

The IBM logo consists of the letters "IBM" in a bold, sans-serif font, set against a solid black rectangular background.

## Systems Reference Library

### IBM 1440 and 1240 Bibliography

This bibliography describes reference literature available for installing, programming, and operating the IBM 1440 Data Processing System and the IBM 1240 Bank Data Processing System. The Tele-processing Bibliography, A24-3089, lists the associated data-communication literature.

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

*Part 2* is a cross-index of publications by machine type number.

*Part 3* contains the abstracts of the publications in form-number sequence.

Copies of most form-numbered publications may be ordered through the local IBM Sales Representative.

## Systems Reference Library

### Organization and Use

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. A separate SRL covers publications for IBM teleprocessing 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 that 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 and 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.

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 heading *Supplementary Information*.

### SRL Publications

The *System Summary*, listed under subject code 00, contains a brief description of the specifications and functional characteristics of system configurations, components, special features, and programming systems.

#### Major Revision (October 1964)

This edition, A24-3005-4, obsoletes A24-3005-3 and all prior editions. Reference literature for the IBM 1440 and 1240 systems is included in this publication.

Copies of this and other IBM publications can be obtained through IBM Branch Offices.

Address comments concerning the content of this publication to IBM Product Publications, Endicott, New York 13764.

Detailed descriptions, together with programming and operating data, are found under subsequent subject codes. Also listed under subject code 00 is the *Configurator*, a chart diagramming the components, features, and connections that make up the various configurations of the system.

### Technical Newsletters

To keep SRL 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 Newsletters

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 revised 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 *Catalogs of Programs for IBM Data Processing Systems*.

**PART 1**  
**LIBRARY SUBJECT CODE LISTING**

This part of the bibliography lists all current publications pertaining to the IBM 1440 Data Processing System and the IBM 1240 Bank Data Processing System. 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. Most 1440 publications are also applicable to the 1240. The compatibility between the 1440 and the 1240 is explained in the IBM 1240 Systems Summary, A24-3138. See Part 3 of the bibliography for abstracts of the publications listed.

*Subject  
Code*

*Form  
Number*

**1440 Systems Reference Library  
Including IBM 1240**

**00**

Bibliography .....	A24-3005
1440 Systems Summary .....	A24-3006
1440 Configurator .....	A24-3017
1240 Systems Summary .....	A24-3138
Planning for an IBM 1440 .....	F20-0340

**Machine System**

**01 Basic Reference Material**

Tape Input/Output Instructions .....	A24-3069
Disk Storage Input/Output Instructions .....	A24-3070
1440 System Operation Reference Manual .....	A24-3116
Miscellaneous Input/Output Instructions .....	A24-3117
I/O Instructions for 7740 Communication Control System (1401, 1440, 1460) .....	A24-3188
1440 Data Processing System Operator's Guide .....	A24-3204
1240 Bank Data Processing System .....	A24-3291

**03 Input/Output**

1231, 1232 Optical Mark Page Readers .....	A21-9012
1412 Magnetic Character Reader Model 1 .....	A24-1421
1412 Magnetic Character Reader for IBM 1440 .....	A24-3004
1447 Console .....	A24-3031
1403, 1443 Printers: Form Design Considerations .....	A24-3041
1403 Printer .....	A24-3073
1442 Card Read-Punch .....	A24-3119
1443 Printer Models 1, 2, and N1; 1445 Printer Models 1 and N1 .....	A24-3120
1444 Card Punch Model 1 .....	A24-3152

<i>Subject Code</i>	<i>Form Number</i>
1403 Printer Model 3 Preferred Character Set Feature . . . . .	A24-3205
1285 Optical Reader . . . . .	A24-3256
1011 Paper Tape Reader . . . . .	A26-5754
1012 Tape Punch . . . . .	A26-5776
<b>05      <b>Magnetic Tape Units and Controls</b></b>	
7335 Magnetic Tape Unit Models 1 and 2 . . . . .	A22-6789
<b>07      <b>Disk Storage Units and Controls</b></b>	
1301 and 1302 Disk Storage Sequential Data Organization . . . . .	A22-6784
1311 Disk Storage Drive . . . . .	A24-3086
1301 Disk Storage Models 11, 12, 21, 22 . . . . .	A24-3157
Disk Pack Handling and Operating Procedures . . . . .	A26-5756
Disk Storage Concepts . . . . .	F20-8161
<b>13      <b>Special and Custom Features</b></b>	
Special Features, IBM 1440 Data Processing System . . . . .	A24-3118
Custom Features for IBM 1401, 1440, and 1460	
Data Processing Systems . . . . .	A24-3315
1414 Input/Output Synchronizer: 1401, 1440, and 1460,	
RPQ 811225 (1401), RPQ E25693 1440, 1460) . . . . .	L24-3294
<b>15      <b>Physical Planning Specifications</b></b>	
1231, 1232 Optical Mark Page Readers Installation	
Manual: Physical Planning . . . . .	A21-9013
1440 Data Processing System Installation Manual:	
Physical Planning . . . . .	A24-3007
1240 Bank Data Processing System Installation Manual:	
Physical Planning . . . . .	A24-3150
1445 Printer: Physical Planning . . . . .	A24-3211
1285 Optical Reader: Physical Planning . . . . .	A24-3287
IBM 1403 with 1440 Data Processing System:	
Physical Planning . . . . .	A24-3301
Physical Planning . . . . .	F24-1052
<b>19      <b>Original Equipment Manufacturers' Information</b></b>	
1442 Card Read-Punch Models 1 and 2,	
1442 Card Reader Model 3 . . . . .	A21-9002
1403 Printer . . . . .	A24-1431
1443 Printer . . . . .	A24-3122
1440 Data Processing System . . . . .	A24-3184
1311 Disk Storage Drive . . . . .	A26-5713
 <b>Programming Systems</b>	
<b>20</b>	
7740 Audio Response Unit Model 1—Programming . . . . .	A22-6806
Catalog of Programs for 1401, 1420, 1440, or 1460	
Data Processing Systems . . . . .	C20-1601

<i>Subject Code</i>	<i>Form Number</i>
<b>22</b>	<b>Autocoder</b>
	Autocoder for IBM 1440: Specifications ..... C24-3000
	Basic Autocoder for IBM 1440: Specifications ..... C24-3023
	Autocoder for IBM 1440: Operating Procedures ..... C24-3110
	Basic Autocoder for IBM 1440: Operating Procedures ..... C24-3113
	Basic Autocoder 2K for IBM 1440: Specifications ..... C24-3153
	Autocoder (on Disk) Language Specifications:
	1401, 1440, and 1460 ..... C24-3258
	Autocoder (on Disk) Program Specifications and
	Operating Procedures: 1401, 1440, and 1460 ..... C24-3259
	Basic Autocoder 2K for 1440: Operating Procedures ..... C24-3286
<b>24</b>	<b>Cobol</b>
	Cobol (on Disk) Specifications: 1401, 1440, and 1460 ..... C24-3235
	Cobol (on Disk) Operating Procedures: 1401, 1440, and
	1460 ..... C24-3242
	Cobol General Information Manual ..... F28-8053
<b>25</b>	<b>Fortran</b>
	Fortran IV for IBM 1401, 1440, and 1460: Specifications ..... C24-3155
	Fortran ..... F28-8074
<b>28</b>	<b>Report Program Generator</b>
	Sterling Report Program Generator for IBM 1440:
	Specifications and Operating Procedures ..... C15-8002
	Sterling Basic Report Program Generator for IBM 1440:
	Specifications and Operating Procedures ..... C15-8003
	Basic Report Program Generator for IBM 1440:
	Specifications ..... C24-3013
	Report Program Generator for IBM 1440:
	Operating Procedures ..... C24-3131
	2K Report Program Generator for 1440: Specifications ..... C24-3208
	Report Program Generator (on Disk)
	Specifications: 1401, 1440, and 1460 ..... C24-3261
	2K Report Program Generator Operating Procedures: 1440 ... C24-3265
	Report Program Generator Operating Procedures: IBM 1440 ... C24-3300
<b>30</b>	<b>Input/Output Control System</b>
	Input/Output Control System for IBM 1440: Specifications .... C24-3011
	1440-1448 Input/Output Control System: Specifications ..... C24-3024
	Communications IOCS Specifications: Direct Data Channel
	for IBM 1401, 1440, 1460 ..... C24-3025
	Communications IOCS for IBM 1440: Specifications ..... C24-3051
	Input/Output Control System for IBM 1440:
	Operating Procedures ..... C24-3066
	Communications IOCS for IBM 1440: Operating Procedures ... C24-3111
	Input/Output Control Program Specifications:
	1401, 1440, and 1460 with 1285 Optical Reader ..... C24-3237
	Communications IOCS Specifications: 1401, 1440, and 1460
	with 1026 and Direct Data Channel ..... C24-3241
	Input/Output Control System Operating Procedures: 1440 ... C24-3299

<i>Subject Code</i>	<i>Form Number</i>
<b>32</b>	<b>Utility Programs</b>
	Disk-Utility Programs Specifications: IBM 1401, 1440, 1460 (with IBM 1301 and 1311) ..... C24-1484
	Disk-Utility Programs Operating Procedures: IBM 1440-1311, IBM 1440-1301 ..... C24-3121
	Tape-Utility Programs for IBM 1440: Specifications ..... C24-3158
	Data Communications Utility Programs for 1009 Specifications and Operating Procedures: IBM 1401, 1440, and 1460 ..... C24-3191
<b>33</b>	<b>Sort—Merge</b>
	Merge 5 for IBM 1440: Specifications ..... C24-3040
	Bank Document Sort Program for IBM 1240 ..... C24-3145
	Sort 5 Object-Program Timing Estimates ..... C24-3176
	Merge 5 for IBM 1440: Operating Procedures ..... C24-3275
	Sort Programs for IBM 1440-1311 Specifications and Operating Procedures; Generative Program: Sort 5; Object Programs: Sorts 51, 52, 53, and 54 ..... C24-3314
<b>34</b>	<b>Disk Storage File Organization</b>
	Disk-File Organization Routines for IBM 1440/1311: Operating Procedures ..... C24-3134
	Disk-File Organization Routines Specifications 1401, 1440, 1460 (1311 and 1301) ..... C24-3185
<b>36</b>	<b>Supervisors, Monitors</b>
	1440-1070 Process Communication Monitor Specifications ..... C26-5859
<b>37</b>	<b>Automatic Testing Programs</b>
	Autotest Specifications and Operating Procedures for IBM 1440 ..... C24-3058
<b>48</b>	<b>Miscellaneous Programs</b>
	Sterling Subroutines for 1440 Autocoder ..... C15-8000
	Sterling Macro-instructions for IBM 1440: Specifications and Operating Procedures ..... C15-8001
	Standard Labeling Procedures for the IBM 1311 Disk Storage Drive ..... C24-3012
	Standard Disk Labels as used by IBM 1440 and 1401-1311 Programs ..... C24-3015

## Part 1-A Installation Supplies

Installation supplies are aids for planning and using the 1440 and 1240 systems. These materials do not have the subject code printed on them. The subject code (80) is used only for filing in the library. The number of items to be placed in the Systems Reference Library is determined by the user. These installation supplies are arranged in this section as they relate to the subject code listing in *Part 1*. See *Part 3* of the Bibliography for abstracts of the items listed.

*Subject  
Code*

*Form  
Number*

**80**

### *Basic Machine Reference Material (01)*

1240, 1401, 1410, 1440, and 1460 Storage Layout ..... X24-6438  
1401, 1440, and 1460 Address Translation Card ..... X28-0314

### *Input/Output (03)*

1230, 1231, 1232 Spacing Chart (Test Scoring)  
5 Words per Inch ..... X20-8040  
1230, 1231, 1232 Spacing Chart (Test Scoring)  
4 Words per Inch ..... X20-8041  
1230, 1231, 1232 Spacing Chart (Test Scoring)  
3 Words per Inch ..... X20-8042  
1230, 1231, 1232 Spacing Chart (Non Test Scoring)  
5 Words per Inch ..... X20-8043  
1230, 1231, 1232 Spacing Chart (Non Test Scoring)  
4 Words per Inch ..... X20-8044  
1230, 1231, 1232 Spacing Chart (Non Test Scoring)  
3 Words per Inch ..... X20-8045  
Reference Card 1230, 1231, 1232: Document  
Marking Instructions ..... X21-9021  
1443 Printer Spacing Chart (8 Lines per Inch) ..... X24-1527  
407, 408, 409, 1403, 1404, 1443, and 2201 Printer  
Spacing Chart (6 Lines per Inch) ..... X24-6436

### *Disk Storage Units and Controls (07)*

1301 Models 11, 12, 21, 22: Disk Storage Layout ..... X24-1711

### *Physical Planning (15)*

1440 Physical Planning Template ..... X24-3083

### *General Programming Material (20)*

Installation Planning Schedule ..... X20-8010  
Installation and Scheduling Control Form ..... X20-8011  
AUTOCHART Flowchart Work Sheet ..... X20-8021  
1440 Reference Card ..... X24-3094

*Subject  
Code*

*Form  
Number*

1440 Timing Layout Chart .....	X24-3097
1440 Timing Reference Card .....	X24-3098
1440 and 1460 Console Status Sheet .....	X24-3100
1440 Operating Instruction Sheet .....	X24-3101
1240, 1401, 1420, 1440, and 1460 Program Chart .....	X24-6437

*Autocoder (22)*

1401, 1410, and 1440 Autocoder Coding Sheet .....	X24-1350
1420, 1440 Basic Autocoder Coding Sheet .....	X24-3099
1401, 1410, and 1440 Library Coding Form .....	X24-6568

*Report Program Generator (28)*

1440 Report Program Generator Input Specifications .....	X24-6590
1440 Report Program Generator Data Specifications .....	X24-6591
1440 Report Program Generator Calculation Specifications .....	X24-6592
1440 Report Program Generator Format Specifications .....	X24-6593

*Input/Output Control System (30)*

IBM 1440 IOCS: DIOCS Entries Autocoder Coding Sheet ..	X24-3302
IBM 1440 IOCS: DIF Entries, Reader-Punch-Printer — Autocoder Coding Sheet .....	X24-3303
IBM 1440 IOCS: DIF Entries, Disk — Autocoder Coding Sheet .....	X24-3304
IBM 1440 IOCS: DIF Entries, Tape — Autocoder Coding Sheet .....	X24-3305



**Part 1-B  
Education Materials**

This section lists publications and materials that are used in educational programs for the IBM 1440 and 1240. See abstract for description and availability.

<i>Subject Code</i>	<i>Form Number</i>
<b>90</b>	
Report Program Generator for the IBM 1440 Data Processing System (Student Text) .....	C24-3063
Programming the IBM 1440 Data Processing System (Student Text) .....	C26-5607
1440 Data Processing System—From Control Panel to Stored Program .....	F20-0255
1440 Advanced Training Education Guide: Volume 1 .....	R20-0001
1440 Advanced Training Education Guide: Conversion .....	R20-0002
1440 Advanced Training Education Guide: Basic Report Program Generator .....	R20-0003
1440 Advanced Training Education Guide: Review of IBM 1440 .....	R20-0004
1440 Advanced Training Education Guide: Disk-Pack Label Procedures .....	R20-0021
1440 System Planning Course Description .....	R20-9015
1440 Report Program Generator Course Description .....	R20-9016
1440 Practical Training Course Description .....	R20-9035
Course Description, 1440 DPS Executive Class .....	R20-9039
Course Description, 1440 DPS Operator Training .....	R20-9041
Course Description, DPS Basic Programming .....	R20-9047
1440 Advanced Training Course Description Booklet .....	R20-9058
1440 Training Program Description and Schedule Card .....	R25-1629
1440 Executive Seminar Education Guide .....	R25-1665
1440 Basic Programming Education Guide .....	R27-5677

**Part 1-C**  
**Supplementary Information**

*Subject  
Code*

*Form  
Number*

**99**

Bibliography of Data Processing Techniques ..... F20-8172

## Part 2 Machine Index

Publications describing the various machine components are listed by machine number. The machine index is useful for quickly finding reference material about a specific machine unit. The *1440 and 1240 Systems Summaries*, which contain general information about the machine components, are not listed in this index. See the *1440 Configurator* for the number and type of machine components.

<i>Machine Number</i>		<i>Subject Code</i>	<i>Form Number</i>
1009	Data Transmission Unit .....	01	A24-3116
		01	A24-3117
		15	A24-3007
1011	Paper Tape Reader .....	01	A24-3069
		01	A24-3116
		03	A26-5754
		15	A24-3007
1012	Tape Punch .....	01	A24-3069
		01	A24-3116
		03	A26-5776
		15	A24-3007
1231	Optical Mark Page Reader .....	01	A24-3116
		03	A21-9012
		15	A21-9013
1241	Bank Processing Unit .....	01	A24-3291
		15	A24-3150
1301	Disk Storage Models 11, 12, 21, 22 .....	01	A24-3116
		07	A24-3157
		07	F20-8161
		15	A24-3007
1311	Disk Storage Drive .....	01	A24-3070
		01	A24-3116
		07	A24-3086
		07	A26-5756
		07	F20-8161
		15	A24-3007
		19	A26-5713
1403	Printer .....	01	A24-3116
		03	A24-3073
		03	A24-3205
		15	A24-3301
		19	A24-1431

<i>Machine Number</i>		<i>Subject Code</i>	<i>Form Number</i>
1412	Magnetic Character Reader .....	01	A24-3116
		01	A24-3117
		03	A24-3004
		03	A24-1421
		15	A24-3007
1441	Processing Unit .....	01	A24-3116
		15	A24-3007
		19	A24-3184
1442	Card Read-Punch .....	01	A24-3116
		01	A24-3117
		03	A24-3119
		15	A24-3007
		19	A21-9002
1442	Card Reader Model 4 .....	01	A24-3116
		01	A24-3117
		03	A24-3151
		15	A24-3007
1443	Printer .....	01	A24-3116
		01	A24-3117
		03	A24-3120
		03	A24-3041
		15	A24-3007
		19	A24-3122
1444	Card Punch .....	01	A24-3116
		01	A24-3117
		03	A24-3152
		15	A24-3007
1445	Printer .....	01	A24-3116
		03	A24-3120
		15	A24-3211
1447	Console .....	01	A24-3116
		03	A24-3031
		15	A24-3007
1448	Transmission Control Unit .....	01	A24-3116
		01	A24-3117
7335	Magnetic Tape Unit .....	01	A24-3069
		01	A24-3116
		05	A22-6789
		15	A24-3007

The abstracts for publications and materials presently available for the 1440 and 1240 systems are listed by form number. From the abstract the 1440 or 1240 user can determine whether a publication fills his particular need. The subject code appears at the right of the title.

**A21-9002      1442 Card Read-Punch Models      19**  
**1 and 2, 1442 Card Reader**  
**Model 3: Original Equipment**  
**Manufacturers' Information**

Contains information to assist those who wish to attach the IBM 1442, Models 1, 2, 3 to non-IBM equipment. It includes a general description of machine functions, a reference listing of publications and engineering documents, and information concerning machine interface not readily available in other publications. (Reference Manual - 16 pages)

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

Describes the functions, controls, principles of operation, data flow, and programming of the IBM 1231 and 1232 Optical Mark Page Readers. Included are the special features and a section on the IBM 534 Card Punch Model 3. (SRL - 28 pages)

**A21-9013      1231, 1232 Optical Mark Page      15**  
**Readers Installation Manual —**  
**Physical Planning**

Contains IBM 1231 and 1232 physical planning information including dimensions, weights, cable locations, and available lengths, service clearances, and other physical and environmental requirements. (SRL - 4 pages)

**A22-6784      IBM 1301 and 1302 Disk Storage      07**  
**Sequential Data Organization**

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 most users to install and operate disk storage efficiently, with minimum detailed study of the

data. A common set of programs and techniques can be used for all 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. (SRL - 27 pages)

**A22-6789      7335 Magnetic Tape Unit      05**  
**Models 1 and 2**

Contains general information and describes the capabilities of the 7335 Models 1 and 2. Included are operational characteristics, physical description, tape operations, keys and lights, and publications. (SRL - 4 pages)

**A22-6806      IBM 7770 Audio Response Unit,      20**  
**Model 1 — Programming**

Provides programming information for the 1401, 1440, or 1460 systems configuration, which includes an IBM 7770 Audio Response Unit Model 1. The information deals primarily with considerations that the user should make when writing his program. These considerations are inquiry input, evaluation of input, information retrieval, and message assembly and output. (SRL - 6 pages)

**A24-1421      1412 Magnetic Character Reader      03**  
**Model 1**

Describes the features and functions of the IBM 1412 Magnetic Character Reader Model 1. Explains in detail its operating principles, including document feeding, reading, and distribution, as well as control of both on-line and off-line operations. Sections on operating procedures, 1401-1412 stored program instructions, and programming notes are included.

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. (Reference Manual - 56 pages)



**A24-3073 1403 Printer 03**

Describes the various models of the 1403 and presents the functional and operating characteristics of the printer. Included are the various special features and timing information and paper movement. (SRL - 24 pages)

**A24-3086 1311 Disk Storage Drive 07**

Presents the functional and operating characteristics of the 1311. Timing considerations are included, as well as special features and their instructions. (SRL - 20 pages)

**A24-3116 1440 System Operation Reference Manual 01**

Reference text for the IBM 1440 Data Processing System. It provides a detailed explanation of all the instructions used by the system to manipulate data and to control the available input/output devices.

The reader should be familiar with the *IBM 1440 System Summary*, Form A24-3006.

This manual is divided into the following independent sections:

- Section A Introduction
- Section B System Operations
- Section C IBM 1447 Operations
- Section D IBM 1403, 1442, 1443, 1444, and 1445 Operations
- Section E Tape Input/Output Operations
- Section F Disk Input/Output Operations
- Section G Miscellaneous Input/Output Operations
- Section H Special Feature Operations
- Section I Appendix

(SRL - 275 pages)

**A24-3117 Miscellaneous Input/Output Instructions: IBM 1440 Data Processing System 01**

Describes the miscellaneous input/output instructions for units that can be attached to the IBM 1440 Data Processing System. Each unit is individually introduced with the instructions and timings. The units are:

- IBM 1009 Data Transmission Unit
- IBM 1412 Magnetic Character Reader
- IBM 1442 Card Read-Punch
- IBM 1442 Model 4 Card Reader

- IBM 1444 Card Punch
- IBM 1443 Printer
- IBM 1448 Transmission Control Unit

(SRL - 44 pages)

**A24-3118 Special Features, IBM 1440 Data Processing System 13**

The special features described in this publication are available for the IBM 1440 Data Processing System. These features offer additional flexibility in applications with special processing requirements. (SRL - 56 pages)

**A24-3119 1442 Card Read-Punch 03**

Describes the operation of the IBM 1442 Card Read-Punch Models 1 and 2 and the IBM 1442 Card Reader Models 3 and 4, with the applicable data processing systems. It presents the functional operating characteristics of the card read-punch, as well as the timing considerations related to the read and punch operations. The available special features are described, along with the instructions for each feature. (SRL - 20 pages)

**A24-3120 IBM Printer Models 1, 2, and N1 IBM 1445 Printer Models 1 and N1 03**

Describes the operation of the IBM 1443 and 1445 Printers with the IBM 1240, 1440, and System/360 Model 30 Data Processing Systems.

It also discusses timing information for the printer and the tape-controlled carriage as well as their functional and operating characteristics. The speed of the printer using various character sets is also described. (SRL - 14 pages)

**A24-3122 1443 Printer: Original Equipment Manufacturers' Information 19**

This manual contains information to assist those wishing to attach the 1443 to non-IBM equipment. It includes a general description of machine functions, a reference listing of publications and engineering documents, and information about machine interface not readily available in other publications. (Reference Manual - 16 pages)

**A24-3138 1240 Bank Data Processing System 00**  
**System Summary**

Contains brief descriptions of the system components and features, configurations, and special features. Also included is a brief description of how sorting is accomplished when using the Bank Document Sort Program for IBM 1240.

All components of the IBM 1240 system, except the IBM 1241 Bank Processing Unit, are similar to the components in the IBM 1440 system. (SRL - 24 pages)

**A24-3150 1240 Bank Data Processing System 15**  
**Installation Manual: Physical Planning**

Contains pertinent, detailed physical planning information concerning the IBM 1240 Bank Data Processing System. Included are dimensions, weights, cable locations and available lengths, service clearances, and other necessary physical information for each unit of the system. Electrical and environmental requirements for the entire system and, where necessary, for specific units of the system are also included. (SRL - 20 pages)

**A24-3152 1444 Card Punch Model 1 03**

Presents operating features of the 1444 Model 1 explaining the uses of the keys and lights and providing descriptions and timing information. (SRL - 8 pages)

**A24-3157 1301 Disk Storage 07**  
**Models 11, 12, 21, and 22**

This publication describes the operation of the 1301, explaining uses of the keys and lights, and includes timing information. (SRL - 12 pages)

**A24-3184 IBM 1440 Original Equipment 19**  
**Manufacturers' Information**

Contains information that will assist engineers who plan to attach non-IBM equipment to the IBM 1440 Data Processing System. It includes a general description of machine functions, a reference listing of directly related publications and engineering documents, a list of recommended tools and test equipment, cable part numbers and dimensions, and information concerning machine interface not readily available in other publications (Reference Manual - 36 pages)

**A24-3188 I/O Instructions for 01**  
**IBM 7740 Communication Control System**  
**IBM 1401 Data Processing System**  
**IBM 1440 Data Processing System**  
**IBM 1460 Data Processing System**

Describes the attachment of an IBM 7440 Communication Control System to an IBM 1401, 1440, or 1460 system. The instructions used by the processing systems to control the data transmission are described. (SRL - 4 pages)

**A24-3204 IBM 1440 Data Processing System 01**  
**Operator's Guide**

Describes the setup and operating procedures for each of the units of an IBM 1440 System, 1311, 1442, 1443, 1447, and 7335. The descriptions include stop and restart conditions and program load routines for card, disk, and tape. (SRL - 16 pages)

**A24-3205 IBM 1403 Printer Model 3 03**  
**Preferred Character Set Feature**

Describes the Preferred Character Set Feature for the IBM 1416 Interchangeable Train Cartridge on the IBM 1403 Printer Model 3. The minimum and maximum lines-per-minute speed that can be achieved with the different level-modes of printing are also included. (SRL - 4 pages)

**A24-3211 IBM 1445 Printer — 15**  
**Physical Planning**

Provides physical planning information for the IBM 1445 Printer when used with the IBM 1240, 1401, 1440, or 1460 systems. Included are physical characteristics, inter-unit cabling specifications, and electrical requirements.

This publication supplements the *IBM 1240 Bank Data Processing System, Installation Manual—Physical Planning*, Form A24-3150, and the *IBM 1440 Data Processing System Installation Manual - Physical Planning*, Form A24-3007. (SRL - 1 page)

**A24-3256 IBM 1285 Optical Reader 03**

Describes the functional and operating characteristics of the IBM 1285 Optical Reader. Also presented are descriptions of the instructions used to program operations on the 1285 and the input document requirements related to print quality, format, and kind of paper. (SRL - 15 pages)



**A24-3287 IBM 1285 Optical Reader — 15**  
**Physical Planning**

Provides physical planning information for the IBM 1285 Optical Reader when used with IBM 1401, 1440, and 1460 data processing systems. Included are physical specifications, cable, electrical, and environmental requirements. (SRL — 2 pages)

**A24-3291 System Operation Reference Manual 01**  
**IBM 1240 Bank Data Processing System**

Contains the complete instruction set for the IBM 1240. The operation code for each instruction is given in actual and mnemonic form, with examples of each, and the formula for calculating the execution time of each instruction is also included.

The instructions and applicable timings for the required and available input/output units are discussed, as are the instructions associated with the IBM 1241 MICR Reader and the various special features.

Also included is a description of the IBM 1241 MICR Reader functions, features, and controls, as well as an operations guide. (SRL — 162 pages)

**A24-3301 IBM 1403 Printer with 15**  
**IBM 1440 Data Processing System**  
**Physical Planning**

Provides physical planning information for the IBM 1403 Printer Models 2, 3, 5, and 6 and IBM 1446 Printer Control when used with the IBM 1440 Data Processing System. It supplements *IBM 1440 Data Processing System, Installation Manual — Physical Planning*, Form A24-3007. Included are physical specifications and cable, electrical, and environmental requirements. (SRL — 2 pages)

**A24-3315 Custom Features for IBM 1401, 13**  
**1440, and 1460 Data Processing Systems**

Contains brief descriptions of some of the custom features available for the IBM 1401, 1440, or 1460 Data Processing Systems. Availability of these features can be determined by requesting a price quotation from IBM.

**A26-5713 1311 Disk Storage Drive: 19**  
**Original Equipment Manufacturers' Information**

Provides data for the special needs of those who wish to attach the IBM 1311 Disk Storage Drive to their

equipment. It contains supplemental tie-in data not readily available in other IBM publications. Cables, cable connectors, and interface identification for each cable are given for Models 1, 2, 3, 4 and 5. (Reference Manual — 40 pages)

**A26-5754 1011 Paper Tape Reader 03**

Describes the operating features, components, control panel, and tape handling and loading procedures for the 1011. (SRL — 24 pages)

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

Presents suggested operating and handling procedures for disk packs. (SRL — 8 pages)

**A26-5776 1012 Tape Punch 03**

Describes the operating features, components, tape specifications, and tape-loading procedures for the 1012. (SRL — 12 pages)

**C15-8000 Sterling Subroutines for IBM 48**  
**1440 Autocoder**

Describes the IBM 1440 sterling subroutines. These subroutines provide a processing facility for fields representing sterling monetary values. The formats of these fields and the types of operations that can be performed upon them by the subroutines are described. These subroutines can operate on data fields containing representations of sterling monetary values (pounds, shillings, pence, and decimals of pence) in any of three formats:

1. Operations for translation,
2. Arithmetic, and
3. Preparation for printing.

In addition to being immediately useful for operations on sterling fields of the sizes and formats for which they have been programmed, the subroutines are useful as guides and models for programming by the user of altered, extended, and related subroutines.

The 1440 sterling subroutines are provided as 1440 Autocoder symbolic statements in punched cards. Those subroutines desired by the user for a 1440 program may be incorporated in the program and assembled by any version of 1440 Autocoder. If 1440 Basic

Autocoder is to be used, the punched cards must be reproduced with columns offset in accordance with Basic Autocoder input specification. (SRL — 11 pages)

**C15-8001 Sterling Macro-instructions for IBM 48  
1440 Specifications and Operating  
Procedures**

Describes a set of macro-instructions that permit processing fields representing sterling monetary values. The formats of these fields and the types of sterling operation that can be performed by the macro-instructions are described. (SRL — 15 pages)

**C15-8002 Sterling Report Program Generator 28  
for IBM 1440 Specifications and  
Operating Procedures**

Describes additions and changes to the IBM 1440 Report Program Generator that have been made to permit processing fields representing sterling monetary values. The formats of these fields and the ways in which sterling information is provided to the Generator are described, and sterling output is also discussed. (SRL — 7 pages)

**C15-8003 Sterling Basic Report Program 28  
Generator for IBM 1440 Specifica-  
tions and Operating Procedures**

Describes additions and changes to the IBM 1440 Basic Report Program Generator that have been made to permit processing fields representing sterling monetary values. The formats of these fields and the ways in which sterling information is provided to the Generator are described, and sterling output is also discussed. (SRL — 6 pages)

**C20-1601 Catalog of Programs for 20  
IBM 1401, 1420, 1440, and 1460  
Data Processing Systems**

This Catalog contains a complete listing of all programs (Type I, II, III and IV) available for the IBM 1401, 1420, 1440, and 1460 Data Processing Systems. It obsoletes all previous editions of the *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 catalogs 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 (KWIC) Index.
5. Abstracts of all available programs.
6. A list of deletions (if applicable).

(SRL — 64 pages)

**C24-1484 Disk Utility Programs Specifications 32  
IBM 1401, 1440, 1460 (with  
IBM 1301 and 1311)**

Contains the specifications of nine disk-storage utility programs for IBM 1401, 1440, and 1460 Systems equipped with either or both 1301 and 1311 disk storage. The programs are:

- Clear Disk Storage
- Disk to Tape
- Tape to Disk
- Disk to Card
- Card to Disk
- Copy Disk
- Print Disk
- Disk Record Load
- Disk Label

(SRL — 33 pages)

**C24-3000 Autocoder for IBM 1440: 22  
Specifications**

This publication is intended for programmers who have a basic knowledge of IBM 1440 machine-language programming. It describes the IBM 1440 Autocoder language in detail, and includes a full description and coded example of each type of Autocoder statement. A general explanation of the processing of each type of statement is also given.

Specific information regarding the construction of library routines and the use of macro instructions in the source program is presented in a special section.

Operating instructions for the 1440 Autocoder System are included with the system deck when it is sent from the IBM program library. (SRL — 40 pages)

**C24-3011 Input/Output Control System 30  
for IBM 1440: Specifications**

Describes the programming required to use IOCS to control the input/output of data from card reader, card

punch, printer, and disk files. The IOCS descriptive entries (DIOCS and DTF) and macro-instructions are explained in detail. The types of processing and types of records handled by IOCS are defined, and the IOCS error routines are described.

The IBM 1440 IOCS program is a supplement to IBM 1440/1311 Autocoder, and the reader should be familiar with the program described in the IBM 1440 Systems Reference Library (SRL) publication, *Autocoder for IBM 1440: Specifications*, C24-3000. For a more complete understanding of the organization of records on disk, he should also review the IBM 1440 SRL publication, *Disk File Organization Routines for IBM 1440/1311: Specifications*, C24-3003. (SRL - 28 pages)

**C24-3012      Standard Labeling Procedure for      48**  
**the IBM 1311 Disk Storage Drive**

Describes the conventions used in labeling files on the pack for the IBM 1311. It also outlines the format specifications for standard labels. (SRL - 8 pages)

**C24-3013      Basic Report Program Generator      28**  
**for IBM 1440: Specifications**

The IBM 1440 Basic Report Program Generator, with load-and-go capability, produces programs that write reports of variable format. This publication explains the writing of report specifications and the preparation of source decks, to produce object programs.

The minimum system requirements are:

- 1 IBM 1441 Processing Unit with at least 4,000 positions of core storage
- 1 IBM 1442 Card Read-Punch
- 1 IBM 1443 Printer.

No special features are required.

Although the following are not required, Basic Report Program Generator can use them to advantage if installed in the 1440 system:

- 1 Additional IBM 1442 Card Read-Punch Selective Stacker Special Feature (on the IBM 1442 Model 1 - this feature is standard on the Model 2).

The language for the report specifications is problem-oriented rather than machine-oriented. Therefore, little knowledge of machine-language coding is required. (SRL - 28 pages)

**C24-3015      Standard Disk Labels as used by      48**  
**IBM 1440 and 1401/1311 Pro-**  
**grams: Preliminary Specifications**

Describes the format of the standard 1311 disk file labels and contains preliminary specifications concerning the processing of these labels by IBM 1440 and 1401-1311 programs and programming systems. Further information will be furnished at a later date. (SRL - 12 pages)

**C24-3023      Basic Autocoder for IBM 1440:      22**  
**Specifications**

Contains language specifications for the IBM Basic Autocoder System. Also included are machine requirements; explanations of the source program, processor program, and the coding sheet; and information requirements necessary to write a Basic Autocoder statement.

Descriptions of Basic Autocoder statements are presented in a special format that describes the operation which the statement performs, shows how the statement is written by the programmer, states the action of the processor program during processing of the symbolic program, describes the effect (if any) of the statement on the object program, and shows an example that uses the statement. (SRL - 28 pages)

**C24-3024      1440/1448 Input/Output Control      30**  
**System: Specifications**

Contains additional descriptive entries and macro-instructions that supplement the basic 1440 IOCS and allow the 1440 to be used with the IBM 1448 Data Transmission Control Unit with as many as 40 transmission lines. This publication describes the user routines. (SRL - 16 pages)

**C24-3025      Communications IOCS Specifica-      30**  
**tions: Direct Data Channel for IBM**  
**1401, 1440, 1460**

Discusses additional descriptive entries and macro-instructions that supplement basic IOCS for the IBM 1401, 1460 and 1440, and allow direct data channel system-to-system connection of 1401, 1440, and 1460 systems. This publication specifies machine requirements and describes user routines and error procedures. (SRL - 8 pages)

**C24-3040 Merge 5 for IBM 1440: Specifications 33**

This publication, which contains a description of the IBM 1440 Merge 5 Program, should be used in conjunction with *Input/Output Control System for IBM 1440, Specifications*, Form C24-3011.

This publication contains the following information:

1. The minimum machine requirements for an IBM 1440 data processing system to be used for Merge 5.
2. The program capabilities,
3. A description of the control cards and the parameter cards that can be used to tailor the program to the user's specific needs,
4. A description of the phases of the program
5. A description of the modifications the user may make to the program.

The core storage required for any Merge 5 object program may be calculated from the charts in the appendix.

Five Merge 5 object-program timing charts are also included. The parameters used in compiling these charts are explained. (SRL - 20 pages)

**C24-3051 Communications IOCS Specifications for IBM 1440-1448 30**

Describes additional descriptive entries and macro-instructions that supplement basic 1440 IOCS and 1440-1448 IOCS and allow connection of the 1440-1448 system to 1410 and 7010 systems. This publication specifies machine requirements and describes user routines and error procedures. (SRL - 8 pages)

**C24-3058 Autotest Specifications and Operating Procedures for IBM 1440 37**

Describes the features of Autotest, a testing program for 1440 object programs in Autocoder format. Autotest provides the ability to run object programs and to produce, with minimum operator intervention, the necessary documentation to evaluate them. This publication describes control cards and arrangement of cards in a test deck. Autopatch card-format is also given. (SRL - 16 pages)

**C24-3063 Report Program Generator for the 1440 90**

IBM provides two Report Program Generator programs:

1440 RPG (full RPG) and 1440 Basic RPG. The basic RPG produces programs that write reports of variable format from a card input file. Full RPG accepts either a card or disk input file. In either case, instead of writing a specific program for each report, the user writes a set of specifications for the report.

This student text gives examples of several reports, together with the RPG report specifications needed to produce the reports. It explains the principles used in the examples, starting with an 80/80 listing of a card input file. Thus, the beginner may proceed in logical steps toward an example that includes multiplication and division. The final example illustrates detail printing from a disk input file. (Student Text - 24 pages)

**C24-3066 Input/Output Control System for IBM 1440: Operating Procedures 30**

This publication, which contains operating procedures for the IBM 1440 IOCS, should be used in conjunction with the SRL publication, *Input/Output Control System for IBM 1440: Specifications*, C24-3011.

It contains three main sections: combining IOCS routines with the IBM 1440 Autocoder system, assembling an object program, and running an object program. Because IOCS is actually a set of Autocoder library routines, this publication covers only those functions that are unique to IOCS. The reader should be familiar with the operating procedures described in the SRL publication, *Autocoder for IBM 1440: Operating Procedures*, C24-3110. (SRL - 8 pages)

**C24-3110 Autocoder for IBM 1440: Operating Procedures 22**

These operating procedures supplement the *Autocoder for IBM 1440: Specifications*, C24-3000. The procedures to be followed by the operator when assembling a 1440 Autocoder program on an IBM 1440 Data Processing System are given. In addition, the system updating, library modifying, and library listing functions are described. The specifications for control cards, the phases of Autocoder, and instructions for loading the object program are also included. (SRL - 32 pages)

**C24-3111 Communications IOCS for IBM 1440: Operating Procedures 30**

Provides IOCS (Input/Output Control System) operating procedures for IBM 1440 systems that can include the IBM 1311, 1442, 1443, 1448, and direct data

channel feature. It supplements *Autocoder for IBM 1440: Operating Procedures*, C24-3110. Specifications for the IOCS programming systems in these operating procedures are in these publications:

*Input/Output Control System for IBM 1440: Specifications*, C24-3011

*IOCS for IBM 1440-1448: Specifications*, C24-3024

*Direct Data Channel IOCS for IBM 1401, 1440, 1460: Specifications*, C24-3025

The operating procedures should be used only for 1440 systems that include either the IBM 1448 or the direct data channel feature. When only IBM 1311, 1442, and 1443 input/output files are to be handled, use *Input/Output Control System for IBM 1440: Operating Procedures*, C24-3066. (SRL – 8 pages)

**C24-3113 Basic Autocoder for IBM 1440: Operating Procedures 22**

These operating procedures supplement the *Basic Autocoder for IBM 1440: Specifications*, C24-3023. The procedures to be followed by the operator when assembling a 1440 Basic Autocoder program on an IBM 1440 Data Processing System are given. The specifications for output option cards, a general description of the assembly process, and instructions for loading and running the object program are also included. (SRL – 24 pages)

**C24-3121 Disk Utility Programs Operating Procedures IBM 1440-1311 IBM 1440-1301 32**

Contains the procedures for operating the following IBM 1440 programs:

- Clear-Disk-Storage Program
- Disk-to-Tape Program
- Tape-to-Disk Program
- Disk-to-Card Program
- Card-to-Disk Program
- Copy Disk Program
- Print Disk Program
- Disk-Record-Load Program
- Disk-Label Program

The reader should be familiar with the SRL publication, *Disk Utility Programs Specifications, IBM 1401, 1440, 1460 (with 1301 and 1311)*, Form C24-1484, which describes the function of each of the programs,

and contains detailed control-card formats. (SRL – 33 pages)

**C24-3131 Report Program Generator for IBM 1440: Operating Procedures 28**

Contains operating procedures for the 1440 RPG and should be used with these SRL publications:

*Report Program Generator for IBM 1440: Specifications*, C24-3001

*Autocoder for IBM 1440: Operating Procedures*, C24-3110

*Input/Output Control System for IBM 1440: Specifications*, C24-3011.

It contains these main sections: a description of the RPG program deck, systems-pack preparation, control cards, date card, RDLIN cards, POR-file limits card, user programming, input deck for RPG run, operating instructions for generating as well as for running an object program, the edit listing, and halts and messages. (SRL – 24 pages)

**C24-3134 Disk-File Organization Routines for IBM 1440/1311: Operating Procedures 34**

Presents the procedures to be followed to generate and run the IBM 1440 Disk-File Organization Routines. It supplements the publication *Disk-File Organization Routines for IBM 1440/1311: Specifications*, C24-3003. (SRL – 40 pages)

**C24-3145 Bank Document Sort Program for IBM 1240 33**

Describes the document-sort program, an object program, for the IBM 1240 Bank Data Processing System. It includes machine requirements, external specifications, language compatibility, data checking, and operating characteristics. (SRL – 4 pages)

**C24-3153 Basic Autocoder 2K for IBM 1440: Specifications 22**

Contains language specifications for the Basic Autocoder 2K System for 1440. Included are machine requirements, explanations of the source program, processor program, and coding sheet; and information on Autocoder 2K statements and their effects. (SRL – 16 pages)

**C24-3155 Fortran IV for IBM 1401, 1440 and 25  
1460: Specifications**

Describes the IBM 1401, 1440, and 1460 Fortran IV language, an automatic coding system primarily for scientific and engineering computations. The description includes the source program, constants, variables, subscripts, and expressions. It also covers control, input/output, and specification statements. (SRL — 28 pages)

**C24-3158 Tape-Utility Programs for IBM 32  
1440: Specifications**

The specifications for the three tape-utility programs for the 1440, card-to-tape, tape-to-card, and tape-to-printer are the same (with few exceptions) as those for the three corresponding 1401/1460 programs. This publication lists only the differences between the two sets of programs. See *Tape Utility Programs with 120-Character Label Capability for IBM 1401 and 1460: Specifications*, C24-3156. (SRL — 4 pages)

**C24-3176 Sort 5 Object-Program Timing 33  
Estimates**

Contains timing estimates for the Sort 5 Object Program run on an IBM 1440 Data Processing System. The various assumptions involved in estimating the times are explained in the introduction of the publication. (SRL — 2 pages)

**C24-3185 Disk File Organization Routines 34  
Specifications  
IBM 1401, 1440, 1460 (1311 and 1301)**

Contains the specifications of four separate but similar packages of disk-file organization routines. The four packages and the system configurations on which they are used are:

- IBM 1401-1311 Disk-File Organization Routines  
(Used also on IBM 1460-1311)
- IBM 1440-1311 Disk-File Organization Routines
- IBM 1440-1301 Disk-File Organization Routines
- IBM 1460-1301 Disk-File Organization Routines

The following subjects are discussed in this publication:

- An introductory section on general considerations of disk-file organization.
- Descriptions of each of the 13 individual object programs.
- Allowable sizes and formats of input/output files.
- Program exits and labels useful to user subroutines.

- The parameter cards used to generate the object programs and the RDLIN cards used for area definition at object time.
- Suggested retrieval routines (block diagrams).
- A complete example of a random file and the programs generated to load and maintain it. (SRL — 60 pages)

**C24-3191 Data Communications Utility 32  
Programs for IBM 1009 Specifications  
and Operating Procedures  
IBM 1401, 1440, and 1460**

Contains the program specifications and operating procedures for the *Data Communications Utility Programs for IBM 1009*. The associated data processing systems are the 1401, 1440, and 1460. The program specifications describe the data-file and machine requirements, the program processing options available, and the program processing procedures. The program operating procedures include a description of the program package, the information necessary to run the programs, and the programmed halts that may occur while running the programs.

Before reading this, the reader should be familiar with the publication, *Reference Manual, IBM 1009 Data Transmission Unit*, Form A24-1039. (SRL — 37 pages)

**C24-3208 2K Report Program Generator 28  
for IBM 1440: Specifications**

The IBM 1440 2K Report Program Generator with load-and-go capability, produces programs that write reports of variable format. This publication explains writing of report specifications and preparation of source decks to produce object programs. The language used for the report specifications is problem-oriented rather than machine-oriented. Therefore, little knowledge of machine-language coding is required. (SRL — 24 pages)

**C24-3235 COBOL (on Disk) Specifications 24  
IBM 1401, 1440, and 1460**

This publication is intended for programmers who have a basic knowledge of COBOL programming. It includes the additional specifications necessary to write a COBOL program for the IBM 1401, 1440, and 1460 Data Processing Systems with disk storage.

Specific examples show how many COBOL statements are coded. A general explanation of these statements is also given. A sample problem shows entries for all divisions. (SRL — 41 pages).

**C24-3237      Input/Output Control Program      30**  
**Specifications**  
**IBM 1401, 1440, and 1460 with**  
**IBM 1285 Optical Reader**

Describes the Input/Output Control Program (IOCP) for IBM 1401, 1440, and 1460 with the IBM 1285 Optical Reader. Included are:

1. a description of the functions of the program
2. the user's requirements in coding routines that use the program.
3. information set up by IOCP for use in processing.

The reader should be familiar with the publication, *IBM 1285 Optical Reader*, Form A24-3256, and appropriate Autocoder and Basic Autocoder publications associated with the 1440. (SRL — 6 pages)

**C24-3241      Communications IOCS Specifications      30**  
**IBM 1401, 1440, and 1460 with IBM**  
**1026 and Direct Data Channel**

Provides specifications for IBM 1026 Transmission Control Unit operations in programs assembled with either of two processor programs: *1401, 1460 Communications IOCS (1026/DDC)*, or *1440 Communications IOCS (1026/DDC)*. It includes additional descriptive entries and macro-instructions, supplementing basic 1401, 1460 and 1440 IOCS, that allow any of these three systems to be used with the 1026 and:

1. IBM 1030, 1050, and 1060 remote terminals connected by local customer-provided communication lines or leased common-carrier lines.
2. IBM 1050 Data Communications System connected by common-carrier lines with automatic-answering facilities.
3. IBM 1032 Digital Time Unit.

The minimum machine requirements are specified. User routines are described. A section on programming considerations is included. (SRL — 30 pages)

**C24-3242      COBOL (on Disk) Operating      24**  
**Procedures**  
**IBM 1401, 1440, and 1460**

Contains the operating procedures for building the COBOL system using IBM 1311 Disk Storage, modifying the COBOL system, and assembling a machine-language object program from a source program written in the COBOL language. A description of the phases that make up the COBOL system, a list of halts and messages, and a sample program are included. (SRL — 44 pages)

**C24-3258      Autocoder (on Disk) Language      22**  
**Specifications**  
**IBM 1401, 1440, and 1460**

Describes the Disk Autocoder programming system for IBM 1401, 1440, and 1460. The first section contains the specifications of the symbolic language of Autocoder (mnemonics, labels, address types), a description of declarative, imperative, and assembler control operations, and the rules for writing the source program. The second section describes macro-operations and macro-instructions. Reference charts that list all valid Autocoder mnemonics also are included. (SRL — 56 pages)

**C24-3259      Autocoder (on Disk)      22**  
**Program Specifications and**  
**Operating Procedures**  
**IBM 1401, 1440, and 1460**

Contains the program specifications and operating procedures for the Autocoder (on Disk) Programming System.

The specifications describe the two programs, System Control and Autocoder Assembler, that make up the Autocoder System. Logical files defined and used by the System, control cards, and results of processing operations are also included.

The operating procedures section is divided into two sections. The first section describes assembling and executing object programs, changing logical-file assignments, maintaining an Autocoder library, and revising an object program. The second section describes building and updating an Autocoder System.

A summary of control-card formats, phase descriptions, and a listing of a sample program make up the appendix of this publication. (SRL — 65 pages)

**C24-3261      Report Program Generator (on Disk)      28**  
**Specifications: 1401, 1440, and 1460**

This reference publication contains specifications for IBM 1401, 1460 Report Program Generator (on Disk) and IBM 1440 Report Program Generator (on Disk). The publication explains the writing of report specifications and the preparation of control cards, to produce object programs.

Examples and sample programs illustrate the applications of the Report Program Generator language. (SRL — 104 pages)

**C24-3265      2K Report Program Generator      28**  
**Operating Procedures—IBM 1440**

Contains the operating procedures for the IBM 1440 2K Report Program Generator and should be used with the SRL publication, *2K Report Program Generator Specifications for IBM 1440*, Form C24-3208.

This bulletin contains these main sections: A description of the 2K RPG deck, the control card, the input deck, the edit listing, halts and messages, and operating instructions for generating as well as for running an object program. (SRL — 13 pages)

**C24-3275      Merge 5 IBM 1440:      33**  
**Operating Procedures**

Contains the instructions for generating and running a Merge 5 program. Each phase of the generation process is explained in detail, along with error indications and correctional procedures. The object program that results from generation is described, and the procedure for modifying the object program to fit the user's specific needs is explained.

This publication should be used with the IBM Systems Reference Library Publication *Merge 5 Specifications for IBM 1440*, Form C24-3040. (SRL — 13 pages)

**C24-3286      Basic Autocoder 2K for IBM 1440:      22**  
**Operating Procedures**

These operating procedures supplement the *Basic Autocoder 2K for IBM 1440, Specifications*, Form C24-3153. These procedures are to be followed by the operator when assembling and executing a basic autocoder 2K program on an IBM 1440 Data Processing System. This reference publication includes a general description of the assembly process, instructions for running the object program, and instructions for patching. (SRL — 17 pages)

**C24-3299      Input/Output Control System      30**  
**Operating Procedures—IBM 1440**

This reference publication, which contains operating procedures for the IBM 1440 IOCS version 2 should be used in conjunction with the IBM Systems Reference Library publication *Input/Output Control System for IBM 1440, Specifications*, Form C24-3011.

This publication contains three main sections:

1. Combining IOCS routines with the IBM 1401, 1440, and 1460 Autocoder system

2. Assembling an object program

3. Running an object program.

Because IOCS is actually a set of Autocoder library routines, this publication covers only those functions that are unique to IOCS. The reader should be familiar with the operation procedures described in the systems reference library publication *Autocoder, on Disk, Program Specifications and Operating Procedures, IBM 1401, 1440, and 1460*, Form C24-3259. (SRL—11 pages)

**C24-3300      Report Program Generator      28**  
**Operating Procedures**  
**IBM 1440**

This reference publication, which contains operating procedures for the IBM 1440 RPG, should be used in conjunction with these SRL publications:

*Report Program Generator for IBM 1440: Specifications*, Form C24-3001.

*Autocoder (on Disk) Program Specifications and Operating Procedures, IBM 1401, 1440, and 1460*, Form C24-3259.

*Input/Output Control System Specifications, IBM 1440*, Form C24-3011.

Primarily, it contains this information: a description of the RPG program deck; systems-pack preparation; control cards; input deck for RPG run; operating instructions for generating and running an object program; the edit listing; and halts and messages. (SRL — 33 pages)

**C24-3314      Sort Programs for IBM 1440-      33**  
**1311 Specifications and Operating**  
**Procedures**  
**Generative Program: Sort 5**  
**Object Programs: Sorts 51, 52, 53,**  
**and 54**

Presents the specifications and operating procedures for IBM 1440-1311 sort programs. The topics discussed are:

*Sort 5 Specifications*. This section describes the requirements for generating a sort object program.

*Sort 5 Operating Procedures*. This section describes the Sort 5 program deck, preparation of the Autocoder system pack and library for generation, and the operating procedures to be followed when generating a sort object program.





(CODASYL) as a cooperative effort of computer users in industry, the Department of Defense and other Federal Government agencies, and computer manufacturers. This manual describes the language specified by CODASYL as COBOL-1961; that is, the COBOL specifications prescribed in the official government manual for 1961.

The COBOL language consists of English nouns, verbs, and arithmetic and logical expressions describing business problems. The COBOL *processor* for a given system translates COBOL programs into actual machine coding. (General Information Manual – 172 pages)

**F28-8074 Fortran 25**

Fortran is an automatic coding system developed to express problems in a symbolic source language similar to the language of mathematics. This manual describes Fortran, and prepares the reader to use its facilities. (General Information Manual – 104 pages)

**L24-3294 IBM 1414 Input/Output Synchronizer IBM 1401, 1440, and 1460 RPQ 811225 (1401), RPQ E25693 (1440/1460) 13**

Describes the attachment of an IBM 1414 Input/Output Synchronizer Models 3, 4, 5, or 8 to an IBM 1401, 1440, or 1460 Data Processing System. The instructions used by the processing system to control the data transmission between the system and the 1414 are described. Presents physical planning information. (SRL – 13 pages)

**R20-0001 1440 Advanced Training Education Guide, Volume 1 90**

Major topics of this guide include: pre-installation planning, decision tables as a method of documentation, disk-storage organization. The instructor uses this with *Overhead Projector Foils* (V25-6441) to present a 3-hour course. (8½ x 11 Looseleaf Instructor Outline – 42 pages)

**R20-0002 1440 Advanced Training Education Guide: Conversion 90**

Major topics of this guide include: planning for conversion, conversion techniques, and scheduling conversion. The instructor uses this guide with *Overhead Projector Foils* (V25-6442) to teach a 3-hour course. (8½ x 11 Looseleaf Instructor Outline – 13 pages)

**R20-0003 1440 Advanced Training Education Guide: Basic Report Program Generator 90**

Major topics of this guide are: spacing chart, input specifications, data specifications, and format specifications. The instructor uses this guide with *Overhead Projector Foils* (V25-6443) to teach a 3-hour course. (8½ x 11 Looseleaf Instructor Outline – 50 pages)

**R20-0004 1440 Advanced Training Education Guide: Review of the IBM 1440 90**

Includes a review of 1440 components, features, disk storage, and advanced application areas. The instructor uses this guide with *Overhead Projector Foils* (V25-6444) to teach a 3-hour course. (8½ x 11 Looseleaf Instructor Outline – 53 pages)

**R20-0021 1440 Advanced Training Education Guide: Disk-Pack Label Procedures 90**

Definition of disk-pack labeling procedures with the code for using disk-pack labels on the 1440 IOCS header checking, RDLIN procedures, and the RDLIN macro. The instructor uses this with *Overhead Projector Foils* (V25-6459) to teach a 3-hour course. (8½ x 11 Looseleaf Instructor Outline – 40 pages)

**R20-9015 1440 System Planning Course Description 90**

**R20-9016 1440 Report Program Generator Course Description 90**

**R20-9035 1440 Practical Training Course Description 90**

**R20-9039 1440 Executive Class Course Description 90**

**R20-9041 1440 Operator Training Course Description 90**

**R20-9047 1440 Basic Programming Course Description 90**

**R20-9058      1440 Advanced Training      90**  
**Course Description**

Each course description booklet describes the course, its objectives and length, the intended audience, the prerequisites, and the source code. It lists all materials required by the instructor and by the student. Abstracts are included for the educational materials created specifically for the course. Also, abstract references are provided for the other materials.

**R25-1629      1440 Training Program Descrip-      90**  
**tion and Schedule Card**

Used by customer management, in conjunction with IBM marketing representatives to plan a comprehensive 1440 education program.

The card contains a description of 1440 courses offered by IBM. Included in the descriptions are: course content, course objectives, and course prerequisites, and a sentence suggesting who should attend the course.

**R25-1665      1440 Executive Seminar Educa-      90**  
**tion Guide**

The major topics covered in this guide include: electronic data processing concepts, characteristics and capabilities of the IBM 1440 Data Processing System, disk storage concepts, introduction to applications in the 1440, applications and timings, general systems and installation considerations, and IBM customer services. The instructor will use this guide in conjunction with the *1440 Executive Seminar Overhead Projector Foils* (V25-6182) to teach a 1-day 1440 executive seminar. (8½ x 11 Looseleaf Instructor Outline — 103 pages)

**R27-5677      1440 Basic Programming Educa-      90**  
**tion Guide**

The major topics covered in this guide include: programming card read-punch operations, programming with group control, address modification, programmed subroutines, disk operation, forms of disk records, disk storage organization, programming using IOCS and using IBM programming systems. The instructor will use this guide to teach a 10-day 1440 basic programming course (8½ x 11 Looseleaf Instructor Outline — 229 pages)

**X20-8010      Installation Planning Schedule      80**

This form is for use in preparing installation planning schedules. Provision is made for entering the planned activities, programs, or functions on the left side, and scheduled dates or time periods on the top of the form. (25 sheets per pad — 16½ x 11)

**X20-8011      Installation and Scheduling      80**  
**Control Form**

A chart for entering scheduled and completion dates for each phase of programming and testing. The reverse side contains a weekly progress chart. (25 sheets per pad — 16½ x 11)

**X20-8021      AUTOCHART Flowchart      80**  
**Work Sheet**

This work sheet is used for rough layout of flowcharts before coding in the IBM AUTOCHART language. (25 sheets per pad — 16½ x 11)

**X20-8040      1230, 1231, 1232 Spacing Chart      80**  
**(Test Scoring) 5 Words per Inch**

Used to lay out test scoring forms using 5 words per inch for the 1230, 1231, and 1232. (25 to a pad — 12 x 17)

**X20-8041      1230, 1231, 1232 Spacing Chart      80**  
**(Test Scoring) 4 Words per Inch**

Used to lay out test scoring forms using 4 words per inch for the 1230, 1231, and 1232. (25 to a pad — 12 x 17)

**X20-8042      1230, 1231, 1232 Spacing Chart      80**  
**(Test Scoring) 3 Words per Inch**

Used to lay out test scoring forms using 3 words per inch for the 1230, 1231, and 1232. (25 to a pad — 12 x 17)

**X20-8043      1230, 1231, 1232 Spacing Chart      80**  
**(Non Test Scoring) 5 Words per Inch**

Used to lay out non test scoring forms using 5 words per inch for the 1230, 1231, and 1232. (25 to a pad — 12 x 17)

**X20-8044      1230, 1231, 1232 Spacing Chart      80**  
**(Non Test Scoring) 4 Words per Inch**

Used to lay out non test scoring forms using 4 words per inch for the 1230, 1231, and 1232. (25 to a pad — 12 x 17)

**X20-8045      1230, 1231, 1232 Spacing Chart      80**  
**(Non Test Scoring) 3 Words per Inch**

Used to lay out non test scoring forms using 3 words per inch for the 1230, 1231, and 1232. (25 to a pad — 12 x 17)

**X21-9021      IBM Reference Card 1230, 1231,      80**  
**1232 Document Marking Instructions**

Provides, in simple illustrated form, the basic information needed to produce a properly marked document. Marks read from the documents by IBM Optical Mark Readers can be:

1. transmitted to a data processing system.
2. scored, as for student tests, or
3. punched into cards for later processing.

It is, therefore, very important that the documents are marked correctly and with care.

**X24-1350      1240, 1401, 1410, 1440, 1460      80**  
**Autocoder Coding Sheet**

This coding sheet is designed for use in programming with the following:

- 1401 Basic Autocoder 2K
- 1401 Tape Autocoder
- 1401-1311 Autocoder
- 1401, 1440, 1460 Disk Autocoder
- 1410 Autocoder or Basic Autocoder
- 1440 Autocoder
- 1440 Basic Autocoder 2K

The columns and lines of the sheet are numbered to facilitate both programming and card punching. Autocoder source-input cards corresponding to this form can be ordered under Electrotpe No. A36199. Autocoder condensed-output cards can be ordered under Electrotpe No. C59503. (25 per pad — 11 x 8½)

**X24-1527      1443 Printer Spacing Chart      80**  
**8 Lines Per Inch**

This chart is scaled in non-photographic blue and provides 144 printing positions at 10 characters per inch for carriage spacing of 8 lines per inch. Rulings indicate the print span for 120 and 144 printing positions. A carriage-control tape facilitates planning for tape

punching. Space is available to indicate the print storage layout of four line formats. (25 per pad — 18½ x 11)

**X24-1711      1301 Models 11, 12, 21, 22; 1311      80**  
**Disk Storage Layout**

This chart facilitates planning the assignment of a maximum of 2,000 characters in disk storage. (25 per pad — 16½ x 8½)

**X24-3083      1440 Physical Planning Template      80**

Provides scale drawing (¼ inch = 1 foot) of units for 1440 to be used for floor planning of an installation. (Plastic-sheet — 8½ x 11)

**X24-3094      1440 Reference Card      80**

Used as a programmer's aid for all configurations of the IBM 1440 Data Processing System.

All 1440 instructions are listed with the following information included for each:

1. Autocoder mnemonic operation code
2. Instruction format (including the machine language operation code and a d-character, if any)
3. Word marks required
4. Contents of the A- and B-address registers after operation.
5. Remarks.

Also included are Autocoder declarative and processor control operation codes, and a chart showing indexing notations. (6-sided folded card — 8½ x 11).

**X24-3097      1440 Timing Layout Chart      80**

Permits the user to lay out the particular operation or operations he is performing, and calculate the total milliseconds, throughput per minute, and total job time. (25 per pad — 16½ x 11)

**X24-3098      1440 Timing Reference Card      80**

Contains timing reference information for the IBM 1440 Data Processing System. Included is timing information for:

- Card Reading
- Card Punching
- Printing
- Disk Timing
- Seek time without Direct Access
- Seek time with Direct Access
- Seek time for the Dummy Seek Technique Processing.

Also included is a chart for converting total cycle time to throughput time. (4-sided folded card —  $2\frac{3}{4} \times 6\frac{1}{2}$ )

**X24-3099      1420, 1440 Basic Autocoder      80**  
**Coding Sheet**

The *1420, 1440 Basic Autocoder Coding Sheet* is designed for use in programming the IBM 1420 and 1440 Data Processing Systems in Basic Autocoder language. Columns and lines of the sheet are numbered to facilitate programming and card punching. (25 per pad —  $11 \times 8\frac{1}{2}$ )

**X24-3100      1440/1460 Console Status Sheet      80**

This sheet is a representation of the IBM 1447 Console. It aids in preparing the 1440 or 1460 for operation and in testing programs. The status of console lights, registers, and switches can be recorded. (25 per pad —  $8\frac{1}{2} \times 11$ )

**X24-3101      1440 Operating Instruction Sheet      80**

This form, printed on both sides, is used as a guide in preparing the 1440 for a program run. Appropriate areas on the form are set aside for specifying disk and card input and output files, switch settings, programmed halts, and forms and/or spacing to be used with the printer, console printer, and card read-punch. Another area is for any special instructions. (25 per pad —  $8\frac{1}{2} \times 11$ )

**X24-3302      IBM 1440 IOCS: DIOCS Entries      80**  
**Autocoder Coding Sheet**

This form is based on the Autocoder Coding Sheet and aids in specifying the DIOCS entries for the IBM 1440 Input/Output Control System. For each entry, the label is listed, the type of file to which it applies is indicated, and maximum space is provided in the operand field for writing the appropriate specification(s). The possible specifications are described briefly, for ready reference. Characters that will be punched in Autocoder source-input cards are printed in black. (25 per pad —  $8\frac{1}{2} \times 11$ )

**X24-3303      IBM 1440 IOCS: DTF Entries,      80**  
**Reader-Punch-Printer — Autocoder**  
**Coding Sheet**

This form is based on the Autocoder Coding Sheet and is one of three forms for specifying the DTF

entries for the IBM 1440 Input/Output Control System. It gives the entries for reader, punch, and printer files. For each entry, the label is listed and maximum space is provided in the operand field for writing the appropriate specification(s). The possible specifications are described briefly, for ready reference. Characters that will be punched in Autocoder source-input cards are printed in black. (25 per pad —  $8\frac{1}{2} \times 11$ )

**X24-3304      IBM 1440 IOCS: DTF Entries,      80**  
**Disk — Autocoder Coding Sheet**

This form is based on the Autocoder Coding Sheet and is one of three forms for specifying the DTF entries for the IBM 1440 Input/Output Control System. It gives the entries for a disk file. For each entry, the label is listed, the type of processing to which it applies is indicated, and maximum space is provided in the operand field for writing the appropriate specification(s). The possible specifications are described briefly, for ready reference. Characters that will be punched in Autocoder source-input cards are printed in black. (25 per pad —  $8\frac{1}{2} \times 11$ )

**X24-3305      IBM 1440 IOCS: DTF Entries,      80**  
**Tape — Autocoder Coding Sheet**

This form is based on the Autocoder Coding Sheet and is one of three forms for specifying the DTF entries for the IBM 1440 Input/Output Control System. It gives the entries for a tape file. For each entry, the label is listed, the type of file (input or output) to which it applies is indicated, and maximum space is provided in the operand field for writing the appropriate specification(s). The possible specifications are described briefly, for ready reference. Characters that will be punched in Autocoder source-input cards are printed in black. (25 per pad —  $8\frac{1}{2} \times 11$ )

**X24-6436      407, 408, 409, 1403, 1404, 1443,      80**  
**and 2201 Printer Spacing Chart**  
**(6 Lines Per Inch)**

This chart is scaled in non-photographic blue and provides 144 printing positions at 10 characters per inch for carriage spacing of 6 lines per inch. Rulings indicate the print span for 100, 120, 132, and 144 printing positions. A carriage control tape facilitates planning for tape punching. Space is available to indicate the print storage layout of four line formats. (25 per pad —  $17\frac{1}{2} \times 11$ ).

**X24-6437      Program Chart —                      80**  
**IBM 1240, 1401, 1420, 1440, 1460**

This form is a program planning chart with columns provided to enter: step number, instruction address, instruction, effective number of instruction and data characters, and remarks. (25 per pad — 11 x 8½)

**X24-6438      1240, 1401, 1410, 1420, 1440,            80**  
**1460, Storage Layout**

Provides storage positions for assigning data, symbolic notations, and word marks. The chart is arranged in ten rows of 100 positions each, with space in the upper left corner of each row to enter the hundred's address.

The reverse side contains a pre-numbered schematic of 2000 positions for the allocation of storage. The pre-assigned standard input/output storage areas are indicated by light shading; the pre-assigned output print area for the expanded print feature, and the read-in area for the IBM 1404 read-compare feature are indicated by dark shading. (25 per pad — 16½ x 11)

**X24-6568      1401, 1410, 1440, 1460 Library            80**  
**Coding Form**

Designed for use in coding the library routines for the IBM 1401, 1410 and 1440 Autocoder macro instructions. 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 x 8½)

**X24-6590      1440 Report Program Generator,            80**  
**Input Specifications**

**X24-6591      1440 Report Program Generator,            80**  
**Data Specifications**

**X24-6592      1440 Report Program Generator,            80**  
**Calculations Specifications**

**X24-6593      1440 Report Program Generator,            80**  
**Format Specifications**

These four forms are provided for use with the Report Program Generator for the IBM 1440. (25 per pad — 11 x 8½)

**X28-0314      1401, 1440, 1460 Address                    80**  
**Translation Card**

This card aids the programmer with a chart for translating machine-coded core-storage addresses into numeric addresses, and vice versa. It also has a position guide for reading printout, and a character code chart for reading registers during testing operations. (Card— 7¾ x 3¼)





IBM 1440, 1240

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