THE IRRI COMPUTERIZED MAILING LIST SYSTEM

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ABSTRACT

Until research results are disseminated, they are
of little value. An IRRI Mailing List System (MLS),
with a computerized address indexing and retrieval
system for the mass dissemination of publications
of the International Rice Research Institute, was
created in 1979. It maintains a Mailing List
Master File which, as of June 1980, had 3,674
entries, each representing the name and address
of an individual (or organization) and related
data. With information on the individual's
discipline and areas of research, the MLS auto-
matically retrieves or compiles specific sets of
mailing lists that conform to user orientation
or to a specific publication content. Addresses
in these computer-generated mailing lists can
be directly printed on gummed mailing labels.
The MLS also provides the opportunity for audience
analyses and monitoring of audience composition
and, to some extent, audience preferences and
reactions to IRRI's publications.

THE IRRI COMPUTERIZED MAILING LIST SYSTEM

Until there is communication of research results to those who can use it, research is of little value. Within the communication process, scientists and editors cooperate to create publications that can provide other scientists clear and concise research information for their use. From that point, dissemination of the publications assumes importance. The communication of research results -- and the ultimate payoff from the research -- therefore, depends largely on a mailing system. But unless that system is effective the communication of research findings falters, and the benefit of research to society is less than it should be.

Since the early 1960s the international agricultural research centers have been faced with the need to disseminate a rapidly growing body of research information. The dissemination of information from the International Rice Research Institute, for example, has grown dramatically. Since 1963 IRRI has released more than 100 major books, 26 of those in 1978-79. During 1980, IRRI will mail about 9,000 copies of 7 issues of the *International Rice Research Newsletter* and 4 issues of *The IRRI Reporter*. In addition, more than 50 titles in the *IRRI Research Paper Series* will be mailed to more than 1,500 addresses.

As the volume of publications grew and specialized publications were initiated, specialized mailing lists became necessary. By 1979, IRRI had 14 separate lists with a total of about 18,000 addresses in a manual addressing system that had become cumbersome.

Development of a computerized mailing list system was started in mid 1979. All entries in the existing mailing lists were surveyed and only those who returned a survey form were retained on the new mailing list. Using the survey data as the main source of an initial master file, a computer-based mailing list system was developed to provide:

- validation of entries in the master file,

- correction, update, and addition of new entries in the master file,

- retrieval of all entries that satisfy specified features,

- printing of the name and address of each entry onto a mailing label, and

- audience analysis and the monitoring of audience composition.

This paper provides details on the main features of this mailing list system (MLS).

The IRRI master mailing list file

Each response-survey form (Appendix I) that was returned to IRRI comprised an entry in the Computerized Master Mailing List File, which has the following key features:

- Each entry in the File is assigned a unique sequential five-digit number called PERSCODE, which identifies the entry for updating and assignment of additional data. The file is sorted by PERSCODE. The MLS assures that no single PERSCODE is assigned to more than one entry.

- All information provided in a response-survey form is kept in the File. A total of 40 variables and their relative positions in the File are described in Appendix II. The first 16 characters are used primarily in the compilation of special mailing lists to conform to user orientations and specific publication content and in the printing of the mailing labels for use in mailing IRRI publications. The other variables are used primarily for monitoring audience composition and, to some extent, their preferences and reactions to IRRI's publications, and for periodic audience analyses.

The File contained 8,614 entries as of June 1980. The MLS provides for routine updating and correcting of names, addresses, and other related information. The File is updated on a monthly basis:

- about 300 new entries per month are added, and

- about 100 entries per month are for cancellation of subscribers, change of address, and change in category, etc.

Custom-made mailing lists and label printing

A few key variables in the Master File such as CATEGORY, PCTIME, and DISCIPLN (see Appendix III for definition) can be used to identify a subset of the master file. For example, when IRRI produces a special publication, the MLS can be instructed to prepare a mailing list of only those names with an expressed interest in the subject of that publication. IRRI can then arrange to send those individuals, or their libraries, the announcement cards for the publication or copies of the publication.

In addition, when a special publication is being planned, the MLS can provide information on how many people on the mailing list, based on their disciplines, types of work, and research areas of major interest, should be interested in that publication.

For IRRI regular publications, the MLS generates, on
a fixed periodical basis, a series of prespecified
sets of mailing lists corresponding to the prescribed
categories of mailing list entries that will receive
a given IRRI publication (see Appendix IV). For
example, *IRRI Reporter* and the *IRRI Publications
Price List* are sent to all entries in the Master
Mailing List File, whereas *IRRI Research Paper
Series* is sent only to categories 02, 03, 04, 05, and
06 (see Appendix III for definition of CATEGORY codes).
The entries in each mailing list generated are sorted
by COUNTRY and automatically printed on gummed labels
(see Appendix V for illustration). Each printed
label is easily peeled off its backing and placed on
the mailing envelope. Because mail rates to different
countries vary, the country classification helps speed
the postal stamping operation.

Audience analysis of the master mailing list file

The format of the Master Mailing List File satisfies
the requirement of several standard computer statis-
tical packages such as the *Statistical Package for the
Social Sciences (SPSS)* (Nie et al 1975) and the
Statistical Analysis System (SAS) (The SAS User's
Guide 1979). This feature facilitates the running
of the various statistical analyses for periodic
audience analysis and the routine monitoring of
audience composition and their preferences and reac-
tions to IRRI's publications.

Some examples of these analyses are:

● audience composition by country (Table 1), show-
  ing the Philippines, the United States, and
  India as the three largest contributors to the
  IRRI mailing list;

● audience classification by discipline (Table 2),
  by educational attainment (Table 3), and by
  major area of activities (Table 4), showing

Table 1. IRRI mailing list, classified by country.
June 1980.

Country	Entries	
	No.	%
Philippines	2292	26.6
USA	1137	13.2
India	981	11.4
Thailand	402	4.7
Indonesia	355	4.1
Japan	309	3.6
Malaysia	284	3.3
China	267	3.1
Bangladesh	194	2.3
Sri Lanka	172	2.0
South Korea	149	1.7
United Kingdom	145	1.7
Australia	141	1.6
Others	1786	20.7
Total	8614	100

Table 2. IRRI mailing list, classified by discipline.
June 1980.

Discipline	Entries	
	No.	%
Agronomy	1519	30.6
Crop management	527	10.6
Entomology	518	10.5
Plant breeding	512	10.3
Economics	338	6.8
Soil science	312	6.3
Plant pathology	283	5.7
Engineering	199	4.0
Social science	167	3.4
Plant physiology	118	2.4
Nutrition	69	1.4
Chemistry	65	1.3
Others	331	6.7
Total	4958	100.0

Table 3. IRRI mailing list, classified by sub-
scriber's educational attainment. June 1980.

Degree	Entries	
	No.	%
Ph D (Doctorate)	2490	35.6
MA/MS (Master's)	1742	24.9
BA/BS (Bachelor's)	2152	30.7
High school or voca- tional diploma	282	4.0
Others	335	4.8
Total	7001	100.0

Table 4. IRRI mailing list, classified by
subscriber's major[a] area of activities. June 1980.

Activity	Entries	
	No.	%
Research	1102	45.0
Teaching/training/ education	319	13.0
Outreach or extension	243	9.9
Program planning and project design	194	7.9
Farming (all types)	163	6.7
Policy-making	104	4.3
Others	323	13.2
Total	2448	100.0

[a]Spend more than 50% of the time.

agronomy as the most dominant discipline, followed by crop management, entomology, and plant breeding; that the majority of the subscribers are college degree holders, 40% of whom have Ph D's; and that about 45% of the subscribers are primarily doing research; and

audience preference and reaction to IRRI's publication (Tables 5, 6, and 7), showing *IRRI Annual Report* as the most useful source of IRRI research, and that readers generally read from the annual report only the section most related to their area of interest. The research areas that subscribers are most interested in receiving detailed information from IRRI are soil and crop management, followed by disease resistance, pest management - insects, and rice-based cropping systems.

Table 5.   IRRI research publications that subscribers find most useful as sources of IRRI research.   IRRI mailing list, June 1980.

Source	Entries	
	No.	%
IRRI Annual Report	1080	26.1
International Rice Research Newsletter	840	20.3
IRRI Research Paper Series	710	17.2
IRRI Research highlights	538	13.0
IRRI Reporter	416	10.1
Personal contact with IRRI staff	391	9.5
Non-IRRI publications	81	2.0
Other IRRI publications	73	1.8
Total	4129	100.0

Table 6.   What IRRI subscribers say they did with IRRI 1977 Annual Report.   IRRI mailing list, June 1980.

Action	Entries	
	No.	%
Read carefully only sections of interest, skimmed or ignored the rest	957	53.2
Read carefully from cover to cover with equal attention to all sections	403	22.4
Skimmed it all without giving special attention to any particular section	321	17.9
Did not read (even if it was received)	117	6.5
Total	1798	100.0
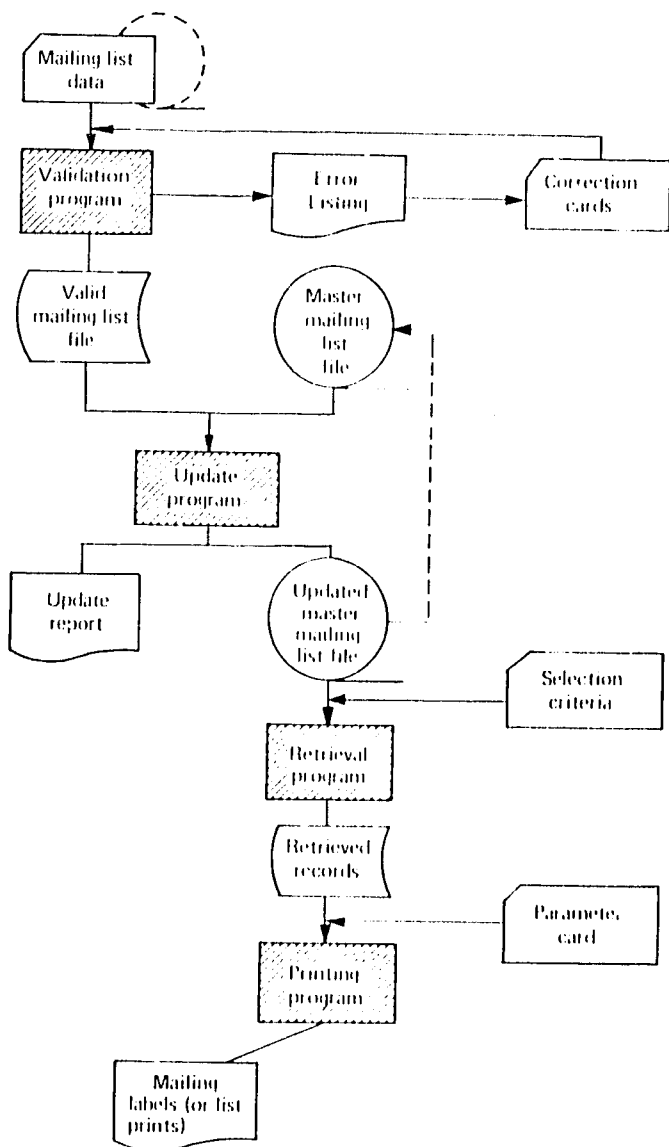
Fig. 1.   System flowchart of the Mailing List System (MLS).

The computer programs

The MLS is supported by four computer programs (Fig. 1) all written in IBM OS ANS COBOL and run on an IBM 370/135 under OS/VS1 at the Agricultural Resource Center, Los Baños, Philippines (IRRI 1979).   The programs are

1. *Validation program.* This program validates the data of new entries before updating the Master Mailing List File.   Validation rules include range and consistency checks for selected variables and checks for consecutiveness of entries, completeness of data, and duplicates.

2. *Update program.* This program performs the following types of updates to the Master Mailing List File:

● addition of new entries,

● deletion of existing entries, and

● changes in one or more of the variable
(such as change of address or change in
area of work).

3. *Retrieval program.* This program compiles custom-
made mailing lists based on one or more specified
criteria involving any number of variables
related to the entries contained in the Master
Mailing List File.

4. *Label-printing program.* This program performs a
formatted printing, on gummed labels, of the
name and address of each entry in the prescribed
mailing lists (representing the whole or a
subset of the Master Mailing List File).

Listings of all the above programs are given
in Appendix VI.

REFERENCES CITED

IRRI (International Rice Research Institute). 1979.
The IRRI Reporter 3/79. Los Baños, Philippines.

Nie, N. H., C. H. Hull, J. G. Jenkins, K. Stein-
brenner, and D. H. Bent. 1975. Statistical
package for the social sciences. 2d ed.
McGraw Hill, New York.

The SAS User's Guide. 1979 edition. SAS Institute,
Inc., Raleigh, North Carolina, USA.

Table 7. IRRI mailing list, classified by rice
research area that subscribers are interested in
receiving detailed information from IRRI. June 198

Research area	Entries No.	Entries %
Soil and crop management	1013	20.6
Disease resistance	430	8.7
Pest management - insects	400	8.1
Rice-based cropping systems	369	7.5
Irrigation and water management	304	6.2
Constraints to rice yields	292	5.9
Pest management - diseases	286	5.8
Protein content and grain quality	234	4.8
Consequences of new technology	196	4.0
Insect resistance	193	3.9
Drought resistance	173	3.5
Postharvest tech and management	173	3.5
Climate and environment	128	2.6
Machinery development and management	127	2.6
Tolerance for adverse soils	119	2.4
Deepwater and flood tolerance	114	2.3
Pest management - weeds	92	1.9
Communication of information	82	1.7
Sociology or anthropology	82	1.7
Rice training programs	81	1.6
Temperature tolerance	21	0.4
Others	16	0.3
Total	4925	100.0

Appendix I. IRRI response-survey form.

From. _____

_____

_____

_____

```
┌─────────────┐
│             │
│             │
│             │
│    Stamp    │
│             │
│             │
└─────────────┘
```
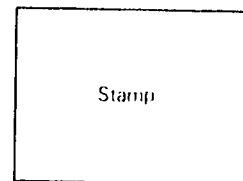
To **Office of Information Services**
International Rice Research Institute
P.O. Box 933
Manila, Philippines

airmail

MAILING LIST ACCESS CARD. The information requested below will allow us to RETAIN or PLACE your name in our computer mailing list files. Incomplete or improperly filled-out forms leave us no alternative but to send you minimum information or none at all. Please read directions and COMPLETE BOTH SIDES OF THIS CARD. Note: this card replaces the long survey formerly used. DO NOT SEND US DUPLICATE FORMS.

1. My main discipline is (Check one):
☐ a. Agronomy
☐ b. Breeding (Plant)
☐ c. Chemistry
☐ d. Crop Management
☐ e. Economics
☐ f. Engineering
☐ g. Entomology
☐ h. Nutrition
☐ i. Pathology
☐ j. Physiology
☐ k. Social science (except econ.)
☐ l. Soil science
☐ m. Other. └┴┴┴┴┴┴┴┴┴┴┴┴┘

2. Languages spoken (Not dialects):
   a. native, └┴┴┴┴┴┴┴┴┴┴┴┴┘
   b. 2nd, └┴┴┴┴┴┴┴┴┴┴┴┴┴┘
   c. 3rd, └┴┴┴┴┴┴┴┴┴┴┴┴┘

3. Highest degree (Check one):
☐ a. Ph D (Doctorate)
☐ b. MA/MS (Masters)
☐ c. BA/BS (Bachelors)
☐ d. High school or vocational diploma
☐ e. Other, └┴┴┴┴┴┴┴┴┴┴┴┴┘

4. Sex: ☐ Male ☐ Female   5. Age : └┴┘

6. Citizen of: └┴┴┴┴┴┴┴┴┴┴┴┴┘
                      (country)

7. Percentages of time spent working in the following areas (sum must equal 100%):
└┴┴┘ % a. Policy-making activities
└┴┴┘ % b. Program planning & project design
└┴┴┘ % c. Research activities
└┴┴┘ % d. Teaching/ training/ education
└┴┴┘ % e. Outreach or extension
└┴┴┘ % f. Farming (all types)
└┴┴┘ % g. Other, └┴┴┴┴┴┴┴┴┴┘

Check one: ☐ Dr. ☐ Mr. ☐ Ms.   ┌───┐ Write the first letter of your
                                     └───┘ family name in this box.

NAME └┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┘
ORGANIZATION └┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┘
STREET ADDRESS └┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┘
CITY └┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┘
STATE └┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┘
COUNTRY └┴┴┴┴┴┴┴┴┴┴┴┴┴┴┴┘ POST CODE └┴┴┴┴┴┴┘

Type of address: ☐ Residence ☐ Office ☐ Library ☐ Press
I am a new subscriber ☐ Yes ☐ No

8. Rice research at IRRI concentrates on the following problem areas:

a. Deep water & flood tolerance
b. Tolerance for adverse soils
c. Drought resistance
d. Protein content & grain quality
e. Disease resistance
f. Insect resistance
g. Irrigation & water management
h. Soil & crop management
i. Climate & environment
j. Rice-based cropping systems
k. Post-harvest tech & management
l. Constraints to rice yields
m. Consequences of new technology
n. Machinery development & mgmt.
o. Pest management diseases
p. Pest management, insects
q. Pest management, weeds
r. Communication of information
s. Rice training programs
t. Sociology &/or anthropology
u. Temperature tolerance (cold or heat)
v. Other, _____

Within our budget limitations, we would like to supply you with publications or announcements of publications relevant to your needs. Please write below the letters from the list that correspond to the FIVE problem areas that interest you most.

I would like DETAILED technical information on the following TWO areas:
   ☐ 1st choice   ☐ 2nd choice

I would like ABSTRACTED technical or general information on the following THREE problem areas:
   ☐ 1st choice   ☐ 2nd choice   ☐ 3rd choice

Appendix II. List of variables maintained for each entry in the IRRI Master Mailing List File and the file format.

No.	Name	Description	Field width	Column nos.
1	PERSCODE	Person code uniquely assigned to each entry	5	2-6
2	CATEGORY[a]	Code to define subsets of the file such as libraries, VIP, etc.	2	7-8
3	PCTIME[a]	Activity where at least 50% of the time is spent	1	9
4	CTRYCODE	Country code	2	10-11
5	HANDLING	Type of mailing (surface or air mail)	1	12
6	COPIES	No. of copies to be sent	1	13
7	INPTDATE	Date entry is entered in File	4	14-17
8	ALPHA	First 7 characters of surname	7	18-24
9	NAME	Subscriber's name	29	25-53
10	ORGANIZ	Organization	27	54-80
11	ADDRESS1	First part of address	32	81-112
12	ADDRESS2	Second part of address	32	113-144
13	POSTCODE	Postal code of the address	8	145-152
14	COUNTRY	Country in the address	15	153-167
15	ADDTYPE	Type of address (e.g. residence, office, library, press)	1	168
16	DISCIPLN[a]	Subscriber's discipline code	1	169
17	LANG1	Native language of subscriber	2	170-171
18	LANG2	2d language of subscriber	2	172-173
19	LANG3	3d language of subscriber	2	174-175
20	DEGREE	Highest degree attained	1	176
21	SEX	Male or female	1	177
22	AGE	Age of subscriber	2	178-179
23	CITIZEN	Code of country of citizenship	2	180-181
24	PCPOLICY	Percentage of time spent in policy-making activities and project design	3	182-184
25	PCPLAN	Percentage of time spent in program planning	3	185-187
26	PCRES	Percentage of time spent in research activities	3	188-190
27	PCTEACH	Percentage of time spent in teaching/training/education	3	191-193
28	PCEXTEN	Percentage of time spent in extension	3	194-196
29	PCFARM	Percentage of time spent in farming	3	197-199
30	PCOTHR	Percentage of time spent in other activities	3	200-202
31	SUBSCRIP	No. of professional publications subscribed to	1	203
32	SEEKINFO	Where technical information on rice is FIRST sought	1	204
33	PROBDET	Rice problem areas detailed information is desired	1	205
34	PROBABS	Rice problem areas abstracts are desired	4	206-209
35	RANKRES	Rank of 8 IRRI publications by their usefulness	8	210-217
36	TITLEPUB	Code of publication most recently received from IRRI	2	218-219
37	PUBDATE	Date TITLEPUB was received	2	220-221
38	INFOTYPE	Type of information on rice specifically interested in	3	222-224
39	ANNREPT	How subscriber used IRRI 1977 Annual Report	1	225
40	AFTREAD	What subscriber did with IRRI publication after reading	1	226

[a]See Appendix III for specific codes assigned.

Appendix III. Specific codes assigned to three key variables commonly used in the retrieval of mailing list subsets.

Variable name	Code	Description
CATEGORY	01	General list
	02	Library A, receives maximum information for free
	03	Library B, receives minimum information for free
	04	Library C, developed countries (sales)
	05	Library D, having exchanges with IRRI
	06	Director General's VIP list
	07	Press list
	08	Review Journal list
	09	Student
	10	Those receiving annual reports only
	11	Those receiving IRRI Reporter only
PCTIME	A	Policy-making activities
	B	Program planning and project design
	C	Research activities
	D	Teaching/training/education
	E	Outreach or extension
	F	Farming (all types)
	G	Others
DISCIPLN	A	Agronomy
	B	Plant breeding
	C	Chemistry
	D	Crop management
	E	Economics
	F	Engineering
	G	Entomology
	H	Nutrition
	I	Pathology
	J	Physiology
	K	Social science
	L	Soil science
	M	Others

Appendix IV. CATEGORIES that are entitled to receive IRRI regular publications.

Publication	Category Code[a]
IRRI Reporter	All
IRRI Newsletter	All, except 07 and 11
IRRI Research Paper Series	02, 03, 04, 05, and 06
Annual Report	02, 05, 06, and 10
Research Highlights	02, 05, 06, and 07
News Releases	07
Price List	All

[a] See Appendix III for definition of codes used.

Appendix V.   Samples of gummed labels.

```
      10 EACN US 10 04435 1279              08 E O  UK 10 00968 1079

DR STANLEY S JOHNSON                   DR  GORDON JOHNSON
UNIV OF CALIFORNIA USDA                MODERN ASIAN STUDIES
AGRI ECON DEPT                         SELWYN COLLEGE
DAVIS,CALIFORNIA                       CAMBRIDGE
USA              95616                 UNITED KINGDOM CB3 9DQ


      06 EBOK UK 20 04974 0180              01 ECDK PH 10 02111 1079

MR JOHN O JONES                        MR FLORENDO G JUAN
COM BUR OF AGRI ECON                   N MINDANAO NATL AG COLLEGE
DARTINGTON HS                          AMPAYON,BUTUAN CITY
LITTLE CLARENDEN ST,OXFORD             PHILIPPINES          8601
UNITED KINGDOM OX12HH


      01 FBOG US 10 01290 1079              01 FCON PH 10 04496 1279

MR ROY BAINER                          MR ANGEL F BALBIDO
UNIV OF CALIFORNIA                     STANFILCO
RM 5030,BAINER HALL                    LADISLAWA
DAVIS,CALIFORNIA                       BUHANGIN,DAVAO CITY
USA              95616                 PHILIPPINES          9501


      01 FBON PH 10 01213 1079              01 FBOH PH 10 01257 1079

MR JARED K BARKER                      MR JUANITO R BARLIS
FARM SERVICE AND DEV CO                NIA
KORONADAL,S COTABATO                   LBDP 1C
PHILIPPINES                            PILA,LAGUNA
                                       PHILIPPINES


      01 FAON PH 10 01264 1079              01 FCOK US 10 01281 1079

MR ROBERTO C BAUTISTA                  MR ELDON C BEAGLE
UPLB                                   THE BEAGLE ORGANIZATION
AMTEC INSAET                           PO BOX 874
COLLEGE,LAGUNA                         W SACRAMENTO,CALIFORNIA
PHILIPPINES       3720                 USA              95691


      01 ABCH EG 10 04904 0180              01 ACDD TH 10 01763 1079

MR SOBHY ABD-EL-HALEM GHANEM           MR THANES GAT HINTONG
SAKA AGRI RES STN                      PRACHINBUR AGRI SCHOOL
RICE DEPT                              ARANYAPRATHET
KAFR EL-SHEIKH                         THAILAND
EGYPT


      01 AAOQ ID 10 01714 1079              01 ABCH PG 10 04886 0180

DR ASOKE K GHOSH                       MR AGUSTIN ONETO GAVIDIA
ALLAHABAD AGRI INST                    AVENIDA GRAU,579 MIRAFLORES
PG AGRI INST                           LIMA
ALLAHABAD,UTTAR PRADESH                PERU
INDIA            211007
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Appendix VI. The Mailing List System (MLS)
Program Listings.

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a.   Validation program

```
00001              IDENTIFICATION DIVISION.
00002              PROGRAM-ID. ML001.
00003              AUTHOR. NONA.
00004              REMARKS.
00005                  THIS PROGRAM VALIDATES THE CARDS WHICH ARE GOING TO BE
00006                  USED IN THE UPDATE OF THE MASTER MAILING LIST FILE.
00007                  THE FIELDS VALIDATED HERE ARE THOSE THAT ARE GOING TO  BE
00008                  USED IN THE PRINTING OF THE MAILING LABELS SPECIFICALLY,
00009                  THE NAME AND ADDRESS FIELDS AND THE RETRIEVAL CODES.
00010              ENVIRONMENT DIVISION.
00011              CONFIGURATION SECTION.
00012              SPECIAL-NAMES.
00013                  C01 IS TURN-PAGE.
00014              INPUT-OUTPUT SECTION.
00015              FILE-CONTROL.
00016                  SELECT CARD-FILE ASSIGN TO UT-S-CARDS.
00017                  SELECT UPDT-FILE ASSIGN TO UT-S-UPDATE.
00018                  SELECT PRTR-FILE ASSIGN TO UT-S-PRINTER.
00019              DATA DIVISION.
00020              FILE SECTION.
00021              FD  CARD-FILE
00022                  BLOCK CONTAINS 0 RECORDS
00023                  RECORD CONTAINS 80 CHARACTERS
00024                  RECORDING MODE F
00025                  LABEL RECORD STANDARD.
00026              01  CARD-REC.
00027                  03  C-CARDCODE                    PIC X.
00028                      88  CARDA         VALUE 'A'.
00029                      88  CARDB         VALUE 'B'.
00030                      88  CARDC         VALUE 'C'.
00031                  03  C-PERSCODE                    PIC X(5).
00032                  03  C-DATA                        PIC X(74).
00033              FD  UPDT-FILE
00034                  BLOCK CONTAINS 0 RECORDS
00035                  RECORD CONTAINS 80 CHARACTERS
00036                  RECORDING MODE F
00037                  LABEL RECORD STANDARD.
00038              01  UPDT-REC                          PIC X(80).
00039              FD  PRTR-FILE
00040                  RECORD CONTAINS 133 CHARACTERS
00041                  RECORDING MODE F
00042                  LABEL RECORD OMITTED.
00043              01  PRTR-REC                          PIC X(133).
00044              WORKING-STORAGE SECTION.
00045              01  W-ACARD.
00046                  03  FILLER                        PIC X(6).
00047                  03  W-CATEGORY                    PIC XX.
00048                  03  W-PCTIME                      PIC X.
00049                  03  W-CTRYCODE                    PIC XX.
00050                  03  W-HANDLING                    PIC X.
00051                  03  W-COPIES                      PIC X.
00052                  03  W-INPTDATE                    PIC XXXX.
00053                  03  W-ALPHA                       PIC X(7).
00054                  03  W-NAME                        PIC X(29).
00055                  03  W-ORGANIZ                     PIC X(27).
00056              01  W-BCARD.
00057                  03  FILLER                        PIC X(6).
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Continued on next page.

Appendix VIa.   continued.

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00058                 03    W-ADDRESS1                      PIC  X(32).
00059                 03    W-ADDRESS2                      PIC  X(32).
00060                 03    W-POSTCODE                      PIC  X(8).
00061                 03    FILLER                          PIC  XX.
00062          01    W-CCARD.
00063                 03    FILLER                          PIC  X(6).
00064                 03    W-COUNTRY                       PIC  X(15).
00065                 03    W-ADDTYPE                       PIC  X.
00066                 03    W-DISCIPLN                      PIC  X.
00067                 03    W-LANG1                         PIC  XX.
00068                 03    W-LANG2                         PIC  XX.
00069                 03    W-LANG3                         PIC  XX.
00070                 03    W-DEGREE                        PIC  X.
00071                 03    W-SEX                           PIC  X.
00072                 03    W-AGE                           PIC  XX.
00073                 03    W-CITIZEN                       PIC  XX.
00074                 03    W-PCPOLICY                      PIC  XXX.
00075                 03    W-PCPLAN                        PIC  XXX.
00076                 03    W-PCRES                         PIC  XXX.
00077                 03    W-PCTEACH                       PIC  XXX.
00078                 03    W-PCEXTEN                       PIC  XXX.
00079                 03    W-PCFARM                        PIC  XXX.
00080                 03    W-PCOTHER                       PIC  XXX.
00081                 03    W-SUBSCRIP                      PIC  X.
00082                 03    W-SEEKINFO                      PIC  X.
00083                 03    W-PROBDET                       PIC  X.
00084                 03    W-PROBABS                       PIC  XXXX.
00085                 03    W-RANKPES                       PIC  X(8).
00086                 03    W-TITLEPUB                      PIC  XX.
00087                 03    W-PUBDATE                       PIC  XX.
00088                 03    W-INFOTYPE                      PIC  XXX.
00089                 03    W-ANNREPT                       PIC  X.
00090                 03    W-AFTREAD                       PIC  X.
00091          01    W-RECORD.
00092                 03    W-CARDCODE                      PIC  X.
00093                 03    W-PERSCODE                      PIC  X(5).
00094                 03    W-DATA                          PIC  X(74).
00095          01    PRT-FORMAT.
00096                 03    E-HEAD1.
00097                      05    FILLER                     PIC  X(56) VALUE  SPACES.
00098                      05    FILLER                     PIC  X(20)
00099                      VALUE  'MAILING LIST SYSTEM'.
00100                 03    E-HEAD2.
00101                      05    FILLER                     PIC  X(55) VALUE  SPACES.
00102                      05    FILLER                     PIC  X(21)
00103                      VALUE  'VALIDATION ERROR LIST'.
00104                 03    E-HEAD3.
00105                      05    FILLER                     PIC  X(11) VALUE ' RUN DATE: '.
00106                      05    DATE-RUN                   PIC  X(8).
00107                      05    FILLER                     PIC  X(100) VALUE SPACES.
00108                      05    FILLER                     PIC  X(5)    VALUE ' PAGE'.
00109                      05    PAGE                       PIC  ZZZZ9.
00110                      05    FILLER                     PIC  XX.
00111                 03    E-HEAD4.
00112                      05    FILLER                     PIC  X(15)
00113                      VALUE ' CODE  PERSCODE'.
00114                 03    E-HEAD5.
00115                      05    FILLER                     PIC  X(21)
00116                      VALUE '       ....|.    ...1'.
00117                      05    FILLER                     PIC  X(10) VALUE '....|....2'.
00118                      05    FILLER                     PIC  X(10) VALUE '....|....3'.
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Continued on next page.

Appendix VIa. continued.

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00119              05   FILLER           PIC X(10) VALUE '....|....4'.
00120              05   FILLER           PIC X(10) VALUE '....|....5'.
00121              05   FILLER           PIC X(10) VALUE '....|....6'.
00122              05   FILLER           PIC X(10) VALUE '....|....7'.
00123              05   FILLER           PIC X(10) VALUE '....|....8'.
00124         03   E-DETAIL.
00125              05   FILLER           PIC XXX.
00126              05   E-CARDCODE       PIC X.
00127              05   FILLER           PIC XXXX.
00128              05   E-PERSCODE       PIC X(5).
00129              05   FILLER           PIC XXXX.
00130              05   E-DATA           PIC X(74).
00131              05   FILLER           PIC XXXX.
00132              05   E-MESSAGE        PIC X(30).
00133         03   A-DETAIL.
00134              05   FILLER           PIC XXX.
00135              05   A-CARDCODE       PIC X.
00136              05   FILLER           PIC XXXX.
00137              05   A-PERSCODE       PIC X(5).
00138              05   FILLER           PIC XXXX.
00139              05   A-DATA           PIC X(74).
00140         03   A-ACARD.
00141              05   A-CATEGORY       PIC XX.
00142              05   A-PCTIME         PIC X.
00143              05   A-CTRYCODE       PIC XX.
00144              05   A-HANDLING       PIC X.
00145              05   A-COPIES         PIC X.
00146              05   A-INPTDATE       PIC XXXX.
00147              05   A-ALPHA          PIC X(7).
00148              05   A-NAME           PIC X(29).
00149              05   A-ORGANIZ        PIC X(27).
00150         03   A-BCARD.
00151              05   A-ADDRESS1       PIC X(32).
00152              05   A-ADDRESS2       PIC X(32).
00153              05   A-POSTCODE       PIC X(8).
00154              05   FILLER           PIC XX.
00155         03   A-CCARD.
00156              05   A-COUNTRY        PIC X(15).
00157              05   A-ADDTYPE        PIC X.
00158              05   A-DISCIPLN       PIC X.
00159              05   A-LANG1          PIC XX.
00160              05   A-LANG2          PIC XX.
00161              05   A-LANG3          PIC XX.
00162              05   A-DEGREE         PIC X.
00163              05   A-SEX            PIC X.
00164              05   A-AGE            PIC XX.
00165              05   A-CITIZEN        PIC XX.
00166              05   A-PCPOLICY       PIC XXX.
00167              05   A-PCPLAN         PIC XXX.
00168              05   A-PCPRES         PIC XXX.
00169              05   A-PCTEACH        PIC XXX.
00170              05   A-PCEXTEN        PIC XXX.
00171              05   A-PCFARM         PIC XXX.
00172              05   A-PCOTHER        PIC XXX.
00173              05   A-SUBSCRIP       PIC X.
00174              05   A-SELKINFO       PIC X.
00175              05   A-PROBDET        PIC X.
00176              05   A-PROBABS        PIC XXXX.
00177              05   A-RANKPES        PIC X(8).
00178              05   A-TITLEPUB       PIC XX.
00179              05   A-PUBDATE        PIC XX.
00180              05   A-INFOTYPE       PIC XXX.
```

Appendix VIa. continued.

```
00181                    05   A ANNRFPTE             PIC X.
00182                    05   A ANNREPT             PIC X.
00183                    05   A AFTREAD             PIC X.
00184               03   F FOOT1                    PIC X(100)
00185                              VALUE ' NOTE: AN ASTERISK UNDER A CHARACTER I
00186                              'NDICATES AN INVALID VALUE FOR THAT CHA
00187                              'RACTER'.
00188               03   L FOOT2                     PIC X(100)
00189                         VALUE '     A ? UNDER A CHARACTER INDICATES TH
00190                              'AT A DATA COULD NOT BE CHECKED DUE TO M
00191                              'ISSING INFORMATION'.
00192               03   F FOOT3                     PIC X(132) VALUE ALL '='.
00193          01   WORK AREAS.
00194               03   SW AREA.
00195                    05   SW A                    PIC X.
00196                         88   NO CARDA      VALUE '0'.
00197                    05   SW-B                    PIC X.
00198                         88   NO CARDB      VALUE '0'.
00199                    05   SW-C                    PIC X.
00200                         88   NO CARDC      VALUE '0'.
00201               03   SW COND REDEFINES SW-AREA PIC XXX.
00202                    88   ALL IN            VALUE '111'.
00203                    88   ALL RIGHT         VALUE '222'.
00204               03   S PERSCODE               PIC X(5).
00205               03   SW END                   PIC X.
00206                    88   END OF FILE       VALUE '1'.
00207               03   CNTRS.
00208                    05   ICNT                   PIC 9(5)   USAGE COMP-3.
00209                    05   OCNT                   PIC 9(5)   USAGE COMP-3.
00210                    05   ECNT                   PIC 9(5)   USAGE COMP-3.
00211                    05   PCNT                   PIC 9(5)   USAGE COMP 3.
00212                    05   PGCNT                  PIC 9(5)   USAGE COMP-3.
00213                    05   LCNT                   PIC 99.
00214          PROCEDURE DIVISION.
00215               PERFORM HOUSEKEEP.
00216               PERFORM MAIN LINE
00217                    UNTIL END-OF-FILE.
00218               PERFORM END RTNS.
00219          HOUSEKEEP.
00220               OPEN INPUT CARD-FILE
00221                    OUTPUT UPDT FILE PRTR FILE.
00222               MOVE CURRENT DATE TO DATE-RUN.
00223               MOVE 0 TO SW A SW B SW C SW-END.
00224               MOVE 0 TO ICNT OCNT ECNT PCNT  LCNT  PGCNT
00225               MOVE SPACES TO A ACARD A BCARD A-CCARD
00226               MOVE SPACES TO W ACARD W BCARD W CCARD
00227               MOVE LOW VALUES TO S PERSCODE.
00228               PERFORM WRITE HEADINGS.
00229          MAIN LINE.
00230               READ CARD FILE
00231                    AT END MOVE 1 TO SW END.
00232               IF END-OF FILE
00233                    MOVE HIGH VALUES TO S PERSCODE.
00234               PERFORM COMPAR PERSCOD THRU X PERSCODE.
00235               IF NOT END-OF-FILE
00236                    ADD 1 TO ICNT
00237                    PERFORM CHECK CARDCODE.
00238          COMPAR-PERSCOD.
00239               EXAMINE C PERSCODE
00240                    REPLACING LEADING SPACES BY 0.
00241               IF C PERSCODE NOT NUMERIC
00242                    PERFORM ERR PERSCODE
```

Appendix VIa. continued.

```
00243              MOVE C-PERSCODE TO S-PERSCODE
00244              PERFORM INITIALIZE
00245              GO TO X PERSCODE.
00246          IF S PERSCODE = LOW-VALUES
00247              MOVE C PERSCODE TO S-PERSCODE.
00248          IF C-PERSCODE NOT = S PERSCODE
00249              PERFORM VALIDATE-RTNS
00250              PERFORM WRITE PREVIOUS
00251              MOVE C-PERSCODE TO S-PERSCODE
00252              PERFORM INITIALIZE.
00253      X-PERSCODE.
00254          EXIT.
00255      WRITE PREVIOUS.
00256          IF ALL-RIGHT
00257              WRITE UPDT-REC FROM W-ACARD
00258              WRITE UPDT REC FROM W-BCARD
00259              WRITE UPDT-REC FROM W-CCARD
00260              ADD 3 TO OCNT
00261              ADD 1 TO PCNT.
00262      CHECK CARDCODE.
00263          IF CARDA
00264              IF SW-A = 1
00265                  MOVE W ACARD TO W-RECORD
00266                  PERFORM DUP-CARD
00267              ELSE
00268                  MOVE 1 TO SW A
00269                  MOVE CARD REC TO W-ACARD
00270          ELSE
00271          IF CARDB
00272              IF SW-B = 1
00273                  MOVE W BCARD TO W-RECORD
00274                  PERFORM DUP CARD
00275              ELSE
00276                  MOVE 1 TO SW B
00277                  MOVE CARD-REC TO W BCARD
00278          ELSE
00279          IF CARDC
00280              IF SW-C = 1
00281                  MOVE W CCARD TO W RECORD
00282                  PERFORM DUP CARD
00283              ELSE
00284                  MOVE 1 TO SW-C
00285                  MOVE CARD-REC TO W-CCARD
00286          ELSE
00287              PERFORM ERR-CARDCODE.
00288      DUP CARD.
00289          MOVE W CARDCODE TO E CARDCODE.
00290          MOVE W PERSCODE TO E PERSCODE.
00291          MOVE W DATA TO E DATA.
00292          MOVE 'FIRST CARD' TO E MESSAGE.
00293          PERFORM ERR-PRINT.
00294          MOVE C CARDCODE TO E CARDCODE.
00295          MOVE C PERSCODE TO E PERSCODE.
00296          MOVE C DATA      TO E-DATA.
00297          MOVE 'DUPLICATE' TO E MESSAGE.
00298          PERFORM ERR-PRINT.
00299      VALIDATE RTNS.
00300          IF REC-CARDA
00301              MOVE 'A' TO E-CARDCODE
00302              PERFORM MISSING-CARD
00303          ELSE
00304              PERFORM VAL A.
```

Continued on next page.

Appendix VIa. continued.

```
00305                    IF NO-CARDB
00306                        MOVE 'B' TO E-CARDCODE
00307                        PERFORM MISSING-CARD
00308                    ELSE
00309                        PERFORM VAL-B.
00310                    IF NO-CARDC
00311                        MOVE 'C' TO E-CARDCODE
00312                        PERFORM MISSING-CARD
00313                    ELSE
00314                        PERFORM VAL-C.
00315                    IF A-ACARD = SPACES
00316                        MOVE 2 TO SW-A
00317                    ELSE
00318                        MOVE W-ACARD TO W-RECORD
00319                        MOVE A-ACARD TO A-DATA
00320                        PERFORM VALID-CHECK.
00321                    IF A-BCARD = SPACES
00322                        MOVE 2 TO SW-B
00323                    ELSE
00324                        MOVE W-BCARD TO W-RECORD
00325                        MOVE A-BCARD TO A-DATA
00326                        PERFORM VALID-CHECK.
00327                    IF A-CCARD = SPACES
00328                        MOVE 2 TO SW-C
00329                    ELSE
00330                        MOVE W-CCARD TO W-RECORD
00331                        MOVE A-CCARD TO A-DATA
00332                        PERFORM VALID-CHECK.
00333            VAL-A.
00334                MOVE SPACES TO A-DETAIL.
00335                EXAMINE W-CATEGORY REPLACING LEADING SPACES BY 0.
00336                IF W-CATEGORY < '01' OR > '11'
00337                    MOVE '**' TO A-CATEGORY.
00338                IF NO-CARDC
00339                    MOVE '?' TO A-PCTIME
00340                ELSE
00341                    EXAMINE W-PCPOLICY REPLACING LEADING SPACES BY 0
00342                    EXAMINE W-PCPLAN   REPLACING LEADING SPACES BY 0
00343                    EXAMINE W-PCRES    REPLACING LEADING SPACES BY 0
00344                    EXAMINE W-PCTEACH  REPLACING LEADING SPACES BY 0
00345                    EXAMINE W-PCEXTEN  REPLACING LEADING SPACES BY 0
00346                    EXAMINE W-PCFARM   REPLACING LEADING SPACES BY 0
00347                    EXAMINE W-PCOTHER  REPLACING LEADING SPACES BY 0
00348                    IF W-PCTIME = 'A'
00349                        EXAMINE W-PCPOLICY REPLACING LEADING SPACES BY 0
00350                        IF W-PCPOLICY < '050' OR > '100'
00351                            MOVE '***' TO A-PCPOLICY
00352                            MOVE '*'   TO A-PCTIME
00353                        ELSE
00354                            NEXT SENTENCE
00355                    ELSE
00356                    IF W-PCTIME = 'B'
00357                        EXAMINE W-PCPLAN REPLACING LEADING SPACES BY 0
00358                        IF W-PCPLAN < '050' OR > '100'
00359                            MOVE '***' TO A-PCPOLICY
00360                            MOVE '*'   TO A-PCTIME
00361                        ELSE
00362                            NEXT SENTENCE
00363                    ELSE
00364                    IF W-PCTIME = 'C'
00365                        EXAMINE W-PCRES    REPLACING LEADING SPACES BY 0
00366                        IF W-PCRES    < '050' OR > '100'
```

Appendix VIa. continued.

```
00367                          MOVE '*'   TO A-PCTIME
00368                          MOVE '***' TO A-PCRES
00369                        ELSE
00370                          NEXT SENTENCE
00371                    ELSE
00372                    IF W-PCTIME = 'D'
00373                       EXAMINE W-PCTEACH  REPLACING LEADING SPACES BY 0
00374                       IF W-PCTEACH  < '050' OR > '100'
00375                          MOVE '*'   TO A-PCTIME
00376                          MOVE '***' TO A-PCTEACH
00377                       ELSE
00378                          NEXT SENTENCE
00379                    ELSE
00380                       EXAMINE W-PCEXTEN  REPLACING LEADING SPACES BY 0
00381                    IF W-PCTIME = 'E'
00382                       IF W-PCEXTEN  < '050' OR > '100'
00383                          MOVE '*'   TO A-PCTIME
00384                          MOVE '***' TO A-PCEXTEN
00385                       ELSE
00386                          NEXT SENTENCE
00387                    ELSE
00388                    IF W-PCTIME = 'F'
00389                       EXAMINE W-PCFARM  REPLACING LEADING SPACES BY 0
00390                       IF W-PCFARM   < '050' OR > '100'
00391                          MOVE '*'   TO A-PCTIME
00392                          MOVE '***' TO A-PCFARM
00393                       ELSE
00394                          NEXT SENTENCE
00395                    ELSE
00396                    IF W-PCTIME = 'G'
00397                       EXAMINE W-PCOTHER  REPLACING LEADING SPACES BY 0
00398                       IF W-PCOTHER < '050' OR > '100'
00399                          MOVE '*'   TO A-PCTIME
00400                          MOVE '***' TO A-PCOTHER
00401                       ELSE
00402                          NEXT SENTENCE
00403                    ELSE
00404                    IF W-PCTIME = 'O'
00405                       IF  W-PCPOLICY < '050' AND W-PCPLAN < '050' AND
00406                           W-PCRES    < '050' AND W-PCTEACH < '050' AND
00407                           W-PCEXTEN  < '050' AND W-PCFARM < '050' AND
00408                           W-PCOTHER  < '050'
00409                          NEXT SENTENCE
00410                       ELSE
00411                          MOVE '*' TO A-PCTIME
00412                          IF W-PCPOLICY > '050'
00413                             MOVE '***' TO A-PCPOLICY
00414                          ELSE
00415                          IF W-PCPLAN   > '050'
00416                             MOVE '***' TO A-PCPLAN
00417                          ELSE
00418                          IF W-PCRES    > '050'
00419                             MOVE '***' TO A-PCRES
00420                          ELSE
00421                          IF W-PCTEACH  > '050'
00422                             MOVE '***' TO A-PCTEACH
00423                          ELSE
00424                          IF W-PCEXTEN  > '050'
00425                             MOVE '***' TO A-PCEXTEN
00426                          ELSE
00427                             IF W-PCFARM   > '050'
```

Appendix VIa. continued.

```
00428                          MOVE '***' TO A-PCFARM
00429                      ELSE
00430                      IF W-PCOTHER   > '050'
00431                          MOVE '***' TO A-PCOTHER
00432                      ELSE
00433                          MOVE '***' TO A PCPOLICY  A-PCPLAN    A-PCRES
00434                                          A-PCTEACH  A-PCEXTEN  A-PCFARM
00435                                          A PCOTHER
00436                  ELSE
00437                      MOVE '*' TO A-PCTIME.
00438                  IF W-CTRYCODE = SPACE
00439                      MOVE '***' TO A CTRYCODE.
00440          *   HANDLING
00441              IF W-HANDLING < '1' OR > '2'
00442                  MOVE '*' TO A-HANDLING.
00443          *   COPIES
00444              IF W COPIES < 'C' OR > '9'
00445                  MOVE '*' TO A-COPIES.
00446          *   NAME
00447              IF W NAME = 'LIBRARY' OR  = 'LIBRARY SERIALS'
00448                  NEXT SENTENCE
00449              ELSE
00450              IF W-CATEGORY = '02' OR '03' OR '04' OR '05' OR '07' OR '08'
00451                  NEXT SENTENCE
00452              ELSE
00453              IF W-ALPHA = SPACES
00454                  MOVE ALL '*'  TO A-ALPHA.
00455              IF W-NAME = SPACES
00456                  MOVE ALL '*'  TO A NAME.
00457          VAL-B.
00458              MOVE SPACES TO A DETAIL.
00459              IF W-ADDRESS1 = SPACES AND W-ADDRESS2 = SPACES
00460                  MOVE ALL '*'  TO A-ADDRESS1
00461                  MOVE ALL '*'  TO A-ADDRESS2.
00462          VAL-C.
00463              MOVE SPACES TO A DETAIL.
00464          *   ADDTYPE
00465              IF W-ADDTYPE = 'L' OR ' '
00466                  IF NO-CARDA
00467                      MOVE '?' TO A ADDTYPE
00468                  ELSE
00469                  IF (W-NAME = 'LIBRARY' OR = 'LIBRARY SERIALS')
00470                      AND (W-CATEGORY > '01' AND < '06')
00471                  NEXT SENTENCE
00472                  ELSE
00473                      MOVE '*' TO A-ADDTYPE
00474                      MOVE ALL '*' TO A-NAME  A-CATEGORY
00475              ELSE
00476              IF W ADDTYPE = 'R' OR 'O' OR 'P'
00477                  NEXT SENTENCE
00478              ELSE
00479                  MOVE '*' TO A-ADDTYPE.
00480          *   DISCIPLN
00481              IF W DISCIPLN = ' '
00482                  NEXT SENTENCE
00483              ELSE
00484              IF W-DISCIPLN < 'A' OR > 'M'
00485                  MOVE '*' TO A-DISCIPLN.
00486          *   DEGREE
00487              IF W DEGREE = ' '
00488                  NEXT SENTENCE
00489              ELSE
00490              IF W-DEGREE < 'A' OR > 'E'
```

Appendix VIa. continued.

```
00491                      MOVE '*' TO A-DEGREE.
00492           *  PROBDET
00493              IF W PROBDET = ' '
00494                 NEXT SENTENCE
00495              ELSE
00496              IF W-PROBDET < 'A' OR > 'V'
00497                 MOVE '*' TO A-PROBDET.
00498        VALID-CHECK.
00499              MOVE 'DATA ERROR' TO E-MESSAGE
00500              MOVE W-PERSCODE TO E-PERSCODE
00501              MOVE W CARDCODE TO E CARDCODE
00502              MOVE W-DATA        TO E-DATA
00503              PERFORM ERR-PRINT
00504              WRITE PRTR REC FROM A DETAIL AFTER 1
00505              ADD 1 TO LCNT
00506        ERR-PERSCODE.
00507              MOVE C-PERSCODE TO E PERSCODE.
00508              MOVE C CARDCODE TO E CARDCODE.
00509              MOVE C-DATA        TO E-DATA.
00510              MOVE 'INVALID PERSCODE' TO E-MESSAGE.
00511              ADD 1 TO ECNT.
00512              PERFORM ERR-PRINT.
00513        INITIALIZE.
00514              MOVE 0 TO SW A SW B SW C.
00515              MOVE SPACES TO W-ACARD W-BCARD W-CCARD.
00516              MOVE SPACES TO A-ACARD A-BCARD A-CCARD.
00517        MISSING CARD.
00518              MOVE S-PERSCODE TO E-PERSCODE.
00519              MOVE 'MISSING' TO E-MESSAGE.
00520              MOVE SPACES TO E-DATA.
00521              PERFORM ERR PRINT.
00522        ERR-CARDCODE.
00523              MOVE C-PERSCODE TO E-PERSCODE.
00524              MOVE C CARDCODE TO E CARDCODE.
00525              MOVE C-DATA        TO E DATA.
00526              MOVE 'INVALID CARDCODE' TO E-MESSAGE.
00527              ADD 1 TO ECNT
00528              PERFORM ERR-PPINT.
00529        ERR-PRINT.
00530              IF LCNT > 50
00531                 PERFORM WRITE-FOOTINGS
00532                 PERFORM WRITE-HEADINGS.
00533              WRITE PRTR-REC FROM E-DETAIL AFTER 2.
00534              ADD 2 TO LCNT.
00535              ADD 1 TO ECNT.
00536        WRITE HEADINGS.
00537              ADD 1 TO PGCNT.
00538              MOVE PGCNT TO PAYG.
00539              WRITE PRTR REC FROM E HEAD1 AFTER TURN PAGE.
00540              WRITE PRTR-REC FROM E-HEAD2 AFTER 1.
00541              WRITE PRTR-REC FROM E-HEAD3 AFTER 1.
00542              WRITE PRTR-REC FROM E-HEAD4 AFTER 2.
00543              WRITE PRTR-REC FROM E-HEAD5 AFTER 1.
00544              MOVE 0 TO LCNT.
00545        WRITE-FOOTINGS.
00546              WRITE PRTR-REC FROM E-FOOT1 AFTER 3.
00547              WRITE PRTR-REC FROM E-FOOT2 AFTER 1.
00548        END-RTNS.
00549              WRITE PRTR REC FROM E-FOOT3 AFTER 2.
00550              DISPLAY 'NO. OF INPUT RECORDS = ' ICNT.
00551              DISPLAY 'NO. OF VALID RECORDS = ' OCNT.
00552              DISPLAY 'NO. OF ERRORS FOUND   = ' ECNT.
00553              DISPLAY 'NO. OF VALID ENTRIES - ' PCNT.
00554              CLOSE CARD-FILE UPDT-FILE PRTR-FILE.
00555              STOP RUN.
```

b. Update program

```
00001          IDENTIFICATION DIVISION.
00002          PROGRAM-ID. ML002.
00003          AUTHOR. NONA.
00004          REMARKS.
00005              THIS PROGRAM UPDATES THE MASTER MAIL FILE.
00006              THE UPDATE CODES TO BE USED ARE:
00007                  A,B,&C FOR NEW ENTRIES
00008                  D      TO DELETE AN EXISTING ENTRY
00009                  E,F,&G TO CHANGE SOME FIELDS IN AN EXISTING ENTRY.
00010          ENVIRONMENT DIVISION.
00011          CONFIGURATION SECTION.
00012          SPECIAL-NAMES.
00013              C01 IS TURN-PAGE.
00014          INPUT OUTPUT SECTION.
00015          FILE CONTROL.
00016              SELECT PARAMS FILE ASSIGN TO UT-S-PARAMS.
00017              SELECT UPDATE FILE ASSIGN TO UT-S-UPDATE.
00018              SELECT MASTER-FILE ASSIGN TO UT-S-MASTER.
00019              SELECT OUTPUT-FILE ASSIGN TO UT-S-OUTPUT.
00020              SELECT PRINTR-FILE ASSIGN TO UT-S-PRINTR.
00021          DATA DIVISION.
00022          FILE SECTION.
00023          FD  UPDATE-FILE
00024                  BLOCK CONTAINS 0 RECORDS
00025                  RECORD CONTAINS 80 CHARACTERS
00026                  RECORDING MODE F
00027                  LABEL RECORD STANDARD
00028                  DATA RECORD UPDATE-REC.
00029          01  UPDATE-REC       PIC X(80).
00030          FD  MASTER FILE
00031                  BLOCK CONTAINS 0 RECORDS
00032                  RECORD CONTAINS 226 CHARACTERS
00033                  RECORDING MODE F
00034                  LABEL RECORD STANDARD
00035                  DATA RECORD MASTER-REC.
00036          01  MASTER-REC       PIC X(226).
00037          FD  OUTPUT-FILE
00038                  BLOCK CONTAINS 0 RECORDS
00039                  RECORD CONTAINS 226 CHARACTERS
00040                  RECORDING MODE F
00041                  LABEL RECORD STANDARD
00042                  DATA RECORD OUTPUT-REC.
00043          01  OUTPUT REC       PIC X(226).
00044          FD  PRINTR-FILE
00045                  RECORD CONTAINS 133 CHARACTERS
00046                  RECORDING MODE F
00047                  LABEL RECORD OMITTED
00048                  DATA RECORD PRINTR-REC.
00049          01  PRINTR-REC       PIC X(133).
00050          FD  PARAMS FILE
00051                  RECORD CONTAINS 80 CHARACTERS
00052                  RECORDING MODE F
00053                  LABEL RECORD OMITTED
00054                  DATA RECORD PARAMS-REC.
00055          01  PARAMS REC       PIC X(80).
00056          WORKING-STORAGE SECTION.
00057          01  RECORD-AREAS.
00058              03  UPDATE AREA.
00059                  05  U CARDCODE          PIC X.
00060                      88  CARDA   VALUE 'A'.
00061                      88  CARDB   VALUE 'B'.
00062                      88  CARDC   VALUE 'C'.
```

Appendix VIb. continued.

```
00063                        88   CARDD    VALUE 'D'.
00064                        88   CARDE    VALUE 'E'.
00065                        88   CARDF    VALUE 'F'.
00066                        88   CARDG    VALUE 'G'.
00067                 05   U-PERSCODE              PIC X(5).
00068                        88   UPDATE FILE END VALUE HIGH-VALUES.
00069                 05   U-CARDA.
00070                    07  U-CATEGORY          PIC XX.
00071                    07  U PCTIME            PIC X.
00072                    07  U CTRYCODE          PIC XX.
00073                    07  U HANDLING          PIC X.
00074                    07  U-COPIES            PIC X.
00075                    07  U INPTDATE          PIC XXXX.
00076                    07  U-ALPHA             PIC X(7).
00077                    07  U-NAME              PIC X(29).
00078                    07  U ORGANIZ           PIC X(27).
00079                 05   U-CARDB REDEFINES U-CARDA.
00080                    07  U-ADDRESS1          PIC X(32).
00081                    07  U ADDRESS2          PIC X(32).
00082                    07  U-POSTCODE          PIC X(8).
00083                 05   U CARDC REDEFINES U-CARDA.
00084                    07  U COUNTRY           PIC X(15).
00085                    07  U ADDTYPE           PIC X.
00086                    07  U-DISCIPLN          PIC X.
00087                    07  U-LANG1             PIC XX.
00088                    07  U-LANG2             PIC XX.
00089                    07  U-LANG3             PIC XX.
00090                    07  U-DEGREE            PIC X.
00091                    07  U SEX               PIC X.
00092                    07  U-AGE               PIC XX.
00093                    07  U-CITIZEN           PIC XX.
00094                    07  U PCPOLICY          PIC XXX.
00095                    07  U PCPLAN            PIC XXX.
00096                    07  U-PCRES             PIC XXX.
00097                    07  U-PCTEACH           PIC XXX.
00098                    07  U PCEXTEN           PIC XXX.
00099                    07  U-PCFARM            PIC XXX.
00100                    07  U-PCOTHER           PIC XXX.
00101                    07  U SUBSCRIP          PIC X.
00102                    07  U-SEEKINFO          PIC X.
00103                    07  U-PROBDET           PIC X.
00104                    07  U PROBABS           PIC XXXX.
00105                    07  U RANKRES           PIC X(8).
00106                    07  U-TITLEPUB          PIC XX.
00107                    07  U-PUBDATE           PIC XX.
00108                    07  U INFOTYPE          PIC XXX.
00109                    07  U-ANNRLPT           PIC X.
00110                    07  U-AFTREAD           PIC X.
00111          03   MASTER AREA.
00112                 05   M-DELCODE              PIC X.
00113                 05   M PERSCODE             PIC X(5).
00114                        88   MASTER-FILE-END VALUE HIGH-VALUES.
00115                 05   M-CATEGORY             PIC XX.
00116                 05   M PCTIME               PIC X.
00117                 05   M-CTRYCODE             PIC XX.
00118                 05   M HANDLING             PIC X.
00119                 05   M COPIES               PIC X.
00120                 05   M INPTDATE             PIC XXXX.
00121                 05   M ALPHA                PIC X(7).
00122                 05   M-NAME                 PIC X(29).
00123                 05   M ORGANIZ              PIC X(27).
00124                 05   M-ADDRESS1             PIC X(32).
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Continued on next page.

Appendix VIb.   continued.

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00125              05   M-ADDRESS2        PIC  X(32).
00126              05   M POSTCODE        PIC  X(8).
00127              05   M-COUNTRY         PIC  X(15).
00128              05   M-ADDTYPE         PIC  X.
00129              05   M DISCIPLN        PIC  X.
00130              05   M LANG1           PIC  XX.
00131              05   M-LANG2           PIC  XX.
00132              05   M-LANG3           PIC  XX.
00133              05   M DEGREE          PIC  X.
00134              05   M SEX             PIC  X.
00135              05   M-AGE             PIC  XX.
00136              05   M CITIZEN         PIC  XX.
00137              05   M-PCPOLICY        PIC  XXX.
00138              05   M-PCPLAN          PIC  XXX.
00139              05   M PCRES           PIC  XXX.
00140              05   M-PCTEACH         PIC  XXX.
00141              05   M-PCEXTEN         PIC  XXX.
00142              05   M-PCFARM          PIC  XXX.
00143              05   M PCOTHER         PIC  XXX.
00144              05   M SUBSCRIP        PIC  X.
00145              05   M-SEEKINFO        PIC  X.
00146              05   M PROBDEF         PIC  X.
00147              05   M-PPROBABS        PIC  XXXX.
00148              05   M PANKELS         PIC  X(8).
00149              05   M TITLEPUB        PIC  XX.
00150              05   M PUBDATE         PIC  XX.
00151              05   M INFOTYPE        PIC  XXX.
00152              05   M-ANNREPT         PIC  X.
00153              05   M AFTREAD         PIC  X.
00154         03   OUTPUT-AREA.
00155              05   O-DELCODE         PIC  X.
00156              05   O PERSCODE        PIC  X(5).
00157              05   O-CATEGORY        PIC  XX.
00158              05   O-PCTIME          PIC  X.
00159              05   O CTRYCODE        PIC  XX.
00160              05   O HANDLING        PIC  X.
00161              05   O-COPIES          PIC  X.
00162              05   O-INPTDATE        PIC  XXXX.
00163              05   O ALPHA           PIC  X(7).
00164              05   O-NAME            PIC  X(29).
00165              05   O-ORGANIZ         PIC  X(27).
00166              05   O ADDRESS1        PIC  X(32).
00167              05   O-ADDRESS2        PIC  X(32).
00168              05   O POSTCODE        PIC  X(8).
00169              05   O-COUNTRY         PIC  X(15).
00170              05   O-ADDTYPE         PIC  X.
00171              05   O DISCIPLN        PIC  X.
00172              05   O-LANG1           PIC  XX.
00173              05   O-LANG2           PIC  XX.
00174              05   O LANG3           PIC  XX.
00175              05   O DEGREE          PIC  X.
00176              05   O SEX             PIC  X.
00177              05   O AGE             PIC  XX.
00178              05   O CITIZEN         PIC  XX.
00179              05   O-PCPOLICY        PIC  XXX.
00180              05   O-PCPLAN          PIC  XXX.
00181              05   O PCRES           PIC  XXX.
00182              05   O-PCTEACH         PIC  XXX.
00183              05   O-PCEXTEN         PIC  XXX.
00184              05   O PCFARM          PIC  XXX.
00185              05   O-PCOTHER         PIC  XXX.
00186              05   O-SUBSCRIP        PIC  X.
```

Appendix VIb. continued.

```
00187              05    0 SELKINFO              PIC X.
00188              05    0 PROBDET               PIC X.
00189              05    0 PROBABS               PIC XXXX.
00190              05    0 RANKLES               PIC X(8).
00191              05    0 TITLEPUB              PIC XX.
00192              05    0 PUBDAT.               PIC XX.
00193              05    0 INFOTYPE              PIC XXX.
00194              05    0 AMNDEPT               PIC X.
00195              05    0 AFTRLAD               PIC X.
00196        03    PRINTR-AREA.
00197              05    P HEAD1.
00198                    07    FILLER            PIC X(15)    VALUE SPACES.
00199                    07    FILLER            PIC X(33)
00200                          VALUE 'MASTER MAILING LIST UPDATE REPORT'.
00201              05    P-HEAD2.
00202                    07    FILLER            PIC X(12)
00203                          VALUE ' RUN DATE: '.
00204                    07    P DATE RUN         PIC X(8).
00205                    07    FILLER            PIC X(54)    VALUE SPACES.
00206                    07    FILLER            PIC X(6)     VALUE 'PAGE: '.
00207                    07    P PAGE            PIC ZZZ9.
00208              05    P HEAD3.
00209                    07    FILLER            PIC XXX      VALUE SPACES.
00210                    07    FILLER            PIC X(3)     VALUE 'PERSCODE'.
00211                    07    FILLER            PIC XXXX     VALUE SPACES.
00212                    07    FILLER            PIC X(14)
00213                          VALUE 'PREVIOUS VALUE'.
00214                    07    FILLER            PIC X(22)    VALUE SPACES.
00215                    07    FILLER            PIC X(32)
00216                          VALUE 'CURRENT VALUE'.
00217                    07    FILLER            PIC X(11)    VALUE '**REMARKS**'.
00218              05    P DETAIL.
00219                    07    FILLER            PIC X(5)     VALUE SPACES.
00220                    07    P PERSCODE        PIC X(5).
00221                    07    FILLER            PIC X        VALUE SPACE.
00222                    07    P-PREVIOUS        PIC X(26).
00223                    07    P CURRENT         PIC X(34).
00224                    07    P-REMARKS         PIC X(25).
00225        03    PARAMS-AREA.
00226              05    C RUNTYPE               PIC X.
00227              05    FILLER                  PIC X(79).
00228  03    WORK AREAS.
00229        03    SM-PERSCODE                   PIC 9(5).
00230        03    UCTR                          PIC 9(5).
00231        03    DCTR                          PIC 9(5).
00232        03    NCTR                          PIC 9(5).
00233        03    TCTR                          PIC 9(5).
00234        03    LCTR                          PIC 99.
00235        03    PCTR                          PIC 99.
00236        03    S-PERSCODE                    PIC X(5).
00237        03    S-RUNTYPE                     PIC X.
00238              88    UPDATE-ENTRIES   VALUE 'U'.
00239              88    ADDTNL-ENTRIES   VALUE 'A'.
00240  PROCEDURE DIVISION.
00241  MAINLINE.
00242        PERFORM HOUSEKEEP-RTNS.
00243        PERFORM READ-PARAMS.
00244        IF ADDTNL ENTRIES
00245              PERFORM ADDTNL RTNS THRU X ADDTNL RTNS
00246        ELS
00247        IF UPDATE-ENTRIES
00248              PERFORM UPDATE RTNS THRU X UPDATE-RTNS
```

Appendix VIb.   continued.

```
00249                     ELSE
00250                         DISPLAY 'NO RUNTYPE SPECIFIED'
00251                         PERFORM ABNORMAL-END.
00252                     PERFORM END ROUTINES.
00253                     PERFORM CLOSE-FILES.
00254                     STOP RUN.
00255             HOUSEKEEP RTNS.
00256                 OPEN INPUT UPDATE-FILE   MASTER-FILE
00257                           PARAMS-FILE
00258                      OUTPUT OUTPUT-FILE   PRINTR-FILE.
00259                 MOVE 0 TO SM-PERSCODE.
00260                 MOVE 0 TO UCTR   DCTR   NCTR   ECTR.
00261                 MOVE 0 TO LCTR   PCTR.
00262                 MOVE LOW-VALUES TO S-PERSCODE.
00263                 MOVE CURRENT-DATE TO P-DATE-RUN.
00264             READ-PARAMS.
00265                 READ PARAMS-FILE INTO PARAMS-AREA
00266                     AT END
00267                         MOVE HIGH-VALUES TO C-RUNTYPE.
00268                 MOVE C-RUNTYPE TO S-RUNTYPE.
00269             ADDTNL-RTNS.
00270                 PERFORM READ-MASTER THRU X-READ-MASTER.
00271                 IF MASTER-FILE-END
00272                     PERFORM NEW-FILE THRU X-NEW-FILE
00273                         UNTIL UPDATE-FILE-END
00274                 ELSE
00275                     PERFORM ADD-FILE THRU X-ADD-FILE.
00276             X-ADDTNL-RTNS.
00277                 EXIT.
00278             UPDATE-RTNS.
00279                 PERFORM READ-MASTER THRU X-READ-MASTER.
00280                 IF MASTER-FILE-END
00281                     PERFORM ABNORMAL-END
00282                 ELSE
00283                     PERFORM CORRECT-ENTRIES THRU X-CORRECT-ENTRIES.
00284             X-UPDATE-RTNS.
00285                 EXIT.
00286             CORRECT-ENTRIES.
00287                 PERFORM READ-UPDATE THRU X-READ-UPDATE.
00288                 IF UPDATE-FILE-END
00289                     PERFORM ABNORMAL-END
00290                 ELSE
00291                     PERFORM FIND-RECORD THRU X-FIND-RECORD
00292                         UNTIL MASTER-FILE-END AND UPDATE-FILE-END.
00293             X-CORRECT-ENTRIES.
00294                 EXIT.
00295             FIND-RECORD.
00296                 IF M-PERSCODE < U-PERSCODE
00297                     WRITE OUTPUT-REC FROM MASTER-AREA
00298                     PERFORM READ-MASTER THRU X-READ-MASTER
00299                 ELSE
00300                 IF M-PERSCODE > U-PERSCODE
00301                     PERFORM READ-UPDATE THRU X-READ-UPDATE
00302                     PERFORM NOT-OLD
00303                 ELSE
00304                     PERFORM MATCH-RECORDS THRU X-MATCH-RECORDS
00305                     PERFORM READ-MASTER THRU X-READ-MASTER.
00306             X-FIND-RECORD.
00307                 EXIT.
00308             NEW-FILE.
00309                 PERFORM READ-UPDATE THRU X-READ-UPDATE.
00310                 IF U-PERSCODE NOT = S-PERSCODE
```

Appendix VIb. continued.

```
00311                    PERFORM CHANGE-PERSCODE.
00312               IF UPDATE FILE END
00313                    GO TO X-NEW-FILE.
00314               IF CARDA
00315                    PERFORM MOVE-A THRU MOVE-AX
00316               ELSE
00317               IF CARDB
00318                    PERFORM MOVE-B THRU MOVE-BX
00319               ELSE
00320               IF CARDC
00321                    PERFORM MOVE-C THRU MOVE-CX.
00322          X-NEW-FILE.
00323               EXIT.
00324          ADD-FILE.
00325               PERFORM READ-UPDATE THRU X-READ-UPDATE.
00326               IF UPDATE-FILE-END
00327                    PERFORM ABNORMAL-END
00328               ELSE
00329                    PERFORM NEW-ENTRIES THRU X-NEW-ENTRIES
00330                        UNTIL UPDATE-FILE-END
00331                        AND MASTER-FILE-END.
00332          X-ADD-FILE.
00333               EXIT.
00334          CHANGE-PERSCODE.
00335               IF S-PERSCODE NOT = LOW-VALUES
00336                    MOVE O-PERSCODE TO P-PERSCODE
00337                    MOVE SPACES TO P-PREVIOUS  P-CURRENT
00338                    MOVE 'NEW ENTRY' TO P-REMARKS
00339                    PERFORM PRINT-LINE

00340               PERFORM WRITE-OUTPUT-REC.
00341               MOVE U-PERSCODE TO O-PERSCODE  S-PERSCODE.
00342               MOVE SPACE TO O-DELCODE.
00343          NEW-ENTRIES.
00344               IF M-PERSCODE < U-PERSCODE
00345                    MOVE M-PERSCODE TO S-PERSCODE
00346                    MOVE MASTER-AREA TO OUTPUT-AREA
00347                    WRITE OUTPUT-REC FROM OUTPUT-AREA
00348                    PERFORM READ-MASTER THRU X-READ-MASTER
00349               ELSE
00350               IF M-PERSCODE = U-PERSCODE
00351                    PERFORM NOT-NEW
00352                    PERFORM READ-UPDATE THRU X-READ-UPDATE
00353                        UNTIL U-PERSCODE NOT = M-PERSCODE
00354                    MOVE MASTER-AREA TO OUTPUT-AREA
00355                    WRITE OUTPUT-REC FROM OUTPUT-AREA
00356                    PERFORM READ-MASTER THRU X-READ-MASTER
00357               ELSE
00358                    MOVE U-PERSCODE TO S-PERSCODE  O-PERSCODE
00359                    IF CARDA
00360                         PERFORM MOVE-A THRU MOVE-AX
00361                         PERFORM READ-UPDATE THRU X-READ-UPDATE
00362                    ELSE
00363                    IF CARDB
00364                         PERFORM MOVE-B THRU MOVE-BX
00365                         PERFORM READ-UPDATE THRU X-READ-UPDATE
00366                    ELSE
00367                    IF CARDC
00368                         PERFORM MOVE-C THRU MOVE-CX
00369                         PERFORM CHANGE-PERSCODE
00370                         PERFORM READ-UPDATE THRU X-READ-UPDATE.
00371               X-NEW-ENTRIES.
```

Continued on next page.

Appendix VIb. continued.

```
00372                 EXIT.
00373             READ-UPDATE.
00374                 IF UPDATE FILE-END
00375                     NEXT SENTENCE
00376                 ELSE
00377                 READ UPDATE-FILE INTO UPDATE-AREA
00378                     AT END
00379                         MOVE HIGH-VALUES TO U-PERSCODE
00380                         GO TO X-READ UPDATE.
00381                 IF U-PERSCODE = SPACES
00382                 EXAMINE U-PERSCODE REPLACING LEADING SPACES BY '0'.
00383                 IF U-PERSCODE NOT NUMERIC
00384                     MOVE U-PERSCODE TO P-PERSCODE
00385                     MOVE SPACES TO P-PREVIOUS  P-CURRENT
00386                     MOVE 'U-PERSCODE NOT NUMERIC' TO P-REMARKS
00387                     PERFORM PRINT-LINE
00388                     ADD 1 TO ECTR
00389                     GO TO READ-UPDATE.
00390             X-READ-UPDATE.
00391                 EXIT.
00392             READ-MASTER.
00393                 IF MASTER-FILE-END
00394                     NEXT SENTENCE
00395                 ELSE
00396                 READ MASTER-FILE INTO MASTER-AREA
00397                     AT END
00398                         MOVE HIGH-VALUES TO M-PERSCODE.
00399             X-READ-MASTER.
00400                 EXIT.
00401             MOVE A.
00402                 MOVE-CATEGORY.
00403                     MOVE U-CATEGORY TO O-CATEGORY.
00404                 MOVE PCTIME.
00405                     MOVE U-PCTIME    TO O-PCTIME.
00406                 MOVE-CTRYCODE.
00407                     MOVE U-CTRYCODE TO O-CTRYCODE.
00408                 MOVE-HANDLING.
00409                     MOVE U-HANDLING TO O-HANDLING.
00410                 MOVE COPIES.
00411                     MOVE U-COPIES    TO O-COPIES.
00412                 MOVE-INPTDATE.
00413                     MOVE U-INPTDATE TO O-INPTDATE.
00414                 MOVE ALPHA.
00415                     MOVE U-ALPHA      TO O-ALPHA.
00416                 MOVE-NAME.
00417                     MOVE U-NAME       TO O-NAME.
00418                 MOVE-ORGANIZ.
00419                     MOVE U-ORGANIZ   TO O-ORGANIZ.
00420             MOVE AX.
00421                 EXIT.
00422             MOVE-B.
00423                 MOVE-ADDRESS1.
00424                     MOVE U-ADDRESS1 TO O-ADDRESS1.
00425                 MOVE-ADDRESS2.
00426                     MOVE U-ADDRESS2 TO O-ADDRESS2.
00427                 MOVE POSTCODE.
00428                     MOVE U-POSTCODE TO O-POSTCODE.
00429             MOVE-BX.
00430                 EXIT.
00431             MOVE-C.
00432                 MOVE COUNTRY.
00433                     MOVE U-COUNTRY   TO O-COUNTRY.
```

Appendix VIb. continued.

```
00434              MOVE ADDTYPE.
00435                 MOVE U-ADDTYPE   TO O-ADDTYPE.
00436              MOVE-DISCIPLN.
00437                 MOVE U-DISCIPLN  TO O-DISCIPLN.
00438              MOVE LANG1.
00439                 MOVE U-LANG1     TO O-LANG1.
00440              MOVE-LANG2.
00441                 MOVE U-LANG2     TO O-LANG2.
00442              MOVE-LANG3.
00443                 MOVE U-LANG3     TO O-LANG3.
00444              MOVE-DEGREE.
00445                 MOVE U-DEGREE    TO O-DEGREE.
00446              MOVE SEX.
00447                 MOVE U-SEX       TO O-SEX.
00448              MOVE AGE.
00449                 MOVE U-AGE       TO O-AGE.
00450              MOVE CITIZEN.
00451                 MOVE U-CITIZEN   TO O-CITIZEN.
00452              MOVE-PCPOLICY.
00453                 MOVE U-PCPOLICY  TO O-PCPOLICY.
00454              MOVE-PCPLAN.
00455                 MOVE U-PCPLAN    TO O-PCPLAN.
00456              MOVE-PCRES.
00457                 MOVE U-PCRES     TO O-PCRES.
00458              MOVE PCTEACH.
00459                 MOVE U-PCTEACH   TO O-PCTEACH.
00460              MOVE-PCEXTEN.
00461                 MOVE U-PCEXTEN   TO O-PCEXTEN.
00462              MOVE PCFARM.
00463                 MOVE U-PCFARM    TO O-PCFARM.
00464              MOVE-PCOTHER.
00465                 MOVE U-PCOTHER   TO O-PCOTHER.
00466              MOVE-SUBSCRIP.
00467                 MOVE U-SUBSCRIP  TO O-SUBSCRIP.
00468              MOVE SEEKINFO.
00469                 MOVE U-SEEKINFO  TO O-SEEKINFO.
00470              MOVE PROBDET.
00471                 MOVE U-PROBDET   TO O-PROBDET.
00472              MOVE-PROBABS.
00473                 MOVE U-PROBABS   TO O-PROBABS.
00474              MOVE-RANKRES.
00475                 MOVE U-RANKRES   TO O-RANKRES.
00476              MOVE-TITLEPUB.
00477                 MOVE U-TITLEPUB  TO O-TITLEPUB.
00478              MOVE INFOTYPE.
00479                 MOVE U-INFOTYPE  TO O-INFOTYPE.
00480              MOVE-ANNREPT.
00481                 MOVE U-ANNREPT   TO O-ANNREPT.
00482              MOVE-AFTREAD.
00483                 MOVE U-AFTREAD   TO O-AFTREAD.
00484          MOVE CX.
00485              EXIT.
00486          MOVE-D.
00487              MOVE 'D' TO O-DELCODE.
00488              MOVE SPACES TO O-CATEGORY   O-PCTIME    O-CTRYCODE
00489                            O-HANDLING    O-COPIES    O-INPTDATE
00490                            O-ALPHA       O-NAME      O-ORGANIZ
00491                            O-ADDRESS1    O-ADDRESS2  O-POSTCODE
00492                            O-COUNTRY     O-ADDTYPE   O-DISCIPLN
00493                            O-LANG1       O-LANG2     O-LANG3
00494                            O-DEGREE      O-SEX       O-AGE
00495                            O-CITIZEN     O-PCPOLICY  O-PCPLAN
```

Appendix VIb. continued.

```
00496                              0 PCRES       0-PCTEACH    0-PC/XTEN
00497                              0-PCFARM      0 PCOTHER    0-SUBSCRIP
00498                              0-SEEKINFO    0 PROBDST    0 PROBABS
00499                              0 FANKRES     0 TITLEPUB   0 INFOTYPE
00500                              0-ANNREPT     0-AFTRFAD.
00501            MOVE-L.
00502              IF U CATEGORY = SPACES
00503                NEXT SENTENCE
00504              ELSE
00505                MOVE U CATEGORY TO P-CURRENT
00506                MOVE M-CATEGORY TO P-PREVIOUS
00507                MOVE 'CATEGORY' TO P-REMARKS
00508                PERFORM PRINT-LINE
00509                PERFORM MOVE CATEGORY.
00510              IF U PCTIME = SPACES
00511                NEXT SENTENCE
00512              ELSE
00513                MOVE U-PCTIME    TO P-CURRENT
00514                MOVE M PCTIME    TO P PREVIOUS
00515                MOVE 'PCTIME   ' TO P-REMARKS
00516                PERFORM PRINT-LINE
00517                PERFORM MOVE PCTIME.
00518              IF U CTRYCODE = SPACES
00519                NEXT SENTENCE
00520              ELSE
00521                MOVE U CTRYCODE TO P-CURRENT
00522                MOVE M CTRYCODE TO P-PREVIOUS
00523                MOVE 'CTRYCODE' TO P-REMARKS
00524                PERFORM PRINT-LINE
00525                PERFORM MOVE CTRYCODE.
00526              IF U-HANDLING = SPACES
00527                NEXT SENTENCE
00528              ELSE
00529                MOVE U HANDLING TO P-CURRENT
00530                MOVE M-HANDLING TO P-PREVIOUS
00531                MOVE 'HANDLING' TO P REMARKS
00532                PERFORM PRINT-LINE
00533                PERFORM MOVE HANDLING.
00534              IF U-COPIES = SPACES
00535                NEXT SENTENCE
00536              ELSE
00537                MOVE U COPIES   TO P-CURRENT
00538                MOVE M COPIES   TO P-PREVIOUS
00539                MOVE 'COPIES  ' TO P REMARKS
00540                PERFORM PRINT-LINE
00541                PERFORM MOVE COPIES.
00542              IF U-INPTDATE = SPACES
00543                NEXT SENTENCE
00544              ELSE
00545                MOVE U INPTDATE TO P-CURRENT
00546                MOVE M INPTDATE TO P-PREVIOUS
00547                MOVE 'INPTDATE' TO P REMARKS
00548                PERFORM PRINT-LINE
00549                PERFORM MOVE INPTDATE.
00550              IF U-ALPHA = SPACES
00551                NEXT SENTENCE
00552              ELSE
00553              IF U ALPHA = ALL '*'
00554                MOVE SPACES     TO P-CURRENT
00555                MOVE M ALPHA    TO P PREVIOUS
00556                MOVE 'ALPHA   ' TO P-REMARKS
00557                PERFORM PRINT-LINE
```

Appendix VIb. continued.

```
00558                         MOVE SPACES TO O ALPHA
00559                     ELSE
00560                         MOVE U ALPHA      TO P-CURRENT
00561                         MOVE M ALPHA      TO P PREVIOUS
00562                         MOVE 'ALPHA    '  TO P-REMARKS
00563                         PERFORM PRINT-LINE
00564                         PERFORM MOVE ALPHA.
00565                 IF U-NAME  = SPACES
00566                     NEXT SENTENCE
00567                 ELSE
00568                         MOVE U-NAME       TO P-CURRENT
00569                         MOVE M NAME       TO P-PREVIOUS
00570                         MOVE 'NAME     '  TO P-REMARKS
00571                         PERFORM PRINT-LINE
00572                         PERFORM MOVE NAME.
00573                 IF U ORGANIZ = SPACES
00574                     NEXT SENTENCE
00575                 ELSE
00576                         MOVE U ORGANIZ    TO P-CURRENT
00577                         MOVE M ORGANIZ    TO P-PREVIOUS
00578                         MOVE 'ORGANIZ '   TO P-REMARKS
00579                         PERFORM PRINT-LINE
00580                         PERFORM MOVE ORGANIZ.
00581             MOVE +X.
00582             EXIT.
00583         MOVE F.
00584             IF U ADDRESS1 = SPACES
00585                 NEXT SENTENCE
00586             ELSE
00587             IF U ADDRESS1 = ALL '*'
00588                         MOVE SPACES       TO P-CURRENT
00589                         MOVE M ADDRESS1 TO P PREVIOUS
00590                         MOVE 'ADDRESS1' TO P-REMARKS
00591                         PERFORM PRINT-LINE
00592                         MOVE SPACES TO O ADDRESS1
00593             ELSE
00594                         MOVE U-ADDRESS1   TO P-CURRENT
00595                         MOVE M ADDRESS1 TO P PREVIOUS
00596                         MOVE 'ADDRESS1' TO P-REMARKS
00597                         PERFORM PRINT-LINE
00598                         PERFORM MOVE ADDRESS1.
00599             IF U-ADDRESS2 = SPACES
00600                 NEXT SENTENCE
00601             ELSE
00602                         MOVE U ADDRESS2   TO P-CURRENT
00603                         MOVE M-ADDRESS2 TO P-PREVIOUS
00604                         MOVE 'ADDRESS2' TO P-REMARKS
00605                         PERFORM PRINT-LINE
00606                         PERFORM MOVE ADDRESS2.
00607             IF U-POSTCODE = SPACES
00608                 NEXT SENTENCE
00609             ELSE
00610             IF U POSTCODE = ALL '*'
00611                         MOVE SPACES       TO P-CURRENT
00612                         MOVE M POSTCODE TO P PREVIOUS
00613                         MOVE 'POSTCODE' TO P-REMARKS
00614                         PERFORM PRINT-LINE
00615                         MOVE SPACES TO O POSTCODE
00616             ELSE
00617                         MOVE U-POSTCODE   TO P-CURRENT
00618                         MOVE M POSTCODE TO P PREVIOUS
00619                         MOVE 'POSTCODE' TO P-REMARKS
```

Appendix VIb. continued.

```
00620                    PERFORM PRINT-LINE
00621                    PERFORM MOVE POSTCODE.
00622              MOVE FX.
00623                    EXIT.
00624              MOVE G.
00625                 IF U-COUNTRY = SPACES
00626                    NEXT SENTENCE
00627                 ELSE
00628                    MOVE U-COUNTRY    TO P-CURRENT
00629                    MOVE M COUNTRY    TO P PREVIOUS
00630                    MOVE 'COUNTRY ' TO P-REMARKS
00631                    PERFORM PRINT-LINE
00632                    PERFORM MOVE COUNTRY.
00633                 IF U DISCIPLN = SPACES
00634                    NEXT SENTENCE
00635                 ELSE
00636                    MOVE U DISCIPLN   TO P-CURRENT
00637                    MOVE M DISCIPLN TO P-PREVIOUS
00638                    MOVE 'DISCIPLN' TO P REMARKS
00639                    PERFORM PRINT-LINE
00640                    PERFORM MOVE DISCIPLN.
00641                 IF U DEGREE = SPACES
00642                    NEXT SENTENCE
00643                 ELSE
00644                    MOVE U DEGREE      TO P-CURRENT
00645                    MOVE M DEGREE      TO P-PREVIOUS
00646                    MOVE 'DEGREE ' TO P REMARKS
00647                    PERFORM PRINT-LINE
00648                    PERFORM PRINT LINE
00649                    PERFORM MOVE DEGREE.
00650              MOVE GX.
00651                    EXIT.
00652              NOT-OLD.
00653                    MOVE U-PERSCODE TO P-PERSCODE.
00654                    MOVE SPACES TO P PREVIOUS P CURRENT.
00655                    MOVE 'NO UPDATE NOT IN MASTER' TO P-REMARKS.
00656                    PERFORM PRINT-LINE.
00657              MATCH RECORDS.
00658                    MOVE U-PERSCODE  TO P-PERSCODE.
00659                    MOVE MASTER-AREA TO OUTPUT-AREA.
00660              MORE CORR.
00661                 IF CARDD
00662                    PERFORM DELETE-RECORD
00663                 ELSE
00664                 IF CARDE
00665                    PERFORM MOVE-E THRU MOVE-EX
00666                 ELSE
00667                 IF CARDF
00668                    PERFORM MOVE-F THRU MOVE-FX
00669                 ELSE
00670                 IF CARDG
00671                    PERFORM MOVE-G THRU MOVE-GX
00672                 ELSE
00673                    PERFORM NOT NEW.
00674                 PERFORM READ-UPDATE THRU X-READ-UPDATE.
00675                 IF U PERSCODE = O-PERSCODE
00676                    GO TO MORE-CORR.
00677                 WRITE OUTPUT-REC FROM OUTPUT AREA.
00678              X-MATCH-RECORDS.  EXIT.
00679              NOT-NEW.
00680                 MOVE U PERSCODE TO P-PERSCODE.
00681                 MOVE SPACES TO P-PREVIOUS P-CURRENT.
```

Continued on next page.

Appendix VIb. continued.

```
00682              MOVE 'ALREADY IN MASTER' TO P-REMARKS.
00683              PERFORM PRINT-LINE.
00684          DELETE RECORD.
00685              MOVE 'D' TO O-DELCODE.
00686              MOVE U-PERSCODE TO P-PERSCODE.
00687              MOVE SPACES TO P-PREVIOUS P-CURRENT.
00688              MOVE 'DELETED FROM MASTER' TO P-REMARKS.
00689              PERFORM PRINT-LINE.
00690          PRINT-LINE.
00691              ON 1
00692                  PERFORM WRITE-HEADINGS.
00693              IF LCTR > 55
00694                  PERFORM WRITE-HEADINGS.
00695              WRITE PRINTR-REC FROM P-DETAIL AFTER 2.
00696              ADD 2 TO LCTR.
00697          WRITE-HEADINGS.
00698              MOVE 0 TO LCTR.
00699              ADD 1 TO PCTR.
00700              MOVE PCTR TO P-PAGE.
00701              WRITE PRINTR-REC FROM P-HEAD1 AFTER TURN-PAGE.
00702              WRITE PRINTR-REC FROM P-HEAD2 AFTER 1.
00703              WRITE PRINTR-REC FROM P-HEAD3 AFTER 1.
00704          ABNORMAL-END.
00705              DISPLAY 'CHECK YOUR FILES'.
00706              DISPLAY 'EXECUTION TERMINATING'.
00707          END-ROUTINES.
00708              DISPLAY 'NO. OF ENTRIES UPDATED          = ' UCTR.
00709              DISPLAY 'NO. OF ENTRIES DELETED          = ' DCTR.
00710              DISPLAY 'NO. OF NEW ENTRIES              = ' NCTR.
00711              DISPLAY 'NO. OF ERRONEOUS UPDATE RECORDS = ' ECTR.
00712          CLOSE-FILES.
00713              CLOSE  UPDATE-FILE  MASTER-FILE
00714                     OUTPUT-FILE  PRINTR-FILE.
00715          WRITE-OUTPUT-REC.
00716              MOVE SPACE TO O-DELCODE.
00717              ADD 1 TO NCTR.
00718              WRITE OUTPUT-REC FROM OUTPUT-AREA.
```

c. Retrieval program

```
00001          IDENTIFICATION DIVISION.
00002          PROGRAM-ID. ML003.
00003          AUTHOR. NONA.
00004          ENVIRONMENT DIVISION.
00005          INPUT-OUTPUT SECTION.
00006          FILE-CONTROL.
00007              SELECT MASTER-FILE ASSIGN TO UT-S-MASTER.
00008              SELECT RETRVE-FILE ASSIGN TO UT-S-RETRVE.
00009          DATA DIVISION.
00010          FILE SECTION.
00011          FD  MASTER-FILE
00012              LABEL RECORD STANDARD
00013              BLOCK CONTAINS 0 RECORDS.
00014          01  MASTER-REC              PIC X(226).
00015          FD  RETRVE-FILE
00016              LABEL RECORD STANDARD
00017              BLOCK CONTAINS 0 RECORDS.
00018          01  RETRVE-REC         PIC X(164).
```

Appendix VIc.   continued.

```
00019              WORKING STORAGE SECTION.
00020              01   FILE AREA.
00021                   03   MASTER-AREA.
00022                        05   M-DELCODE          PIC X.
00023                        05   M-PERSCODE         PIC X(5).
00024                        05   M-CATEGORY         PIC XX.
00025                        05   M-PCTIME           PIC X.
00026                        05   M-CTRYCODE         PIC XX.
00027                        05   M-HANDLING         PIC X.
00028                        05   M-COPIES           PIC X.
00029                        05   M-INPTDATE         PIC XXXX.
00030                        05   FILLER             PIC X(7).
00031                        05   M-NAM              PIC X(29).
00032                        05   M-ORGANIZ          PIC X(27).
00033                        05   M-ADDRESS1         PIC X(32).
00034                        05   M-ADDRESS2         PIC X(32).
00035                        05   M-POSTCODE         PIC X(8).
00036                        05   M-COUNTRY          PIC X(15).
00037                        05   FILLER             PIC X.
00038                        05   M-DISCIPLN         PIC X.
00039                        05   M-LANG1            PIC XX.
00040                        05   FILLER             PIC XXXX.
00041                        05   M-DEGREE           PIC X.
00042                        05   FILLER             PIC X(28).
00043                        05   M-PROBDET          PIC X.
00044                        05   FILLER             PIC X(22).
00045                   03   MASTER-RED  REDEFINES MASTER-AREA.
00046                        05   DELCODE            PIC X.
00047                        05   PERSCODE           PIC X(5).
00048                        05   CATEGORY           PIC XX.
00049                        05   PCTIME             PIC X.
00050                        05   CTRYCODE           PIC XX.
00051                        05   HANDLING           PIC X.
00052                        05   COPIES             PIC X.
00053                        05   INPTDATE           PIC XXXX.
00054                        05   FILLER             PIC X(7).
00055                        05   NAME               PIC X(29).
00056                        05   ORGANIZ            PIC X(27).
00057                        05   ADDRESS1           PIC X(32).
00058                        05   ADDRESS2           PIC X(32).
00059                        05   POSTCODE           PIC X(8).
00060                        05   COUNTRY            PIC X(15).
00061                        05   FILLER             PIC X.
00062                        05   DISCIPLN           PIC X.
00063                        05   LANG1              PIC XX.
00064                        05   FILLER             PIC XXXX.
00065                        05   DEGREE             PIC X.
00066                        05   FILLER             PIC X(28).
00067                        05   PROBDET            PIC X.
00068                        05   FILLER             PIC X(22).
00069                   03   RETRV-AREA.
00070                        05   CATEGORY           PIC XX.
00071                        05   DISCIPLN           PIC X.
00072                        05   DEGREE             PIC X.
00073                        05   PCTIME             PIC X.
00074                        05   PROBDET            PIC X.
00075                        05   CTRYCODE           PIC XX.
00076                        05   HANDLING           PIC X.
00077                        05   COPIES             PIC X.
00078                        05   PERSCODE           PIC X(5).
00079                        05   INPTDATE           PIC XXXX.
00080                        05   NAME               PIC X(29).
```

Appendix VIc.   continued.

```
00081                      05   ORGANIZ              PIC X(27).
00082                      05   ADDRESS1             PIC X(32).
00083                      05   ADDRESS2             PIC X(32).
00084                      05   COUNTRY              PIC X(15).
00085                      05   POSTCODE             PIC X(8).
00086                      05   LANG1                PIC XX
00087            01   WORK-AREAS.
00088                 03   RCTR                      PIC 9(5).
00089                 05   PCTR                      PIC 9(5).
00090                 02   SPERS                     PIC X(5).
00091            PROCEDURE DIVISION.
00092            000 MAINLINE.
00093                PERFORM 010-HOUSEKEEP.
00094                PERFORM 020-PROCESS
00095                     THRU 025-PROCESS.
00096                PERFORM 030-ENDRTNS.
00097            010-HOUSEKEEP.
00098                OPEN INPUT   MASTER-FILE
00099                     OUTPUT  RETRVE-FILE
00100                MOVE 0 TO RCTR  PCTR
00101                MOVE ALL '0' TO SPERS.
00102            020-PROCESS.
00103                READ MASTER-FILE INTO MASTER-AREA
00104                    AT END
00105                        GO TO 025-PROCESS.
00106                IF M-DELCODE = 'D'
00107                    GO TO 020-PROCESS.
00108                ADD 1 TO PCTR.
00109                MOVE M-PERSCODE TO SPERS.
00110            023 QUERY.
00111                INSERT QUERY CARDS HERE **.
00112                COPY  QUERY.
00113                    PERFORM 028 RETRVE.
00114                GO TO 020-PROCESS.
00115            025-PROCESS.
00116                EXIT.
00117            028 RETRVE.
00118                MOVE CORR MASTER-RED TO RETRVE-AREA.
00119                WRITE RETRVE REC FROM RETRVE AREA.
00120                ADD 1 TO RCTR.
00121            030 ENDRTNS.
00122                DISPLAY 'NO. OF RETRIEVED RECORDS   = ' RCTR.
00123                CLOSE MASTER-FILE  RETRVE-FILE.
00124                STOP RUN.
```

d. Printing program

```
00001            IDENTIFICATION DIVISION.
00002            PROGRAM-ID. ML005.
00003            AUTHOR. NONA.
00004            REMARKS.
00005                    THIS PROGRAM SHALL PRINT THE ENTRIES OF THE
00006                    RETRIEVED FILE, RESULTED FROM APPLYING RETRIEVAL
00007                    PROGRAM ONTO MAILING LABELS.
00008            ENVIRONMENT DIVISION.
00009            CONFIGURATION SECTION.
00010            SPECIAL NAMES.
00011            INPUT-OUTPUT SECTION.
00012            FILE-CONTROL.
```

Appendix VId.   continued.

```
00013                      SELECT RTRV FILE ASSIGN TO UT S FILE1.
00014                      SELECT LABL-FILE ASSIGN TO UT-S-FILE2.
00015                  DATA DIVISION.
00016                  FILE SECTION.
00017                  FD   LABL FILE
00018                       LABEL RECORD OMITT D
00019                       REPORTS ARE MAIL LABEL  MAIL LISTS.
00020                  FD   RTRV FILE
00021                       BLOCK CONTAINS 0 RECORDS
00022                       RECORD CONTAINS 164 CHARACTERS
00023                       RECORDING MODE F
00024                       LABEL RECORD STANDARD
00025                       DATA RECORD RTRV-RECD.
00026                  01   RTRV RECD.
00027                       03   R-RETRIEVAL.
00028                            05   R-CATEGORY          PIC  XX.
00029                            05   R DISCIPLN          PIC  X.
00030                            05   R DEGREE            PIC  X.
00031                            05   R PCTIME            PIC  X.
00032                            05   R PRORDET           PIC  X.
00033                            05   R CTRYCODE          PIC  XX.
00034                            05   R HANDLING          PIC  X.
00035                            05   R COPIES            PIC  X.
00036                            05   R PERCODE           PIC  X(5).
00037                            05   R INPTDATE          PIC  XXXX.
00038                       03   R NAME                   PIC  X(29).
00039                       03   R ORGANIZ                PIC  X(27).
00040                       03   R ADDRESS1               PIC  X(32).
00041                       03   R ADDRESS2               PIC  X(32).
00042                       03   R COUNTRY                PIC  X(15).
00043                       03   R POSTCODE               PIC  X(8).
00044                       03   R LANG1                  PIC  XX.
00045                  WORKING-STORAGE SECTION.
00046                  01   WORK TABLES.
00047                       02   LINE TABS  OCCURS 6.
00048                            03   COL-TABS  OCCURS 2.
00049                                 04   TAB             PIC  X(32).
00050                       02   RETRV TABS OCCURS 3.
00051                            03   T CATEGORY          PIC  XX.
00052                            03   T DISCIPLN          PIC  X.
00053                            03   T DEGREE            PIC  X.
00054                            03   T PCTIME            PIC  X.
00055                            03   T PRORDET           PIC  X.
00056                            03   T CTRYCODE          PIC  XX.
00057                            03   T HANDLING          PIC  X.
00058                            03   T COPIES            PIC  X.
00059                            03   T PERSCODE          PIC  X(5).
00060                            03   T INPTDATE          PIC  XXXX.
00061                  01   RCNT                          PIC  9.
00062                  01   ITAB                          PIC  9.
00063                  01   TYPOUT                        PIC  X(6).
00064                  REPORT SECTION.
00065                  FD   MAIL LABEL
00066                       PAGE 36 LINES
00067                       FIRST DETAIL 2
00068                       LAST DETAIL 36.
00069                  01   LABELS
00070                       TYPE DETAIL.
00071                       03   LINE PLUS 3.
00072                            05   COLUMN 10   PIC XX    SOURCE T-CATEGORY (1).
00073                            05   COLUMN 13   PIC X     SOURCE T DISCIPLN (1).
00074                            05   COLUMN 14   PIC X     SOURCE T DEGREE   (1).
```

Continued on next page.

Appendix VId.   continued.

```
00075              05   COLUMN 15      PIC X      SOURCE T-PCTIME    (1).
00076              05   COLUMN 16      PIC X      SOURCE T-PROBDET   (1).
00077              05   COLUMN 18      PIC XX     SOURCE T CTRYCODE  (1).
00078              05   COLUMN 21      PIC X      SOURCE T-HANDLING  (1).
00079              05   COLUMN 22      PIC X      SOURCE T-COPIES    (1).
00080              05   COLUMN 24      PIC X(5)   SOURCE T PERSCODE  (1).
00081              05   COLUMN 30      PIC XXXX   SOURCE T-INPTDATE  (1).
00082              05   COLUMN 46      PIC XX     SOURCE T-CATEGORY  (2).
00083              05   COLUMN 49      PIC X      SOURCE T DISCIPLN  (2).
00084              05   COLUMN 50      PIC X      SOURCE T DEGREE    (2).
00085              05   COLUMN 51      PIC X      SOURCE T-PCTIME    (2).
00086              05   COLUMN 52      PIC X      SOURCE T PROBDET   (2).
00087              05   COLUMN 54      PIC XX     SOURCE T-CTRYCODE  (2).
00088              05   COLUMN 57      PIC X      SOURCE T-HANDLING  (2).
00089              05   COLUMN 58      PIC X      SOURCE T COPIES    (2).
00090              05   COLUMN 60      PIC X(5)   SOURCE T-PERSCODE  (2).
00091              05   COLUMN 66      PIC XXXX   SOURCE T-INPTDATE  (2).
00092              05   COLUMN 82      PIC XX     SOURCE T CATEGORY  (2).
00093              05   COLUMN 86      PIC X      SOURCE T-DISCIPLN  (3).
00094              05   COLUMN 86      PIC X      SOURCE T-DEGREE    (3).
00095              05   COLUMN 87      PIC X      SOURCE T-PCTIME    (3).
00096              05   COLUMN 88      PIC X      SOURCE T PROBDET   (3).
00097              05   COLUMN 90      PIC XX     SOURCE T-CTRYCODE  (3).
00098              05   COLUMN 93      PIC X      SOURCE T-HANDLING  (3).
00099              05   COLUMN 94      PIC X      SOURCE T COPIES    (3).
00100              05   COLUMN 96      PIC X(5)   SOURCE T-PERSCODE  (3).
00101              05   COLUMN 102     PIC XXXX   SOURCE T-INPTDATE  (3).
00102        03  LINE PLUS 2.
00103              05   COLUMN 4       PIC X(32)  SOURCE TAB (1 1).
00104              05   COLUMN 40      PIC X(32)  SOURCE TAB (1 2).
00105              05   COLUMN 76      PIC X(32)  SOURCE TAB (1 3).
00106        03  LINE PLUS 1.
00107              05   COLUMN 4       PIC X(32)  SOURCE TAB (2 1).
00108              05   COLUMN 40      PIC X(32)  SOURCE TAB (2 2).
00109              05   COLUMN 76      PIC X(32)  SOURCE TAB (2 3).
00110        03  LINE PLUS 1.
00111              05   COLUMN 4       PIC X(32)  SOURCE TAB (3 1).
00112              05   COLUMN 40      PIC X(32)  SOURCE TAB (3 2).
00113              05   COLUMN 76      PIC X(32)  SOURCE TAB (3 3).
00114        03  LINE PLUS 1.
00115              05   COLUMN 4       PIC X(32)  SOURCE TAB (4 1).
00116              05   COLUMN 40      PIC X(32)  SOURCE TAB (4 2).
00117              05   COLUMN 76      PIC X(32)  SOURCE TAB (4 3).
00118        03  LINE PLUS 1.
00119              05   COLUMN 4       PIC X(32)  SOURCE TAB (5 1).
00120              05   COLUMN 40      PIC X(32)  SOURCE TAB (5 2).
00121              05   COLUMN 76      PIC X(32)  SOURCE TAB (5 3).
00122     RD  MAIL-LISTS
00123         PAGE 66 LINES
00124         FIRST DETAIL 2
00125         LAST DETAIL 66.
00126     01  LISTS
00127         TYPE DETAIL,
00128         03  LINE PLUS 2.
00129              05   COLUMN 10      PIC XX     SOURCE T CATEGORY  (1).
00130              05   COLUMN 13      PIC X      SOURCE T-DISCIPLN  (1).
00131              05   COLUMN 14      PIC X      SOURCE T-DEGREE    (1).
00132              05   COLUMN 15      PIC X      SOURCE T PCTIME    (1).
00133              05   COLUMN 16      PIC X      SOURCE T-PROBDET   (1).
00134              05   COLUMN 18      PIC XX     SOURCE T-CTRYCODE  (1).
00135              05   COLUMN 21      PIC X      SOURCE T HANDLING  (1).
00136              05   COLUMN 22      PIC X      SOURCE T-COPIES    (1).
```

Appendix VId. continued.

```
00137                    05   COLUMN  24    PIC  X(5)   SOURCE  T  PERSCODE  (1).
00138                    05   COLUMN  30    PIC  XXXX   SOURCE  T-INPTDATE  (1).
00139                    05   COLUMN  46    PIC  XX     SOURCE  T  CATEGORY  (2).
00140                    05   COLUMN  49    PIC  X      SOURCE  T-DISCIPLN  (2).
00141                    05   COLUMN  50    PIC  X      SOURCE  T-DEGREE    (2).
00142                    05   COLUMN  51    PIC  X      SOURCE  T  PCTIME   (2).
00143                    05   COLUMN  52    PIC  X      SOURCE  T-PROBDET   (2).
00144                    05   COLUMN  54    PIC  XX     SOURCE  T-CTRYCODE  (2).
00145                    05   COLUMN  57    PIC  X      SOURCE  T  HANDLING ( ).
00146                    05   COLUMN  58    PIC  X      SOURCE  T-COPIES    ( ).
00147                    05   COLUMN  60    PIC  X(5)   SOURCE  T-PERSCODE  ( ).
00148                    05   COLUMN  66    PIC  XXXX   SOURCE  T-INPTDATE  ( ).
00149                    05   COLUMN  82    PIC  XX     SOURCE  T  CATEGORY (2).
00150                    05   COLUMN  85    PIC  X      SOURCE  T-DISCIPLN  (3).
00151                    05   COLUMN  86    PIC  X      SOURCE  T  DEGREE   (3).
00152                    05   COLUMN  87    PIC  X      SOURCE  T  PCTIME   (3).
00153                    05   COLUMN  88    PIC  X      SOURCE  T-PROBDET   (3).
00154                    05   COLUMN  90    PIC  XX     SOURCE  T-CTRYCODE  (3).
00155                    05   COLUMN  92    PIC  X      SOURCE  T  HANDLING (3).
00156                    05   COLUMN  94    PIC  X      SOURCE  T  COPIES   (3).
00157                    05   COLUMN  96    PIC  X(5)   SOURCE  T-PERSCODE  (3).
00158                    05   COLUMN  102   PIC  XXXX   SOURCE  T  INPTDATE (3).
00159              03   LINE PLUS 2.
00160                    05   COLUMN  4     PIC  X(32)  SOURCE  TAB  (1  1).
00161                    05   COLUMN  40    PIC  X(32)  SOURCE  TAB  (1  2).
00162                    05   COLUMN  76    PIC  X(32)  SOURCE  TAB  (1  3).
00163              03   LINE PLUS 1.
00164                    05   COLUMN  4     PIC  X(32)  SOURCE  TAB  (2  1).
00165                    05   COLUMN  40    PIC  X(32)  SOURCE  TAB  (2  2).
00166                    05   COLUMN  76    PIC  X(32)  SOURCE  TAB  (2  3).
00167              03   LINE PLUS 1.
00168                    05   COLUMN  4     PIC  X(32)  SOURCE  TAB  (3  1).
00169                    05   COLUMN  40    PIC  X(32)  SOURCE  TAB  (3  2).
00170                    05   COLUMN  76    PIC  X(32)  SOURCE  TAB  (3  3).
00171              03   LINE PLUS 1.
00172                    05   COLUMN  4     PIC  X(32)  SOURCE  TAB  (4  1).
00173                    05   COLUMN  40    PIC  X(32)  SOURCE  TAB  (4  2).
00174                    05   COLUMN  76    PIC  X(32)  SOURCE  TAB  (4  3).
00175              03   LINE PLUS 1.
00176                    05   COLUMN  4     PIC  X(32)  SOURCE  TAB  (5  1).
00177                    05   COLUMN  40    PIC  X(32)  SOURCE  TAB  (5  2).
00178                    05   COLUMN  76    PIC  X(32)  SOURCE  TAB  (5  3).
00179         PROCEDURE DIVISION.
00180         OPEN-FILES.
00181              OPEN INPUT RTRV-FILE
00182                   OUTPUT LABL FILE.
00183              PERFORM CLEAR-UP.
00184              ACCEPT TYPOUT.
00185              IF TYPOUT = 'LABELS'
00186                   INITIATE MAIL-LABEL
00187              ELSE
00188                   INITIATE MAIL-LISTS.
00189         TEST-RCNT.
00190              IF RCNT = 3
00191                   IF TYPOUT = 'LABELS'
00192                        GENERATE LABELS
00193                        PERFORM CLEAR-UP
00194                   ELSE
00195                        GENERATE LISTS
00196                        PERFORM CLEAR-UP.
00197              ADD 1 TO RCNT.
00198         READ-RTRV.
```

Appendix VId. continued.

```
00199              READ RTRV-FILE
00200                 AT END GO TO END-JOB.
00201              PERFORM MOVE-FIELDS.
00202              GO TO TEST-RCNT.
00203           CLEAR UP.
00204              MOVE 0 TO RCNT.
00205              PERFORM SPACE-RETRV-TABS
00206                 VARYING ITAB FROM 1 BY 1
00207                    UNTIL ITAB > 3.
00208              PERFORM SPACE OUT
00209                 VARYING ITAB FROM 1 BY 1
00210                    UNTIL ITAB > 6.
00211           SPACE-RETRV-TABS.
00212              MOVE SPACES TO RETRV-TABS (ITAB).
00213           SPACE OUT.
00214              MOVE SPACES TO LINE-TABS (ITAB).
00215           MOVE-FIELDS.
00216              MOVE 0 TO ITAB.
00217              IF R-NAME = SPACES
00218                 NEXT SENTENCE
00219              ELSE
00220                 ADD 1 TO ITAB
00221                 MOVE R-NAME TO TAB (ITAB RCNT).
00222              IF R-ORGANIZ = SPACES
00223                 NEXT SENTENCE
00224              ELSE
00225                 ADD 1 TO ITAB
00226                 MOVE R-ORGANIZ TO TAB (ITAB RCNT).
00227              IF R-ADDRESS1 = SPACES
00228                 NEXT SENTENCE
00229              ELSE
00230                 ADD 1 TO ITAB
00231                 MOVE R-ADDRESS1 TO TAB (ITAB RCNT).
00232              IF R-ADDRESS2 = SPACES
00233                 NEXT SENTENCE
00234              ELSE
00235                 ADD 1 TO ITAB
00236                 MOVE R-ADDRESS2 TO TAB (ITAB RCNT).
00237              ADD 1 TO ITAB.
00238              STRING R-COUNTRY R-POSTCODE
00239                 DELIMITED BY SIZE
00240                 INTO TAB (ITAB RCNT).
00241              MOVE R-RETRIEVAL TO RETRV-TABS (RCNT).
00242           END-JOB.
00243              IF TYPOUT = 'LABELS'
00244                 GENERATE LABELS
00245                 TERMINATE MAIL LABEL
00246              ELSE
00247                 GENERATE LISTS
00248                 TERMINATE MAIL LISTS.
00249              CLOSE RTRV-FILE LABL-FILE.
00250              STOP RUN.
```

Other papers in this series