements, and operating system features and limitations. The second section, intended for machine room personnel, describes step-by-step operating procedures. It also contains lists of halts, messages, and appropriate corrective actions. Appendixes describe the off-line print/ punch program that can be used with the system, important internal control tables, and the FORTRAN Relocatable-Program Loader. (68 pages)

C28-0292 Programming Systems Analysis Guide, 1410 Autocoder

This publication provides detailed information on the internal logic of the 1410 Autocoder programming system. It is intended for technical personnel who are responsible for diagnosing the system operation or for adapting the programming system to special usage. Programming systems analysis guides represent an extension of the information contained in the corresponding systems reference manual. Included are flow charts, memory maps, condition aids, and detailed descriptions of the program logic and flow chart. The level of detail documentation restricts them to a limited usage by technically qualified personnel who have prerequisite knowledge of other 1410 Autocoder bulletins and manuals. (96 pages)

C28-0295 IBM 1410 Utility Programs — Part IV: Utility Program Operating System (UPOS)

This publication is intended to enable programmers and system analysts to take full advantage of the Utility Program Operating System (upos) developed for the IBM 1410 Data Processing System. This publication describes the basic principles of upos, including the composition of the required card decks, the organization of the system, and the possible matching configurations. Also described are the methods for using upos for testing and production applications and for using single utility programs outside the system. Information for operating personnel is also included, in the form of an operator's guide. (20 pages)

C28-0304 IBM 1410 Generalized Sorting Program Using 1301 Disk Storage

This publication describes the IBM 1410 Generalized Sorting Program Using 1301 Disk Storage. Included are descriptions of the basic specifications and features of the program, the preparation of control cards, operating instructions and messages, the elements of the program, and methods of modification. Timing tables are also included. (100 pages)

C28-0309 IBM 1410 Autocoder

This manual describes the Autocoder programming system for the IBM 1410 Data Processing Systems. The Autocoder language and the method of preparing and using macro-instructions and subroutines are discussed. Also included is a detailed description of the pseudomacro-instructions that provide flexibility in coding the library routines for macro-instructions. (60 pages)

C28-0313 IBM 1410 Tape Sorting/Merging Programs; Sort/Merge 11; Sorting Times for the 1410 with 7330, 72911, 7291V, 729V, or 729VI Tape Units

The timing tables in this publication provide a convenient means for estimating total sorting times for data records ranging from 20 to 2,000 characters in length when using Sort/Merge 11 with the tape units listed in the manual title. Accordingly, the material presented should be considered an integral part of the reference manual, Tape Sorting/Merging Programs: Part I - Sort/Merge 11, J28-0237. (60 pages)

C28-0318 IBM 1410/7010 Operating System (1410-PR-155) Basic Concepts

This publication provides users of IBM 1410 or IBM 7010 Data Processing Systems with a general description of the IBM 1410/7010 Operating System and its various components. Also included is a brief description of each manual in the set of supporting publications for the operating system, and an outline of their relationship to each other.

The IBM 1410/7010 Operating System is an integrated set of programs and programming systems that will provide an IBM 1410/7010 installation with a convenient, efficient means of handling its data processing requirements. This operating system will enable an installation to write, assemble, and execute programs with a minimum of programmer time, machine time, and machine-operator time. (22 pages)

C28-0319 IBM 1410/7010 Operating System (1410-PR-155) System Monitor

This publication provides programmers and systems analysts with the basic principles and programming requirements for the System Monitor, Programming information includes the control cards required, the linkage sequences to Monitor routines and data fields, the messages produced by the Monitor, and the console inquiries accepted.

The System Monitor provides control for the IBM 1410/7010 Operating System by furnishing programmed transition between runs and between jobs, relocating programs, and assigning input/output units. The System Monitor consists of the Resident and Transitional Monitors, 1410-sv-962, and the Linkage Loader, 1410-UT-963.

The reader should have a basic knowledge of the 1410 and/or 7010 Data Processing Systems and should have read the publication, IBM 1410/7010 Operating System; Basic Concepts, Form C28-0318. (77 pages)

C28-0321 IBM 1410/7010 Operating System (1410-PR-155) Tele-processing Supervisor (1410-SV-964)

This publication includes a description of the basic principles of the Tele-processing Supervisor, instructions for writing programs to operate under control of the Tele-processing Supervisor, and a discussion of the program elements that can be selected during System Generation to create a Tele-processing Supervisor tailored to the requirements of each installation. (36

C28-0322 IBM 1410/7010 Operating System (1410-PR-155) Basic Input/Output Control System (1410-IO-966)

The basic Input/Output Control System (10cs) is a group of routines and macro-instructions that control the transfer of data to and from core storage. It also performs functions related to the transfer of data. such as error detection and correction. Included in this publication are detailed descriptions of the DTF entries. the macro-instructions provided by the Basic Input/ Output Control System, and a discussion of the internal operation of the control system. (60 pages)

C28-0323 IBM 1410/7010 Operating System (1410-PR-155) Random Processor Scheduler (1410-IO-967)

Explanations are given of the concepts of random processing, macro-instructions, DTF and DA entries. and coding techniques for the Random Processing Scheduler. A knowledge is required of the publication, IBM 1410/7010 Operating System; Basic Input/Output Control System, Form C28-0322. (32 pages)

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C28-0326 IBM 1410/7010 Operating System (1410-PR-155) Autocoder (1410-AU-968)

This publication is a reference text for personnel engaged in writing programs in the Autocoder language for use within the framework of the 1410/7010 Operating System. The Autocoder language is composed primarily of symbolic one-for-one source statements. Its associated processor is a symbolic assembly program with macro-generation facilities. (66 pages)

C28-0327 IBM 1410/7010 Operating System 24 (1410-PR-155) COBOL (1410-CB-969)

This publication is designed to be used by programmers in conjunction with the publication, IBM General Information Manual, COBOL, Form F28-8053, and contains additional specifications required to write COBOL programs to be processed under the 1410/7010 Operating System. (54 pages)

C28-0328 IBM 1410/7010 Operating 25 System (1410-PR-155) FORTRAN

The IBM 1410/7010 FORTRAN language with its associated processor in the 1410/7010 Operating System provides the user with a method of producing programs that will perform efficient scientific computation and data handling. FORTRAN source programs are written in a language similar to mathematics. This publication describes the various types of arithmetic, control, input/output, sub-program, and specification statements that are accepted by the processor, and the programming rules for their use. (49 pages)

C28-0329 IBM 1410 Input/Output Control 30 System for IBM Programmed Transmission Controls (1410-IO-926)

This publication contains information that permits the reader to code programs using the 10cs for Programmed Transmission Control. "Programmed Transmission Control" refers to the вм 7550 Programmed Transmission Control or to the вм 1440 Data Processing System with an IBM 1448 Transmission Control Unit. This input/output control system contains a group of tested routines that free users of a Teleprocessing System from most of the coding required to transfer data between an IBM 1410 and a programmed transmission control. (20 pages)

C28-0330 IBM 1410 Programming Systems; 24 COBOL — Additional Specifications

This publication describes COBOL as implemented for the IBM 1410 Data Processing System and is intended to be used with the manual, General Information Manual - COBOL, Form F28-8053. cobol provides an easy method of coding business-oriented source programs. The programmer's task is facilitated by the similarity between cobol statements and ordinary business English. (44 pages)

C28-0334 IBM 1410 Input/Output Control System for Card and Tape Systems

This publication contains information for programmers on assembling an rocs with an object program. It also explains the function and use of 10cs macro-instructions, and provides details on writing the necessary DIOCS, DTF, and DA entries. (48 pages)

C28-0337 IBM 1410 Multiple Utility Program (1410-UT-147)

The 1410 Multiple Utility Program, described in this publication, provides four utility operations and a control routine to direct the execution of the following operations, which can run concurrently: a card-to-tape operation, a tape-to-card operation, a tape-to-card operation for Channel 1, and a tape-to-printer operation for Channel 2. These operations can process tapes on the IBM 729 and 7330 Magnetic Tape Units. (32 pages)

C28-0343 IBM Tape Sorting/Merging Programs; Sort/Merge 12

This publication describes the functions and features of the IBM 1410 Sort/Merge 12 Program, a tape sorting and merging program using the Processing Overlap and Priority special features. In addition to complete program specifications, the publication furnishes control card formats, detailed operating instructions, and information on the use of modification exits. (112 pages)

C28-0351 IBM 1410/7010 Operating System (1410-PR-155) Operator's Guide

This publication contains the information required by machine operators for the 1410/7010 Operating System. It includes procedures for system generation, initialization, reinitialization, and restarting the operating system. Control cards and arrangement of control card decks, assignment of input/output units, use of the tape-to-printer program, and simultaneous peripheral operation on line are also discussed. Console messages and actions required in response to console messages are listed. (52 pages)

C28-0352 IBM 1410/7010 Operating System 36 (1410-PR-155) System Generation (1410-MI-965)

System generation provides the facilities for the creation and maintenance of a monitored system of IBM and user-supplied programs. The end product of system generation is a system operating file, including a system monitor, that is tailored to provide an efficient operating system for a specific machine environment.

This publication provides systems programmers and systems analysts with detailed information on the system generation function. The publication describes the system generation function, the programs used, and primarily by means of examples - the procedures required for both tape-oriented and disk-oriented systems. Also included are machine requirements, corestorage requirements, and timing information for the elements of the IBM 1410/7010 Operating Systems. The use of the history file, a customer option, is also ex-

Prerequisite manuals are the 1410/7010 Operating System publications, Basic Concepts, Form C28-0318, and System Monitor, Form C28-0319. All other operating system publications are recommended reading for a general knowledge of the various programs or programming systems to be generated and maintained. (80 pages)

C28-0353 IBM 1410/7010 Operating System 32 (1410-PR-155) Utility Programs (1410-UT-973)

This publication includes a description of the functions performed by the programs and the general requirements for their use. The programs enable the user to obtain printed listings of core storage, magnetic-tape storage, and IBM 1301 Disk Storage. (16 pages)

33 C28-0354 IBM 1410/7010 Operating System (1410-PR-155) Generalized Tape Sorting Program (1410-SM-971)

The purpose of the program is to provide users with the means to create a group of general sorting programs that will fulfill an installation's sort/merge requirements. Each of these general sorting programs will be further self-modified at object time to fulfill the needs of a specific application. (148 pages)

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C28-0356 IBM 1410/7010 Programming Systems; 1301-1302 Format/Address Generator Program — Preliminary **Specifications**

This publication provides the preliminary specifications for the use of the IBM 1301/1302 Format/Address Generator Program in 1410 and 7010 installations. The program provides the user with a method of generating track formats, record addresses, and record areas for the ${\rm IBM}$ 1301 Disk Storage Models 1 and 2 and ${\rm IBM}$ 1302 Disk Storage Models 1 and 2. (2 pages)

C28-0357 IBM 1410/7010 Operating System, Support for IBM 1302 Disk Storage Models 1 and 2 — Preliminary **Specifications**

This publication describes the modifications required to allow programs written for operation within the framework of the IBM 1410/7010 Operating System to reference IBM 1302 Disk Storage Models 1 and 2. The only programs affected are the utility programs and those which make use of the random-processing scheduler. The modifications that must be made to these programs are described in detail in this publication. Readers of this publication should be familiar with the contents of the following publications: IBM 1410/7010 Operating System, Random-Processing Scheduler, Preliminary Specifications, Form C28-0323, and IBM 1410/7010 Operating System, Utility Programs, Form C28-0353. (2 pages)

C28-0393 IBM 1410/7010 Operating System (1410-PR-155) Generalized Tape Sorting Program (1410-SM-971) **Programming Systems Analysis Guide**

This manual provides detailed information concerning the internal logic of the IBM 1410/7010 Operating System - Generalized Tape Sorting Program. The manual is addressed to technical personnel responsible for analyzing or modifying the program. (144 pages)

C28-0395 IBM 1410/7010 Operating System (1410-PR-155) Autocoder (1410-AU-968) Programming Systems Analysis Guide

This manual provides detailed information concerning the internal logic of the IBM 1410/7010 Operating System Autocoder Processor. The manual is addressed to technical personnel responsible for analyzing or modifying the program. (131 pages)

C28-0396 IBM 1410/7010 Operating System (1410-PR-155) Resident and Transitional Monitors (1410-SV-962) and Input/Output Control System (1410-IO-966) — Programming Systems Analysis Guide

This manual provides detailed information concerning the internal logic of the IBM 1410/7010 Operating System Monitors and 10cs. This manual is addressed to technical personnel responsible for analyzing or modifying the program. (280 pages)

C28-0397 IBM 1410/7010 Operating System (1410-PR-155) COBOL (1410-CB-969 **Programming Systems Analysis Guide**

This manual provides detailed information concerning the internal logic of the IBM 1410/7010 Operating System - COBOL Compiler. The manual is addressed to technical personnel responsible for analyzing or modifying the program. (72 pages)

C28-0398 IBM 1410/7010 Operating System (1410-PR-155) FORTRAN (1410-FO-970) **Programming Systems Analysis Guide**

This manual provides detailed information concerning the internal logic of the IBM 1410/7010 Operating System FORTRAN Processor. The manual is addressed to technical personnel responsible for analyzing or modifying the program. (271 pages)

C28-0402 IBM 1410/7010 Operating System (1410-PR-155) Support of 1311 Disk Storage Drives Under the Operating System Preliminary Specifications

This publication provides preliminary information on the programming required to use the IBM 1311 Disk Storage Drives as work files when processing under the IBM 1410/7010 Operating System. (32 pages)

C28-0404 IBM 1410/7010 Operating System Generalized Sorting Program Using 1301/1302 Disk Storage (1410-SM-972)

This publication provides information on the Generalized Sorting Program Using IBM 1301/1302 Disk Storage, a component of the 1410/7010 Operating System. The generalized program consists of: (1) a set of subroutines from which the user can create different sorting programs that use disk storage for work files; and (2) a separate routine called the Sort Definition Program. Using information contained in parameters supplied by the user, the Sort Definition program selects the required subroutine. The resulting sort, program(s) function under control of the System Monitor and use the Resident 10cs. At object time, the created sort program alters itself, via control-card information, to fit the requirements of the particular application. (44 pages)

C28-0405 IBM 1410/7010 Operating System (1410-PR-155) File Organization System for 1301/1302 Disk Storage — Preliminary Specifications (1410-MI-977)

The File Organization System is a set of programs designed to store and maintain organized data files on either IBM 1301 or IBM 1302 Disk Storage. The programs are capable of loading files, unloading files, reloading files, adding records, and deleting files. The File Organization System also provides the Get and Put Macro-Instruction capabilities needed to process the organized data files. (44 pages)

C28-0541 IBM 1410 Input/Output Control 30 System — Programming Systems Analysis Guide

This manual provides detailed information concerning the internal logic of the вм 1410 Input/Output Control System. The manual is addressed to technical personnel responsible for analyzing or modifying the program. (104 pages)

C28-1443 Report Program Generator 28 for the 1410

This publication describes the two versions of the IBM 1410 RPG that are available: Card-RPG and Full-RPG. The former is designed for use by card-oriented inThe Report Program Generator is a programming system designed to create object programs that write reports from input data files that are on cards, tape, 1405 Disk Storage, and 1301 Disk Storage. The programmer uses the RPC language to give control specifications to the RPC processor, and the processor produces an object program that reads the input data file and writes the report. (96 pages)

C28-6259 IBM 7750 Assembly Program 21 Using the 1401

This bulletin contains specifications for the 7750 Assembly Program and facilitates the preparation of programs for the IBM 7750 Programmed Transmission Control. The assembly medium is the 1401 which produces output to be loaded into the IBM 7750 via any one of the following systems: IBM 1410, IBM 7070/7074, IBM 7080, and IBM 7090/7094. (24 pages)

C28-6287 Sort/Merge 12: Sorting Times for the 7010 with 7330, 729II, 729IV, or 729V Tape Units

The timing tables in this publication provide a convenient means for estimating total sorting times for data records ranging from 20 to 2,000 characters in length when using Sort/Merge 12 on an IBM 7010 with the tape units listed in the manual title. Accordingly, the material presented should be considered a supplement to the manual, Tape Sorting/Merging Programs: Sort/Merge 12, Form C28-0343. (56 pages)

D24-1014 Automatic Punches

Describes generally the place of automatic punches in data processing, and explains the operating units of the machines. Machine functions are illustrated by typical applications. A brief description, together with special devices, is presented for each of the machines. (40 pages)

F22-6517 Introduction to IBM Data 90 Processing Systems

This manual explains the common fundamental concepts and operational principles of the IBM Data Processing Systems. The manual is designed for use in educational programs where a basic knowledge of computers is the end objective or as a prerequisite to the detailed study of a particular IBM system.

Each section is organized to present a logical association of related concepts and operational principles. Sections of the manual are titled: Introduction to Data Processing, Data Representation, Storage Devices, Central Processing Unit, Input and Output Devices, Stored Program Concepts, Programming Systems, and Procedure Control.

The sections may be used in a progressive sequence to develop a concept of the computer system, or they may be used independently as reference material. The subject matter has been generalized and refers to actual machines and systems only to illustrate a general principle, not to compare one system or machine with another. (96 pages)

F24-1052 Physical Planning 1

This manual discusses general aspects of physical planning as they concern the entire field of IBM Data Processing Equipment, and contains requirements and recommendations for site selection, air conditioning, structural engineering, electrical power, lighting, noise reduction, floor planning, and safety. This manual is

intended primarily for Customer personnel responsible for planning site facilities for IBM Data Processing Equipment. (40 pages)

F28-8053 COBOL — General Information Manual

The cobol language for programming computers was developed by a committee of the Conference on Data Systems Languages (Codasyl) as a cooperative effort of computer users in industry, the department of Defense and other Federal Government agencies, and computer manufacturers. The name cobol means "COmmon Business Oriented Language." This manual describes the language specified by codasyl as cobol-1961, i.e., the cobol specifications described in the official government manual for 1961. (172 pages)

F28-8074 FORTRAN — General Information

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FORTRAN is a programming system that provides a means of expressing problems in symbolic source language similar to the language of mathematics. This manual describes fortran and prepares the reader to use the facilities it provides. Specific requirements for using fortran with the IBM 1410 or 7010 Data Processing Systems are contained in the manuals, IBM 1410 FORTRAN, Form J24-1468, and IBM 1410/7010 Operating System; FORTRAN, Form C28-0328. (104 pages)

G22-6648 Additional Core Storage

Describes the additional core storage optional feature for the 1410 System. (2 pages)

G22-6654 Program Addressable Clock 13

Describes the function and use of a program addressable clock for the 1410 System. (2 pages)

G24-1417 1412 Magnetic Character Reader Model 1

Briefly discusses the components and functions of the 1410 System that are associated with IBM 1412 operations. It describes 1412 magnetic character sensing, and data transmission from the 1412 to the 1410 System.

The bulletin contains a résumé of IBM 1412 on-line and off-line operating modes, and an explanation of 1410-1412 stored program instructions. These instructions are listed in a chart that shows instruction format, actual code, and mnemonic code. (8 pages)

H20-0601: IBM 1410/7010 Operating System Conversion Program 48

The 1410/7010 Operating System Conversion Program is an effective computer program for converting Autocoder programs to the 1410/7010 Operating System. The package consists of the program, sample conversion problem deck, and the conversion manual. The program is coded to run on a 1410, 40K, one-channel system, with an online 1402, a 1403, and a tape drive. (2 pages)

J22-6690 Standard BCD Interchange Code (1401, 1410, 7040, 7044)

This bulletin describes the standard BCD interchange code. Areas covered are: BM card code, IBM BCD magnetic tape code, correspondence between codes and printed symbols, correspondence between codes and machine controls, collating sequence of code elements, two subsets of alternate graphics. (4 pages)

J24-1468 IBM 1410 FORTRAN

This publication contains the specifications for the fortran programming system for the IBM 1410. The fortran language enables the user to express problems in a symbolic source language similar to the language of mathematics. Included in this publication are descriptions of the various types of arithmetic, control, input/output, subprogram, and specification statements that are translated by the 1410 fortran processor into machine language instructions. (28 pages)

J28-0237 IBM 1410 Tape Sorting/Merging Programs Part I — Sort/Merge 11

This publication constitutes the first part of a preliminary reference manual describing the tape sorting and merging programs developed for the IBM 1410. In addition to complete program specifications, the manual provides control card formats, detailed operating instructions, and information pertaining to modification exits. (58 pages)

J28-0243 IBM 1410 Processor Operating System 27 Using Magnetic Tape and 1301 Disk Storage — Preliminary Specifications

The bulletin describes the principal features and advantages of the 1410 Processor Operating System (PoS) using magnetic tape of IBM 1301 Disk Storage. The system is designed to enable IBM 1410 installations to use the fortran, cobol, RPC (Report Program Generator) and Autocoder processors with a minimum of machine time and operating effort. It can be used within a wide range of system configurations. The bulletin describes: the programs making up the system minimum machine requirements, basic system configuration, control card types (but not contents), and cylinder requirements for the PoS using 1301 Disk Storage. (16 pages)

J28-0258 IBM 1410 Input/Output Control System for the 1414 Input/Output Synchronizer Models 4 and 5

This publication describes the principal features and use of the 1414 rocs. This rocs augments the basic (card/tape) rocs by providing routines that control input/output operations for telecommunication devices connected to a 1410 System through a 1414 Synchronizer, Model 4 or 5. Included are: general logic of the 1414 rocs, coding required to use this rocs, and special considerations for programming telecommunication devices attached to a 1414 Synchronizer. (12 pages)

L22-6692 IBM 7223 Model 13 Console Card Reader for 1410, RPQ 880084, 880071

This bulletin describes briefly the operating principle and features of this new console card reader for attachment to the BM 1410 Data Processing System. The bulletin includes a description of the switches and keys of the console card reader and the program operations when it is attached to the 1410. (4 pages)

L22-6781 Using Channel 2 Tape Units on IBM 1410 System in 1401 Mode RPQ M10216 — Special Systems Feature

Describes a feature permitting IBM 1401 programs, while being run on the 1410 system in 1401 mode, to use magnetic tape units on data channel 2 — instead of 1 — without affecting any 1410 timings or other operations or requiring any change in the 1401 program. (2 pages)

operation of all manual controls normally accomplished at the tape unit, exclusive of the actual handling of magnetic tape reels, As many as 4, 10, 20, or 30 magnetic tape units may be controlled from the console. This feature may be combined with tape switching but the maximum of 30 tape units may not be exceeded. (8 pages)

R20-9024 Course Description - IBM 1410 **DPS Console Operator**

The IBM 1410 Console Operator course description booklet 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 materials created specially for the course. Also, abstract references are provided for the other material. (3 pages)

R22-9761 COBOL Education Guide

Order Through District Education Centers

The major topics covered in this guide include: COBOL language, 1410 and 7070 COBOL. The instructor will use this guide in conjunction with the Practice Problems (R22-9762) and Overhead Projector Foil (V25-6171) to teach a 3½ day COBOL Programming Course and/or an additional 1½ day 1410 or 7070 COBOL Programming Course. (267 pages)

R25-9527 FORTRAN Education Guide

Order Through District Education Centers

Instructor's guide for FORTRAN Programming Class. Includes a 1½ day 1401 FORTRAN guide. Use with Practice Problems (R25-1677). (53 pages)

X20-1702 Proportional Record Layout Format Form

The front side of this form consists of the Proportional Record Layout Form. It is suitable for card, tape, and disk records. Positional markings are 00-99 and 01-100.

The back side of the form is the Record Format form. This form permits record layouts to be prepared without the space limitations of positional markings. Space is also provided for reference data.

These forms are general-purpose and may be used for all systems.

X20-1747 SHARE Print Chart

SHARE Print Chart — 6 lines-per-inch spacing. Installation supply special spacing chart, padded.

X22-6665 1301 Physical Planning Templates

Contains equipment templates on acetate sheets $(\frac{1}{4}" = 1' \text{ scale})$ for planning machine room layouts. The units are: 1301 Disk Storage, 7904, 7907, 7908, 7909 Data Channels, 7631 File Control. (1 sheet -8½ x 11)

X22-6666 Input/Output Components **Physical Planning Templates**

Contains equipment templates on acetate sheets (X'' = 1' scale) for planning machine room layouts. The units are 7904, 7907, 7908, 7909 Data Channels, 1414 Models R-7 Input/Output Synchronizers, 729 n and rv Tape Units, 1009 Data Transmission Unit, 1011 Paper Tape Reader, 1014 Remote Inquiry Unit. (1 sheet - 8½ x 11)

X22-6734 IBM 7010 DPS Physical Planning **Templates**

Contains equipment templates on acetate sheets (X'' = 1' scale) for planning machine room layouts. The units are 7114 Processing Unit, 1415 Console, 1414 Models 1-7 Input/Output Synchronizer, 7330 and 729 Models II and IV Tape Units, 1009 Data Transmission Unit, 1011 Paper Tape Reader, 1014 Remote Inquiry Unit, 1402 Card Read Punch, 1403 Printer, 1311 Disk Storage, and 1442 Card Reader. (2 sheets - 8½ x 11)

X22-6740 IBM 1410 Instruction Card 80

Contains all instructions, in both Autocoder and actual language, that pertain to the 1410 Data Processing System. On the back of the card are the standard BCD interchange code, also index register information.

The card either folds out for the console or desk or folds in three for carrying in the pocket.

X22-6785 IBM 729, 7330 Magnetic Tape **Record Characteristics**

This card provides statistics for use in estimating tape processing times and record capacity per full reel. (Card - 8½ x 11)

X24-1336, X24-1337, X24-1338, X24-1339 IBM 1401-1410 Report Program Generator Input Specification Sheet

These forms are provided by Programming Systems for use with the Report Program Generator for IBM 1401/1410 Card Systems. (25 per pad, 11 x 8½). The electro cards are to be ordered through the card plants.

Form X24-1336 Electro Card N 12836 Form X24-1337 Electro Card N 12837 Form X24-1338 Electro Card N 12835 Form X24-1339 Electro Card N 12834

X24-1350 IBM 1240, 1401/60, 1410/7010, 1440 Autocoder Coding Sheet

This coding sheet is designed for use in programming both the IBM 1401 using 1401 Autocoder and the IBM 1410 using 1410 Autocoder or Basic Autocoder. The columns and lines of the sheet are numbered to facilitate both programming and card punching. (25 per pad - 8½ x 11)

X24-6436 IBM 407, 408, 409, 1403, 1404, 1443, 80 and 2201 Spacing Chart — 6 Lines per Inch

This chart is scaled in non-photographic blue and provides 132 printing positions at 10 characters per inch, for carriage spacing of 6 lines per inch. Rulings indicate the print span for 100, 120, and 132 printing positions. A carriage control tape facilitates planning for tape punching. Space is available to indicate the printstorage layout of four line formats. (25 per pad -16½ x 11)

X24-6498 IBM 1410 Program Chart

This planning chart provides columns to enter: step number, instruction address, instruction, index register number, remarks, and the effective number of instruction and data characters. In addition, the chart contains an index register planning area, providing for the assignment of the registers and their contents. (25 per pad - 11 x 8½)

X24-6503 IBM 1410 System Order Work Sheet

A check list to assist in selecting the correct components for the 1410 system configuration ordered by a customer. (25 per pad - 11 x 16½)

X24-6518 IBM 1011 Paper Tape Reader 5 Track Control Panel Diagram

This sheet contains a control-panel diagram for 5-track tape on the front, and a diagram for 8-track tape on the back. (25 per pad - 8 ½ x 11)

X24-6545 IBM 1410 Cable Order Form 80

This is the specified form for ordering inter-unit cables for any model of the IBM 1410. Maximum cable lengths are given if limitations apply. The cover includes instructions for ordering and notes for particular units. (8 pages - 11 x 14%)

80 X24-6546 IBM 1410 Physical Planning **Templates**

Contains equipment templates on acetate sheets $(\frac{1}{4}" = 1' \text{ scale})$ for planning machine room layouts. The units are 1411 Models 1, 2, 3, 4 and 5; 1414 Models 1, 2, 3, 4, 5 and 7; 1402; 1403; 1405; 1412; 1415; 1009; 1014; 1011; 7330; and compressor. (4 sheets - 8½ x 11)

X24-6568 IBM 1401, 1410, 1440 Library 80 **Coding Form**

This coding form is designed for use in coding the library routines for the IBM 1410 Autocoder macroinstructions. Space is provided for all information that must be included in the library entries. Fields are numbered and ruled to facilitate both coding and card punching. (25 per pad $-11 \times 8\%$)

X28-1464 COBOL Program Sheet 80

The COBOL Program Sheet is used in writing the entries of a cobol source program. The sheet is designed in accordance with the principles governing the COBOL Reference Format, as described in the COBOL General Information Manual, Form F28-8053. It provides for recording the entries for all four divisions of a COBOL program - Identification, Environment, Data, and Procedure. (25 per pad - 11 x 8½)

80 X28-1520 COBOL Reference Card

The COBOL language is based on English and allows the programming of business problems in a readable form. This card provides a handy reference to material frequently used by the COBOL programmer. Included are a COBOL word list, basic COBOL formats, and the following tables:

Special Characters used in Arithmetic Operators COBOL Arithmetic Expressions -Relational Operators Sequence of Symbols Conditional Expressions -Data Items Pictorial Characters

The COBOL language for programming computers was developed by a committee of the Conference on Data Systems Languages (CODASYL) as a cooperative effort of computer users in industry, the Department of Defense and other Federal Government Agencies, and Computer Manufacturers.

Sequence of Symbols

X28-1625 IBM 7750 Assembly Program Sheet

This coding form is used to write specifications for the 7750 Assembly Program, which is run on the івм 1401. (25 per pad - 8½ x 11)

X28-7327 FORTRAN Coding Forms 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. (50 per pad - 11 x 8½)

IBM

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