

SPIRIT Platform Blueprint

SPIRIT COBOL Language Profile (SPIRIT Issue 3.0)

Network Management Forum

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SPIRIT COBOL Language Profile (SPIRIT Issue 3.0)

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Contents

Chapter 1	Introduction.....	1
1.1	Purpose.....	1
1.2	Outline.....	2
1.3	Reading Instructions.....	2
Chapter 2	COBOL Language Profile	5
Appendix A	X/Open COBOL and MIA COBOL.....	119
A.1	COBOL Specifications	119
A.2	Differences — Non-numeric Items.....	121
A.3	Differences — Numeric Items	121
List of Figures		
A-1	COBOL Specifications	120
List of Tables		
A-1	Non-numeric Features	122
A-2	Numeric Features	124

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Introduction

1.1 Purpose

This language specification is based on the standards listed below, which are equal in functionality to each other:

ISO 1989

ISO 1989:1985, Programming Languages — COBOL (technically identical to ANSI standard X3.23-1985).

ISO 1989/Amendment 1

ISO 1989/Amendment 1:1992, Intrinsic Function Module (technically identical to ANSI standard X3.23a-1989).

SPiRiT profiles are created because they help in meeting the SPiRiT goals of portability, interoperability and modularity. SPiRiT profiles can be characterised as having no invention; only selection. Features in SPiRiT profiles are selected based on user business requirements.

Basically, this language specification complies with the high level of the required modules in ISO 1989. However, the features which have a substitute method and will be deleted from the international standards in the future (such as obsolete language elements) and the features which are not demanded by users, are deleted.

The features requested by users, and considered to be necessary, are added. To promote the portability of application programs, implementor-defined items are defined as fully as possible. Furthermore, some types of limits which appear in program syntax are defined. An implementation must be able to translate and execute the program which contains at least one instance of every one of the limits which are defined additionally. There is no relationship among numerical limits.

An implementation may define limits in addition to the limits which are defined here. However, they should not be in contradiction to the limits defined here.

Concerning the national language feature, the language specifications are added on the basis of national language features which are expected to be included in the international standards due to an especially large user requirement, and also in consideration for the implementation status of the COBOL implementations in this industry.

1.2 Outline

In this language specification, the contents are defined based on the standards stated in Section 1.1 on page 1. The language specification outline is as follows:

1. Language elements
 - a. all the elements of the high level of the required modules of the base standards except obsolete language elements
 - b. national language features.
2. Definition of implementor-defined items
3. Definition of limits.

1.3 Reading Instructions

The language specification is defined by making additions, deletions and changes to ISO 1989 (hereafter called the base document). It is described according to the organisation of the base document. When a change is made, a brief explanation follows the item number and title. When no change is made, the titles of the base document are described up to third item levels (section level is counted). There is no description for fourth item level or higher that has no change. However, when an item level has been deleted, all subsequent levels are also deleted. The detailed description methods are as follows:

1. Description Sequence
 - a. item number and title
items (b) through (d) below are repeated only when a change is made
 - b. title that briefly expresses the contents or reasons of the change
 - c. location of changed parts
 - d. changes (addition, deletion, and so on).

2. Location Detail of the Changed Parts

In order to indicate which part of the base document is changed, the changed part is identified as follows.

The item number, the paragraph number in the article, and the sentence number in the paragraph are used for identifying a sentence, a paragraph and an article. However, an indented list is not regarded as an independent paragraph, but is counted as a part of the immediately preceding paragraph. Where there is no symbol for specifying an element of the list, it is treated like a figure and identified by the whole paragraph comprising it. A figure and a table are identified by figure number and table number, respectively. For a part of the general formats, its format is used.

3. Description of Changes

Usually, the change descriptions are longer than one sentence. The figures, tables, general formats and lists whose elements cannot be specified are completely rewritten.

- a. Addition

The part immediately before the addition (in the case of an addition to the first position, the part immediately after the addition) is identified with the remark "Add the following sentence:", "Add the following paragraph:" or "Add the following:". The

text of the addition is written following.

b. Deletion

The deleted part is identified with the remark "Delete".

c. Change

The changed part is identified with the remark "Change as follows:" and the superseding description follows.

When many changes are made, the changed section is identified and the entire part is written. When a long sentence is partially changed, the original sentence is abbreviated, and the revised sentence shows the corresponding part and the changed part.

4. Others

When the number for section, chapter or item, or the consecutive symbol is deleted together with its contents, the subsequent numbers or symbols remain unchanged. When an item is added at the end, it assumes the subsequent number or symbol in the list. When an article is inserted between items, it becomes a new item and is identified by a lower-case letter such as "1a", or by a number such as "a1".

In this language specification, when a feature provided in the base document is changed, the meaning of the term used in the base document is not changed. For example, "character-string" in the base document does not comprise "national-character string" even though "national-character string" is added.

As for national language feature, the place where National language feature may be used is indicated explicitly. That is, National language feature may be used in the place where it is explicitly stated that National-character, National-character data item or National-character literal may be used. However, user-defined words for which National-character may be used are not indicated in each pertinent place.

The language elements which are deleted from the language specification defined in the base document are left in **Section III: Glossary** on page 37, 2. Definitions. Although their terms are defined, their features are not supported. The newly added terms are presented after the existing terms in 2. Definitions. The terms "standard" and "Standard COBOL" in the base document are replaced with "language specification" and "SPIRIT COBOL" respectively, in compliance with SPIRIT documentation. However, the base document is designated, if necessary.

In the base document, the features are classified into Level 1 and Level 2, and the features which are native to Level 2 are framed. This framing is irrelevant to this language specification.

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COBOL Language Profile

Section I: Introductory Information

1. Introduction to the Language Specification
 - Change of term
Change the title: "1. Introduction to the Standard" to: "1. Introduction to the Language Specification".
- 1.1 Scope and Purpose
 - Change of term
Change the first paragraph (page I-1) as follows:
"The scope of this language specification is to specify both the form and interpretation of programs expressed in COBOL. Its purpose is to promote a high degree of machine independence in such programs in order to permit their use on a variety of automatic data processing systems."
- 1.2 Structure of Language Specifications
 - Change of term; Deletion of optional module and level concept
Change the first paragraph (page I-1) as follows:
"The organization of COBOL specifications in this language specification is based on a functional processing module concept. The language specification defines 7 functional processing modules: Nucleus, Sequential I-O, Relative I-O, Indexed I-O, Inter-Program Communication, Sort-Merge and Source Text Manipulation."
 - Deletion of level concept
Change the second paragraph (page I-1) as follows:
"The Nucleus module contains the language elements for internal processing of data within the basic structure of the four divisions of a program. The Nucleus also contains the language elements for the definition and access of tables."
Change the third paragraph (page I-1) as follows:
"The Sequential I-O module contains the language elements for the definition and access of sequentially organized files."
Change the fourth paragraph (page I-2) as follows:
"The Relative I-O module contains the language elements for the definition and access of mass storage files in which records are identified by relative record numbers."
Change the fifth paragraph (page I-2) as follows:

"The Indexed I-O module contains the language elements for the definition and access of mass storage files in which records are identified by the value of a key and accessed through an index."

Change the sixth paragraph (page I-2) as follows:

"The Inter-Program Communication module contains the language elements which enable a program to communicate with one or more other programs."

Change the seventh paragraph (page I-2) as follows:

"The Sort-Merge module contains the language elements for the ordering of one or more files. The Sort-Merge module also contains the language elements for the combining of two or more identically ordered files. Optionally, a user may apply some special processing to each of the individual records by input or output procedures."

Change the eighth paragraph (page I-2) as follows:

"The Source Text Manipulation module contains the language elements for the insertion and replacement of source program text as part of the compilation of the source program."

- Deletion of optional module

Delete paragraphs nine through twelve (pages I-2 through I-3).

1.3 Organization of Document

- Change of term; Deletion of summary of elements by COBOL Division

Change the first paragraph (page I-3) as follows:

"This document is divided into sixteen sections. Section I is composed of the introduction and a summary of elements by module. Section II presents concepts pertaining to the use and organization of features within the COBOL language. Section III is composed of a glossary defining terms in accordance with their meaning in COBOL."

- Deletion of level concept

Change the third paragraph (page I-3) as follows:

"Sections VI through XVI contain specifications for the eleven functional processing modules."

- Change of term

Change the fourth paragraph (page I-3) as follows:

"Sections II through XVI comprise the detailed specifications of SPIRIT COBOL."

Delete the fifth paragraph (page I-3).

1.4 How to Use the Language Specification

- Change of term

Change: "1.4 How to Use the Standard" to: "1.4 How to Use the Language Specification".

- Change of term; Deletion of summary of elements by COBOL division

Change the first paragraph (page I-3) as follows:

"It is envisioned that the language specification will be examined from several different viewpoints. In addition to the table of contents and the index, the summary of elements by module is intended to serve as a key to the language specification."

- Change of term; Deletion of level concept

Change the second paragraph (page I-3) as follows:

"Determination of the content within a module is made from the summary of elements beginning on page I-10. This list contains a detailed breakdown of each element of SPIRIT COBOL within a given module. For example, to ascertain the content of the Sequential I-O module, reference is made to that module within the summary of elements by module. There will be found a list of COBOL elements including overall language considerations, Environment Division entries, Data Division entries and Procedure Division verbs that pertain to the Sequential I-O module."

- Deletion of summary of elements by COBOL Division

Delete the third paragraph (pages I-3 through I-4).

- Deletion of level concept

Delete the fourth and fifth paragraphs (page I-4).

Delete the schematic diagram (page I-5).

1.5 Definition of an Implementation of SPIRIT COBOL

- Change of term

Change: "1.5 Definition of an Implementation of Standard COBOL" to: "1.5 Definition of an Implementation of SPIRIT COBOL".

- Change of term; Deletion of optional module

Change the first paragraph (page I-6) as follows:

"This document provides a definition of the language features that comprise SPIRIT COBOL. SPIRIT COBOL consists of 7 modules, which are required. Paragraph 1.5 and its subparagraphs identify the criteria which must be met in order for a valid claim to be made that an implementation conforms to SPIRIT COBOL."

1.5.1 Definition of Subsets

- Deletion of level concept

Delete 1.5.1 (page I-6).

1.5.2 Definition of a Conforming Implementation

- Deletion of optional module and level concept

Delete the first paragraph (page I-6).

- Change of term; Deletion of optional module and level concept

Change the second paragraph (page I-6) as follows:

"A conforming implementation of SPIRIT COBOL must fully support all the language elements except as qualified in Paragraph 1.5.2.5."

- Deletion of optional module and level concept

Delete the third paragraph (page I-6).

1.5.2.1 Substitute or Additional Language Elements

- Change of term; Deletion of reference

Change the first paragraph (page I-7) as follows:

"An implementation must not require the inclusion of substitute or additional language elements in the source program in order to accomplish a function identical to that of a SPIRIT COBOL language element. Additionally, throughout the SPIRIT COBOL specification there are certain language elements whose syntax or function is specified to be, in part, implementor-defined. While the implementor specifies the constraints on that portion of each element's syntax or rules that is indicated in SPIRIT COBOL to be implementor-defined, such constraints must not include any requirements for the inclusion in the source program of substitute or additional language elements."

1.5.2.2 Acceptance of Specification Language Elements

- Change of term

Change: "1.5.2.2 Acceptance of Standard Language Elements" to: "1.5.2.2 Acceptance of Specification Language Elements".

- Change of term; Deletion of level concept

Change the first paragraph (page I-7) as follows:

"An implementation must accept the syntax and provide the function for all SPIRIT COBOL language elements, except those language elements dependent on specific hardware components which are specifically exempted by Paragraph 1.5.2.5.1."

1.5.2.3 Obsolete Language Elements

- Deletion of obsolete language elements

Delete 1.5.2.3 (page I-7).

1.5.2.4 Externally Provided Functions

- Change of term; Deletion of level concept

Change the first paragraph (page I-7) as follows:

"If any function is provided outside the source program that accomplishes a function specified by a SPIRIT COBOL language element, then the implementation must not require the specification of the external function in place of, or in addition to, that SPIRIT COBOL language element."

1.5.2.5 Qualifications

- Change of term

Change the first paragraph (page I-8) as follows:

"The following qualifications apply to an implementation of the SPIRIT COBOL specifications:"

1.5.2.5.1 Hardware Dependent Language Elements

- Change of term; Deletion of reference to Appendices

Change the first paragraph (page I-8) as follows:

"There are certain language elements which pertain to specific types of hardware components. In order for an implementation to meet the requirements of this SPIRIT COBOL, the implementor must specify the hardware components that the implementation supports. Furthermore, when support is claimed for a specific hardware component, all language elements that pertain to that component must be implemented if the module in which they appear is included in the implementation. Language elements that pertain to specific hardware components for which support is not claimed need not be implemented. The absence of such elements from an implementation of SPIRIT COBOL must be specified."

1.5.2.5.2 Extension Language Elements

- Change of term; Deletion of optional module and level concept

Change the first paragraph (page I-8) as follows:

"An implementation that includes language elements in addition to this language specification meets the requirements of SPIRIT COBOL. This is true even though it may imply the extension of the list of reserved words by the implementor, and thereby may prevent proper translation of some programs that meet the requirements of SPIRIT COBOL."

- Change of term; Deletion of optional module, level concept and constraints in defining extension language elements on manual

Change the second paragraph (page I-8) as follows:

"Documentation associated with an implementation must identify non-specification extensions (language elements or functions not defined in SPIRIT COBOL) that are included in the implementation."

- Deletion of constraints in providing warning mechanism

Delete the third paragraph (page I-8).

1.5.2.5.3 Reserved Words

- Change of term; Deletion of optional module

Change the first paragraph (page I-8) as follows:

"An implementation of SPIRIT COBOL must recognize as reserved words all of the COBOL reserved words occurring in this specification (see **Section IV: Overall Language Consideration**, 8. COBOL Reserved Words)."

1.5.2.5.4 Character Substitution

- Change of term

Change the first sentence (page I-8) as follows:

"The definition of the COBOL character set in **Section III: Glossary** presents the complete COBOL character set for SPIRIT COBOL."

- Definition of substitute character for currency sign

Change the second sentence (page I-8) as follows:

"When an implementation does not provide for a graphic representation for a currency sign, a substitute graphic may be specified by the implementor to replace the currency sign."

1.5.2.5.5 The ENTER Statement

- Deletion of obsolete language element (ENTER statement)

Delete 1.5.2.5.5 (page I-9).

1.6 Definition of a Conforming Source Program

- Change of term

Change the first paragraph (page I-9) as follows:

"A conforming source program is one which does not violate the explicitly stated provisions and specifications of SPIRIT COBOL. In order for a source program to conform to SPIRIT COBOL, it must not include any language elements not specified in this language specification. The execution of a program, the source text of which conforms to SPIRIT COBOL, is predictable only to the extent defined in this language specification. The results of violating the formats or rules of SPIRIT COBOL are undefined unless otherwise specified in this language specification."

- Deletion of level concept

Delete the second paragraph (page I-9).

- Change of term; Deletion of reference

Change the third paragraph (page I-9) as follows:

"There are, in SPIRIT COBOL, situations in which the results of executing a statement are undefined or unpredictable. A COBOL source program which allows this to happen may nevertheless be a conforming program, although the resultant execution is not defined by SPIRIT COBOL."

1.7 Relationship of a Conforming Program to a Conforming Implementation

- Change of term

Change the first paragraph (page I-9) as follows:

"The translation of a conforming source program by a conforming implementation and the subsequent execution of the resultant object program is defined only to the extent specified in SPIRIT COBOL. However, the preceding statement does not imply that the program will be translated or executed successfully; translation and execution depends on other factors, such as the use of implementor-defined language elements, the logical correctness of the program, and the data upon which the program operates."

- Change of term; Definition of limit

Change the second paragraph (page I-9) as follows:

"The SPIRIT COBOL language specification specifies upper limits on such things as the number of operands permitted in certain statements. A conforming program must not violate the limits of the SPIRIT COBOL language

specification. A conforming implementation must conform to each of the limits. However, it is not required that the conforming implementation conforms to multiple limits at the same time."

2. Summary of Elements by Module

2.1 General Description

- Change of term

Change the first paragraph (page I-10) as follows:

"This chapter contains a summary of all elements in SPIRIT COBOL organized according to the functional processing modules."

- Deletion of level concept

Change the second paragraph (page I-10) as follows:

"The column titled "ANS" specifies the ANS COBOL elements of the module. The column titled "SPIRIT" specifies SPIRIT COBOL elements of the module."

- Deletion of level concept and of obsolete language element

Change the third paragraph (page I-10) as follows:

"The letter X in a column indicates the presence of the specified element within the specified module. The letter N in a column indicates the absence of the specified element from the specified module. The letter Z in a column indicates the obsolete element stated in Paragraph 1.5.2.3 and this element is to be deleted from the next revision of Standard COBOL."

- Change to ANS and SPIRIT comparison table

Delete the fourth paragraph (page I-10).

Change the Summary Tables (pages I-11 through I-39) as follows:

Summary of Elements in the Nucleus Module

Element	ANS	SPIRIT
LANGUAGE CONCEPTS		
Character Sets:		
Characters used in words 0-9 A-Z - (hyphen)	X	X
Characters used in words national-character	N	X
Characters used in punctuation " () . , ; space	X	X
Characters used in punctuation : (colon).....	X	X
Characters used in editing B + - . , Z * ¥ 0 CR DB /.....	X	X
Characters used in arithmetic operations + - * / **	X	X
Characters used in relation condition = > < >= <=	X	X
Characters used in subscripting + -	X	X
Single character substitution allowed.....	X	X
Double character substitution allowed.....	Z	N
Separators:		
" () . , ; space	X	X
: (colon)	X	X
N"	N	X
Character-Strings:		
COBOL words:		
Maximum of 30 characters	X	X
Maximum of 13 characters when national-character is used	N	X
User-defined words:		
Alphabet-name	X	X
national-character may be used in Alphabet-name	N	X
Class-name	X	X
national-character may be used in class-name.....	N	X
Condition-name	X	X
national-character may be used in condition-name	N	X
Data-name	X	X
national-character may be used in data-name	N	X
Index-name	X	X
national-character may be used in index-name	N	X
Level-number	X	X
Mnemonic-name.....	X	X
national-character may be used in mnemonic-name	N	X
Paragraph-name	X	X
national-character may be used in paragraph-name	N	X
Program-name	X	X
Routine-name.....	Z	N
Section-name	X	X
national-character may be used in section-name	N	X
Symbolic-character	X	X
national-character may be used in symbolic-character	N	X
System-name:		
Computer-name	X	X

Element	ANS	SPIRIT
Implementor-name	X	X
Language-name	Z	N
Reserved words:		
Required words	X	X
Key words	X	X
Special character words:		
Arithmetic operators + - * / **	X	X
Arithmetic operators used in subscripting + -	X	X
Relation characters = > < >= <=	X	X
Optional words	X	X
Special purpose words:		
Figurative constants:		
ZERO, SPACE, HIGH-VALUE, LOW-VALUE, QUOTE	X	X
SPACE may be related to national-character data item	N	X
ALL option	X	X
ZEROS, ZEROES, SPACES, HIGH-VALUES, LOW-VALUES, QUOTES	X	X
SPACE may be related to national-character data item	N	X
ALL option	X	X
Symbolic-character	X	X
ALL option	X	X
ALL literal	X	X
national-character literal may be specified in ALL literal	N	X
Literals:		
Numeric literals: 1 through 18 digits	X	X
Non-numeric literals: 1 through 160 characters	X	X
national-character literals: as many as B-area may hold	N	X
PICTURE character-string	X	X
Comment-entries	Z	N
Uniqueness of Reference:		
Qualification:		
50 qualifiers	X	X
Subscripting:		
7 levels of subscripts	X	X
Subscripting with a literal	X	X
Subscripting with a data-name	X	X
Subscripting with an index-name	X	X
Relative subscripting	X	X
Reference modification	X	X
Reference modification of national-character data-item is specified by the number of national-characters	N	X
Reference Format:		
Sequence number	X	X
Continuation of lines:		
Continuation of non-numeric literal	X	X
Continuation of COBOL word, numeric literal, PICTURE character-string	X	X
Blank lines	X	X
Comment lines:		

Element	ANS	SPIRIT
Asterisk (*) comment line.....	X	X
Slant (/) comment line	X	X
Debugging line with D in indicator area	X	X
Source Program Structure:		
Identification Division required	X	X
Environment Division optional.....	X	X
Data Division optional.....	X	X
Procedure Division optional	X	X
End program header	X	X
IDENTIFICATION DIVISION		
PROGRAM-ID paragraph	X	X
program-name	X	X
AUTHOR paragraph.....	Z	N
INSTALLATION paragraph	Z	N
DATE-WRITTEN paragraph.....	Z	N
DATE-COMPILED paragraph	Z	N
SECURITY paragraph	Z	N
ENVIRONMENT DIVISION		
Configuration Section:	X	X
SOURCE-COMPUTER paragraph	X	X
Computer-name	X	X
WITH DEBUGGING MODE clause	X	X
OBJECT-COMPUTER paragraph	X	X
Computer-name	X	X
MEMORY SIZE clause	Z	N
PROGRAM COLLATING SEQUENCE clause	X	X
SPECIAL-NAMES paragraph	X	X
ALPHABET clause	X	X
STANDARD-1 option	X	X
STANDARD-2 option	X	X
NATIVE option.....	X	X
Implementor-name option.....	X	X
Literal option.....	X	X
CLASS clause	X	X
CURRENCY SIGN clause.....	X	X
DECIMAL-POINT clause	X	X
Implementor-name clause	X	X
IS mnemonic-name option.....	X	X
ON STATUS IS condition-name option	X	X
OFF STATUS IS condition-name option	X	X
SYMBOLIC CHARACTERS clause	X	X
DATA DIVISION		
Working-Storage Section:	X	X

Element	ANS	SPIRIT
Record description entry	X	X
77 level description entry.....	X	X
Data description entry	X	X
BLANK WHEN ZERO clause	X	X
Data-name clause	X	X
FILLER clause.....	X	X
JUSTIFIED clause.....	X	X
JUSTIFIED clause for national-character data item.....	N	X
Level-number clause	X	X
01 through 49; level-number may be 1 or 2 digits.....	X	X
66	X	X
77	X	X
88	X	X
OCCURS clause	X	X
Integer TIMES.....	X	X
ASCENDING/DESCENDING KEY clause.....	X	X
INDEXED BY phrase.....	X	X
Integer-1 TO integer-2 TIMES DEPENDING ON phrase.....	X	X
OCCURS clause for national-character data item	N	X
PICTURE clause	X	X
Character-string has a maximum of 30 characters	X	X
Data characters X 9 A	X	X
Data character N for national-character data item	N	X
Operational symbols S V P.....	X	X
Non-floating insertion characters B + - . , ¥ 0 CR DB /.....	X	X
Replacement or floating insertion characters ¥ + - Z *.....	X	X
Currency sign substitution.....	X	X
Decimal point substitution	X	X
REDEFINES clause.....	X	X
May be nested.....	X	X
RENAMES clause	X	X
SIGN clause.....	X	X
SYNCHRONIZED clause.....	X	X
USAGE clause	X	X
BINARY.....	X	X
COMPUTATIONAL	X	X
DISPLAY	X	X
INDEX.....	X	X
PACKED-DECIMAL	X	X
VALUE clause	X	X
Literal.....	X	X
national-character literal may be specified.....	N	X
Literal series.....	X	X
Literal-1 THROUGH literal-2	X	X
Literal range series	X	X
 PROCEDURE DIVISION		
Arithmetic expressions	X	X
Binary arithmetic operators + - * / **.....	X	X
Unary arithmetic operators + -.....	X	X

Element	ANS	SPIRIT
Conditional expressions	X	X
Simple condition	X	X
Relation condition	X	X
Relational operators	X	X
[NOT] GREATER THAN	X	X
[NOT] >	X	X
[NOT] LESS THAN	X	X
[NOT] <	X	X
[NOT] EQUAL TO	X	X
[NOT] =	X	X
GREATER THAN OR EQUAL TO	X	X
>=	X	X
LESS THAN OR EQUAL TO	X	X
<=	X	X
Comparison of numeric operands	X	X
Comparison of non-numeric operands	X	X
Comparison of national-character operands	N	X
Comparison of index-names and/or index data items	X	X
Class condition	X	X
NUMERIC	X	X
ALPHABETIC	X	X
ALPHABETIC-LOWER	X	X
ALPHABETIC-UPPER	X	X
Class-name	X	X
Condition-name condition	X	X
Sign condition	X	X
Switch-status condition	X	X
Complex condition	X	X
Logical operators AND OR NOT	X	X
Negated condition	X	X
Combined condition	X	X
Parenthesized condition	X	X
Abbreviated combined relation condition	X	X
Arithmetic statement	X	X
Arithmetic operands limited to 18 digits	X	X
Composite of operands limited to 18 digits	X	X
ACCEPT statement	X	X
Identifier	X	X
No restrictions on number of transfers of data	X	X
FROM mnemonic-name phrase	X	X
FROM DATE/DAY/DAY-OF-WEEK/TIME phrase	X	X
ADD statement	X	X
Identifier/literal	X	X
Identifier/literal series	X	X
TO identifier	X	X
TO identifier series	X	X
TO identifier/literal GIVING identifier	X	X
TO identifier/literal GIVING identifier series	X	X
ROUNDED phrase	X	X
ON SIZE ERROR phrase	X	X
NOT ON SIZE ERROR phrase	X	X
END-ADD phrase	X	X

Element	ANS SPIRIT	
CORRESPONDING phrase	X	X
ALTER statement	Z	N
Procedure-name series	Z	N
COMPUTE statement	X	X
Arithmetic expression	X	X
Identifier series	X	X
ROUNDED phrase	X	X
ON SIZE ERROR phrase	X	X
NOT ON SIZE ERROR phrase	X	X
END-COMPUTE phrase	X	X
CONTINUE statement	X	X
DISPLAY statement	X	X
No restrictions on number of transfers of data	X	X
Identifier/literal	X	X
Identifier/literal series	X	X
UPON mnemonic-name phrase	X	X
WITH NO ADVANCING phrase	X	X
DIVIDE statement	X	X
BY identifier/literal	X	X
INTO identifier	X	X
INTO identifier series	X	X
GIVING identifier	X	X
GIVING identifier series	X	X
ROUNDED phrase	X	X
REMAINDER phrase	X	X
ON SIZE ERROR phrase	X	X
NOT ON SIZE ERROR phrase	X	X
END-DIVIDE phrase	X	X
ENTER statement	Z	N
EVALUATE statement	X	X
Identifier/literal	X	X
Arithmetic expression	X	X
Conditional expression	X	X
TRUE/FALSE	X	X
ALSO phrase	X	X
WHEN phrase	X	X
ALSO phrase	X	X
WHEN OTHER phrase	X	X
END-EVALUATE phrase	X	X
national-character data item and national-character literal may be specified	N	X
EXIT statement	X	X
GO TO statement	X	X
Procedure-name is required	N	X
Procedure-name is optional	Z	N
DEPENDING ON phrase	X	X
IF statement	X	X
Imperative and/or conditional statements	X	X
Nested IF statements	X	X
THEN optional word	X	X
NEXT SENTENCE phrase	X	X
ELSE phrase	X	X

Element	ANS	SPIRIT
END-IF phrase	X	X
INITIALIZE statement	X	X
Identifier series	X	X
REPLACING phrase	X	X
REPLACING series	X	X
national-character data item may be specified	N	X
INSPECT statement	X	X
Multi-character data item	X	X
TALLYING phrase	X	X
BEFORE/AFTER phrase	X	X
BEFORE/AFTER phrase series	X	X
TALLYING phrase series	X	X
REPLACING phrase	X	X
BEFORE/AFTER phrase	X	X
BEFORE/AFTER phrase series	X	X
REPLACING phrase series	X	X
TALLYING and REPLACING phrases	X	X
CONVERTING phrase	X	X
national-character data item and national-character literal may be specified	N	X
MOVE statement	X	X
TO identifier	X	X
TO identifier series	X	X
De-editing of numeric edited items	X	X
CORRESPONDING phrase	X	X
national-character data item and national-character literal may be specified	N	X
MULTIPLY statement	X	X
BY identifier	X	X
BY identifier series	X	X
GIVING identifier	X	X
GIVING identifier series	X	X
ROUNDED phrase	X	X
ON SIZE ERROR phrase	X	X
NOT ON SIZE ERROR phrase	X	X
END-MULTIPLY phrase	X	X
PERFORM statement	X	X
Procedure-name is optional	X	X
THROUGH procedure-name phrase	X	X
Imperative-statement option	X	X
END-PERFORM phrase	X	X
TIMES phrase	X	X
UNTIL phrase	X	X
TEST BEFORE/AFTER phrase	X	X
VARYING phrase	X	X
TEST BEFORE/AFTER phrase	X	X
AFTER phrase	X	X
At least 6 AFTER phrases permitted	X	X
SEARCH statement	X	X
VARYING phrase	X	X
AT END phrase	X	X
WHEN phrase	X	X
WHEN phrase series	X	X

Element	ANS SPIRIT	
END-SEARCH phrase	X	X
SEARCH ALL statement	X	X
AT END phrase	X	X
WHEN phrase	X	X
END-SEARCH phrase	X	X
SET statement	X	X
Index-name/identifier TO	X	X
Index-name UP BY/DOWN BY	X	X
Mnemonic-name TO ON/OFF	X	X
Condition-name TO TRUE	X	X
STOP statement	X	X
RUN	X	X
Literal	Z	N
STRING statement	X	X
DELIMITED BY series	X	X
WITH POINTER phrase	X	X
ON OVERFLOW phrase	X	X
NOT ON OVERFLOW phrase	X	X
END-STRING phrase	X	X
national-character data item and national-character literal may be specified	N	X
SUBTRACT statement	X	X
Identifier/literal	X	X
Identifier/literal series	X	X
FROM identifier	X	X
FROM identifier series	X	X
GIVING identifier	X	X
GIVING identifier series	X	X
ROUNDED phrase	X	X
ON SIZE ERROR phrase	X	X
NOT ON SIZE ERROR phrase	X	X
END-SUBTRACT phrase	X	X
CORRESPONDING phrase	X	X
UNSTRING statement	X	X
DELIMITED BY phrase	X	X
DELIMITER IN phrase	X	X
COUNT IN phrase	X	X
WITH POINTER phrase	X	X
TALLYING phrase	X	X
ON OVERFLOW phrase	X	X
NOT ON OVERFLOW phrase	X	X
END-UNSTRING phrase	X	X
national-character data item and national-character literal may be specified	N	X

Summary of Elements in the Sequential I-O Module

Element	ANS	SPIRIT
LANGUAGE CONCEPTS		
User-defined words:		
File-name	X	X
national-character may be used in a file-name	N	X
Record-name	X	X
national-character may be used in a record-name	N	X
Reserved words:		
Special register LINAGE-COUNTER	X	X
I-O status	X	X
ENVIRONMENT DIVISION		
Input-Output Section:		
FILE-CONTROL paragraph	X	X
File control entry.....	X	X
SELECT clause	X	X
OPTIONAL phrase.....	X	X
Input, I-O and extended files only.....	X	X
ACCESS MODE IS SEQUENTIAL clause	X	X
ASSIGN clause.....	X	X
Implementor-name.	X	X
Literal	X	X
FILE STATUS clause	X	X
ORGANIZATION IS SEQUENTIAL clause.....	X	X
PADDING CHARACTER clause.....	X	X
RECORD DELIMITER clause	X	X
REVERSE AREA clause.....	X	X
I-O-CONTROL paragraph.....	X	X
MULTIPLE FILE TAPE clause.....	Z	N
RETURN clause	Z	N
SAME AREA clause	X	X
SAME RECORD AREA clause	X	X
DATA DIVISION		
File Section:		
File description entry	X	X
FD level indicator.....	X	X
BLOCK CONTAINS clause	X	X
Integer RECORDS/CHARACTERS	X	X
Integer-1 TO integer-2 RECORDS/CHARACTERS.....	X	X
CODE-SET clause.....	X	X
DATA RECORDS clause.....	Z	N
LABEL RECORDS clause.....	Z	N
LINAGE clause.....	X	X
FOOTING phrase	X	X
TOP phrase.....	X	X

Element	ANS	SPIRIT
BOTTOM phrase	X	X
RECORD clause	X	X
Integer-1 CHARACTERS.....	X	X
VARYING IN SIZE phrase.....	X	X
FROM integer-2 TO integer-3 CHARACTERS.....	X	X
DEPENDING ON phrase.....	X	X
Integer-4 TO integer-5 CHARACTERS.....	X	X
VALUE OF clause.....	X	X
Implementor-name IS literal.....	Z	N
Implementor-name IS literal series.....	Z	N
Implementor-name IS data-name	Z	N
Implementor-name IS data-name series	Z	N
Record description entry	X	X
 PROCEDURE DIVISION		
Declarative procedures	X	X
DECLARATIVES	X	X
END DECLARATIVES	X	X
CLOSE statement	X	X
File-name	X	X
File-name series.....	X	X
REEL/UNIT phrase.....	X	X
FOR REMOVAL phrase	X	X
WITH NO REWIND/LOCK phrase.....	X	X
OPEN statement	X	X
File-name	X	X
File-name series.....	X	X
INPUT phrase	X	X
WITH NO REWIND phrase	X	X
REVERSED phrase	Z	N
OUTPUT phrase.....	X	X
WITH NO REWIND phrase	X	X
I-O phrase	X	X
EXTEND phrase.....	X	X
INPUT, OUTPUT and I-O series	X	X
EXTEND series	X	X
READ statement	X	X
NEXT phrase	X	X
INTO phrase	X	X
AT END phrase	X	X
NOT AT END phrase	X	X
END-READ phrase.....	X	X
REWRITE statement.....	X	X
FROM phrase	X	X
END-REWRITE phrase	X	X
USE statement.....	X	X
EXCEPTION/ERROR PROCEDURE phrase	X	X
ON file-name	X	X
ON file-name series.....	X	X
ON INPUT	X	X
ON OUTPUT	X	X

Element	ANS	SPIRIT
ON I-O	X	X
ON EXTEND	X	X
WRITE statement	X	X
FROM phrase	X	X
BEFORE/AFTER ADVANCING phrase	X	X
Integer LINE/LINES	X	X
Identifier LINE/LINES	X	X
Mnemonic-name	X	X
PAGE	X	X
AT END-OF-PAGE/EOP phrase	X	X
NOT AT END-OF-PAGE/EOP phrase	X	X
END-WRITE phrase	X	X

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Summary of Elements in the Relative I-O Module

Element	ANS SPIRIT	
LANGUAGE CONCEPTS		
User-defined words:		
File-name	X	X
national-character may be used in a file-name	N	X
Record-name	X	X
national-character may be used in a record-name	N	X
I-O status	X	X
ENVIRONMENT DIVISION		
Input-Output Section:		
FILE-CONTROL paragraph	X	X
File control entry	X	X
SELECT clause	X	X
OPTIONAL phrase	X	X
Input, I-O and extend files only	X	X
ACCESS MODE clause	X	X
SEQUENTIAL	X	X
RANDOM	X	X
DYNAMIC	X	X
RELATIVE KEY phrase	X	X
ASSIGN clause	X	X
Implementor-name	X	X
Literal	X	X
FILE STATUS clause	X	X
ORGANIZATION IS RELATIVE clause	X	X
RESERVE AREA clause	X	X
I-O-CONTROL paragraph	X	X
RERUN clause	Z	N
SAME AREA clause	X	X
SAME RECORD AREA clause	X	X
DATA DIVISION		
File Section:		
File description entry	X	X
FD level indicator	X	X
BLOCK CONTAINS clause	X	X
Integer RECORDS/CHARACTERS	X	X
Integer-1 TO integer-2 RECORDS/CHARACTERS	X	X
DATA RECORDS clause	Z	N
LABEL RECORDS clause	Z	N
RECORD clause	X	X
Integer-1 CHARACTERS	X	X
VARYING IN SIZE phrase	X	X
FROM integer-2 TO integer-3 CHARACTERS	X	X
DEPENDING ON phrase	X	X

Element	ANS	SPIRIT
Integer-4 TO integer-5 CHARACTERS.....	X	X
VALUE OF clause.....	Z	N
Implementor-name IS literal.....	Z	N
Implementor-name IS literal series.....	Z	N
Implementor-name IS data-name	Z	N
Implementor-name IS data-name series	Z	N
Record description entry	X	X
PROCEDURE DIVISION		
Declarative procedures	X	X
DECLARATIVES	X	X
END DECLARATIVES	X	X
CLOSE statement	X	X
File-name	X	X
File-name series.....	X	X
WITH CLOCK phrase	X	X
DELETE statement	X	X
INVALID KEY phrase.....	X	X
NOT INVALID KEY phrase	X	X
END-DELETE phrase	X	X
OPEN statement	X	X
File-name	X	X
File-name series.....	X	X
INPUT phrase	X	X
OUTPUT phrase.....	X	X
I-O phrase	X	X
EXTEND phrase.....	X	X
INPUT, OUTPUT, and I-O series	X	X
EXTEND series	X	X
READ statement	X	X
NEXT phrase	X	X
INTO phrase	X	X
AT END phrase	X	X
NOT AT END phrase	X	X
INVALID KEY phrase.....	X	X
NOT INVALID KEY phrase	X	X
END-READ phrase.....	X	X
REWRITE statement	X	X
FROM phrase	X	X
INVALID KEY phrase.....	X	X
NOT INVALID KEY phrase	X	X
END-REWRITE phrase	X	X
START statement.....	X	X
KEY phrase.....	X	X
EQUAL TO	X	X
=	X	X
GREATER THAN.....	X	X
>	X	X
NOT LESS THAN	X	X
NOT <	X	X
GREATER THAN OR EQUAL TO	X	X

Element	ANS	SPIRIT
>=	X	X
INVALID KEY phrase	X	X
NOT INVALID KEY phrase	X	X
END-START phrase	X	X
USE statement	X	X
EXCEPTION/ERROR PROCEDURE phrase	X	X
ON file-name	X	X
ON file-name series	X	X
ON INPUT	X	X
ON OUTPUT	X	X
ON I-O	X	X
ON EXTEND	X	X
WRITE statement	X	X
FROM phrase	X	X
INVALID KEY phrase	X	X
NOT INVALID KEY phrase	X	X
END-WRITE phrase	X	X

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Summary of Elements in the Indexed I-O Module

Element	ANS	SPIRIT
LANGUAGE CONCEPTS		
User-defined words:		
File-name	X	X
national-character may be used in a file-name	N	X
Record-name	X	X
national-character may be used in a record-name	N	X
I-O status	X	X
ENVIRONMENT DIVISION		
Input-Output Section:		
FILE-CONTROL paragraph	X	X
File control entry	X	X
SELECT clause	X	X
OPTIONAL phrase	X	X
Input, I-O and extend files only	X	X
ACCESS MODE clause	X	X
SEQUENTIAL	X	X
RANDOM	X	X
DYNAMIC	X	X
ALTERNATE RECORD KEY clause	X	X
ASSIGN clause	X	X
Implementor-name	X	X
Literal	X	X
FILE STATUS clause	X	X
ORGANIZATION IS INDEXED clause	X	X
RECORD KEY clause	X	X
RESERVE AREA clause	X	X
I-O-CONTROL paragraph	X	X
RERUN clause	Z	N
SAME AREA clause	X	X
SAME RECORD AREA clause	X	X
DATA DIVISION		
File Section:		
File description entry	X	X
FD level indicator	X	X
BLOCK CONTAINS clause	X	X
Integer RECORDS/CHARACTERS	X	X
Integer-1 TO integer-2 RECORDS/CHARACTERS	X	X
DATA RECORDS clause	Z	N
LABEL RECORDS clause	Z	N
RECORD clause	X	X
Integer-1 CHARACTERS	X	X
VARYING IN SIZE phrase	X	X
FROM integer-2 TO integer-3 CHARACTERS	X	X

Element	ANS SPIRIT	
DEPENDING ON phrase.....	X	X
Integer-4 TO integer-5 CHARACTERS.....	X	X
VALUE OF clause.....	Z	N
Implementor-name IS literal.....	Z	N
Implementor-name IS literal series.....	Z	N
Implementor-name IS data-name	Z	N
Implementor-name IS data-name series	Z	N
Record description entry	X	X
PROCEDURE DIVISION		
Declarative procedures	X	X
DECLARATIVES	X	X
END DECLARATIVES	X	X
CLOSE statement	X	X
File-name	X	X
File-name series.....	X	X
WITH CLOCK phrase	X	X
DELETE statement	X	X
INVALID KEY phrase.....	X	X
NOT INVALID KEY phrase	X	X
END-DELETE phrase	X	X
OPEN statement	X	X
File-name	X	X
File-name series.....	X	X
INPUT phrase	X	X
OUTPUT phrase.....	X	X
I-O phrase	X	X
EXTEND phrase.....	X	X
INPUT, OUTPUT and I-O series	X	X
EXTEND series	X	X
READ statement	X	X
NEXT phrase	X	X
INTO phrase	X	X
AT END phrase	X	X
NOT AT END phrase	X	X
KEY phrase.....	X	X
INVALID KEY phrase.....	X	X
NOT INVALID KEY phrase	X	X
END-READ phrase.....	X	X
REWRITE statement	X	X
FROM phrase	X	X
INVALID KEY phrase.....	X	X
NOT INVALID KEY phrase	X	X
END-REWRITE phrase	X	X
START statement	X	X
KEY phrase.....	X	X
EQUAL TO	X	X
=	X	X
GREATER THAN.....	X	X
>	X	X
NOT LESS THAN	X	X

Element	ANS	SPIRIT
NOT <	X	X
GREATER THAN OR EQUAL TO	X	X
>=	X	X
INVALID KEY phrase	X	X
NOT INVALID KEY phrase	X	X
END-START phrase	X	X
USE statement	X	X
EXCEPTION/ERROR PROCEDURE phrase	X	X
ON file-name	X	X
ON file-name series	X	X
ON INPUT	X	X
ON OUTPUT	X	X
ON I-O	X	X
ON EXTEND	X	X
WRITE statement	X	X
FROM phrase	X	X
INVALID KEY phrase	X	X
NOT INVALID KEY phrase	X	X
END-WRITE phrase	X	X

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Summary of Elements in the Inter-Program Communication Module

Element	ANS	SPIRIT
LANGUAGE CONCEPTS		
Source program structure: Nested source programs	X	X
IDENTIFICATION DIVISION		
PROGRAM-ID paragraph: COMMON clause	X	X
INITIAL clause	X	X
DATA DIVISION		
File Section:		
File description entry (FD level indicator): EXTERNAL clause	X	X
GLOBAL clause.....	X	X
Data description entry (level-number 01): GLOBAL clause.....	X	X
Working-Storage Section:		
Data description entry (level-number 01): EXTERNAL clause	X	X
GLOBAL clause.....	X	X
Linkage Section:		
Record description entry	X	X
77 level description entry.....	X	X
PROCEDURE DIVISION		
Procedure Division header: USING phrase.....	X	X
No limit on number of operands permitted.....	X	N
CALL statement	X	X
Literal.....	X	X
Identifier.....	X	X
USING phrase.....	X	X
Identifier	X	X
No limit on number of operands permitted.....	X	N
BY REFERENCE phrase	X	X
BY CONTENT phrase.....	X	X
ON OVERFLOW phrase.....	X	X
ON EXCEPTION phrase.....	X	X
NOT ON EXCEPTION phrase.....	X	X
END-CALL phrase.....	X	X
CANCEL statement	X	X

Element	ANS SPIRIT	
Literal.....	X	X
Identifier.....	X	X
EXIT PROGRAM statement	X	X
USE statement		
EXCEPTION/ERROR PROCEDURE phrase		
GLOBAL phrase	X	X

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Summary of Elements in the SORT-MERGE Module

Element	ANS	SPIRIT
LANGUAGE CONCEPTS		
User-defined words:		
File-name	X	X
national-character may be used in a file-name	N	X
Record-name	X	X
national-character may be used in a record-name	N	X
ENVIRONMENT DIVISION		
Input-Output Section:		
FILE-CONTROL paragraph	X	X
File control entry.....	X	X
SELECT clause	X	X
ASSIGN clause	X	X
Implementor-name	X	X
Literal	X	X
I-O-CONTROL paragraph.....	X	X
SAME SORT/SORT-MERGE AREA clause.....	X	X
SAME RECORD AREA clause	X	X
DATA DIVISION		
File-Section:		
Sort-merge file description entry.....	X	X
SD level indicator	X	X
DATA RECORDS clause.....	Z	N
RECORD clause	X	X
Integer-1 CHARACTERS.....	X	X
VARYING IN SIZE phrase.....	X	X
FROM integer-2 TO integer-3 CHARACTERS.....	X	X
DEPENDING ON phrase.....	X	X
Integer-4 TO integer-5 CHARACTERS.....	X	X
Record description entry	X	X
PROCEDURE DIVISION		
MERGE statement	X	X
ASCENDING/DESCENDING KEY phrase.....	X	X
COLLATING SEQUENCE phrase	X	X
USING phrase.....	X	X
OUTPUT PROCEDURE phrase.....	X	X
Procedure-name.....	X	X
GIVING phrase.....	X	X
RELEASE statement	X	X
FROM phrase	X	X
RETURN statement	X	X
INTO phrase	X	X

Element	ANS	SPIRIT
AT END phrase	X	X
NOT AT END phrase	X	X
END-RETURN phrase	X	X
SORT statement	X	X
ASCENDING/DESCENDING KEY phrase.....	X	X
DUPLICATES phrase	X	X
COLLATING SEQUENCE phrase	X	X
INPUT PROCEDURE phrase.....	X	X
Procedure-name.....	X	X
USING phrase.....	X	X
OUTPUT PROCEDURE phrase.....	X	X
Procedure-name.....	X	X
GIVING phrase.....	X	X

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Summary of Elements in the Source Text Manipulation Module

Element	ANS	SPIRIT
LANGUAGE CONCEPTS		
Character set:		
Characters used in punctuation =	X	X
User-defined words:		
Library-name	X	X
Text-name	X	X
ALL DIVISIONS		
COPY statement	X	X
OF/IN library-name phrase	X	X
REPLACING phrase	X	X
Pseudo-text	X	X
Identifier	X	X
Literal	X	X
Word	X	X
REPLACE statement	X	X
Pseudo-text BY pseudo-text	X	X
OFF	X	X

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3. Summary of Elements by COBOL Division
 - Deletion of the summary of elements by COBOL division
Delete Chapter 3 (pages I-40 through I-63).

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Section II: Concepts

1. Introduction
2. Files
 - 2.1 File Attributes
 - 2.2 File Processing
 - 2.2.1 Record Operations
 - Deletion of optional module
Delete the third paragraph (page II-3).
 - 2.2.1.4 Open Mode
 - Deletion of optional module
Change the fourth paragraph (page II-4) as follows:
"When the open mode is extended, new records are added to the logical end of a file by issuing WRITE statements."
3. Report Writer
 - Deletion of optional module
Delete Chapter 3 (pages II-8 through II-11).
4. Table Handling
 - 4.1 Table Definition
 - 4.2 Initial Values of Tables
 - 4.3 References to Table Items
 - Deletion of optional module
Change the first sentence of the first paragraph (page II-14) as follows:
"Whenever the user references a table element or a condition-name associated with a table element, the reference must indicate which occurrence of the element is intended, except in a SEARCH statement."
 - 4.4 Subscripting
5. Shared Memory Area
6. Program and Run Unit Organization and Communication
 - 6.1 Program and Run Unit Organization
 - Deletion of optional module
Change the last sentence of the fourth paragraph (page II-18) as follows:
"A run unit is an independent entity that can be executed without communicating with, or being coordinated with, any other run unit except that it may process data files or set and test switches that were written or will be read by other run units."
 - 6.2 Accessing Data and Files

6.2.2.1.4 Other Objects

- Deletion of optional module

Change the first paragraph (page II-20) as follows:

"An example of an other object declared in COBOL programs is control information associated with the Linkage Section."

6.2.2.2.4 Other Objects

- Deletion of optional module

Change the first sentence of the first paragraph (page II-21) as follows:

"Data records, subordinate data items and various associated control information described in the Linkage Section of a program are always considered to be internal to the program describing that data."

6.3 Program Classes

6.4 Inter-Program Communication

6.4.1 Transfer of Control

- Change of term

In the third paragraph (page II-23), read the words "this document" in the first, second and third sentences as "this specification".

6.5 Intra-Program Communication

6.6 Segmentation

- Deletion of optional module

Delete 6.6 (page II-27).

7. Communication Facility

- Deletion of optional module

Delete Chapter 7 (pages II-28 through II-35).

Section III: Glossary

1. Introduction

- Addition of national language feature

Add the following third paragraph (page III-1):

"Terms of national language feature are defined at the end of this section."

2. Definitions

Character

- Addition of national language feature
- Definition of common character sets

Change as follows:

"The basic indivisible unit of language. Every element of a character set is such a character. The character set must be one of the character sets specified in Part 5, Application Portability of Doc. No. J405, except for the Kanji character set. Note that the Katakana character set element may occupy multiple character positions. For such an element, the portion related to each character position is the character. The number of character positions occupied by a Katakana character set element is implementor-defined. When a Katakana character set element is divided among character positions, the corresponding action to be taken is implementor-defined."

Character Position

- Definition of number of bits which compose a character position

Add the following sentence to the end:

"A character position is composed of 8 or more bits."

Character-String

- Addition of national language feature
- Deletion of obsolete language element (comment-entry)

Change as follows:

"A sequence of contiguous characters which form a COBOL word, a literal or a PICTURE character-string (see **Section IV: Overall Language Consideration**, 4.2.2 Character-Strings and National-Character Strings)."

Clause

- Addition of national language feature

Change as follows:

"A clause is an ordered set of consecutive COBOL character-strings and national-character strings whose purpose is to specify an attribute of an entry."

COBOL Character Set

- Addition of national language feature

- Definition of currency sign, \$

Change as follows:

"The complete COBOL character set consists of the characters listed below and national-characters (see the definition of *COBOL National-Character* below).

Character	Meaning
0, 1, ..., 9	digit
A, B, ..., Z	upper-case letter
a, b, ..., z	lower-case letter
	space
+	plus sign
-	minus sign (hyphen)
*	asterisk
/	slant (solidus)
=	equal sign
\$	currency sign (defined by each country)
,	comma (decimal point)
;	semicolon
.	period (decimal point, full stop)
"	quotation mark
(left parenthesis
)	right parenthesis
>	greater than symbol
<	less than symbol
:	colon
COBOL national-character	

Notes:

1. In the case where an implementation does not provide the currency sign "\$", a substitute character may be specified by the implementor to replace it. COBOL character set graphics, except COBOL national-characters and the currency sign, are a subset of ANSI Standard X3.4-1977¹ or the International Reference Version of ISO/IEC 646: 1973.²

Comment Line

- Addition of national language feature

Change the first sentence as follows:

"A source program line represented by an asterisk (*) in the indicator area of the line and any combination of any characters from the computer's character set and any national-characters from the computer's national-character set in area A and area B of that line."

Change the third sentence as follows:

2. American National Standard X3.4-1977, Code for Information Interchange.
 2. International Reference Version of ISO/IEC 646: 1973, Information Processing — ISO 7-bit Coded Character Set for Information Interchange.

"A special form of comment line represented by a slant (/) in the indicator area of the line and any combination of any characters from the computer's character set and any national-characters from the computer's national-character set in area A and area B of that line causes page ejection prior to printing the comment."

Compiler Directing Statement

- Deletion of obsolete language element (ENTER statement)

Change the second sentence as follows:

"The compiler directing statements are the COPY, REPLACE and USE statements."

Delimiter

- Addition of national language feature

Change as follows:

"A character or a sequence of contiguous characters that identify the end of a string of characters or national-characters and separates that string of characters or national-characters from the following string of characters or national-characters. A delimiter is not part of the string of characters or national-characters that it delimits."

Global Name

- Deletion of optional module

Change the second sentence as follows:

"Condition-names, data-names, file-names, record-names and some special registers may be global names (see **Section X: Inter-Program Communication Module**, 1.3.8.2 Conventions for Condition-Names, Data-Names, File-Names and Record-Names, and 4.2.4 General Rules, rule 1 concerning LINAGE-COUNTER)."

High Order End

- Addition of national language feature

Change as follows:

"The leftmost character of a string of characters and the leftmost national-character of a string of national-characters."

I-O-CONTROL

- Deletion of obsolete language elements (RERUN clause, MULTIPLE FILE TAPE clause)

Change as follows:

"The name of an Environment Division paragraph in which sharing of the same areas by several data files is specified."

Input-Output Statement

- Deletion of optional module

Change the second sentence as follows:

"The input-output statements are: ACCEPT (with the identifier phrase), CLOSE, DELETE, DISPLAY, OPEN, READ, REWRITE, SET (with the TO ON or TO OFF phrase), START and WRITE."

Level Indicator

- Deletion of optional module

Change the second sentence as follows:

"The level indicators in the Data Division are: FD and SD."

Literal

- Addition of national language feature

Change as follows:

"A character-string or national-character string whose value is implied by the ordered set of characters comprising the string or of national-characters comprising the national-character string."

Low Order End

- Addition of national language feature

Change as follows:

"The rightmost character of a string of characters and the rightmost national-character of a national-character string."

Native Character Set

- Addition of national language feature
- Definition of common character sets

Change as follows:

"The implementor-defined character set and national-character set associated with the computer specified in the OBJECT-COMPUTER paragraph including the Common Character Sets defined in Part 5, Application Portability of Doc. No. J405."

Native Collating Sequence

- Addition of national language feature
- Definition of common character sets

Change as follows:

"The implementor-defined character collating sequence and national-character collating sequence associated with the computer specified in the OBJECT-COMPUTER paragraph following the collating sequence of the Common Character Sets defined in Part 5, Application Portability of Doc. No. J405."

Obsolete Element

- Deletion of obsolete language element

Change as follows:

"A COBOL language element in ANSI Standard X3.23-1985³ that is to be deleted from the next revision of Standard COBOL."

Operand

- Change of term

Change as follows:

"Whereas the general definition of operand is "that component which is operated upon", for the purposes of this language specification, any lower-case word (or words) that appears in a statement or entry format may be considered to be an operand and, as such, is an implied reference to the data indicated by the operand."

Paragraph Header

- Deletion of obsolete language elements (AUTHOR, INSTALLATION, DATE-WRITTEN, DATE-COMPILED and SECURITY paragraphs)

Change the list of headers of Identification Division as follows:

PROGRAM-ID.

Phrase

- Addition of national language feature

Change as follows:

"A phrase is an ordered set of one or more consecutive COBOL character-strings or national-character strings that form a portion of a COBOL procedural statement or of a COBOL clause."

Procedure Branching Statement

- Deletion of obsolete language element (ALTER statement)

Change the second sentence as follows:

"The procedure branching statements are: CALL, EXIT, EXIT PROGRAM, GO TO, MERGE (with the OUTPUT PROCEDURE phrase), PERFORM and SORT (with the INPUT PROCEDURE or OUTPUT PROCEDURE phrase)."

Reference Modifier

- Addition of national language feature

Change as follows:

"The leftmost-character-position or the leftmost-national-character-position and length used to establish and reference a data item (see **Section IV: Overall Language Consideration**, 4.3.8.3 Reference Modification)."

Relation Condition

3. American National Standard X3.23-1985, Programming Languages — COBOL.

- Addition of national language feature

Change as follows:

"The proposition, for which a truth value can be determined, that the value of an arithmetic expression, data item, non-numeric literal, national-character literal or index-name has a specific relationship to the value of another arithmetic expression, data item, non-numeric literal, national-character literal or index-name (see the definition of *Relational Operator*)."

Section Header

- Deletion of optional module

Change the list of headers of Data Division as follows:

FILE SECTION.
WORKING-STORAGE SECTION.
LINKAGE SECTION.

Change the last sentence as follows:

"In the Procedure Division, a section header is composed of a section-name, followed by the reserved word SECTION, followed by a separator period."

Separator

- Addition of national language feature

Change as follows:

"A character or two contiguous characters used to delimit character-strings or national-character strings (see **Section IV: Overall Language Consideration**, 4.2.1 Separators)."

Source Program

- Change of term

Change the first sentence as follows:

"Although it is recognized that a source program may be represented by other forms and symbols, in this language specification it always refers to a syntactically correct set of COBOL statements."

Standard Data Format

- Addition of national language feature

Change as follows:

"The concept used in describing character data in a COBOL Data Division under which the characteristics or properties of the character data are expressed in a form oriented to the appearance of the character data on a printed page of infinite length and breadth, rather than a form oriented to the manner in which the character data is stored internally in the computer or on a particular medium."

Text Word

- Addition of national language feature

Change the first sentence as follows:

"A character or a national-character or a sequence of contiguous characters or a sequence of contiguous national-characters between margin A and margin R in a COBOL library, source program or in pseudo-text which is:"

Change the first sentence of (1) as follows:

"A separator, except for: space, a pseudo-text delimiter, and the opening and closing delimiters for non-numeric literals and for national-character literals."

Add the following sentence at the end of (2):

"In case of national-character literals, a literal including the opening separator N" and the closing quotation mark which bound the literal."

Change (3) as follows:

"Any other sequence of contiguous characters or contiguous national-characters in the COBOL character set except comment lines and the word "COPY", bounded by separators, which is neither a separator nor a literal."

Word

- Addition of national language feature

Change as follows:

"A string of not more than 30 characters of any combination of the upper-case letters, numeric characters and hyphens, or a string of not more than 13 COBOL national-characters which forms a user-defined word, a system-name or a reserved word (see **Section IV: Overall Language Consideration**, 4.2.2.1 COBOL Words)."

- Addition of national language feature
- Definition of common character sets
- Definition of external characters

Add the following words:

COBOL National-Character

COBOL national-character set is a subset of national-character set, listed below.

hyphen
prolonged sound symbol
digit
Roman letter
Hiragana
Katakana
Kanji"

National-Character

The basic indivisible unit of the language. Element of the Kanji character set of the Common Character Sets defined in Part 5, Application Portability of Doc. No. J405 or external character defined

based on the rule for External Characters in Part 5, Application Portability of Doc. No. J405 are national characters.

National-character Collating Sequence

The sequence in which the national-characters that are acceptable to a computer are ordered for purposes of sorting, merging and comparing. Collating sequence of national-characters is defined by the implementor.

National-Character Data Item

A data item which contains any combination of national-characters of the computer's national-character set.

National-Character Literal

A literal comprised of national-character string enclosed within an opening separator N" and a closing quotation mark. The national-character string may contain any national-characters of the computer's national-character set.

National-Character Position

The amount of physical storage required to store a single national standard data format national-character. Further characteristics of the physical storage are defined by the implementor. One national-character position is equal to an integer times one character position. The integer value is defined by the implementor.

National-Character Set

The complete national-character set which the computer may implement.

National-Character String

A sequence of contiguous national-characters which form a COBOL word or national-character literal (see **Section IV: Overall Language Consideration**, 4.2.2 Character-Strings and National-Character Strings)."

National Standard Data Format

The concept used in describing national-character data in a COBOL Data Division under which the characteristics or properties of the national-character data are expressed in a form oriented to the appearance of the data on a printed page of infinite length and breadth, rather than a form oriented to the manner in which the national-character data is stored internally in the computer or on a particular medium."

Section IV: Overall Language Consideration

1. Introduction
 - Change of term; Deletion of level concept
Change the paragraph (page IV-1), except the last sentence, to the following:
"The language considerations and rules specified in this section apply to SPIRIT COBOL."
2. Notation Used in Formats
 - 2.1 Definition of a General Format
 - 2.1.2 Words
 - Deletion of obsolete language element (Comment Entry)
Change the first sentence of the second paragraph (page IV-1) as follows:
"Lower-case words, in a general format, are generic terms used to represent COBOL words, literals, PICTURE character-strings or a complete syntactical entry that must be supplied by the user."
3. Rules
 - 3.1 Syntax Rules
 - 3.2 General Rules
4. Language Concepts
 - 4.1 Character Set
 - Addition of national language feature
 - Deletion of obsolete language element (Comment Entry)
Change the first paragraph (page IV-4) as follows:
"The most basic and indivisible units of the language are the character and national-character. The set of characters used to form COBOL character-strings and separators includes the letters of the alphabet, digits, national-characters and special characters. The character set consists of the characters and national-characters as defined in **Section III: Glossary**, definition of *COBOL Character Set*. In the case of non-numeric literals and comment lines, the character set is expanded to include the computer's entire character set. In case of national-character literals and comment lines, the national-character set is expanded to include any national-character in the computer's national-character set. The characters allowable in each type of character-string and as separators and national-characters allowable as national-character strings are defined in 4.2 Language Structure."
 - Definition of substitute character for currency sign
Change the second paragraph (page IV-4) as follows:
"In the case where the currency sign of the characters comprising the COBOL character set is not graphically represented in **Section III: Glossary**, a substitute graphic may be specified to replace the character."
 - Deletion of obsolete language element (double character substitution)

Delete the third paragraph (page IV-4).

4.2 Language Structure

- Addition of national language structure

Change the paragraph (page IV-4) as follows:

"The individual characters of the language are concatenated to form character-strings and separators, and the individual national-characters are concatenated to form national-character strings. A separator may be concatenated with another separator, a character-string or a national-character string. A character-string or a national-character string may only be concatenated with a separator. The concatenation of character-strings or national-character strings and separators forms the text of a source program."

4.2.1 Separators

- Addition of national language feature
- Deletion of obsolete language element (Comment Entry)

Add the following after (5) (page IV-5):

(5a) "A concatenation of a character "N" and a quotation mark forms a separator. A space or left parenthesis must be immediately before the character "N". A closing quotation mark, when paired with a concatenation of the character "N" and a quotation mark, must be immediately followed by one of the separators space, comma, semicolon, period or right parenthesis."

Change the last paragraph (page IV-5) as follows:

"The rules established for the formation of separators do not apply to the characters or national-characters which comprise the contents of non-numeric literals, national-character literals or comment lines."

4.2.2 Character-Strings and National-Character Strings"

- Addition of national language feature
- Deletion of obsolete language element (comment entry)

Change the title: "4.2.2 Character-Strings" to: "4.2.2 Character-Strings and National-Character Strings".

Change the paragraph (page IV-5) as follows:

"A character-string is a character or a sequence of contiguous characters which forms a COBOL word, a literal or a PICTURE character-string. A national-character string is a national-character or a sequence of contiguous national-characters which forms a COBOL word or a literal. A character-string or national-character string is delimited by separators."

4.2.2.1 COBOL Words

- Addition of national language feature

Change the first sentence (page IV-5) as follows:

"A COBOL word is a character-string of not more than 30 characters or a national-character string of not more than 13 national-characters which forms a user-defined word, a system-name or a reserved word."

Add the following sentence after the fourth sentence (page IV-6):

"A national-character may not be used as a system-name or as a reserved word."

4.2.2.1.1 User-defined Words

- Addition of national language feature
- Deletion of optional module
- Definition of limits for program-names and external-names

Add the following paragraph at the end of the first paragraph (page IV-6):

"Any national-character or COBOL national-character may be used as a national-character in a user-defined word. Equivalence rules among national-characters may be defined by the implementor."

Change the second paragraph (page IV-6) as follows:

"The types of user-defined words are:

1. alphabet-name
3. class-name
4. condition-name
5. data-name
6. file-name
7. index-name
8. level-number
9. library-name
10. mnemonic-name
11. paragraph-name
12. program-name
13. record-name
16. section-name
18. symbolic-character
19. text-name"

Change the third paragraph (page IV-6) as follows:

"Within a given source program, but excluding any contained program, the user-defined words are grouped into the following disjoint sets:

1. alphabet-names
3. class-names
4. condition-names, data-names and record-names
5. file-names
6. index-names

7. library-names
8. mnemonic-names
9. paragraph-names
10. program-names
13. section-names
14. symbolic-characters
15. text-names"

Change the fourth paragraph (page IV-7) as follows:

"All user-defined words, except level-numbers, can belong to one and only one of these disjoint sets. Further, all user-defined words within a given disjoint set must be unique, except as specified in the rules for uniqueness of reference (see **Section IV: Overall Language Consideration**, 4.3.8 Uniqueness of Reference)."

Change the fifth paragraph (page IV-7) as follows:

"Alphabet-names, class-names, condition-names, data-names, file-names, index-names, mnemonic-names, record-names and symbolic-characters must contain at least one alphabetic character or one national-character. National-characters may not be specified in a file-name or data-name, if a file connector or data item is external (see **Section X: Inter-Program Communication Module**, 4.5 The EXTERNAL Clause).

In this case, the number of characters of a file-name or data-name is not more than 8. A program-name or text-name must be a character-string starting with an alphabetic character and consists of only alphabetic characters and digits. The number of characters of a program-name is not more than 8. The number of characters of a text-name is not more than 8. The level-numbers need not be unique; a given specification of a level-number may be identical to any other level-number."

4.2.2.1.1.3 Paragraph-Name

- Addition of national language feature

Change the second sentence of the paragraph (page IV-7) as follows:

"Paragraph-names are equivalent if, and only if, they are composed of the same sequence of the same number of digits, characters and/or national-characters."

4.2.2.1.1.4 Section-Name

- Addition of national language feature

Change the second sentence of the paragraph (page IV-7) as follows:

"Section-names are equivalent if, and only if, they are composed of the same sequence of the same number of digits, characters and/or national-characters."

4.2.2.1.2 System-Names

- Deletion of obsolete language element (Language-Name)

Change the second paragraph (page IV-8) as follows:

"There are two types of system-names:

1. computer-name
2. implementor-name"

Change the third paragraph (page IV-8) as follows:

"Within a given implementation these two types of system-names form disjoint sets; a given system-name may belong to one and only one of them. The system-names listed above are individually defined in **Section III: Glossary.**"

4.2.2.1.3.3.1 Special Registers

- Deletion of optional module

Change the second paragraph (page IV-9) as follows:

"There is a special register:

2. LINAGE-COUNTER (see **Section VII: Sequential I-O Module**, 1.3.8 Special Register LINAGE-COUNTER)."

4.2.2.2 Literals

- Addition of national language feature

Change the paragraph (page IV-9) as follows:

"A literal is a character-string or national-character string whose value is implied by an ordered set of characters or national-characters of which the literal is composed or by specification of a reserved word which references a figurative constant. Every literal belongs to one of three types: numeric, non-numeric or national-character literal."

- Definition of total size of literals

Add the following sentence to the end of the paragraph (page IV-9):

"The maximum total size of literals is 32767 character positions."

- Addition of national language feature

Add the following at the end of 4.2.2.2.2 (page IV-10):

4.2.2.2.2a National-Character Literals

A national-character literal is a national-character string which is delimited by the separator "N" at the beginning and by the separator quotation mark at the end. The length of a national-character literal may not be greater than one line.

4.2.2.2.2a.1 General Format

N"{national-character-1}..."

4.2.2.2.2a.2 Syntax Rules

- (1) National-character-1 may be any national-character in the computer's national-character set.

4.2.2.2.2a.3 General Rules

- (1) The value of a national-character literal in the object program is the value represented by national-character-1.
- (2) The separators "N" and quotation mark that delimit the national-character literal are not part of the value of the national-character literal.
- (3) All national-character literals are of category national."

4.2.2.2.3 Figurative Constant Values

- Addition of national language feature
- Deletion of obsolete language element (STOP literal statement)

Change (2) of the second paragraph (page IV-11) as follows:

- (2) "[ALL] SPACE, [ALL] SPACES

Represents one or more of the character space from the computer's character set or, one or more of the national-character space from the computer's national-character set."

Change (6) of the second paragraph (page IV-11) as follows:

- (6) "ALL literal

Represents all or part of the string generated by successive concatenations of the characters or national-characters comprising the literal. The literal must be a non-numeric literal or national-character literal. The literal must not be a figurative constant."

Change the third paragraph (page IV-11) as follows:

"When a figurative constant represents a string or a national-character string of one or more characters, the length of the string or the national-character string is determined by the compiler from context according to the following rules:

- (1) When a figurative constant is specified in a VALUE clause, or when a figurative constant is associated with another data item (for example, when the figurative constant is moved to or compared with another data item), the string of characters or national-characters specified by the figurative constant is repeated character by character or national-character by national-character on the right until the size of the resultant string or national-character string is greater than or equal to the number of character or national-character positions in the associated data item. This resultant string or national-character string is then truncated from the right until it is equal to the number of character or national-character positions in the associated data item. This is done prior to and independent of the application of any JUSTIFIED clause that may be associated with the data item.
- (2) When a figurative constant, other than ALL literal, is not associated with another data item as when the figurative constant appears in a STRING or UNSTRING statement, the length of the string or national-character string is one character or one national-character. The length of the string is one character when the figurative constant appears in the DISPLAY statement.
- (3) When the figurative constant ALL literal is not associated with another data item, the length of the string or national-character string is the length of the

literal."

- Deletion of obsolete language element (Reference of ALL literals of numeric or numeric edited item whose length is greater than one character)

Delete (2), and add a new (4) to the fourth paragraph (page IV-12):

- (4) "When a figurative constant ALL literal is associated with a data item that is numeric or numeric edited, the length of the literal must be one."

4.2.2.4 Comment-Entries

- Deletion of obsolete language element (Comment-Entries)

Delete 4.2.2.4 (page IV-12).

4.3 Concept of Computer-independent Data Description

- Addition of national language feature

Change the first sentence of the first paragraph (page IV-13) as follows:

"To make data as computer-independent as possible, the characteristics or properties of the data are described in relation to a standard data format or national standard data format rather than an equipment-oriented format."

Change the second sentence of the first paragraph (page IV-13) as follows:

"This standard data format or national standard data format is oriented to general data processing applications and uses the decimal system to represent numbers (regardless of the radix used by the computer) and all characters of the COBOL character set or national-character set to describe non-numeric data items or national-character data items."

4.3.3 Concept of Classes of Data

- Addition of national language feature

Change the first three sentences (page IV-15) as follows:

"There are six categories of data items (see **Section IV: Overall Language Consideration**, 5.9 The PICTURE Clause). These are grouped into four classes: alphabetic, numeric, alphanumeric and national. For alphabetic, numeric and national, the classes and categories are synonymous."

Change the table of the relationship of the classes and categories of data items (page IV-15) as follows:

Level of Item	Class	Category
Elementary	Alphabetic	Alphabetic
	Numeric	Numeric
	Alphanumeric	Numeric Edited Alphanumeric Edited Alphanumeric
	National	National
Non-elementary (Group)	Alphanumeric	Alphabetic Numeric Numeric Edited Alphanumeric Edited Alphanumeric National

4.3.4 Selection of Character and National-Character Representation and Radix

- Addition of national language feature
- Definition of size of data item

Change the title: “4.3.4 Selection of Character Representation and Radix” (page IV-16) to: “4.3.4 Selection of Character and National-Character Representation and Radix”.

Change the third paragraph (page IV-16) as follows:

"The size of an elementary data item or a group item is the number of characters in standard data format or the number of national-characters in national standard data format of the item. Synchronization and usage may cause a difference between this size and that required for internal representation (see **Section IV: Overall Language Consideration**, 5.14 The USAGE Clause)."

4.3.6 Standard Alignment Rules

- Addition of national language feature

Add the following as a new (4) to the first paragraph (page IV-17):

(4) "If the receiving data item is national, the sending data is moved to the receiving national-character positions and aligned at the leftmost character position in the data item with national-character space fill or truncation to the right, as required. If the JUSTIFIED clause is specified for the receiving item, these standard rules are modified (see **Section IV: Overall Language Consideration**, 5.6 The JUSTIFIED Clause)."

4.3.8.1 Qualification

- Deletion of optional module
- Definition of limits for number of qualifications

Change the general format Format-1 for qualification (page IV-19) as follows:

Format-1:



Delete Format-5 and Format-6 (page IV-19).

Add the following sentence to the end of qualification rule (4) (page IV-20):

"The number of qualifiers in qualification must not exceed 50."

Delete the qualification rules (9) and (10) (page IV-20).

4.3.8.2.3 Syntax Rules

- Definition of limits for dimensions of table

Add the following sentence to the end of syntax rule (2) (page IV-21):

"The number of dimensions of the table is not more than 7."

- Deletion of optional module

Delete syntax rule (4a) (page IV-21).

- Definition of limits for occurrence number

Add the following sentence to the end of syntax rule (6) (page IV-21):

"A maximum value of 65000 may be specified for integer-1."

4.3.8.3.1 Function

- Addition of national language feature

Change the paragraph (page IV-22) as follows:

"Reference modification defines a data item by specifying a leftmost character or national-character and length for the data item."

4.3.8.3.2 General Format

- Addition of national language feature

Change the general format (page IV-22) as follows:

Format-1:

data-name-1 (leftmost-character position: [length-1])

Format-2:

data-name-2 (leftmost-national-character-position: [length-2])

4.3.8.3.3 Syntax Rules

- Addition of national language feature

Add the following sentence after syntax rule (1) (page IV-22):

(1a) "Data-name-2 must reference a national-character data item."

Change syntax rule (2) (page IV-22) as follows:

(2) "Leftmost-character-position, leftmost-national-character-position, length-1 and length-2 must be arithmetic expressions."

Change syntax rule (3) (page IV-22) as follows:

(3) "Unless otherwise specified, reference modification of Format-1 is allowed anywhere an identifier referencing a data item of class alphanumeric is permitted, and reference modification of Format-2 is allowed anywhere an identifier referencing a data item of class national is permitted."

Change syntax rule (4) (page IV-22) as follows:

(4) "Data-name-1 and data-name-2 may be qualified or subscripted."

4.3.8.3.4 General Rules

- Addition of national language feature

Add the following after general rule (1) (page IV-22):

(1a) "Each national-character of a data item referenced by data-name-2 is assigned an ordinal number incrementing by one from the leftmost position to the rightmost position."

Change the first sentence of general rule (4) (page IV-23) as follows:

"Reference modification creates a unique data item which is a subset of the data item referenced by data-name-1 and data-name-2."

Change general rule (4b) (page IV-23) as follows:

(b) "The evaluation of length-1 specifies the size of the data item to be used in the operation. The evaluation of length-1 must result in a positive non-zero integer. The sum of leftmost-character-position and length-1 minus the value one must be less than or equal to the number of characters in the data item referenced by data-name-1. If length-1 is not specified, the unique data item extends from and includes the character identified by leftmost-character-position up to and including the rightmost character of the data item referenced by data-name-1."

Add the following after general rule (4b) (page IV-23):

(c) "The evaluation of leftmost-national-character-position specifies the ordinal position of the leftmost national-character of the unique data item in relation to the leftmost national-character of the data item referenced by data-name-2. Evaluation of leftmost-national-character must result in a positive non-zero integer less than or equal to the number of characters in the data item referenced by data-name-2."

(d) "The evaluation of length-2 specifies the size of the data item to be used in the operation. The evaluation of length-2 must result in a positive non-zero integer. The sum of leftmost-national-character-position and length-2 minus the value one must be less than or equal to the number of national-characters in the data item referenced by data-name-2. If length-2 is not specified, the unique data item extends from and includes the national-character identified by leftmost-national-character-position up to and including the rightmost national-character of the data item referenced by

data-name-2."

Change the second sentence of general rule (5) (page IV-23) as follows:

"It has the same class and category as that defined for the data item referenced by data-name-1 and data-name-2 except that the categories numeric, numeric edited and alphanumeric edited are considered class and category alphanumeric."

4.3.8.4 Identifier

- Addition of national language feature
- Deletion of optional module

Change the general format (page IV-23) as follows:

Format-1:

$$\text{data-name-1} \left[\left\{ \begin{array}{c} \text{IN} \\ \text{OF} \end{array} \right\} \text{data-name-2} \right] \dots \left[\left\{ \begin{array}{c} \text{IN} \\ \text{OF} \end{array} \right\} \text{file-name-1} \right]$$

[({ subscript } ...)] [(leftmost-character-position: [length-1])]

Format-2:

$$\text{data-name-3} \left[\left\{ \begin{array}{c} \text{IN} \\ \text{OF} \end{array} \right\} \text{data-name-4} \right] \dots \left[\left\{ \begin{array}{c} \text{IN} \\ \text{OF} \end{array} \right\} \text{file-name-2} \right]$$

[({ subscript } ...)] [(leftmost-national-character-position: [length-2])]

4.3.8.5 Condition-Name

- Addition of national language feature

Change the fourth paragraph (page IV-24) as follows:

"The format and restrictions on the combined use of qualification and subscripting of condition-names is exactly that of "identifier" except that data-name-1 or data-name-3 is replaced by condition-name-1 or condition-name-3, respectively."

4.4 Explicit and Implicit Specifications

4.4.2 Explicit and Implicit Transfers of Control

- Deletion of obsolete language element (ALTER statement)

Delete the following sentence from the fourth paragraph (page IV-26):

"The execution of the procedure branching statement ALTER does not in itself constitute an explicit transfer of control, but affects the explicit transfer of control that occurs when the associated GO TO statement is executed."

4.4.3 Explicit and Implicit Attributes

- Addition of national language feature

Change the second paragraph (page IV-27) as follows:

"For example, the usage of a data item, except national-character data item, need not be specified, in which case a data item's usage is DISPLAY."

- 4.4.4 Explicit and Implicit Scope Terminators
 - Deletion of optional language element
 - Delete "END-RECEIVE" from the list of explicit scope terminators (page IV-27).
- 4.5 External Switch
- 5. A COBOL Source Program
 - 5.1 Introduction
 - 5.2 Organization
 - 5.3 Structure
- 6 Divisions
 - 6.1 Identification Division
 - 6.1.1 General Description
 - Deletion of obsolete language element (Comment Entry)
 - Delete the second sentence of the paragraph (page IV-30).
 - 6.1.2 Organization
 - Deletion of obsolete language element (Comment Entry)
 - Delete the third sentence of the paragraph (page IV-30).
 - 6.1.3.1 General Format
 - Deletion of obsolete language element (Comment Entry)
 - Change the general format as follows:

IDENTIFICATION DIVISION .

PROGRAM-ID . program-identification-entry
 - 6.2 Environment Division
 - 6.3 Data Division
 - 6.3.2.1 Data Division Organization
 - Deletion of optional module
 - Change the second sentence of the first paragraph (page IV-33) as follows:

"These are the File, Working-Storage and Linkage Sections."
 - Change the second paragraph (page IV-33) as follows:

"The File Section defines the structure of data files. Each file is defined by a file description entry and one or more record description entries. Record description entries are written immediately following the file description entry."
 - Delete the fifth and sixth paragraphs (page IV-33).

6.3.2.2.1 General Format

- Deletion of optional module

Change the general format (page IV-34) as follows:

```

DATA DIVISION .
[ FILE SECTION .
  [ file-description-entry { record-description-entry } ...
  [ sort-merge-file-description-entry { record-description-entry } ... ] ... ]
[ WORKING-STORAGE SECTION .
  [ 77-level-description-entry ] ... ]
[ LINKAGE SECTION .
  [ 77-level-description-entry ] ... ]
  
```

6.4 Procedure Division

6.4.1.1 Declaratives

- Deletion of optional module

Change the paragraph (page IV-35) as follows:

"Declarative sections must be grouped at the beginning of the Procedure Division preceded by the key word DECLARATIVES and followed by the key words END DECLARATIVES (see **Section VII: Sequential I-O Module**, **Section VIII: Relative I-O Module** and **Section IX: Indexed I-O Module**, The USE Statement)."

6.4.1.4.2 Procedure Division Body

- Deletion of optional module

Change Format-1 (page IV-36) as follows:

```

Format 1:
[ DECLARATIVES .
  { section-name SECTION . USE statement .
  [ paragraph-name . [ sentence ] ... ] ... } ...
END DECLARATIVES . ]
  { section-name SECTION .
  [ paragraph-name . [ sentence ] ... ] ... } ...
  
```

- 6.4.2.1.1 Definition of Conditional Statement
 - Deletion of optional module
Delete conditional statement (6) (page IV-37).
- 6.4.2.1.1.1 Definition of Conditional Phrase
 - Deletion of optional module
Delete conditional phrase (5) (page IV-38).
- 6.4.2.2.1 Definition of Compiler Directing Statement
 - Deletion of optional module
Change the second sentence of the paragraph (page IV-38) as follows:
"The compiler directing verbs are COPY, REPLACE and USE (see **Section XII: Source Text Manipulation Module**, 2. The COPY Statement and 3. The REPLACE Statement and **Section VII: Sequential I-O Module**, **Section VIII: Relative I-O Module** and **Section IX: Indexed I-O Module**, The USE Statement)."
- 6.4.2.3.1 Definition of Imperative Statement
 - Deletion of optional module and obsolete language element (ALTER statement)
Delete Note 4 (page IV-39).
- 7. Reference Format
 - 7.1 General Description
 - 7.2 Reference Format Representation
 - Definition of margin R and of characters which may be specified in indicator area
Change the sixth paragraph (page IV-41) as follows:
"Margin R is immediately to the right of the seventy-second character position of a line."
Add the following sentence to the end of the eighth paragraph (page IV-41):
"The characters which may be specified in the indicator area are "-", "*", "/", "D", "d" and space."
Change the tenth paragraph (page IV-41) as follows:
"Area B occupies 61 character positions between Margin B and Margin R."
 - 7.2.2 Continuation of Lines
 - Addition of national language feature
Change the last sentence of the first paragraph (page IV-42) as follows:
"Any word which does not contain any national-character, literal except national-character literal, or PICTURE character-string may be broken in such a way that part of it appears on a continuation line. Any word which is composed of national-characters and national-character literal may not be broken in such a way that part of it appears on a continuation line."

7.2.4 Comment Lines

- Addition of national language feature

Change the third sentence (page IV-42) as follows:

"Any combination of the characters from the computer's character set and the national-characters from the computer's national-character set may be included in area A and area B of that line."

7.3 Division, Section, Paragraph Formats

7.4 Data Division Entries

- Deletion of optional module

Change the third paragraph (page IV-43) as follows:

"In the Data Division, a level indicator is any of the following: FD, SD."

7.5 Declaratives

7.6 End Program Header

8. COBOL Reserved Words

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Section V: Composite Language Skeleton

1. General Description

- Change of term; Deletion of optional module

Change the first sentence of the first paragraph (page V-1) as follows:

"This section contains the composite language skeleton of SPIRIT COBOL."

Change the third sentence of the third paragraph (page V-1) as follows:

"The appearance of the italic letter *S*, *R* or *I* to the left of the format for the verbs CLOSE, OPEN, READ and WRITE indicates the Sequential I-O module, Relative I-O module or Indexed I-O module in which that general format is used."

Delete the fourth paragraph (page V-1).

- Deletion of obsolete language element (Comment Entry)

Change the GENERAL FORMAT FOR IDENTIFICATION DIVISION (page V-2) as follows:

IDENTIFICATION DIVISION .

PROGRAM-ID . program-name [IS { | COMMON | } | INITIAL | } PROGRAM] .

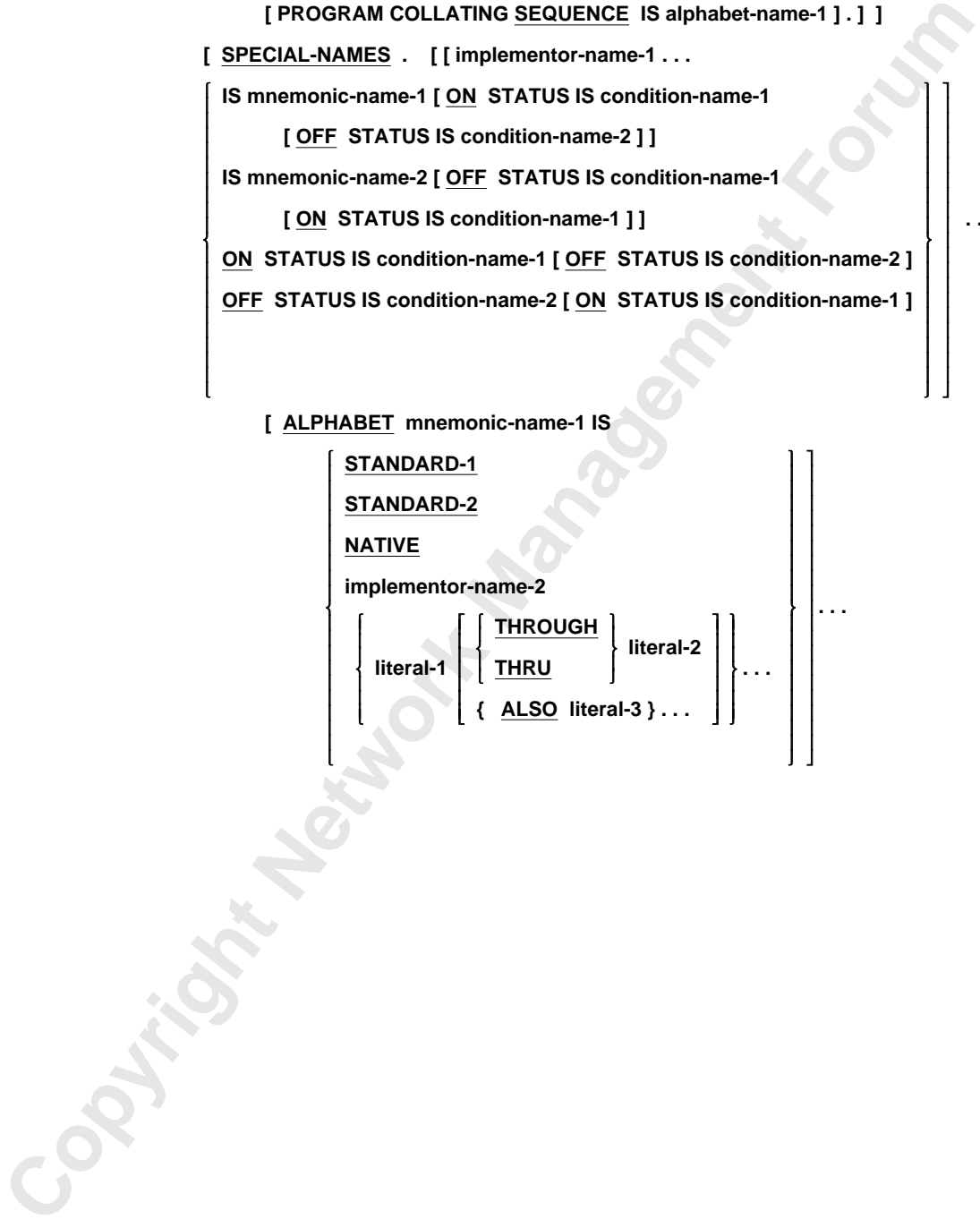
- Deletion of obsolete language elements (MEMORY SIZE clause, RERUN clause, MULTIPLE FILE TAPE clause)

Change the GENERAL FORMAT FOR ENVIRONMENT DIVISION (pages V-3 through V-4) as follows:


```
[ ENVIRONMENT DIVISION .
[ CONFIGURATION SECTION .
[ SOURCE-COMPUTER . [ computer-name [ WITH DEBUGGING MODE ] . ] ]
[ OBJECT-COMPUTER . [ computer-name
    [ PROGRAM COLLATING SEQUENCE IS alphabet-name-1 ] . ] ]
```

```
[ SPECIAL-NAMES . [ [ implementor-name-1 ...
{
  IS mnemonic-name-1 [ ON STATUS IS condition-name-1
    [ OFF STATUS IS condition-name-2 ] ]
  IS mnemonic-name-2 [ OFF STATUS IS condition-name-1
    [ ON STATUS IS condition-name-1 ] ]
  ON STATUS IS condition-name-1 [ OFF STATUS IS condition-name-2 ]
  OFF STATUS IS condition-name-2 [ ON STATUS IS condition-name-1 ]
} ...
```

```
[ ALPHABET mnemonic-name-1 IS
{
  STANDARD-1
  STANDARD-2
  NATIVE
  implementor-name-2
  {
    { literal-1 [ { THROUGH } literal-2 ] } ...
    { THRU }
    { ALSO literal-3 } ...
  }
}
```




```

FD file-name-1
  [ IS EXTERNAL ]
  [ IS GLOBAL ]
  [ BLOCK CONTAINS [ integer-1 TO ] integer-2 { RECORDS
  CHARACTERS } ] ]
  [ RECORD { CONTAINS integer-3 CHARACTERS
  IS VARYING IN SIZE
  [ [ FROM integer-4 ] [ TO integer-5 ] CHARACTERS ]
  [ DEPENDING ON data-name-1 ]
  CONTAINS integer-6 TO integer-7 CHARACTERS } ] ]
  [ LINAGE IS { data-name-4
  integer-8 } LINES
  [ WITH FOOTING AT { data-name-5
  integer-9 } ] ]
  [ LINES AT TOP { data-name-6
  integer-10 } ] ]
  [ LINES AT BOTTOM { data-name-7
  integer-11 } ] ]
  [ CODE-SET IS alphabet-name-1 ] .

```

- Deletion of obsolete language element (LABEL RECORDS, VALUE OF and DATA RECORDS clauses)

Change the GENERAL FORMAT FOR FILE DESCRIPTION ENTRY, RELATIVE FILE (page V-10) as follows:

```

FD file-name-1
  [ IS EXTERNAL ]
  [ IS GLOBAL ]
  [ BLOCK CONTAINS [ integer-1 TO ] integer-2 { RECORDS
  CHARACTERS } ] ]
  [ RECORD { CONTAINS integer-3 CHARACTERS
  IS VARYING IN SIZE
  [ [ FROM integer-4 ] [ TO integer-5 ] CHARACTERS ]
  [ DEPENDING ON data-name-1 ]
  CONTAINS integer-6 TO integer-7 CHARACTERS } ] ] .

```

- Deletion of obsolete language element (LABEL RECORDS, VALUE OF and DATA RECORDS clauses)

Change the GENERAL FORMAT FOR FILE DESCRIPTION ENTRY, INDEXED FILE (page V-11) as follows:

FD file-name-1

```

[ IS EXTERNAL ]
[ IS GLOBAL ]
[ BLOCK CONTAINS [ integer-1 TO ] integer-2 { RECORDS
CHARACTERS } ]
[ RECORD { CONTAINS integer-3 CHARACTERS
IS VARYING IN SIZE
[ [ FROM integer-4 ] [ TO integer-5 ] CHARACTERS ]
[ DEPENDING ON data-name-1 ]
CONTAINS integer-6 TO integer-7 CHARACTERS } ] .
    
```

- Deletion of obsolete language element (DATA RECORDS clause)

Change the GENERAL FORMAT FOR FILE DESCRIPTION ENTRY, SORT-MERGE FILE (page V-12) as follows:

SD file-name-1

```

[ RECORD { CONTAINS integer-1 CHARACTERS
IS VARYING IN SIZE
[ [ FROM integer-2 ] [ TO integer-3 ] CHARACTERS ]
[ DEPENDING ON data-name-1 ]
CONTAINS integer-4 TO integer-5 CHARACTERS } ] .
    
```

- Deletion of optional module

Delete the GENERAL FORMAT FOR FILE DESCRIPTION ENTRY, REPORT FILE (page V-12).

- Deletion of optional module

Delete the GENERAL FORMAT FOR COMMUNICATION DESCRIPTION ENTRY (pages V-15 through V-16), GENERAL FORMAT FOR REPORT DESCRIPTION ENTRY (page V-17), and GENERAL FORMAT FOR REPORT GROUP DESCRIPTION ENTRY (page V-18).

- Deletion of optional module

Change the GENERAL FORMAT FOR PROCEDURE DIVISION, FORMAT 1 (page V-19) as follows:

FORMAT 1:

[**PROCEDURE DIVISION** [**USING** { data-name-1 } ...] .

[**DECLARATIVES** .

{ section-name **SECTION** .

USE statement .

[paragraph-name .

[sentence] ...] ... } ...

END DECLARATIVES .]

{ section-name **SECTION** .

[paragraph-name .

[sentence] ...] ... } ...]

- Deletion of optional module

Delete the following from the GENERAL FORMAT FOR COBOL VERBS (page V-20):

ACCEPT cd-name-1 MESSAGE COUNT

- Deletion of obsolete language element (ALTER statement)

Delete the ALTER verb from the GENERAL FORMAT FOR COBOL VERBS (page V-20).

- Deletion of optional module

Delete the DISABLE verb from the GENERAL FORMAT FOR COBOL VERBS (page V-21).

- Deletion of optional module

Delete the ENABLE verb from the GENERAL FORMAT FOR COBOL VERBS (page V-23).

- Deletion of obsolete language element (ENTER statement)

Delete the ENTER verb from the GENERAL FORMAT FOR COBOL VERBS (page V-23).

- Deletion of optional module

Delete the GENERATE verb from the GENERAL FORMAT FOR COBOL VERBS (page V-24).

- Deletion of obsolete language element (ALTER statement)

Change the first GO TO verb in GENERAL FORMAT FOR COBOL VERBS (page V-24) as follows:

GO TO procedure-name-1

- Deletion of optional module
Delete the INITIATE verb from GENERAL FORMAT FOR COBOL VERBS (page V-24).
- Deletion of obsolete language element (REVERSED phrase)
Change the first OPEN verb in GENERAL FORMAT FOR COBOL VERBS (page V-26) as follows:

S OPEN	{	<p><u>INPUT</u> { file-name-1 [<u>WITH NO REWIND</u>] } ...</p> <p><u>OUTPUT</u> { file-name-2 [<u>WITH NO REWIND</u>] } ...</p> <p><u>I-O</u> { file-name-3 } ...</p> <p><u>EXTEND</u> { file-name-4 } ...</p>	}	...
---------------	---	---	---	-----

- Deletion of optional module
Delete the PURGE verb from GENERAL FORMAT FOR COBOL VERBS (page V-27).
- Deletion of optional module
Delete the RECEIVE verb from GENERAL FORMAT FOR COBOL VERBS (page V-28).
- Deletion of optional module
Delete the first and second SEND verbs from GENERAL FORMAT FOR COBOL VERBS (page V-29).
- Deletion of obsolete language element (STOP literal statement)
Change the format of the STOP verb in GENERAL FORMAT FOR COBOL VERBS (page V-30) as follows:

STOP RUN

- Deletion of optional module
Delete the SUPPRESS verb from GENERAL FORMAT FOR COBOL VERBS (page V-31).
- Deletion of optional module
Delete the TERMINATE verb from GENERAL FORMAT FOR COBOL VERBS (page V-31).
- Deletion of optional module
Delete the second, third and fourth USE verbs from GENERAL FORMAT FOR COBOL VERBS (page V-32).
- Deletion of optional module

Change the FORMAT 1 of GENERAL FORMAT FOR QUALIFICATION (page V-37) as follows:

$$\left\{ \begin{array}{l} \text{data-name-1} \\ \text{condition-name-1} \end{array} \right\} \left\{ \left\{ \begin{array}{l} \underline{\text{IN}} \\ \underline{\text{OF}} \end{array} \right\} \text{data-name-2} \right\} \dots \left\{ \left\{ \begin{array}{l} \underline{\text{IN}} \\ \underline{\text{OF}} \end{array} \right\} \text{file-name-1} \right\} \left\{ \begin{array}{l} \underline{\text{IN}} \\ \underline{\text{OF}} \end{array} \right\} \text{file-name-1} \right\}$$

- Deletion of optional module

Delete the FORMAT 5 and FORMAT 6 of GENERAL FORMAT FOR QUALIFICATION (page V-37).

- Addition of national language feature

Change the REFERENCE MODIFICATION of MISCELLANEOUS FORMATS (page V-38) as follows:

FORMAT 1:

data-name-1 (leftmost-character-position: [length-1])

FORMAT 2:

data-name-2 (leftmost-national-character-position: [length-2])

- Addition of national language feature
- Deletion of optional module

Change the IDENTIFIER of MISCELLANEOUS FORMATS (page V-38) as follows:

FORMAT 1:

data-name-1 $\left[\left[\begin{array}{l} \underline{\text{IN}} \\ \underline{\text{OF}} \end{array} \right] \text{data-name-2} \right] \dots \left[\left[\begin{array}{l} \underline{\text{IN}} \\ \underline{\text{OF}} \end{array} \right] \text{file-name-1} \right]$
[({ subscript } ...)] [(leftmost-character-position: [length-1])]

FORMAT 2:

data-name-3 $\left[\left[\begin{array}{l} \underline{\text{IN}} \\ \underline{\text{OF}} \end{array} \right] \text{data-name-4} \right] \dots \left[\left[\begin{array}{l} \underline{\text{IN}} \\ \underline{\text{OF}} \end{array} \right] \text{file-name-2} \right]$
[({ subscript } ...)] [(leftmost-national-character-position: [length-2])]

Section VI: Nucleus Module

1. Introduction to the Nucleus Module
 - 1.1 Function
 - 1.2 Level Characteristics
 - Deletion of level concept
Delete 1.2 (page VI-1).
 - 1.3 Level Restrictions On Overall Language
 - Deletion of level concept
Delete 1.3 (pages VI-1 through VI-2).
2. A COBOL Source Program
 - 2.1 General Description
 - 2.2 Organization
 - 2.3 Structure
 - 2.4 End Program Header
3. Identification Division in the Nucleus Module
 - 3.1 General Description
 - Deletion of obsolete language element (Comment Entry)
Delete the third sentence of the paragraph (page VI-6).
 - 3.2 Organization
 - Deletion of obsolete language element (Comment Entry)
Delete the third sentence of the first paragraph and delete the second paragraph (page VI-6).
 - 3.2.1 Structure
 - Deletion of obsolete language element (Comment Entry)
Change the second sentence of the paragraph (page VI-6) as follows:
"Paragraph 3.3 defines the PROGRAM-ID paragraph."
 - Deletion of obsolete language element (comment entry)
Delete the third sentence of the paragraph (page VI-6).
 - 3.2.1.1 General Format
 - Deletion of obsolete language element (Comment Entry)
Change the general format as follows:

IDENTIFICATION DIVISION

PROGRAM-ID . program-name .
 - 3.2.1.2 Syntax Rules

- Deletion of obsolete language element (Comment Entry)
Delete 3.2.1.2 (1) (page VI-6).
- 3.3 The PROGRAM-ID Paragraph
- 3.4 The DATE-COMPILED Paragraph
 - Deletion of obsolete language element (Comment Entry)
Delete 3.4 (page VI-8).
- 4. Environment Division in the Nucleus Module
 - 4.1 General Description
 - 4.2 Configuration Section
 - 4.3 The SOURCE-COMPUTER Paragraph
 - 4.4 The OBJECT-COMPUTER Paragraph
 - 4.4.1 Function
 - Deletion of obsolete language element (MEMORY SIZE clause)
Delete the second sentence of the paragraph (page VI-11).
 - 4.4.2 General Format
 - Deletion of obsolete language element (MEMORY SIZE clause)
Change the general format (page VI-11) as follows:

**OBJECT-COMPUTER . [computer-name
[PROGRAM COLLATING SEQUENCE IS alphabet-name-1] .]**
- 4.4.4 General Rules
 - Deletion of optional module
Delete general rule (7c) (page VI-12).
- 4.5 The SPECIAL-NAMES Paragraph
 - 4.5.3 Syntax Rules
 - Deletion of optional module
Change syntax rule (2) (page VI-13) as follows:
"If implementor-name-1 does not reference an external switch, the associated mnemonic-name may be specified only in the ACCEPT, DISPLAY or WRITE statements. A condition-name cannot be associated with such an implementor-name."
 - 4.5.4 General Rules
 - Addition of national language feature
Change general rule (11b) (page VI-17) as follows:
(b) "alphabetic characters consisting of the upper-case letters A, B, C, D, N, P, R, S, V, X, Z; lower-case letters a through z; or the space;"

5. Data Division in the Nucleus Module

5.1 General Description

5.2 Working-Storage Section

- Definition of limit of length of data item in Working-Storage section

Add the following paragraph after the general format of the Working-Storage Section (page VI-18):

"The length of a group item which is defined in the Working-Storage Section is not more than 1048575, which is a sum of the number of national-character positions of national-character data item in the data item multiplied by 2 and the number of character positions of other items. However, when the length exceeds 65535, it is implementation-dependent whether the group item can be referenced by the data-name which names the group item."

5.3 The Data Description Entry

5.3.4 General Rules

- Deletion of optional module

Change general rule (3) (page VI-21) as follows:

(3) "Multiple level 01 entries subordinate to any given level indicator represent implicit redefinitions of the same area."

5.4 The BLANK WHEN ZERO Clause

5.5 The Data-Name or FILLER Clause

5.5.3 Syntax Rules

- Deletion of optional module

Change syntax rule (1) (page VI-23) as follows:

(1) "In the File, Working-Storage and Linkage Sections, data-name-1 or the key word FILLER, if either is specified, must be the first word following the level-number in each data description entry."

5.6 The JUSTIFIED Clause

5.6.3 Syntax Rules

- Addition of national language feature

Change syntax rule (1) (page VI-24) as follows:

(1) "The JUSTIFIED clause may be specified only at the elementary item level. This also applies to the case of national-character data item."

5.6.4 General Rules

- Addition of national language feature

Change general rule (1) (page VI-24) as follows:

(1) "When the receiving data item is described with the JUSTIFIED clause and the sending data item is larger than the receiving data item, the leftmost characters or national-characters are truncated. When the receiving data item is described with the JUSTIFIED clause and it is larger than the sending data item, the data is aligned at the rightmost character position or

national-character position in the data item with space or national-character space fill for the leftmost character or national-character positions."

5.7 Level-Number

5.7.3 Syntax Rules

- Deletion of optional module

Change syntax rule (2) (page VI-25) as follows:

- (2) "Data description entries subordinate to an FD or SD entry must have level-numbers with the values 01 through 49, 66 or 88."

5.7.4 General Rules

- Deletion of optional module

Change general rule (3) (page VI-25) as follows:

- (3) "Multiple level 01 entries subordinate to any given level indicator represent implicit redefinitions of the same area."

5.8 The OCCURS Clause

5.8.3 Syntax Rules

- Addition of national language feature

Add the following sentence to the end of syntax rule (1) (page VI-26):

"This also applies to national-character data items."

- Definitions of the Maximum Number of Occurrences and the Table Size

Add the following after syntax rule (5) (page VI-26):

- (5a) "The integer-2 must not be greater than 65000. Also, the value which is the product of the multiplication of the integer-2 and the sum of the number of national-character positions of national-character data item in the data structure repeated by the OCCURS clause multiplied by 2 and the number of character positions of other items is not more than 1048575."

- Definition of the number of keys in a table and the total key length

Add the following after syntax rule (12) (page VI-27):

- (12a) "A maximum of 12 data-name-2s are allowed in a table. The total length of those data-name-2s in a table must not exceed 256 character positions."

- Definition of the number of index-names in the OCCURS clause

Add the following as a new syntax rule (15) (page VI-27):

- (15) "A maximum of 12 index-name-1s are allowed in a table."

5.9 The PICTURE Clause

5.9.3 Syntax Rules

- Addition of national language feature

Change the first sentence of syntax rule (3) (page VI-29) as follows:

- (3) "The lower-case letters corresponding to the upper-case letters representing the PICTURE symbols A, B, N, P, S, V, X, Z, CR and DB are equivalent to their upper-case representation in a PICTURE character-string."

5.9.4 General Rules

- Addition of national language feature

Change general rule (1) (page VI-29) as follows:

- (1) "There are six categories of data that may be described with a PICTURE clause: alphabetic, numeric, alphanumeric, national, alphanumeric edited and numeric edited."

- Addition of national language feature

Add the following after general rule (4) (page VI-30):

- (4a) "To define an item as national:

- (a) Its PICTURE character-string is restricted only to the character "N".
- (b) Its content when represented in national standard data format must be one or more national characters."

- Definition of the size of an elementary item

Change general rule (7) (page VI-30) as follows:

- (7) "The size of an elementary item, where size means the number of character positions occupied by the elementary item in standard data format, is determined by the number of allowable symbols that represent character positions. The maximum size of an elementary item, except alphanumeric edited item, national-character data item and numeric edited item, is 32767 character positions. The maximum size for alphanumeric edited item is 150, and for numeric edited is 31. An unsigned non-zero integer which is enclosed in parentheses following the symbols "A", "N", ",", "X", "9", "P", "Z", "*", "B", "/", "0", "+", "-", or the currency symbol indicates the number of consecutive occurrences of the symbol. The maximum size for national-character data item is 16383 national-character positions. The maximum number of consecutive occurrences is not more than the value which may represent the maximum size of an elementary item. Note that the following symbols may appear only once in a given PICTURE: "S", "V", ".", "CR" and "DB"."

- Addition of national language feature

Add the following paragraph to general rule (8) after the definition of "B" (page VI-31):

- N "Each "N" in the character-string represents a national-character position which may contain only a national-character and is counted in the size of the item."

5.9.5 Editing Rules

- Addition of national language feature

Change the table of editing rule (2) (page VI-33) as follows:

Category	Type of Editing
Alphabetic	None
Numeric	None
Alphanumeric	None
National	None
Alphanumeric edited	Simple insertion "0", "B" and "/"
Numeric edited	All, subject to rule 3 below

5.9.6 Precedence Rules

- Addition of national language feature

Change the second paragraph (page VI-36) as follows:

"At least one of the symbols "A", "N", "X", "Z", "9" or "*" or at least two occurrences of one of the symbols "+", "-" or "cs" must be present in a PICTURE character-string."

- Addition of national language feature

Change the chart (page VI-37) as follows:

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First Symbol	Second Symbol	Non-Floating Insertion Symbols *1								Floating Insertion Symbols *2						Other Symbols *3							
		B	O	/	,	.	{	{	{	cs	{	{	{	{	cs	cs	9	X	S	V	P	P	N
*1	B	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x			x		
	O	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x			x		
	/	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x			x		
	,	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x			x		
	.	x	x	x	x		x			x	x		x		x		x						
	+ { -																						
	+ { -	x	x	x	x	x				x	x	x			x	x	x			x	x	x	
	CR { DB cs	x	x	x	x	x				x	x	x			x	x	xx			x	x	x	
*2	Z { *	x	x	x	x		x			x	x												
	Z { *	x	x	x	x	x	x			x	x	x								x		x	
	+ { -	x	x	x	x					x			x										
	+ { -	x	x	x	x	x				x			x	x						x		x	
	CS	x	x	x	x		x								x								
	CS	x	x	x	x	x	x								x	x						x	x
*3	9	x	x	x	x	x	x			x	x		x		x		x	x	x	x		x	
	A X	x	x	x													x	x					
	S																						
	V	x	x	x	x		x			x	x		x		x		x		x		x		
	P	x	x	x	x		x			x	x		x		x		x		x		x		
	P						x			x									x	x		x	
	N																						x

- 5.10 The REDEFINES Clause
- 5.10.3 Syntax Rules
 - Deletion of optional module
Delete syntax rule (4) (page VI-38).
 - Deletion of level concept
Change syntax rule (12) (page VI-39) as follows:
(12) "Data-name-2 may be subordinate to an entry which contains a REDEFINES clause."
- 5.11 The RENAMES Clause
- 5.11.3 Syntax Rules
 - Deletion of optional module
Change the first sentence of syntax rule (3) (page VI-40) as follows:
"Data-name-1 may not be used as a qualifier, and may only be qualified by the names of the associated level 01, FD or SD entries."
- 5.12 The SIGN Clause
- 5.13 The SYNCHRONIZED Clause
- 5.14 The USAGE Clause
- 5.14.3 Syntax Rules
 - Addition of national language feature
Change syntax rule (2) (page VI-46) as follows:
(2) "If the USAGE clause is written in the data description entry for a group item, it may also be written in the data description entry for any subordinate elementary item, except group item and national-character data item, but the same usage must be specified in both entries."
- 5.14.4 General Rules
 - Addition of national language feature
Change general rule (6) (page VI-47) as follows:
(6) "If the USAGE clause is not specified for an elementary item, except national-character data item, or for any group to which the item belongs, the usage is implicitly DISPLAY. For the rule for national-character data item, see general rule (10)."
 - Addition of national language feature
Add the following as a new general rule (10) (page VI-47):
(10) "Usage is not defined for a national-character data item. The implementor may define the usage which explicitly specifies the manner in which a national-character data item is represented. If the USAGE clause is not specified for a national-character data item, or for any group to which the national-character data item belongs, the usage of the national-character data item is implicitly the usage which the implementor defined."

- 5.15 The VALUE Clause
 - 5.15.1 Function
 - Deletion of optional module

Change the paragraph (page VI-48) as follows:

"The VALUE clause defines the initial value of Working-Storage Section data item and the values associated with condition-names."
 - 5.15.3 Syntax Rules
 - Definition of the maximum number of literals specified in the VALUE clause for a condition-name entry

Add the following as a new syntax rule (5) (page VI-48):

(5) "In Format 2, a maximum of 102 literals may be specified."
 - 5.15.4 General Rules
 - Addition of national language feature

Add the following after general rule (1b) (page VI-49):

(b1) "If the category of the item is national, all literals in the VALUE clause must be national-character literals. The literal is aligned in the data item as if the data item had been described as national (see **Section IV: Overall Language Consideration**, 4.3.6 Standard Alignment Rules)."
 - 5.15.6 Data Description Entries other than Condition-Names
 - Deletion of level concept

Delete the first sentence of (1a) (page VI-49).
 - Deletion of level concept

Delete the first sentence of (1b) (page VI-49).
 - Deletion of optional module

Change (1c) as follows:

(c) "In the Working-Storage Section, the VALUE clause must be used in condition-name entries. VALUE clauses in the Working-Storage of a program take effect only when the program is placed into its initial state. If the VALUE clause is used in the description of the data item, the data item is initialized to the defined value. If the VALUE clause is not associated with a data item, the initial value of that data item is undefined."
- 6. Procedure Division in the Nucleus Module
 - 6.1 General Description
 - 6.2 Arithmetic Expressions
 - 6.2.1 Definition of an Arithmetic Expression
 - Definition of limits for numbers related to an arithmetic expression

Add the following paragraph at the end of the second paragraph (page VI-51):

"A maximum of 30 arithmetic operands may be specified. The maximum number of nested parentheses is 19. The maximum length of an exponent is

9."

6.3 Conditional Expressions

6.3.1.1 Relation Condition

- Addition of national language feature

Add the following sentence at the end of the third sentence of the first paragraph (page VI-54):

"If either of the operands is a national-character data item, see 6.3.1.1.4."

6.3.1.1.4 Comparison of National Operands

- Addition of national language feature

Add the following after 6.3.1.1.3 Comparison Involving Index-Names and/or Index Data Items (page VI-56):

"The implementor defines the rule for the case when there is one national and one non-national operand, including group items. The rules for comparison where both operands are national are:

- (1) Comparison is made with respect to the collating sequence of national-characters.
- (2) The size of an operand is the total number of national-characters in national standard format in the operand. There are two cases to consider: operands of equal size and operands of unequal size.

(a) Operands of equal size

If the operands are of equal size, comparison effectively proceeds by comparing national-characters in corresponding national-character positions starting from the high order end and continuing until either a pair of unequal national-characters is encountered or the low order end of the operands is reached, whichever comes first. The operands are determined to be equal if all pairs of corresponding national-characters are equal. The first encountered pair of unequal national-characters is compared to determine their relative position in the collating sequence. The operand that contains the national-character that is positioned higher in the collating sequence is considered to be the greater operand.

(b) Operands of unequal size

If the operands are of unequal size, comparison proceeds as though the shorter operand were extended on the right by sufficient national spaces to make the operands of equal size."

6.4 Common Options and Rules for Statements

6.5 The ACCEPT Statement

6.5.4 General Rules

- Definition of size of receiving data item

Change general rule (2) (page VI-71) as follows:

"The maximum size of receiving data item may be 220 character positions."

- Deletion of level concept
Delete the last sentence of general rule (4a) (page VI-71).
- 6.6 The ADD Statement
- 6.6.3 Syntax Rules
 - Definition of the maximum number of operands of the ADD statement
Add the following as a new syntax rule (5) (page VI-74):
(5) "A maximum of 40 operands may be specified in an ADD statement."
- 6.7 The ALTER Statement
 - Deletion of obsolete language element (ALTER)
Delete 6.7 (page VI-75).
- 6.8 The COMPUTE Statement
- 6.8.3 Syntax Rules
 - Definition of the maximum number of operands of the COMPUTE statement
Add the following as a new syntax rule (2) (page VI-76):
(2) "A maximum of 30 operands may be specified in a COMPUTE statement (see 6.2.1)."
- 6.9 The CONTINUE Statement
- 6.10 The DISPLAY Statement
- 6.10.3 Syntax Rules
 - Definition of size of sending data item
Change syntax rule (2) (page VI-78) as follows:
"The maximum size of sending data item may be 220 character positions."
 - Definition of the maximum number of operands of the DISPLAY statement
Add the following as a new syntax rule (3) (page VI-78):
(3) "A maximum of 40 operands may be specified in a DISPLAY statement."
- 6.10.4 General Rules
 - Deletion of level concept
Delete the last sentence of general rule (5a) (page VI-78).
- 6.11 The DIVIDE Statement
- 6.11.3 Syntax Rules
 - Definition of the maximum number of operands
Add the following as a new syntax rule (4) (page VI-81):
(4) "A maximum of 40 operands may be specified in a DIVIDE statement."
- 6.12 The ENTER Statement
 - Deletion of obsolete language element (ENTER statement)

Delete 6.12 (page VI-83).

6.13 The EVALUATE Statement

6.13.3 Syntax Rules

- Definition of limits for the selection subjects, the selection objects and the nests

Add the following as a new syntax rule (7) (page VI-85):

(7) "The total number of the selection subjects and the selection objects may not exceed 30. A maximum of 29 EVALUATE statements may be nested."

6.13.4 General Rules

- Addition of national language feature

Change the first paragraph of general rule (1) (page VI-85) as follows:

"The execution of the EVALUATE statement operates as if each selection subject and selection object were evaluated and assigned a numeric, non-numeric or national-character value, a range of numeric, non-numeric or national-character values, or a truth value. These values are determined as follows:"

- Addition of national language feature

Change the second sentence of general rule (1b) (page VI-85) as follows:

"If literal-3, literal-5, is the figurative constant ZERO or SPACE, it is assigned the class of the corresponding selection subject."

- Addition of national language feature

Change general rule (2a1) (page VI-86) as follows:

"If the items being compared are assigned numeric, non-numeric or national-character values, or a range of numeric, non-numeric or national-character values, the comparison is satisfied if the value, or one of the range of values, assigned to the selection object is equal to the value assigned to the selection subject according to the rules for comparison (see 6.3.1.1)."

6.14 The EXIT Statement

6.15 The GO TO Statement

6.15.2 General Format

- Deletion of obsolete language element (ALTER statement)

Change Format-1 (page VI-89) as follows:

Format-1:

GO TO procedure-name-1

6.15.3 Syntax Rules

- Deletion of obsolete language element (ALTER statement)

Delete syntax rules (2) and (3) (page VI-89).

- Definition of the maximum number of the procedure-names of the DEPENDING ON phrase

Add the following as a new syntax rule (5) (page VI-89):

(5) "A maximum of 255 procedure-names may be specified in a Format-2 GO TO statement."

6.15.4 General Rules

- Deletion of obsolete language element (ALTER statement)
Delete general rule (2) (page VI-89).

6.16 The IF Statement

6.16.3 Syntax Rules

- Definition of limits for nesting of the IF statement
Add the following as a new syntax rule (4) (page VI-90):
(4) "A maximum of 30 IF statements may be nested."

6.17 The INITIALIZE Statement

6.17.3 Syntax Rules

- Addition of national language feature
- Definition of limits for the number of operands in an INITIALIZE statement
Add the following as new syntax rules (7) and (8) (page VI-92):
(7) "A national-character data item may be referenced by the identifier-1."
(8) "A maximum of 40 operands may be specified in an INITIALIZE statement."

6.17.4 General Rules

- Addition of national language feature
Change general rule (5) (page VI-93) as follows:
(5) "When the statement is written without the REPLACING phrase, data items of the categories alphabetic, alphanumeric, alphanumeric edited and national are set to spaces or national-character spaces; data items of the categories numeric and numeric edited are set to zeros. In this case, the operation is as if each affected data item is the receiving area in an elementary MOVE statement with the indicated source literal (that is, spaces or zeros)."

6.18 The INSPECT Statement

6.18.1 Function

- Addition of national language feature
Change the paragraph (page VI-94) as follows:
"The INSPECT statement provides the ability to tally or replace occurrences of single characters or national-characters or groups of characters or national-characters in a data item."

6.18.3 Syntax Rules

- Addition of national language feature

Change syntax rule (2) of ALL FORMATS (page VI-95) as follows:

- (2) "Identifier-3, ..., identifier-n must reference:
 - (a) a national-character data item, if the identifier-1 is a national-character data item, or
 - (b) an elementary item described, implicitly or explicitly, as USAGE IS DISPLAY, if the identifier-1 is not a national-character data item."

- Addition of national language feature

Change syntax rule (3) of ALL FORMATS (page VI-95) as follows:

- (3) "Each literal must be a non-numeric literal or a national-character literal and must not be a figurative constant that begins with the word ALL. If literal-1, literal-2 or literal-4 is a figurative constant, it refers to an implicit one character or national-character data item. A national-character literal must be specified, if the identifier-1 refers to a national-character data item."

- Deletion of level concept

Change syntax rule (5) of ALL FORMATS (page VI-95) as follows:

- (5) "Literal-1, literal-2 and literal-3, and the data items referenced by identifier-3, identifier-4 and identifier-5 have no restrictions on the number of characters in length, except as specifically noted in syntax and general rules."

- Definition of the limits for the number of operands in an INSPECT statement

Add the following after syntax rule (5) of ALL FORMATS (page VI-95):

- (5a) "A maximum of 16 operands may be specified in an INSPECT statement."

- Addition of national language feature

Change syntax rule (7) of FORMATS 2 AND 3 (page VI-95) as follows:

- (7) "The number of characters or national-characters of literal-3 or the data item referenced by identifier-5 must be equal to the number of characters or national-characters of literal-1 or the data item referenced by identifier-3. When a figurative constant is used as literal-3, the number of characters or national-characters of the figurative constant is equal to the number of characters or national-characters of literal-1 or the number of characters or national-characters of the data item referenced by identifier-3."

- Addition of national language feature

Change syntax rule (8) of FORMATS 2 AND 3 (page VI-95) as follows:

- (8) "When the CHARACTERS phrase is used, literal-2, literal-3 or the size or the number of national-characters of the data item referenced by identifier-4, identifier-5 must be one character or one national-character in length."

- Addition of national language feature

Change syntax rule (9) of FORMAT 4 (page VI-95) as follows:

- (9) "The number of characters or national-characters of literal-5 or the data item referenced by identifier-7 must be equal to the number of characters or national-characters of literal-4 or the data item referenced by identifier-6. When a figurative constant is used as literal-5, the number of characters or national-characters of the figurative constant is equal to the number of characters or national-characters of literal-4 or the number of characters or national-characters of the data item referenced by identifier-6."

- Addition of national language feature

Change syntax rule (10) of FORMAT 4 (page VI-96) as follows:

- (10) "The same character or national-character must not appear more than once either in literal-4 or in the data item referenced by identifier-6."

6.18.4 General Rules

- Addition of national language feature

Change general rule (1) of ALL FORMATS (page VI-96) as follows:

- (1) "Inspection (which includes the comparison cycle, the establishment of boundaries for the BEFORE or AFTER phrase, and the mechanism for tallying and/or replacing) begins at the leftmost character position of the data item referenced by identifier-1, if its class is not national, and proceeds from left to right to the rightmost character position as described in general rules (5) through (7). If its class is national, inspection begins at the leftmost national-character position of the data item referenced by identifier-1 and proceeds from left to right to the rightmost national-character position as described in general rules (5) through (7)."

- Addition of national language feature

Add the following as a new general rule (2d) of ALL FORMATS (page VI-96):

- (d) "If any of identifier-1, identifier-3, identifier-4, identifier-5, identifier-6 or identifier-7 reference a national-character data item, the INSPECT statement treats the contents of each such identifier as a national-character string."

- Addition of national language feature

Change general rule (6a) of FORMATS 1 AND 2 (page VI-97) as follows:

- (a) "The operands of the TALLYING or REPLACING phrase are considered in the order they are specified in the INSPECT statement from left to right. The first literal-1 is compared to an equal number of contiguous characters or national-characters, starting with the leftmost character position in the data item referenced by identifier-1. Literal-1 matches that portion of the content of the data item referenced by identifier-1 if they are equal, character for character and:"

- Addition of national language feature

Change general rules (6b) through (6e) of FORMATS 1 AND 2 (page VI-97) as follows:

- (b) "If no match occurs in the comparison of the first literal-1, the comparison is repeated with each successive literal-1, if any, until either a match is

found or there is no next successive literal-1. When there is no next successive literal-1, the character position or national-character position in the data item referenced by identifier-1 immediately to the right of the leftmost character or national-character position considered in the last comparison cycle is considered as the leftmost character position or national-character position, and the comparison cycle begins again with the first literal-1.

- (c) Whenever a match occurs, tallying or replacing takes place as described in general rules (10) and (13). The character or national-character position in the data item referenced by identifier-1 immediately to the right of the rightmost character or national-character position that participated in the match is now considered to be the leftmost character or national-character position of the data item referenced by identifier-1, and the comparison cycle starts again with the first literal-1.
- (d) The comparison operation continues until the rightmost character or national-character position of the data item referenced by identifier-1 has participated in a match or has been considered as the leftmost character position or national-character position. When this occurs, inspection is terminated.
- (e) If the CHARACTERS phrase is specified, an implied one character or national-character operand participates in the cycle described in general rules (6a) through (6d) above as if it had been specified by literal-1, except that no comparison to the content of the data item referenced by identifier-1 takes place. This implied character or national-character is considered always to match the leftmost character or national-character of the content of the data item referenced by identifier-1 participating in the current comparison cycle."

- Addition of national language feature

Change the last sentence of general rule (7a) of FORMATS 1 AND 2 (page VI-97) as follows:

"Literal-1 or the implied operand of the CHARACTERS phrase is first eligible to participate in matching at the leftmost character position or leftmost national-character position of identifier-1."

- Addition of national language feature

Change the first sentence of general rule (7b) of FORMATS 1 AND 2 (page VI-97) as follows:

"If the BEFORE phrase is specified, the associated literal-1 or the implied operand of the CHARACTERS phrase participates only in those comparison cycles which involve that portion of the content of the data item referenced by identifier-1 from its leftmost character position or leftmost national-character position up to, but not including, the first occurrence of literal-2 within the content of the data item referenced by identifier-1."

- Addition of national language feature

Change general rule (7c) of FORMATS 1 AND 2 (page VI-98) as follows:

- (c) "If the AFTER phrase is specified, the associated literal-1 or the implied operand of the CHARACTERS phrase participates only in those

comparison cycles which involve that portion of the content of the data item referenced by identifier-1 from the character position or national-character position immediately to the right of the rightmost character position of the first occurrence of literal-2 within the content of the data item referenced by identifier-1 to the rightmost character position or the rightmost national-character position of the data item referenced by identifier-1. This is the character position or national-character position at which literal-1 or the implied operand of the CHARACTERS phrase is first eligible to participate in matching. The position of this first occurrence is determined before the first cycle of the comparison operation described in general rule (6) is begun. If, on any comparison cycle, literal-1 or the implied operand of the CHARACTERS phrase is not eligible to participate, it is considered not to match the content of the data item referenced by identifier-1. If there is no occurrence of literal-2 within the content of the data item referenced by identifier-1, its associated literal-1 or the implied operand of the CHARACTERS phrase is never eligible to participate in the comparison operation."

- Addition of national language feature

Change general rule (10c) of FORMAT 1 (page VI-98) as follows:

- (c) "If the CHARACTERS phrase is specified, the content of the data item referenced by identifier-2 is incremented by one for each character or national-character matched, in the sense of general rule (6e), within the content of the data item referenced by identifier-1."

- Addition of national language feature

Change general rule (13a) of FORMAT 2 (page VI-99) as follows:

- (a) "When the CHARACTERS phrase is specified, each character or national-character matched, in the sense of general rule (6e), in the content of the data item referenced by identifier-1 is replaced by literal-3."

- Addition of national language feature

Change general rule (13b) of FORMAT 2 (page VI-99) as follows:

- (b) "When the adjective ALL is specified, each occurrence of literal-1 matched, in the content of the data item referenced by identifier-1 is replaced by literal-3."

- Addition of national language feature

Change general rule (16) of FORMAT 4 (page VI-99) as follows:

- (16) "A format 4 INSPECT statement is interpreted and executed as though a format 2 INSPECT statement specifying the same identifier-1 had been written with a series of ALL phrases, one for each character or national-character of literal-4. The effect is as if each of these ALL phrases referenced, as literal-1, a single character or national-character of literal-4 and referenced, as literal-3, the corresponding single character or national-character of literal-5. Correspondence between the characters or national-characters of literal-4 and the characters or national-characters of literal-5 is by ordinal position within the data item."

6.19 The MOVE Statement

6.19.3 Syntax Rules

- Addition of national language feature

Add the following as a new syntax rule (5) (page VI-103):

- (5) "Identifier-1, identifier-2 and literal-1 may reference a national-character data item or a national-character literal."

6.19.4 General Rules

- Addition of national language feature
- Deletion of level concept

Change general rule (3) (page VI-104) as follows:

"Any move in which the receiving operand is an elementary item and the sending operand is either a literal or an elementary item is an elementary move. Every elementary item belongs to one of the following categories: numeric, alphabetic, alphanumeric, national, numeric edited, alphanumeric edited (see 5.9).

Numeric literals belong to the category numeric and national-character literals belong to the category national, and non-numeric literals belong to the category alphanumeric. The figurative constant ZERO (ZEROS, ZEROES), when moved to a numeric or numeric edited item, belongs to the category numeric. In all other cases, it belongs to the category alphanumeric. The figurative constant SPACE (SPACES) belongs to the category national, when moved to a national-character data item, and in all other cases, it belongs to the category alphabetic. All other figurative constants belong to the category alphanumeric.

The following rules apply to an elementary move between these categories:

- (a) The figurative constant SPACE, an alphanumeric edited data item, or an alphabetic data item must not be moved to a numeric or numeric edited data item.
 - (a1) An alphanumeric edited data item or an alphabetic data item must not be moved to a national-character data item.
 - (b) A numeric literal, the figurative constant ZERO, a numeric data item, or a numeric edited data item must not be moved to an alphabetic data item or a national-character data item.
 - (c) A non-integer numeric literal or a non-integer numeric data item must not be moved to an alphanumeric or alphanumeric edited data item.
 - (c1) A national-character literal or a national-character data item must not be moved to a non-national-character data item.
 - (e) All other elementary moves are legal and are performed according to general rule (4)."

- Addition of national language feature

Change general rule (4c) (page VI-105) as follows:

- (c) "When a receiving field is described as alphabetic or national-character data item, justification and any necessary space or national space filling takes place as previously defined (see **Section IV: Overall Language Consideration**, 4.3.6 Standard Alignment Rules)."

- Addition of national language feature

Change general rule (5) (page VI-105) as follows:

(5) "Except the case where either operand is a national-character data item, any move that is not an elementary move is treated exactly as if it were an alphanumeric to alphanumeric elementary move, except that there is no conversion of data from one form of internal representation to another. In such a move, the receiving area will be filled without consideration for the individual elementary or group items contained within either the sending or receiving area, except as noted in the OCCURS clause. As for the case where either operand is a national-character data item or a national-character literal, it is to be defined by the implementor (see 5.8)."

- Addition of national language feature

Change Table 1, Legality of Types of MOVE Statements (page VI-106) as follows:

Category of Sending Operand	Category of Receiving Data Item			
	Alphabetic	Alphanumeric Edited, Alphanumeric	Numeric Integer, Numeric Non-integer, Numeric Edited	National
Alphabetic	Yes/4C	Yes/4a	No/3a	No/3a1
Alphanumeric	Yes/4C	Yes/4a	Yes/4b	No/3a1
Alphanumeric Edited	Yes/4c	Yes/4a	No/3a	No/3a1
Numeric	Integer	No/3b	Yes/4a	No/3b
	Non-integer	No/3b	No/3c	No/3b
Numeric Edited	No/3b	Yes/4a	Yes/4b	No/3b
National	No/3c1	No/3c1	No/3c1	Yes/3c1

6.20 The MULTIPLY Statement

6.20.3 Syntax Rules

- Definition of the maximum number of operands

Add the following as a new syntax rule (4) (page VI-107):

(4) "A maximum of 40 operands may be specified in a MULTIPLY statement."

6.21 The PERFORM Statement

6.21.3 Syntax Rules

- Definition of the maximum number of TIMES Phrases

Add the following as a new syntax rule (13) (page VI-111):

(13) "The number of times which is to be specified by the initial value of integer-1 or the data item referenced by the identifier-1 must not exceed 65000."

6.21.4 General Rules

- Definition of limits for dynamic nesting of the PERFORM statement of format 1

Add the following after the last sentence of general rule (10a) (page VI-112):

"A maximum of 100 PERFORM statements may be dynamically nested."

- Definition of limits for dynamic nesting of the PERFORM statement of format 2
Add the following after the last sentence of general rule (10b) (page VI-112):
"A maximum of 22 PERFORM statements may be dynamically nested."
 - Deletion of optional module
Delete general rules (15) and (16) (page VI-121).
- 6.22 The SEARCH Statement
- 6.22.3 Syntax Rules
- Definition of limits for number of conditions specified in SEARCH ALL
Add the following as a new syntax rule (6) (page VI-123):
(6) "The total number of data-names and condition-names specified in Format 2 must not exceed 12."
- 6.23 The SET Statement
- 6.23.3 Syntax Rules
- Definition of limits for index value
Add the following after the last sentence of syntax rule (2) (page VI-127):
"A maximum value of 65000 may be specified for integer-1 and integer-2."
 - Definition of limits for the number of operands
Add the following as a new syntax rule (7) (page VI-127):
(7) "A maximum of 40 operands may be specified."
- 6.24 The STOP Statement
- 6.24.1 Function
- 6.24.2 General Format
- Deletion of obsolete language element (STOP literal statement)
Change the general format (page VI-130) as follows:

STOP RUN
- 6.24.3 Syntax Rules
- Deletion of obsolete language element (STOP literal statement)
Delete syntax rule (1) (page VI-130).
 - Deletion of obsolete language element (STOP literal statement)
Delete syntax rule (3) (page VI-130).
- 6.24.4 General Rules
- Deletion of optional module
Delete general rule (3) (page VI-130).
 - Deletion of obsolete language element (STOP literal statement)

Delete general rule (4) (page VI-130).

6.25 The STRING Statement

6.25.3 Syntax Rules

- Addition of national language feature

Change syntax rule (2) (page VI-131) as follows:

(2) "All literals must be described as national-character literals when identifier-3 is a national-character data item, and all literals must be described as non-numeric literals when identifier-3 is not a national-character data item. If identifier-3 is a national-character data item, all identifiers, except identifier-4, must be described as national-character data items. If identifier-3 is not a national-character data item, all identifiers, except identifier-4, must be described implicitly or explicitly as USAGE IS DISPLAY."

- Addition of national language feature

Change the first sentence of syntax rule (5) (page VI-131) as follows:

"Identifier-4 must be described as an elementary numeric integer data item of sufficient size to contain a value equal to 1 plus the number of characters or national-characters of the data item referenced by identifier-3."

- Definition of limits for the number of operands

Add the following as a new syntax rule (7) (page VI-131):

(7) "A maximum of 30 operands may be specified in a STRING statement."

6.25.4 General Rules

- Addition of national language feature

Change the last sentence of general rule (2) (page VI-132) as follows:

"When a figurative constant is used as the delimiter, it is a single character non-numeric literal or national-character literal."

- Addition of national language feature

Change general rule (3) as follows:

(3) "When a figurative constant is specified as literal-1 or literal-2, and:

- (a) a national-character data item is referenced by identifier-3, it refers to a national-character literal of length one, or
- (b) a non-national-character data item is referenced by identifier-3, it refers to an implicit one character data item whose usage is DISPLAY."

- Addition of national language feature

Change general rule (4a) (page VI-132) as follows:

(a) "Those characters or national-characters from literal-1 or from the content of the data item are transferred to the data item referenced by identifier-3. If a national-character data item is referenced by identifier-3, the transfer is in accordance with the rules for national to national moves. If a non-national-character data item is referenced by identifier-3, the transfer is in

accordance with the rules for alphanumeric to alphanumeric moves. No space or national space filling will be provided (see general rule (4a) of the MOVE statement)."

- Addition of national language feature

Change general rule (4b) (page VI-132) as follows:

- (b) "If the DELIMITED phrase is specified without the SIZE phrase, the content of the data item referenced by identifier-1, or the value of literal-1, is transferred to the receiving data item in the sequence specified in the STRING statement beginning with the leftmost character or national-character and continuing from left to right until the end of the sending data item is reached or the end of the receiving data item is reached or until the character(s) or national-character(s) specified by literal-2, or by the content of the data item referenced by identifier-2, are encountered. The character(s) or national-character(s) specified by literal-2 or by the data item referenced by identifier-2 are not transferred."

- Addition of national language feature

Change general rule (7) (page VI-132) as follows:

- (7) "When characters or national-characters are transferred to the data item referenced by identifier-3, the moves behave as though the characters or national-characters were moved one at a time from the source into the character positions or national-character positions of the data item referenced by identifier-3 designated by the value of the data item referenced by identifier-4 (provided the value of the data item referenced by identifier-4 does not exceed the length of the data item referenced by identifier-3), and then the data item referenced by identifier-4 was increased by one prior to the move of the next character or national-character or prior to the end of execution of the STRING statement. The value of the data item referenced by identifier-4 is changed during execution of the STRING statement only by the behaviour specified above."

- Addition of national language feature

Change the first sentence of general rule (8) as follows:

- (8) "At the end of execution of the STRING statement, only the portion of the data item referenced by identifier-3 that was referenced during the execution of the STRING statement is changed."

- Addition of national language feature

Change the first sentence of general rule (9) (page VI-133) as follows:

- (9) "Before each move of a character or national-character to the data item referenced by identifier-3, if the value associated with the data item referenced by identifier-4 is either less than one or exceeds the number of character positions or national-character positions in the data item referenced by identifier-3, no (further) data is transferred to the data item referenced by identifier-3, and the NOT ON OVERFLOW phrase, if specified, is ignored and control is transferred to the end of the STRING statement or, if the ON OVERFLOW phrase is specified, to imperative-statement-1."

6.26 The SUBTRACT Statement

6.26.3 Syntax Rules

- Definition of limits for the number of operands

Add the following as a new syntax rule (5) (page VI-135):

- (5) "A maximum of 40 operands may be specified in a SUBTRACT statement."

6.27 The Unstring Statement

6.27.3 Syntax Rules

- Addition of national language feature

Change syntax rule (1) (page VI-136) as follows:

- (1) "Literal-1 and literal-2 must be non-numeric literals and neither can be a figurative constant that begins with the word ALL, if the national-character data item is not referenced by identifier-1. If a national-character data item is referenced by identifier-1, literal-1 and literal-2 must be a national-character literal or a figurative constant SPACE."

- Addition of national language Feature

Add the following as a new syntax rule (1a) (page VI-136):

- (1a) "Identifier-1 must reference national-character data items or data items described, implicitly or explicitly, as category alphanumeric."

- Addition of national language feature

Change syntax rule (2) (page VI-136) as follows:

- (2) "Identifier-2, identifier-3 and identifier-5 must reference national-character data items, if a national-character data item is referenced by identifier-1. If a national-character data item is not referenced by identifier-1, identifier-2, identifier-3 and identifier-5 must reference data items described, implicitly or explicitly, as category alphanumeric."

- Addition of national language feature

Change syntax rule (3) (page VI-136) as follows:

- (3) "Identifier-4 may reference national-character data items or may be described by either the category alphabetic, alphanumeric or numeric (except that the symbol "p" may not be used in the PICTURE character-string), and must be described, implicitly or explicitly, as USAGE IS DISPLAY."

- Addition of national language feature

Change syntax rule (5) (page VI-136) as follows:

- (5) "Identifier-7 must be described as an elementary numeric integer data item of sufficient size to contain a value equal to 1 plus the size of the data item or national-character data item referenced by identifier-1. The symbol "p" may not be used in the PICTURE character-string of identifier-7."

- Definition of limits for the number of operands

- Definition of limits for the number of operands in a DELIMITED BY phrase
Add the following as new syntax rules (8) and (9) (page VI-136):
 - (8) "A maximum of 36 operands may be specified in an UNSTRING statement.
 - (9) A maximum of 30 operands may be specified in a DELIMITED BY phrase."

6.27.4 General Rules

- Addition of national language feature
Change the first sentence of general rule (5) (page VI-137) as follows:

"The data item referenced by identifier-6 represents the count of the number of characters or national-characters within the data item referenced by identifier-1 isolated by the delimiters for the move to the data item referenced by identifier-4."
- Addition of national language feature
Change general rule (6) (page VI-137) as follows:
 - (6) "The data item referenced by identifier-7 contains a value that indicates a relative character position or national-character position within the area referenced by identifier-1."
- Addition of national language feature
Change general rule (8) (page VI-137) as follows:
 - (8) "When a figurative constant is used as the delimiter, it stands for a single national-character literal, if a national-character data item is referenced by identifier-1, and for all other cases, it stands for a single character non-numeric literal. When the ALL phrase is specified, one occurrence or two or more contiguous occurrences of literal-1 (non-numeric literal, national-character literal or figurative constant) or the content of the data item or national-character data item referenced by identifier-2 are treated as if they were only one occurrence, and one occurrence of literal-1 or the data item referenced by identifier-2 is moved to the receiving data item according to general rule (13d)."
- Addition of national language feature
Change general rule (9) (page VI-137) as follows:
 - (9) "When any examination encounters two contiguous delimiters, the current receiving area is space filled if it is described as alphabetic or alphanumeric, national space filled if it is described as national, or zero filled if it is described as numeric."
- Addition of national language feature
Change general rule (10) (page VI-137) as follows:
 - (10) "Literal-1 or the content of the data item referenced by identifier-2 may contain any character in the computer's character set or any national-character in the national-character set."
- Addition of national language feature

Change general rule (11) (page VI-137) as follows:

(11) "Each literal-1 or the data item referenced by identifier-2 represents one delimiter. When a delimiter contains two or more characters or national characters, all of the characters or national-characters must be present in contiguous positions of the sending item, and in the order given, to be recognised as a delimiter."

- Addition of national language feature

Change the second through fourth sentences of general rule (12) (page VI-137) as follows:

"Each delimiter is compared to the sending field. If a match occurs, the character(s) or national-character(s) in the sending field is considered to be a single delimiter. No character(s) or national-character(s) in the sending field may be considered a part of more than one delimiter."

- Addition of national language feature

Change general rule (13a) (page VI-138) as follows:

(a) "If the POINTER phrase is specified, the string of characters or national-characters referenced by identifier-1 is examined beginning with the relative character position or national-character position indicated by the content of the data item referenced by identifier-7. If the POINTER phrase is not specified, the string of characters or national-characters is examined beginning with the leftmost character position or national-character position."

- Addition of national language feature

Change the second sentence of general rule (13b) (page VI-138) as follows:

"If the DELIMITED BY phrase is not specified, the number of characters or national-characters examined is equal to the size of the current receiving area."

- Addition of national language feature

Change the second paragraph of general rule (13b) (page VI-138) as follows:

"If the end of the data item referenced by identifier-1 is encountered before the delimiting condition is met, the examination terminates with the last character or national-character examined."

- Addition of national language feature

Change general rule (13c) (page VI-138) as follows:

(c) "The characters thus examined (excluding the delimiting character(s), if any) are treated as an elementary alphanumeric data item, and the national-characters thus examined (excluding the delimiting character(s), if any) are treated as a national-character data item, and are moved into the current receiving area according to the rules for the MOVE statement."

- Addition of national language feature

Change general rule (13d) (page VI-138) as follows:

(d) "If the DELIMITER IN phrase is specified, the delimiting character(s) are treated as an elementary alphanumeric data item and the delimiting national-character(s) are treated as a national-character data item, and are

moved into the data item referenced by identifier-5 according to the rules for the MOVE statement. If the delimiting condition is the end of the data item referenced by identifier-1, then the data item referenced by identifier-5 is space filled or national space filled."

- Addition of national language feature

Change general rule (13e) (page VI-138) as follows:

(e) "If the COUNT IN phrase is specified, a value equal to the number of characters or national-characters thus examined (excluding the delimiter character(s), if any) is moved into the area referenced by identifier-6 according to the rules for an elementary move."

- Addition of national language feature

Change general rule (13f) (page VI-138) as follows:

(f) "If the DELIMITED BY phrase is specified, the string of characters or national-characters is further examined beginning with the first character or national-character to the right of the delimiter. If the DELIMITED BY phrase is not specified, the string of characters or national-characters is further examined beginning with the character or national-character to the right of the last character or national-character transferred."

- Addition of national language feature

Change the second sentence of general rule (13g) (page VI-138) as follows:

"The behaviour described in general rules (13b) through (13f) is repeated until either all the characters or national-characters are exhausted in the data item referenced by identifier-1, or until there are no more receiving areas."

- Addition of national language feature

Change general rule (15) (page VI-139) as follows:

(15) "The content of the data item referenced by identifier-7 will be incremented by one for each character or national-character examined in the data item referenced by identifier-1. When the execution of an UNSTRING statement with a POINTER phrase is complete, the content of the data item referenced by identifier-7 will contain a value equal to the initial value plus the number of characters or national-characters examined in the data item referenced by identifier-1."

- Addition of national language feature

Change general rule (17a) (page VI-139) as follows:

(a) "An UNSTRING is initiated, and the value in the data item referenced by identifier-7 is less than 1 or greater than the number of characters or national-characters of the data item referenced by identifier-1."

- Addition of national language feature

Change general rule (17b) (page VI-139) as follows:

(b) "If, during execution of an UNSTRING statement, all receiving areas have been acted upon, and the data item referenced by identifier-1 contains characters or national-characters that have not been examined."

- 7. Debugging in the Nucleus Module
 - 7.1 General Description
 - 7.2 Compile Time Switch
 - 7.3 Debugging Lines

Copyright Network Management Forum

Section VII: Sequential I-O Module

1. Introduction to the Sequential I-O Module
 - 1.1 Function
 - 1.2 Level Characteristics
 - Deletion of level concept
Delete 1.2 (page VII-1).
 - 1.3 Language Concepts
2. Environment Division in the Sequential I-O Module
 - 2.1 Input-Output Section
 - 2.2 The FILE-CONTROL Paragraph
 - 2.3 The File Control Entry
 - 2.4 The ACCESS MODE Clause
 - 2.5 The FILE STATUS Clause
 - 2.5.3 Syntax Rules
 - Deletion of optional module
Change syntax rule (2) (page VII-10) as follows:
(2) Data-name-1 must be defined in the Data Division as a two-character data item of the category alphanumeric and must not be defined in the File Section."
 - 2.6 The ORGANIZATION IS SEQUENTIAL Clause
 - 2.7 The PADDING CHARACTER Clause
 - 2.8 The RECORD DELIMITER Clause
 - 2.9 The RESERVE Clause
 - 2.10 The I-O-CONTROL Paragraph
 - 2.10.1 Function
 - Deletion of obsolete language elements (RERUN, MULTIPLE FILE TAPE clauses)
Change the paragraph (page VII-15) as follows:
"The I-O-CONTROL paragraph specifies the memory area which is to be shared by different files."
 - 2.10.2 General Format
 - Deletion of obsolete language elements (RERUN, MULTIPLE FILE TAPE clauses)
Change the general format (page VII-15) as follows:

I-O-CONTROL .

[[SAME [RECORD] AREA FOR file-name-3 { file-name-4 } ...] ...]

- 2.10.4 General Rules
- Deletion of obsolete language elements (RERUN, MULTIPLE FILE TAPE clauses)
- Change general rule (1) (page VII-15) as follows:
- (1) "The SAME clause is presented on the following pages."
- 2.11 The MULTIPLE FILE TAPE Clause
- Deletion of obsolete language element (MULTIPLE FILE TAPE clause)
- Delete 2.11 (page VII-16).
- 2.12 The RERUN Clause
- Deletion of obsolete language element (RERUN clause)
- Delete 2.12 (page VII-17).
- 2.13 The SAME Clause
- 2.13.3 Syntax Rules
- Definition of the number of SAME clauses
- Add the following as a new syntax rule (5) (page VII-19) as follows:
- (5) "A maximum of 10 SAME clauses may be specified."
3. Data Division in the Sequential I-O Module
- 3.1 File Section
- 3.1.1 File Description Entry
- Deletion of obsolete language elements (LABEL RECORDS, VALUE OF and DATA RECORDS clauses)
- Change the third sentence of the paragraph (page VII-21) as follows:
- "The clauses of a file description entry (FD entry) specify the size of the logical and physical records, and the number of lines to be written on a logical printer page."
- 3.1.2 Record Description Structure
- Deletion of level concept
- Delete the last sentence of the paragraph (page VII-21).
- 3.2 The File Description Entry
- 3.2.1 Function
- Deletion of obsolete language elements (DATA RECORDS clause)
- Change the paragraph (page VII-22) as follows:
- "The file description entry furnishes information concerning the physical structure and identification pertaining to a sequential file."

3.2.2 General Format

- Deletion of obsolete language element (LABEL RECORDS, DATA RECORDS, VALUE OF clauses)

Change the general format (page VII-22) as follows:

```

FD file-name-1
    [ BLOCK CONTAINS [ integer-1 TO ] integer-2 { RECORDS
      { CHARACTERS } ] ]
    [ RECORD { CONTAINS integer-3 CHARACTERS
      IS VARYING IN SIZE
      [ [ FROM integer-4 ] [ TO integer-5 ] CHARACTERS ]
      [ DEPENDING ON data-name-1 ]
      CONTAINS integer-6 TO integer-7 CHARACTERS } ] ]
    [ LINAGE IS { data-name-4
      integer-8 } LINES
      [ WITH FOOTING AT { data-name-5
        integer-9 } ]
      [ LINES AT TOP { data-name-6
        integer-10 } ]
      [ LINES AT BOTTOM { data-name-7
        integer-11 } ] ]
    [ CODE-SET IS alphabet-name-1 ] .
    
```

3.2.3 Syntax Rules

- Definition of limits for the number of files

Add the following as a new syntax rule (4) (page VII-22):

- (4) "A maximum of 25 files, including relative files and indexed files, may be specified in each separately-compiled program."

3.2.4 General Rules

- Deletion of obsolete language elements (LABEL RECORDS, DATA RECORDS, VALUE OF clauses)

Change general rule (2) (page VII-22) as follows:

- (2) "The BLOCK CONTAINS clause, the CODE-SET clause, LINAGE clause, and the RECORD clause are presented in alphabetic order on the following pages."

3.3 The BLOCK CONTAINS Clause

3.3.3 General Rules

- Addition of national language feature

Change general rule (3) (page VII-23) as follows:

- (3) "If the CHARACTERS phrase is specified, the physical record size is specified in terms of the number of character positions required to store the physical record."

3.4 The CODE-SET Clause

3.5 The DATA RECORDS Clause

- Deletion of obsolete language element (DATA RECORDS clause)
Delete 3.5 (page VII-25).

3.6 The LABEL RECORDS Clause

- Deletion of obsolete language element (LABEL RECORDS clause)
Delete 3.6 (page VII-26).

3.7 The LINAGE Clause

3.7.3 Syntax Rules

- Definition of the limits for the size of a logical page in the LINAGE clause

Add the following as a new syntax rule (5) (page VII-27):

- (5) "The value of integer-1 or the data item referenced by data-name-1 must not exceed 255."

3.8 The RECORD Clause

3.9 The VALUE OF Clause

- Deletion of obsolete language element (VALUE OF clause)
Delete 3.9 (page VII-33).

4. Procedure Division in the Sequential I-O Module

4.1 General Description

4.2 The CLOSE Statement

4.2.4 General Rules

- Deletion of obsolete language element (LABEL RECORDS clause)
Replace general rule (3C) (pages VII-36 and VII-37) as follows:

(C) "Close File

The closing operations specified by the implementor are executed."

4.3 The OPEN Statement

4.3.1 Function

- Deletion of obsolete language element (REVERSED phrase)
Delete the second sentence of the paragraph (page VII-39).

4.3.2 General Format

- Deletion of obsolete language element (REVERSED phrase)

Change the general format (page VII-39) as follows:

OPEN	{	INPUT { file-name-1 [WITH NO REWIND] } ... OUTPUT { file-name-2 [WITH NO REWIND] } ... I-O { file-name-3 } ... EXTEND { file-name-4 } ...	}	...
-------------	---	--	---	-----

4.3.3 Syntax Rules

- Deletion of obsolete language element (REVERSED phrase)
Delete syntax rule (1) (page VII-39).

4.3.4 General Rules

- Deletion of obsolete language element (LABEL RECORDS clause)
Delete general rule (7) (page VII-41).
- Deletion of obsolete language element (REVERSED phrase)
Change the first paragraph of general rule (9) (page VII-41) as follows:
(9) "The NO REWIND phrase must only be used with:"
- Deletion of obsolete language element (REVERSED phrase)
Change general rule (9b) (page VII-41) as follows:
(b) "Sequential files wholly contained within a single reel of tape within a multiple file tape environment."
- Deletion of obsolete language element (REVERSED phrase)
Change general rule (10) (page VII-41) as follows:
(10) "The NO REWIND phrase will be ignored if it does not apply to the storage medium on which the file resides."
- Deletion of obsolete language element (REVERSED phrase)
Change general rule (11a) (page VII-41) as follows:
(a) "When neither the EXTEND nor the NO REWIND phrase is specified, execution of the OPEN statement causes the file to be positioned at its beginning."
- Deletion of obsolete language element (REVERSED phrase)
Delete general rule (11c) (page VII-41).
- Deletion of obsolete language element (REVERSED phrase)
Delete general rule (12) (page VII-42).
- Deletion of obsolete language element (LABEL RECORDS clause)
Delete general rule (16) (page VII-42).
- Deletion of obsolete language element (LABEL RECORDS clause)

Delete general rule (18) (page VII-42).

- Definition of record length and the number of files open at one time

Add the following as new general rules (26) and (27) (page VII-43) as follows:

(26) "The maximum record length is 30000 character positions.

(27) Number of sequential files open at one time is 127."

4.4 The READ Statement

4.5 The REWRITE Statement

4.6 The USE Statement

4.6.3 Syntax Rules

- Definition of limits for the number of USE statements

Add the following as a new syntax rule (7) (page VII-50):

(7) "A maximum of 25 USE statements, including relative files and indexed files, may be specified in a program."

4.7 The WRITE Statement

4.7.3 Syntax Rules

- Definition of limits for the number of lines specified by an ADVANCING phrase

Add the following as a new syntax rule (10) (page VII-52):

(10) "The value specified by integer-1 or a data item referenced by identifier-2 must not exceed 16."

Section VIII: Relative I-O Module

1. Introduction to the Relative I-O Module
 - 1.1 Function
 - 1.2 Level Characteristics
 - Deletion of level concept
Delete 1.2 (page VIII-1).
 - 1.3 Language Concepts
 - 1.3.4 I-O Status
 - Deletion of level concept
Delete (5d2) (page VIII-5).
2. Environment Division in the Relative I-O Module
 - 2.1 Input-Output Section
 - 2.2 The FILE-CONTROL Paragraph
 - 2.3 The File Control Entry
 - 2.4 The ACCESS MODE Clause
 - 2.4.4 General Rules
 - Definition of limits for the value of relative key
Add the following as a new general rule (9) (page VIII-11):
(9) "The value of the data item referenced by data-name-1 must not exceed 2147483647."
 - 2.5 The ORGANIZATION IS RELATIVE Clause
 - 2.6 The I-O-CONTROL Paragraph
 - 2.6.1 Function
 - Deletion of obsolete language element (RERUN clause)
Change the paragraph (page VIII-13) as follows:
"The I-O-CONTROL paragraph specifies the memory area which is to be shared by different files."
 - 2.6.2 General Format
 - Deletion of obsolete language element (RERUN clause)
Change the general format (page VIII-13) as follows:

I-O-CONTROL .

[[SAME [RECORD] AREA FOR file-name-3 { file-name-4 } ...]]
 - 2.6.3 General Rules
 - Deletion of obsolete language element (RERUN clause)

Delete general rule (1) (page VIII-13).

3. Data Division in the Relative I-O Module

3.1 File Section

3.2 The File Description Entry

3.2.1 Function

- Deletion of obsolete language element (DATA RECORDS clause)

Change the paragraph (page VIII-14) as follows:

"The file description entry furnishes information concerning the physical structure and identification pertaining to a relative file."

3.2.2 General Format

- Deletion of obsolete language elements (DATA RECORDS, LABEL RECORDS, VALUE OF clauses)

Change the general format (page VIII-14) as follows:

FD file-name-1

$$\left[\begin{array}{l} \text{BLOCK CONTAINS [integer-1 TO] integer-2 } \left\{ \begin{array}{l} \text{RECORDS} \\ \text{CHARACTERS} \end{array} \right\} \\ \\ \text{RECORD } \left\{ \begin{array}{l} \text{CONTAINS integer-3 CHARACTERS} \\ \text{IS VARYING IN SIZE} \\ \text{[[FROM integer-4] [TO integer-5] CHARACTERS]} \\ \text{[DEPENDING ON data-name-1]} \\ \text{CONTAINS integer-6 TO integer-7 CHARACTERS} \end{array} \right\} . \end{array} \right]$$

3.2.3 Syntax Rules

- Definition of limits for the number of files

Add the following as a new syntax rule (4) (page VIII-14):

(4) "A maximum of 25 files, including relative files and indexed files, may be specified in each separately-compiled program."

3.2.4 General Rules

- Deletion of obsolete language element (DATA RECORDS clause)

Delete general rule (3) (page VIII-15).

- Deletion of obsolete language element (LABEL RECORDS clause)

Delete general rule (4) (page VIII-15).

- Deletion of obsolete language element (VALUE OF clause)

Delete general rule (6) (page VIII-15).

4. Procedure Division in the Relative I-O Module

4.1 General Description

4.2 The CLOSE Statement

4.2.4 General Rules

- Deletion of obsolete language element (LABEL RECORDS clause)

Change general rule (2A) (page VIII-17) as follows:

(A) "Close File

The closing operations specified by the implementor are executed."

- Deletion of obsolete language element (LABEL RECORDS clause)

Delete general rule (2A) paragraphs titled: "Input Files and Input-Output Files (Sequential Access Mode)", and "Input Files and Input-Output Files (Random or Dynamic Access Mode); Output Files (Random, Dynamic, or Sequential Access Mode)" (pages VIII-17 through VIII-18).

4.3 The DELETE Statement

4.4 The OPEN Statement

4.4.4 General Rules

- Deletion of obsolete language element (LABEL RECORDS clause)

Delete general rules (7), (12) and (14) (pages VIII-23 and VIII-24).

- Definition of record Length

- Definition of the number of files open at one time

Add the following as new general rules (19) and (20) (page VIII-25):

(19) "A maximum of a record length is 30000 character positions.

(20) Number of relative files open at one time is 127."

4.5 The READ Statement

4.6 The REWRITE Statement

4.6.4 General Rules

- Deletion of level concept

Change general rule (3) (page VIII-30) as follows:

(3) "The number of character positions in the record referenced by record-name-1 may or may not be equal to the number of character positions in the record being replaced."

4.7 The START Statement

4.8 The USE Statement

4.8.3 Syntax Rules

- Definition of limits for the number of USE statements

Add the following as a new syntax rule (7) (page VIII-35):

(7) "A maximum of 25 USE statements, including sequential files and indexed files, may be specified in a program."

4.9 The WRITE Statement

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Section IX: Indexed I-O Module

1. Introduction to the Indexed I-O Module
 - 1.1 Function
 - 1.2 Level Characteristics
 - Deletion of level concept
Delete 1.2 (page IX-1).
 - 1.3 Language Concepts
 - 1.3.4 I-O Status
 - Deletion of level concept
Delete (5d2) (page IX-5).
2. Environment Division in the Indexed I-O Module
 - 2.1 Input-Output Section
 - 2.2 The FILE-CONTROL Paragraph
 - 2.3 The File Control Entry
 - 2.3.3 Syntax Rules
 - Definition of limits on the number of alternate record keys and the total length of record keys
Add the following after syntax rule (3) (page IX-8):
 - (4) "Up to 32 alternate record keys can be specified using data-name-2.
 - (5) The total length of record keys specified with data-name-1 and data-name-2 must not exceed 8248 character positions."
 - 2.4 The ACCESS MODE Clause
 - 2.5 The ALTERNATE RECORD KEY Clause
 - 2.5.3 Syntax Rules
 - Deletion of Limits on the Size of a Alternate Record Key
Add the following after syntax rule (5) (page IX-11):
 - (6) "The length of the data item referenced using data-name-1 must not exceed 254 character positions."
 - 2.6 The ORGANIZATION IS INDEXED Clause
 - 2.7 The RECORD KEY Clause
 - 2.7.3 Syntax Rules
 - Definition of limit for the size of a prime record key
Add the following as a new syntax rule (5) (page IX-14):
 - (5) "The size of the data item referenced by the data-name-1 must not exceed 120 character positions."
 - 2.8 The I-O-CONTROL Paragraph

2.8.1 Function

- Deletion of obsolete language element (RERUN clause)

Change the paragraph (page IX-15) as follows:

"The I-O-CONTROL paragraph specifies the memory area which is to be shared by different files."

2.8.2 General Format

- Deletion of obsolete language element (RERUN clause)

Change the general format (page IX-15) as follows:

I-O-CONTROL .

[[SAME [RECORD] AREA FOR file-name-3 { file-name-4 } ...] ...]

2.8.3 General Rules

- Deletion of obsolete language element (RERUN clause)

Delete general rule (1) (page IX-15).

3. Data Division in the Indexed I-O Module

3.1 File Section

3.2 The File Description Entry

3.2.1 Function

- Deletion of obsolete language element (DATA RECORDS clause)

Change the paragraph (page IX-16) as follows:

"The file description entry furnishes information concerning the physical structure and identification pertaining to an indexed file."

3.2.2 General Format

- Deletion of obsolete language elements (DATA RECORDS, LABEL RECORDS, VALUE OF clauses)

Change the general format (page IX-16) as follows:

FD file-name-1

[BLOCK CONTAINS [integer-1 TO] integer-2 { RECORDS } { CHARACTERS }]
[RECORD { CONTAINS integer-3 CHARACTERS
IS VARYING IN SIZE
[[FROM integer-4] [TO integer-5] CHARACTERS]
[DEPENDING ON data-name-1]
CONTAINS integer-6 TO integer-7 CHARACTERS }] .

3.2.3 Syntax Rules

- Definition of limits for the number of files

Add the following as a new syntax rule (4) (page IX-16):

- (4) "A maximum of 25 files, including relative files and indexed files, may be specified in each separately compiled program."

3.2.4 General Rules

- Deletion of obsolete language element (DATA RECORDS clause)
Delete general rule (3) (page IX-17).
- Deletion of obsolete language element (LABEL RECORDS clause)
Delete general rule (4) (page IX-17).
- Deletion of obsolete language element (VALUE OF clause)
Delete general rule (6) (page IX-17).

4. Procedure Division in the Indexed I-O Module

4.1 General Description

4.2 The CLOSE Statement

4.2.4 General Rules

- Deletion of obsolete language element (LABEL RECORDS clause)
Change general rule (2A) (page IX-19) as follows:
(A) "Close File
The closing operations specified by the implementor are executed."
• Deletion of obsolete language element (LABEL RECORDS clause)
Delete (2A) paragraphs titled: "Input Files and Input-Output Files (Sequential Access Mode)" and "Input files and Input-Output Files (Random or Dynamic Access Mode); Output Files (Random, Dynamic, or Sequential Access Mode)" (pages IX-19 through IX-20).

4.3 The DELETE Statement

4.4 The OPEN Statement

4.4.4 General Rules

- Deletion of obsolete language element (LABEL RECORDS clause)
Delete general rules (7), (12) and (14) (pages IX-25 and IX-26).
- Definition of record length and the number of files open at one time
Add the following as new general rules (19) and (20) (page IX-27):
(19) "A maximum of a record length is 30000 character positions.
(20) Number of indexed files open at one time is 31."

4.5 The READ Statement

4.6 The REWRITE Statement

4.6.4 General Rules

- Deletion of level concept

Change general rule (3) (page IX-33) as follows:

- (3) "The number of character positions in the record referenced by record-name-1 may or may not be equal to the number of character positions in the record being replaced."

- 4.7 The START Statement
- 4.8 The USE Statement
- 4.9 The WRITE Statement

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Section X: Inter-Program Communication Module

1. Introduction to the Inter-Program Communication Module
 - 1.1 Function
 - 1.2 Level Characteristics
 - Deletion of level concept
Delete 1.2 (page X-1).
 - 1.3 Language Concepts
 - 1.3.4 External Objects and Internal Objects
 - Deletion of optional module
Change the first sentence of the last paragraph (page X-3) as follows:
"Data records, subordinate data items, and various associated control information described in the Linkage Section of a program are always considered to be internal to the program describing that data."
 - 1.3.8 Scope of Names
 - Deletion of optional module
Delete "1. cd-name" from the second paragraph (page X-4).
Delete the fourth paragraph (page X-5).
Delete "7. report name" from the sixth paragraph (page X-5).
 - 1.3.8.2 Conventions for Condition-Names, Data-Names, File-Names and Record Names
 - Deletion of optional module
Change the title to: "1.3.8.2 Conventions for Condition-Names, Data-Names, File-Names and Record-Names".
 - Deletion of optional module
Change the first paragraph (page X-6) as follows:
"When condition-names, data-names, file-names and record-names are declared in a source program, these names may be referenced only by that program except when one or more of the names is global and the program contains other programs."
Change the second paragraph (page X-6) as follows:
"The requirements governing the uniqueness of the names allocated by a single program to be condition-names, data-names, file-names and record-names are explained elsewhere in these specifications (see **Section IV: Overall Language Consideration**, 4.2.2.1.1 User-defined Words)."
Change the third paragraph (page X-6) as follows:
"A program cannot reference any condition-name, data-name, file-name or record-name declared in any program it contains."
Change the first sentence of the fifth paragraph (page X-6) as follows:
"When a program, program B, is directly contained within another program, program A, both programs may define a condition-name, a data-name, a file-

name or a record-name using the same user-defined word."

- 2. Nested Source Programs
 - 2.1 General Description
 - 2.2 Organization
 - 2.3 Structure
 - 2.3.2 Syntax Rules
 - Definition of limits for the number of nested programs
 - Add the following as a new syntax rule (2) (page X-9):
 - (2) "A maximum of 40 programs may be contained within a single separately-compiled program."
 - 2.4 Initial State of a Program
 - 2.4.1 Characteristics of a Program
 - Deletion of optional module
 - Change the first sentence of characteristic (1) (page X-10) as follows:
 - "The program's internal data contained in the Working-Storage Section is initialized."
 - Deletion of obsolete language element (ALTER statement)
 - Delete characteristic (4) (page X-10).
 - 2.5 End Program Header
- 3. Identification Division in the Inter-Program Communication Module
 - 3.1 The PROGRAM-ID Paragraph and Nested Source Programs
- 4. Data Division in the Inter-Program Communication Module
 - 4.1 Linkage Section
 - Definition of limits for the number of 01 and 77-level-description entries in the Linkage section
 - Definition of Limits for Size of a Group Item
 - Add the following paragraph at the end of the last paragraph (page X-13):
 - "The total number of 77-level and 01-level entries in Linkage Section must not exceed 62. The length of a group item which is defined in the Linkage Section must not exceed 65535, which is a sum of the number of national-character positions of national-character data item in the data item multiplied by integer (see **Section III: Glossary**, definition of *National-Character Position*) and the number of character positions of other items."
 - 4.2 The File Description Entry in the Inter-Program Communication Module
 - 4.2.2 General Format
 - Deletion of obsolete language elements (LABEL RECORDS, VALUE OF, DATA RECORDS clauses)

Change the general format for Format 1 (page X-15) as follows:

```

FD file-name-1
  [ IS EXTERNAL ]
  [ IS GLOBAL ]
  [ BLOCK CONTAINS [ integer-1 TO ] integer-2 { RECORDS } ]
  [ BLOCK CONTAINS [ integer-1 TO ] integer-2 { CHARACTERS } ]
  [ RECORD { CONTAINS integer-3 CHARACTERS
              IS VARYING IN SIZE
              [ [ FROM integer-4 ] [ TO integer-5 ] CHARACTERS ]
              [ DEPENDING ON data-name-1 ]
              CONTAINS integer-6 TO integer-7 CHARACTERS } ]
  [ LINAGE IS { data-name-4 } integer-8 ] LINES
  [ WITH FOOTING AT { data-name-5 } integer-9 ]
  [ LINES AT TOP { data-name-6 } integer-10 ]
  [ LINES AT BOTTOM { data-name-7 } integer-11 ]
  [ CODE-SET IS alphabet-name-1 ] .
    
```

Change the general format for Format 2 (page X-16) as follows:

```

FD file-name-1
  [ IS EXTERNAL ]
  [ IS GLOBAL ]
  [ BLOCK CONTAINS [ integer-1 TO ] integer-2 { RECORDS } ]
  [ BLOCK CONTAINS [ integer-1 TO ] integer-2 { CHARACTERS } ]
  [ RECORD { CONTAINS integer-3 CHARACTERS
              IS VARYING IN SIZE
              [ [ FROM integer-4 ] [ TO integer-5 ] CHARACTERS ]
              [ DEPENDING ON data-name-1 ]
              CONTAINS integer-6 TO integer-7 CHARACTERS } ] .
    
```

- Deletion of optional module
Delete the general format for Format 3 (page X-17).

4.2.3 Syntax Rules

- Deletion of level concept

Change syntax rule (1) (page X-18) as follows:

- (1) "Format 1 is the file description entry for a sequential file (see **Section VII: Sequential I-O Module**, 3.2 The File Description Entry)."

Change syntax rule (2) (page X-18) as follows:

- (2) "Format 2 is the file description entry for a relative file or an indexed file (see **Section VIII: Relative I-O Module**, 3. Data Division in the Relative I-O Module and **Section IX: Indexed I-O Module**, 3. Data Division in the Indexed I-O Module)."

- Deletion of optional module

Delete syntax rule (3) (page X-18).

4.3 The Data Description Entry in the Inter-Program Communication Module

4.3.3 Syntax Rules

- Deletion of level concept

Change syntax rule (1) (page X-21) as follows:

- (1) "For the availability of specific clauses in the data description entry, see **Section VI: Nucleus Module**, 3.3 The Data Description Entry."

4.4 The Report Description Entry in the Inter-Program Communication Module

- Deletion of optional module

Delete 4.4 (page X-22).

4.5 The EXTERNAL Clause

4.5.4 General Rules

- Addition of national language feature

Change the first sentence of general rule (2) as follows:

"Within a run unit, if two or more programs describe the same external data record, each record-name of the associated record description entries must be the same and the records must define the same number of characters."

4.6 The GLOBAL Clause

4.6.1 Function

- Deletion of optional module

Change the first sentence of the paragraph (page X-24) as follows:

"The GLOBAL clause specifies that a data-name or a file-name is a global name."

4.6.3 Syntax Rules

- Deletion of optional module

Change syntax rule (1) (page X-24) as follows:

- (1) "The GLOBAL clause may be specified only in data description entries whose level-number is 01 in the File Section or the Working-Storage Section, or file description entries."

- 4.6.4 General Rules
 - Deletion of optional module
 - Change the first sentence of general rule (1) (page X-24) as follows:
"A data-name or file-name described using a GLOBAL clause is a global name."
- 5. Procedure Division in the Inter-Program Communication Module
- 5.1 The Procedure Division Header
 - Definition of limits for the total number of parameters
 - Add the following as a new general rule (5) (page X-26):
(5) "The total number of parameters in a procedure division header must not exceed 62."
 - Deletion of level concept
 - Delete the last paragraph (page X-26).
- 5.2 The CALL Statement
- 5.2.3 Syntax Rules
 - Deletion of optional module
 - Change syntax rule (3) (page X-27) as follows:
(3) "Each of the operands in the USING phrase must have been defined as a data item in the File Section, Working-Storage Section or Linkage Section, and must be a level 01 data item, a level 77 data item or an elementary data item."
 - Definition of the total number of parameters
 - Add the following as a new syntax rule (4) (page X-27):
(4) "The identifier-2 may not appear more than 62 times in a CALL statement."
- 5.3 The CANCEL Statement
- 5.4 The EXIT PROGRAM Statement
- 5.5 The USE Statement
- 5.5.3 Syntax Rules
 - Deletion of level concept
 - Change syntax rule (1) (page X-34) as follows:
(1) "See **Section VII: Sequential I-O Module**, **Section VIII: Relative I-O Module** and **Section IX: Indexed I-O Module**."
- 5.6 The USE BEFORE REPORTING Statement
 - Deletion of optional module
 - Delete 5.6 (page X-35).

Section XI: Sort-Merge Module

1. Introduction to the Sort-Merge Module
 - 1.1 Function
 - 1.2 Language Concepts
 2. Environment Division in the Sort-Merge Module
 - 2.1 Input-Output Section
 - 2.2 The FILE-CONTROL Paragraph
 - 2.3 The File Control Entry
 - 2.4 The I-O-CONTROL Paragraph
 - 2.4.3 Syntax Rules
 - Deletion of level concept
Delete 2.4.3 (page XI-3).
 - 2.5 The Same Record/Sort/Sort-Merge Area Clause
3. Data Division in the Sort-Merge Module
 - 3.1 File Section
 - 3.1.1 Sort-Merge File Description Entry
 - Deletion of obsolete language element (DATA RECORDS clause)
Change the third sentence of the paragraph (page XI-6) as follows:
"The clauses of a sort-merge file description entry (SD entry) specify the size of the data records associated with a sort file or a merge file."
 - 3.1.2 Record Description Structure
 - Deletion of level concept
Delete the last sentence of the paragraph (page XI-6).
 - 3.2 The Sort-Merge File Description Entry
 - 3.2.1 Function
 - Deletion of obsolete language element (DATA RECORDS clause)
Change the paragraph (page XI-7) as follows:
"The sort-merge file description entry furnishes information concerning the physical structure pertaining to a sort or merge file."
 - 3.2.2 General Format
 - Deletion of obsolete language element (DATA RECORDS clause)
Change the general format (page XI-7) as follows:

```

SD file-name-1
  [ RECORD { CONTAINS integer-1 CHARACTERS
             IS VARYING IN SIZE
             [ [ FROM integer-2 ] [ TO integer-3 ] CHARACTERS ]
             [ DEPENDING ON data-name-1 ]
             CONTAINS integer-4 TO integer-5 CHARACTERS } ] .
    
```

3.2.3 Syntax Rules

- Deletion of obsolete language element (DATA RECORDS clause)
Delete syntax rule (2) (page XI-7).
- Deletion of level concept
Delete syntax rule (4) (page XI-7).

3.2.4 General Rules

- Deletion of obsolete language element (DATA RECORDS clause)
Delete syntax rule (1) (page XI-7).

4. Procedure Division in the Sort-Merge Module

4.1 The MERGE Statement

4.1.3 Syntax Rules

- Definition of limits
Add the following after syntax rule (11) (page XI-9):
(12) "A maximum of 12 file-names may be specified in a USING phrase."
(13) The number of data-name-1s must not exceed 12.
(14) The total number of character positions of the data items referenced by data-name-1s must not exceed 255.
(15) A maximum of 1 file-name may be specified in a GIVING phrase."

4.1.4 General Rules

- Deletion of optional module
Delete general rule (13) (page XI-12).

4.2 The RELEASE Statement

4.3 The RETURN Statement

4.4 The SORT Statement

4.4.3 Syntax Rules

- Definition of limits
Add the following after syntax rule (10) (page XI-17):
(11) "A maximum of 12 file-names may be specified in a USING phrase."

(12) The number of data-name-1s must not exceed 12.

(13) The total number of character positions of the data items referenced by data-name-1s must not exceed 255.

(14) A maximum of 1 file-name may be specified in a GIVING phrase."

4.4.4 General Rules

- Deletion of optional module
Delete general rule (14) (page XI-21).

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Section XII: Source Text Manipulation Module

1. Introduction to the Source Text Manipulation Module
 - 1.1 Function
 - 1.2 Level Characteristics
 - Deletion of level concept
Delete 1.2 (page XII-1).
2. The COPY Statement
 - 2.1 Function
 - 2.2 General Format
 - 2.3 Syntax Rules
 - Deletion of obsolete language element (Comment Entry)
Delete syntax rule (10) (page XII-2).
 - Definition of limits
Add the following after syntax rule (10) (page XII-2):
 - (11) "The maximum length of a text-name-1 is 8 characters.
 - (12) The total number of pseudo-texts, identifiers, literals and words specified in a REPLACING phrase must not exceed 150.
 - (13) The implementor defines whether national-character may be used in pseudo-texts, identifiers, literals or words in a REPLACING phrase."
 - 2.4 General Rules
3. The REPLACE Statement
 - 3.1 Function
 - 3.2 General Format
 - 3.3 Syntax Rules
 - Deletion of obsolete language element (Comment Entry)
Delete syntax rule (8) (page XII-6).
 - Definition of limits
Add the following after syntax rule (8) (page XII-6):
 - (9) "A maximum of 150 pseudo-texts may be specified in a REPLACE statement.
 - (10) The implementor defines whether national-character may be used in a pseudo-text in a REPLACE statement."
 - 3.4 General Rules

Section XIII: Report Writer Module

- Deletion of optional module
Delete Section XIII (pages XIII-1 through XIII-79).

Section XIV: Communication Module

- Deletion of optional module
Delete Section XIV (pages XIV-1 through XIV-30).

Section XV: Debug Module

- Deletion of optional module
Delete Section XV (pages XV-1 through XV-10).

Section XVI: Segmentation Module

- Deletion of optional module
Delete Section XVI (pages XVI-1 through XVI-9).

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X/Open COBOL and MIA COBOL

A.1 COBOL Specifications

The SPIRIT COBOL Specification is based on ISO COBOL, X/Open COBOL⁴ and MIA COBOL.⁵ Figure A-1 on page 120 shows the relationship between them.

4. X/Open CAE Specification, December 1991, COBOL Language (ISBN: 1-872630-09-X, C192 or XO/CAE/91/200).

5. Multivendor Integration Architecture, Volume 2: Division 2, Application Program Interface Specifications, Part 3-1: Programming Language COBOL, February 1991.

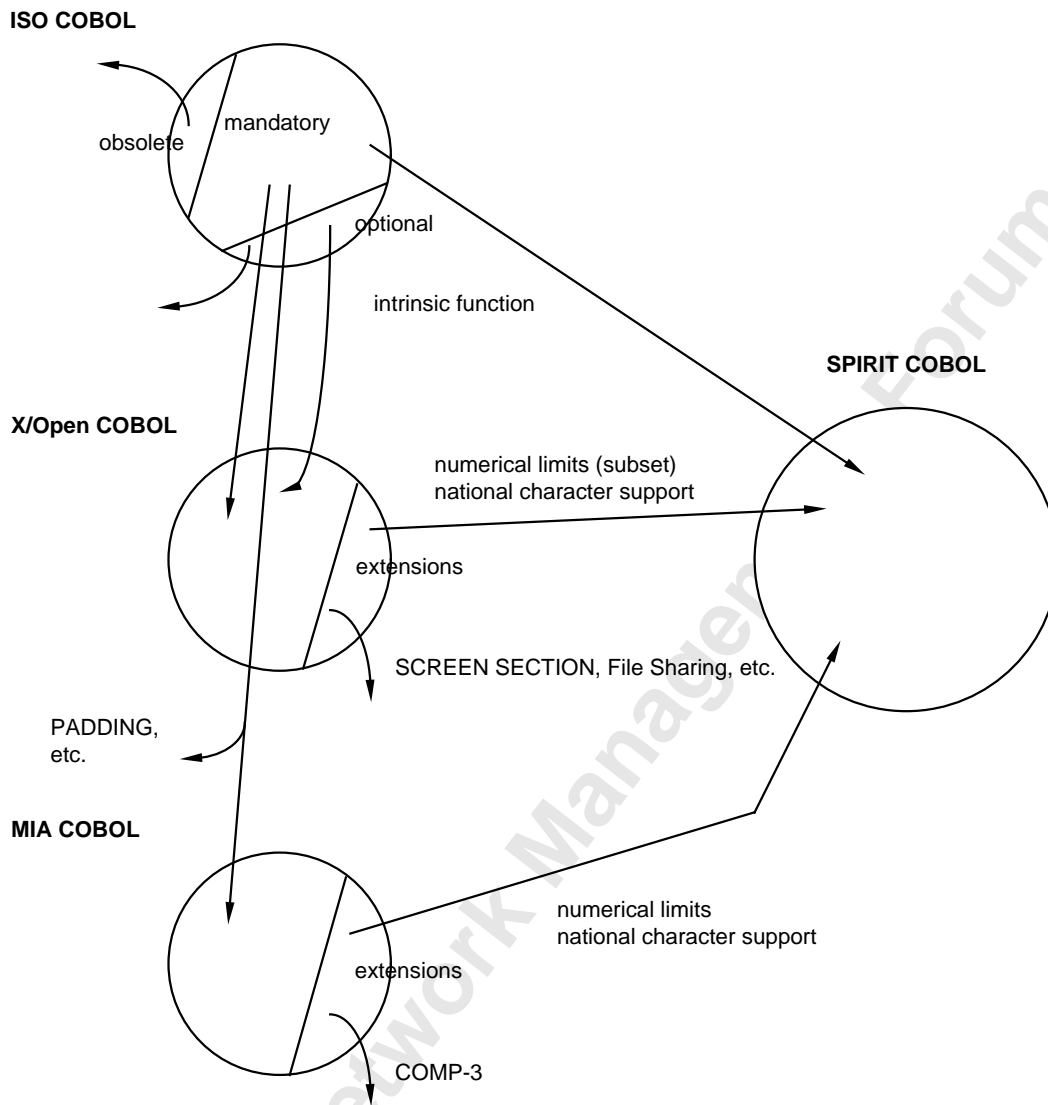


Figure A-1 COBOL Specifications

A.2 Differences — Non-numeric Items

Table A-1 on page 122 shows the differences between SPIRIT COBOL, X/Open COBOL (XPG4) and MIA COBOL non-numeric items. Non-numeric items of SPIRIT COBOL are specified applying the following rules:

1. Obsolete elements of the current ISO standard are not adopted to harmonise with the next ISO standard.
2. Mandatory items of the ISO standard are also mandatory in SPIRIT COBOL. Optional items of ISO standard elements are not adopted.
3. Extensions of MIA or XPG4 are candidates of SPIRIT COBOL.
Some extensions which will be included in the next ISO standard with the same specification are mandatory in SPIRIT COBOL.
4. Other extensions are withdrawn in SPIRIT COBOL.

There are four types in Table A-1:

X only XPG4
= XPG4 = MIA
M only MIA
ne XPG4 not = MIA

A.3 Differences — Numeric Items

Table A-2 on page 124 shows the differences between SPIRIT COBOL, X/Open COBOL (XPG4) and MIA COBOL numeric items. For implementation-defined numeric features, the following three rules are applied to give default values:

1. For those features that either one of, not both of, XPG4 or MIA specifies, the value will be applied.
2. For those features that both XPG4 and MIA specify, the larger one of XPG4 and MIA will be applied.
3. For those features that both XPG4 and MIA specify the same value, the value will be applied.

There are six types in Table A-2 on page 124:

X only XPG4
= XPG4 = MIA
M only MIA
> XPG4 > MIA
< XPG4 < MIA
ne XPG4 not = MIA

Table A-1 Non-numeric Features

No.	Extensions	Type	XPG4		MIA		SPIRIT
				Ref.		Ref.	
1	COMPUTATIONAL-3, COMP-3	=	COMPUTATIONAL-3, COMP-3	3.2	COMPUTATIONAL-3, COMP-3	V1-5.14	withdraw
2	COMPUTATIONAL-5, COMP-5	=	COMPUTATIONAL-5, COMP-5	3.2			withdraw
3	ORGANIZATION IS LINE SEQUENTIAL	X	ORGANIZATION IS LINE SEQUENTIAL	3.3			withdraw
4	Special Register RETURN-CODE	X	RETURN-CODE	3.5			withdraw
5	Passing Parameters by Value	X	USING BY VALUE	3.5			withdraw
6	EBCDIC Character Code Set	X	ALPHABET alphabet-name IS EBCDIC	3.6			withdraw
7	Screen Handling Module	X	extension of ACCEPT/DISPLAY	4			withdraw
8	File Sharing and Record Locking	X	LOCK MODE IS ...	5			withdraw
9	Access to Command Line Arguments and Environment Variables	X	extension of ACCEPT/DISPLAY	8.6			withdraw
10	File (Re)assignment	X	DISK, PRINTER, data-name	8.3			withdraw
11	Special File and Error Reporting	X	SYSSIN, SYSOUT, SYSERR	8.4			withdraw
12	Calling Other Languages	X	possible to call each other	8.7			withdraw
13	Concatenation expressions	X	literal-1 and literal-2	3.7			withdraw
14	Free Form Reference Format	X	free form	3.8			withdraw
15	Single-byte internationalisation support	X	syntactical restrictions LANG environment variable	6.2			withdraw
16	National Character Support	ne	includes MIA Specification	6.3	subset of XPG4 Specification	A.5	MIA
17	External Switch	ne	ISO specification		External Switch is deleted	IV-4.5, VI-4.5	XPG4
18	The DISPLAY Statement	ne	ISO specification		WITH NO ADVANCING phrase is deleted	VI-6.10	XPG4
19	Optional File	ne	ISO specification		OPTIONAL phrase is deleted	VII, VIII, IX	XPG4

No.	Extensions	Type	XPG4		MIA		SPIRIT
				Ref.		Ref.	
20	PADDING CHARACTER Clause	ne	ISO specification		PADDING CHARACTER Clause is deleted	VII-2.7	XPG4
21	The RECORD DELIMITER Clause	ne	ISO specification		RECORD DELIMITER Clause is deleted	VII-2.8	XPG4
22	End Program Header	ne	ISO specification		Separate Compilation is deleted	VI-2.4	XPG4
23	Computer-name	M			contains at least one alphabet	IV-4.2.2.1.2	withdraw
24	Implicit Synchronisation	M			no implicit filler is inserted	IV-4.3.7	withdraw
25	Character Position of Numeric Data Item	M			occupied character position is defined	VI-5.14.4	withdraw
26	Continuation of Lines	ne	modification of ISO specification	3.8.2	ISO specification	IV-7.2.2	MIA

Table A-2 Numeric Features

No.	Extensions	Type	XPG4		MIA	MIA Ref.	SPIRIT
				Ref.			
1	Size of national-character literal (Fixed Form Reference Format)	ne	18	7.4	less than 1 line	IV-4.2.2.2.2a	MIA
2	Number of characters in a source line (Free Form Reference Format)	X	80	7.4			withdraw
3	Number of bytes in a source line (Free Form Reference Format)	X	255	7.4			withdraw
4	Size of group items	X	65000	7.4			XPG4
5	Dynamic nesting of simple PERFORM	X	100	7.4			XPG4
6	Dynamic nesting of PERFORM n TIMES	X	22	7.4			XPG4
7	Characters ISO ACCEPT DISPLAY	X	220	7.4			XPG4
8	Maximum value of integers in formats	X	65000	7.4			XPG4
9	Total length of literals	X	32767	7.4			XPG4
10	Size of one record (all I-O module)	X	2000	7.4			30000
11	Number of SAME clauses	X	10	7.4			XPG4
12	Length of file-name when assigned to DISK, including the extensions added by the X/Open Environment	X	14	7.4			withdraw
13	Number of alternate keys	<	15	7.4	32	IX-2.3.3	MIA
14	Size of environment variables	X	127	7.4			withdraw
15	Size of command line	X	128	7.4			withdraw
16	External file-name including pathname (run-time limit)	X	100	7.4			withdraw
17	Number of files open at one time (except indexed files)	X	50	7.4			127
18	Number of files open at one time (indexed files)	X	25	7.4			31
19	Length of a program-name	=	8	7.4	8	IV-4.2.2.1.1	XPG4
20	Length of external data-names and file-names	=	8	7.4	8	IV-4.2.2.1.1	XPG4
21	Number of KEY IS phrases	=	12	7.4	12	VI-5.8.3	XPG4
22	Number of indexes per table	=	12	7.4	12	VI-5.8.3	XPG4
23	Size of alphanumeric items	=	32767	7.4	32767	VI-5.9.4	XPG4
24	Replication count in PICTURE string	=	32767	7.4	32767	VI-5.9.4	XPG4
25	Number of WHEN phrases in SEARCH	=	12	7.4	12	VI-6.22.3	XPG4
26	Maximum value of relative key	=	214748367	7.4	214748367	VIII-2.4.3	XPG4
27	Number of keys in SORT or MERGE	=	12	7.4	12	XI-4.1.3, XI-4.4.4.3	XPG4
28	Number of bytes preceding margin R (Fixed Form Reference Format)	=	72	7.4	72	IV-7.2	XPG4
29	Number of subscript	=	7	7.4	7	IV-4.3.8.2.3	XPG4
30	Length of text-name	M		7.4	8	IV-4.2.2.1.1	MIA

No.	Extensions	Type	XPG4		MIA		SPIRIT
				Ref.		Ref.	
31	Data item length in Working-Storage Section	M			1048575	VI-5.2	MIA
32	Maximum repeat count of a table	>	65000		32767	VI-5.8.3	XPG4
33	Number of character position of an alphanumeric	M			150	VI-5.9.5	MIA
34	Number of literals in 88 description entry	M			102	VI-5.15.3	MIA
35	Number of operands in an arithmetic expression	M			30	V-6.2.1	MIA
36	Length of exponent	M			9	V-6.2.1	MIA
37	Number of operands in an ADD statement	M			40	VI-6.6.3	MIA
38	Number of operands in a COMPUTE statement	M			30	VI-6.8.3	MIA
39	Number of operands in a DISPLAY statement	M			40	VI-6.10.3	MIA
40	Number of operands in a DIVIDE statement	M			40	VI-6.11.3	MIA
41	Number of selection subjects and selection objects in an EVALUATE statement	M			30	VI-6.13.3	MIA
42	Number of nests in an EVALUATE statement	M			29	VI-6.13.3	MIA
43	Number of operands in an INITIALIZE statement	M			40	VI-6.17.3	MIA
44	Number of operands in a MULTIPLY statement	M			40	VI-6.20.3	MIA
45	Value specified as TIMES phrase in a PERFORM statement	>	65000	7.4	32767	VI-6.21.3	XPG4
46	Number of operands in a SET statement	M			40	VI-6.23.3	MIA
47	Number of operands in a STRING statement	M			30	VI-6.25.3	MIA
48	Number of operands in a SUBTRACT statement	M			40	VI-6.26.3	MIA
49	Number of operands in an UNSTRING statement	M			36	VI-6.27.3	MIA
50	Number of files	M			25	VII-3.2.3	MIA
51	Linage of 1 logical page in a LINAGE clause	M			255	VII-3.7.3	MIA
52	Number of USE statements	M			25	VII-4.6.3	MIA
53	Number of lines of ADVANCING phrase in a WRITE statement	M			16	VII-4.7.3	MIA
54	Number of nests of program	M			40	X-2.3.2	MIA

No.	Extensions	Type	XPG4		MIA		SPIRIT
				Ref.		Ref.	
55	Data item length in Linkage Section	M			65535	X-4.1	MIA
56	Number of output files written in a SORT statement or a MERGE statement	M			1	XI-4.1.3, XI-4.4.4.3	MIA
57	Number of pseudo-texts, identifiers, literals and words specified as a REPLACING phrase in a COPY statement	M			150	XII-2.3	MIA
58	Number of pseudo-texts in a REPLACE statement	M			150	XII-3.3	MIA
59	Size of national-character user-defined word (Fixed Form Reference Format)	>	29	7.4	13	IV-4.2.2.1	MIA*
60	Number of delimiters in an UNSTRING statement	>	30	7.4	15	VI-6.27.3	XPG4
61	Number of parameters in Procedure Division USING	>	62	7.4	30	X-4.1	XPG4
62	Number of parameters in a CALL ... USING	>	62	7.4	30	X-5.2.3	XPG4
63	Number of Sort or Merge input files	>	12	7.4	8	XI-4.1.3, XI-4.4.4.3	XPG4
64	Size of tables	<	65000	7.4	1048575	VI-5.8.3	MIA
65	Size of key per table	<	100	7.4	256	VI-5.8.3	MIA
66	Size of numeric edited item	<	30	7.4	31	VI-5.9.4	MIA
67	Number of levels of nesting parentheses in arithmetic expression	<	15	7.4	19	VI-6.2.1	MIA
68	Number of labels in GO TO DEPENDING	<	99	7.4	255	VI-6.15.3	MIA
69	Number of nesting levels in IF statement	<	25	7.4	30	VI-6.16.3	MIA
70	Number of identifiers in INSPECT	<	15	7.4	16	VI-6.18.3	MIA
71	Size of key (Indexed I-O)	<	100	7.4	120	IX-2.7.3	MIA
72	Size of key (Sort-Merge)	<	100	7.4	255	XI-4.1.3, XI-4.4.4.3	MIA
73	Maximum index value in SET statement	X	65000	7.4			XPG4
74	Maximum occurrence number in subscripting	X	65000	7.4			XPG4
75	Total length of record keys per file	M			8248	IX-2.3.3	MIA
76	Alternate record key length	M			254	IX-2.5.3	MIA

* This is the only exception because 29 national-characters may exceed margin R in some implementations.

