

The IBM logo consists of the letters "IBM" in a bold, white, sans-serif font, centered within a solid black square.

Systems Reference Library

IBM 7090/7094 Bibliography

All available reference literature applicable to the installation, programming, and operation of the IBM 7090/7094 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 abstracts of all the publications in form number sequence.

Copies of the form-numbered publications can be ordered through the local IBM Sales Representative; any special ordering procedures are indicated in the abstracts.

Address comments regarding the contents of this publication to:
IBM Corporation, Programming Systems Publications, Dept. D91, PO Box 390, Poughkeepsie, N. Y.

Part 1 — Library Subject Code Listing

This part of the Bibliography lists all current publications pertaining to the IBM 7090/7094 Data Processing System. The subject code is indicated to assist in assembling the materials in a recommended sequence. Publications in the Systems Reference Library format show this code on the cover. New or revised publications will be announced by Technical Newsletters referring to this Bibliography. See Part 3 of the Bibliography for abstracts of the publications listed. (An asterisk preceding the title of a publication indicates that the publication is of interest to users of other IBM Data Processing Systems.)

SUBJECT CODE		FORM NUMBER
00	<i>IBM 7090/7094 SYSTEMS REFERENCE LIBRARY</i>	
	7090/7094 Bibliography	A28-6306
	7090 Data Processing System Configuration	A22-6686
	7094 Data Processing System Configuration	A22-6689
01	<i>MACHINE SYSTEM</i>	
	709-7090 Data Processing Systems	D22-6508
	7094 Data Processing System	G22-6647
	7090 Data Processing System	A22-6686
	7094 Data Processing System	A22-6703
	Operator's Guide for IBM 7090 Data Processing System	A22-6535
03	<i>Input/Output Units</i>	
	*700-7000 Series DPS Unit Record Equipment	A22-6660
05	<i>Magnetic Tape</i>	
	*Magnetic Tape Units	A22-6589
	*729 v and 729 vi Magnetic Tape Units	G22-6629
	*7340 Hypertape Drive	A22-6616
	7340 Hypertape Drive	G22-6634
07	<i>Disk/Drum Storage</i>	
	*1301 Disk Storage with 7000 Series DPS	D22-6576
	1301 Disk Storage	G22-6595
	7320 Drum Storage	G22-6717
09	<i>Special Systems Devices</i>	
	*1009 Data Transmission Unit	A24-1039
	*1011 Paper Tape Reader	D24-1044
	*1013 Card Transmission Terminal	G24-1068
	*1014 Remote Inquiry Station	G24-1444
	*1414 Model 6 Input/Output Synchronizer	G22-6625
	*7701 Magnetic Tape Transmission Terminal	A22-6527
	*7702 Magnetic Tape Transmission Terminal	A22-6702
	*7750 Programmed Transmission Control	A22-6679
	*7750 Programmed Transmission Control	D22-6627
	*7765 Paper Tape to Magnetic Tape Converter	A22-6570

SUBJECT CODE	FORM NUMBER
13	<i>Optional and Special Features</i>
	*Magnetic Tape Switching Feature for 729 ii and 729 iv Magnetic Tape Units G22-6587
	*7340 Hypertape Drive Automatic Cartridge Loader G22-6667
15	<i>Physical Planning Specifications</i>
	7090/7094 Physical Planning C22-6706
	*Input/Output Components – Physical Planning C22-6681
	*7750 Programmed Transmission Control – Physical Planning J22-6659
	*Magnetic Tape Transmission Terminal – Physical Planning J22-6606
	*Card Transmission Terminal – Physical Planning J24-1069
	7320 Drum Storage – Physical Planning J22-6727
	*Physical Planning F24-1052
20	<i>PROGRAMMING SYSTEMS</i>
	*Catalog of Programs for IBM Data Processing Systems C20-8090
	IBM 7094 Programs and Programming Systems J28-6184
	IBM 7090 with IBM 7340 Hypertape Drives Programs and Programming Systems J28-6152
21	<i>Symbolic Assembly Systems</i>
	IBM 709/7090 Programming Systems: FORTRAN Assembly Program (FAP) C28-6235
	IBM 7090/7094 Programming Systems: IBJOB Processor: Part 3: Macro Assembly Program (IBMAP) J28-6196
	SOS – SHARE System for the IBM 709: Distribution 1 328-1219
	SOS – SHARE System for the IBM 709: Distribution 2 328-1262
	SOS – SHARE System for the IBM 709: Distribution 3 328-1377
	SOS – SHARE System for the IBM 709: Distribution 4 328-1395
	SOS – SHARE System for the IBM 709: Distribution 5 328-1406
	SOS – SHARE System for the IBM 709: Distribution 6 328-1624
	SHARE System for the IBM 709 (looseleaf binder and index tabs) X28-1213
23	<i>Commercial Translator</i>
	IBM Commercial Translator F28-8043
	IBM 709/7090 Commercial Translator Processor J28-6169
	IBM 709/7090 Programming Systems: Commercial Translator Processor – Supplement for 1301 Sequential Operations J28-6258
24	<i>COBOL</i>
	*COBOL F28-8053
	*COBOL Report 220-8045
	IBM 7090/7094 Programming Systems: IBJOB Processor: Part 5: COBOL Compiler (IBCBC) J28-6260
25	<i>FORTRAN</i>
	*FORTRAN F28-8074
	IBM 7090/7094 Programming Systems: IBJOB Processor: Part 4: FORTRAN Compiler (IBFTC) J28-6197
	709/7090 FORTRAN Programming System C28-6054
	7090/7094 Programming Systems: FORTRAN II Processor Operating under 7090/7094 IBSYS J28-6253
	32K 709/7090 FORTRAN: Adding Built-In Functions J28-6135
	32K 709/7090 FORTRAN: Source Language Debugging at Object Time J28-6133

SUBJECT CODE		FORM NUMBER
	32K 709/7090 FORTRAN: Double-Precision and Complex Arithmetic	J28-6114
	709/7090 FORTRAN Operations	C28-6066
	IBM 709/7090 Programming Systems FORTRAN: Input/Output Package for the 32K Version	J28-6190
27	<i>Processor</i>	
	IBM 7090/7094 Programming Systems: IBJOB Processor:	
	Part 1: Monitor (IBJOB)	J28-6194
	IBM 7090/7094 Programming Systems: IBJOB Processor:	
	Part 2: Loader (IBLDR)	J28-6195
	IBM 7090/7094 Programming Systems: IBJOB Processor	
	Overlay Feature of IBLDR	J28-6305
	IBM 7090/7094 Programming Systems: IBJOB Processor:	
	Part 6: Library (IBLIB)	J28-6283
28	<i>Report Program Generator, File Processor</i>	
	IBM 7090 Programming Systems: SHARE 7090 9PAC	
	Part 1: Introduction and General Principles	J28-6166
	IBM 7090 Programming Systems: SHARE 7090 9PAC	
	Part 2: The File Processor	J28-6167
	IBM 7090 Programming Systems: SHARE 7090 9PAC	
	Part 3: The Reports Generator	J28-6168
	IBM 7090 Programming Systems: SHARE 7090 9PAC	
	Part 4: Operating Instructions	J28-6215
	IBM 7090 Programming Systems: SHARE 7090 9PAC	
	Supplement	J28-6211
30	<i>Input/Output Control System</i>	
	IBM 709/7090 Input/Output Control System	C28-6100
	*IBM 1301 Input/Output Control System for 1410 and 7000	
	Series Data Processing Systems	J28-8064
	IBM 709/7090 Input/Output Control System Supplement for	
	1301 Sequential Capabilities	J28-6204
	IBM 7090/7094 Input/Output Control System Supplement for	
	1301 Random Capability	J28-6302
	IBM 7090/7094 Input/Output Control System for 7340	
	Capability	J28-6278
32	<i>Utility Programs</i>	
	IBM 709 Utility Programs	J28-6080
	7090/7094 Utility Routines for IBM 1301 Disk Storage	J28-6223
	IBM 7090/7094 Utility Programs Using IBM 7340 Hypertape	
	Drive	J28-6229
	IBM 7090/7094 Utilities for 7320 Capability	J28-6269
33	<i>Sort/Merge</i>	
	*Sorting Methods for IBM Data Processing Systems	F28-8001
	IBM 7090/7094 Generalized Sorting Program — 7090/7094	
	Sort (729 — Fixed Length)	J28-6217
	IBM 7090 Generalized Sorting Program Using IBM	
	7340 Hypertape Drives	J28-6156
	Generalized Sorting Program for the IBM 709 Data Processing	
	System — Sort 709	C28-6036

SUBJECT CODE	FORM NUMBER
Addenda and Errata to the Sort 709 Manual	J28-6059
IBM 7090 Generalized Sorting Program Sort 709: Sorting Times for the IBM 7090	J28-6043
Sort 709: Sorting Times for the IBM 7090 with IBM 729 VI Magnetic Tape Units	J82-6138
Generalized Merging Program for the IBM 709 Data Processing System: Merge 709	C28-6052
Addenda to the Merge 709 Manual	J28-6061
35 <i>System Simulation</i>	
*IBM 7090/7094 Support Package for the IBM 7040/7044	C28-6252
*704-709/7090 Input/Output Compatibility Program – Compatibility II	J28-6039
*Simulation of the IBM 1410 with the IBM 704, IBM 709 and IBM 7090	J24-1427
*Simulation of the IBM 7070 on the IBM 704 and the IBM 7090 . . .	J28-6042
*Simulation of the IBM 7750 Programmed Transmission Control on the IBM 7090/7094	J28-6206
36 <i>Supervisor, Monitor</i>	
7090/7094 Operating Systems: Basic Monitor (IBSYS)	C28-6248
IBM 7090/7094 Basic Monitor (IBSYS) and 709/7090 Input/Output Control System for 7320 Capability	J28-6270
IBM 7090/7094 Operating Systems: Basic Monitor (IBSYS) for 7340 Capability	J28-6279
48 <i>Miscellaneous Programs</i>	
*IBM 7000/1400 Output Editing System	J28-6173
*IBM 7090 Programming Systems: S-Program for the 7090	J28-6174
*IBM 1401 Peripheral Integrated Processing System for Use with 7000 Series Data Processing Systems	J28-0238
*Machine Optimal Approximations	J28-8023
*IBM 7750 Data Control Package	J28-8096
*IBM 7750 Assembly Program Using the IBM 1401	C28-6259

Installation Supplies

Installation supplies are materials or aids to be used in planning and programming for the 7090/7094 Systems. See Part 3 of the Bibliography for abstracts of the items listed.

SUBJECT CODE	FORM NUMBER
80 7090 Reference Card	X22-6682
7094 Reference Card	X22-6691
7090/7094 Physical Planning Templates	X22-1245
*1301 Disk Storage Layout	X24-6531
*1301 Physical Planning Templates	X22-6665
*Input/Output Components Physical Planning Templates	X22-6666
*Magnetic Tape Record Characteristics Card	X22-6785
*Input/Output Hypertape Physical Planning Template	X22-6669
*711 Card Reader Diagram Pad	X22-6126
*716 Printer Diagram Pad	X22-6127
*721 Card Punch Diagram Pad	X22-6128

SUBJECT CODE		FORM NUMBER
80	*1011 Paper Tape Reader Control Panel Diagram	X24-6518
	*COBOL Program Sheet	X28-1464
	*COBOL Reference Card	X28-1520
	*FORTRAN Coding Form	X28-7327
	*SHARE 709 Symbolic Coding Form	X28-0784
	*7750 Assembly Program Sheet	X28-1625
	709/7090 Commercial Translator Procedure Description – Coding Form	X28-1305
	709/7090 Commercial Translator Data Description – Coding Form	X28-1306
	709/7090 Commercial Translator Environment Description – Coding Form	X28-1522
	SHARE 7090 9PAC IOCS Control Cards – Coding Form	X28-6140
	SHARE 7090 File Processor: Dictionary Definition – Coding Form	X28-6141
	SHARE 7090 File Processor: Vertical Change Definition – Coding Form	X28-6142
	SHARE 7090 File Processor: Update Change Definition – Coding Form	X28-6143
	SHARE 7090 File Processor: Horizontal Change Definition – Coding Form	X28-6144
	SHARE 7090 File Processor: Change Report Field – Request Coding Form	X28-6145
	SHARE 7090 Reports Generator: Report Definition – Format Coding Form	X28-6146
	SHARE 7090 Reports Generator: Field Parameters – Coding Form	X28-6147
	SHARE 7090 Reports Generator: Dictionary Definition – Coding Form	X28-6148

Supplementary Information

Listed below are publications of limited interest or special use not included in the library. Subject code numbers have not been assigned.

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|----|--|----------------|
| 1. | <i>Education (EDUC)</i> : Publications and materials to be used in educational programs for the 7090/7094 Systems. See abstract for description and availability. | FORM
NUMBER |
| | 7090 Education Guide | R22-9780 |
| | *COBOL Programming Education Guide | R22-9761 |
| | *COBOL Programming Practice Problems | R22-9762 |
| | *FORTRAN Programming Education Guide | R23-9527 |
| | *FORTRAN Programming Practice Problems | R25-1677 |
| | *Utility Programs and Monitors | R25-1675 |
| 2. | <i>Original Equipment Manufacturers' Information (OEM)</i> : Includes information and/or specifications for the special needs of designers of accessory equipment requiring technical information about the method of attachment or connection of various IBM devices. | |
| | *729 II, IV, V, and VI Magnetic Tape Units | A22-6643 |
| | *7631 File Control Unit | A22-6725 |
| | *1009 Data Transmission Unit | A24-1065 |
| | *1414 Input/Output Synchronizer | A22-6701 |

Part 2 — Machine Index

Publications describing the machine components of the 7090/7094 are listed by machine number. The machine index is useful for quickly finding reference material about a specific machine unit. See the *7090 DPS Configuration*, Form A22-6686, or the *7094 DPS Configuration*, Form A22-6689, for the number and type of machine components.

MACHINE NUMBER	TITLE	SUBJECT CODE	FORM NUMBER
711	Unit Record Input/Output Equipment	03	A22-6660
	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
716	Unit Record Input/Output Equipment	03	A22-6660
	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
721	Unit Record Input/Output Equipment	06	A22-6660
	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
729	Magnetic Tape Units	05	A22-6589
	729 v and 729 vi Magnetic Tape Units	05	G22-6629
	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
1009	1009 Data Transmission Unit	09	A24-1039
	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
1011	1011 Paper Tape Reader	09	D24-1044
	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
1014	1014 Remote Inquiry Station	09	G24-6625
	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
1301	1301 Disk Storage	07	D22-6576
	1301 Disk Storage	07	G22-6595
	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
1414	1414-6 Input/Output Synchronizer	09	G22-6625
	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
7108	7090 Data Processing System	01	A22-6528
7109	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
7110	7094 Data Processing System	01	A22-6703
7151-1	Operator's Guide	01	A22-6535
7151-2	7094 Data Processing System	01	A22-6703
7155	Magnetic Tape Switching Feature	13	G22-6587
7302	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
7320	7320 Drum Storage	07	G22-6717

MACHINE NUMBER	TITLE	SUBJECT CODE	FORM NUMBER
7340	7340 Hypertape	05	A22-6616
	7340 Hypertape	05	G22-6634
	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
7606	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
7607	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
7617	Operator's Guide	01	A22-6535
	7094 Data Processing System	01	A22-6703
7631	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
	1301 Disk Storage Unit	07	G22-6595
	7320 Drum Storage Unit	07	G22-6717
	1301 Disk Storage	07	D22-6576
7640	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
	7340 Hypertape	05	A22-6616
	7340 Hypertape	05	G22-6634
7701	Magnetic Tape Transmission Terminal	09	A22-6527
7702	Magnetic Tape Transmission Terminal	09	A22-6702
7750	Programmed Transmission Control	09	A22-6679
	Programmed Transmission Control	09	D22-6627
7765	7765 Paper Tape to Magnetic Tape Converter	09	A22-6570
7909	7090 Data Processing System	01	A22-6528
	7094 Data Processing System	01	A22-6703
	1301 Disk Storage	07	G22-6595
	7320 Drum Storage	07	G22-6717

Part 3 — Abstracts

The abstracts for all 7090/7094 system publications and materials are listed by form number. From the abstract, the 7090/7094 user can determine whether a particular publication is applicable. The subject code is shown at the right of the title.

A22-6527 7701 Magnetic Tape Transmission Terminal 09

This reference manual deals first with over-all capabilities of the 7701 terminal and its contribution to TELEPROCESSING® systems. The manual then offers a description of operations within the terminal, including data flow, the synchronous transmitter-receiver, the tape unit, input/output codes, the transmission code, control signals, and automatic retransmission. Another section describes the operator panels and procedures, ending with a step-by-step summary of operator procedures for scheduled transmission, nonscheduled transmission, and all predictable types of interruptions. (Ref. Man. — 32 pages)

A22-6528 IBM 7090 Data Processing System 01

This manual presents a “textbook” type of detail on the operation and use of the 7090 Data Processing System. It contains detailed discussions of data channel operation; computer instructions, commands, and orders; interrupt; input and output components; and programming examples. In addition, comprehensive discussions of general concepts are provided. This manual includes information on the use of IBM 1301 Disk Storage with the 7090 system. (Ref. Man. — 136 pages)

A22-6535 Operator's Guide for IBM 7090 Data Processing System 01

This manual describes the operation of the IBM 7151 Console Control, the IBM 7617 Data Channel Console, and all input/output unit keys and lights. Also included are wiring examples, information paths within the system, and operational procedures. (Ref. Man. — 56 pages)

A22-6570 7765 Paper Tape to Magnetic Tape Converter 09

This 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. (Ref. Man. — 29 pages)

A22-6589 Magnetic Tape Units 05

This is a comprehensive reference manual on the use of IBM 727, 729 I, II, III, IV, and 7330 Magnetic Tape Units. This 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. (Ref. Man. — 44 pages)

A22-6616 IBM 7340 Hypertape Drive 05

This manual describes the new and improved features of the IBM 7340 Hypertape Drive, including data rates, reel cartridge operation, access time, and checking principles. It also describes operating features and attachment to the IBM 7074, 7080, and 7090 Data Processing Systems. (Ref. Man. — 16 pages)

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

This manual includes information and specifications for use by a manufacturer of original equipment to be attached to IBM 729 II, IV, V and VI Magnetic Tape Units. (OEM — 40 pages)

A22-6660 IBM 700-7000 Series DPS Unit Record Equipment 03

This manual presents the operation and use of Unit Record Equipment for the IBM 700-7000 Series Data Processing Systems. It is divided into four sections. Section 1 gives information concerning IBM unit record input/output equipment with a detailed description of the IBM punched card; Sections 2, 3, and 4 describe and give the operational characteristics of the input/output unit record equipment pertaining to specified

data processing systems, namely, the 7070 and 7074, the 705 and 7080, and the 709, 7090, and 7094 Data Processing Systems. (Ref. Man. — 117 pages)

A22-6679 7750 Programmed Transmission Control — Preliminary Edition 09

This manual presents the operation and use of 7750 Programmed Transmission Control in four sections: 1, Introduction; 2, Functions; 3, Type of Adapters; and 4, Channel Operation. The publication is an updated and reorganized version of the former Product Description Manual and is engineering-oriented. It is intended for use by experienced systems analysts who have some training in 7750 design and application. Because of limited interest, no distribution of copies has been made to the Reference Library. (Ref. Man. — 118 pages)

A22-6686 7090 Data Processing System Configuration 00

This schematic drawing shows the complete 7090 Data Processing System with all required and optional features available. The drawing will be revised and reissued whenever a new feature for the 7090 System is announced. (1 page)

A22-6689 7094 Data Processing System Configuration 00

This schematic drawing shows the complete 7094 Data Processing System with all required and optional features available. The drawing will be revised and reissued whenever a new feature for the 7094 System is announced. (1 page)

A22-6701 1414 Input/Output Synchronizer OEM

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

A22-6702 7702 Magnetic Tape Transmission 09

This reference manual deals with the use and capabilities of the 7702 Magnetic Tape Transmission Terminal in TELE-PROCESSING operations. Functions of the components of the 7702, such as the synchronous transmitter receiver (STR) and the tape unit, are explained. Information concerning data flow, input/output codes, transmission code, control signals and automatic trans-

mission is also presented. In addition, a section in the manual describes the operator panels and procedures, ending with a summary of operation procedure for scheduled transmission, nonscheduled transmission, and all predictable types of interruptions. (Ref. Man. — 30 pages)

A22-6703 7094 Data Processing System 01

This reference manual describes units of the 7094 System and explains their operating features. All instructions, commands, and orders required for the operation of the system are explained in detail and the IBM 7909 Data Channel Interrupt feature is thoroughly discussed. Information concerning the use of the IBM 7340 Hypertape Drive, the IBM 1301 Disk Storage, and the IBM 1414 Model VI Input/Output Synchronizer is included. Operator Console and Data Channel Console features and operating techniques are included in this manual. (Ref. Man. — 174 pages)

A22-6725 IBM 7631 File Control OEM

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 termination data, line driver and line terminator circuitry, physical specifications, functional explanations 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. (OEM — 64 pages)

A24-1039 1009 Data Transmission Unit 09

This manual describes the functional characteristics of the IBM 1009 Data Transmission Unit in relation to the 1401 and 1410 Systems. It discusses 1401 and 1410 instructions along with the console panel and related communications-company equipment. It also outlines operating principles and recommended checking procedures, and illustrates the logic of both 1401 and 1410 transmit and receive subroutines. (Ref. Man. — 32 pages)

A24-1065 1009 Data Transmission Unit OEM

This manual contains interchange information for the connection of the IBM 1009 Data Transmission Unit to communications channel terminal equipment and data processing equipment. Also included are connector drawings, connector reference charts, specifications, and descriptions of the operator console panel indicators, keys, and switches. (OEM — 20 pages)

A28-6306 IBM 7090/7094 Bibliography 00

All available reference literature applicable to the installation and operation of the IBM 7090/7094 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 abstracts of all the publications in form number sequence. (SRL — 24 pages)

C20-8090 Catalog of Programs for IBM Data Processing Systems — KWIC Index 20

This catalog contains a Keyword-in-Context (KWIC) index and abstract of computer programs which may be ordered from the IBM Program Information Department, formerly known as IBM Library Services. This department, located at 112 East Post Road, White Plains, New York, distributes several types of programs. The A section of the catalog contains programs written, tested, published and maintained by IBM. The B section consists of programs for which the Program Information Department acts only as a publishing and distribution agency. Programs in the A section of the catalog can be ordered through the local IBM branch office. For programs in the B section, the SHARE, GUIDE and 1620 USER groups should use their previously established ordering procedures. Other companies should write directly to the Program Information Department for programs in the B section. (312 pages)

C22-6681 Installation Manual — Physical Planning, IBM Input/Output Components, 7000 Series and 1410 Systems 15

This manual 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. (Ref. Man. — 52 pages)

C22-6706 7090/7094 Data Processing Systems Physical Planning Installation Manual 15

This manual contains pertinent physical planning information for installing IBM 7090 and 7094 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. (Ref. Man. — 52 pages)

C28-6036 Generalized Sorting Program for the IBM 709 Data Processing System: Sort 709 33

This manual describes the Generalized Sorting Program for the IBM 709 Data Processing System. This program sorts fixed-length records on as many as five different control fields containing up to 360 bits of binary information or 60 characters of BCD information. Either single or blocked records may be used for input or produced as output. Control cards are used to provide a number of parameters to the "generalized" sort. These parameters are used to complete a skeleton set of instructions and so produce a "specialized" sort of maximum time efficiency for the parameters specified. (Ref. Man. — 152 pages)

C28-6052 Generalized Merging Program for the IBM 709 Data Processing System: Merge 709 33

This manual describes Merge 709 program operation, restrictions, and operating instructions. In addition, the manual includes a section on modification for the program.

Merge 709 can merge up to five sorted input files of fixed-length, binary or BCD, records. The Merge program can merge records according to either the 705 or 709 collating sequences, and, with slight modification, any desired sequence may be used. (Ref. Man. — 92 pages)

C28-6054 709/7090 FORTRAN Programming System 25

This manual presents the FORTRAN II language and programming rules. The IBM FORMULA Translating System, 709/7090 FORTRAN, is an automatic coding system for the IBM 709/7090 Data Processing System. FORTRAN II statements may be translated into machine language statements using either the FORTRAN II Processor operating under the 7090/7094 IBSYS Basic Monitor or the independent FORTRAN Monitor System. The FORTRAN language closely resembles the ordinary language of mathematics. (Ref. Man. — 106 pages)

C28-6066 709/7090 FORTRAN Operations 25

This manual provides instructions for the operation and use of the FORTRAN Monitor System and for the creation and maintenance of the 709/7090 FORTRAN Monitor System tape. This FORTRAN System contains a Monitor which coordinates a Compiler that proc-

esses statements in the FORTRAN II language, and an Assembler that processes statements in the FORTRAN Assembly Program language. (Ref. Man. — 68 pages)

C28-6100 709/7090 Input/Output Control System 30

The IBM 709/7090 Input/Output Control System (IOCS) is designed to relieve programmers of the necessity of writing input/output routines. When using IOCS, a programmer need only be concerned with the content of his information files, and not with the actual processes by which information is obtained. During processing, IOCS automatically handles label checking and preparation, blocking and unblocking of data words, and overlapping of input and output with processing. Provision is made for error detection and correction, checkpoint and restart procedures, and tape switching. These automatic features depend upon the use of the Data Channel Trap; therefore, IOCS cannot be used with 709 systems not equipped with this device. IOCS is a participating system with IBSYS, the Basic Monitor, and must be used with it. (Ref. Man. — 82 pages)

C28-6235 IBM 709/7090 Programming Systems FORTRAN Assembly Program (FAP) 25

This manual describes the 709/7090 FORTRAN Assembly Program (FAP) in sufficient detail for the programmer can write the major part of his program in FORTRAN may be used with either the IBM FORTRAN Monitor or the 7090/7094 Basic Monitor (IBSYS). FAP is a machine-oriented symbolic language. The programmer can write the major part of his program in FORTRAN, using FAP subroutines where necessary to accomplish those parts of the job for which FORTRAN is not suitable; or he can write the major part of the program in FAP, using FORTRAN subroutines for certain computational and input/output operations. (Ref. Man. — 78 pages)

C28-6248 IBM 7090/7094 Operating Systems Basic Monitor (IBSYS) 36

This manual provides 7090/7094 programming personnel with a general introduction to the IBM Basic Monitor (IBSYS) and includes a description of the control cards necessary for its use. In addition, it furnishes a basic description of the operation of IBSYS for systems programmers as well as instructions for machine operators. The manual includes a discussion of the editor. (Ref. Man. — 52 pages)

C28-6252 IBM 7090/7094 Support Package for the IBM 7040/7044 35

This manual describes a method of running 7040/7044 programs on the IBM 7090/7094 Data Processing Systems. This program consists of an assembly program (similar to 709/7090 FAP), a 7040/7044 simulator subroutine, and library utility programs under the control of a monitor. The assembly program will accept most programs written in 7040/7044 assembly language, and will convert these programs into machine language. Then, at the user's option, the monitor will load these programs and initiate their execution. (Ref. Man. — 10 pages)

C28-6259 IBM 7750 Assembly Program Using the IBM 1401 48

This manual contains a description of the 7750 Assembly Program and has been written to facilitate the preparation of programs for the IBM 7750 Programmed Transmission Control. The Assembly Program runs on the 1401 and produces output suitable for loading into the 7750 through the IBM 1410 or 7000 Series Data Processing Systems. (Ref. Man. — 24 pages)

D22-6508 IBM 709/7090 Data Processing Systems 01

This manual provides general information concerning both the IBM 709 and 7090 Data Processing Systems. A brief survey of the machine components together with the operating functions of binary computers is provided. Included in this manual are comparisons of operating speeds of electron tube and transistorized equipment. (GI Man. — 52 pages)

D22-6576 1301 Disk Storage with 7000 Series Data Processing Systems 07

This manual describes the various models of the 7631 File Control, gives a detailed explanation of the checking features, and describes the orders. It also includes a detailed explanation of the writing of the format track and its layout. (GI Man. — 20 pages.)

D22-6627 7750 Programmed Transmission Control 09

This manual describes, in a general way, the 7750 as a TELE-PROCESSING system component. It tells what communication equipment and computer the 7750 may be operating with in a communication network. In addition, the manual presents the communication capability of the 7750, a description of how the interrupt system enables the 7750 to do real-time data processing, and some of the programming techniques used to enable the machine to perform effectively its com-

munication control functions. Descriptions of registers and types of instruction are also given. (GI Man. — 20 pages)

D24-1044 1011 Paper Tape Reader 09

This manual describes the operating features, components, and paper tape for the 1011, and contains a control panel summary for both the 5-track and 8-track panels. The IBM 1011 as input to the IBM 1401 and IBM 1410 Data Processing Systems is discussed, and the operation codes and checking features for each system are described. (GI Man. — 24 pages)

F24-1052 Physical Planning 15

This manual discusses general aspects of physical planning as they concern the entire field of IBM data processing equipment. It 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. (GI Man. — 40 pages)

F28-8001 Sorting Methods for IBM Data Processing Systems 33

This manual describes some basic methods of sorting. It points out general considerations and rules that will make it easier to evaluate different approaches to the problem of sorting. The following topics are covered: methods of tape sorting, internal sorting, generalized and specific sorting programs, general considerations in sorting, estimating sort time, and a list of terms and abbreviations. (GI Man. — 56 pages)

F28-8043 IBM Commercial Translator 23

The IBM Commercial Translator is an automatic coding system intended primarily for commercial data processing. The system facilitates programming by two means: (1) programs can be written in a form based on English; and (2) the verbs, nouns, arithmetic expressions, and logical expressions making up the language are powerful: a single command can cause an operation that involves an extended sequence of machine steps. A processor is used to convert a Commercial Translator program into a machine language program.

This manual discusses the structure of the language, the procedure description, and the data description. (The environment description is covered in the publications for the 7090 processor.) It also contains a primer-type description of the language, for beginning programmers. (GI Man. — 124 pages)

F28-8053 COBOL 24

COBOL is a result of efforts to produce an English-language-like programming language that can be used to solve a wide variety of business related problems. 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 is derived from "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. (GI Man. — 172 pages)

F28-8074 FORTRAN 25

FORTRAN is an automatic coding system developed to provide a means of expressing problems in a symbolic source language similar to the language of mathematics. This manual describes FORTRAN and prepares the reader to use the facilities it provides. FORTRAN is available for most IBM Data Processing Systems. (GI Man. — 104 pages)

G22-6587 Tape Switching Feature for IBM 729 II and 729 IV Magnetic Tape Units 13

This bulletin describes the operation and use of the tape switching feature. Sample system layouts, the switch console, and operating characteristics are described. (Bulletin — 8 pages)

G22-6595 1301 Disk Storage 07

This bulletin presents technical information needed to program the 1301 Disk Storage when used in a 7090 or 7094 Data Processing System. Detailed instruction descriptions and command descriptions are included, together with information about the 7909 Data Channel, interrupt conditions, file sharing, and programming examples. (Bulletin — 32 pages)

G22-6625 1414 Model 6 Input/Output Synchronizer 09

The 1414, Model 6, permits the attachment of communication devices and paper-tape devices to the 7090 and 7094 Data Processing Systems. This bulletin briefly describes each device in detail, together with the operating characteristics and new instructions of the 7090/7094 with the 1414 Model 6. (Bulletin — 20 pages)

- G22-6629 729 V and 729 VI Magnetic Tape Units 05**
This manual discusses character densities, compatibility with other tape units, and programming considerations. The tape control device and corresponding data processing system are described (Bulletin – 4 pages)
- G22-6634 7340 Hypertape Drive 05**
This bulletin describes the operation of the IBM 7340 Hypertape Drive with the 7090/7094 Data Processing Systems. The bulletin contains a description of program control of tape operations with the 7090/7094. (Bulletin – 16 pages)
- G22-6647 IBM 7094 Data Processing System 01**
This bulletin contains a general description of the 7094 Data Processing System including descriptions of the additional instructions and the instruction timings provided by the 7094. Knowledge of the contents of the manual *IBM 7090 Data Processing System*, Form A22-6528, is assumed. (Bulletin – 12 pages)
- G22-6667 IBM 7340 Hypertape Drive Automatic Cartridge Loader Feature 13**
This bulletin describes the operation of the Automatic Cartridge Loader for use with the IBM 7340 Hypertape Drive. The bulletin includes details concerning the attachment of the loader to the 7340, the operation of the loader, changes in the 7340 control keys and lights, and physical planning considerations. (Bulletin – 4 pages)
- G22-6717 IBM 7320 Drum Storage with IBM 7090/7094 Data Processing Systems 10**
The bulletin presents technical information needed to program the IBM 7320 Drum Storage Unit when it is attached to a 7090/7094 System. Detailed instructions, commands, and orders are included, together with information about the IBM 7909 Data Channel, interrupt conditions, and programming examples. A working knowledge of the 7090/7094 System is assumed. (Bulletin – 40 pages)
- G24-1068 1013 Card Transmission Terminal 09**
This bulletin contains a general description of the components of the IBM 1013 and specific descriptions of communications-company equipment, IBM 1013 Operating Controls, card programming for the IBM 1013, and Operating Procedures. (Bulletin – 24 pages)
- G24-1444 1014 Remote Inquiry Unit 09**
This manual contains information about the IBM 1014 Remote Inquiry Unit when used in conjunction with the 1410 System. It describes the operating keys and lights, and inquiry request and inquiry reply operations. (Bulletin – 8 pages)
- J22-6606 7702 Magnetic Tape Transmission Terminal – Physical Planning Installation 15**
This bulletin states the following planning specifications for the IBM 7702: dimensions, signal cable, power requirements, weight, power cord, service clearance, power consumption, and temperature and humidity requirements. (Bulletin – 1 page)
- J22-6659 IBM 7750 Programmed Transmission Control 15**
This bulletin describes physical planning specifications for the 7750. It includes details concerning size of unit, weight, heat dissipation, cable lengths, and power requirements. (Bulletin – 1 page)
- J22-6727 IBM 7320 Drum Storage Physical Planning 80**
This bulletin describes specifications of size, environment, cable lengths, power consumption, and weight for the 7320 Drum storage. (Bulletin – 2 pages)
- J24-1069 1013 Card Transmission Terminal – Preliminary Physical Planning Information 15**
This bulletin contains the following specifications for the IBM 1013: power requirements, dimensions, power cord, weight, power consumption, service clearances, signal cable, and temperature and humidity requirements. (Bulletin – 1 page)
- J24-1427 Simulation of the IBM 1410 with the IBM 704, IBM 709, and IBM 7090 35**
The program described in this bulletin enables the user to test and correct 1410 programs prior to installation of an IBM 1410 Data Processing System. This program simulates the function and performance of the IBM 1410 by using the IBM 704, 709, and 7090 Data Processing Systems. This bulletin describes the steps required to program the simulated 1410 and the procedures for operating the machine with which simulation is performed. (Bulletin – 8 pages)
- J28-0238 IBM 1401 Peripheral Integrated Processing System for Use with 7000 Series Data Processing Systems 48**
This bulletin describes the external specifications for the IBM 1401 Peripheral Integrated Processing System.

This system permits the consecutive execution of peripheral programs that are independent of each other both in their operation and in the data upon which they act. The bulletin contains the rules which determine whether a peripheral processing program can participate in this monitored system operation. (Bulletin – 24 pages)

J28-6039 704-709/7090 Input/Output Compatibility Program – Compatibility II 35

Compatibility II is a program which makes possible the execution of 704 programs on the IBM 709/7090 by simulating 704 input/output operations. The use of Compatibility II requires 8K storage. This bulletin describes the functioning and use of Compatibility II, including restrictions and operating instructions. It assumes prior knowledge of the operation of the 709 compatibility instructions.

Note that nonstandard 704 instructions may not operate in the same way on the 709 and 7090 as on the 704. Therefore, programs including such instructions might not be executed properly when used in conjunction with Compatibility II. (Bulletin – 12 pages)

J28-6042 Simulation of the IBM 7070 on the IBM 704 and the IBM 7090 35

The simulation programs described in this bulletin may be used to test and debug 7070 programs prior to installation of an IBM 7070 Data Processing System. The operations that are simulated and the debugging data that is generated are described in the manual. The 7070 simulation programs for the 704 and the 7090 are very similar. The features of the 7090 program that differ from those of the 704 program are outlined in this bulletin, and a detailed procedure for operating the 704 Simulator is provided. (Bulletin – 24 pages)

J28-6043 Sort 709: Sorting Times for the IBM 7090 with IBM 729 VI Magnetic Tape Units

This bulletin includes a short description of Sort 7090 (IBM Generalized Tape Sorting Program, Sort 709, used on the IBM 7090 Data Processing System), a glossary of a few terms, and timing tables. The timing tables include data on recommended input blocking, internal blocking, capacity in records of a sort, as well as the time required for each phase of the program. The tables cover the range from 5 to 500 word records. (Bulletin – 44 pages)

J28-6059 Addenda and Errata to the Sort 709 Manual 33

This bulletin presents addenda and errata to the IBM Reference Manual, *Generalized Sorting Program for*

the IBM 709 Data Processing System: Sort 709, Form C28-6036. The additional material presented includes information pertaining to collating sequences, restart procedure, and some “packaged” modifications to the Sort 709 program. The errata consist of a one-page insert (between pages 104 and 105) to the Sort 709 manual. (Bulletin – 6 pages)

J28-6061 Addenda to the Merge 709 Manual 33

This bulletin presents addenda to the IBM Reference Manual, *Generalized Merging Program for the IBM 709 Data Processing System Merge 709*, Form C28-6052. The material includes information pertaining to collating sequences, restart procedure, and some “packaged” modifications to the Merge 709 program. (Bulletin – 4 pages)

J28-6080 709 Utility Programs 32

This bulletin describes and includes operating instructions for seven utility programs written for use with the IBM 709 Data Processing System: (1) the Mnemonic Octal Loader; (2) the Tape Build; (3) the Random File Generator; (4) the Tape Compare; (5) the Sequence Check; (6) the Tape Dump; and (7) the Spot Tracer. (Bulletin – 20 pages)

J28-6114 32K 709/7090 FORTRAN: Double Precision and Complex Arithmetic

This bulletin describes the double-precision and complex arithmetic facilities available for 32K 709/7090 FORTRAN. (Bulletin – 8 pages)

J28-6133 32K 709/7090 FORTRAN: Source Language Debugging at Object Time 25

This bulletin describes the 32K 709/7090 FORTRAN Monitor System facility for specifying object-time storage dumps in FORTRAN source program-type language. These dumps are obtained by interrupting execution and collecting the desired information, after which control is returned to the object program. Provision is made for dumping during execution of any main program or subprogram as long as execution is under monitor control and the object deck contains a Symbol Table. (Bulletin – 12 pages)

J28-6135 32K 709/7090 FORTRAN: Adding Built-In Functions 25

This bulletin describes the techniques for adding Built-In Functions to the 32K 709/7090 FORTRAN System. Built-In Functions are compiled into FORTRAN object programs as open subroutines; that is, they appear in the object program once for every time

they are referenced in the source program. (Bulletin – 8 pages)

J28-6138 Sort 709: Sorting Times for the 7090 with 729 VI Magnetic Tape Units 33

This bulletin provides the formula for calculating tape times when estimating sorting times for Sort 709 used on an IBM 7090 equipped with IBM 729 Magnetic Tape Units. (Bulletin – 2 pages)

J28-6152 IBM 7090 with IBM 7340 Hypertape Drives: Programs and Programming Systems 20

This bulletin announces programs and programming systems availability for use with IBM 7090 Data Processing Systems equipped with IBM 7340 Hypertape Drives. (Bulletin – 2 pages)

J28-6156 IBM 7090 Generalized Sorting Program Using IBM 7340 Hypertape Drives 33

This bulletin presents information on the IBM 7090 Generalized Sorting Program for IBM 7090 Data Processing Systems equipped with IBM 7340 Hypertape Drives and/or IBM 729 Magnetic Tape Units. (Bulletin – 2 pages)

J28-6166 IBM 7090 Programming Systems: SHARE 7090 9PAC Part 1: Introduction and General Principles 28

SHARE 7090 9PAC is a business-oriented programming system which facilitates the establishment and maintenance of data files and enables the user to obtain any desired report on this data with a minimum of programming effort, in a timely manner, and in the format which the user specifies. 7090 9PAC operates under the control of the IBSYS Basic Monitor. This publication is a general introduction to the 9PAC System and is the first part of a reference manual which describes the 9PAC System and prepares the reader to use the facilities it affords. Other parts of the manual are: *Part 2 – The File Processor*, Form J28-6167; *Part 3 – The Reports Generator*, Form J28-6168; *Part 4 – Operating Instructions*, Form J28-6215; and the *Supplement*, Form J28-6211. (Bulletin – 32 pages)

J28-6167 IBM 7090 Programming Systems: SHARE 790 9PAC Part 2: The File Processor 28

This bulletin describes the File Processor portion of the 9PAC System. The File Processor has two major functions: file establishment and file maintenance. (Bulletin – 98 pages)

J28-6168 IBM 7090 Programming Systems: SHARE 7090 9PAC Part 3: The Reports Generator 28

This bulletin describes the Reports Generator portion of the 9PAC System. The Reports Generator produces object programs that will produce reports and/or records. (Here, *reports* refers only to tape files for printing or card punching, and *records* refers to any type of magnetic tape file.) (Bulletin – 64 pages)

J28-6169 IBM 709/7090 Commercial Translator Processor 23

This manual contains a description of the Commercial Translator Processor and the Commercial Translator source language for the 709/7090 Data Processing Systems. Included are sections on the compiler, loader, supervisory system, systems operation, and systems maintenance. A sample problem is included. (Bulletin – 224 pages)

J28-6173 IBM 7000/1400 Output Editing System 48

The 7000/1400 Output Editing System provides facilities whereby the output of a large-scale IBM 7000 Series computer program may be edited and printed, or punched on the IBM 1401. The system is made up of the I-Language, the 1401 D-Program, and S-Programs for the several 7000 Series computers. The I-Language and the D-Program are machine-independent and are presented in full in this bulletin. A separate S-Program publication is available for the 7090. (Bulletin – 64 pages)

J28-6174 IBM 7090 Programming System: S-Program for the IBM 7090 48

This bulletin gives detailed information for the use of the S-Program (String Program) for the IBM 7090. The 7090 S-Program is part of the IBM 7000/1400 Output Editing System, which also includes the I-Language and the 1401 D-Program. These parts of the system are documented in the Bulletin, *IBM 7000/1400 Output Editing System*, Form J28-6173. (Bulletin – 14 pages)

J28-6184 IBM 7094 Programs and Programming Systems 48

This bulletin describes the programs and programming systems that will be made available for use on the IBM 7094, such as FORTRAN, FAP (FORTRAN Assembly Program), IOCS, COBOL, Sort, and 9PAC. (Bulletin – 8 pages)

J28-6190 IBM 709/7090 Programming 25
Systems: FORTRAN Input/Output Package
for the 32K Version

This bulletin describes a common input/output package, the IBM 709/7090 FORTRAN Input/Output Package, which is used by the 32K 709/7090 FORTRAN System for all input and output operations. The Input/Output Package can perform tape, printer, punch, and card reader operations. (Bulletin – 18 pages)

J28-6194 IBM 7090/7094 Programming 27
Systems: IJOB Processor Part 1:
Monitor (IJOB)

This is one of several bulletins that make up the IJOB Processor manual. The IJOB Processor works with the IBSYS Basic Monitor. This bulletin describes the organization of the IJOB Monitor, which provides communication with the Basic Monitor, positions the systems tape, and regulates the phasing of the various parts of the compilers, assemblers, and loader. The manual also describes the system units required by IJOB, control cards, and control card formats. The following bulletins describe the other parts of the IJOB Processor: *Part 2 – Loader (IBLDR)*, Form J28-6195; *Part 3 – Macro Assembly Program (IBMAP)*, Form J28-6196; *Part 4 – FORTRAN Compiler (IBFTC)*, Form J28-6197; *Part 5 – COBOL Compiler (IBCBC)*, Form J28-6260; and *Part 6 – Library (IBLIB)*, Form J28-6283. (Bulletin – 16 pages)

J28-6195 IBM 7090/7094 Programming 27
Systems: IJOB Processor Part 2: Loader
(IBLDR)

This is the second of several bulletins that make up the IJOB Processor manual. The bulletin describes the operation of the Loader, IBLDR, which is part of the IJOB Processor system, and which creates a machine language program from the binary decks produced by the Macro Assembly Program. As part of the loading procedure, separately assembled program segments are loaded, direct cross-referencing between them is accomplished, storage is allocated for common data storage and input/output buffers, and the specified modules of iocs are initialized for program use during execution. (Bulletin – 40 pages)

J28-6196 IBM 7090/7094 Programming 27
Systems: IJOB Processor Part 3: Macro
Assembly Program (IBMAP)

This is the third of several bulletins that make up the IJOB Processor manual. The Macro Assembly Program recognizes all of the basic IBM 7090 and 7094 operation codes and some extended operation codes, which are described in the bulletin. (Bulletin – 62 pages)

J28-6197 IBM 7090/7094 Programming 27
Systems: IJOB Processor Part 4:
FORTTRAN Compiler (IBFTC)

This is the fourth of several bulletins that make up the IJOB Processor manual. The bulletin describes the FORTRAN Compiler (IBFTC), which is an IJOB Processor component. The language processed by this compiler closely resembles the language of mathematics. (Bulletin – 16 pages)

J28-6204 IBM 709/7090 Input/Output 30
Control System Supplement for 1301
Sequential Capabilities

This supplement to the reference manual *IBM 709/7090 Input/Output Control System*, Form C28-6100, describes the modifications made to 709/7090 iocs to permit its use with IBM 1301 Disk Storage. (Bulletin – 4 pages)

J28-6206 Simulation of the IBM 7750 48
Programmed Transmission Control on the
IBM 7090/7094

This bulletin describes a program that simulates the IBM 7750 Programmed Transmission Control, its host computer, and its communication network. This simulation program is useful for testing 7750 programs prior to their use on an IBM TELE-PROCESSING system, but it is not a substitute for a 7750. The bulletin describes the features, limitations, and timing considerations of the simulator, and discusses simulator components and control cards. (Bulletin – 16 pages)

J28-6211 IBM 7090 Programming Systems: 28
SHARE 7090 9PAC Supplement

This bulletin contains addenda and corrections to the four bulletins which make up the 9PAC Reference Manual: J28-6166, J28-6167, J28-6168, and J28-6215. The bulletin also describes the preparation of 9PAC files for use with 7090/7094 Sort (729 – Fixed Length). (Bulletin – 16 pages)

J28-6215 IBM 7090 Programming Systems: 28
SHARE 7090 9PAC Part 4: Operating
Instructions

This is the fourth part of a reference manual that describes 7090 9PAC. The bulletin contains information regarding the use of 9PAC with the IBSYS Basic Monitor, operating procedures, and console procedures. Other parts of the manual are: *Part 1 – Introduction and General Principles*, Form J28-6166; *Part 2 – The File Processor*, Form J28-6167; *Part 3 – The Reports Generator*, Form J28-6168; and the *Supplement*, Form J28-6211. (Bulletin – 10 pages)

J28-6217 IBM 7090/7094 Generalized Sorting 33
Program: 7090 Sort (729 — Fixed Length)

This bulletin describes the fixed-length version of the Generalized Sorting Program for the IBM 7090 or 7094 equipped with IBM 729 Magnetic Tape Units. The program will accept fixed-length BCD or binary records and sort them, using either the commercial or scientific collating sequence, in ascending or descending order. This program is designed to operate with the Basic Monitor (IBSYS). (Bulletin — 56 pages)

J28-6223 7090/7094 Utility Routines for IBM 32
1301 Disk Storage

This bulletin contains a description of six utility routines that are available to users of IBM 7090 and 7094 Data Processing Systems equipped with IBM 1301 Disk Storage. Descriptions of the following routines are contained in this bulletin:

1. Format Track Generation
2. Home Address and Record Address Generation
3. Load Disk
4. Dump Disk
5. Restore Disk
6. Clear Disk

In addition to a description of these routines, operating instructions are included to aid the user in implementing these routines. A section is also included that describes the Disk Utility Monitor. (Bulletin — 18 pages)

J28-6229 IBM 7090/7094 Utility Programs 32
Using IBM 7340 Hypertape Drives

This bulletin contains specifications for two utility programs for the IBM 7090 and 7094 Data Processing Systems equipped with 7340 Hypertape Drives: the Binary Loader for Hypertape and the Basic Core and Tape Dump for Hypertape and 729 Tapes. (Bulletin — 6 pages)

J28-6253 IBM 709/7090 Programming 25
Systems: FORTRAN II Operating Under the
7090/7094 Basic Monitor (IBSYS)

This bulletin contains information concerning the operation of the FORTRAN II Processor under the 7090/7094 Basic Monitor (IBSYS). The operation of the FORTRAN II Processor under the Basic Monitor is similar to the operation of the FORTRAN Monitor System in the independent version of 32K 709/7090 FORTRAN. Compilations, FORTRAN Assembly Program (FAP) assemblies, and binary object programs from previous compilations or assemblies may be executed as parts of a single job. FORTRAN II jobs may also be stacked as input along with jobs for other processors operating under the Basic Monitor. (Bulletin — 10 pages)

J28-6258 IBM 709/7090 Programming 23
Systems Commercial Translator Processor
Supplement for 1301 Sequential Operations

This bulletin describes the operation of Commercial Translator under the 7090/7094 Basic Monitor (IBSYS) using IBM 1301 Disk Storage. It is intended as a supplement to the reference manual, *IBM 709/7090 Commercial Translator Processor*, Form J28-6169. (Bulletin — 4 pages)

J28-6260 IBM 7090/7094 Programming 27
Systems: IBJOB Processor Part 5:
COBOL Compiler (IBCBC)

This is the fifth of several bulletins that make up the IBJOB Processor manual. The bulletin contains complete descriptions of those elements of the COBOL language that are in the initial version of the 7090/7094 COBOL Compiler, IBCBC, which is a component of the IBJOB Processor. (Bulletin — 114 pages)

J28-6269 IBM 7090/7094 Utilities for 7320 32
Capability

This bulletin describes the utility routines which support the IBM 7320 Drum Storage in sufficient detail to permit planning for their use. These routines are the same utility routines that are provided for the IBM 7090/7094 Data Processing Systems with IBM 1301 Disk Storage and described in the bulletin, *IBM 7090/7094 Utility Routines for the IBM 1301 Disk Storage*, Form J28-6223. (Bulletin — 2 pages)

J28-6270 IBM 7090/7094 Basic Monitor 36
(IBSYS) and 709/7090 Input/Output Control
System for 7320 Capability

This bulletin contains the descriptive information that is necessary for planning the use of IBM 7320 Drum Storage with the 7090/7094 Basic Monitor (IBSYS) and the 709/7090 Input/Output Control System. (Bulletin — 2 pages)

J28-6278 IBM 7090/7094 Input/Output 30
Control System for 7340 Capability

This bulletin contains information necessary for planning the use of the 7340 Hypertape capability that has been added to the 7090/7094 Input/Output Control System. This capability permits programs running under the IBSYS Operating System to use IBM 7340 Hypertape Drives as input/output devices. Extensions of existing calling sequences permit full use of the additional non-data operations available with Hypertape, where they are applicable. (Bulletin — 8 pages)

J28-6279 IBM 7090/7094 Operating Systems Basic Monitor (IBSYS) for 7340 Capability 36

This bulletin describes the extensions to the Basic Monitor that permit the use of IBM 7340 Hypertape Drives with the IBSYS Operating System. This bulletin is a supplement to the manual, *IBM 7090/7094 Operating Systems Basic Monitor (IBSYS)*, C28-6248. (Bulletin — 8 pages)

J28-6283 IBM 7090/7094 Programming Systems: IBJOB Processor Part 6: Library (IBLIB) 27

This is the sixth of several bulletins that make up the IBJOB Processor manual. The Library section of the 7090/7094 IBJOB Processor that is pertinent to FORTRAN is described in this bulletin. The Library consists of a collection of subroutines that are located on a specified system library unit. The required subroutines are made available by the Loader to the program at loading time. Subroutines may be added to or deleted from the subroutine library. The following types of subroutines are available in the FORTRAN library section of the 7090/7094 IBJOB Processor: mathematical routines, input/output routines, and system routines. Library subroutines pertaining to COBOL will be available at a later date. (Bulletin — 22 pages)

J28-6302 IBM 7090/7094 Input/Output Control System Supplement for 1301 Random Capability 30

This bulletin describes the added sections of 7090/7094 iocs which take advantage of the random access capabilities of 1301 Disk Storage. The user of random iocs may want to use sequential iocs for other purposes; it is therefore possible to combine random iocs with any one of the four configurations of sequential iocs when choosing the iocs routines to be loaded with the object program. (Bulletin — 12 pages)

J28-6305 IBM 7090/7094 Programming Systems: IBJOB Overlay Feature of IBLDR 27

This bulletin supplies the programmer with complete information for the use of the Overlay feature of the IBJOB Loader, IBLDR. The Overlay feature of IBLDR answers the need for an effective way to run programs that exceed a single core storage load. This is accomplished by having in core storage at any one time only those segments of a program that are needed at that time, and "overlying" those segments with new segments as required.

The material contained in this bulletin is intended for the experienced programmer. (Bulletin — 8 pages)

J28-8023 Machine-Optimal Approximations 48

This bulletin gives an example of the proper adaptation of a well known mathematical approximation for solution on a binary machine. The square root function is used for illustration. (Bulletin — 4 pages)

J28-8064 1301 Input/Output Control System for 1410 and 7000 Series Data Processing Systems 30

This bulletin describes the input/output control system for IBM 1410, 7070, 7074, 7080, and 7090 Data processing Systems having IBM 1301 Disk Storage. Use of the 1301 Input/Output Control System will greatly reduce the programming time and effort for programs that process disk storage data. Topics discussed in this bulletin include: data considerations, types of disk storage applications, use of the 1301 Input/Output Control System, and the manner in which the system will be made available for each individual data processing system. (Bulletin — 60 pages)

J28-8096 IBM 7750 Data Control Package 48

The information presented in this bulletin describes the Data Control Package for the IBM 7750 Programmed Transmission Control with IBM 1410 or 7000 Series Data Processing Systems. The Data Control Package contains a set of programs that have been written for users of the 7750. These programs are assembled on the IBM 1401 using the IBM 7750 Assembly Program. The output of the Assembly Program is loaded into the 7750 through the IBM 1410 or 7000 Series Data Processing Systems. (Bulletin — 32 pages)

R22-9761 COBOL Programming Education Guide Educ

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 COBOL Programming Practice Problems (R22-9762) and Overhead Projector Foil (V25-6171) to teach a 3-1/2 day COBOL Programming Course and/or an additional 1-1/2 day 1410 or 7070 COBOL Programming Course. (267 pages)

R22-9762 COBOL Programming Practice Problems Educ

Order Through District Education Centers

The reusable Practice Problem Booklet is given to each student attending the COBOL Programming Course. The booklet contains 14 problems covering the topics presented in the COBOL Programming Education Guide (R22-9761). (9 pages)

- R22-9780 7090 Education Guide** Educ
Order Through District Education Centers
 This is an instructor's guide consisting of an outline and teaching notes for a 5-week IBM 7090 Programming course. The class covers all the basic details of coding machine instructions and pseudo-operations. SOS is introduced at an early stage. Discussions of 9PAC and Sort 9 are included. Time is allotted for instruction in Commercial Translator or FORTRAN. (232 pages)
- R23-9527 FORTRAN Programming Education Guide** Educ
Order Through District Education Centers
 This is an instructor's guide for a FORTRAN Programming Class. It includes a 1-1/2 day 1401 FORTRAN guide, which is used with FORTRAN Practice Problems (R25-1677). (53 pages)
- R25-1675 Utility Programs and Monitors** Educ
Order Through District Education Centers
 This is an instructor's guide covering the following topics: utility programs, testing systems, operating systems, general purpose monitors, and an evaluation of monitors. (32 pages)
- R25-1677 FORTRAN Programming Practice Problems** Educ
Order Through District Education Centers
 This reusable Practice Problem Booklet is given to each student attending the FORTRAN Programming Course. The booklet contains 18 problems covering the topics presented in the FORTRAN Programming Course Education Guide (R23-9527). (8 pages)
- X22-1245 7090/7094 Physical Planning Templates** 80
 These acetate sheets contain equipment templates (1/4"=1' scale) for use in planning a machine room layout. The following components are shown: 7302, 7606, 7100, 7607, 7151, 7608, 7617, 7618, 711, 716, 721, and 729. (2 sheets)
- X22-6126 711 Card Reader Diagram Pad** 80
 Each sheet contains a control panel diagram showing all of the standard hubs for the control panel wiring of the 711 Card Reader. (25 sheets per pad - 8-1/2 x 11)
- X22-6127 716 Printer Diagram Pad** 80
 Each sheet contains a control panel diagram showing all of the standard hubs for the control panel wiring of the 716 Printer. (25 sheets per pad - 17 x 11)
- X22-6128 721 Card Punch Diagram Pad** 80
 Each sheet contains a control panel diagram showing all of the standard hubs for the control panel wiring of the 721 Card Punch. (25 sheets per pad - 8-1/2 x 11)
- X22-6665 1301 Physical Planning Templates** 80
 This item contains equipment templates on acetate sheets (1/4" = 1' scale) for planning machine room layouts. The units are: 1301 Disk Storage, 7904, 7907, 7908, 7909 Data Channels, and 7631 File Control. (1 sheet)
- X22-6666 Input/Output Components Physical Planning Templates** 80
 This item contains equipment templates on acetate sheets (1/4" = 1' scale) for planning machine room layouts. The units are the 7904, 7907, 7908, 7909 Data Channels; the 1414 Models 1-7 Input/Output Synchronizers; the 729 Models II and IV Magnetic Tape Units; the 1009 Data Transmission Unit; the 1011 Paper Tape Reader; and the 1014 Remote Inquiry Unit. (1 sheet)
- X22-6669 Input/Output Hypertape Physical Planning Template** 80
 This acetate sheet contains equipment templates (1/4" = 1' scale) for use in planning machine room layouts. The following components are shown: 7340, 7640, 7907, 7908, 7909, and 7904. (1 sheet)
- X22-6682 7090 Reference Card** 80
 This reference card lists the 7090 instructions in alphabetic and numeric sequence. In addition, the 7607 and 7909 Data Channel commands as well as the 1301 Disk Storage and 7340 Hypertape orders are listed. (Card)
- X22-6691 7094 Reference Card** 80
 This reference card lists all 7094 instructions in both alphabetic and numeric sequence. The card also includes data channel commands, and disk storage and Hypertape orders. (Card)
- X22-6785 Magnetic Tape Record Characteristics** 80
 This card provides statistics for use in estimating tape processing times and record capacity per full reel. (Card)

X24-6518 1011 Paper Tape Reader Control Panel Diagram 80

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 sheets per pad – 8-1/2 x 11)

X24-6531 1301 Disk Storage Layout 80

This form facilitates planning the assignment of a maximum of 2,500 characters in disk storage. (25 sheets per pad – 16-1/2 x 11)

X28-0784 709 SHARE Symbolic Coding Form 80

This form is used when programming in the FORTRAN Assembly Program language or the Macro Assembly Program language. Columns and lines are ruled and numbered to facilitate both programming and card punching (50 sheets per pad – 11 x 8-1/2)

X28-1213 SHARE System for the IBM 709 21

This binder with index tabs is provided to hold the distribution of loose-leaf pages that constitute the sos Reference Manual. Index tabs corresponding to the various sections of the manual are included. (Binder)

X28-1305 709/7090 Commercial Translator Procedure Description Coding Form 80

This form is used in coding the Procedure Description of a Commercial Translator program for IBM 709 or 7090 Data Processing Systems. (25 sheets per pad – 11 x 8-1/2)

X28-1306 709/7090 Commercial Translator Data Description Coding Form 80

This form is used in coding the Data Description of a Commercial Translator program for IBM 709 or 7090 Data Processing Systems. (25 sheets per pad – 11 x 8-1/2)

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 sheets per pad – 11 x 8-1/2)

X28-1520 COBOL Reference Card 80

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 COBOL	Arithmetic Operators
Arithmetic Expressions Sequence of Symbols	– Relational Operators
Conditional Expressions Sequence of Symbols	– Data-Items Pictorial Characters

X28-1522 709/7090 Commercial Translator Environment Description Coding Form 80

This form is used in coding the Environment Descriptions of a Commercial Translator program for IBM 709 or 7090 Data Processing Systems. It is used in conjunction with Forms X28-1305 and X28-1306, which are used for coding the Procedure and Data Description, respectively. (25 sheets per pad – 11 x 8-1/2)

X28-1625 7750 Assembly Program Sheet 80

This coding form is used to write programs to be assembled by the 7750 Assembly Program, which is run on the IBM 1401. (25 sheets per pad – 8-1/2 x 11)

X28-6140 SHARE 7090 9PAC IOCS Control Cards Coding Form 80

This is one of nine coding forms used with the SHARE 7090 9PAC System. The form numbers for the entire set are X28-6140 through X28-6148. (25 sheets per pad – 11 x 8-1/2)

X28-6141 SHARE 7090 File Processor: Dictionary Definition Coding Form 80

This is one of nine coding forms used with the SHARE 7090 9PAC System. (25 sheets per pad – 11 x 8-1/2)

X28-6142 SHARE 7090 File Processor: Vertical Change Definition Coding Form 80

This is one of the nine coding forms used with the SHARE 7090 9PAC System. (25 sheets per pad – 11 x 8-1/2)

X28-6143 SHARE 7090 File Processor: Update Change Definition Coding Form 80

This is one of the nine coding forms used with the SHARE 9PAC System. (25 sheets per pad – 11 x 8-1/2)

X28-6144 SHARE 7090 File Processor: Horizontal Change Definition Coding Form 80

This is one of the nine coding forms used with the SHARE 9PAC System. (25 sheets per pad – 11 x 8-1/2)

X28-6145 SHARE 7090 File Processor: Change Report Field Request Coding Form 80

This is one of the nine coding forms used with the SHARE 9PAC System. (25 sheets per pad – 11 x 8-1/2)

X28-6146 SHARE 7090 Reports Generator: Report Definition Format Coding Form 80

This is one of the nine coding forms used with the SHARE 9PAC System. (25 sheets per pad – 11 x 8-1/2)

X28-6147 SHARE 7090 Reports Generator: Field Parameters Coding Form 80

This is one of the nine coding forms used with the SHARE 7090 9PAC System. (25 sheets per pad – 11 x 8-1/2)

X28-6148 SHARE 7090 Reports Generator: Dictionary Definition Coding Forms 80

This is one of nine coding forms used with the SHARE 7090 9PAC System (25 sheets per pad – 11 x 8-1/2)

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 sheets per pad – 11 x 8-1/2)

220-8045 Report to Conference on Data Systems Languages 24

Including Initial Specifications for a Common Business Oriented Language (COBOL) for Programming Electronic Digital Computers.

The COBOL language was developed by the Conference on Data Systems Language (CODASYL). The purpose and nature of the COBOL language are indicated by the following excerpt from the foreword to the manual: "The Conference on Data Systems Language is a voluntary cooperative effort of users of data processing systems (both in government and industry) and manufacturers of data processing systems. The objective of this effort is to develop a common language, basically in English, which is oriented toward business data processing problems, open-ended and independent of any make or model of data processing equipment." The present manual sets forth the initial specifications for the COBOL language. This manual is published by the U.S. Government Printing Office

and is made available through IBM as a customer service. (172 pages)

328-1219 SHARE Operating Systems Reference Manual: Distribution Number 1 36

The sos System for the IBM 709 is a joint effort of SHARE and IBM Programming Systems. This material is the first in a series of distributions of material for insertions in the loose-leaf binder, the *SOS Reference Manual – SHARE System for the IBM 709*, Form X28-1213. Further distributions consisting of additional insertions and/or replacement pages are published: namely, Distribution No. 2, Form 328-1262; Distribution No. 3, Form 328-1377; Distribution No. 4, Form 328-1395; Distribution No. 5, 328-1406; and Distribution No. 6, Form 328-1624. When assembled, the material included in these distributions will constitute the reference manual for sos.

Distribution No. 1 includes the reference material for the following sections of the manual: Section 04 – Lister, and Section 05 – Modify and Load. (Looseleaf – 18 sheets)

328-1262 SHARE Operating Systems Reference Manual: Distribution Number 2 36

This second distribution of sos pages consists of prefatory material, which includes an updated Table of Contents and a list of current pages, two sheets to replace corresponding sheets of Distribution No. 1 (Form 328-1219), Section 01 – Introduction, Section 08 – the IB Monitor, and four appendices. (Looseleaf – 38 sheets)

328-1377 SHARE Operating Systems Reference Manual: Distribution Number 3 36

This third distribution of sos pages includes an updated Table of Contents, a list of current pages, Section 06 – the Debugging System, and Section B – the Index. (Looseleaf – 51 sheets)

328-1395 SHARE Operating Systems Reference Manual: Distribution Number 4 36

This is the fourth distribution of sos pages. Included in this distribution are part of Section 07 – the Input/Output System, Section 09 – the SHARE Monitor, updated pages for the Table of Contents, a list of current pages, the Index, and replacements for several pages previously published. (Looseleaf – 71 sheets)

328-1406 SHARE Operating Systems Reference 36
Manual: Distribution Number 5

This distribution of sos material contains both new material and pages to replace some previously published. The new material consists of Section 02 – the SCAT Language, Section 03 – the Compiler, two chapters of Section 07 – the Input/Output System, Section 11 – the Glossary; and two appendices. (Looseleaf – 177 sheets)

328-1624 SHARE Operating Systems Reference 36
Manual: Distribution Number 6

This distribution completes the SHARE 709 System Reference Manual. Both new material and pages to replace some pages previously published are included. The new material consists of Section 10 – Programming and Operating Notes, and three new appendices: Appendix 4 – Notes on the sos Library Tape; Appendix 5 – The IB System Tape; and Appendix 6 – The Printer Board. (Looseleaf – 78 sheets)

