THE UTILIZATION OF THE UNISIST REFERENCE MANUAL IN THE DOCPAL SYSTEM AND THE COMPUTER CONVERSION FROM THE DOCPAL ISIS FORMAT TO THE UNISIST FORMAT

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I. INTRODUCTION

The Latin American Population Documentation System (DOCPAL), established by the United Nations Latin American Demographic Center (CELADE) in March 1976 with funds from IDRC, has based its bibliographic description on the data element definitions given in the 1974 "UNISIST Reference Manual for machine-readable bibliographic description (RM)". The DOCPAL bibliographic information, which also includes a detailed abstract, descriptors and control and administrative information not defined in the RM, is entered in the DOCPAL database via the CELADE on-line data entry program CELENTRY which interfaces with ISIS information retrieval software (DOS-Ottawa version).

Although this paper is primarily devoted to describing the experience of creating a program to convert from the DOCPAL ISIS format to the UNISIST RM format, it is necessary to put this experience into perspective by first describing the orientation of DOCPAL, why the RM was selected as the basic guide, and the way it has been utilized.

A. The Orientation of the DOCPAL System and Tape Exchange

The two major long-terms goals of the DOCPAL System are (a). to achieve bibliographic control over the literature produced in or about the Latin American and Caribbean Region since 1970; and (b). to improve the flow of this information in the Region. These objectives, and particularly the second, must take into account the fact that the majority of Latin American 2/ country

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2/ The Latin American and Caribbean Region is called Latin America in this paper.

institutions involved in population activities are "poorly-endowed", that is, they have poorly trained personnel, inadequate or non-existent library facilities, little or no access to computers and little knowledge on how to take advantage of them, etc. Only a relatively small number of Latin American institutions working in the field of population can be considered reasonably "well-endowed".

In the near and intermediate future, few Latin American institutions are likely to be able to utilize DOCPAL tapes with ISIS or any other computer software. If DOCPAL is to make a contribution to Latin American development through improving the flow of population information in Latin America it must concentrate its efforts on assisting country institutions to better use their limited population information resources, in part, by taking advantage of regional-level DOCPAL services. To be able to do this the DOCPAL/CELADE staff, during the first two years of DOCPAL, have concentrated on building the foundations of the System in CELADE, since CELADE had no previous experience in manual or computerized documentation system. Three basic regional-level services which did not previously exist in the Region were established - an abstract journal, computerized demand searches (on-line for local users) and a clearinghouse - and the computerized database necessary for providing these services was created.

While no precise estimate is available of the number of published and unpublished materials produced per year within the DOCPAL scope, a rough estimate is around 2,000. Hence, if DOCPAL/CELADE were able to obtain approximately 80% of this yearly total, by the end of the decade it might reach 16,000 documents (treating individual chapters of a book by the same author as separate documents). However, since some of the earlier documents are now difficult to obtain, DOCPAL expects to have around 12,000 documents in its database by the end of the decade. At present it has around 4,300.

The next phase of work from roughly mid-1978 through mid-1980 will concentrate on the improvement of population documentation facilities in country institutions involved in population activities, while, of course, improving and extending the regional-level services and database in DOCPAL/CELADE.

During this phase DOCPAL/CELADE will provide technical assistance, training and specially written manuals and other materials. It is hoped that DOCPAL Participating Centres can be enabled to play major roles within their countries. Although DOCPAL/CELADE will offer technical assistance for setting up computerized processing systems in country institutions, and with the conversion program created for this paper, will be able to provide a standard format for conversion to other systems, few of these institutions in the near future will have the capabilities or financial resources to utilize computerized systems adequately.

However, even though DOCPAL tape exchange is primarily a future possibility within the Region, in designing DOCPAL it is necessary to take into account horizontal and vertical exchanges between other regional systems. At present DOCPAL is the only computerized population documentation system in a developing region, but it had to be designed to be able to work within possible future world population documentation system, such as the proposed POPINS (Population Information System), in order to avoid being made obsolete should such a system come into being, and to interchange information with other regional systems such as the Population Information and Documentation System for Africa (PIDSA) which is presently seeking funding. Similarly, in planning DOCPAL the possibilities of exchange with related or more inclusive systems, such as DEVSIS, had to be taken into consideration.

From this brief description of the DOCPAL System, the following conclusions emerge: given the characteristics and needs of most user institutions in the Region, the long-term goals of improving the flow of population information within the Region is most likely to be met through the provision of regional level services and through concentrating much of its resources on improving country institutions infrastructure via technical assistance training and specially prepared materials that will aid the standarization of procedures throughout the region; few Latin American institutions are likely to process DOCPAL database tapes in the near of intermediate future and, consequently, the information in the DOCPAL database must continue to be made available to potential users in the Region through the abstract journal (and demand searches for more sophisticated users). Finally, of major importance for this paper, although tape exchange within the region will be very limited for sometime to come, there may be developed country institutions interested in acquiring DOCPAL tapes and it is possible that there

may be exchanges of tapes with other developing country regional systems and with world-level systems, should these be established.

B. The Selection of the RM data element definitions for DOCPAL

Although CELADE probably had the largest specialized population library in Latin America 1/, it had no previous experience with either manual or computerized documentation systems when it began work on DOCPAL. Nonetheless, since CELADE had extensive computer population data processing and software development experience, it was decided that the system should be computerized in part, because this would permit the provision of complex services like the computer-produced abstract journal in forms most convenient for relatively untrained users.

Given the need to "anticipate" possible systems in population documentation and to be compatible with DEVSIS which explicitly uses the RM to define its data elements, the utilization of the RM for DOCPAL was the logical choice. Of course, the appropriate adaptations were made to permit their use with the ISIS system available in CELADE and to meet the specific needs of DOCPAL within the Latin American Region. Furthermore, if an effort was to be made on standardization, even in manual systems, it was logical that a computer oriented international system be adopted so that the country institution would be able to computerize easily when they are ready for it.

The choice of the RM brought with it an important benefit for the DOCPAL staff members without any previous experience in computerized information systems, since the manual provided an easy way of entering the field without getting lost in unnecessary detail, and for the documentalists with primarily librarian experience it facilitated the change from a library-orientation to a documentation system orientation. With the aid of the RM and some technical assistance from IDRC, the DOCPAL team, assembled in late March, 1976, were able to design the bibliographic record and the input processing system, begin entering data on-line in September 1976, and complete work on the first issue of the biannual abstract journal "DOCPAL Latin American Population Abstracts" 2/

1/ Within CELADE this specialized collection has been integrated within DOCPAL to improve the effectiveness of the work, improve documentation services to the CELADE staff and to avoid duplication of effort.

2/ Known by its short title in Spanish "DOCPAL Resúmenes".

in June 1977, 15 months after starting to design the system.

II. THE DOCPAL BIBLIOGRAPHIC RECORD AND ITS RELATION TO THE RM

Given the emphasis on meeting the needs of poorly endowed country institutions, the key regional-level service is the DOCPAL journal through which workers in the field of population can keep up to date on the new literature on their countries and in their specialities and locate specific information that they may require. Since most of these users will have had little previous experience with such tools and will not have access to the original documents, the journal has to have detailed substantive abstracts that often can provide the necessary information and highly convenient "user-oriented" (as opposed to documentalist-oriented) indices. However, as many users will require copies of documents, DOCPAL will provide hard copies, when permitted, through its clearinghouse.

The bibliographic record was designed primarily with the abstract journal in mind, although the high concentration of population experts within CELADE made the provision of on-line searches highly desireable, which in turn has permitted offering demand searches by mail on request.

A. THE DOCPAL FIELDS

The RM derived fields used in the DOCPAL ISIS record, ordered by their corresponding RM tags, are shown in Table 1. It includes all RM fields used by DEVSIS.

As the ISIS version employed by DOCPAL does not permit convenient sub-field manipulation, each RM subfield was treated as a separate ISIS field. Although some other systems examined do not appear to particularize each data element, following the RM explicitly has greatly facilitated the formating of special lists such as in the DOCPAL journal; the individual elements can be used differently in each list. For the same reason, it also will facilitate the planned machine editing of input.

Table 2 shows all the DOCPAL fields including the substantive fields (abstract, indexing, geographic coverage, etc.); administrative fields (primarily dates of carrying out operations on documents to monitor the

TABLE I

TABLE OF EQUIVALENCES BETWEEN THE RM AND DOCPAL

sbfld = subfield ind = indicator

RM FIELD NAME	RM TAG	RM SBFLD	RM IND	DOCPAL ISIS TAG	COMMENTS
ISSN	A01	0	00	30	Equivalents
CODEN	A02			-	Not used
Short title of Serial	A03	0	00	29	Not checked against the ISDS list
Series designations	A04	0	00	-	Not used
Volume number	A05	1	00	31	First part of field 31 (before first blank)
		2		31	Second part of field 31 (between second and third blank)
		4		31	Last part of field 31 (after third blank, if applies)
Issue or Part Number	A06	1	00	32	First part of field 32
		2		32	Second part of field 32
		3		32	Third part of field 32
Other identification of issue or part	A07	0	00	-	Not used
Title of contribution	A08	1	01	09	Equivalent
		2		61	Equivalent, considering that 61 is repeatable in DOCPAL
	A08	1	04	10	Equivalent
		2		-	"SPANISH" (translated where 09 is not in Spanish)
	A08	1	04	11	Equivalent
		2		-	"ENGLISH" (translated when 09 is not in English)
Title of volume, monograph, or Patent Document	A09	1	01	19	Equivalent
		2		61	Equivalent, considering that 61 ia repeatable in DOCPAL
	A09	1	04	20	Equivalent
		2		-	"SPANISH" (translated when 19 is not in Spanish)
	A09	1	04	21	Equivalent
		2		-	"ENGLISH (translated when 19 is not in English)
Title of Collection	A10	1	01	53	Equivalent
		2		61	Equivalent, considering that 61 is repeatable in DOCPAL)
	A10	1	04	54	Equivalent
		2			"SPANISH" (translated when 53 is not in Spanish)
	A10	1	04	55	Equivalent
		2			"ENGLISH" (translated when 53 is not in English)
Person associated with a contribution	A11	2	01	04	Equivalent - The authority is determined by first entry
Person associated with a monograph	A12	2	?	13	Equivalent - exact indicators are obtained from field 14
	A12	9		14	Equivalent
Person associated with a collection	A13	2	?	47	Equivalent - exact indicators are obtained from field 14
	A13	9		48	Equivalent
Affiliation - Contribution	A14	1	00	05	Equivalent
		2		07	Equivalent
		3		08	Equivalent
Affiliation - Monograph	A15	1	00	15	Equivalent
		2		17	Equivalent
		3		18	Equivalent
Affiliation - Collection	A16	1	00	49	Equivalent
		2		51	Equivalent
		3		52	Equivalent
Corporate Author - Contribution	A17	1	00	06	Equivalent
		2		07	Equivalent
		3		08	Equivalent
Corporate Author - Monograph	A18	1	00	16	Equivalent
		2		17	Equivalent
		3		18	Equivalent
Corporate Author - Collection	A19	1	00	50	Equivalent
		2		51	Equivalent
		3		18	Equivalent
Page Numbers	A20	1	00	12	Equivalent
Date of Issue or inprint	A21	1	00	33	Equivalent
		2		34	Equivalent
		3		35	Equivalent
Dates of Publication	A22			-	Not used
Language (s) of text	A23	0	00	61	Equivalent, but in DOCPAL 61 is repeatable
Language (s) of summaries	A24	0	00	62	Equivalent, but in DOCPAL 62 is repeatable
Publisher: Name & Location	A25	1	00	26	Equivalent
		2		27	Equivalent
		3		28	Equivalent
ISBN	A26	0	00	22	Equivalent
Edition	A27	0	00	23	Equivalent
Collation: Description of non-social collation	A28	1	00	56	Equivalent
Collation: Description of Monograph	A29	1	00	24	Equivalent
		2		25	Equivalent
Name of Meeting	A30	1	01	41	Equivalent
Location of Meeting	A31	1	00	42	Equivalent
		2		43	Equivalent
Date of Meeting	A32	1	00	44	Equivalent
		2		45	Equivalent
		3		46	Equivalent
(Patent Fields)	A33				Not used
	A38				Not used
Report Number	A39	0	00	36	Only when code I is present in Literature Type (Field 36 is used in DOCPAL to record number or code of a serie to which a book belongs to)
Name of Performing Organization	A40			-	Not used
University (or other Educational Institution)	A41	1	00	37	Equivalent
		2		38	Equivalent
		3		39	Equivalent
Degree Level	A42	0	00	40	Equivalent
Availability of Document	A43	0	00	58	Fields A43 is obtained by composition of 58 (where obtained document), 59 (Price of the original) and 60 (Distribution)
Source of Abstract	A44			-	Not used; all abstracts stored in Data Bank are done in CELADE
Number of References	A45	0	00	73	Equivalent, if desired
"Summary only" Note	A46			-	Not used; the information can be obtained from Literature Type
Abstract Number(s)	A47	0	00	97	Equivalent
Ancillary data	A99	0	00	67	Equivalent

Table 2
DOCPAL DATA ELEMENTS IN THE ORDER OF THEIR APPEARANCE ON THE ISIS RECORD

(see the Worksheets in Appendix 3)

DOCPAL ISIS TAG	RM TAG	Field Name
01	-	NDOCPAL Identification Number (principal country; NACCESO)
02	-	Literature type
03	-	Bibliographic level
04	11	Contribution: Author
05	14/1;	" : Afiliation of first author: institution
06	17/1	" : Corporate author
07	14/2; 17/2	" : Afiliation: city
08	14/3 17/3	" : Afiliation: country code
09	08	" : Title in original language if not Spanish or English
10	08	" : Title in Spanish (orig. lang. or trans.)
11	08	" : Title in English (orig. language or trans.)
12	20	" : Page number
13	12	Monograph : Author
14	12/9	" : Role (Author, Editor or compiler)
15	15/1	" : Afiliation of first author: Institution
16	18/1	" : Corporate author
17	15/2 18/2	" : Afiliation: city
18	15	" : Afiliation: country code
19	09	" : Title in orig. lang. if not Spanish or English
20	09	" : Title in Spanish (orig. or translation)
21	09	" : Title in English (orig. or translation)
22	26	" : ISBN (International Standard Book N)
23	27	" : Edition
24	29/1	" : Collation: Number of pages (total number)
25	29/2	" : Collation: Other descrip. info (phys. aspects)
26	25/1	" : Publisher: Name
27	25/2	" : First publisher: city
28	25/3	" : First publisher: country code
29	03	Serial : Short title
30	01	Serial : ISSN (International Standard Serial N)
31	05/1	Volume Number : "Caption"
31	05/2	" " : Volume N°
31	05/4	" " : Subdivision of Volume
32	06/1	Issue Number : Issue of part number: "Caption"
32	06/2	" " : Issue N°
32	06/4	" " : Subdivision of issue
33	21/1	Date of issue or imprint: normalized
34	21/2	" " " : date part
35	21/3	" " " : date written in full
36	39	Report number (It is also used to record a code of a serie to which a book belongs to)
37	41/1	Thesis: university, etc.: name
38	41/2	" : " : city
39	41/3	" : " : country code
40	42	Thesis: degree level
41	30	Conference: name
42	31/1	" : city
43	31/2	" : country code
44	32/1	" : date of meeting: normalized
45	32/2	" : date of meeting: date part
46	32/3	" : date of meeting: date in full

Table 2 (cont.)

DOCPAL DATA ELEMENTS IN THE ORDER OF THEIR APPEARANCE ON THE ISIS RECORD

(see the Worksheets in Appendix 3)

DOCPAL ISIS TAG	RM TAG	Field Name
47	13	Collection: Author
48	13/9	" : role (author, editor, or compiler)
49	16/1	" : afiliation or first author: Institution
50	19/1	" : corporate author
51	16/2	" : afiliation: city
52	16/3 19/3	" : afiliation: country code
53	10	" : title in orig. lang. (if not Spanish or English)
54	10	" : title in Spanish (orig. or translation)
55	10	" : title in English (orig. or tanslation)
56	28/1	" : Collation: N° of pieces
57	28/2	" : Collation: other descr. info (phys. aspects)
58	43	From where can the full text be obtained?
59	43	Price of original text (country code and price in that currency)
60	-	Distribution of the document (general, restricted, etc.)
61	23	Language(s) of text
62	24	Language(s) of abstract(s) in the original text
63	-	CELADE Library Number
64	-	N° of pages to copy if supplied by DOCPAL
65	-	Form of printing or original document (code)
66	-	Availability of translations and languages
67	99	Notes
69	-	Control of the Technical Processing
70	-	Users (order of priority) of doc. (max. 4 codes)
71	-	Abstract: objective (free text)
72	-	Abstract: remainder (free text)
73	45	Number of references
74	-	Data treated in the document begins in what year?
75	-	Data treated in the document finishes in what year?
76	-	Descriptors: Topics treated
77	-	Descriptors: variables studied with empirical data
78	-	Descriptors: data sources
79	-	Descriptors: existence and type of questionnaire
80	-	Projects, data, etc. of CELADE cites
81	-	Journal correction control
85	-	Abstract journal categories (speciality-topics)
87	-	Geogr. codes: Primary (only Latin America)
88	-	Geogr. codes: Secondary (Latin America and others)
89	-	Other related documents (using NDOCPAL if possible)
90	-	Name of Abstractor (HRES-); Analyst (HAC -)
92	-	Normalized date: First information received (1-)
92	-	Normalized date: Doc. requested (2-)
92	-	Normalized date: Doc. confirmed; closed (3-)
92	-	Normalized date: HDB filled in (4-)
92	-	Normalized date: Abstract and HRES completed (5-)
92	-	Normalized date: HAC filled in (6-)
93	-	From where was first information obtained
95	-	Source of document received by DOCPAL
96	-	Amount paid by DOCPAL (US$)
97	-	N° of abstract in Journal (automatically entered)
98	-	Status of input by worksheet and date of input
99	-	Stage of processing; date final listing accepted

efficiency of the input processing); and control fields (such as the stage of processing). Unfortunately, the present RM does not provide guidance on these items. The Spanish language worksheets are given in Appendix 3 of this paper.

B. TOPICS OF SPECIAL CONCERN

Space does not permit the description of the RM fields that had to be extended (e.g., to include common situations such as books which are part of a series), and where new fields had to be added to cover basic information such as translations of a document (the DOCPAL Manual describes each field in detail). However, Table 1 indicates the general rules for the conversion of each DOCPAL field which has a RM equivalent for a given document.

Three topics of fundamental importance will be briefly discussed here: Literature Types, Bibliographic Level; and partial nesting through identification numbers.

Literature Types

The Literature Type (DOCPAL field #02) in combination with the Bibliographic Level (DOCPAL field #03) has only two purposes: (a) it permits the selection of the format for printing each citation in the abstract journal or other printout of the document, and (b) when the input edit program is written, it will facilitate checking that all legitimate and only the legitimate fields are entered for a given document.

Table 3 shows the categories used; they are obviously influenced by AGRIS as was the design of the worksheet (see Appendix 3). Up to three codes, including C for "Conference", may be selected for a document; one of the four basic types of literature (Periodic publication, Book, Report, and Non-conventional) must always be indicated. For example, LSC, is a book which is part of a series and has the papers from a conference. Up to now we have found that these codes cover all the situations requiring different formats in the journal. The codes for Numerical materials, Questionnaires, Computer Programs, Bibliographies and Directories are not necessary for formating the citation but do indicate which substantive fields to use (necessary for the computer editing).

Table 3

COMBINATIONS [1] OF TYPES OF LITERATURE AND BIBLIOGRAPHIC LEVEL USED BY DOCPAL

Literature type = DOCPAL Field #02
Bibliographic level = DOCPAL Field #03

SPECIFIC TYPE OF LITERATURE	BASIC TYPE OF LITERATURE AND BIBLIOGRAPHIC LEVEL							
	P (PERIODIC PUBL)		L (BOOK)		I (REPORT)		V (NON-CONVENTIONAL)	
	A	M	A	M	A	M	A	M
-	PA*	PM*	LA^{C*}	LM^{C*}	IA^{C*}	IM^{C*}	VA*	VM*
A (ARTICLE)	PAA*	-	-	-	-	-	-	-
S (SERIES)	-	-	LSA^{C*}	LSM^{C*}	ISA^{C*}	ISM^{C*}	-	-
T (THESIS)	-	-	LTA	LTM	ITA	ITM	-	-
N (NUMERICAL)	PNA	PNM	LNA^{C}	LNM^{C}	INA^{C}	INM^{C}	VNA	VNM
F QUESTIONNAIRE	-	PFM	-	LFM	-	IFM^{C}	-	VFM
M COMPUTER PROG	-	-	LMA^{C}	LM^{C}	IMA^{C}	IMM^{C}	-	VMM
B (BIBLIOGRAPHY)	PBA	PBM	LBA^{C}	LBM^{C}	-	-	-	VBM
D (DIRECTORY)	PDA	PDM	LDA^{C}	LDM^{C}	-	-	-	VDM
G (LEGISLATION)								
R (ABSTR.ONLY)	PRA*	-	LRA^{C*}	-	IRA^{C*}	-	-	VRM*

C = CAN BE PART OF A COLLECTION
A = ANALYTIC LEVAL
* = CAN BE FROM A CONFERENCE
M = MONOGRAPHIC LEVEL

1/ THE COMBINATIONS SHOWN HAVE BEEN DESIGNED ONLY TO FACILITATE THE COMPUTER EDITING OF THE BIBLIOGRAPHIC RECORD.

Although somewhat different than the RM, it is possible to go from the DOCPAL to the RM in all the following cases:

RM		DOCPAL (field #03)
Serial	if:	P
Book	if:	L
Report	if:	I
Thesis	if:	T (normally LT)
Conference public.	if:	C

In any of these cases the DOCPAL field may contain other codes as well (see Table 3).

Non-conventional materials in DOCPAL (code V) have no counterpart in the RM: since much material in Latin America falls in this category, it was necessary to invent a code for it. Going from an RM tape to DOCPAL would be more ambiguous since some documents will not have all information required for properly formating the citation. Books and reports that are part of series (LS and IS) are the most obvious cases when the series information will not be available in the RM tape.

Bibliographic Level

DOCPAL followed the definitions of the RM closely with respect to the monographic and analytic levels; the collective level per se is not used. Because of the need to provide users with the maximum amount of information in the abstract journal, items are normally entered at the analytic level if they warrent it. DOCPAL field #03 is coded m or a to indicate the monographic and analytic levels, respectively. To facilitate journal formating of the bibliographic citation and the eventual design of an input data editing system, when the fields describing a collection are used, the code c is added; it is never used alone.

Unfortunately, neither the ISIS nor the RM records permit explicit links between bibliographic levels to avoid the need to enter the monographic level information more than once. For example, when chapters from the same book are entered, the DOCPAL ISIS record repeats all the monographic information for each analytic entry. However, our CELENTRY data entry system, which

interfaces with ISIS, has a "COPY" feature 1/ that permits the copying of the monographic fields (or any others) from one record to another; this saves much documentalist and data entry time but not data storage.

Partial Nesting through the DOCPAL Identification Number

The physical documents are stored essentially in their order of arrival. To facilitate operation of the clearinghouse it was felt that the papers from a given conference, chapters from books, etc., should be kept together on the shelves. For the journal it is also convenient to be able to order the chapters of a book and have a way of insuring that all chapters of a book or all papers from a given conference are included without complex sorting on various alphabetical fields.

Unfortunately, the RM gives little guidance on this problem. Our solution was to create a field for a number 2/ known as NACCESO (DOCPAL field #01) which is written in the form xxxxxyy, where xxxxx is common to all the documents considered part of the same whole, and yy are the individual numbers assigned to each part. When the monographic level is used, yy=00. Hence, whenever the analytic level is used, yy=01, etc. Unfortunately, NACCESO does not have two additional digits to permit grouping the documents within each item of a collection.

It would have been desireable to use the same number as that used by ISIS for all its manipulations, but it has only 5 digits and the complexity of chaining the program was too great. Hence, this ISIS number is assigned in purely numerical order and once the document is entered and corrected, only the more convenient NACCESO number is used for retrieval.

While the RM may not wish to propose multi-level tagging such as in AGRIS since not all information retrieval systems can manipulate these, it might wish to consider proposing some optional form of identification number such as that used in DOCPAL, at least for nesting all documents within the same physical piece.

1/ This has the form: "COPYxxxxx = a TO d, g, q, t TO v", where xxxxx is the ISIS identification number of the document from which the information comes, and a, d, g, etc., are any fields written with any combination of commas and "TO".

2/ It also includes a principal country code (the same codes as used in DEVSIS) and originally also had a two digit subject classification code which is no longer used. The country code is not used for ordering the physical documents.

III. A Computer Program for Converting from the ISIS to the RM Format

Although there are unlikely to be demands in the near future for DOCPAL tape exchange within the Latin American region, as argued in the first section, tape exchange muy occur between regional systems. Hence, when the suggestion was made[1/] we carry out the DOCPAL-ISIS to RM format conversion, it was of interest to us. Furthermore, since DOCPAL follows the RM very closely, our experience in the development of this program may be useful to other documentation systems.

Depending on the way the RM has been adapted to the local environment, the conversion process can become very complex. Furthermore, if the RM is interpreted differently than intended or if some essential fields are not entered, no computer program can solve the problem, no matter how sophisticated.

In planning the design of the program, two very different approaches were originally considered. First, a program could be written completely tailored to the particular DOCPAL adaptation of the RM, programming internally all the rules of the specific conversions between the fields. On the other hand, a generalized program could be written capable of converting from any ISIS adaptation of the RM to the RM format. Neither approach was developed here. The first because it would lack more general interest and application; such a program cannot take into account future DOCPAL ISIS modifications or changes and additions in the RM. The second approach was eliminated because the complexity of the program would be very great; to implement it, a special language would be required to specify the conversion rules developed -- in DOCPAL/CELADE we do not have the resources, the necessary experience for such an enterprise, nor the reason for undertaking it.

Under these circumstances, we chose an intermediate solution. The program permits the transforming of any ISIS format based on the RM to the RM format; the DOCPAL ISIS transformation given in this paper is simply one example of the use of the program. But the program is not completely generalized. It is general when for a given data element there is a direct

1/ By Mr. Harold Dierickx of the London UNISIST Centre.

correspondence between the ISIS fields and the RM; then the individual conversions are easily specified via control cards. But, for more complex data element conversions, the program requires that the user writes his own routine to solve each individual conversion. This is a resonable solution because, without altering the basic logic of the program it can handle specific conversions. Also, it is possible to include in the output record fields which are not considered in the RM but which are of interest to many users, such as the case of the DOCPAL informative abstract.

For generating the implementation bytes of the leader a special subroutine must be written for each system because it is possible that the RM specifications will be changed and in any event, various bytes are available for optional use by the systems involved.

The program was tested and works well converting DOCPAL documents stored in the ISIS format to the RM specifications. Table 1 defines the rules used for the data element conversion. To test the program, it was necessary to develop a utility program to list the documents converted; since this may be desireable to run on any computer, it is written in COBOL.

Appendix 1 contains a listing of the complete conversion program, the COBOL program to list a RM document from a tape. Appendix 2 shows actual printouts of two documents in the DOCPAL-ISIS format and the corresponding RM format.

A. Operational and Programming Considerations

The program is coded in IBM/370 Assembler, which permits its close integration into the ISIS system programs also written in Assembler, with the possibility of easily implementing links to the ISIS subroutines that perform very useful functions like formating documents for printing, selecting documents according to the information in a given field, etc. The fact that the conversion program is coded in machine language will not affect its portability because all present versions of ISIS (except the mini-computer version under development at IDRC) run only on IBM machines.

The program works in the following way: it reads the control cards on which the user specifies the rules of each of the particular data element conversion. If no errors are detected in the control cards, the program reads each ISIS record separately, carries out the conversion field by field and writes the record on a tape.

The form to specify the conversion control cards is shown in Table 4 and an example is shown in Table 5 which are the control cards used to test the conversion from DOCPAL to RM. It is important to note the following:

a. Coding an individual conversion rule, the user specifies first the RM tag, subfields and indicators and then how to obtain it from the ISIS record; for each RM subfield there is a control card conversion. In effect, there is a sentence: "write X in the RM format, if Y in the ISIS format". If an RM field identified by a unique tag can be generated from more than one ISIS fields (different tags) under specified conditions, a card must be written for each case (for example, see Table 5 RM field A08).

b. The ISIS fields tag is the same used in data entry, i.e., it is defined by its numerical order in ISIS Field Definition Table. If it is a repeatable field and the corresponding field is also repeatable, an asterisk must be coded in col. 49. If it is a fixed length field in ISIS, the ISIS fixed field information must be specified to permit location of the information (the "offset" within the fixed field and the length are given).

c. If a direct equivalence exists between a RM field or subfield and an ISIS field, it is only necessary to give the RM tag, subfield, indicators and the ISIS field number. This "equivalence" type of conversion can also be conditioned by the presence of another ISIS field. It is also applicable when different RM tags come from the same ISIS tag (for example, the generations of RM fields A14/2 and A17/2, which both come from DOCPAL ISIS Field #07 under the different conditions shown in Table 1.

Table 4

FORM TO SPECIFY THE CONVERSION
OF EACH ISIS FIELD
TO AN RM FIELD OR SUBFIELD

FIELD NAME	CONVERSION											
	TO UNISIST				FROM ISIS				UNDER CONVERSION CONDITIONS			
	TAG		SUBFIELD	INDICATORS	TAG		REPEATABLE	FIXED OFFSET	FIXED LENGTH	TAG		USER ROUTINE NAME
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35				41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80							

Table 5
EXAMPLE OF CONVERSION CARDS

```
      CELADE - COMPUTER SYSTEMS AND SERVICES
               DOCPAL SYSTEM
CONVERSION FROM ISIS TO UNISIST. CONTROL CARDS:

*
*  TABLE OF CONVERSION FROM DOCPAL ISIS FORMAT TO UNISIST FORMAT
*
ISSN                                A01 0  00      30
* A02 NOT USED
SHORT TITLE OF SERIAL               A03 0  00      29
* A04 NOT USED
VOLUME NUMBER                       A05 0  00                    31 VOLNO
ISSUE OR PART NUMBER                A06 0  00                    32 ISSUE
* A07 NOT USED
*CONTRIBUTION:
   ORIGINAL-  TITLE                 A08 1  01      09
              LANGUAGE CODE         A08 2                        09 LCODE61
   SPANISH-   TITLE                 A08 1  04      10
              LANGUAGE CODE         A08 2                        10 LCODESP
   ENGLISH-   TITLE                 A08 1  04      11
              LANGUAGE CODE         A08 2                        11 LCODEEN
*MONOGRAPH
   ORIGINAL-  TITLE                 A09 1  01      19
              LANGUAGE CODE         A09 2                        19 LCODE61
   SPANISH-   TITLE                 A09 1  04      20
              LANGUAGE CODE         A09 2                        20 LCODESP
   ENGLISH-   TITLE                 A09 1  04      21
              LANGUAGE CODE         A09 2                        21 LCODEEN
*COLLECTION:
   ORIGINAL-  TITLE                 A10 1  01      53
              LANGUAGE CODE         A10 2                        53 LCODE61
   SPANISH-   TITLE                 A10 1  04      54
              LANGUAGE CODE         A10 2                        54 LCODESP
   ENGLISH-   TITLE                 A10 1  04      55
              LANGUAGE CODE         A10 2                        55 LCODEEN
*CONTRIBUTION
   PERSONAL AUTHOR                  A11 1  00      04 *
*MONOGRAPH
   PERSON ASSOCIATED                A12 1  00      13 *
   ROLE                             A12 9          14
   PERSON ASOCIATED                 A13 1  00      47 *                 13
   ROLE                             A13 9          48                   47
*CONTRIBUTION
   AFFILIATION                      A14 1  00      05
   ADDRESS                          A14 2          07                   04
   COUNTRY CODE                     A14 3          08    022002         04
*MONOGRAPH
   AFFILIATION                      A15 1  00      15
   CITY                             A15 2          17                   13
   COUNTRY CODE                     A15 3          18    024002         13
*COLLECTION
   AFFILIATION                      A16 1  00      49
   CITY                             A16 2          51                   47
   COUNTRY CODE                     A16 3          52    058002         47
*CONTRIBUTION: CORPORATE AUTHOR
   NAME                             A17 1  00      06 *
   CITY                             A17 2          07                   06
   COUNTRY CODE                     A17 3          08    022002
*MONOGRAPH: CORPORATE AUTHOR
   NAME                             A18 1  00      16 *
   CITY                             A18 2          17                   16
   COUNTRY CODE                     A18 3          18    024002         16
*COLLECTION: CORPORATE AUTHOR
   NAME                             A19 1  00      50 *
   CITY                             A19 2          51                   50
   COUNTRY CODE                     A18 3          18    024002         50
*
 CONTRIBUTION - PAGE NUMBERS        A20 1  00      12
*DATE OF ISSUE:
   NORMALIZED                       A21 1  00      33    038008
   DATE PART                        A21 2          34
   DATE IN FULL                     A21 3          35
*  A22 NOT USED
 LANGUAGE O TEXT                    A23 0  00      61
 LANGUAGE OF SUMMARIE               A24 0  00      62
*
*MONOGRAPH OR COLLECTION
   PUBLISHER NAME                   A25 1  00      26 *
   CITY                             A25 2          27
   COUNTRY CODE                     A25 3          28    026002
*
 ISBN                               A26 0  00      22 *
 EDITION                            A27 0  00      23
*COLLATION
   NUMBER OF PIECES                 A28 1  00      56
   OTHER INFORMATION                A28 2          57
*COLLATION - MONOGRAPH
   NUMBER OF PIECES                 A29 1  00      24
   OTHER INFORMATION                A29 2          25
*
*MEETING
   NAME                             A30 1  01      41
   CITY                             A31 1  00      42
   COUNTRY CODE                     A31 2          43    048002
*DATE OF MEETING
   NORMALIZED                       A32 1  00      44    050008
   DATE PART                        A32 2          45
   DATE IN FULL                     A32 3          46
*  A33 NOT USED
*  A34 NOT USED
*  A35 NOT USED
*  A36 NOT USED
*  A37 NOT USED
*  A38 NOT USED
*
 REPORT NUMBER                      A39 0  00                    36 REPORT
*THESIS UNIVERSITY
   NAME                             A41 1  00      37
   CITY                             A41 2          38
   COUNTRY CODE                     A41 3          39    046002
 DEGREE LEVEL                       A42 0  00      40
 AVAILABILITY OF DOCUMENT           A43 0  00      59
*  A44 NOT USED
 NUMBER OF REFERENCES               A45 0  00      73    074004
 ANCILLARY DATA                     A99 0  00      67
```

d. If a direct equivalence does not exist between a given RM and ISIS field, the user must write his own routine. The name of the routine is placed in col. 64-71 of the control card, and must be identical to the internal routine name written by the user. The design of the program facilitates the writing of the user routine, if it generates the desired RM data field in a given storage area and then creates a dummy ISIS directory entry for it. This in turn establishes a direct equivalence situation such as described in c above, allowing the user to employ the existing program facilities in his routine (for example, the RM directory entry, indicators, and data generation).

e. Placing an asterisk in col. 1 indicates a comment to help the user document the control card.

f. Incorrectly written parameters are detected by the program and error messages are printed.

The program stores all the conversion rules in an internal table that guides the process.

An RM that has been created for a document is stored in an area reserved for data; the correspondent directory entry is generated in another area. The data and entries are put together, one after another in their respective areas, in the RM order that is specified on the conversion cards. For the leader a fixed area of 24 positions is reserved. After the conversion of all fields the RM record is structured and the record-dependent information of the leader is generated. The program calculates the total length of the record, the base address of the data and calls a special subroutine to create the implementation codes. This subroutine is dependent upon the computer storage and retrieval system that will be employed by the receiver of the tape exchange; we opted for this solution because it is the most practical compared to the complexity that would arise if we tried to design a general procedure applicable for any situation. The "For Future Use" positions are given the value of zero; when they come to be used, the same or another subroutine could be called without changes in the present program logic.

The ISIS input file is considered sequential. The UNISIST output file is recorded on a magnetic tape.

B. Cost of Operation

To have an idea of the cost of operating the program in a regular tape exchange, we ran a test converting 100 documents according to the rules specified in Table 5. The input and output files are tapes. The total cost of the process on an IBM 370/145 computer, excluding program compilation was seven computer units (3 seconds of CPU), since computer unit is defined by the University of Chile computer, where CELADE processes, costs US$ 0,07 , the total costs for 100 documents was US$ 0.51 .

VI. THE REVERSE CONVERSION RM TO DOCPAL ISIS

Although no exercise has been carried out, we think that a similar programming approach could be followed because the same basic logic will be required.

The control cards to specify the rules of conversion may maintain the same parameters, interchanging the present positions of "to" and "from" field tags specifications. The structural characteristics of the input record is obtained from Leader and the Directory. As ISIS has no implementation bytes in the Leader, a special subroutine would have to be considered to convert them to ISIS fields.

As noted in various places in the previous sections, there will be substantive problems of conversion to the DOCPAL format resulting from the additional uses of RM data elements by DOCPAL to cover situations not contemplated by the RM. A major problem will be in the Literature Type field which controls the formats in the production of the journal. However, for ordinary searching of a tape neither this nor the other problems of the cataloguing information are of much relevance.

ACKNOWLEDGEMENTS

We would like to express our gratitude for the assistance provided by Texia Iglesias, concerning technical aspects of documentation, by Sergio Acevedo, who wrote the COBOL listing program, and by Barbara Donoso who typed the paper.

ANNEX 1-A. Listing of the Assembler Conversion Program

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```
                              EXTERNAL SYMBOL DICTIONARY                                  PAGE    1

SYMBOL    TYPE  ID   ADDR   LENGTH LDID                                         ASM 0200 11.20 02/24/78

          SC   0001 020000 00697C
UNISIST   LD        0211E0         0001
ISISDATA  LD        020A0C         0001
LEADER    ER   0002
```

CELADE

```
DOCPAL - CONVERSION FROM ISIS TO UNISIST FORMAT                                          PAGE    2

  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                       ASM 0200 11.20 02/24/78

                                     2 *                                                      UNI00020
                                     3 *     BASE REGISTER :  R11,R12                         UNI00030
                                     4 *                                                      UNI00040
020000                               5             START X'20000'                             UNI00050
                             20000   6             USING *,R15                                UNI00060
                                     7             ENTRY UNISIST,ISISDATA                     UNI00070
020000 47F0 F00C      0000C          8             BC    15,12(,R15)                          UNI00080
020004 07                            9             DC    AL1(7)                               UNI00090
020005 E4D5C9E2C9E2E3               10             DC    CL7'UNISIST'                         UNI00100
02000C 90EC D00C      0000C         11             STM   14,12,12(13)                         UNI00110
020010 05B0                         12             BALR  R11,0                                UNI00120
                             20012  13             USING *,R11,R12                            UNI00130
020012 98CC B00A      2001C         14 #0001       LM    R12,R12,PBSP0001                     UNI00140
020016 47F0 B00E      20020         15             B     ##0001                               UNI00150
02001C                              16             DS    0F                                   UNI00160
02001C 00021012                     17 PBSP0001    DC    A(#0001+4096)                        UNI00170
020020 18ED                         18 ##0001      LR    R14,R13                              UNI00180
020022 47F0 B05E      20070         19             B     ###0001+72                           UNI00190
020026 0000
020028 00000000000000000            20 ###0001     DC    18A(0)                               UNI00200
020070 50E0 B01A      2002C         21             ST    R13,###0001+4                        UNI00210
020074 41D0 B016      20028         22             LA    R13,###0001                          UNI00220
020078 50DE 0008      00008         23             ST    R13,8(R14)                           UNI00230
                                    24             PRINT NOGEN                                UNI00240
                                    25 *                                                      UNI00250
                                    26 *     OPEN FILES                                       UNI00260
                                    27 *                                                      UNI00270
                                    28             OPEN  (INPUT,INPUT,OUTPUT,OUTPUT,RDR,INPUT,WRT,OUTPUT)  UNI00280
                                    40 *                                                      UNI00290
                                    41 *     PRINT TITLES                                     UNI00300
                                    42 *                                                      UNI00310
                                    43             PUT   WRT,TITLE1       TITLE1              UNI00320
                                    48             PUT   WRT,TITLE2       TITLE2              UNI00330
                                    53             PUT   WRT,TITLE3       TITLE3              UNI00340
                                    58             PUT   WRT,TITLE4            TITLE4         UNI00350
```

CELADE

```
DOCPAL - CONVERSION FROM ISIS TO UNISIST FORMAT                                          PAGE    3

  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                       ASM 0200 11.20 02/24/78

                                    64 *                                                      UNI00370
                                    65 *           PROCTAB  -  PROCESS THE CONVERSION TABLE RECORD BY RECORD  UNI00380
                                    66 *                                                      UNI00390
                                    67 *                                                      UNI00400
0200CA 5830 B796      207A8         68             L     R3,=A(CONTABLE)     CONVERSION TABLE  UNI00410
                            200CE   69 PROCTAB     EQU   *                                    UNI00420
                                    70             GET   RDR,CARD          READ A CONTROL CARD  UNI00430
                                    75             PUT   WRT,CARD1         WRITE THE CARD READ  UNI00440
0200EA 4110 B9FF      20A11         80             LA    R1,CARD           POINT TO CONTROL CARD  UNI00450
0200EE D245 3000 C179 00000 21188   81             MVC   0(DCTRREC,R3),RECBO  MOVE SUMPTIONS..  UNI00460
0200F4 955C 1000      00000         82             CLI   0(R1),C'*'        COMMENT ?          UNI00470
0200F8 4780 B0BC      200CE         83             BE    PROCTAB             YES              UNI00480
0200FC D21D 3000 1000 00000 00000   84             MVC   0(30,R3),0(R1)      FIELD NAME       UNI00490
020102 D2C2 301E 101E 0001E 0001E   85             MVC   DFLDUNIS(3,R3),30(R1)  UNISIST TAG   UNI00500
020108 D200 3021 1022 00021 00022   86             MVC   DSBFLD(IDLENGTH,R3),34(R1)  SUBFIELD NUMBER  UNI00510
02010E D502 BCA2 101E 20CB4 0001E   87             CLC   LASIUNI(3),30(R1)   EQ OR GT LAST UNISIST TAG?  UNI00520
020114 4740 B118      2012A         88             BL    PROCTAB1            YES: OK          UNI00530
                                    89             PUT   WRT,ERROR1          NO: MSG ERROR    UNI00540
020126 9201 BCA1      20CB3         94             MVI   SWERROR,1           SWERROR ON       UNI00550
02012A D300 BC97 1022 20CA9 00022   95 PROCTAB1    MVZ   CHECK(1),34(R1)     CHECK IF NUMERIC SUBFIELD  UNI00560
020130 D500 BC97 BC9C 20CA9 20CAE   96             CLC   CHECK(1),ZEROS      OK?              UNI00570
020136 4760 B13A      2014C         97             BE    PROCTAB2            OK               UNI00580
                                    98             PUT   WRT,ERROR2          INVALIDA SUBFIELD NUMBER  UNI00590
020148 9201 BCA1      20CB3        103             MVI   SWERROR,1           SW ERROR ON      UNI00600
                            2014C  104 PROCTAB2    EQU   *                                    UNI00610
02014C D5C1 103C B96E 0003C 20980  105             CLC   60(2,R1),BLANKS     IS FLAGED ?      UNI00620
020152 4780 B178      2018A        106             BE    NOFLAGED            NO               UNI00630
020156 D301 BC97 103C 20CA9 0003C  107             MVZ   CHECK(2),60(R1)     CHECK ISIS TAG CONDITIONING  UNI00640
02015C D501 BC9C BC97 20CAE 20CA9  108             CLC   ZEROS(2),CHECK      NUMERIC?         UNI00650
020162 4770 B166      20178        109             BNE   FLAGERR            OK                UNI00660
020166 F271 B966 103C 20978 0003C  110             PACK  DW,60(2,R1)         PACK ISIS TAG    UNI00670
02016C 4F40 B966      20978        111             CVB   R4,DW               CONVER TO BINARY UNI00680
020170 4243 0031      00031        112             STC   R4,DFLAG(R3)        ST ISIS FLAG NUMBER  UNI00690
020174 47F0 B178      2018A        113             B     NOFLAGED           CONTINUE          UNI00700
                                   114 FLAGERR     PUT   WRT,ERROR4                           UNI00710
020186 9201 BCA1      20CB3        119             MVI   SWERROR,1           SW ERROR ON      UNI00720
02018A D5C7 103F B96E 0003F 20980  120 NOFLAGED    CLC   63(8,R1),BLANKS     SPECIAL ROUTINE  UNI00730
020190 4780 B1BE      201D0        121             BE    PROCTAB3            ANALIZE OTHERS PARAMETERS  UNI00740
020194 58F0 B79A      207AC        122             L     R15,=A(USEROUT)     USERS ROUTINE NAME  UNI00750
020198 D507 F000 103F 00000 0003F  123 LOOPUSER    CLC   0(8,R15),63(R1)     IS THERE ?       UNI00760
02019E 4780 B1B2      201C4        124             BE    FOUNDR              YES              UNI00770
0201A2 41FF 000C      0000C        125             LA    R15,12(R15)         NO ! CONTINUE    UNI00780
0201A6 95FF F000      00000        126             CLI   0(R15),X'FF'        END OF NAMES ?   UNI00790
0201AA 4770 B186      20198        127             BNE   LOOPUSER            YES              UNI00800
                                   128             PUT   WRT,ERROR3          NOT FOUND        UNI00810
0201BC 9201 BCA1      20CB3        133             MVI   SWERROR,1           SW ERROR ON      UNI00820
0201C0 47F0 B280      20292        134             B     ENDREC              END OF RECORD ANALISYS  UNI00830
0201C4 58FF 0008      00008        135 FOUNDR      L     R15,8(R15)          ADDRESS OF USER SUBROUTINE.  UNI00840
0201C8 50F3 0038      00038        136             ST    R15,DROUT(R3)       STORE USER ROUTINE ADDRESS  UNI00850
0201CC 47F0 B280      20292        137             B     ENDREC              EN OF RECORD ANALISYS  UNI00860

0201D0 D2C1 3023 1025 00023 00025  139 PROCTAB3    MVC   DIND(INDLENGT,R3),37(R1)     INDICATORS  UNI00880
0201D6 D2C1 3027 102D 00027 0002D  140             MVC   DFLDISIT(2,R3),45(R1)          ISIS TAG (CHARACTER)  UNI00890
0201DC D301 BC97 102D 20CA9 0002D  141             MVZ   CHECK(2),45(R1)     CHECK IF ISIS TAG IS NUMERIC  UNI00900
0201E2 D501 BC97 BC9C 20CA9 20CAE  142             CLC   CHECK(2),ZEROS      IS NUMERIC?      UNI00910
0201E8 4780 B1F0      20202        143             BE    PROCTAB4            OK               UNI00920
                                   144             PUT   WRT,ERROR5          ERROR MSG        UNI00930
0201FA 9201 BCA1      20CB3        149             MVI   SWERROR,1           SWERROR ON       UNI00940
0201FE 47F0 B1FE      20210        150             B     PROCTAB5            CONTINUE ANALISYS  UNI00950
020202 F271 B966 102D 20978 0002D  151 PROCTAB4    PACK  DW,45(2,R1)         PACK ISIS TAG    UNI00960
020208 4F40 B966      20978        152             CVB   R4,DW               CONVERT TO BINARY  UNI00970
02020C 4043 0029      00029        153             STH   R4,DFLDISIS(R3)     STORE            UNI00980
020210 955C 1030      00030        154 PROCTAB5    CLI   48(R1),C'*'         IS REPEATABLE ?  UNI00990
020214 477C B20A      2021C        155             BNE   NORPT               NO               UNI01000
020218 92C1 3030      00030        156             MVI   DREPEAT(R3),1       YES              UNI01010
02021C D502 1032 B96E 00032 20980  157 NORPT       CLC   50(3,R1),BLANKS     VARIABLE ?       UNI01020
020222 4780 B280      20292        158             BE    ENDREC              YES              UNI01030
020226 92C1 3028      00028        159             MVI   DFLDTYP(R3),1       FIXED FIELD      UNI01040
02022A D302 BC97 1032 20CA9 00032  160             MVZ   CHECK(3),50(R1)   CHECK IF OFFSET IS NUMERIC  UNI01050
```

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DOCPAL - CONVERSION FROM ISIS TO UNISIST FORMAT                                          PAGE    4

  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                       ASM 0200 11.20 02/24/78

020230 D502 BC97 BC9C 20CA9 20CAE  161             CLC   CHECK(3),ZEROS      IS NUMERIC?      UNI01060
020236 4780 B23E      20250        162             BE    PROCTAB6            OK!              UNI01070
                                   163             PUT   WRT,ERROR6          MSG OFFSET INVALID  UNI01080
020248 9201 BCA1      20CB3        168             MVI   SWERROR,1           SW ERROR ON      UNI01090
02024C 47F0 B280      20292        169             B     ENDREC                               UNI01100
020250 D302 BC97 1035 20CA9 00035  170 PROCTAB6    MVZ   CHECK(3),53(R1)     CHECK IF LENGTH IS NUMERIC  UNI01110
020256 D502 BC97 BC9C 20CA9 20CAE  171             CLC   CHECK(3),ZEROS      IS NUMERIC?      UNI01120
02025C 4780 B264      20276        172             BE    PROCTAB7                             UNI01130
                                   173             PUT   WRT,ERROR7          MSG LENGTH INVALID  UNI01140
02026E 9201 BCA1      20CB3        178             MVI   SWERROR,1           SW ERROR ON      UNI01150
020272 47F0 B280      20292        179             B     ENDREC              CONTINUE ANALISYS  UNI01160
020276 F272 B966 1032 20978 00032  180 PROCTAB7    PACK  DW,50(3,R1)         PACK OFFSET      UNI01170
02027C 4F40 B966      20978        181             CVB   R4,DW               CONVERT TO BINARY  UNI01180
020280 4043 002C      0002C        182             STH   R4,DFIXOFF(R3)      STORE            UNI01190
020284 F272 B966 1035 20978 00035  183             PACK  DW,53(3,R1)         PACK LENGTH      UNI01200
02028A 4F40 B966      20978        184             CVB   R4,DW               CONVERT TO BINARY  UNI01210
02028E 4043 002E      0002E        185             STH   R4,DFIXLEN(R3)      STORE            UNI01220
                            20292  186 ENDREC      EQU   *                                    UNI01230
020292 4133 0046      00046        187             LA    R3,DCTRREC(R3)      UPDATE R3        UNI01240
020296 47F0 B0BC      200CE        188             B     PROCTAB             CONTINUE LOOP    UNI01250
                            2029A  189 EOFREC      EQU   *                                    UNI01260
02029A D2C1 3000 B7C2 00000 207D4  190             MVC   0(2,R3),=X'FFFF'    END OF THE TABLE UNI01270
```

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```
DOCPAL - CONVERSION FROM ISIS TO UNISIST FORMAT                                          PAGE    5

  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                       ASM 0200 11.20 02/24/78

                                   192 *                                                      UNI01290
                                   193 *           PROCREC  -  PROCESS RECORD BY RECORD       UNI01300
                                   194 *                                                      UNI01310
                                   195 *                                                      UNI01320
                            202A0  196 PROCREC     EQU   *                                    UNI01330
0202A0 5850 B79E      207B0        197             L     R5,=A(ISISN)     ADDRESS OF ISIS RECORD  UNI01340
                                   198             GET   INPUT,(R5)     GET A ISIS RECORD     UNI01350

0202B0 5830 B7A2      207B4        204             L     R3,=A(ISIS)      POINT TO ISIS RECORD  UNI01370
0202B4 18F3                        205             LR    R15,R3           R15=R3              UNI01380
0202B6 4AF3 0008      00008        206             AH    R15,8(R3)        START ISIS DATA     UNI01390
0202BA 50F0 B9FA      20A0C        207             ST    R15,ISISDATA     SAVE IT             UNI01400
                                   208 *                                                      UNI01410
                                   209 *           SET FIELDS ON TO ZERO                      UNI01420
                                   210 *                                                      UNI01430
0202BE 92C0 C0C5      210D7        211             MVI   FIELDSON,0               MOVE ZERO TO FIRST BYTE  UNI01440
0202C2 D262 C0C6 C0C5 210D8 210D7  212             MVC   FIELDSON+1(99),FIELDSON       TO REST  UNI01450
0202C8 4843 000A      0000A        213             LH    R4,10(R3)                NUMBER OF FIELDS IN ISIS DIRECTORY  UNI01460
0202CC 0640                        214             BCTR  R4,R0                    -1 (FIXED FIELD)  UNI01470
0202CE 1777                        215             XR    R7,R7                                UNI01480
                            202D0  216 TAGVLOOP    EQU   *                                    UNI01490
0202D0 F271 B966 3012 20978 00012  217             PACK  DW,18(2,R3)                PACK ISIS TAG  UNI01500
0202D6 4FF0 B966      20978        218             CVB   R15,DW                   CONVERT TO BINARY  UNI01510
0202DA 5AF0 B7A6      207B8        219             A     R15,=A(FIELDSON)         PRESENCE OF FIELD INDICATOR  UNI01520
0202DE 437F 0000      00000        220             IC    R7,0(R15)                NUMBER OF OCURRANCE  UNI01530
0202E2 4177 0001      00001        221             LA    R7,1(R7)                 + 1 (ACTUAL)  UNI01540
0202E6 427F 0000      00000        222             STC   R7,0(R15)                STORE NEW NUMBER  UNI01550
0202EA 4133 0006      00006        223             LA    R3,6(R3)                 UPDATE R3   UNI01560
0202EE 4640 B2BE      202D0        224             BCT   R4,TAGVLOOP              LOOP        UNI01570
                                   225 *                                                      UNI01580
                                   226 *           CHECK FIXED  -  IF EQUAL BLANK(S) TREAT AS ABSENT  UNI01590
                                   227 *                                                      UNI01600
0202F2 5830 B9FA      20A0C        228             L     R3,ISISDATA      START ISIS DATA     UNI01610
0202F6 5840 B796      207A8        229             L     R4,=A(CONTABLE)       CONVERSION TABLE  UNI01620
0202FA 95C1 4028      00028        230 TAGFLOOP    CLI   DFLDTYP(R4),1       IS FIXED ?       UNI01630
0202FE 4770 B310      20322        231             BNE   NOTFIXED              NO             UNI01640
020302 4854 002C      0002C        232             LH    R5,DFIXOFF(R4)        YES - LOAD OFFSET  UNI01650
020306 1A53                        233             AR    R5,R3                 POINTS TO FIXED FIELD DATA  UNI01660
                                   234 *                                                      UNI01670
                                   235 *           IF  BLANK IGNORES PRESENCE                 UNI01680
                                   236 *                                                      UNI01690
020308 4864 002E      0002E        237             LH    R6,DFIXLEN(R4)        LOAD LENGTH OF FIXED FIELD  UNI01700
02030C 0660                        238             BCTR  R6,R0                 - 1 FOR EXECUTE  UNI01710
02030E 446C B9D6      209E8        239             EX    R6,CLCFIJO            COMPARE IF BLANKS  UNI01720
020312 4780 B310      20322        240             BE    NOTFIXED                             UNI01730
020316 48F4 0029      00029        241             LH    R15,DFLDISIS(R4)      ISIS TAG       UNI01740
02031A 5AF0 B7A6      207B8        242             A     R15,=A(FIELDSON)      PRESENCE OF THE FIELD  UNI01750
02031E 92C1 F000      00000        243             MVI   0(R15),1              MOVE 1 OCURRENCE  UNI01760
                            20322  244 NOTFIXED    EQU   *                                    UNI01770
020322 4144 0046      00046        245             LA    R4,DCTRREC(R4)        UPDATE R4      UNI01780
020326 D501 4000 B7C4 00000 207D6  246             CLC   0(2,R4),=XL2'FFFF'     END OF TABLE  UNI01790
02032C 4770 B2E8      202FA        247             BNE   TAGFLOOP              CONTINUE LOOP  UNI01800

                                   249 *                                                      UNI01820
                                   250 *           PROCFLAG  -  SOLVES  FLAG CONDITION        UNI01830
                                   251 *                                                      UNI01840
020330 5840 B796      207A8        252 PROCFLAG    L     R4,=A(CONTABLE)       POINTS TO CONVERSION TABLE  UNI01850
020334 5850 B7A6      207B8        253             L     R5,=A(FIELDSON)       POINTS TO PRESENCE OF FIELD  UNI01860
020338 92C0 4032      00032        254 FLAGLOOP    MVI   DFLAG1(R4),0          ASUMES FLAG OFF OR  OK  UNI01870
02033C 95C0 4031      00031        255             CLI   DFLAG(R4),0           IS FLAG CONDITIONED ?  UNI01880
020340 4780 B346      20358        256             BE    NOFLAG                NO             UNI01890
020344 17EE                        257             XR    R14,R14               R14=0          UNI01900
020346 43E4 0031      00031        258             IC    R14,DFLAG(R4)         FIELD NUMBER THAT CONDITIONATE  UNI01910
02034A 1AE5                        259             AR    R14,R5              POINTS TO PRESENCE O FIELD  UNI01920
02034C 9500 E000      00000        260             CLI   0(R14),0              EXIST ?        UNI01930
020350 4770 B346      20358        261             BNE   NOFLAG                YES - FLAG OK!  UNI01940
020354 92C1 4032      00032        262             MVI   DFLAG1(R4),1          NOT PRESENT - FLAG ON  UNI01950
020358 4144 0046      00046        263 NOFLAG      LA    R4,DCTRREC(R4)        UPDATE R4      UNI01960
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  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                       ASM 0200 11.20 02/24/78

02035C D501 4000 B7C4 00000 207D6  264             CLC   0(2,R4),=XL2'FFFF'  END OF CONVERSION TABLE  UNI01970
020362 4770 B326      20338        265             BNE   FLAGLOOP            NO: CONTINUE LOOP  UNI01980
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  LOC  OBJECT CODE    ADDR1 ADDR2 STMT   SOURCE STATEMENT                                        ASM 0200 11.20 02/24/78
                                   267 *                                                                          UNI02000
                                   268 *          CONVLOOP  -  CONVERTS FIELD BY FIELD, FOLLOWING THE              UNI02010
                                   269 *                        CONVERSION TABLE                                  UNI02020
                                   270 *                                                                          UNI02030
                                   271 *          REGISTER      POINTS TO                                         UNI02040
                                   272 *                                                                          UNI02050
                                   273 *             R3     RECORD CONTROL IN CONVERSION TABLE.                   UNI02060
                                   274 *             R4     UNIST DIRECTORY ENTRY FIELD                           UNI02070
                                   275 *             R5     LAST DATA MOVED (UNISIST RECORD)                      UNI02080
                                   276 *             R6     ISIS DIRECTORY ENTRY FIELD (DUMMY FOR FIXED FI        UNI02090
                                   277 *                    XED)                                                  UNI02100
                                   278 *                                                                          UNI02110
                                   279 *                                                                          UNI02120

                                   281 *      DEFINITIONS PREVIOUS LOOP                                           UNI02140
                                   282 *                                                                          UNI02150
020366 5830 B796         207A8     283          L     R3,=A(CONTABLE)      ADDRESS OF CONVERSION TABLE            UNI02160
02036A 5840 B7AA         207BC     284          L     R4,=A(UNIDIREC)      ADDRESS OF UNISIST DIRECTORY           UNI02170
02036E D2CB 4000 B96E 00000 20980  285          MVC   0(12,R4),BLANKS      DIRECTORY ENTRY NOT USED               UNI02180
020374 5850 B7AE         207C0     286          L     R5,=A(UNIDATA)       ADDRESS OF UNISIST DATA                UNI02190
                   20378           287 CONVLOOP EQU   *                                                           UNI02200

                                   289 *                                                                          UNI02220
                                   290 *          DETECT IF IS FLAG CONDITIONED                                   UNI02230
                                   291 *                                                                          UNI02240
                                   292 *            DFLAG1(R3) = 0     NOT CONDITIONED; OR FLAG OK;               UNI02250
                                   293 *                       = 1     FLAG IS NOT OK;                            UNI02260
                                   294 *                                                                          UNI02270
020378 9501 3032         00032     295          CLI   DFLAG1(R3),1         ON FLAG ? (0)                          UNI02280
02037C 4740 B372         20384     296          BL    FLAGOK               YES                                    UNI02290
020380 4710 B3DA         203EC     297          B     ENDFLD               NO CONVERSION                          UNI02300
                   20384           298 FLAGOK   EQU   *                                                           UNI02310
                                   299 *                                                                          UNI02320
                                   300 *          DETECT  IF NEED SPECIAL ROUTINE                                 UNI02330
                                   301 *                                                                          UNI02340
                                   302 *            DROUT(R3)  = 0     NORMAL CONVERSION                          UNI02350
                                   303 *                      -= 0     SPECIAL CONVERSION - DROUT(R3) CONTAINS    UNI02360
                                   304 *                                THE ADDRESS OF THE ROUTINE                UNI02370
                                   305 *                                                                          UNI02380
020384 58F3 0038         00038     306          L     R15,DROUT(R3)        SPECIAL ROUTINE ADDRESS                UNI02390
020388 12FF                        307          LTR   R15,R15              EXIST ?                                UNI02400
02038A 4780 B386         20398     308          BE    NOTROUT              NO                                     UNI02410
02038E 05EF                        309          BALR  R14,R15              GOTO SPECIAL ROUTINE                   UNI02420
020390 9200 B9DC         209EE     310          MVI   REPEAT,0             IGNORE IF REPEATABLE - ROUTINE MUST    UNI02430
020394 47F0 B3DA         203EC     311          B     ENDFLD               GO TO ANOTHER FIELD                    UNI02440
                   20398           312 NOTROUT  EQU   *                                                           UNI02450
                                   313 *                                                                          UNI02460
                                   314 *          DETECT IF THE INPUT FIELD IS PRESENT                            UNI02470
                                   315 *                                                                          UNI02480
020398 48F3 0029         00029     316          LH    R15,DFLDISIS(R3)     ISIS TAG IN BINARY                     UNI02490
02039C 5AF0 B7A6         207B8     317          A     R15,=A(FIELDSON)     POINT TO TABLE OF FIELD PRESENCE ??    UNI02500
0203A0 95C0 F000         00000     318          CLI   0(R15),0             IS THE FIELD PRESENT ?                 UNI02510
0203A4 4780 B3DA         203EC     319          BE    ENDFLD               NO: END CONVERSION                     UNI02520

                                   321 *                                                                          UNI02540
                                   322 *          DETECT KIND OF PROCESS CONVERSION                               UNI02550
                                   323 *                                                                          UNI02560
                                   324 *            1. NEW UNISIST ENTRY                                          UNI02570
                                   325 *            2. UNISIST ENTRY ALREADY EXIST (SUBFIELD PROCESS).            UNI02580
                                   326 *                                                                          UNI02590
0203A8 45A0 B530         20542     327          BAL   R10,SEARCHIS         R6 POINTS TO ISIS ENTRY                UNI02600
0203AC 9511 3021         00021     328          CLI   DSBFLD(R3),C'1'      SUBFIELD ?                             UNI02610
0203B0 4770 B3C2         203D4     329          BNE   NEWFIELD             NO                                     UNI02620
0203B4 D502 B9D5 301E 209E7 0001E  330          CLC   LASTENTR(3),DFLDUNIS(R3)  SAME FIELD AS LAST ?              UNI02630
0203BA 4770 B3CE         203E0     331          BNE   NOTSAME              NO                                     UNI02640
0203BE D500 B9E9 3021 209FB 00021  332          CLC   LASTENTR+12(1),DSBFLD(R3) SUBFIELD GT THAN LAST ?           UNI02650
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  LOC  OBJECT CODE    ADDR1 ADDR2 STMT   SOURCE STATEMENT                                        ASM 0200 11.20 02/24/78
0203C4 47B0 B3CE         203E0     333          BNL   NOTSAME              NO - NEEDS NEW UNISIST ENTRY           UNI02660

                                   335 *                                                                          UNI02680
                                   336 *          HERE:  SAME FIELD, ANOTHER SUBFIELD                             UNI02690
                                   337 *                                                                          UNI02700
0203C8 45A0 B4C2         204D4     338          BAL   R10,OLDENTRY         GOTO UPDATE UNISIST ENTRY              UNI02710
                                   339 *                                                                          UNI02720
                                   340 *                                                                          UNI02730
0203CC 45A0 B4E6         20478     341          BAL   R10,MOVEDATA         MOVE DATA                              UNI02740
0203D0 47F0 B3DA         203EC     342          B     ENDFLD               FINISH FIELD CONVERSION                UNI02750
                                   343 *                                                                          UNI02760
                                   344 *          HERE: NEW FIELD  -  NEED NEW UNISIST ENTRY                      UNI02770
                                   345 *                                                                          UNI02780
                                   346 *                                                                          UNI02790
                   203D4           347 NEWFIELD EQU   *                                                           UNI02800
0203D4 9501 3030         00030     348          CLI   DREPEAT(R3),1        IS  REPEATABLE ?                       UNI02810
0203D8 4770 B3CE         203E0     349          BNE   NOTSAME              NO                                     UNI02820
0203DC 9201 B9DC         209EE     350          MVI   REPEAT,1             YES                                    UNI02830
                   203E0           351 NOTSAME  EQU   *                                                           UNI02840
0203E0 45A0 B474         20486     352          BAL   R10,MOVEIND          MOVE INDICATOR                         UNI02850
0203E4 45A0 B47C         2048E     353          BAL   R10,UNIENTRY         CREATES UNISIST ENTRY                  UNI02860
0203E8 45A0 B4E6         20478     354          BAL   R10,MOVEDATA         MOVE DATA                              UNI02870
                                   355 *                                                                          UNI02880
                                   356 *                                                                          UNI02890
                   203EC           357 ENDFLD   EQU   *                                                           UNI02900
                                   358 *                                                                          UNI02910
                                   359 *          ANALIZE NEXT CONTROL RECORD                                     UNI02920
                                   360 *                                                                          UNI02930
                                   361 *            1. END OF CONVERSION TABLE.                                   UNI02940
                                   362 *            2. SAME FIELD, OTHER SUBFILE.                                 UNI02950
                                   363 *            3. OTHER FIELD, IF REPEATABLE AND CONVERSION IS PENDING       UNI02960
                                   364 *               RETURN TO LOOP.                                            UNI02970
                                   365 *                                                                          UNI02980
0203EC 41F3 0046         00046     366          LA    R15,DCTRREC(R3)      POINTS TO NEXT CTRL RECORD.            UNI02990
0203F0 D502 F01E 4000 0001E 00000  367          CLC   DFLDUNIS(3,R15),0(R4)  SAME FIELD ?                         UNI03000
0203F6 4770 B406         20418     368          BNE   ANOTHER              NO                                     UNI03010

0203FA D500 F021 3021 00021 00021  370          CLC   DSBFLD(1,R15),DSBFLD(R3)   OTHER SUBFIELD?                  UNI03030
020400 4780 B406         20418     371          BNH   ANOTHER       CONSIDER AS ANOTHER FIELD                     UNI03040
                                   372 *        SAME FIELD - UPDATE LAST SUBFIELD IDENTIFIER                      UNI03050

020404 D20B B9D5 4000 209E7 00000  374          MVC   LASTENTR(12),0(R4)   SAVE LAST UPDATE                       UNI03070
02040A D200 B9E9 3021 209FB 00021  375          MVC   LASTENTR+12(1),DSBFLD(R3)   MOVE LAST SUBFIELD NUMBER       UNI03080
020410 4133 0046         00046     376          LA    R3,DCTRREC(R3)       POINTS TO NEW CONTROL RECORD           UNI03090
020414 47F0 B366         20378     377          B     CONVLOOP             CONTINUE LOOP CONVERSION               UNI03100

                   20418           379 ANOTHER  EQU   *                                                           UNI03120
020418 9501 B9DC         209EE     380          CLI   REPEAT,1             LAST FIELD IS REPEATABLE ?             UNI03130
02041C 4770 B430         20442     381          BNE   NOREPEAT             NO                                     UNI03140

                                   383 *                                                                          UNI03160
                                   384 *          FIELD CONVERTED IS REPEATABLE                                   UNI03170
                                   385 *          DETECT IF THERE IS CONVERSION PENDING.IF YES, RETURN            UNI03180
                                   386 *        TO CONVERSION LOOP, WITH R3 POINTING TO THE FIRST SUBFIELD        UNI03190
                                   387 *        CONVERSION RECORD OF THE CURRENT FIELD IN PROCESS                 UNI03200
                                   388 *                                                                          UNI03210
020420 58F0 B9EE         20A00     389          L     R15,LASTR3           POINTS TO THE FIRST SUBFIELD           UNI03220
020424 48FF 0029         00029     390          LH    R15,DFLDISIS(R15)    ISIS TAG                               UNI03230
020428 5AF0 B7A6         207B8     391          A     R15,=A(FIELDSON)     POINTS TO PRESENCE OF FIELD            UNI03240
02042C 95C0 F000         00000     392          CLI   0(R15),0             STILL THERE?                           UNI03250
020430 4780 B430         20442     393          BE    NOREPEAT             NO - START ANOTHER CONVERSION          UNI03260
020434 D200 B9E9 3021 209FB 00021  394          MVC   LASTENTR+12(1),DSBFLD(R3)   LAST SUBFIELD CONVERTED         UNI03270
02043A 5830 B9EE         20A00     395          L     R3,LASTR3            START AGAIN                            UNI03280
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  LOC  OBJECT CODE    ADDR1 ADDR2 STMT   SOURCE STATEMENT                                        ASM 0200 11.20 02/24/78
02043E 47F0 B366         20378     396          B     CONVLOOP             CONTINUE CONVERISON LOOP               UNI03290

                                   398 *                                                                          UNI03310
                                   399 *      FIELD CONVERTED IS NOT REPEATABLE                                   UNI03320
                                   400 *                                  OR NO CONVERSION REMAINS                UNI03330
                                   401 *                                                                          UNI03340
                                   402 *.     PREPARE FOLLOWING CONVERSION                                        UNI03350
                                   403 *                                                                          UNI03360

                   20442           405 NOREPEAT EQU   *                                                           UNI03380
020442 D50B 4000 B96E 00000 20980  406          CLC   0(12,R4),BLANKS      ENTRY USED?                            UNI03390
020448 4780 B45A         2046C     407          BE    ENDFLD1        NO  -  NO UPDATE                             UNI03400
02044C D20B B9D5 4000 209E7 00000  408          MVC   LASTENTR(12),0(R4)    SAVE LAS ENTRY                        UNI03410
020452 D200 B9E9 3021 209FB 00021  409          MVC   LASTENTR+12(1),DSBFLD(R3)    SAVE LAS SUBFIELD              UNI03420
020458 D200 5000 C177 00000 21189  410          MVC   0(1,R5),IS2          FIELD SEPARATOR                        UNI03430
02045E 4155 0001         00001     411          LA    R5,1(R5)             UPDATE R5                              UNI03440
020462 4144 000C         0000C     412          LA    R4,12(R4)             UPDATE R4                             UNI03450
020466 D20B 4000 B96E 00000 20980  413          MVC   0(12,R4),BLANKS      BLANK NEXT ENTRY                       UNI03460
02046C 4133 0046         00046     414 ENDFLD1  LA    R3,DCTRREC(R3)       POINTS TO NEW CONVERSION RECORD        UNI03470
020470 5030 B9EE         20A00     415          ST    R3,LASTR3            START OF CURRENT CONVERTING FIELD      UNI03480
020474 9200 B9DC         209EE     416          MVI   REPEAT,0             ASUMES NOT REPEATABLE                  UNI03490
020478 D501 3000 B7C4 00000 207D6  417          CLC   0(2,R3),=XL2'FFFF'   NO MORE?                               UNI03500
02047E 4770 B366         20378     418          BNE   CONVLOOP             CONTINUE CONVERSION LOOP               UNI03510
020482 47F0 B580         20592     419          B     ENDPROC               PROCESS END OF CONVERSION             UNI03520
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  LOC  OBJECT CODE    ADDR1 ADDR2 STMT   SOURCE STATEMENT                                        ASM 0200 11.20 02/24/78
020486                             421          DS    0H                                                          UNI03540
                                   422 *                                                                          UNI03550
                                   423 *      MOVEIND -   THIS ROUTINE MOVE THE INDICATORS                        UNI03560
                                   424 *                        TO THE BEGINING OF THE DATA FIELD                 UNI03570
                                   425 *                                                                          UNI03580
                   20486           426 MOVEIND  EQU   *                                                           UNI03590
020486 D2C1 5000 3023 00000 00023  427          MVC   0(INDLENGT,R5),OIND(R3)      MOVE INDICATORS                UNI03600
02048C 07FA                        428          BR    R10                                                         UNI03610
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  LOC  OBJECT CODE    ADDR1 ADDR2 STMT   SOURCE STATEMENT                                        ASM 0200 11.20 02/24/78
02048E                             430          DS    0H                                                          UNI03630
                                   431 *                                                                          UNI03640
                                   432 *      UNIENTRY  -  THIS ROUTINE CREATES THE UNISIT DIRECTORY              UNI03650
                                   433 *                   ENTRY FOR THE CURRENT FIELD                            UNI03660
                                   434 *                                                                          UNI03670
                   2048E           435 UNIENTRY EQU   *                                                           UNI03680
02048E D202 4000 301E 00000 0001E  436          MVC   0(3,R4),DFLDUNIS(R3)      UNISIST TAG                       UNI03690
020494 48F6 0002         00002     437          LH    R15,2(R6)            ISIS FIELD LENGTH                      UNI03700
020498 41FF 0002         00002     438          LA    R15,INDLENGT(R15)    + INDICATOR LENGTH                     UNI03710
02049C 41FF 0001         00001     439          LA    R15,IDLENGTH(R15)    + IDENTIFIER LENGTH                    UNI03720
0204A0 41FF 0001         00001     440          LA    R15,1(R15)           + FIELD SEPARATOR                      UNI03730
0204A4 41FF 0001         00001     441          LA    R15,1(R15)           + SUBFIELD IDENTIFIER FLAG             UNI03740
0204A8 4EF0 B966         20978     442          CVD   R15,DW               CONVERT TO DECIMAL                     UNI03750
0204AC F337 4003 B966 00003 20978  443          UNPK  3(FLDLENGT,R4),DW    LENGTH IN THE UNISIST ENTRY            UNI03760
0204B2 D300 4006 B7DA 00006 207EC  444          MVZ   FLDLENGT(1,R4),=X'F0'     ERASE SIGN                        UNI03770
0204B8 18F5                        445          LR    R15,R5               START POSITION OF DATA                 UNI03780
0204BA 4155 0002         00002     446          LA    R5,INDLENGT(R5)      NOW UPDATE R5, + LENGTH INDICATOR      UNI03790
0204BE 5BF0 B7AE         207C0     447          S     R15,=A(UNIDATA)      START POSITION OF DATA                 UNI03800
0204C2 4EF0 B966         20978     448          CVD   R15,DW               CONVERT TO DECIMAL                     UNI03810
0204C6 F347 4007 B966 00007 20978  449          UNPK  FLDLEDG2(FLDSTART,R4),DW   START POSITION IN UNISIST ENTRY  UNI03820
0204CC D300 400B B7DA 0000B 207EC  450          MVZ   11(1,R4),=X'F0'       ERASE SIGN                            UNI03830
0204D2 07FA                        451          BR    R10                  RETURN                                 UNI03840

                   204D4           453 OLDENTRY EQU   *                                                           UNI03860
                                   454 *      UPDATE UNISIST ENTRY : LENGTH AND ADDRESS OF THE FIELD              UNI03870
                                   455 *                                                                          UNI03880
                                   456 *                                                                          UNI03890
0204D4 F273 B966 4003 20978 00003  457          PACK  DW,3(FLDLENGT,R4)          LENGTH                           UNI03900
0204DA 4FF0 B966         20978     458          CVB   R15,DW               IN BINARY                              UNI03910
0204DE 4AF6 0002         00002     459          AH    R15,2(R6)            ADDS NEW LENGTH                        UNI03920
0204E2 41FF 0002         00002     460          LA    R15,2(R15)           + SUBFIELD INDENTIFIER                 UNI03930
0204E6 4EF0 B966         20978     461          CVD   R15,DW               CONVERT TO DECIMAL NEW LENGTH          UNI03940
0204EA F337 4003 B966 00003 20978  462          UNPK  3(FLDLENGT,R4),DW          MOVE IN ZONE-DIGIT FORMAT        UNI03950
0204F0 D300 4006 B7DA 00006 207EC  463          MVZ   FLDLENGT(1,R4),=X'F0'      ERASE SIGN                       UNI03960
0204F6 07FA                        464          BR    R10                  RETURN                                 UNI03970
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  LOC  OBJECT CODE    ADDR1 ADDR2 STMT   SOURCE STATEMENT                                        ASM 0200 11.20 02/24/78
020478                             466          DS    0H                                                          UNI03990
                                   467 *                                                                          UNI04000
                                   468 *      MOVEDATA -  THIS ROUTINE MOVE DATA FROM ISIS RECORD                 UNI04010
                                   469 *                        TO UNISIST RECORD                                 UNI04020
                                   470 *                                                                          UNI04030
                   20478           471 MOVEDATA EQU   *                                                           UNI04040
0204F8 D200 5000 C176 00000 21188  472          MVC   0(1,R5),IS1          SUBFIELD IDENTIFIER FLAG               UNI04050
0204FE 4155 0001         00001     473          LA    R5,1(R5)        UPDATE R5                                   UNI04060
020502 D200 5000 3021 00000 00021  474          MVC   0(IDLENGTH,R5),DSBFLD(R3)    SUBFIELD NUMBER                UNI04070
020508 4155 0001         00001     475          LA    R5,IDLENGTH(R5)      UPDATE R5                              UNI04080
02050C 58E0 B9FA         20A0C     476          L     R14,ISISDATA         POINTS  TO DATAFIELD IN ISIS RECORD    UNI04090
020510 4AE6 0004         00004     477          AH    R14,4(R6)            START ISIS DATA FIELD                  UNI04100
020514 48F6 0002         00002     478          LH    R15,2(R6)            LENGTH ISIS DATA FIELD                 UNI04110
020518 181F                        479          LR    R1,R15               R1=R15                                 UNI04120
02051A 1805                        480          LR    R0,R5                START DATA FIELD IN UNISIST RECORD     UNI04130
02051C 1A51                        481          AR    R5,R1                UPDATE R5                              UNI04140
02051E 0E0E                        482          MVCL  R0,R14               MOVE THE DATA                          UNI04150
020520 D201 B95A 3029 2096C 00029  483          MVC   HALFW(2),DFLDISIS(R3)      ISIS TAG IN BINARY               UNI04160
020526 48F0 B95A         2096C     484          LH    R15,HALFW        R15=ISIS TAG                               UNI04170
02052A 5AF0 B7A6         207B8     485          A     R15,=A(FIELDSON)     POINTS TO PRESENCE OF THE FIELD        UNI04180
02052E 17EE                        486          XR    R14,R14              R14=0                                  UNI04190
020530 43EF 0000         00000     487          IC    R14,0(R15)           NUMBER OF OCURRENCES OF THE FIELD      UNI04200
020534 06E0                        488          BCTR  R14,R0               - 1                                    UNI04210
020536 42EF 0000         00000     489          STC   R14,0(R15)           STORE NEW VALUE                        UNI04220
02053A D201 6000 B96E 00000 20980  490          MVC   0(2,R6),BLANKS       DESTROY ISIS ENTRY                     UNI04230
020540 07FA                        491          BR    R10                  RETURN                                 UNI04240
```

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  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                     ASM 0200 11.20 02/24/78
020542                              493            DS    0H                                               UNI04260
                                    494 *                                                                 UNI04270
                                    495 *   SEARCHIS  -  BUSCA TAG ISIS EN EL DIRECTORIO                  UNI04280
                                    496 *                                                                 UNI04290
                                    497 *      TO WAYS:  1)  FIXED FIELD - CREATE DUMMY DIRECTOY ENTRY    UNI04300
                                    498 *                2)  VARIABLE FIELD                               UNI04310
                                    499 *                                                                 UNI04320
                              20542 500 SEARCHIS EQU   *                                                  UNI04330
020542 95C1 302B          0002B     501          CLI   DFLDTYP(R3),1         IS FEIXED?                   UNI04340
020546 4780 B568          2057A     502          BE    FIXED                 YES                          UNI04350
                                    503 *                                    NO                           UNI04360
                                    504 *                                                                 UNI04370
                                    505 *      VARIABLE SIELD SEARCH                                      UNI04380
                                    506 *                                                                 UNI04390
02054A 58F0 B7A2          207B4     507          L     R15,=A(ISIS)           ISIS RECORD                 UNI04400
02054E 48EF 000A          0000A     508          LH    R14,10(R15)           NUMBER OF FIELDS IN DIRECTORY  UNI04410
020552 06E0                         509          BCTR  R14,R0                NUMBER OF VARIABLE FIELDS    UNI04420
020554 416F 0012          00012     510          LA    R6,18(R15)      POINT TO FIRST VFIELD IN ISIS DIRECTORY  UNI04430
020558 D5C1 3027 6000 00027 00000   511 CLCTAG   CLC   DFLDISIT(2,R3),0(R6)      COMPARE TAG              UNI04440
02055E 078A                         512          BER   R10                   FOUND - RETURN               UNI04450
020560 4166 0006          00006     513          LA    R6,6(R6)              UPDATE R6                    UNI04460
020564 46E0 B546          20558     514          BCT   R14,CLCTAG            CONTINUE LOOP                UNI04470
                                    515 *                                                                 UNI04480
                                    516 *   ERROR IN PROGRAM LOGIC                                        UNI04490
                                    517 *                                                                 UNI04500
                                    518          PUT   WRT,ERROR8            ERROR IN PROGRAM LOGIC       UNI04510
020576 47F0 B77E          20790     523          B     STOP                  FIN DEL PROGRAMA             UNI04520

                              2057A 525 FIXED    EQU   *                                                  UNI04540
                                    526 *                                                                 UNI04550
                                    527 *    FIXED FIELD                                                  UNI04560
                                    528 *                                                                 UNI04570
02057A D201 B9F2 3027 20A04 00027   529          MVC   DUMMY(2),DFLDISIT(R3)    TAG NUMBER                UNI04580
020580 D201 B9F6 302C 20A08 0002C   530          MVC   DUMMY+4(2),DFIXOFF(R3)     STAR POSITION           UNI04590
020586 D201 B9F4 302E 20A06 0002E   531          MVC   DUMMY+2(2),DFIXLEN(R3)     LENGTH                  UNI04600
02058C 4160 B9F2          20A04     532          LA    R6,DUMMY              R6 POINTS TO DUMMY ENTRY     UNI04610
020590 07FA                         533          BR    R10                   RETURN                       UNI04620
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  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                     ASM 0200 11.20 02/24/78
020592                              535            DS    0H                                               UNI04640
                                    536 *   ENDPROC - PREPARE UNISIST RECORD                              UNI04650
                                    537 *                                                                 UNI04660
                                    538 *        1) LEADER                                                UNI04670
                                    539 *        2) PUT TOGETHER LEADER DIRECTORY AND DATA                UNI04680
                                    540 *                                                                 UNI04690
                              20592 541 ENDPROC  EQU   *                                                  UNI04700
                                    542 *                                                                 UNI04710
                                    543 *   CALL LEADER SUBROUTINE THAT MOVES SUBSTANTIVE BYTES TO LEADER UNI04720
                                    544 *                                                                 UNI04730
020592 58F0 B7B2          207C4     545          L     R15,=V(LEADER)        ADDRESS OF THE SUBROUTINE    UNI04740
020596 05EF                         546          BALR  R14,R15               GO TO LEADER                 UNI04750

020598 1874                         548          LR    R7,R4                 R7=R4=END OF UNISIST DIRECTORY  UNI04770
                                    549 *   MOVE RECORD SEPARATOR                                         UNI04780
02059A D200 5000 C178 00000 2118A   550          MVC   0(1,R5),IS3           RECORD SEPARATOR             UNI04790
0205A0 4155 0001          00001     551          LA    R5,1(R5)              UPDATE R5                    UNI04800
                                    552 *                                                                 UNI04810
                                    553 *OBTAIN LENGTH OF THE RECORD                                      UNI04820
                                    554 *                                                                 UNI04830
0205A4 5B50 B7AE          207C0     555          S     R5,=A(UNIDATA)        LENGTH OF DATA               UNI04840
0205A8 5B70 B7AA          207BC     556          S     R7,=A(UNIDIREC)       LENGTH OF THE DIRECTORY      UNI04850
0205AC 4177 0018          00018     557          LA    R7,24(R7)             LEADER + DIRECTORY (BASE ADDRESS)  UNI04860
0205B0 4E70 B966          20978     558          CVD   R7,DW                 CONVERT TO DECIMAL           UNI04870
0205B4 F347 C1DA B966 211EC 20978   559          UNPK  BASEADDR(5),DW        ZONE - DIGIT TO BASE ADDRESS UNI04880
0205BA D300 C1DE B7DA 211F0 207EC   560          MVZ   BASEADDR+4(1),=X'F0'     ERASE SIGN                UNI04890
0205C0 1A75                         561          AR    R7,R5                 TOTAL RECORD LENGTH          UNI04900
0205C2 4E70 B966          20978     562          CVD   R7,DW                 CONVERT TO DECIMAL           UNI04910
0205C6 F347 C1CE B966 211E0 20978   563          UNPK  UNISIST(5),DW         ZONE DIGIT TO RECORD LENGTH  UNI04920
0205CC D300 C1D2 B7DA 211E4 207EC   564          MVZ   UNISIST+4(1),=X'F0'   ERASE SIGN                   UNI04930

                                    566 *   MOVE DATA TO THE END OF THE DIRECTORY                         UNI04950

0205D2 1804                         568          LR    R0,R4                 FINAL START DATA             UNI04970
0205D4 58E0 B7AE          207C0     569          L     R14,=A(UNIDATA)       DATA TO BE MOVED             UNI04980
0205D8 1815                         570          LR    R1,R5                 LENGTH OF THE DATA           UNI04990
0205DA 18F1                         571          LR    R15,R1                LENGTH OF THE DATA           UNI05000
0205DC 0E0E                         572          MVCL  R0,R14                MOVE THE DATA AFTER THE DIRECTORY  UNI05010

                                    574 *                                                                 UNI05030
                                    575 *   WRITE THE UNISIST RECORD                                      UNI05040
                                    576 *                                                                 UNI05050
0205DE 1837                         577          LR    R3,R7                 TOTAL RECORD LENGTH          UNI05060
0205E0 4A30 B7C6          207D8     578          AH    R3,=H'4'              LOGICAL RECORD LENGTH        UNI05070
0205E4 4030 C1CA          211DC     579          STH   R3,UNISISR            STORE IN THE FIRST WORD OF TH BLOCK  UNI05080
                                    580          PUT   OUTPUT,UNISISR        WRITE THE UNISIST RECORD ON TAPE  UNI05090
0205F6 FA20 B9D2 B9C5 209E4 209E7   585          AP    OUTSPUT,UNOP          + 1 RECORD CONVERTED         UNI05100

0205FC 47F0 B28E          202A0     587          B     PROCREC               GO TO READ OTHER RECORD      UNI05120
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  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                     ASM 0200 11.20 02/24/78
                                    589 ************************                                          UNI05140
                                    590 *                                                                 UNI05150
                                    591 *        USER ROUTINES  START HERE                                UNI05160
                                    592 *              RETURN TO PROGRAM VIA R14 OR TO OTHER LABEL, IF DESIRED  UNI05170
                                    593 *                                                                 UNI05180
                                    594 *     NOTE: IT IS NECESARY TO CODE THE USER ROUTINE NAMES         UNI05190
                                    595 *           IN THE TABLE 'USEROUT'                                UNI05200
                                    596 *                                                                 UNI05210
                                    597 *                                                                 UNI05220
                                    598 *       FOLLOWS SPECIAL DOCPAL ROUTINES TO CONVERT FROM           UNI05230
                                    599 *             DOCPAL ISIS DATA BASE TO UNISIST RR                 UNI05240
                                    600 *                                                                 UNI05250
                                    601 *       IF YOU ARE USING THE PROGRAMING FOR OTHER CONVERSION,     UNI05260
                                    602 *             ERASE FROM HERE UNTIL THE PHRASE:                   UNI05270
                                    603 *             'USER ROUTINES - END HERE'                          UNI05280
                                    604 *                                                                 UNI05290
                                    605 *                                                                 UNI05300
                              20600 606 VOLNO    EQU   *                                                  UNI05310
                                    607 *                                                                 UNI05320
                                    608 * DOCPAL SPECIAL ROUTINE FOR GENERATE UNISIST VOLUME NUMBER FIELD UNI05330
                                    609 *                         (A05,SUFS 1,2,4)                        UNI05340
                                    610 *                                                                 UNI05350
020600 45A0 B474          20486     611          BAL   R10,MOVEIND           MOVE INDICATORS              UNI05360
020604 D201 3027 B7C8 00027 207DA   612          MVC   DFLDISIT(2,R3),=CL2'31'  ISIS FIELD NUMBER         UNI05370
02060A 47F0 B602          20614     613          B     ISSUE10               SAME PROCESS AS ISSUE NUMBER FIELD  UNI05380

                              2060E 615 ISSUE    EQU   *                                                  UNI05400
                                    616 *                                                                 UNI05410
                                    617 *  DOCPAL SPECIAL ROUTINE FOR GENERATE THE UNISIST "ISSUE NUMBER" FIELD  UNI05420
                                    618 *                                                                 UNI05430
02060E D201 3027 B7CA 00027 207DC   619          MVC   DFLDISIT(2,R3),=CL2'32'    ISIS FIELD NUMBER FOR ISSUE  UNI05440
020614 50E0 B6D2          206E4     620 ISSUE10  ST    R14,VOLNOR14          SAVE R14                     UNI05450
020618 45A0 B474          20486     621          BAL   R10,MOVEIND           MOVE INDICATORS              UNI05460
02061C 45A0 B530          20542     622          BAL   R10,SEARCHIS          SEARCH FOR TAG IN ISIS DIRECTORY  UNI05470
020620 58E0 B9FA          20A0C     623          L     R14,ISISDATA          START OF ISIS DATA           UNI05480
020624 4AE6 0004          00004     624          AH    R14,4(R6)             START ISIS DATA FIELD        UNI05490
020628 48F6 0002          00002     625          LH    R15,2(R6)             LENGTH OF THE FIELD          UNI05500
02062C 5810 B7B6          207C8     626          L     R1,=A(ISSUEDAT)       FIELD DATA                   UNI05510
020630 45A0 B67C          2068E     627          BAL   R10,ISSUE80           MOVE SUBFIELD 1              UNI05520
020634 41EE 0001          00001     628          LA    R14,1(R14)            UPDATE R14                   UNI05530
020638 D200 1000 C176 00000 21188   629          MVC   0(1,R1),IS1           FLAG IDENTIFIER              UNI05540
02063E D200 1001 00F2 00001 000F2   630          MVC   1(1,R1),C'2'          SUBFIELD 2                   UNI05550
020644 45A0 B67C          2068E     631          BAL   R10,ISSUE80           MOVE SUBFIELD 2              UNI05560
020648 41EE 0001          00001     632          LA    R14,1(R14)            UPDATE R14                   UNI05570
02064C D200 1000 C176 00000 21188   633          MVC   0(1,R1),IS1           SUBFIELD IDENTIFIER FLAG     UNI05580
020652 D200 1001 00F3 00001 000F3   634          MVC   1(1,R1),C'3'          SUBFIELD 3                   UNI05590
020658 45A0 B67C          2068E     635          BAL   R10,ISSUE80           MOVE DATA                    UNI05600
02065C 5B10 B7B6          207C8     636 ISSUE50  S     R1,=A(ISSUEDAT)       LENGTH OF THE FIELD          UNI05610
020660 4010 B9F4          20A06     637          STH   R1,DUMMY+2            ST IN DUMMY ISIS DIREC. ENTRY  UNI05620
020664 41C0 B9F2          20A04     638          LA    R6,DUMMY              FICTICIOUS ISIS DIRECTORY ENTRY  UNI05630
020668 D201 B9F6 B7CC 20A08 207DE   639          MVC   DUMMY+4(2),=H'0'      START POSITION               UNI05640
02066E D203 B69A B9FA 206AC 20A0C   640          MVC   ISISDAT1(4),ISISDATA  SAVE REAL ISIS DATA START    UNI05650
020674 D203 B9FA B7B6 20A0C 207C8   641          MVC   ISISDATA(4),=A(ISSUEDAT)  ADDRESS OF TEMPORARY DATA FIEL  UNI05660
02067A 45A0 B4E6          204F8     642          BAL   R10,MOVEDATA          MOVE THE DATA                UNI05670
02067E D203 B9FA B69A 20A0C 206AC   643          MVC   ISISDATA(4),ISISDAT1  RESTORE REAL ISIS DATA FIELD UNI05680
020684 45A0 B47C          2048E     644          BAL   R10,UNIENTRI          GENERATE UNISIST ENTRY       UNI05690
020688 58E0 B6D2          206E4     645          L     R14,VOLNOR14          RESTORE R14                  UNI05700
02068C 07FE                         646          BR    R14                   RETURN                       UNI05710

02068E D200 1000 E000 00000 00000   648 ISSUE80  MVC   0(1,R1),0(R14)        MOVE 1 BITE                  UNI05730
020694 4111 0001          00001     649          LA    R1,1(R1)              UPDATE R1                    UNI05740
020698 41EE 0001          00001     650          LA    R14,1(R14)            UPDATE R14                   UNI05750
02069C 19EF                         651          CR    R14,R15               END OF THE FIELD             UNI05760
02069E 4720 B64A          2065C     652          BH    ISSUE50                                            UNI05770
0206A2 9540 E000          00000     653          CLI   0(R14),C' '           IS BLANK?                    UNI05780
0206A6 4770 B67C          2068E     654          BNE   ISSUE80               NO: CONTINUE MOVEMENT        UNI05790
0206AA 07FA                         655          BR    R10                   RETURN                       UNI05800
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  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                     ASM 0200 11.20 02/24/78
0206AC 00000000                     657 ISISDAT1 DC    F'0'                  FOR SAVE ISIS DATA ADDRESS   UNI05820
0206B0                              658 ISSUEDAT DS    CL50                                               UNI05830
0206E2 0000
0206E4 00000000                     659 VOLNOR14 DC    F'0'                  SAVE RETURN                  UNI05840

                                    661 *                                                                 UNI05860
                                    662 *     DOCPAL SPECIAL ROUTINE FOR ASIGN                            UNI05870
                                    663 *            LANGUAGE CODE SUBFIELD TO THE DIFFERENTES TITLES     UNI05880
                                    664 *                                                                 UNI05890
0206E8 50E0 B74A          2075C     665 LCODE61  ST    R14,LCODER14          SAVE R14                     UNI05900
0206EC D201 3027 B7CE 00027 207E0   666          MVC   DFLDISIT(2,R3),=CL2'61'   ISIS TAG                 UNI05910
0206F2 58E0 B7A6          207B8     667          L     R14,=A(FIELDSON)      PRESENDE OF FIELDS           UNI05920
0206F6 41EE 003D          0003D     668          LA    R14,61(R14)           PRESENCE OF 61               UNI05930
0206FA 95C0 E000          00000     669          CLI   0(R14),0              IS PRESENT?                  UNI05940
0206FE 4780 B744          20756     670          BE    LCODE100              NO: END OF CONVERSION        UNI05950
020702 45A0 B530          20542     671          BAL   R10,SEARCHIS                                       UNI05960
020706 58E0 B9FA          20A0C     672          L     R14,ISISDATA          ISIS START DATA              UNI05970
02070A 4AE6 0004          00004     673          AH    R14,4(R6)             START FIELD 61               UNI05980
02070E D201 B74E E000 20760 00000   674          MVC   LCODEDAT(2),0(R14)    MOVE TO DUMMY FIELD DATA     UNI05990
020714 47F0 B71A          2072C     675          B     LCODE51               SAME AS OTHER LANGUAGES CODES  UNI06000

                                    677 *                                                                 UNI06020
                                    678 *   SPANISH TRANSLATION                                           UNI06030
                                    679 *                                                                 UNI06040
                              20718 680 LCODESP  EQU   *                                                  UNI06050
020718 D201 B74E B7D0 20760 207E2   681          MVC   LCODEDAT(2),=CL2'Es'  SPANISH                      UNI06060
02071E 47F0 B716          20728     682          B     LCODE50               SAME AS OTHER LANGUAGE CODE  UNI06070

                              20722 684 LCODEEN  EQU   *                                                  UNI06090
020722 D201 B74E B7D2 20760 207E4   685          MVC   LCODEDAT(2),=CL2'En'    ENGLISH                    UNI06100

020728 50E0 B74A          2075C     687 LCODE50  ST    R14,LCODER14                                       UNI06120
02072C 4160 B9F2          20A04     688 LCODE51  LA    R6,DUMMY              ISIS DUMMY DIRECTORY ENTRY   UNI06130
020730 D201 6002 B7D4 00002 207E6   689          MVC   2(2,R6),=H'2'         LENGTH                       UNI06140
020736 D201 6004 B7CC 00004 207DE   690          MVC   4(2,R6),=H'0'         ISIS START POSITION FIELD    UNI06150
02073C D203 B69A B9FA 206AC 20A0C   691          MVC   ISISDAT1(4),ISISDATA   SAVE ISIS DATA FIELD ADDRESS  UNI06160
020742 D203 B9FA B7BA 20A0C 207CC   692          MVC   ISISDATA(4),=A(LCODEDAT)                           UNI06170
020748 45A0 B4E6          204F8     693          BAL   R10,MOVEDATA          MOVE DATA                    UNI06180
02074C D203 B9FA B69A 20A0C 206AC   694          MVC   ISISDATA(4),ISISDAT1  RESTORE REAL ISIS DATA FIELD ADD  UNI06190
020752 45A0 B4C2          204D4     695          BAL   R10,OLDENTRI          UPDATE UNISIST DIRECTORY ENTRY  UNI06200
020756 58E0 B74A          2075C     696 LCODE100 L     R14,LCODER14          RESTORE R14                  UNI06210
02075A 07FE                         697          BR    R14                                                UNI06220

02075C 00000000                     699 LCODER14 DC    F'0'                  SAVE RETURN                  UNI06240
020760                              700 LCODEDAT DS    CL2                   DATA                         UNI06250

                              20762 702 REPORT   EQU   *                                                  UNI06270
                                    703 *                                                                 UNI06280
                                    704 *   DOCPAL SPECIAL ROUTINE FOR CONVERIONS OF UNISIST FIELD A39    UNI06290
                                    705 *                                                                 UNI06300
                                    706 *     'REPORT NUMBER'  --- IS EQUIVALENT TO DOCPAL 36 ONLY IF     UNI06310
                                    707 *                         CODE "I" IS FOUND IN LITERATURE TYPE    UNI06320
                                    708 *                                                                 UNI06330
020762 5810 B9FA          20A0C     709          L     R1,ISISDATA           ISIS DATA FIELD ADDRESS      UNI06340
020766 4111 0011          00011     710          LA    R1,17(R1)             LITERATURE TYPE              UNI06350
02076A 41F0 0003          00003     711          LA    R15,3                 3 POSITIONS                  UNI06360
02076E 95C9 1000          00000     712 REPORT10 CLI   0(R1),C'I'            IS THERE I?                  UNI06370
020772 4780 B76E          20780     713          BE    REPORT20              YES:CONVERT 36 TO A39        UNI06380
020776 4111 0001          00001     714          LA    R1,1(R1)              NO:UPDATE R1                 UNI06390
02077A 46F0 B75C          2076E     715          BCT   R15,REPORT10          LOOP                         UNI06400
02077E 07FE                         716          BR    R14                   RETURN:NO CONVERSION         UNI06410
020780 D201 3029 B7D6 00029 207E8   717 REPORT20 MVC   DFLDISIS(2,R3),=H'36'  ISIS FIELD IN BINARY        UNI06420
020786 D201 3027 B7D8 00027 207EA   718          MVC   DFLDISAT(2,R3),=CL2'36'  ISIS FIELD IN CHARACTER   UNI06430
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CELADE

DOCPAL - CONVERSION FROM ISIS TO UNISIST FORMAT — PAGE 17

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  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                       ASM 0200 11.20 02/24/78
02078C 4720 B386      20398         719            B      NOTROUT          CONTINUE AS EQUIVALENT CONVERSION    UNI06440
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DOCPAL - CONVERSION FROM ISIS TO UNISIST FORMAT — PAGE 18

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  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                       ASM 0200 11.20 02/24/78
020790                              721            DS     0B                                                    UNI06460
                            20790   722 STOP       EQU    *                                                     UNI06470
                                    723 *                                                                       UNI06480
                                    724 *    EOFISIS - END OF CONVERSION                                        UNI06490
                                    725 *                                                                       UNI06500
                            20790   726 EOFISIS    EQU    *                                                     UNI06510
020790 58D0 B78E      207D0         727            L      R13,=A(###0001)                                       UNI06520
020794 58DD 0004      00004         728            L      R13,4(R13)                                            UNI06530
020798 98EC D00C      0000C         729            LM     R14,R12,12(R13)                                       UNI06540
02079C 92FF D00C      0000C         730            MVI    12(R13),X'FF'                                         UNI06550
0207A0 1BFF                         731            SR     R15,R15                                               UNI06560
0207A2 07FE                         732            BR     R14                                                   UNI06570
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CELADE

DOCPAL - CONVERSION FROM ISIS TO UNISIST FORMAT — PAGE 19

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  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                       ASM 0200 11.20 02/24/78
                                    734 *                                                                       UNI06590
                                    735 *  LITERAL .                                                            UNI06600
                                    736 *                                                                       UNI06610
0207A8                              737                LTORG                                                    UNI06620
0207A8 00024A3C                     738                      =A(CONTABLE)
0207AC 0002113C                     739                      =A(USEROUT)
0207B0 000232C8                     740                      =A(ISISR)
0207B4 000232CC                     741                      =A(ISIS)
0207B8 000210D7                     742                      =A(FIELDSON)
0207BC 000211E8                     743                      =A(UNIDIREC)
0207C0 00021B58                     744                      =A(UNIDATA)
0207C4 00000000                     745                      =V(LEADER)
0207C8 000206B0                     746                      =A(ISSUEDAT)
0207CC 00020760                     747                      =A(LCODEDAT)
0207D0 00020028                     748                      =A(###0001)
0207D4 FFFF                         749                      =X'FFFF'
0207D6 FFFF                         750                      =XL2'FFFF'
0207D8 0004                         751                      =H'4'
0207DA F3F1                         752                      =CL2'31'
0207DC F3F2                         753                      =CL2'32'
0207DE 0000                         754                      =H'0'
0207E0 F6F1                         755                      =CL2'61'
0207E2 C5A2                         756                      =CL2'Es'
0207E4 C595                         757                      =CL2'En'
0207E6 0002                         758                      =H'2'
0207E8 0024                         759                      =H'36'
0207EA F3F6                         760                      =CL2'36'
0207EC F0                           761                      =X'F0'
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CELADE

DOCPAL - CONVERSION FROM ISIS TO UNISIST FORMAT — PAGE 20

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  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                       ASM 0200 11.20 02/24/78
                                    763 *                                                                       UNI06640
                                    764 *         DCBS                                                          UNI06650
                                    765 *                                                                       UNI06660
                                    766 RDR        DCB    DDNAME=SYSIN,DSORG=PS,MACRF=GM,EODAD=EOFREC,EROPT=ACC    UNI06670
                                    820 WRT        DCB    DDNAME=SYSPRINT,DSORG=PS,MACRF=PM,OEVD=DA,              *UNI06680
                                                          RECFM=FA,LRECL=133,BLKSIZE=133                          UNI06690
                                    874 INPUT      DCB    DDNAME=INPUT,DSORG=PS,MACRF=GM,EROPT=ACC,EODAD=EOFISIS, *UNI06700
                                                          RECFM=VB                                                UNI06710
                                    928 OUTPUT     DCB    DDNAME=OUTPUT,MACRF=PM,DSORG=PS,EROPT=ACC,RECFM=V       UNI06720
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CELADE

DOCPAL - CONVERSION FROM ISIS TO UNISIST FORMAT — PAGE 21

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  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                       ASM 0200 11.20 02/24/78
                                    983 *                                                                       UNI06740
                                    984 *   CONSTANTS AND WORK AREAS                                            UNI06750
                                    985 *                                                                       UNI06760
020970                              986 SAVERET    DS     F                  ADDRESS TO RETURN TO SYSTEM        UNI06770
020978                              987 DW         DS     D                  DOUBLE WORD                        UNI06780
020980 4040404040404040             988 BLANKS     DC     CL100' '           BLANKS                             UNI06790
0209E4 00000C                       989 OUTSPUT    DC     PL3'0'             TOTAL RECORD CONVERTED             UNI06800
0209E7 1C                           990 UNOP       DC     PL1'1'             COUNTER                            UNI06810

0209E8 D500 5000 B96E 00000 20980   992 CLCFIJO    CLC    0(0,R5),BLANKS COMPARE FII FIELD WITH BLANKS          UNI06830
0209EE 00                           993 REPEAT     DC     XL1'00'        ASUMES NOT REPEATABLE                  UNI06840
0209EF 4040404040404040             994 LASTENTR   DC     CL13' '        LAST UNISIST ENTRY MOVED               UNI06850
0209FC 0000                         995 HALF       DC     H'0'           HALF WORD                              UNI06860
020A00                              996 LASTR3     DS     A(CONTABLE)    LAST CONVERSION CONTROL RECORD PROCESED UNI06870
020A04 404040404040                 997 DUMMY      DC     CL6' '         DUMMY DIR. ENTRY FOR FIXED FIELD       UNI06880
020A0C                              998 ISISDATA   DS     F              DATA ADDRESS IN ISIS RECORD            UNI06890
020A10                              999 CARD1      DS     0CL132                                                UNI06900
020A10 40                          1000            DC     CL1' '                                                UNI06910
020A11                             1001 CARD       DS     CL80           BUFFER CONTROL CARD                    UNI06920
020A61 4040404040404040            1002            DC     CL52' '                                               UNI06930
020A95 F14040404C3C5D3C1           1003 TITLE1     DC     CL133'1   CELADE - COMPUTER SYSTEMS AND SERVICES'     UNI06940
020B1A 4040404040404040            1004 TITLE2     DC     CL133'           DOCPAL SYSTEM'                       UNI06950
020B9F 40C3D6D5E5C5D9E2            1005 TITLE3     DC     CL133' CONVERSION FROM ISIS TO UNISIST. CONTROL CARDS:'  UNI06960
020C24 F040404040404040            1006 TITLE4     DC     CL133'0 '                                             UNI06970
020CA9 F0F0F0F0F0                  1007 CHECK      DC     CL5'00000'          FOR CHECK NUMERI FIELD?           UNI06980
020CAE F0F0F0F0F0                  1008 ZEROS      DC     CL5'00000'          FOR CHECK NUMERIC FIELDS          UNI06990
020CB3 00                          1009 SWERROR    DC     XL1'00'             SW ERROR WHEN READING CONTROL CARD  UNI07000
020CB4 404040                      1010 LASTUNI    DC     CL3' '              LAST UNISIST CONTROL CARD  ANALIZES UNI07010
020CB7 405C5C5CC5D9D9D6            1011 ERROR1     DC     CL132' ***ERROR - UNISIST FIELD TAG OUT OF SEQUENCE'  UNI07020
020D3B 405C5C5CC5D9D9D6            1012 ERROR2     DC     CL132' ***ERROR - INVALID SUBFIELD IDENTIFIER'        UNI07030
020DBF 405C5C5CC5D9D9D6            1013 ERROR3     DC     CL132' ***ERROR - USER ROUTINE NOT FOUND'             UNI07040
020E43 405C5C5CC5D9D9D6            1014 ERROR4     DC     CL132' ***ERROR - INVALID ISIS TAG CONDITIONING'      UNI07050
020EC7 405C5C5CC5D9D9D6            1015 ERROR5     DC     CL132' ***ERROR - INVALID ISIS TAG'                   UNI07060
020F4B 405C5C5CC5D9D9D6            1016 ERROR6     DC     CL132' ***ERROR - INVALID ISIS FIXED FIELD OFFSET'    UNI07070
020FCF 405C5C5CC5D9D9D6            1017 ERROR7     DC     CL132' ***ERROR - INVALID ISIS FIXED FIELD LENGTH'    UNI07080
021053 405C5C5CC5D9D9D6            1018 ERROR8     DC     CL132' ***ERROR - PROGRAM LOGIC'                      UNI07090
0210D7 0000000000000000            1019 FIELDSON   DC     100XL1'00'           TABLE OF ISIS OCURRENCE FIELDS   UNI07100
```

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DOCPAL - CONVERSION FROM ISIS TO UNISIST FORMAT — PAGE 22

```
  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                       ASM 0200 11.20 02/24/78
                                   1021 *                                                                       UNI07120
                                   1022 *      USEROUT  -   DEFINE USER ROUTINES NAMES                          UNI07130
                                   1023 *                                                                       UNI07140
02113C                             1024            DS     0F                                                    UNI07150
                            2113C  1025 USEROUT    EQU    *                                                     UNI07160
02113C D3C3D6C4C5F6F140            1026            DC     CL8'LCODE61',A(LCODE61)                               UNI07170
021148 D3C3D6C4C5C5D540            1027            DC     CL8'LCODEEN',A(LCODEEN)                               UNI07180
021154 D3C3D6C4C5E2D740            1028            DC     CL8'LCODESP',A(LCODESP)                               UNI07190
021160 E5D6D3D5D6404040            1029            DC     CL8'VOLNO',A(VOLNO)                                   UNI07200
02116C C9E2E2E4C5404040            1030            DC     CL8'ISSUE',A(ISSUE)                                   UNI07210
021178 D9C5D7D6D9E34040            1031            DC     CL8'REPORT',A(REPORT)                                 UNI07220
021184 FFFFFFFF                    1032            DC     XL4'FFFFFFFF'          END OF USER SUBR NAMES         UNI07230
```

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DOCPAL - CONVERSION FROM ISIS TO UNISIST FORMAT — PAGE 23

```
  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                       ASM 0200 11.20 02/24/78
                                   1034 *                                                                       UNI07250
                                   1035 *        UNISIST STANDARD SEPARATORS                                    UNI07260
                                   1036 *                                                                       UNI07270
021188 7C                          1037 IS1        DC     CL1'@'          SUBFIELD IDENTIFIER FLAG              UNI07280
021189 1E                          1038 IS2        DC     XL1'1E'         FIELD SEPARATOR                       UNI07290
02118A 1D                          1039 IS3        DC     XL1'1D'         RECORD SEPARATOR                      UNI07300
```

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DOCPAL - CONVERSION FROM ISIS TO UNISIST FORMAT — PAGE 24

```
  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                       ASM 0200 11.20 02/24/78
                                   1041 *                                                                       UNI07320
                                   1042 *   EQUATES                                                             UNI07330
                                   1043 *                                                                       UNI07340
                                   1044 *                                                                       UNI07350
                            00000  1045 R0         EQU    0                                                     UNI07360
                            00001  1046 R1         EQU    1                                                     UNI07370
                            00002  1047 R2         EQU    2                                                     UNI07380
                            00003  1048 R3         EQU    3                                                     UNI07390
                            00004  1049 R4         EQU    4                                                     UNI07400
                            00005  1050 R5         EQU    5                                                     UNI07410
                            00006  1051 R6         EQU    6                                                     UNI07420
                            00007  1052 R7         EQU    7                                                     UNI07430
                            00008  1053 R8         EQU    8                                                     UNI07440
                            00009  1054 R9         EQU    9                                                     UNI07450
                            0000A  1055 R10        EQU    10                                                    UNI07460
                            0000B  1056 R11        EQU    11                                                    UNI07470
                            0000C  1057 R12        EQU    12                                                    UNI07480
                            0000D  1058 R13        EQU    13                                                    UNI07490
                            0000E  1059 R14        EQU    14                                                    UNI07500
                            0000F  1060 R15        EQU    15                                                    UNI07510
                                   1061 *  CONVERSION RECORD DEFINITION                                         UNI07520
                                   1062 *                                                                       UNI07530
                            00046  1063 OCTREC     EQU    70                 LENGTH OF CONVERSION RECORD        UNI07540

                            0001E  1065 DFLDUNIS   EQU    30               UNISIST TAG                          UNI07560
                            00021  1066 DSBFLD     EQU    33               SUBFIELD NUMBER                      UNI07570
                            00023  1067 DIND       EQU    35               INDICATORS                           UNI07580
                            00027  1068 DFLDISIT   EQU    39                 ISIS TAG -CHARACTER                UNI07590
                            00029  1069 DFLDISIS   EQU    41               ISIS TAG - BINARY                    UNI07600
                            0002B  1070 DFLDTYP    EQU    43               FLAG FIXED OR VARIABLE FIELD         UNI07610
                            0002C  1071 DFIXOFF    EQU    44               OFFSET FIXED FIELD                   UNI07620
                            0002E  1072 DFIXLEN    EQU    46               LENGTH FIXED FIELD                   UNI07630
                            00030  1073 DREPEAT    EQU    48               FLAG REPEATABLE                      UNI07640
                            00031  1074 DFLAG      EQU    49               FLAG OTHER FIELD MUST BE PRESENT     UNI07650
                            00032  1075 DFLAG1     EQU    50                BEFOR FLAG SOLVED                   UNI07660
                            00033  1076 DROUT1     EQU    51               USER SUBROUTNINE NAME                UNI07670
                            0003B  1077 DROUT      EQU    59               USER SUBROUTINE ADDRESS              UNI07680
                                   1078 *   VALUES ASUMED IN TEH CONVERSION RECORD IN STORAGE                   UNI07690

0211BB                             1080 RECBO      DS     0CL80                                                 UNI07710
0211BB 4040404040404040            1081            DC     CL30' '          FIELD NAME                           UNI07720
0211A9 404040                      1082            DC     CL3' '           UNISIST TAG                          UNI07730
0211AC F0F0F0F0F0F0                1083            DC     6CL1'00'         SUBFIELD NO + INDICATORS             UNI07740
0211B2 4040                        1084            DC     CL2' '           ISIS TAG IN CHARACTERS               UNI07750
0211B4 0000000000000000            1085            DC     10XL1'00'        OTHER ISIS SPECIFICATIONS            UNI07760
0211BE 4040404040404040            1086            DC     CL8' '           USER SUBR NAME                       UNI07770
0211C6 00000000                    1087            DC     4XL1'00'         SUBROUTINE ADDRESS                   UNI07780
0211CA 4040404040404040            1088            DC     CL17' '                                               UNI07790
```

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DOCPAL - CONVERSION FROM ISIS TO UNISIST FORMAT — PAGE 25

```
  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                       ASM 0200 11.20 02/24/78
                                   1090 *                                                                       UNI07810
                                   1091 *    UNISIST RECORD - LENGTH ASUMED                                     UNI07820
                                   1092 *                                                                       UNI07830
                            00002  1093 INDLENGT   EQU    2                  INDICATORS LENGTH                  UNI07840
                            00001  1094 ILLENGTH   EQU    1                  SUBFIELD IDENTIFIER LENGTH         UNI07850
                                   1095 *                           (EXCLUDING THE FLAG)                        UNI07860
                            00004  1096 FLDLENGT   EQU    4                  LENGTH OF FIELD LENGTH             UNI07870
                            00006  1097 FLDLENG1   EQU    6                  FLDLENGT+2                         UNI07880
                            00007  1098 FLDLENG2   EQU    7                  FLDLENGT+3                         UNI07890
                            00005  1099 FLDSTART   EQU    5                  LENGTH OF START POSITION           UNI07900
                                   1100 *                                                                       UNI07910
                                   1101 *  ----> NOTE FLDLENGT + FLDSTART = 9                                   UNI07920
                                   1102 *                                                                       UNI07930
```

CELADE


```
  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                       ASM 0200 11.20 02/24/78

021DC                              1104 UNISISR  DS    0F                                             UNI07950
0211DC 00000000                    1105          DC    FL4'0'       LOGICAL AND PHYSICAL REC LENGTH   UNI07960
                                   1106 *                                                             UNI07970
                                   1107 *    BIBLIOGRAPHIC INFORMATION INTERCHANGE RECORD             UNI07980
                                   1108 *                                                             UNI07990
                                   1109 *                   RECORD LAYOUT                             UNI08000
                                   1110 *                                                             UNI08010
0211E0                             1111 UNISIST  DS    0C                                             UNI08020

                                   1113 *  LEADER                                                     UNI08040

0211E0                             1115          DS    CL5             0 RECORD LENGTH                UNI08060
0211E5 F0                          1116          DC    CL1'0'        5 RECORD STATUS                  UNI08070
0211E6                             1117          DS    CL1           6 LITERATURE TYPE                UNI08080
0211E7 F0F0                        1118          DC    CL2'00'       7 FUTURE USE                     UNI08090
0211E9                             1119          DS    CL1           9 BIBLIOGRAPHIC LEVEL            UNI08100
0211EA F2                          1120          DC    CL1'2'       10 INDICATOR LENGTH               UNI08110
0211EB F2                          1121          DC    CL1'2'       11DENTIFIER LENGTH                UNI08120
0211EC 4040404040                  1122 BASEADDR DC    CL5' '       12 BASE ADDRESS OF DATA           UNI08130
                                   1123 *                              (START POSITION OF DATA)       UNI08140
0211F1 F0F0F0                      1124          DC    CL3'000'     17 FUTURE USE                     UNI08150
0211F4 F4                          1125          DC    CL1'4'       20 LENGTH OF 'LENGTH OF THE FIELD'  UNI08160
0211F5 F5                          1126          DC    CL1'5'       21 LENGTH OF 'START POSITION OF FIELD'  UNI08170
0211F6 F0F0                        1127          DC    CL2'00'      22 FUTURE USE                     UNI08180
                                   1128 *                                                             UNI08190
                                   1129 * UNISIST DIRECTORY - EACH ENTRY : TAG                        UNI08200
                                   1130 *                                  LENGTH OF THE FIELD        UNI08210
                                   1131 *                                  START POSITION OF THE FIELD  UNI08220
                                   1132 *                                                             UNI08230
                                   1133 *     START AT POSITON 24 AND EACH ENTRY HAS 12 POSITIONS     UNI08240
                                   1134 *                                                             UNI08250
0211F8                             1135 UNIDIREC DS    CL2400       200 RESERVED ENTRIES              UNI08260
021B58                             1136 UNIDATA  DS    CL6000       6000 CHARACTERS OF DATA BY RECORD UNI08270
```

CELADE


```
  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                                       ASM 0200 11.20 02/24/78

0232C8                             1138          DS    0F                                             UNI08290
0232C8 00000000                    1139 ISISR    DC    FL4'0'        ISIS LOGICAL RECORD LENGTH       UNI08300
0232CC                             1140 ISIS     DS    CL6000                                         UNI08310
024A3C                             1141 CONTABLE DS    100CL80     100 CONVERSION RECORDS             UNI08320
                                   1142          END                                                  UNI08330
```

CELADE


```
POS.ID   REL.ID   FLAGS   ADDRESS                                                                ASM 0200 11.20 02/24/78

 0001     0001     0C     02001C
 0001     0001     08     020081
 0001     0001     08     020085
 0001     0001     08     020059
 0001     0001     06     02008D
 0001     0001     0C     0207A8
 0001     0001     0C     0207AC
 0001     0001     0C     0207B0
 0001     0001     0C     0207B4
 0001     0001     0C     0207B8
 0001     0001     0C     0207BC
 0001     0001     0C     0207C0
 0001     0001     0C     0207C8
 0001     0001     0C     0207CC
 0001     0001     0C     0207D0
 0001     0001     08     020811
 0001     0001     08     020831
 0001     0001     0C     021144
 0001     0001     0C     021150
 0001     0001     0C     02115C
 0001     0001     0C     021168
 0001     0001     0C     021174
 0001     0001     0C     021180
 0001     0002     1C     0207C4
```



```
SYMBOL    LEN   VALUE    DEFN   REFERENCES                                                       ASM 0200 11.20 02/24/78

&&00001   00024 00020028 00020  00012 00021 00022 00748
&00001    00002 00020020 00018  00015
&0001     00004 00020012 00014  00017
ASCIHEP   00001 00020413 00379  00368 00371
BASEADDR  00005 000211EC 01122  00559 00560
BLANKS    00100 00020980 00984  00105 00120 00157 00285 00406 00413 00490 00992
CARD      00080 00020A11 01001  00072 00080
CARD1     00132 00020A13 00999  00077
CHECK     00005 00020CA9 01007  00095 00096 00107 00108 00141 00142 00160 00161 00170 00171
CLCFIJO   00006 00020528 00492  00239
CICTAG    00006 00020558 00511  00514
CONTABLE  00080 00024A3C 01141  00738 00996
CONFLOOP  00001 00020378 00287  00377 00398 00416
DCTBLEC   00001 00000040 01063  00081 00187 00245 00263 00366 00376 00414
DFIALEN   00001 0000002E 01072  00165 00237 00531
DFIIOFF   00001 0000002C 01071  00182 00232 00530
DFLAG     00001 00000031 01074  00112 00255 00258
DFLAGT    00001 00000032 01075  00254 00262 00255
DFLDISIS  00001 00000029 01069  00153 00241 00316 00390 00483 00717
DFLDISIT  00001 00000027 01068  00140 00511 00529 00612 00619 00666 00718
DFLDTYP   00001 00000028 01073  00157 00230 00501
DFLDUNIS  00001 0000001E 01065  00085 00330 00367 00436
DINC      00001 00000023 01067  00139 00427
DREPEAT   00001 00000030 01073  00156 00348
DROUT     00001 0000003B 01077  00136 00306
DSEFLD    00001 00000021 01066  00096 00328 00332 00370 00370 00375 00394 00409 00474
DUMMY     00006 00020A04 00997  00529 00530 00531 00532 00637 00638 00639 00688
D6        00008 00020974 00987  00110 00111 00151 00152 00180 00181 00183 00184 00217 00218 00442 00443 00448 00449 00457
                                00458 00461 00482 00558 00559 00562 00563
ENDFLO    00001 0002032C 00357  00297 00311 00319 00342
ENDFLO1   00004 0002046C 00414  00407
ENDPROC   00001 00020592 00541  00419
ENDREC    00001 00020292 00180  00134 00137 00158 00169 00179
EOFISIS   00001 00020790 00726  00896
EOFREC    00001 0002029A 00189  00768
ERROR1    00132 00020C67 01011  00091
ERROR2    00132 00020038 01012  00100
ERROR3    00132 000200B7 01013  00130
ERROR4    00132 00020E43 01014  00116
ERROR5    00132 000202C7 01015  00146
ERROR6    00132 00020748 01016  00165
ERROR7    00132 00020FCF 01017  00175
ERROR8    00132 00021053 01018  00520
FIELDSON  00001 00021057 01019  00211 00212 00212 00742
FIXED     00001 0002057A 00525  00502
FLAGERR   00004 00020179 00115  00109
FLAGLOOP  00004 00020338 00254  00265
FLAGOK    00001 00020304 00298  00296
FLDLENGT  00001 00000004 01096  00443 00457 00462
FLDLENG1  00001 00000006 01097  00444 00463
FLDLENG2  00001 00000007 01098  00449
FLDSTART  00001 00000005 01099  00443
FCONOM    00004 000201C4 00135  00124
HALF6     00002 000209FC 00995  00433 00484
IDLENGTH  00001 00000001 01094  00060 00439 00474 00475
INDLENGT  00001 00000002 01093  00139 00427 00438 00446
INPUT     00004 000208B0 00578  00032 00195
ISIS      06000 000232CC 01140  00741
ISISDATA  00004 00020ABC 00998  00007 00207 00228 00476 00623 00640 00641 00643 00672 00691 00692 00694 00709
ISISDAT1  00004 00020BAC 00657  00640 00643 00691 00694
ISISR     00004 000232C8 01139  00740
ISSUE     00001 00020662 00615  01030
ISSUEDAT  00050 000206D0 00658  00746
ISSUE10   00004 00020614 00620  00613
ISSUE50   00004 0002065C 00630  00652
ISSUE80   00006 000206E8 00648  00627 00631 00635 00654
IS1       00001 000211B8 01037  00472 00629 00633
IS2       00001 000211B9 01038  00410
IS3       00001 000211BA 01039  00550
LASTENTR  00013 000209BF 00994  00330 00332 00374 00375 00394 00408 00409
```

CELADE


```
SYMBOL    LEN   VALUE    DEFN   REFERENCES                                                       ASM 0200 11.20 02/24/78

LASIR3    00004 00020A00 00996  00309 00395 00415
LASIUNI   00003 00020C04 01010  00057
LCODEDAT  00002 00020760 00700  00674 00681 00685 00747
LCODEEN   00001 00020722 00684  01027
LCODER14  00004 0002073C 00699  00665 00687 00696
LCODESP   00001 00020718 00680  01028
LCODE100  00004 00020756 00696  00670
LCODE50   00004 00020726 00687  00682
LCODE51   00004 0002072C 00688  00675
LCODE61   00004 000206E8 00665  01026
LCOPUSER  00006 00020198 00123  00127
MOVEDATA  00001 000204E8 00471  00341 00354 00642 00693
MOVEIND   00001 00020486 00426  00352 00611 00621
NEWFIELD  00001 000203E4 00347  00329
NOFLAG    00004 00020358 00263  00256 00261
NOFLAGED  00006 0002018A 00120  00106 00113
NOREPEAT  00001 00020442 00405  00381 00393
NOSPT     00006 0002021C 00157  00155
NOTFIELD  00001 00020322 00244  00231 00240
NOTROUT   00001 00020398 00312  00308 00719
NOTSAME   00001 000203E0 00351  00331 00333 00349
OLDENTRY  00001 00020404 00453  00338 00695
OUTPUT    00004 00020910 00932  00034 00581
OUTSPUT   00003 00020924 00989  00565
PHS00001  00004 0002001C 00017  00014
PROCREC   00001 000202A0 00196  00587
PROCTAB   00001 000200CE 00069  00083 00188
PROCTAB1  00006 0002012A 00095  00088
PROCTAB2  00001 0002014C 00104  00097
PROCTAB3  00006 000201E0 00139  00121
PROCTAB4  00006 00020202 00151  00143
PROCTAB5  00004 00020210 00154  00150
PROCTAB6  00006 00020250 00170  00162
PROCTAB7  00006 00020276 00180  00172
BLN       00004 000207F0 00770  00036 00071
RECHO     00080 00021188 01080  00081
REPEAT    00001 000209E8 00993  00310 00350 00380 00416
REPORT    00001 00020702 00702  01031
REPORT10  00004 0002076E 00712  00715
REPORT20  00006 00020760 00717  00713
R0        00001 00000000 01045  00214 00236 00480 00482 00488 00509 00568 00572
R1        00001 00000001 01046  00090 00082 00084 00085 00086 00087 00095 00105 00107 00110 00120 00123 00139 00140 00141
                                00151 00154 00157 00160 00170 00180 00183 00479 00481 00570 00571 00626 00629 00630 00633
                                00634 00636 00637 00646 00649 00649 00709 00710 00713 00712 00714 00714
R10       00001 0000000A 01055  00327 00338 00341 00352 00353 00354 00428 00451 00464 00491 00512 00533 00611 00621 00622
                                00627 00631 00635 00642 00644 00655 00671 00693 00695
R11       00001 0000000B 01056  00012 00013
R12       00001 0000000C 01057  00013 00014 00014 00729
R13       00001 0000000D 01058  00018 00021 00022 00023 00727 00728 00720 00729 00730
R14       00001 0000000E 01059  00018 00023 00257 00257 00258 00259 00260 00309 00476 00477 00482 00486 00486 00487 00488
                                00489 00508 00509 00514 00546 00569 00572 00620 00623 00624 00628 00628 00632 00632 00645
                                00646 00648 00650 00650 00651 00653 00665 00667 00669 00668 00669 00672 00673 00674 00687
                                00696 00697 00716 00729 00732
R15       00001 0000000F 01060  00006 00008 00122 00123 00125 00125 00126 00135 00135 00136 00205 00206 00207 00218 00219
                                00220 00222 00241 00242 00243 00306 00307 00307 00309 00316 00317 00316 00366 00367 00370
                                00389 00390 00390 00391 00392 00437 00438 00438 00439 00439 00440 00440 00441 00441 00442
                                00445 00447 00448 00458 00459 00460 00460 00461 00479 00479 00484 00485 00487 00489 00507
                                00508 00510 00545 00546 00571 00625 00651 00711 00715 00731 00731
R3        00001 00000003 01048  00069 00081 00084 00085 00086 00112 00136 00139 00140 00153 00156 00159 00182 00185 00197
                                00187 00190 00204 00205 00206 00213 00217 00223 00223 00228 00233 00283 00295 00306 00316
                                00328 00330 00332 00348 00366 00370 00375 00376 00376 00394 00395 00409 00414 00414 00415
                                00417 00427 00436 00474 00483 00501 00511 00529 00530 00531 00577 00578 00579 00612 00619
                                00666 00717 00718
R4        00001 00000004 01049  00111 00112 00152 00153 00181 00182 00184 00185 00213 00214 00224 00229 00230 00232 00237
                                00241 00245 00245 00246 00252 00254 00255 00258 00262 00263 00263 00264 00284 00285 00367
                                00374 00406 00408 00412 00412 00413 00436 00443 00444 00449 00450 00457 00462 00463 00548
                                00568
R5        00001 00000005 01050  00197 00200 00232 00233 00253 00259 00286 00410 00411 00411 00427 00445 00446 00446 00472
                                00473 00473 00474 00475 00475 00480 00481 00550 00551 00551 00555 00561 00570 00992
R6        00001 00000006 01051  00237 00238 00239 00437 00459 00477 00478 00490 00510 00511 00513 00513 00532 00624 00625
```



```
SYMBOL    LEN   VALUE    DEFN   REFERENCES                                                       ASM 0200 11.20 02/24/78

                                00638 00673 00688 00689 00690
R7        00001 00000007 01052  00215 00215 00220 00221 00221 00222 00548 00556 00557 00557 00558 00561 00562 00577
SEARCHIS  00001 00020542 00500  00327 00622 00671
STOP      00001 00020790 00722  00323
SWERROR   00001 00020C83 01009  00094 00103 00119 00133 00149 00168 00178
TAGELOOP  00004 000202EA 00230  00247
TAGYLOOP  00001 000202L0 00216  00224
TITLE1    00133 00020A95 01003  00045
TITLE2    00133 00020B1A 01004  00050
TITLE3    00133 00020B9F 01005  00055
TITLE4    00133 00020C24 01006  00060
UNIDATA   06000 00021B58 01136  00744
UNIDIREC  02400 000211F8 01135  00743
UNIENTRY  00001 0002048E 00435  00353 00644
UNISISR   00004 000211DC 01104  00579 00582
UNISIST   00001 000211E0 01111  00007 00563 00564
UNOI      00001 000209E7 00990  00585
USEROUT   00001 0002113C 01025  00739
VCINO     00001 00020600 00606  01029
VCLNOR14  00004 000206E4 00659  00620 00645
WST       00004 00020850 00924  00038 00044 00049 00054 00059 00076 00090 00095 00115 00129 00145 00164 00174 00519
ZEROS     00005 00020CAE 01008  00096 00108 00142 00161 00171
```

CELADE


```
SYMBOL    LEN   VALUE    DEFN   REFERENCES                                                       ASM 0200 11.20 02/24/78

=A(CONTABLE)
          00004 000207A8 00738  00068 00229 00252 00283
=A(USEROUT)
          00004 000207AC 00739  00122
=A(ISISR)
          00004 000207B0 00740  00197
=A(ISIS)  00004 000207B4 00741  00204 00507
=A(FIELDSCN)
          00004 000207B8 00742  00219 00242 00253 00317 00391 00485 00667
=A(UNIDIREC)
          00004 000207BC 00743  00284 00556
=A(UNIDATA)
          00004 000207C0 00744  00286 00447 00555 00569
=V(LEADER)
          00004 000207C4 00745  00545
=A(ISSUEDAT)
          00004 000207C8 00746  00626 00636 00641
=A(LCODEDAT)
          00004 000207CC 00747  00692
=A(&&00001)
          00004 000207D0 00748  00727
=X'FFFF'  00002 000207D4 00749  00190
=XL2'FFFF'
          00002 000207D6 00750  00246 00264 00417
=H'4'     00002 000207D8 00751  00578
=CL2'31'  00002 000207DA 00752  00612
=CL2'32'  00002 000207DC 00753  00619
=H'0'     00002 000207DE 00754  00639 00690
=CL2'61'  00002 000207E0 00755  00666
=CL2'EG'  00002 000207E2 00756  00681
=CL2'EN'  00002 000207E4 00757  00685
=H'2'     00002 000207E6 00758  00689
=H'36'    00002 000207E8 00759  00717
=CL2'36'  00002 000207EA 00760  00718
=X'F0'    00001 000207EC 00761  00444 00450 00463 00560 00564
```

CELADE


```
                                                                                                 ASM 0200 11.20 02/24/78

NO STATEMENTS FLAGGED IN THIS ASSEMBLY
HIGHEST SEVERITY WAS    0
OPTIONS FOR THIS ASSEMBLY
  ALIGN, ALOGIC, BUFSIZE(STD), NODECK, ESD, FLAG(0), LINECOUNT(70), LIST, NOMCALL, NOYFLAG
  NOMLOGIC, NONUMBER, OBJECT, NORENT, RLD, STMT, NOLIBMAC, TERMINAL, NOTEST, XREF(SHORT)
  SYSPARM()
WORK FILE BUFFER SIZE = 7294
TOTAL RECORDS READ FROM SYSTEM INPUT          833
TOTAL RECORDS READ FROM SYSTEM LIBRARY       2519
TOTAL RECORDS PUNCHED                          96
TOTAL RECORDS PRINTED                        1163
```

CELADE

```
                                  EXTERNAL SYMBOL DICTIONARY                              PAGE    1

SYMBOL   TYPE  ID   ADDR   LENGTH LDID                                        ASM 0200 10.41 02/24/78
LEADER    SD  0001 000000 000154
UNISIST   ER  0002
ISISDATA  ER  0003
```

CELADE

```
                                                                                              PAGE    2

  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                               ASM 0200 10.41 02/24/78

                                      1 *                                                            LEA00010
                                      2 *  LEADER  -  GENERATE SUBSTANTIVE BYTES OF THE LEADER       LEA00020
                                      3 *                                                            LEA00030
000000                                4 LEADER   CSECT                                               LEA00040
                               00000  5          USING LEADER,R15           TEMPORALY BASE REGISTER  LEA00050
000000 900F F114      00114           6          STM   R0,R15,SAVEAREA      SAVE REGISTER            LEA00060
000004 18CF                           7          LR    R12,R15              START OF THE SUBROUTINE  LEA00070
                                      8          DROP  R15                  DROP R15                 LEA00080
                               00000  9          USING LEADER,R12     R12=BASE REGISTER              LEA00090
                                     10 *                                                            LEA00100
                                     11 *                                                            LEA00110
                                     12 *      R4 - UNISIST LEADER                                   LEA00120
                                     13 *      R3 - LITERATURE TYPE (ISIS FIXED FIELD - POSITION 17, LENGTH 3) LEA00130
                                     14 *                                                            LEA00140
000006 5840 C108      00108          15          L     R4,=V(UNISIST)       POINTS TO UNISIST LEADER LEA00150
00000A 9200 4006      00006          16          MVI   6(R4),0              ASUMES X'00' IN 'LITERATURE TYPE' LEA00160
00000E 9200 4009      00009          17          MVI   9(R4),0              ASUMES X'00' IN BIB LEVEL LEA00170
000012 5830 C10C      0010C          18          L     R3,=V(ISISDATA)      POINT TO START ISIS DATA ADDRESS LEA00180
000016 5833 0000      00000          19          L     R3,0(R3)            LOAD THE ADRESS OF START DATA IN ISIS LEA00190
00001A 4133 0011      00011          20          LA    R3,17(R3)            POINT TO LITERATURE TYPE LEA00200
                                     21 *                                                            LEA00210
                                     22 *    SEARCH FIRST IF I IS PRESENT   -- IF YES, REPORT IS ASIGNED.  LEA00220
                                     23 *                                                            LEA00230
00001E 92C9 C110      00110          24          MVI   CODE,C'I'            SEARCH FOR 'I'           LEA00240
000022 45A0 C0DA      000DA          25          BAL   R10,SEARCH           SEARCH ROUTINE           LEA00250
000026 12FF                          26          LTR   R15,R15              'I' PRESENT?             LEA00260
000028 4770 C076      00076          27          BNE   REPORT               YES, ASIGN 'REPORT'      LEA00270
00002C 92E3 C110      00110          28          MVI   CODE,C'T'            SEARCH FOR THESIS        LEA00280
000030 45A0 C0DA      000DA          29          BAL   R10,SEARCH           ROUTINE FOR SEARCH       LEA00290
000034 12FF                          30          LTR   R15,R15              'T' IS PRESENT?          LEA00300
000036 4770 C07E      0007E          31          BNE   THESIS               YES, ASSIGN 'THESIS'     LEA00310
00003A 92C3 C110      00110          32          MVI   CODE,C'C'            SEARCH FOR 'CONFERENCE'  LEA00320
00003E 45A0 C0DA      000DA          33          BAL   R10,SEARCH           ROUTINE FOR SEARCH       LEA00330
000042 12FF                          34          LTR   R15,R15              'C' PRESENT              LEA00340
000044 4770 C086      00086          35          BNE   CONFEREN             YES, ASSGIN 'CONFERENCE' LEA00350
000048 92D3 C110      00110          36          MVI   CODE,C'L'            SEARCH FOR 'BOOK'        LEA00360
00004C 45A0 C0DA      000DA          37          BAL   R10,SEARCH           ROUTINE FOR SEARCH       LEA00370
000050 12FF                          38          LTR   R15,R15              'L' IS PRESENT?          LEA00380
000052 4770 C096      00096          39          BNE   BOOK                 YES, ASSIGN 'BOOK'       LEA00390
000056 92D7 C110      00110          40          MVI   CODE,C'P'            SEARCH FOR 'SERIAL'      LEA00400
00005A 45A0 C0DA      000DA          41          BAL   R10,SEARCH           ROUTINE FOR SEARCH       LEA00410
00005E 12FF                          42          LTR   R15,R15              'P' IS PRESENT?          LEA00420
000060 4770 C08E      0008E          43          BNE   SERIAL               YES, ASSIGN 'SERIAL'     LEA00430
000064 92E5 C110      00110          44          MVI   CODE,C'V'            SEARCH FOR 'NON-CONVENTIONAL' LEA00440
000068 45A0 C0DA      000DA          45          BAL   R10,SEARCH           ROUTINE FOR SEARCH       LEA00450
00006C 12FF                          46          LTR   R15,R15              'V' IS PRESENT?          LEA00460
00006E 4770 C09E      0009E          47          BNE   NONCONVE             YES, ASSIGN 'NON CONVENTIONAL' LEA00470
                                     48 *                                                            LEA00480
                                     49 *  ERROR -- CODIGO NO DETERMINADO -- BYTE 6 = 0              LEA00490
                                     50 *                                                            LEA00500
000072 47F0 C0A2      000A2          51          B     BLEVEL               GO TO GENERATION OF BIB LEVEL LEA00510
                                     52 * ASSIGN REPORT - BIT 5 = 1                                  LEA00520
000076 9604 4006      00006          53 REPORT   OI    6(R4),B'00000100'    1 IN BIT 5               LEA00530
00007A 47F0 C0A2      000A2          54          B     BLEVEL               GOTO ASSIGN BIB LEVEL    LEA00540
                                     55 * ASSIGN 'THESIS'                                            LEA00550
00007E 9608 4006      00006          56 THESIS   OI    6(R4),B'00001000'    1 IN BIT 4               LEA00560
000082 47F0 C0A2      000A2          57          B     BLEVEL               GOTO ASSIGN BIB LEVEL    LEA00570
                                     58 * ASSIGN 'CONFERENCE'                                        LEA00580
000086 9620 4006      00006          59 CONFEREN OI    6(R4),B'00100000'    1 IN BIT 2               LEA00590
00008A 47F0 C0A2      000A2          60          B     BLEVEL               GOTO ASSIGN BIB LEVEL    LEA00600
                                     61 * ASSIGN 'SERIAL'                                            LEA00610
00008E 9601 4006      00006          62 SERIAL   OI    6(R4),B'00000001'    1 IN BIT 7               LEA00620
000092 47F0 C0A2      000A2          63          B     BLEVEL               GOTO ASSIGN BIB LEVEL    LEA00630
                                     64 * ASSIGN BOOK                                                LEA00640
000096 9602 4006      00006          65 BOOK     OI    6(R4),B'00000010'    1 IN BIT 6               LEA00650
00009A 47F0 C0A2      000A2          66          B     BLEVEL               GOTO ASSIGN BIB LEVEL    LEA00660
                                     67 *                                                            LEA00670
                                     68 * DOCPAL DECISION - ASSIGN 'NON CONVENTIONAL PUBLICATIONS'   LEA00680
                                     69 *                   BIT 1 = 1 ( IN RM IS RESERVED FOR 'FUTURE USE')  LEA00690
                                     70 *                                                            LEA00700
00009E 9640 4006      00006          71 NONCONVE OI    6(R4),B'01000000'    1 IN BIT 1               LEA00710

                                     73 *                                                            LEA00730
                                     74 *    ASSIGN BIBLIOGRAPHICAL LEVEL   IN POSITION 9            LEA00740
                                     75 *                                                            LEA00750
                               000A2 76 BLEVEL   EQU   *                                             LEA00760
0000A2 4133 0003      00003          77          LA    R3,3(R3)             POINT TO 'BIB LEVEL' IN ISIS RECORD LEA00770
0000A6 9594 3000      00000          78          CLI   0(R3),C'm'           IS 'm' ( MONOGRAPH) ?    LEA00780
                                                                                              PAGE    3

  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                               ASM 0200 10.41 02/24/78

0000AA 4780 C0C2      000C2          79          BE    MONO                 YES, ASSGIN 'MONOGRAPHIC LEVEL' LEA00790
0000AE 9581 3000      00000          80          CLI   0(R3),C'a'           IS 'a' ( ANALYTIC)?      LEA00800
0000B2 4780 C0CA      000CA          81          BE    ANAL                 YES, ASSGIN 'ANALYTIC LEVEL' LEA00810
0000B6 9583 3000      00000          82          CLI   0(R3),C'c'           IS 'c' (COLLECTIVE) ?    LEA00820
0000BA 4780 C0D2      000D2          83          BE    COLLE                YES, ASSIGN 'COLLECTIVE LEVEL'. LEA00830
                                     84 *                                                            LEA00840
                                     85 * ERROR IN BIBLIOGRAPHICAL LEVEL - POSITION 9 = 0            LEA00850
                                     86 *                                                            LEA00860
0000BE 47F0 C0FC      000FC          87          B     RETURN               GOTO TO RETURN           LEA00870
                                     88 * ASSIGN MONOGRAPHIC LEVEL                                   LEA00880
0000C2 9602 4009      00009          89 MONO     OI    9(R4),B'00000010'    1 IN BIT 6               LEA00890
0000C6 47F0 C0FC      000FC          90          B     RETURN               GOTO RETURN              LEA00900
                                     91 * ASSIGN 'ANALITICAL LEVEL'                                  LEA00910
0000CA 9601 4009      00009          92 ANAL     OI    9(R4),B'00000001'    1 IN BIT 7               LEA00920
0000CE 47F0 C0FC      000FC          93          B     RETURN               GOTO TO RETURN           LEA00930
                                     94 * ASSIGN 'COLLECTIVE LEVEL'                                  LEA00940
0000D2 9604 4009      00009          95 COLLE    OI    9(R4),B'00000100'    1 IN BIT 5               LEA00950
0000D6 47F0 C0FC      000FC          96          B     RETURN               GOTO RETURN              LEA00960

                                     98 *                                                            LEA00980
                                     99 * ROUTINE FOR SEARCH A CODE IN LITERATURE TYPE               LEA00990
                                    100 *                                                            LEA01000
                               000DA 101 SEARCH  EQU   *                                             LEA01010
0000DA 17FF                         102          XR    R15,R15              R15 = 0, ASUMES CODE NOT FOUND LEA01020
0000DC 1853                         103          LR    R5,R3                R5 POINT TO LITERATURE TYPE IN ISIS LEA01030
0000DE 4170 0003      00003         104          LA    R7,3                 3 POSITIONS              LEA01040
0000E2 D500 5000 C110 00000 00110   105 SEARCH1  CLC   0(1,R5),CODE         COMPARE WITH GIVEN CODE  LEA01050
0000E8 4780 C0F6      000F6         106          BE    SEARCH2              CODE IS PRESENT          LEA01060
0000EC 4155 0001      00001         107          LA    R5,1(R5)             NO, UPDATE R5            LEA01070
0000F0 4670 C0E2      000E2         108          BCT   R7,SEARCH1           CONTINUE LOOP            LEA01080
0000F4 07FA                         109          BR    R10                  RETURN, CODE NOT FOUND   LEA01090
0000F6 41F0 0001      00001         110 SEARCH2  LA    R15,1                CODE FOUND               LEA01100
0000FA 07FA                         111          BR    R10                  RETURN                   LEA01110

                                    113 * END OF THE LEADER ROUTINE                                  LEA01130
                               000FC 114 RETURN  EQU   *                                             LEA01140
0000FC 980F C114      00114         115          LM    R0,R15,SAVEAREA         RESTORE REGISTER      LEA01150
000100 07FE                         116          BR    R14                  RETURN                   LEA01160
000108                              117          LTORG                                               LEA01170
000108 00000000                     118                =V(UNISIST)
00010C 00000000                     119                =V(ISISDATA)
                                    120          REGEQU                                              LEA01180
                                    121+         PUSH  PRINT                                         00002200
                                    122+*                                                            00003000
                                    123+***      SYMBOLIC REGISTER EQUATES                           00004000
                                    124+*                                                            00005000
                                    126+* GENERAL PURPOSE REGISTERS                                  00007000
                               00000 128+R0      EQU   0                                             00009000
                               00001 129+R1      EQU   1                                             00010000
                               00002 130+R2      EQU   2                                             00011000
                               00003 131+R3      EQU   3                                             00012000
                               00004 132+R4      EQU   4                                             00013000
                               00005 133+R5      EQU   5                                             00014000
                               00006 134+R6      EQU   6                                             00015000
                               00007 135+R7      EQU   7                                             00016000
                               00008 136+R8      EQU   8                                             00017000
                               00009 137+R9      EQU   9                                             00018000
                               0000A 138+R10     EQU   10                                            00019000
                               0000B 139+R11     EQU   11                                            00020000
                               0000C 140+R12     EQU   12                                            00021000
                               0000D 141+R13     EQU   13                                            00022000
                               0000E 142+R14     EQU   14                                            00023000
                               0000F 143+R15     EQU   15                                            00024000
                                    145+* FLOATING POINT REGISTERS                                   00026000
                               00000 147+F0      EQU   0                                             00028000
                               00002 148+F2      EQU   2                                             00029000
                               00004 149+F4      EQU   4                                             00030000
                               00006 150+F6      EQU   6                                             00031000
                                    152+* EXTENDED CONTROL REGISTERS                                 00033000
                               00000 154+C0      EQU   0                                             00035000
```

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```
                                                                                              PAGE    4

  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                               ASM 0200 10.41 02/24/78

                               00001 155+C1      EQU   1                                             00036000
                               00002 156+C2      EQU   2                                             00037000
                               00003 157+C3      EQU   3                                             00038000
                               00004 158+C4      EQU   4                                             00039000
                               00005 159+C5      EQU   5                                             00040000
                               00006 160+C6      EQU   6                                             00041000
                               00007 161+C7      EQU   7                                             00042000
                               00008 162+C8      EQU   8                                             00043000
                               00009 163+C9      EQU   9                                             00044000
                               0000A 164+C10     EQU   10                                            00045000
                               0000B 165+C11     EQU   11                                            00046000
                               0000C 166+C12     EQU   12                                            00047000
                               0000D 167+C13     EQU   13                                            00048000
                               0000E 168+C14     EQU   14                                            00049000
                               0000F 169+C15     EQU   15                                            00050000
```

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                                                                                              PAGE    5

  LOC  OBJECT CODE    ADDR1 ADDR2  STMT   SOURCE STATEMENT                               ASM 0200 10.41 02/24/78

                                    171+         POP   PRINT                                         00051000
000110                              172 CODE     DS    CL1         CODE TO SEARCH IN LITERATURE TYPE LEA01190
000114                              173 SAVEAREA DS    16F         REGISTERS SAVE AREA               LEA01200
                                    174          END                                                 LEA01210

                               RELOCATION DICTIONARY                                          PAGE    6

POS.ID  REL.ID  FLAGS  ADDRESS                                                        ASM 0200 10.41 02/24/78

 0001    0002    1C    000108
 0001    0003    1C    00010C
```

CELADE

```
                                      CROSS-REFERENCE                                         PAGE    7

SYMBOL    LEN   VALUE    DEFN   REFERENCES                                            ASM 0200 10.41 02/24/78

ANAL     00004 000000CA 00092  00081
BLEVEL   00001 000000A2 00076  00051 00054 00057 00060 00063 00066
BOOK     00004 00000096 00065  00039
CODE     00001 00000110 00172  00024 00028 00032 00036 00040 00044 00105
COLLE    00004 000000D2 00095  00083
CONFEREN 00004 00000086 00059  00035
LEADER   00001 00000000 00004  00005 00009
MONO     00004 000000C2 00089  00079
NONCONVE 00004 0000009E 00071  00047
REPORT   00004 00000076 00053  00027
RETURN   00001 000000FC 00114  00087 00090 00093 00096
R0       00001 00000000 00128  00006 00115
R10      00001 0000000A 00138  00025 00029 00033 00037 00041 00045 00109 00111
R12      00001 0000000C 00140  00007 00009
R14      00001 0000000E 00142  00116
R15      00001 0000000F 00143  00005 00006 00007 00008 00026 00026 00030 00030 00034 00034 00038 00038 00042 00042 00046
                               00046 00102 00102 00110 00115
R3       00001 00000003 00131  00018 00019 00019 00020 00020 00077 00077 00078 00080 00082 00103
R4       00001 00000004 00132  00015 00016 00017 00053 00056 00059 00062 00065 00071 00089 00092 00095
R5       00001 00000005 00133  00103 00105 00107 00107
R7       00001 00000007 00135  00104 00108
SAVEAREA 00004 00000114 00173  00006 00115
SEARCH   00001 000000DA 00101  00025 00029 00033 00037 00041 00045
SEARCH1  00006 000000E2 00105  00108
SEARCH2  00004 000000F6 00110  00106
SERIAL   00004 0000008E 00062  00043
THESIS   00004 0000007E 00056  00031
```

CELADE

```
                                  LITERAL CROSS-REFERENCE                                     PAGE    8

SYMBOL    LEN   VALUE    DEFN   REFERENCES                                            ASM 0200 10.41 02/24/78

=V(UNISIST)
         00004 00000108 00118  00015
=V(ISISDATA)
         00004 0000010C 00119  00018
```

CELADE

```
                             ASSEMBLER DIAGNOSTICS AND STATISTICS                             PAGE    9

                                                                                      ASM 0200 10.41 02/24/78

NO STATEMENTS FLAGGED IN THIS ASSEMBLY
HIGHEST SEVERITY WAS    0
OPTIONS FOR THIS ASSEMBLY
  ALIGN, ALOGIC, BUFSIZE(STD), NODECK, ESD, FLAG(0), LINECOUNT(80), LIST, NOMCALL, NOYFLAG
  NOMLOGIC, NONUMBER, OBJECT, NORENT, RLD, NOSTMT, NOLIBMAC, TERMINAL, NOTEST, XREF(SHORT)
  SYSPARM()
WORK FILE BUFFER SIZE = 7294
TOTAL RECORDS READ FROM SYSTEM INPUT      121
TOTAL RECORDS READ FROM SYSTEM LIBRARY     57
TOTAL RECORDS PUNCHED                       5
TOTAL RECORDS PRINTED                     240
```

ANNEX 1-B. Listing of the COBOL Program to List DRM Records

```
C6545 V2 LVL78 01MAY72          IBM OS AMERICAN NATIONAL STANDARD COBOL          DATE FEB 23,1978

1

       IDENTIFICATION DIVISION.
       PROGRAM-ID. ISOLIST.
       INSTALLATION. IBM-370-145 U. DE CHILE. SANTIAGO. CHILE.
       REMARKS. LIST UNISIST ISO 2709 FORMAT 4 RECORDS.
       ENVIRONMENT DIVISION.
       CONFIGURATION SECTION.
       SOURCE-COMPUTER. IBM-370.
       INPUT-OUTPUT SECTION.
       FILE-CONTROL.
           SELECT DOCUMENTS ASSIGN TO UT-2400-S-INPUT.
           SELECT LISTING ASSIGN TO UR-1443-S-OUTPUT.
       DATA DIVISION.
       FILE SECTION.
       FD  DOCUMENTS LABEL RECORDS ARE OMITTED
           RECORDING MODE IS V BLOCK CONTAINS 0 RECORDS
           RECORD CONTAINS 24 TO 10000 CHARACTERS
           DATA RECORDS ARE INPUT-RECORD, LEADER.
       01  LEADER.
           02  RECORD-LENGTH PICTURE 9(5).
           02  RECORD-STATUS-CHARACTER PICTURE X.
           02  IMPLEMENTATION-CODES.
               03  LITERATURE-TYPE-CODES.
                   04  CHARACTER-SEVEN PICTURE X.
                   04  CHARACTER-EIGTH PICTURE X.
                   04  CHARACTER-NINE PICTURE X.
               03  BIBLIOGRAPHIC-LEVEL-CODE PICTURE X.
           02  INDICATOR-LENGTH PICTURE 9.
           02  IDENTIFIER-LENGTH PICTURE 9.
           02  BASE-ADDRESS-OF-DATA PICTURE 9(5).
           02  USER-SYSTEMS PICTURE XXX.
           02  LENGTH-OF-LENGTH-OF-ENTRY PICTURE 9.
           02  LENGTH-OF-START-CHAR-POS-FIELD PICTURE 9.
           02  FUTURE-USE PICTURE XX.
           02  DIRECTORY OCCURS 500 DEPENDING ON NUMBER-OF-ENTRIES.
               03  TAG-NUMBER PICTURE XXX.
               03  ENTRY-DIGITS PICTURE 9 OCCURS 9.
       01  INPUT-RECORD.
           02  RECORD-INFORMATION PICTURE X OCCURS 10000 DEPENDING ON
           RECORD-LENGTH.
       FD  LISTING LABEL RECORDS ARE OMITTED
           RECORDING MODE IS F RECORD CONTAINS 121 CHARACTERS
           DATA RECORD IS PRINT-RECORD.
       01  PRINT-RECORD PICTURE X(121).
       WORKING-STORAGE SECTION.
       77  NUMBER-OF-ENTRIES PICTURE 9(3).
       77  DIRECTORY-LENGTH PICTURE 9(4).
       77  ENTRY-COUNT PICTURE 9(4).
       77  DATA-FIELD-LENGTH PICTURE 9(5).
       77  NUMBER-OF-DIGITS PICTURE 9(5).
       77  START-CHARACTER-POSITION PICTURE 9(5).
       77  START-OF-INFORMATION PICTURE 9(5).
       77  DIGIT-COUNTER PICTURE 9(5).
       77  ACTUAL-CHARACTER PICTURE 9(5).
       77  UPPER-LIMIT PICTURE 9(5).
       77  NEW-CHAR PICTURE X.
       77  IDENTIFIER-KEY PICTURE X VALUE '@'.
       77  P-CONTROL PICTURE X.
       77  DOCUMENTS-COUNTER PICTURE 9(7) VALUE ZERO.
       77  TRANSLATED-BYTE PICTURE 999.
       01  SCRATCH.
           02  SCRATCH1.
               03  TRANS-BYTE PICTURE 999 COMPUTATIONAL VALUE ZERO.
           02  SCRATCH2 REDEFINES SCRATCH1.
               03  FILLER PICTURE X.
               03  TRANSLATE-CODE PICTURE X.
       01  LITERATURE-TYPE-TABLE.
           02  LITERATURE-TYPE-DUMMY.
               03  FILLER PICTURE X(25) VALUE 'NOT-CODED'.
               03  FILLER PICTURE X(25) VALUE 'SERIAL'.
               03  FILLER PICTURE X(25) VALUE 'BOOK'.
               03  FILLER PICTURE X(25) VALUE 'REPORT'.
               03  FILLER PICTURE X(25) VALUE 'TESSIS OR DISSERTATION'.
               03  FILLER PICTURE X(25) VALUE 'PATENT DOCUMENT'.
               03  FILLER PICTURE X(25) VALUE 'CONFERENCE PUBLICATION'.

2

               03  FILLER PICTURE X(25) VALUE 'RESERVED FUTURE USE'.
               03  FILLER PICTURE X(25) VALUE 'RESERVED FUTURE USE'.
           02  LITERATURE-TYPE-LIST REDEFINES
               LITERATURE-TYPE-DUMMY PICTURE X(25) OCCURS 9.
       01  BIBLIOGRAPHIC-LEVEL-TABLE.
           02  BIBLIOGRAPHIC-LEVEL-DUMMY.
               03  FILLER PICTURE X(25) VALUE 'NOT CODED'.
               03  FILLER PICTURE X(25) VALUE 'ANALITIC'.
               03  FILLER PICTURE X(25) VALUE 'MONOGRAPHIC'.
               03  FILLER PICTURE X(25) VALUE 'COLLECTIVE'.
               03  FILLER PICTURE X(25) VALUE 'RESERVED FUTURE USE'.
               03  FILLER PICTURE X(25) VALUE 'RESERVED FUTURE USE'.
               03  FILLER PICTURE X(25) VALUE 'RESERVED FUTURE USE'.
               03  FILLER PICTURE X(25) VALUE 'RESERVED FUTURE USE'.
               03  FILLER PICTURE X(25) VALUE 'RESERVED FUTURE USE'.
           02  BIBLIOGRAPHIC-LEVEL-LIST REDEFINES
               BIBLIOGRAPHIC-LEVEL-DUMMY PICTURE X(25) OCCURS 9.
       01  LINE-PRINT.
           02  FILLER PICTURE X.
           02  TAG-PRINT PICTURE XXX.
           02  FILLER PICTURE XX.
           02  INDICATOR-PRINT PICTURE 9 OCCURS 4.
           02  FILLER PICTURE XX.
           02  IDENTIFIER-PRINT PICTURE 9 OCCURS 4.
           02  FILLER PICTURE X(2).
           02  DATA-PRINT PICTURE X OCCURS 100.
           02  FILLER PICTURE XXX.
       01  TITLE1.
           02  FILLER PICTURE X(121) VALUE
               ' CELADE-COMPUTACION.  SANTIAGO.  CHILE.    '.
       01  TITLE2.
           02  FILLER PICTURE X(121) VALUE
               ' '.
       01  FILE1.
           02  FILLER PICTURE X(42) VALUE
               '        UNISIST FILE STRUCTURE DESCRIPTION :'.
           02  FILLER PICTURE X(24) VALUE '      INDICATOR LENGTH : '.
           02  PR-INDIC PICTURE 9.
           02  FILLER PICTURE X(44) VALUE SPACES.
       01  FILE2.
           02  FILLER PICTURE X(46) VALUE SPACES.
           02  FILLER PICTURE X(20) VALUE 'IDENTIFIER LENGTH : '.
           02  PR-IDENT PICTURE 9.
           02  FILLER PICTURE X(46) VALUE SPACES.
       01  FILE3.
           02  FILLER PICTURE X(32) VALUE SPACES.
           02  FILLER PICTURE X(34) VALUE
               'LENGTH OF LENGTH OF ENTRY FIELD : '.
           02  PR-ENTRY PICTURE 9.
           02  FILLER PICTURE X(54) VALUE SPACES.
       01  FILE4.
           02  FILLER PICTURE X(23) VALUE SPACES.
           02  FILLER PICTURE X(43) VALUE
               'LENGTH OF START CHARACTER POSITION FIELD : '.
           02  PR-POSITION PICTURE 9.
           02  FILLER PICTURE X(54) VALUE SPACES.
       01  LEADER1.
           02  FILLER PICTURE X(53) VALUE
               '            LEADER DESCRIPTION: UNISIST RECORD NUMBER: '.
           02  PR-COUNT PICTURE ZZZZ9.
           02  FILLER PICTURE X(9) VALUE ' LENGTH: '.
           02  PR-LENGTH PICTURE ZZZZ9.
           02  FILLER PICTURE X(10) VALUE '  STATUS: '.
           02  PR-STATUS PICTURE X.
           02  FILLER PICTURE X(28) VALUE SPACES.
       01  LEADER2.
           02  FILLER PICTURE X(30) VALUE SPACES.
           02  FILLER PICTURE X(22) VALUE 'IMPLEMENTATION CODES: '.
           02  FILLER PICTURE X(23) VALUE '     LITERATURE TYPE : '.
           02  PR-SEVEN PICTURE X(25).
           02  FILLER PICTURE X(21) VALUE SPACES.
       01  LEADER3.
           02 FILLER PICTURE X(52) VALUE SPACES.
           02  FILLER PICTURE X(23) VALUE ' BIBLIOGRAPHIC LEVEL : '.
           02  PR-LEVEL PICTURE X(25).
           02  FILLER PICTURE X(21) VALUE SPACES.
       01  TITLE3.

3

           02  FILLER PICTURE X(121) VALUE
               ' '.
       01  TITLE4.
           02  FILLER PICTURE X(121) VALUE
               ' TAG INDI- SUB-   DATA  '.
       01  TITLE5.
           02  FILLER PICTURE X(121) VALUE
               '      CATOR FIELD'.
       01  LAST-TITLE.
           02  FILLER PICTURE X(121) VALUE
               ' NORMAL END OF DOCUMENTS LISTING. '.
       PROCEDURE DIVISION.
           OPEN INPUT DOCUMENTS.
           OPEN OUTPUT LISTING.
       PROCESS-DOCUMENTS.
           READ DOCUMENTS AT END GO TO CLOSE-FILES.
           PERFORM LEADER-LISTING THRU EXIT-LEADER-LISTING.
           ADD 1 TO BASE-ADDRESS-OF-DATA.
           SUBTRACT 25 FROM BASE-ADDRESS-OF-DATA
                   GIVING DIRECTORY-LENGTH.
           DIVIDE DIRECTORY-LENGTH BY 12
                   GIVING NUMBER-OF-ENTRIES.
           MOVE ZERO TO ENTRY-COUNT.
           SUBTRACT 1 FROM IDENTIFIER-LENGTH.
       TAG-LISTING.
           MOVE '0' TO P-CONTROL.
           ADD 1 TO ENTRY-COUNT.
           MOVE TAG-NUMBER (ENTRY-COUNT) TO TAG-PRINT.
           MOVE ZERO TO DATA-FIELD-LENGTH, NUMBER-OF-DIGITS.
           PERFORM ADD-DATAFIELD-LENGTH
                   LENGTH-OF-LENGTH-OF-ENTRY TIMES.
           MOVE ZERO TO START-CHARACTER-POSITION.
           PERFORM ADD-START-CHARACTER-POSITION
                   LENGTH-OF-START-CHAR-POS-FIELD TIMES.
           ADD START-CHARACTER-POSITION TO BASE-ADDRESS-OF-DATA
                   GIVING START-OF-INFORMATION.
           MOVE ZERO TO DIGIT-COUNTER.
           MOVE START-OF-INFORMATION TO ACTUAL-CHARACTER.
           PERFORM MOVE-INDICATOR INDICATOR-LENGTH TIMES.
           ADD DATA-FIELD-LENGTH TO START-OF-INFORMATION
                   GIVING UPPER-LIMIT.
           SUBTRACT 1 FROM UPPER-LIMIT.
           PERFORM DATA-LISTING THRU EXIT-DATA-LISTING
                   UNTIL ACTUAL-CHARACTER IS EQUAL TO UPPER-LIMIT.
           IF ENTRY-COUNT IS LESS THAN NUMBER-OF-ENTRIES
                   GO TO TAG-LISTING.
           GO TO PROCESS-DOCUMENTS.
       CLOSE-FILES.
           CLOSE DOCUMENTS.
           WRITE PRINT-RECORD FROM LAST-TITLE AFTER POSITIONING 0.
           CLOSE LISTING.
           STOP RUN.
      *
      *    PARAGRAPHS CALLED WITH PERFORM.
      *
       DATA-LISTING.
           MOVE ZERO TO DIGIT-COUNTER.
           ADD 1 TO ACTUAL-CHARACTER.
           PERFORM MOVE-IDENTIFIER IDENTIFIER-LENGTH TIMES.
           MOVE ZERO TO DIGIT-COUNTER.
       NEXT-CHAR.
           IF ACTUAL-CHARACTER IS EQUAL TO UPPER-LIMIT
               GO TO EXIT-DATA-LISTING.
           IF DIGIT-COUNTER IS EQUAL TO 100 PERFORM WRITE-LINE.
           MOVE RECORD-INFORMATION (ACTUAL-CHARACTER) TO NEW-CHAR.
           IF NEW-CHAR IS EQUAL TO IDENTIFIER-KEY
                   GO TO EXIT-DATA-LISTING.
           ADD 1 TO DIGIT-COUNTER.
           MOVE NEW-CHAR TO DATA-PRINT (DIGIT-COUNTER).
           ADD 1 TO ACTUAL-CHARACTER.
           GO TO NEXT-CHAR.
       EXIT-DATA-LISTING.
           IF DIGIT-COUNTER IS NOT EQUAL TO ZERO PERFORM WRITE-LINE.
       ADD-DATAFIELD-LENGTH.
           ADD 1 TO NUMBER-OF-DIGITS.
           MULTIPLY 10 BY DATA-FIELD-LENGTH.
           ADD ENTRY-DIGITS (ENTRY-COUNT, NUMBER-OF-DIGITS)

4

                   TO DATA-FIELD-LENGTH.
       ADD-START-CHARACTER-POSITION.
           ADD 1 TO NUMBER-OF-DIGITS.
           MULTIPLY 10 BY START-CHARACTER-POSITION.
           ADD ENTRY-DIGITS (ENTRY-COUNT, NUMBER-OF-DIGITS)
                   TO START-CHARACTER-POSITION.
       MOVE-INDICATOR.
           ADD 1 TO DIGIT-COUNTER.
           MOVE RECORD-INFORMATION (ACTUAL-CHARACTER) TO
                   INDICATOR-PRINT (DIGIT-COUNTER).
           ADD 1 TO ACTUAL-CHARACTER.
       MOVE-IDENTIFIER.
           ADD 1 TO DIGIT-COUNTER.
           MOVE RECORD-INFORMATION (ACTUAL-CHARACTER) TO
                   IDENTIFIER-PRINT (DIGIT-COUNTER).
           ADD 1 TO ACTUAL-CHARACTER.
       WRITE-LINE.
           WRITE PRINT-RECORD FROM LINE-PRINT AFTER POSITIONING
                   P-CONTROL.
           MOVE SPACES TO P-CONTROL, LINE-PRINT.
           MOVE ZERO TO DIGIT-COUNTER.
       LEADER-LISTING.
           WRITE PRINT-RECORD FROM TITLE1 AFTER POSITIONING 0..
           MOVE '0' TO P-CONTROL.
           WRITE PRINT-RECORD FROM TITLE2 AFTER POSITIONING P-CONTROL.
           ADD 1 TO DOCUMENTS-COUNTER
           IF DOCUMENTS-COUNTER IS NOT EQUAL TO 1 GO TO
                               NO-FILE-STRUCTURE.
           MOVE INDICATOR-LENGTH TO PR-INDIC.
           MOVE IDENTIFIER-LENGTH TO PR-IDENT.
           MOVE LENGTH-OF-LENGTH-OF-ENTRY TO PR-ENTRY.
           MOVE LENGTH-OF-START-CHAR-POS-FIELD TO PR-POSITION.
           WRITE PRINT-RECORD FROM FILE1 AFTER POSITIONING P-CONTROL.
           WRITE PRINT-RECORD FROM FILE2 AFTER POSITIONING P-CONTROL.
           WRITE PRINT-RECORD FROM FILE3 AFTER POSITIONING P-CONTROL.
           WRITE PRINT-RECORD FROM FILE4 AFTER POSITIONING P-CONTROL.
           GO TO LEADER-LISTING.
       NO-FILE-STRUCTURE.
           MOVE DOCUMENTS-COUNTER TO PR-COUNT.
           MOVE RECORD-LENGTH TO PR-LENGTH.
           MOVE RECORD-STATUS-CHARACTER TO PR-STATUS.
           MOVE 1 TO TRANSLATED-BYTE.
           MOVE CHARACTER-SEVEN TO TRANSLATE-CODE.
           PERFORM OBTAIN-INDEX UNTIL TRANS-BYTE IS EQUAL TO ZERO.
           MOVE LITERATURE-TYPE-LIST (TRANSLATED-BYTE) TO PR-SEVEN.
           MOVE 1 TO TRANSLATED-BYTE.
           MOVE BIBLIOGRAPHIC-LEVEL-CODE TO TRANSLATE-CODE.
           PERFORM OBTAIN-INDEX UNTIL TRANS-BYTE IS EQUAL TO ZERO.
           MOVE BIBLIOGRAPHIC-LEVEL-LIST (TRANSLATED-BYTE)
                           TO PR-LEVEL.
           WRITE PRINT-RECORD FROM LEADER1 AFTER POSITIONING P-CONTROL.
           WRITE PRINT-RECORD FROM LEADER2 AFTER POSITIONING P-CONTROL.
           WRITE PRINT-RECORD FROM LEADER3 AFTER POSITIONING P-CONTROL.
           WRITE PRINT-RECORD FROM TITLE3 AFTER POSITIONING P-CONTROL.
           WRITE PRINT-RECORD FROM TITLE4 AFTER POSITIONING P-CONTROL.
           WRITE PRINT-RECORD FROM TITLE5 AFTER POSITIONING P-CONTROL.
           MOVE '0' TO P-CONTROL.
           MOVE SPACES TO LINE-PRINT.
           WRITE PRINT-RECORD FROM LINE-PRINT AFTER POSITIONING
                                   P-CONTROL.
       EXIT-LEADER-LISTING.
           EXIT.
       OBTAIN-INDEX.
           COMPUTE TRANS-BYTE = TRANS-BYTE / 2.
           ADD 1 TO TRANSLATED-BYTE.

5

*STATISTICS*     SOURCE RECORDS =    293     DATA DIVISION STATEMENTS =    130     PROCEDURE DIVISION STATEMENTS =    101
*OPTIONS IN EFFECT*     SIZE = 105000  BUF =  10000  LINECNT = 77  SPACE1, FLAGE, NOSEQ,  SOURCE
*OPTIONS IN EFFECT*     NODMAP, NOPMAP, NOCLIST, NOSUPMAP,  XREF, NOLOAD,  DECK, APOST, NOTRUNC,  LIB, NOVERB
*OPTIONS IN EFFECT*     ZWB
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CELADE

FILLER	00083										
FILLER	00084										
FILLER	00085										
FILLER	00086										
FILLER	00087										
FILLER	00088										
FILLER	00089										
BIBLIOGRAPHIC-LEVEL-LIST	00090	00277	00277								
LINE-PRINT	00092	00246	00246	00248	00248	00248	00286	00286	00286	00287	00287
FILLER	00093										
TAG-PRINT	00094	00179									
FILLER	00095										
INDICATOR-PRINT	00096	00237	00237	00237							
FILLER	00097										
IDENTIFIER-PRINT	00098	00242	00242	00242							
FILLER	00099										
DATA-PRINT	00100	00220	00220								
FILLER	00101										
TITLE1	00102	00251	00251								
FILLER	00103										
TITLE2	00105	00253	00253								
FILLER	00106										
FILE1	00108	00261	00261								
FILLER	00109										
FILLER	00111										
SB-ANCIC	00112	00257	00257								
FILLER	00113										
FILE2	00114	00262	00262								
FILLER	00115										
FILLER	00116										
SB-INPUT	00117	00258	00258								
FILLER	00118										
FILE3	00119	00263	00263								
FILLER	00120										
FILLER	00121										
SB-ENTRY	00123	00259	00259								
FILLER	00124										
FILLER	00125	00264	00264								
FILLER	00126										
FILLER	00127										
SB-POSITION	00129	00260	00260								
FILLER	00130										
LEADER1	00131	00279	00279								
FILLER	00132										
SB-COUNT	00134	00247									
FILLER	00135										
SB-LENGTH	00136	00268									
FILLER	00137										
SB-STATUS	00138	00269									
FILLER	00139										
LEADER2	00140	00280	00280								
FILLER	00141										
FILLER	00142										
FILLER	00143										
SB-SEVEN	00144	00273									
FILLER	00145										
LEADER3	00146	00281	00281								
FILLER	00147										
FILLER	00148										
SB-LEVEL	00149	00277									
FILLER	00150										
TITLE3	00151	00282	00282								
FILLER	00152										
TITLE4	00154	00283	00283								
FILLER	00155										
TITLE5	00157	00284	00284								
FILLER	00158										
LAST-TITLE	00160	00201	00201								
FILLER	00161										

PROCEDURE NAMES	DEFN	REFERENCE
PROCESS-DOCUMENTS	00166	00198
TAG-LISTING	00176	00197
CLOSE-FILES	00193	00197
DATA-LISTING	00207	00194

NEXT-CHAR	00212	00222		
LAST-DATA-LISTING	00223	00194	00214	00218
ADD-DATAFIELD-LENGTH	00225	00181		
ADD-LIABI-CHARACTER-POSITION	00230	00184		
MOVE-INDICATOR	00235	00190		
MOVE-IDENTIFIER	00240	00210		
WRITE-LINE	00245	00215	00224	
LEADER-LISTING	00250	00198	00265	
NO-FILE-STRUCTURE	00266	00255		
EDIT-LEADER-LISTING	00289	00188		
GETAIM-INDEX	00291	00272	00276	

CROSS-REFERENCE DICTIONARY

DATA NAMES	DEFN	REFERENCE										
DOCUMENTS	00010	00164	00167	00200	00200							
HEADER	00018											
RECORD-LENGTH	00019	00268										
RECORD-STATUS-CHARACTER	00020	00269										
IMPLEMENTATION-CODES	00021											
LITERATURE-TYPE-CODES	00022											
CHARACTER-SEVEN	00023	00271										
CHARACTER-EIGHT	00024											
CHARACTER-NINE	00025											
BIBLIOGRAPHIC-LEVEL-CODE	00026	00275										
INDICATOR-LENGTH	00027	00190	00257									
IDENTIFIER-LENGTH	00028	00175	00175	00175	00210	00258						
BASE-ADDRESS-OF-DATA	00029	00169	00169	00170	00186							
USER-SYSTEMS	00030											
LENGTH-OF-LENGTH-OF-ENTRY	00031	00181	00259									
LENGTH-OF-START-CHAR-POS-FIELD	00032	00184	00260									
FUTURE-USE	00033											
DIRECTORY	00034											
TAG-NUMBER	00035	00179	00179									
ENTRY-DIGITS	00036	00228	00228	00233	00233							
INPUT-RECORD	00037											
RECORD-INFORMATION	00038	00216	00216	00237	00237	00242	00242					
LISTING	00011	00165	00165	00201	00201	00202	00202	00246	00246	00251	00251	00253
		00253	00261	00261	00262	00262	00263	00263	00264	00264	00274	00279
		00280	00280	00281	00281	00282	00282	00283	00283	00284	00284	00287
		00287										
PRINT-RECORD	00043	00201	00201	00201	00246	00246	00246	00251	00251	00251	00253	00253
		00253	00261	00261	00261	00261	00261	00261	00262	00262	00262	00262
		00262	00262	00263	00263	00263	00264	00264	00264	00279	00279	00279
		00279	00279	00279	00280	00280	00280	00281	00281	00281	00282	00282
		00282	00283	00283	00284	00284	00284	00287	00287	00287		
NUMBER-OF-ENTRIES	00045	00172	00172	00196								
DIRECTORY-LENGTH	00046	00170	00170	00172								
ENTRY-COUNT	00047	00174	00178	00178	00178	00179	00196	00228	00233			
DATA-FIELD-LENGTH	00048	00180	00191	00227	00227	00227	00228	00228	00228			
NUMBER-OF-DIGITS	00049	00160	00226	00226	00226	00228	00231	00231	00231	00233		
START-CHARACTER-POSITION	00050	00183	00186	00232	00232	00232	00233	00233	00233			
START-OF-INFORMATION	00051	00166	00166	00189	00191							
DIGIT-COUNTER	00052	00188	00208	00211	00215	00219	00219	00219	00220	00224	00236	00236
		00236	00237	00241	00241	00241	00242	00249				
ACTUAL-CHARACTER	00053	00159	00169	00194	93209	00209	00209	00214	00216	00221	00221	00221
		00237	00239	00239	00239	00242	00244	00244	00244			
UPPER-LIMIT	00054	00191	00191	00193	00193	00193	00194	00213				
NEW-CHAR	00055	00216	00217	00220								
IDENTIFIER-KEY	00056	00217										
E-CONTROL	00057	00177	00246	00246	00248	00252	00253	00253	00261	00261	00262	00262
		00263	00263	00264	00264	00278	00279	00280	00280	00281	00281	00282
		00282	00283	00283	00284	00284	00285	00287	00287			
DOCUMENTS-COUNTER	00058	00254	00254	00258	00255	00267						
TRANSLATED-BYTE	00059	00270	00273	00274	00277	00293	00293	00293				
SCRATCH	00060											
SCRATCH1	00061											
TRANS-BYTE	00062	00272	00276	00292	00292							
SCRATCH2	00063											
FILLER	00064											
TRANSLATE-CODE	00065	00271	00275									
LITERATURE-TYPE-TABLE	00066											
LITERATURE-TYPE-DUMMY	00067											
FILLER	00068											
FILLER	00069											
FILLER	00070											
FILLER	00071											
FILLER	00072											
FILLER	00073											
FILLER	00074											
FILLER	00075											
FILLER	00076											
LITERATURE-TYPE-LIST	00077	00273	00273									
BIBLIOGRAPHIC-LEVEL-TABLE	00079											
BIBLIOGRAPHIC-LEVEL-DUMMY	00080											
FILLER	00081											
FILLER	00082											

ANNEX 2. Example of Fields of two documents in the DOCPAL Format and the Corresponding RM Format

CELADE

CELADE — DOCPAL - HOBO
HOJA DE DESCRIPCION BIBLIOGRAFICA

ISIS:04626 11:12

#01-JOPY0163500
#02-L
#03-a
#13-BRIZUELA DA RAMIREZ, Fulvia B
#14-Au
#15-PARAGUAY. DIRECCION GENERAL DE ESTADISTICA Y CENSOS
#17-Asuncion
#18-PY
#19-Paraguay: estimacion de la fecundidad y la mortalidad a traves de preguntas censales 1972
#21-Fertility and mortality estimate using census questions 1972
#23-1
#24-69
#25-tbls. grafs
#26-PARAGUAY. DIRECCION GENERAL DE ESTADISTICA Y CENSOS
#27-Asuncion
#28-PY
#33-19751200
#35-Diciembre 1975
#58-last
#59-igao
#60-General
#61-Es
#63-ao analg
#64-36
#65-Impr
#69-89 S42A
#70-IC
#72-En el estudio ptiza mas bien el caracter metodologico de los temas, analizando principalmente la fecundidad a traves de los metodologias aplicadas por Mottara y Brass, Henry o "Hijos propios", para estimar tasas de fecundidad e indicadores globales, tales como, tasa global de fecundidad, tasa bruta de reproduccion y tasa bruta de natalidad. A continuacion, se incluye la metodologia aplicada para determinar los niveles de mortalidad, a traves de preguntas censales: sobre hijos nacidos vivos e hijos sobrevivientes tenidos por las mujeres de 15 anos y mas y tablas de mortalidad por sexo para el periodo 1967-1972
#73-7
#74-1972
#75-1972
#76-<MEDICION DE LA FECUNDIDAD*> <MEDICION DE LA MORTALIDAD*> <METODO DE HIJOS PROPIOS*>
#81-12RCJ
#85-<RECGEN:MEDICION>E<MORGEN:MEDICION>
#87-PY
#88-23
#90-BRES-Ortiz,L
#90-BAC-Acuna,S
#91-COPY 4663 = 58 TO 63
#91-COPY 4620 = 65 TO 99
#91-COPY 4665 = 90
#92-1-771013
#92-2-aaa
#92-3-771013
#92-4-771017
#92-5-771031
#92-6-771031
#93-doc
#94-CELADE-Stgo
#95-mbibl
#96-00.00
#98-ga-771018
#98-pa-771108
#99-C77\110

CELADE

CELADE-COMPUTACION. SANTIAGO. CHILE.

UNISIST FILE STRUCTURE DESCRIPTION : INDICATOR LENGTH : 2
IDENTIFIER LENGTH : 2
LENGTH OF LENGTH OF ENTRY FIELD : 4
LENGTH OF START CHARACTER POSITION FIELD : 5

CELADE

CELADE-COMPUTACION. SANTIAGO. CHILE.

LEADER DESCRIPTION: UNISIST RECORD NUMBER: 5 LENGTH: 582 STATUS: 0
IMPLEMENTATION CODES: LITERATURE TYPE : BOOK
BIBLIOGRAPHIC LEVEL : MONOGRAPHIC

TAG	INDICATOR	SUBFIELD	DATA
A09	01	1 2	Paraguay: estimacion de la fecundidad y la mortalidad a traves de preguntas censales 1972 Es
A09	04	1 2	Fertility and mortality estimate using census questions 1972 En
A12	00	1 9	BRIZUELA DE RAMIREZ, Fulvia B Au
A15	00	1 2 3	PARAGUAY. DIRECCION GENERAL DE ESTADISTICA Y CENSOS Asuncion PY
A21	00	1 3	19751200 Diciembre 1975
A23	00	0	Es
A25	00	1 2 3	PARAGUAY. *DIRECCION GENERAL DE ESTADISTICA Y CENSOS* ASUNCION PY
A27	00	0	1
A29	00	1 2	69 tbls. grafs
A43	00	0	igao
A45	00	0	7

CELADE — DOCPAL — MDBO
HOJA DE DESCRIPCION BIBLIOGRAFICA

ISIS:04304 11:33
#01-00XL0149401
#02-YC
#03-m
#11-ELIZAGA, Juan Carlos
#14-au
#15-CELALE
#17-Santiago
#18-CL
#19-Insercion de las variables demograficas en la programacion economica y socia
l
#21-Insertion of demographic variables in economic and social planning
#24-14
#26-s.e.
#27-s.l.
#31-19770000
#35-1977
#41-Reunion Paralela sobre Poblacion y Desarrollo en America Latina
#42-Mexico
#43-MX
#44-19770804
#46-4-6 Agosto 1977
#58-DOCPAL
#60-General
#61-ES
#64-12
#65-Mimeo
#69-HJ S36B
#70-ID
#72-La planificacion del pasado considero a la poblacion como parametro, luego l
e asigna importancia en la politica de empleo y el concepto de empleo pleno sign
ifica que el numero de trabajadores es un objetivo y no una funcion de la demand
a de mano de obra. La situacion de privilegio de la poblacion en la planificacio
n actual, puede atribuirse a que la modificacion de la dinamica demografica por
efecto del desarrollo se refleja en el largo plazo y a que las variables demogra
ficas se prestan a los modelos de simulacion (cuantitativos). Los modelos econom
ico-demograficos propuestos para paises desarrollados evolucionan desde los clas
icos (Harrod-Domar), pasando por Coale-Hoover, hasta los neo-clasicos como Cobb-
Douglas (Latro). En todos ellos, un mayor crecimiento de la poblacion significa
un menor ingreso per capita. Variaron desde los uni hasta los bisectoriales (agr
icola, no agricola). Los modelos actuales como el BACHUE tienen la ventaja de se
r multisectoriales y tratar en forma endogena algunas variables demograficas. El
caso del BACHUE-Filipinas es discutido en detalle. No obstante todo lo anterior
, la poblacion solo juega un rol pasivo en los planes gubernamentales alrededor
de 1970, no siendo integrados los elementos demograficos
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