

Fig. 4-3-3 shows the input format of name table data. Three name codes at maximum can be input into a single data card. Twenty six (26) columns are used to deal with a single name code, thereby the item number to which given name code belongs (I1), master code (A4), name code (A4) and the official name of the name code (3A4) are encoded in that order. The same item numbers and master codes as explained in relation to input of master codes are used. As for name codes, plant number, company number, year, month, quarter and others are input with integer representation. Similar to the case of a master code, an official name of given name code should be input with less than 12 letters. No data error is marked even if part of the card is left blanked. When data of given name code come to the end, processing can be completed by setting 9 at the location of given item number.

Fig. 4-3-4 shows the data input format of tree name codes. Four tree name codes at maximum can be input into a single data card. Twenty (20) columns are used to deal with a single tree name code, thereby tree name code (A4) and the official name of the tree name code (3A4) are encoded in that order. A tree name code and its official name should be input with less than three letters and less than 12 letters, respectively. No data error is marked even if part of the card is left blank. When data of given tree name code come to the end, processing can be completed by setting '9' at the column of tree name code.

Fig. 4-3-5 shows the data input format of level name codes. Two level name codes at maximum can be input into a single data card. Forty (40) columns are used to deal with a single level name code, thereby tree control data (A1), master code of levels (A4) and tree name code representing either of 1st~8th levels (8A4) are encoded. In relation to tree control data, 'S' is to be input when data on a tree structure start. Likewise, 'C' should be input when data on a tree structure continue and 'E' should be input when the data end up. As for master codes of levels, the level to which given level name code belongs is specified by either of LEV1~LEV8. Position names required for the preparation of a level name code, in which position names of upper levels are also included, are selected from tree name codes having already been registered. In other words, the tree name table should be prepared prior to the preparation of the level name table. The columns for tree name codes, related to levels located below the level to be specified by given level name code, are left blank. The order to input level name codes of a tree structure is the same as the order to describe positions in a tree structure shown in Fig. 4-2-5. To finish inputting level name code data, '9' is to be set in the column for tree control information.

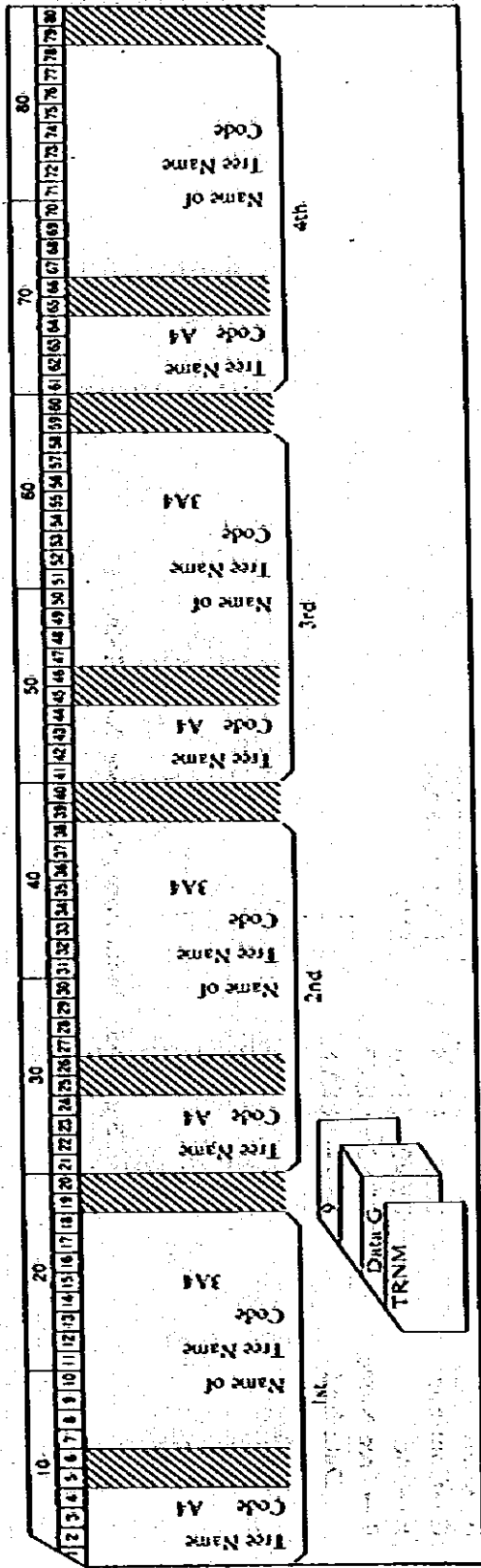
Fig. 4-3-6 shows the input format of unit table data. Four data at maximum can be input into a single data card. A single unit data consists of unit code (I2) and the official name of the unit (3A4). The unit code is described as a unit number in integer representation. An official name of the unit is also described by less than 12 letters. No data error is marked even if part of the card is left blank. To finish inputting unit data, 9 is to be set in the first column for the unit code.

#### 4-3-2 Input Formats of Cost and Technological Data

As mentioned in 4-2, raw data on cost and technology are stored by two kinds of files







Tree Name Code (A4)      Name of Tree Name Code (3A4)      4th Tree Name information / card

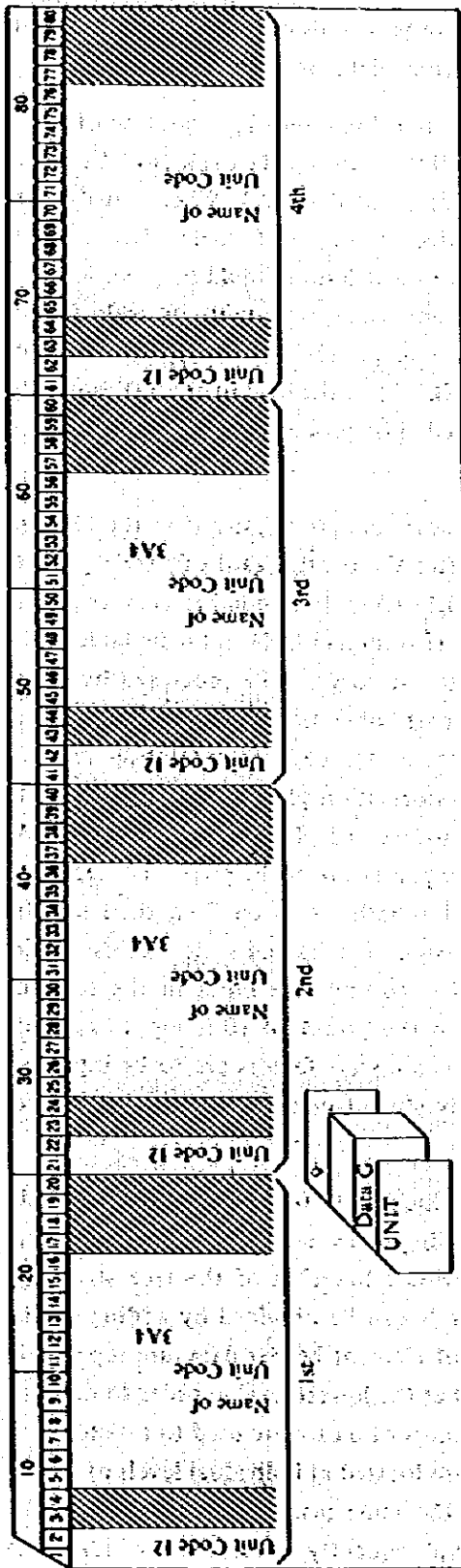
Three characters Code      Maximum. 12 characters

OPC      IF Tree Name Code is '9.....'

UTI      Tree Name information finish.

Fig. 4-3-4 Input Format of Tree Name Data





IF Unit Code is 90,  
Unit Data finish.

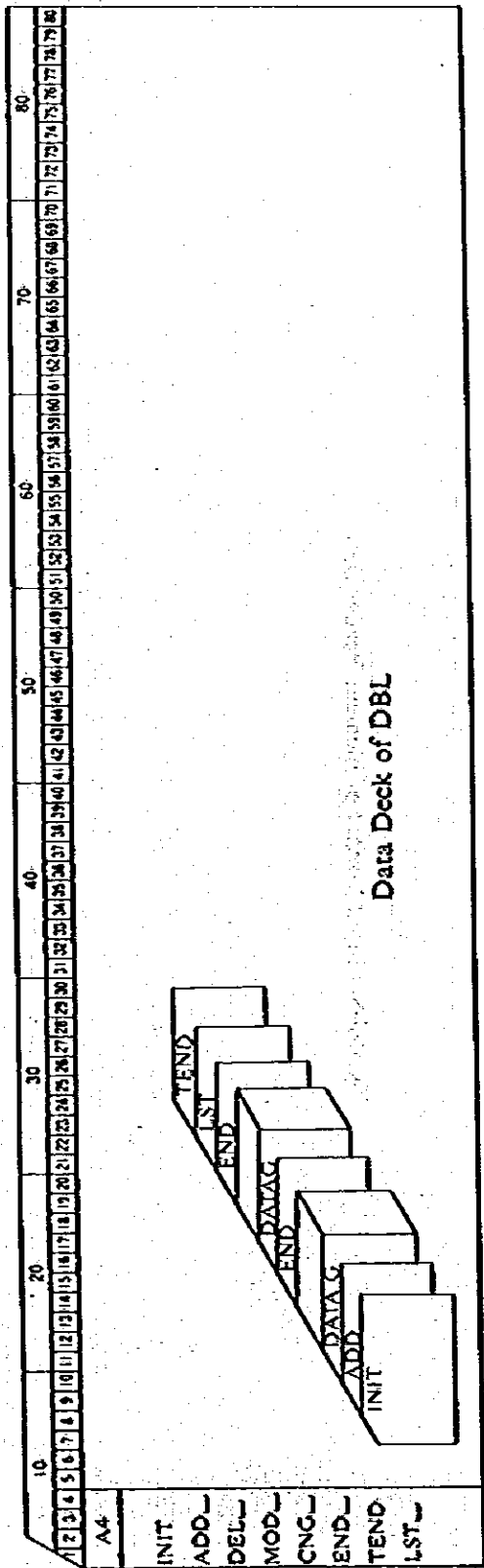
Fig. 4-3-6 Input Format of Unit Table Data

incorporated into the data bank system, the element header file and the element data file. This section deals with input formats of data into these two kinds of files and input formats used when values and units are to be revised or when some data are to be deleted.

Fig. 4-3-7 shows the input format of control data designed to control preparation of a new data bank and addition, revision and deletion of data. When a data bank is to be newly prepared, a card of 'INIT' should be put at the beginning of data deck. When new data are added, the group of additional data should be preceded by a card of 'ADD\_'. When some data are to be deleted, the group of data subjected to the deletion should be preceded by a card of 'DEL\_'. Likewise, modifications of values and changes in units or scale factors require cards of 'MOD\_' and 'CNG\_', respectively. Completion of data on the nature of cost or technology should be signed by a card of 'END\_' and the card of 'TEND' is needed when the operation of a data bank is to be completed. List processing of a data bank also requires a card of 'LST\_'.

Fig. 4-3-8 shows the data input format used when new data are registered in the element header file. The card should be put immediately after the control card of 'ADD\_'. Data to be newly registered include data category (A4), field (A4), field number (I4), company number (I4), period (A2), year or quarter or month (I6), units (3A4) and scale factor (I4), which are encoded in a single card one by one. Data category can be processed by giving appropriate master codes representing investment cost, operation cost or technological data. Field can be processed by giving appropriate master codes representing primary energy production sources or secondary energy transformation plants. In relation to field number, corresponding name codes of production sources or plants are to be given. As for company number, name codes of individual companies are to be given. To deal with period, master codes representing year, quarter and month are given first, then specific values of year, quarter and month are input. Processing of units and scale factors are detailed in the section of the element header file. That is, units are input in the form of their official names registered in the unit table, then the power of 10 is input as a scale factor. In case of investment cost, two kinds of units are scale factors are to be input because investment cost is divided into two groups, investment made by Indonesian sources and overseas sources.

Fig. 4-3-9 shows the data input format into the element data file. Original data on individual positions of a tree structure can be covered simply by inputting numerical values of the positions located at the lowest level of individual branches of the tree structure. Numerical values of the positions located upper levels can be obtained by adding up the input data. These data, registered in a single card of element header data, are repeatedly processed as many as the number of positions located at the lowest level in order to describe the whole tree structure. From the 1st to 32nd columns of a card are used to register position names, in the form of tree name codes, which are located at individual levels of a total of eight at maximum (8A4). This can be done in the same manner as explained in the section of the input format of level name codes. Subsequently, specific numerical data are to be input in the form of F10.0. In case of investment cost, investment made by



- INIT : Initialization of data bank
- ADD : Addition of data
- DEL : Data deleting
- MOD : Modification of data value
- CNG : Change of unit and scale factor
- END : End of data group
- TEND : End of data input operation
- LST : Listing of data bank

Fig. 4-3-7 Control Data of Data Bank Making



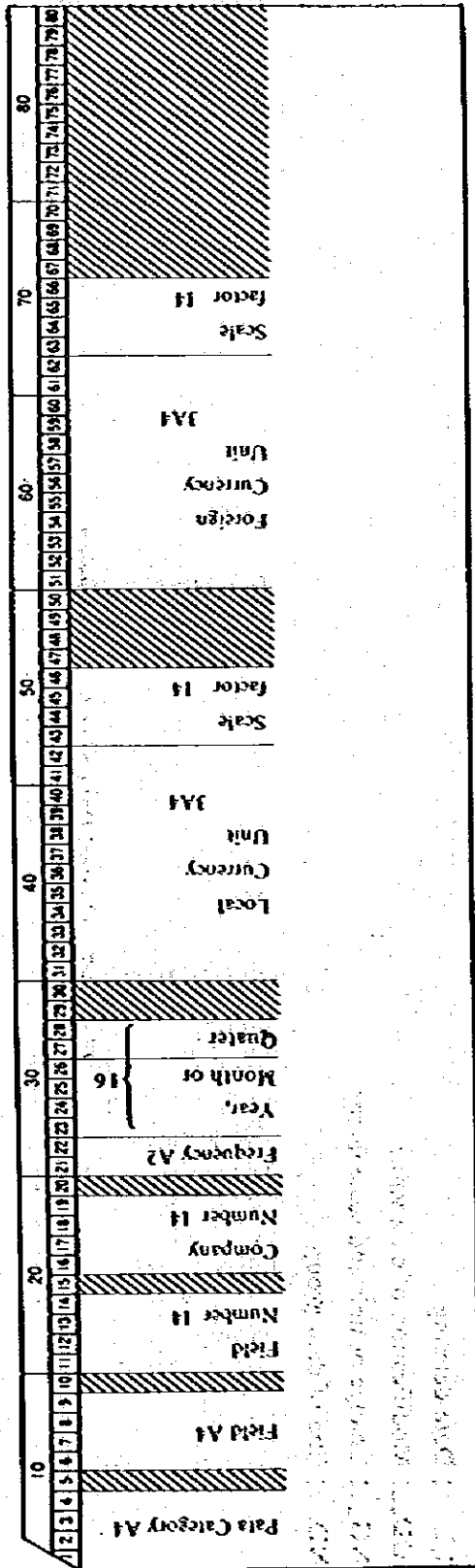


Fig. 4-3-8 Input Format of Element Header Data

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
LV1	LV2	LV3	LV4	LV5	LV6	LV7	LV8											Local Currency Value	Foreign-Currency Value																																																												
A4	A4	A4	A4	A4	A4	A4	A4											F 100.	F 100.																																																												

Fig. 4-3-9 Input Format of Element Data

Indonesian sources and that made by overseas sources are separately arranged and input in the form of 2F10.0. As mentioned before, upon the completion of inputting a group of element data, a card of 'END\_' should be put to show a winding up of a group of data. To input a new group of data, the same procedures are taken, thereby a card of 'ADD\_' should be newly put at the beginning.

Fig. 4-3-10 shows the data input format used when some data should be deleted. To begin with a control card of 'DEL\_' should be put at the head. This is followed by a single card, into which the maximum eight data subject to the deletion are input in the form of their addresses of I10 registered in the element data file. A card of 'END\_' is also set at the end of data subject to the deletion.

Fig. 4-3-11 shows the data input format used when numerical data should be modified. To begin with, a control card of 'MOD\_' should be put at the head. Then, the numerical data subject to the modification and modified values are input, the former in the form of I10 of their addresses registered in the element data file and the later in the form of F10.0. Data cards as many as the number of values to be modified should be prepared and a card of 'END\_' is to be set at the end of the repeated procedures.

Fig. 4-3-12 shows the data input format used when units and scale factors are to be changed. To start with, a control card of 'CNG\_' should be put at the head. Then, addresses registered in the element header file of the units and scale factors subject to the change are specified in the form of I10 and unit code (I4) and scale factor (I4) are input. Preparing data cards as many as required, a control card of 'END\_' should be set at the tail.

#### 4-4 Retrieve and Editing of the Cost/Technology Data Bank

##### 4-4-1 Functions of Retrieve and Edit Programs

###### (1) Printing function of code tables

Prior to inputting individual codes, it is possible to select if or not code tables should be printed.

As for master codes, master codes of all the items are printed at the time of editing. Hence, when any master codes which have not been registered in the retrieve file are input, a message is printed to instruct to make the input operation again.

As for name codes and level name codes, only those codes of data registered in the retrieve file are printed.

###### (2) Input format of codes

Excluding master codes and the item 4 (period), all the name codes and level name codes are input in the form of their addresses. In this case, the message to require input is printed in the form of MASTER CD or NAMB CD.

Name codes of the item 4 (period) are input in the form of their name codes (ex. 1970, 197001). In this case, the message to require input is printed in the form of

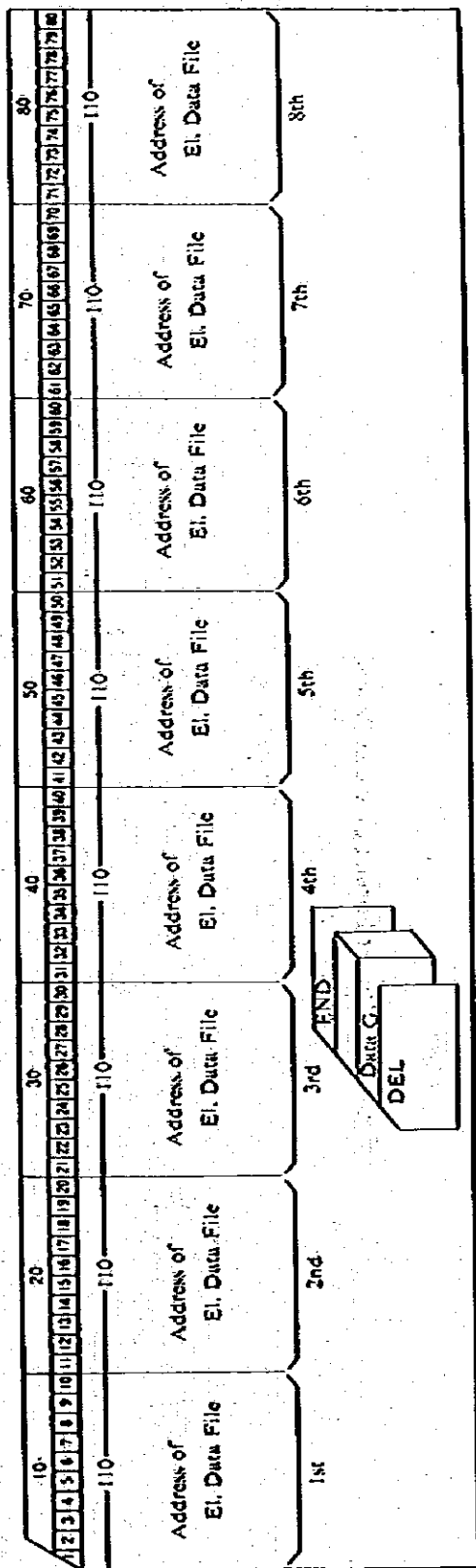


Fig. 4-3-10 Input Format of Data Deleting

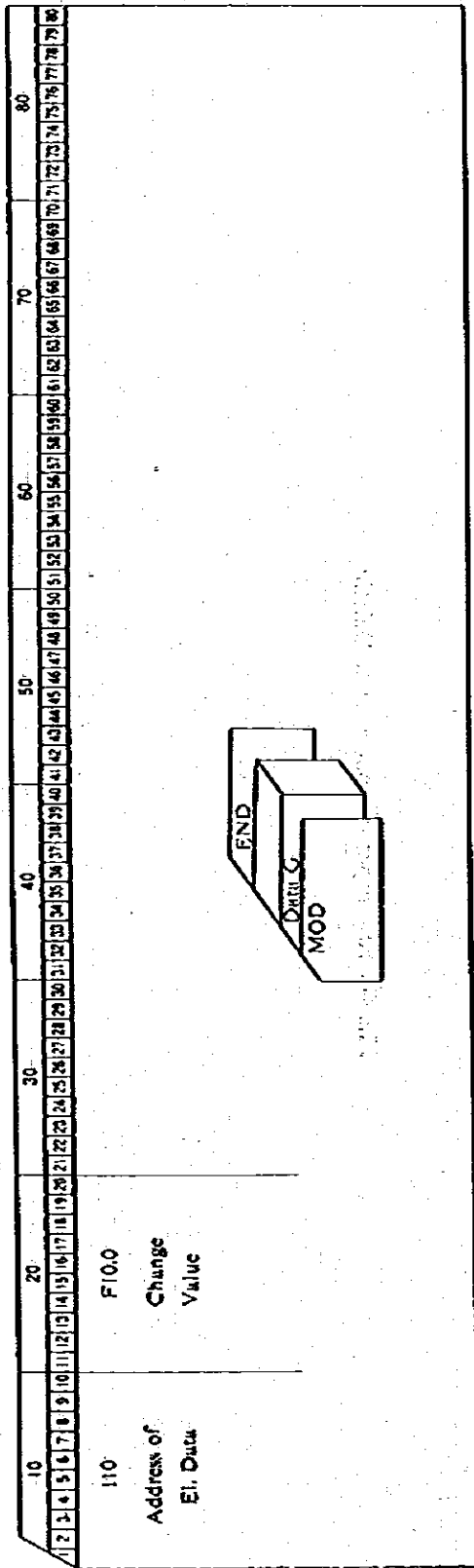


Fig. 4-3-1.1 Input Format of Value Change

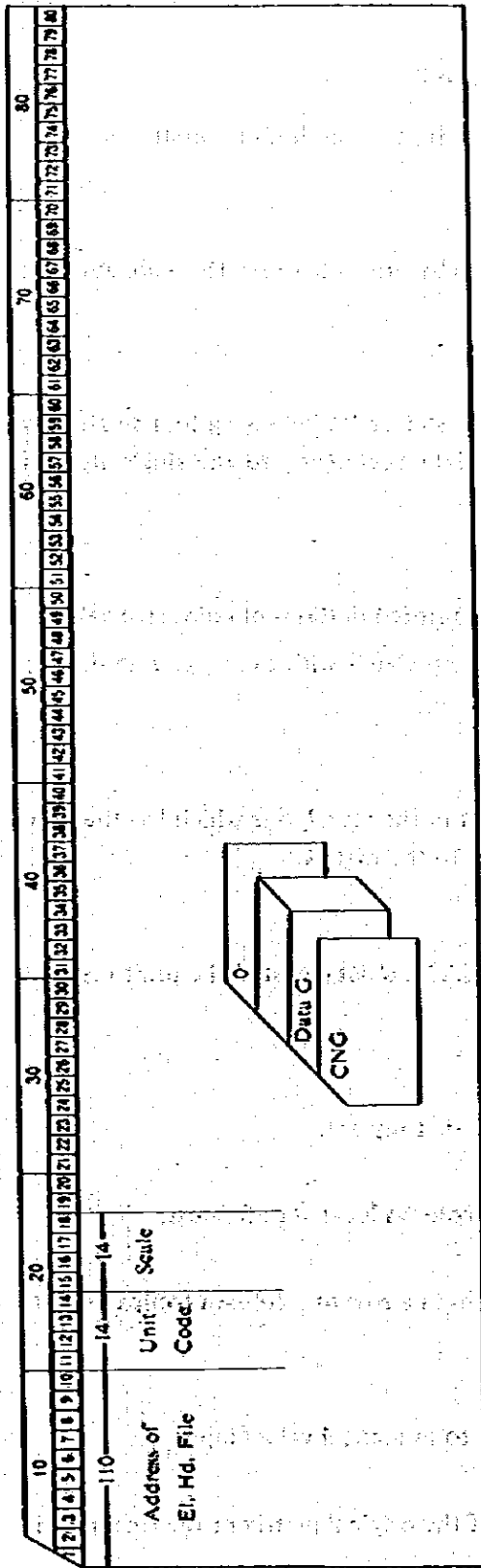


Fig. 4-3-12 Input Format of Unit Change

## NAME CODE.

### (3) Methods to input name codes of the item 4 (period)

When given period is set at ROW or COL, there are two methods to input name codes, which are outlined below.

- i) To input name codes one by one.
- ii) To input the first and the last periods, thereby periods between them are automatically set (the FROM-TO function).

### (4) Free code function

When it is needed to select more than two master codes belonging to a single item, FREE CD can be specified, whereby all the data belonging to the single item are subject to editing.

### (5) Unit/scale conversion function

With this function, specified units and scales are printed in terms of converted values.

When units are converted, data on period not associated with exchange rate data are excluded from the print matrix.

### (6) Overlapping data processing function

When exactly same data of ROW and COL exist in the plural, one which has the maximum data address is selected and incorporated into the matrix.

### (7) Matrix compressing function

With this function, ROW or COL concerning which no data exist in the print matrix is excluded from the print matrix.

### (8) Matrix processing functions

There are four functions to process the matrix printed. They are:

- i) Component ratio  
To calculate component ratios in a row or a column located outermost.
- ii) Growth rate  
To calculate growth rates of numerical values in a row or a column compared with those located immediately before them.
- iii) Four-principle operation  
To make four-principle operation in relation to numerical values input.
- iv) Print plot  
To print a plot of vector of ROW or COL, of the original matrix or the final matrix prepared with either function of (1)~(3).

## 4-4-2 Example of Retrieve and Editing

EXEC

\*\*\*\*\* CJOB SYSTEM \*\*\*\*\* START

\*\*\*\*\* RETRIEVAL ROUTINE START \*\*\*\*\*

?? RETRIEVAL ROUTINE GO OR STOP :  
1100) OR 2150P) ??

?

To instruct the start of retrieve.

QC  
?? PLEASE INPUT ITEM NO :

1. DATA CATEGORY
  2. PLANT OR WORKING AREA
  3. COMPANY
  4. FREQUENCY
  5. LEVEL
- D. LOGICAL EXPRESSION ??

?

To specify the item 2, plant/working area

QC  
?? ITEM NO: 2  
DO YOU WANT TO PRINT MASTER TABLE :  
11YES) OR 21NO) ??

?

To instruct printing of the master table.

```

*** MASTER TABLE
CO NO      LSCE      NAME
  6  2      WQ      WORKING AREA
  8  2      REF      REFINERY
  9  2      LFG      LNG PLANT
 10  2      LFG      LFG PLANT
 11  2      MFL      MFL PLANT
 12  2      HVD      HYDRO POWER
 13  2      GTH      GEOTHERMAL
 14  2      CSF      CRACK FIELD
 15  2      MFG      TOWN GAS
 16  2      CBN      COAL BINE
    
```

All the master codes belonging to the item 2 are printed.

?? PLEASE SET MASTER CO :

?

To specify master CO (working area)

QC  
?? MASTER CO: 6  
DO YOU WANT TO PRINT NAME TABLE :  
11YES) OR 21NO) ??

?

To instruct printing of the name table.

```

*** NAME TABLE
** MASTER CO: 6  MASTER NO: 2  MASTER CODE:WA
   MASTER NAME:WORKING AREA
CO  N  LSCE  NAME
65  1  1      WQ
67  2  1      W. SUBAREA
68  3  1      C. SUBAREA
69  4  1      S. SUBAREA
70  5  1      SE. SUBAREA
71  6  1      SW. SUBAREA
72  7  1      WEST WQ
73  8  1      S.E. SUBAREA
74  9  1      EAST WQ
75  10 1      S. IN MOUNTAIN
76  11 1      C. IN MOUNTAIN
77  12 1      N.E. WQ
78  13 1      S. IN MOUNTAIN

79  14 1      M. U. WQ
80  15 1      C. SUB AREA
81  15 1      NATURA SEA
82  17 1      NATURA M. A
83  18 1      NATURA M. B
84  19 1      NATURA M. E1
85  20 1      NATURA M. E2
86  21 1      NATURA M. C
87  22 1      NATURA M. E3
88  23 1      NATURA M. E4
89  24 1      ZEPHYRUS
90  25 1      BRIGH WQ
91  26 1      S. WQ
92  27 1      WEST B
93  28 1      S. WEST B
94  29 1      N.E. WEST B
95  30 1      N.E. WQ
96  31 1      M. WQ
97  32 1      TANGAN
98  33 1      M. WQ
99  34 1      M. WQ
100 35 1      PENINSULA
101 36 1      BINA
102 37 1      BANGALAN
103 38 1      SEL. WQ
104 39 1      BANGAL
105 40 1      FINE
106 41 1      SINDH
107 42 1      BANSA
108 43 1      BANSA
109 44 1      BANSA
110 45 1      BANSA
111 46 1      BANSA
112 47 1      BANSA
113 48 1      BANSA
114 49 1      BANSA
115 50 1      BANSA
116 51 1      BANSA
117 52 1      BANSA
118 53 1      BANSA
119 54 1      BANSA
    
```

All the name codes belonging to master CO 6 (working area) are printed.



120	55	TEMER BLOK
121	56	BINTINE BLOK
122	57	RIMAU BLOK
123	58	PANANEPAU
124	59	TELUK BERAU
125	60	OTHER P. AREAS
126	61	NON-P. AREAS

?? DO YOU WANT TO SELECT NAME CD 1  
(YES) OR 2(N) ??

?

0< PLEASE SEND NUMBER OF DATA ??

To specify selection of name codes

?

0< PLEASE SEND ( 5) DATA CD ??

To input the number of data

?

03, 04, 24, 25, 25<

?? PLEASE INPUT ITEM NO 1

To input data in the form of CD.

1. DATA CATEGORY
2. PLANT OR WORKING AREA
3. COMPANY
4. FREQUENCY
5. LEVEL

0. LOGICAL EXPRESSION ??

?

0< ITEM NO= 4

To specify the item #, period.

?? DO YOU WANT TO PRINT MASTER TABLE 1  
(YES) OR 2(N) ??

?

0<

To instruct printing of the master table.

### MASTER TABLE

CD	NO	CODE	NAME
18	4	0Y	CALENDAR YR
19	4	FY	FISCAL YEAR
20	4	Q	QUARTER
21	4	M	MONTH

All the master codes belonging to the item # are printed.

?? PLEASE SET MASTER CD ??

?

0< MASTER CD= 20

To specify Master CD # (quarter)

?? DO YOU WANT TO PRINT NAME TABLE 2  
(YES) OR 2(N) ??

?

0<

To instruct printing of the name code table.

### NAME TABLE

## MASTER CD= 20    MASTER ITEM= 4    MASTER CODE= Q  
MASTER NAME= QUARTER

CD	NO	CODE	NAME
181	197201	1ST Q. 1972	
182	197202	2ND Q. 1972	
183	197203	3RD Q. 1972	
184	197204	4TH Q. 1972	
185	198001	1ST Q. 1980	
186	198002	2ND Q. 1980	
187	198003	3RD Q. 1980	
188	198004	4TH Q. 1980	

All the name codes belonging to Master CD # are printed.

?? DO YOU WANT TO SELECT NAME CD 2  
(YES) OR 2(N) ??

?

0< NOW YOU WILL SELECT ITEM

To specify selection of name codes

?? DO YOU WANT FROM-TO INPUT TYPE 1  
(YES) OR 2(N) ??

The from-to input method can be employed as far as the item # is concerned.

?

0< PLEASE SEND NAME CODE 1 FROM ??

To specify the From-To input method.

?

0< PLEASE SEND NAME CODE 1 TO ??

As far as the item # is concerned input data into the form of name CD but N CODE. If not then input.

?

03, 04, 24, 25, 25<

?? PLEASE INPUT ITEM NO 1

To input data.

1. DATA CATEGORY
2. PLANT OR WORKING AREA
3. COMPANY
4. FREQUENCY
5. LEVEL

0. LOGICAL EXPRESSION ??

?

0< ITEM NO= 5

To specify the item #, level.

?? DO YOU WANT TO PRINT MASTER TABLE 1  
(YES) OR 2(N) ??

?

0<

To instruct printing of the master table.

### MASTER TABLE

CD	NO	CODE	NAME
22	5	LEV1	TREE LEVEL 1
23	5	LEV2	TREE LEVEL 2
24	5	LEV3	TREE LEVEL 3
25	5	LEV4	TREE LEVEL 4
26	5	LEV5	TREE LEVEL 5
27	5	LEV6	TREE LEVEL 6
28	5	LEV7	TREE LEVEL 7
29	5	LEV8	TREE LEVEL 8

All the master codes belonging to the item # are printed.

?? PLEASE SET MASTER CD ??

?

0< MASTER CD= 22

To specify Master CD # (LEVEL)

?? DO YOU WANT TO PRINT NAME TABLE 1  
(YES) OR 2(N) ??

2

To list all jobs of the level name table referred to the level 5.

\*\*\* LEVEL NAME TABLE  
\*\* MASTER CODE: 27 MASTER ID: 5 MASTER CODE/LEVEL  
MASTER NAME/TREE LEVEL.6

CD	LEVEL	LEV2	LEV3	LEV4	LEV5	LEV6	LEV7	LEV8
7	INV	FIC	ONS	001	SRV	TRP		
8	INV	FIC	ONS	001	SRV	INS		
13	INV	FIC	ONS	002	SRV	TRP		
14	INV	FIC	ONS	002	SRV	INS		
19	INV	FIC	ONS	003	SRV	TRP		
20	INV	FIC	ONS	003	SRV	INS		
25	INV	FIC	ONS	004	SRV	TRP		
26	INV	FIC	ONS	004	SRV	INS		
121	EXP	EIE	EFL	005	NCP	CEO		
123	EXP	EIE	EFL	005	NCP	CEP		
124	EXP	EIE	EFL	005	NCP	SAS		
125	EXP	EIE	EFL	005	NCP	SAS		
128	EXP	EIE	EFL	006	CAP	CAS		
129	EXP	EIE	EFL	006	CAP	TUR		
130	EXP	EIE	EFL	006	CAP	EGP		
131	EXP	EIE	EFL	006	CAP	OTH		
133	EXP	EIE	EFL	006	NCP	ESP		
134	EXP	EIE	EFL	006	NCP	DGP		
135	EXP	EIE	EFL	006	NCP	ETM		
136	EXP	EIE	EFL	006	NCP	GEN		
137	EXP	EIE	EFL	006	NCP	OTH		
141	EXP	EIE	LEV	007	CAP	CAS		
142	EXP	EIE	LEV	007	CAP	TUR		
143	EXP	EIE	LEV	007	CAP	EGP		
144	EXP	EIE	LEV	007	CAP	OTH		
145	EXP	EIE	LEV	007	NCP	ESP		
146	EXP	EIE	LEV	007	NCP	DGP		
147	EXP	EIE	LEV	007	NCP	ETM		
148	EXP	EIE	LEV	007	NCP	GEN		
150	EXP	EIE	LEV	007	NCP	OTH		
161	EXP	FFE	NCP	008	OTH	MCP		
162	EXP	FFE	NCP	008	OTH	FFE		
163	EXP	FFE	NCP	008	OTH	SEC		
164	EXP	FFE	NCP	008	OTH	STD		
165	EXP	FFE	NCP	008	OTH	SUP		
166	EXP	FFE	NCP	008	OTH	MNT		
167	EXP	FFE	NCP	008	OTH	OTH		
169	EXP	FFE	NCP	008	CAS	MCP		
170	EXP	FFE	NCP	008	CAS	FFE		
171	EXP	FFE	NCP	008	CAS	STD		
172	EXP	FFE	NCP	008	CAS	SUP		
173	EXP	FFE	NCP	008	CAS	MNT		
174	EXP	FFE	NCP	008	CAS	OTH		
176	EXP	FFE	NCP	008	NCP	STD		
177	EXP	FFE	NCP	008	NCP	SUP		
178	EXP	FFE	NCP	008	NCP	MNT		
179	EXP	FFE	NCP	008	NCP	OTH		

All the level name codes belonging to the level 6 of Master Code 27 are printed.

?? DO YOU WANT TO SELECT NAME CD ?  
YES/NO OR 2/0000 ??

2

To list all the level name codes belonging to Master Code 27.

- PLEASE INPUT ITEM NO. 1
1. DATA CATEGORY
  2. PLANT OR WORKING AREA
  3. COMPANY
  4. FREQUENCY
  5. LEVEL
6. LOGICAL POSSESSION ??

2

To Specify logical possession input.

INPUT DATA LIST 3

NO	MASTER	R. MASTER	S. MASTER	AREA SEA	S.F. MASTER	PLANT LOCATION
1	00					
2	0	151 0.1900	200 0.1900	350 0.1900	400 0.1900	
3	LEVS	INV FIC ONS 001	SRV TRP			
		INV FIC ONS 001	SRV INS			
		INV FIC ONS 002	SRV TRP			
		INV FIC ONS 002	SRV INS			
		INV FIC ONS 003	SRV TRP			
		INV FIC ONS 003	SRV INS			
		INV FIC ONS 004	SRV TRP			
		INV FIC ONS 004	SRV INS			
		EXP EIE EFL 005	NCP CEO			
		EXP EIE EFL 005	NCP CEP			
		EXP EIE EFL 005	NCP SAS			
		EXP EIE EFL 006	CAP CAS			
		EXP EIE EFL 006	CAP TUR			
		EXP EIE EFL 006	CAP EGP			
		EXP EIE EFL 006	CAP OTH			
		EXP EIE EFL 006	NCP ESP			
		EXP EIE EFL 006	NCP DGP			
		EXP EIE EFL 006	NCP ETM			
		EXP EIE EFL 006	NCP GEN			
		EXP EIE EFL 006	NCP OTH			
		EXP FFE MCP 008	OTH MCP			
		EXP FFE MCP 008	OTH FFE			
		EXP FFE MCP 008	OTH SEC			
		EXP FFE MCP 008	OTH STD			
		EXP FFE MCP 008	OTH SUP			
		EXP FFE MCP 008	OTH MNT			
		EXP FFE MCP 008	CAS MCP			
		EXP FFE MCP 008	CAS FFE			
		EXP FFE MCP 008	CAS STD			
		EXP FFE MCP 008	CAS SUP			
		EXP FFE MCP 008	CAS MNT			
		EXP FFE MCP 008	CAS OTH			
		EXP FFE MCP 008	NCP STD			
		EXP FFE MCP 008	NCP SUP			
		EXP FFE MCP 008	NCP MNT			
		EXP FFE MCP 008	OTH			

The above data is printed.

```

EIP FFE MCF WFE OIL OTH
EIP FFE MCF WFE GAS WPD
EIP FFE MCF WFE GAS FFE
EIP FFE MCF WFE GAS STD
EIP FFE MCF WFE GAS SUP
EIP FFE MCF WFE GAS MNT
EIP FFE MCF WFE GAS OTH
EIP FFE MCF WFE GAS STD
EIP FFE MCF WFE GAS SUP
EIP FFE MCF WFE GAS MNT
EIP FFE MCF WFE GAS OTH

```

?? PLEASE SEND LOGICAL EXPRESSION 4  
 R41R43 (A,B,C ... INPUT NO) ??

?  
 10234

To input logical expression. The input operation  
 employs INPUT NO.

?? DO YOU WANT TO PRINT RETRIEVAL DATA 1  
 (YES) OR (NO) ??

?  
 <

To instruct the completion of retrieval.

11111 EDIT ROUTINE START 11111

?? EDIT ROUTINE NO OR STOP 1  
 (100) OR (2) STOP ??

?  
 <

To instruct the start of editing.

?? ITEM NO= 1  
 DO YOU WANT FREE CD 1  
 (YES) OR (NO) ??

?  
 <

FREE CODE should not be specified in relation  
 to the item 1.

?? ITEM NO= 1  
 DO YOU WANT TO PRINT MASTER TABLE 1  
 (YES) OR (NO) ??

?  
 <

To instruct printing of the master table.

111 MASTER TABLE

CD	NO	FREE	NAME
1	1	EIP	EXPENDITURE
2	1	INJ	IN-RESIDENT
3	1	REC	REPAIR FEE
4	1	REP	REPAIR TECH BT
5	1	TRG	SEE ITEM 01

All the master codes belonging to the item 1 are  
 printed.

?? PLEASE SET MASTER CD ??

?  
 <

To specify EIP as the master code of the item 1.

?? MASTER CD= 1  
 DO YOU WANT TO PRINT NAME TABLE 1  
 (YES) OR (NO) ??

?  
 <

To instruct printing of the name code table.

111 NAME TABLE

CD	NO	FREE	NAME	MASTER NAME=EXPENDITURE
1	1		EXPENDITURE	

Among Master CD 1 (EIP) name codes registered  
 in the archive file are selected and printed.

?? PLEASE SET NAME CD 1  
 (NAME CD) OR (1-STOP) OR (2-ITEM) ??

?  
 <

To specify EXPENDITURE as the name code of  
 the item 1.

?? ITEM NO= 2  
 DO YOU WANT FREE CD 1  
 (YES) OR (NO) ??

?  
 <

FREE CODE should not be specified in relation  
 to the item 1.

?? ITEM NO= 2  
 DO YOU WANT TO PRINT MASTER TABLE 1  
 (YES) OR (NO) ??

?  
 <

To instruct printing of the master table.

111 MASTER TABLE

CD	NO	FREE	NAME
6	2	MA	WORKING AREA
7	2	REF	REFINERY
8	2	LNG	LNG PLANT
9	2	LPG	LPG PLANT
10	2	NCL	NCL PLANT
11	2	HYD	HYDRO POWER
12	2	OTH	OTHERS
13	2	CRD	CRUDE FIELD
14	2	NGF	NAT GAS FIELD
15	2	TNG	TOWN GAS
16	2	OPN	OPEN MINE

All the master codes belonging to the item 2 are  
 printed.

?? PLEASE SET MASTER CD ??

?  
 <

REF was specified as the master code of the item  
 2. Because there are REF are not registered in the  
 archive file, data error is started.

11 TELECALL DATA PLEASE INPUT AGAIN

?  
 <

To specify REF as the master code of the item 2.

?? MASTER CD= 6  
 DO YOU WANT TO PRINT NAME TABLE 1  
 (YES) OR (NO) ??

?  
 <

To instruct printing of the name code table.

111 NAME TABLE

CD	NO	FREE	NAME	MASTER NAME=WORKING AREA
A7	2		M. SIMATEPA	
69	4		S. SIMATEPA	
11	4		J. SIMATEPA	
73	8		S. SIMATEPA	
75	10		E. SIMATEPA	

Among Master CD 6 (MA) name codes registered  
 in the archive file are selected and printed.

>> PLEASE SET MASTER CD 1  
(INP# CD) OR (1-11)CD OR (1-2)ROW ??

3 <----- To specify the item 1, Master CD 1 in the column.

>> PLEASE SET FREE CD 1  
(FREE) OR (2)CD ??

4 <----- To set all the same codes of Master CD 1 registered in the column (67, 69, 71, 73, 75) in the column.

>> ITEM NO= 3  
DO YOU WANT FREE CD 1  
(YES) OR (NO) ??

5 <----- To specify FREE CODE in relation to the item 3, check if becomes impossible to specify master codes.

>> ITEM NO= 3  
DO YOU WANT TO PRINT MASTER TABLE 1  
(YES) OR (NO) ??

6 <----- To instruct printing of the master table.

\*\*\* MASTER TABLE

CD	NO	CODE	NAME
17	3	COI	COI/FSC

All the master codes belonging to the item 3 are printed.

>> PLEASE SET MASTER CD FOR NAME TABLE LIST 1  
IF YOU WANT END, PLEASE (0) SEND ??

7 <----- To specify the master code to print the name code table.

\*\*\* NAME TABLE

CD	N CODE	NAME	MASTER EXCEPT MASTER NAME-COMPANY
137	11	LIASCO	
138	12	GSOD	
139	13	INION OIL	
140	14	IRFFCO	
141	15	TOTAL INC.	
142	22	MOBIL OIL	
145	43	INFEA	

Among Master CD 17 (COI) same codes registered in the column (6) are selected and printed.

>> PLEASE SET MASTER CD FOR NAME TABLE LIST 1  
IF YOU WANT END, PLEASE (0) SEND ??

8 <----- To specify (0) in specifying the name code table.

>> PLEASE SET 1  
COL (11, FISCAL-YR OR MONTH) ??

9 <----- To specify (0) because the item 3 is neither COL nor COI.

>> ITEM NO= 4  
DO YOU WANT FREE CD 1  
(YES) OR (NO) ??

10 <----- FREE CODE should not be specified in relation to the item 4.

>> ITEM NO= 4  
DO YOU WANT TO PRINT MASTER TABLE 1  
(YES) OR (NO) ??

11 <----- To instruct printing of the master table.

\*\*\* MASTER TABLE

CD	NO	CODE	NAME
18	4	CV	CALENDAR YR
19	4	FV	FISCAL YEAR
20	4	Q	QUARTER
21	4	M	MONTH

All the master codes belonging to the item 4 are printed.

>> PLEASE SET MASTER CD ??

12 <----- To specify (0) in the master code of the item 4.

>> MASTER CD= 20  
DO YOU WANT TO PRINT NAME TABLE 1  
(YES) OR (NO) ??

13 <----- To instruct printing of the name code table.

\*\*\* NAME TABLE

CD	N CODE	NAME	MASTER CODE=0 MASTER NAME=QUARTER
185	195001	1ST Q. 1950	
186	195002	2ND Q. 1950	
187	195003	3RD Q. 1950	

Among Master CD 20 (Q) same codes registered in the column (6) are selected and printed.

>> PLEASE SET NAME CODE 1  
(INP# CODE) OR (1-1)CD OR (1-2)ROW ??

14 <----- To specify 195001 in the name code of the item 4. As far as the item 4 is concerned, input data take the form of not (0) but 'X' CODE. Even if input CD 185 is registered in a column.

>> ITEM NO= 5  
DO YOU WANT FREE CD 1  
(YES) OR (NO) ??

15 <----- FREE CODE should not be specified in relation to the item 5.

>> ITEM NO= 5  
DO YOU WANT TO PRINT MASTER TABLE 1  
(YES) OR (NO) ??

16 <----- To instruct printing of the master table.

\*\*\* MASTER TABLE

CD	NO	CODE	NAME
22	5	LEV1	TREE LEVEL 1
23	5	LEV2	TREE LEVEL 2
24	5	LEV3	TREE LEVEL 3
25	5	LEV4	TREE LEVEL 4
26	5	LEV5	TREE LEVEL 5
27	5	LEV6	TREE LEVEL 6
28	5	LEV7	TREE LEVEL 7
29	5	LEV8	TREE LEVEL 8

All the master codes belonging to the item 5 are printed.

>> PLEASE SET MASTER CD ??

17 <----- To specify LEV1 in the master code of the item 5.

>> MASTER CD= 27  
DO YOU WANT TO PRINT NAME TABLE 1  
(YES) OR (NO) ??

To instruct printing of the level name table

```

### LEVEL NAME TABLE
## MASTER CODE ?? MASTER ID# 5 MASTER CODE/LEVELS
MASTER INSTITUTE LEVEL 6
  CD  LEV1 LEV2 LEV3 LEV4 LEV5 LEV6 LEV7 LEV8
123 EXP EDE EFL GAO NCP GED
124 EXP EDE EFL GAO NCP GEP
125 EXP EDE EFL GAO NCP SAS
130 EXP EDE EFL DFL NCP EOP
134 EXP EDE EFL DFL NCP EOP
143 EXP EDE LEV DFL CAP EOP
147 EXP EDE LEV DFL NCP EOP
162 EXP FFE NCP DFE OIL FFE
170 EXP FFE NCP DFE GAS FFE
176 EXP FFE NCP DFE GSP STD
  
```

Assign Master CD 27 (LEVS), level name codes registered in the archive file are selected and printed.

?? PLEASE SET NAME CD # (NAME CD) OR (-)1100L OR (-)2100M ??

?? PLEASE ROW SET # (ROWL) OR 215E1) ??

?? DO YOU WANT TO RESET YOUR DATA # (YES) OR 2(N)O) ??

?? PRINT MATRIX SIZE (ROW #, COL #) (C 10# 5)

```

NUMBER OF ELEMENT (LC) #
.. 28
NUMBER OF ELEMENT (FC) #
.. 28

KIND OF UNIT (LC) #
RP

KIND OF UNIT (FC) #
US$

KIND OF SCALE (LC) #
10**E 31

KIND OF SCALE (FC) #
10**E 31

DO YOU WANT TO PRINT MATRIX #
(YES) OR 2(N)O) ??
  
```

Output matrix information including row and column are printed.

?? PLEASE SET PRINTING TITLE (L# ?? OR) ??

TEST#

?? DO YOU WANT TO PRINT UNIT TABLE # (YES) OR 2(N)O) ??

```

### UNIT TABLE
NO NAME
1 RP
2 US$
  
```

The unit table is printed.

?? YEAR TABLE (EXCHANGE RATE)

```

NO CODE
1 1979
2 1980
3 1981
  
```

Year concerning which exchange rate data are available is printed.

?? PLEASE SET PRINTING UNIT (LC) ??

?? PLEASE SET PRINTING UNIT (FC) ??

US\$ #

?? PLEASE SET PRINTING SCALE (LC) # (0 10 1E) ??

?? PLEASE SET PRINTING SCALE (FC) # (0 10 1E) ??

?? PLEASE SET PRINTING FORMAT # (F10.4) ??

?? PLEASE SET TOTAL OPTION FOR (COL) # (1(TOTAL) OR 2(NO-PRINT) OR 3(LEFT)) ??

?? PLEASE SET TOTAL OPTION FOR (ROW) # (1(TOTAL) OR 2(NO-PRINT) OR 3(LEFT)) ??

?? DO YOU WANT TO RESET PRINT OPTION # (YES) OR 2(N)O) ??

?? DO YOU WANT TO COMPRESS MATRIX # (YES) OR 2(N)O) ??

To instruct not to reset data following the unit card at the time of output.

7  
 ④ 11 PRINT MATRIX SIZE (ROW \* COL) ?  
 ... C 9. 41  
 NUMBER OF ELEMENT (UC) ?  
 .. 28  
 NUMBER OF ELEMENT (FC) ?  
 .. 28  
 ?? DO YOU WANT SUB-OPTION ?  
 1(TOTAL) OR 2(AVERAGE) OR 3(NONE) ??  
 ?  
 ④ 12 PLEASE SET ?  
 1(COL) OR 2(ROW) ??  
 ?  
 ④ 13 PLEASE INPUT LAST NAME (ID FOR SUB-OPTION) ??  
 ?  
 130  
 11 ILLEGAL DATA PLEASE INPUT AGAIN  
 ?  
 ④ 14 DO YOU WANT SUB-OPTION ?  
 1(TOTAL) OR 2(AVERAGE) OR 3(NONE) ??  
 ?  
 ④ 15  
 ?  
 ④ 16

To instruct to enter row and column concerning which data are shown in the output.  
 Information contained in the output matrix computed as printed.  
 To instruct calculation of the sub-total.  
 To instruct calculation of the sub-total of rows.  
 To instruct calculation of the sub-total of rows to be printed immediately after DATA SEA of CD 71 of COL.  
 To instruct the completion of sub-option.

TEST

	S. SEPARATE FOR	DATA SEA	SUB TOTAL	S. E. SEPARATE TIER	E. SEPARATE TIER	TOTAL
EIP EIE EPL GAS	262.00	#	262.00	31.00	531.00	924.00
MCP DEO		#				
EIP EIE EPL GAS	144.00	#	144.00	66.00	2727.00	2937.00
MCP CEP		#				
EIP EIE EPL GAS	2.00	100.00	102.00	#	23.00	125.00
MCP SAS		#				
EIP EIE EPL EPL	#	238.00	238.00	#	278.00	516.00
CAP ESP		#				
EIP EIE EPL EPL	9363.00	7784.00	17147.00	424.00	5787.00	23358.00
MCP D/F		#				
EIP EIE DEV EPL	1118.00	2560.00	3678.00	445.00	1386.00	5510.00
CAP ESP		#				
EIP EIE DEV EPL	3850.00	8511.00	12361.00	4023.00	8273.00	24657.00
MCP DOP		#				
EIP FFE MCP EPE	7716.00	10433.00	18149.00	4393.00	4434.00	27436.00
OIL FFE		#				
EIP FFE MCP EPE	#	#	#	#	163.00	163.00
GAS FFE		#				
TOTAL	22455.00	29576.00	52031.00	9873.00	23702.00	85636.00

Total page number.  
 No data  
 LE printed above  
 PE printed below  
 Output matrix printed

?? DO YOU WANT MATRIX OPTION ?  
 1(YES) OR 2(NONE) ??  
 ?  
 ④ 17 PLEASE INPUT SELECTION NO ?  
 1. CONSTRUCTION RATIO  
 2. GROWTH RATE  
 3. CALCULATION  
 4. PRINT PLOT  
 0. END ??  
 ?  
 ④ 18 PLEASE SET PRINTING TITLE  
 (I.E. 79 OR) ??  
 ?  
 TEST - CONSTRUCTION RATIO  
 ?? PLEASE SET PRINTING UNIT (UC) ?  
 (I.E. 12 OR) ??  
 ?  
 ④ 19 PLEASE SET PRINTING UNIT (FC) ?  
 (I.E. 12 OR) ??  
 ?  
 ④ 20 PLEASE SET PRINTING SCALE (UC) ?  
 10 11 12 ??  
 ?  
 ④ 21 PLEASE SET PRINTING SCALE (FC) ?  
 10 11 12 ??  
 ?  
 ④ 22 PLEASE SET PRINTING FORMAT ?  
 (I.E. 11) ??

To instruct the end of matrix option.  
 To qualify component title.  
 To input unit at the time of output.  
 To input UC unit.  
 To input FC unit.  
 To input UC unit.  
 To input FC unit.

?  
 ? ? DO YOU WANT TO RESET PRINT OPTION 1  
 (YES) OR 2(ND) ??  
 ?  
 ? ? PLEASE SET 1  
 (COL) OR 2(ROW) ??  
 ?  
 ? ?  
 ? ?

To input print format.  
 To instruct not to reset data following the title  
 at the time of output.  
 To prepare component ratio to table in the located interval.

TEST ... CONSTRUCTION RATIO

	S. SUPMATE FA	JWA SEA	FACE UNIT (LC) (FC)	S. E. S.MA TERA	E. VALIMA NTAN	TOTAL
EAP ELE EPL GAG M.P. DEO	28.355	0	28.355	3.355	68.290	100.000
EAP ELE EPL GAG M.P. DEP	4.903	0	4.903	2.247	92.850	100.000
EAP ELE EPL GAG M.P. SAS	1.600	80.000	81.600	0	18.400	100.000
EAP EDE EPL EPL CAP EOP	0	45.124	45.124	0	53.876	100.000
EAP EDE EPL EPL M.P. EOP	43.085	33.325	73.410	1.615	24.775	100.000
EAP EDE DEV EPL CAP EOP	20.290	45.458	65.751	8.054	25.154	100.000
EAP ELE DEV EPL M.P. EOP	15.717	34.876	50.192	18.298	32.512	100.000
EAP FFE M.P. EPE OIL FFE	28.124	37.917	66.041	17.278	-16.161	100.000
EAP FFE M.P. EPE GAS FFE	0	0	0	0	100.000	100.000
TOTAL	26.250	31.552	50.803	11.526	27.671	100.000

Component ratio table is printed.

? ? PLEASE INPUT SELECTION NO 1  
 1. CONSTRUCTION RATIO  
 2. GROWTH RATE  
 3. CALCULATION  
 4. PRINT FLOW  
 -----  
 0. END ??

?  
 ? ? PLEASE SET PRINTING TITLE  
 (I.E. ?? CH) ??  
 ?  
 TEST - GROWTH RATE <  
 ? ? PLEASE SET PRINTING UNIT (LC) 1  
 (I.E. 12 CH) ??  
 ?  
 ? ? PLEASE SET PRINTING UNIT (FC) 1  
 (I.E. 12 CH) ??  
 ?  
 ? ? PLEASE SET PRINTING SCALE (LC) 1  
 10 11 11) ??  
 ?  
 ? ? PLEASE SET PRINTING SCALE (FC) 1  
 10 11 11) ??  
 ?  
 ? ? PLEASE SET PRINTING FORMAT 1  
 110.11) ??  
 ?  
 ? ? DO YOU WANT TO RESET PRINT OPTION 1  
 (YES) OR 2(ND) ??  
 ?  
 ? ? PLEASE SET 1  
 1(COL) OR 2(ROW) ??  
 ?  
 ? ?

To specify growth rate over the previous year.  
 To input title of the time of output.  
 To input LC unit.  
 To input FC unit.  
 To input LC unit.  
 To input FC unit.  
 To input print format.  
 To instruct not to reset data following the title  
 at the time of output.  
 To prepare growth rate to column over the  
 previous year.

TEST ... GROWTH RATE

	S. SUPPATE FA	JPSWA SEA	SUB TOTAL	S.E. SUPA TEFA	E. TALINA NTAN	TOTAL
EXP EDE EPL GAG NCP CEO	.	.	.	.	.	.
EXP EDE EPL GAG NCP CEP	-45.038	.	-45.038	112.903	332.171	217.657
EXP EDE EPL GAG NCP SAS	-98.611	.	-29.167	.	-99.157	-95.744
EXP EDE EPL EPL CAP ECP	.	132.000	132.333	.	1108.696	312.600
EXP EDE EPL EPL NCP ECP	.	3170.523	2104.622	.	1981.655	4426.741
EXP EDE DEV EPL CAP ECP	-88.059	-47.112	-72.550	5.189	-76.050	-76.411
EXP EDE DEV EPL NCP ECP	247.048	232.451	236.893	692.018	496.893	343.040
EXP FFE NCP EPE OIL FFE	98.865	22.230	45.227	21.377	-45.404	44.135
EXP FFE NCP EPE GAS FFE	.	.	-100.000	.	-26.328	-99.406
TOTAL	.	.	.	14441.104	52419.693	

Matrix of growth rate over the previous year is printed  
This matrix is meaningful only when the matrix (period) is not set in zero.

?? PLEASE INPUT SELECTION NO 1  
1. CONSTRUCTION RATIO  
2. GROWTH RATE  
3. CALCULATION  
4. PRINT PLOT  
0. END ??

3 ← To specify four principle operation.

?? PLEASE SET PRINTING TITLE  
ILE. 79 CH1 ??

TEST-CALCULATION(1) ← To input title at the time of output.

?? PLEASE SET PRINTING UNIT IFC1 1  
ILE. 12 CH1 ??

12 ← To input LC unit.

US ← To input PC unit.

10 ← To input LC scale.

10 ← To input PC scale.

3 ← To input print format.

?? PLEASE SET I  
1. 1  
2. 2  
3. 3  
4. / ??

3 ← To specify I matrix.

?? PLEASE SET I  
1. MATRIX (??) INDICATED DATA  
2. INDICATED DATA (??) MATRIX  
(?) = 1, 2, 3, / ??

3 ← To instruct to work on I matrix by input data.

?? PLEASE SET I  
1. ONE VALUE  
2. NEW VECTOR  
3. VECTOR IN MATRIX ??

3 ← To instruct to operate a single column with a constant value.

?? PLEASE SEND REAL VALUE FOR IFC1 1  
1111.11 ??

1111 ← To specify that input data be at a single value.



?? PLEASE SEND REAL VALUE FOR (FC) :  
 1111.11 ??

?

1111 <

To input data used in operation (FC)

TEST ... CALCULATION (??)

	S. SUPATE FA	JWSA SEA	SAB TOTAL	S. E. SUPA TESA	E. YALIMA NTAN	TOTAL
EXP ETE EPL GAS NCP CED	26.20	0	26.20	3.10	83.10	92.40
EXP ETE EPL GAS NCP CEP	14.40	0	14.40	6.60	272.70	293.70
EXP ETE EPL GAS NCP SAS	0.20	10.00	10.20	0	2.30	12.50
EXP ETE EPL GRL CAP ECP	0	23.80	23.80	0	27.80	51.60
EXP ETE EPL GRL NCP ECP	938.30	778.40	1716.70	42.40	578.70	2335.80
EXP ETE DEV GRL CAP ECP	111.80	255.00	367.80	44.80	139.60	551.00
EXP ETE DEV GRL NCP ECP	358.00	851.10	1209.10	402.30	827.30	2438.70
EXP FRE NCP EPE GAS FFE	771.60	1047.30	1818.90	458.30	412.60	2747.60
EXP FRE NCP EPE GAS FFE	0	0	0	0	16.30	16.30
TOTAL	2243.50	2559.60	5008.10	987.30	2170.20	8565.60

Matrix containing the results of the operation is printed.

?? PLEASE INPUT SELECTION NO :

1. CONSTRUCTION RATIO
2. GROWTH RATE
3. CALCULATION
4. PRINT PLOT

0. END ??

?

0 <

To specify print plot.

?? PLEASE SET PRINTING TITLE  
 (LE. 79 CH) ??

?

TEST-PRINT PLOT <

To input title at the time of output.

?? PLEASE SET PRINTING UNIT :  
 (LE. 12 CH) ??

?

US <

To input unit.

?? PLEASE SET PRINTING SCALE :  
 10 11 12 ??

?

0 <

To input scale.

?? PLEASE SET PRINTING FORMAT :  
 FIG. (1) ??

?

0 <

To input print format.

?? DO YOU WANT TO RESET PRINT OPTION :  
 (YES) OR (NO) ??

?

0 <

To instruct not to reset data following the test at the time of output.

?? WHICH DO YOU WANT TO PLOT :  
 1. ORIGINAL MATRIX  
 2. LAST PRINTING MATRIX ??

?

0 <

To specify matrix of last printing operation prepared at the final stage.

?? WHICH DO YOU WANT TO PLOT :  
 1. LOCAL CURRENCY  
 2. FOREIGN CURRENCY ??

?

0 <

To specify FC data plot.

?? PLEASE SET :  
 1 (COL) OR 2 (ROW) ??

?

0 <

To instruct selection of plot data from rows.

?? PLEASE SEND ROW (1) INDEX ??

?

0 <

To specify the row size in the output matrix.

?? DO YOU WANT TO SET MINIMUM VALUE :  
 (YES) OR (NO) ??

?

0 <

To instruct input of minimum value.

?? PLEASE SET MINIMUM VALUE ??

?

1111 <

To input the minimum value.

?? DO YOU WANT TO SET MAXIMUM VALUE :  
 (YES) OR (NO) ??

?

0 <

To instruct input of maximum value.

?? PLEASE SET MAXIMUM VALUE ??

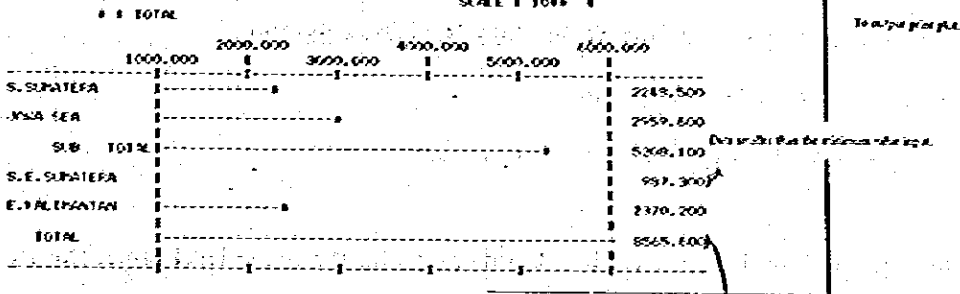
?

1111 <

To input the maximum value.

TEST ... PRINT PLOT

UNIT : US\$  
SCALE : 1000



?? PLEASE INPUT SELECTION NO :  
1. CONSTRUCTION RATE  
2. GROWTH RATE  
3. CALCULATION  
4. PRINT PLOT  
0. END ??

0  
?? EDIT ROUTINE GO OR STOP :  
11001 OR 21STOP1 ??  
?  
?? EDIT ROUTINE END :1111  
#### RETRIEVAL ROUTINE START : 4444  
?? RETRIEVAL ROUTINE GO OR STOP :  
11501 OR 21STOP1 ??  
?  
#### C I B B SYSTEM #### GOOD-BYE  
READY

## 4-5 System Configuration of the Cost/Technology Data Bank System

### 4-5-1 Configuration of the Whole System

The cost data bank consists of the following three programs.

#### 1) TBL

To produce and renew the master table, the name table, the name level table, the tree name table and the unit table.

#### 2) DBS

To produce and renew the element header file and the element data file and to prepare the index file used for retrieving data.

#### 3) RED

To retrieve required data and to edit and output them in the form of interaction.

### 4-5-2 Subroutines of TBL

#### o Main program

To input title cards, based on which individual subroutines are called.

To output the number of data contained in each tables, the master table, the tree name table and the unit table in LF10.

#### o Subroutine IRAS

To set arrays of integer type at certain values.

#### o Subroutine ERAS

To set arrays of the real number type at certain values.

#### o Subroutine INIT

To make the number of data contained in each tables 'zero' (0) and clear the master table, the tree name table and the unit table.

#### o Subroutine REST

To input the number of data contained in each tables, the master table, the tree name table and the unit table from LF10.

#### o Subroutine GMAST

To input master table data and register item numbers, codes and names in the master table.

#### o Subroutine GNAME

To input name table data and call the subroutines MCHECK and NMET.

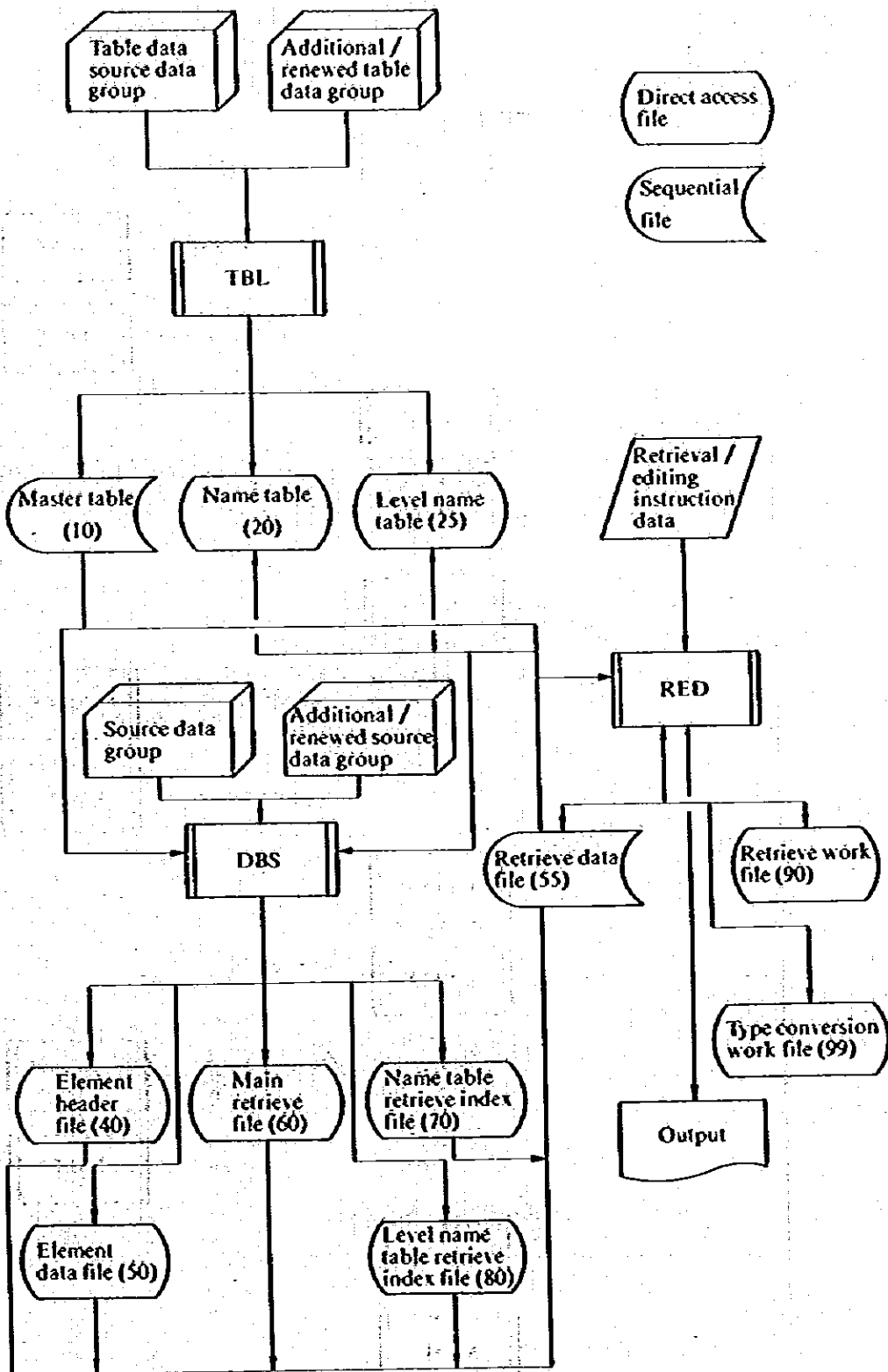


Fig. 4-5-1 System Configuration

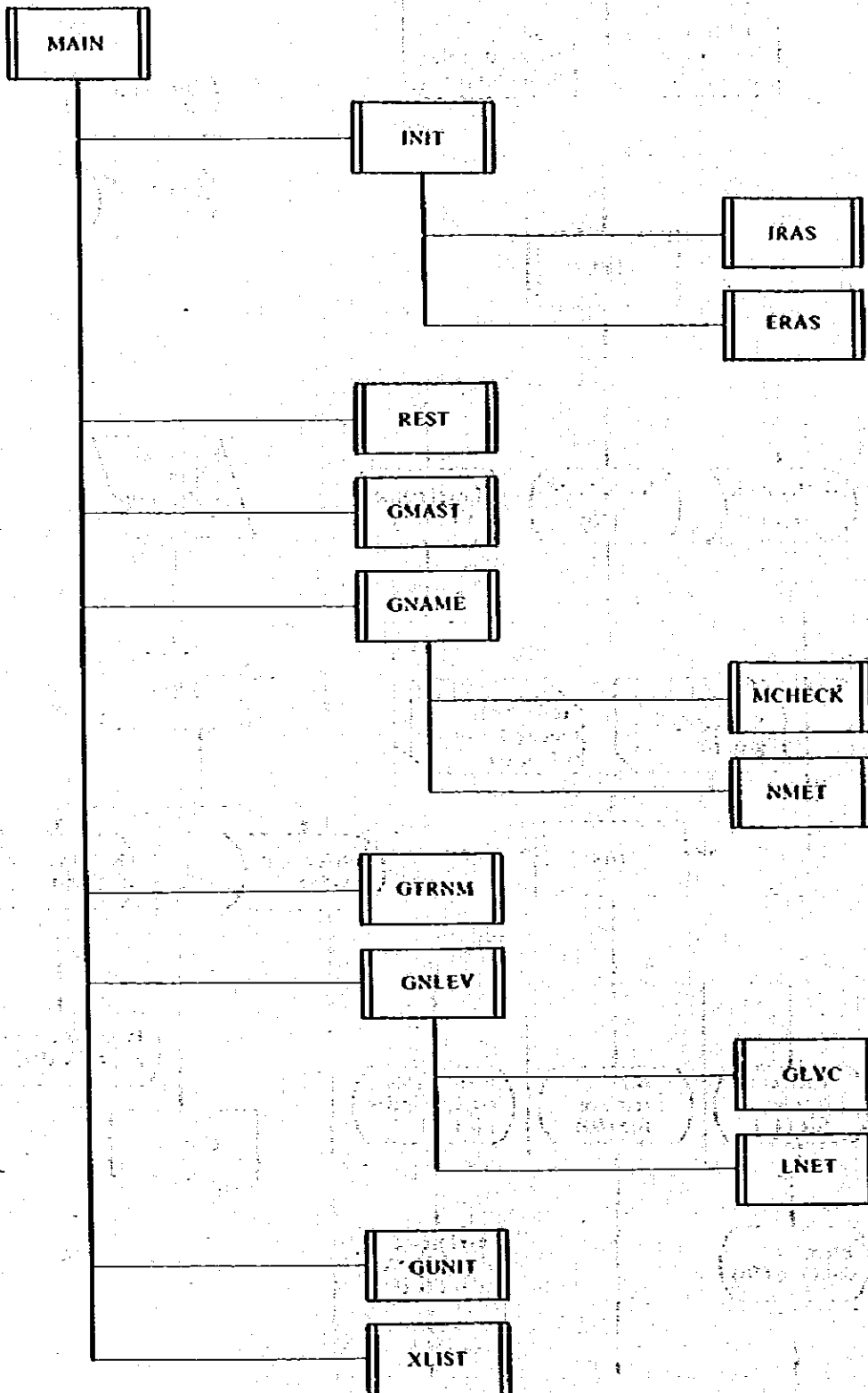


Fig. 4-5-2 TBL Block Flow Chart

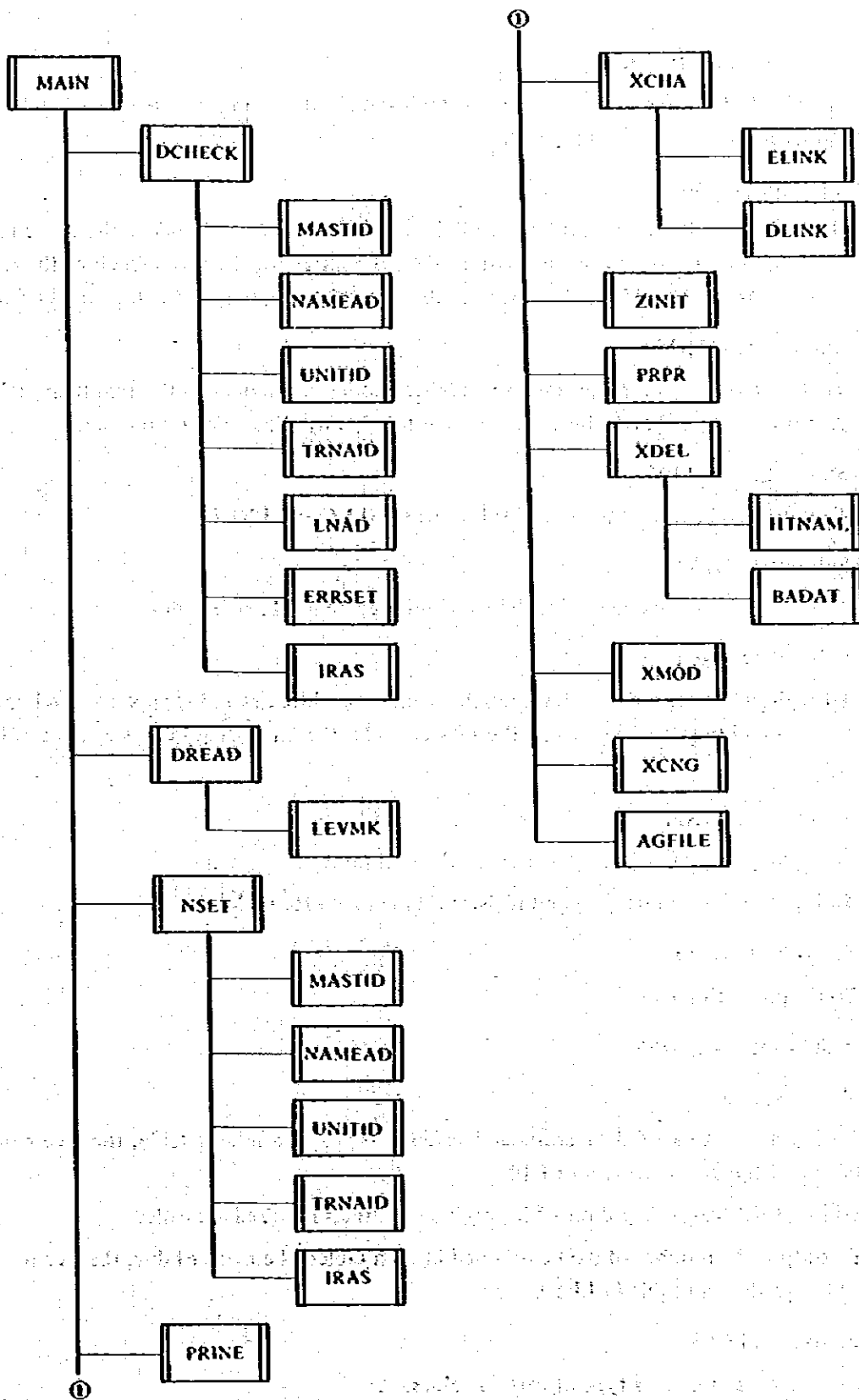


Fig. 4-5-3 DBS Block Flow Chart

- o Subroutine MCHECK  
To check if master codes of the name table data have been already registered and print an error message if they have not.
- o Subroutine NMET  
To register name codes and names of the name table data and change the name table tail addresses registered in the master table, the latter required as a result of the registration. As for name codes having been already registered, only the names are renewed.
- o Subroutine GTRNM  
To input tree name table data and register codes and names in the tree name table. As for tree names having been already registered, only the names are renewed.
- o Subroutine GNLEV  
To input level name data and call subroutines GLVC and LNET.
- o Subroutine GLVC  
To check tree name codes of each levels and prepare level name codes.
- o Subroutine LNET  
To register master indexes, level numbers and link addresses and change the level name table tail addresses registered in the master table, the latter required as a result of the registration.
- o Subroutine GUNIT  
To input unit data and register them in the unit table.  
To input exchange rate data and register them in the rate table.
- o Subroutine XLIST  
To output each tables.

#### 4-5-3 Subroutines of DBS

- o Main program  
To input numbers of data contained in each tables, the master table, the free name table and the unit table from LFI0.  
To input title cards, based on which each subroutines required are called.  
To output the number of data contained in each tables, the master table, the free name table and the unit table in LFI0.
- o Subroutine IRAS  
To set arrays of integer type at certain values.

- o Subroutine ERAS  
To set arrays of the real number type at certain values.
- o Subroutine DCHECK  
To input element header data and check master codes, name codes and unit codes.  
To input element data and check free name codes and level name codes.
- o Subroutine ERRSET  
To count the number of data errors and print error messages.
- o Subroutine MASTID  
To check if master codes input are registered in the master table. When they are, to set master indexes. When they are not, to print error messages.
- o Subroutine NAMEAD  
To check if name codes input are registered in the name code file. If they are, to set addresses of the name codes. If they are not, to print error messages.
- o Subroutine UNITID  
To check if unit codes input are registered in the unit code table. If they are, to set indexes. If they are not, to print error messages.
- o Subroutine TRNAID  
To check if tree name codes input are registered in the tree name table. If they are, to set indexes. If they are not, to print error messages.
- o Subroutine LNAD  
To check if level name codes input are registered in the level name file. If they are, to set addresses of the level name codes. If they are not, to print error messages.
- o Subroutine ZINIT  
To make element header numbers and element data numbers 'zero' (0) and clear element header addresses and element data addresses registered in the name table and the level name table, respectively.
- o Subroutine DREAD  
To input element header data and element data and call the subroutine LEVMK.
- o Subroutine LEVMK  
To prepare level name codes of higher levels based on level name codes of the lowest level which are input and add up value data.
- o Subroutine NSET  
To set master codes and names of each items as well as name codes and names of the



same.

- o Subroutine PRINE

To output all the element data included in one of the element header.

- o Subroutine XCHA

To prepare and register tables of element header and element data. To link data and call the subroutines ELINK and DLINK.

- o Subroutine ELINK

To revise the link address (after) of element header and link it with new data.

- o Subroutine DLINK

To revise the link address (after) of element data and link it with new data.

- o Subroutine XDEL

To input data deleted. When the data are the head or tail addresses in the element header file, to revise the element header file. To call the subroutines HTNAM and BADAT, the former designed to revise element data addresses in the level name table and the latter to revise link addresses of the element data.

- o Subroutine HTNAM

To revise the level name table when data deleted are the head or tail addresses registered in the level name table.

- o Subroutine BADAT

To revise the link among element data affected by data deleted.

- o Subroutine XMOD

To input revised value data, thus revising numerical values of element data.

- o Subroutine XCNG

To input unit and scale data and revise units and scale of element header.

- o Subroutine AGFILE

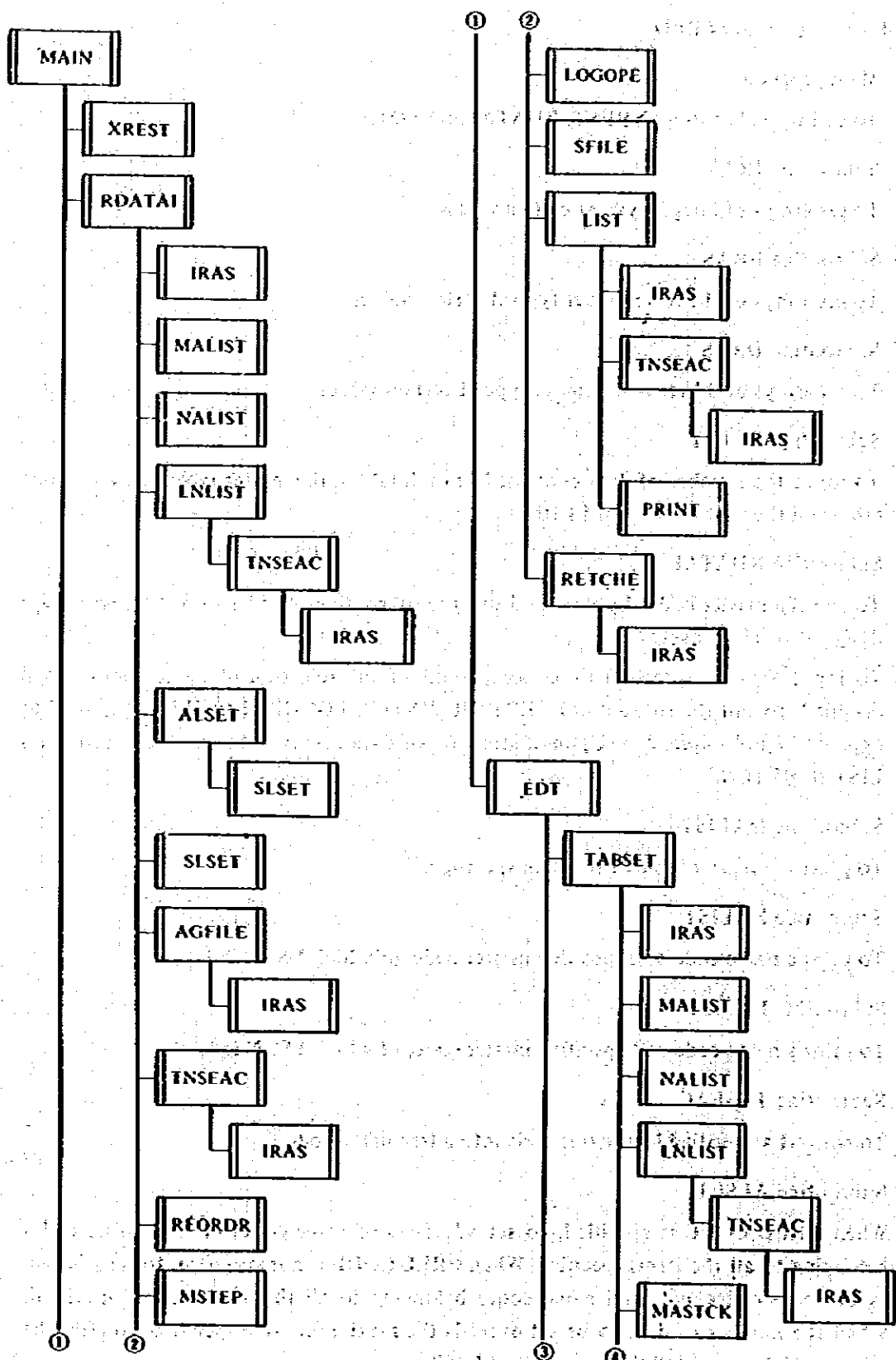
To prepare the main retrieve file, which contains, by master code, all the name codes and level name codes as well as addresses of element data subsequent to these name codes. At the same time, to prepare the retrieve index file which contains the same addresses as the name codes and the level name codes.

- o Subroutine PRPR

To output each table of the data bank prepared.

#### 4-5-4 Subroutines of RED

- o Main program  
To call the subroutines XREST, RDATAI and EDT.
- o Subroutine IRAS  
To set arrays of integer type at certain values.
- o Subroutine BRAS  
To set arrays of the real number type at certain values.
- o Subroutine DRAS  
To set arrays of 8-byte real number type at certain values.
- o Subroutine XREST  
To input the number of data contained in each tables, the master table, the free name table and the unit table from LF10.
- o Subroutine RDATAI  
To specify master codes by item and call the subroutines ALSET or SLSET which are designed to select name codes.  
To input logical expression upon completion of the selection of name codes. When decoded, to call the subroutines REORDR, MSTEP, LOGOPE and SFILE designed to explode logical expression. Upon completion of data retrieval, to call the subroutines LIST or RETCHE.
- o Subroutine MALIST  
To print the master table of the item specified.
- o Subroutine NALIST  
To print a name code of a specified master code, of which NSGN is 1.
- o Subroutine LNLIST  
To print a name code of a specified master code, of which LSGN is 1.
- o Subroutine TNSEAC  
To convert a specified level name code into a tree name code.
- o Subroutine ALSET  
When FREE CODE is specified, to set addresses of name codes or level name codes belonging to all the items specified. When FREE CODE is not specified, to set addresses of name codes and level name codes belonging to all the master codes specified. When the number of data to be set exceeds the maximum value specified, to clear the number of data and call the subroutine SLSET.



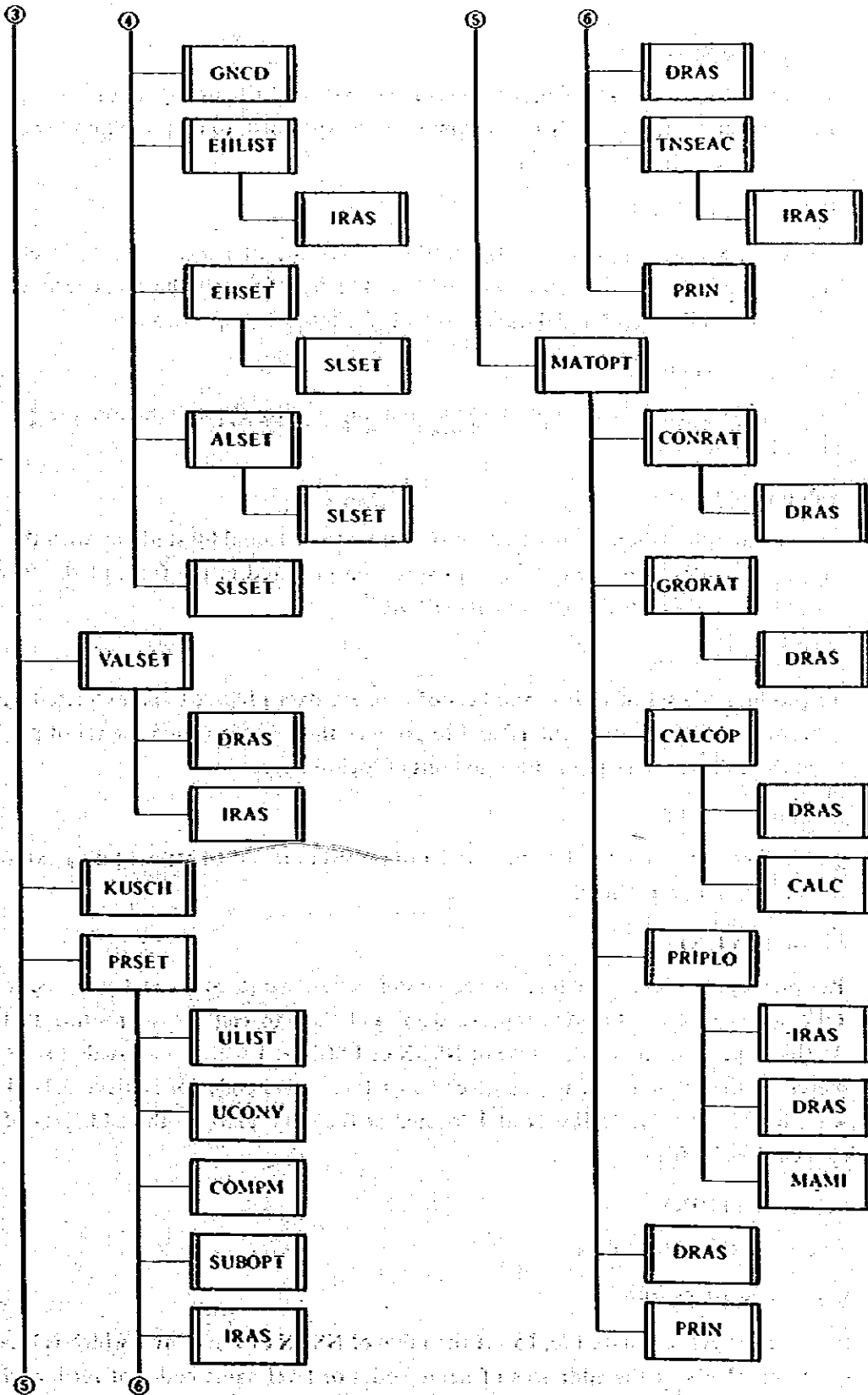


Fig. 4-5-4 RED Block Flow Chart

- o Subroutine SLSBT  
To set addresses of name codes or level name codes which are input at random. When the number of data exceeds the maximum value specified, to clear the number of data and instruct to try to input again.
- o Subroutine AGFILE  
To read addresses registered in the retrieve index file of name codes or level name codes specified and, in accordance with the index, to read the main retrieve file. Then, to transcribe required data into the file for retrieving operations.
- o Subroutine REORDR  
To convert equations of logical expression input into those based on the Reverse Poland Notation.
- o Subroutine MSTEP  
To prepare calculation steps based on operators to be found by studying with the top-down system the equations of logical expression prepared in the form of the Reverse Poland Notation by the subroutine REORDR.
- o Subroutine LOGOPE  
To produce the set of record numbers of element data prepared and extracted by the subroutines AGFILE and MSTEP and to produce the set of sum and the set of product from the calculation steps of the equations of logical expression.
- o Subroutine SFILB  
To transfer to the retrieve data file the set of record numbers of element data extracted by the subroutine LOGOPE.
- o Subroutine LIST  
Reading the retrieve data file, to set master codes, name codes and units codes of each items in order to print retrieve data, and then to call the subroutine PRINT. At the same time, to set the value of NSGN or LSGN at I which is located at the same places as the addresses of the name codes or level name codes of retrieve data. Likewise, to set the value of HSGN at I located at the same place as the addresses of the element header file.
- o Subroutine PRINT  
To output the retrieve data.
- o Subroutine RETCHE  
Reading the retrieve data file, to set the value of NSGN or LSGN at I which is located the same places as the addresses of name codes or level name codes of retrieve data. Likewise, to set the value of HSGN at I which is located at the same places as the addresses of the element header file.

o Subroutine EDT

This serves as the main routine of edit output. After calling the subroutines TABSET, VALSET and KUSCH, to print output matrix information prepared. When output is required by the user, to call the subroutines PRSET and MATOPT.

o Subroutine TABSET

To specify master codes and name codes belonging to each items. When it is not recommended to specify master codes, to specify FREE CODE. To designate rows and columns for each of the five items and call the subroutines ALSET or SLSET to specify name codes. When level name codes are specified in the rows or the columns by the user, all the level name codes belonging to given element header can be automatically specified by specifying only the addresses of given element header without the addresses of the level name codes specified. For the aforementioned procedure, to call the subroutines EHLIST and EHSET.

o Subroutine EHLIST

To output all the information contained in the element header file to which data retrieved are belonging.

o Subroutine EHSET

When FREE CODE is specified, to set all the level name codes belonging to the element header file specified. When FREE CODE is not specified, to set the addresses of level name codes belonging to the master code specified by the level name codes which belong to the element header file specified. When the number of data to be set exceeds the maximum value specified, to clear the number of data and call the subroutine SLSET.

o Subroutine MASTCK

To check if retrieve data exist in relation to the master code specified.

o Subroutine GNCD

To look up addresses of the name codes specified.

o Subroutine VALSET

Reading the index data file, to check if given data accord with name codes belonging to the five items which are set by the subroutine TABSET. When FREE CODE is specified, three items out of the five items are checked in comparison with one of the name codes specified. As for the remaining two items, the check is made in comparison with the name codes set at rows or columns. When given data accord with all the five items, to store given data in the output matrix VMAT and add their values to the total. When given data have already been stored, they are to be replaced with those newly prepared. The number of data is simultaneously counted.

o Subroutine KUSCH

To look up the kinds of units and scale of data contained in VMAT which is prepared by the subroutine VALSET.

o Subroutine PRSET

To input title, unit, scale and print format required for output. Also, to specify either of 'total,' 'average' or 'blank' should be output outside of the matrix. To call the subroutine UCONV to convert the unit and scale specified. When the user claims, to call the subroutine COMPN designed to delete vector concerning which data are absent. After calling the subroutine SUBOPT designed to calculate sub-total and sub-average, to calculate the average value required only when averages should be output outside the matrix. Setting names of rows and columns, to call the subroutine PRIN.

o Subroutine ULIST

To print the unit table and years concerning which exchange rate data are available.

o Subroutine UCONV

To convert all the data contained in the matrix to be output into the units and scale specified. To delete data denying conversion from the matrix to be output.

o Subroutine COMPM

To delete vector concerning which no data exist in rows and columns from the matrix to be output and print information of a new matrix to be output.

o Subroutine SUBOPT

To calculate sub-total and sub-average and include them in random locations by row and column.

o Subroutine PRIN

To print output matrix. To print '\*' when data are absent and '.' when the value of data is 0.

o Subroutine MATOPT

After inputting title, unit, scale and print format required for output in accordance with the matrix option specified, to call the subroutines CONRAT, GRORAT, CALCOP and PRIPLO. When print plot is not specified, to call the subroutine PRIN after transferring data into the output matrix.

o Subroutine CONRAT

Specifying row or column, to calculate component ratios to vector located outermost.

o Subroutine GRORAT

Specifying row or column, to calculate growth rates compared with data located innermost.

o Subroutine CALCOP

Specifying operator, the left or right sides, and row or column, to specify input data if they are constant, vector or vector contained in the matrix to be output.

To call the subroutine CALC designed to make calculations of data specified.

o Subroutine CALC

To make four-principle operation in accordance with data specified.

o Subroutine PRIPLO

After specifying the matrix if it is a matrix prepared first or one prepared last based on a matrix option, local currency or foreign currency, and row or column, to specify indexes of row or column and decide a vector. After calling the subroutine MAMI designed to calculate the minimum and maximum values, to prepare print plot.

o Subroutine MAMI

To specify if the minimum and maximum values should be input. If not to be input, to calculate the minimum and maximum values. If to be input, to calculate unit value taking the values input as the minimum and maximum values.



## 5 INTERACTIVE SYSTEM

### 5-1 Software for Demand Forecast Models

As a result of technical cooperation so far, two types of software have been developed for construction and operation of demand forecast models designed on the econometric method. The first type is regression analysis program. To construct a forecast model, the causality among variables must be formulated into statistical equations which are called structural equations. The regression analysis program is used to estimate the statistical equations. The second software is a simulator of the models. In relation to a model system consisting of the aforementioned structural equations and definition equations, a system which can simulate the model by inputting these equations as data is generally called 'simulator.'

### 5-2 A View of the Improvement

#### 5-2-1 Regression Analysis Program

Preparation of a single structural equation requires repeated regression analyses to identify

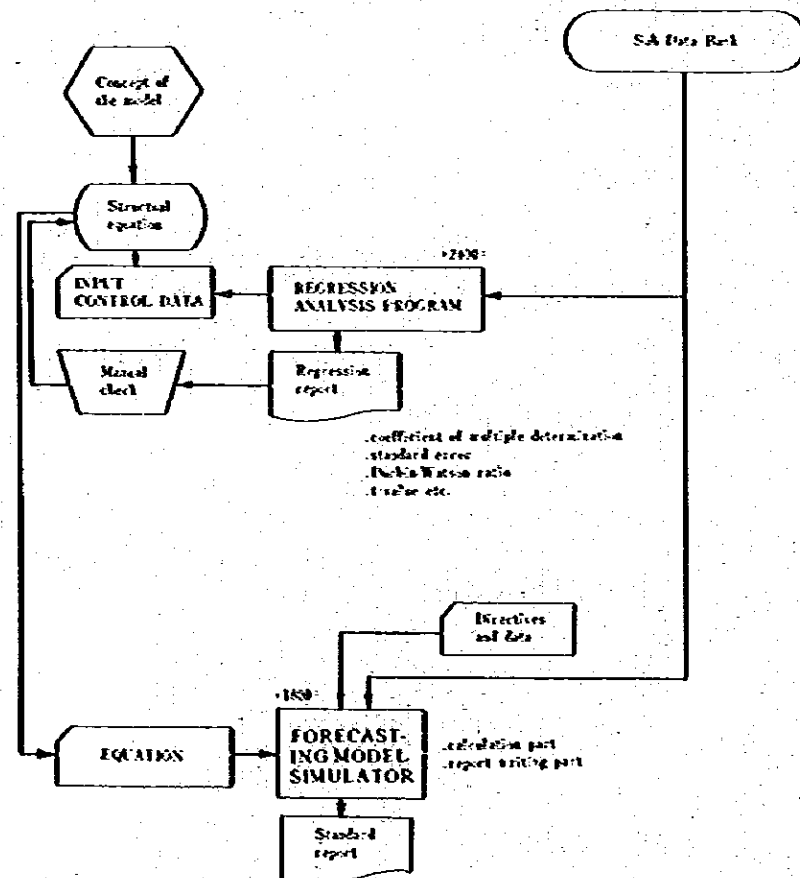


Fig. 5-2-1 Existing Software

an element (a variable) which can best explain given variate (given variable). Also, because the performance could be improved when as many results of estimation as possible are simultaneously obtained, it was decided to convert the regression analysis program into a conversational type. In other words, a system was developed which was capable of outputting estimation results into a terminal unit by typing in from the terminal unit independent variables, dependent variables and such data as period used in regression analysis.

In addition to the shift into a conversational type, two additional functions outlined below were newly integrated into the regression analysis program. These functions were suggested by Indonesian experts who have used the existing regression analysis program and believed that efficiency of regression analysis program designed for the operation of econometric models would be much improved if these functions were added.

#### (1) Maintenance function of sub data bank

According to the assertion made by the Indonesian experts, it has often happened that the user wanted to revise data and continued the work of estimation when an input of erroneous data into the sub data bank was clearly noted while the user made regression analysis. Accordingly, an improvement was made to enable the maintenance of data within the regression analysis program. A trouble is that data management can fall into disorder when the user arbitrarily makes alterations in the sub data bank designed for the common use. Hence, revision of data was designed to be made within a private data bank. The private data bank, a concept newly introduced this time, can be used without requiring the user to pay special attention to it.

#### (2) Transfer of structural and definition equations

To work a demand forecast model requires an input of equations into the simulator as data. Conventionally, it has been needed to convert structural and definition equations, estimated by the regression analysis program, into cards and this stage of conversion has induced a number of errors. The latest improvement deleted the possibility of such errors. That is, when a result obtained through estimation made by the regression analysis program turns to be highly explanatory, a special command is typed in from a terminal unit to convert the equation automatically into a format which can be processed by the simulator. It is then transferred to a special file (equation file).

#### 5-2-2 Simulator

As a result of the new function to transfer structural equations automatically at the stage of the regression analysis program, it becomes possible to maintain in the equation file plural equations related to a single non-explanatory variable (dependent variable), thereby the most appropriate equations can be selected case by case. At the same time, it becomes possible at the stage of a terminal unit to make changes in other data groups required for the simulation, such as simulation type, period and values of exogenous variables.

### 5-3 File Structure of the Improved System

The shift to the interactive system was made based on the concept outlined in the preceding section. This section outlines the file structure of the new system and others.

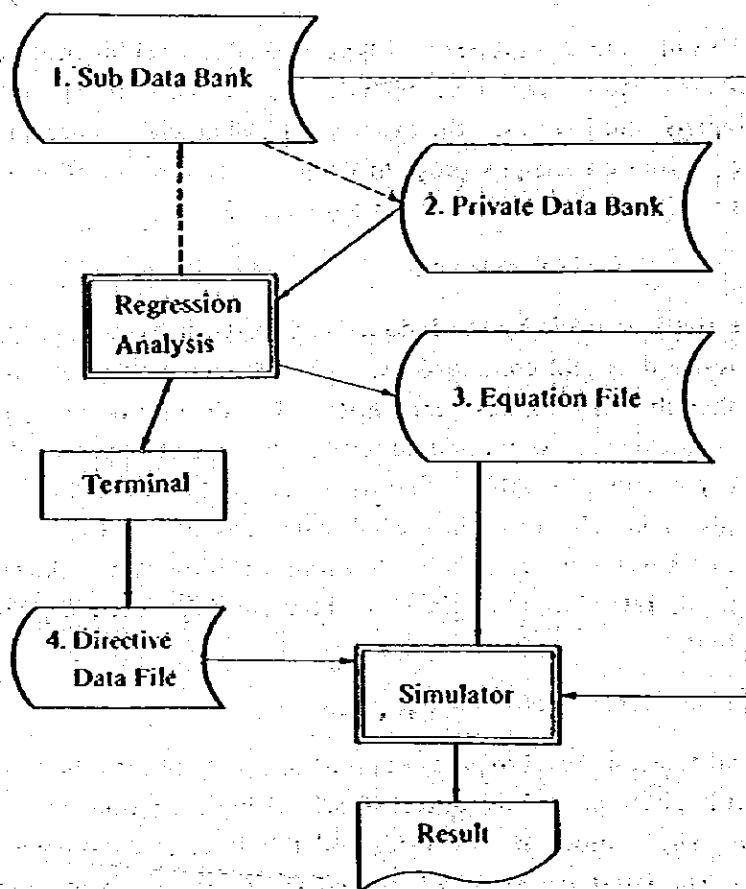
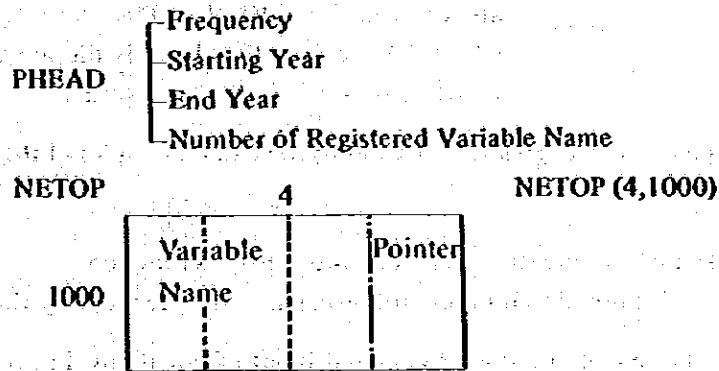


Fig. 5-3-1 File Structure of the New System

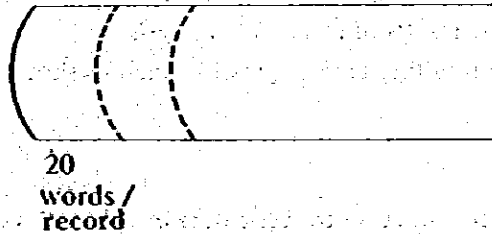
- (1) **Sub Data Bank:** Existing data bank
- (2) **Private Data Bank:** A private file used in regression analysis, which allows revision of data on a private basis. This data bank is capable of maintaining variables up to 1000.

**Private Data Bank**

**1) Control File (S.A.M. – Sequential Access Method)**



**2) Time-series Data File (D.A.M. – Direct Access Method)**



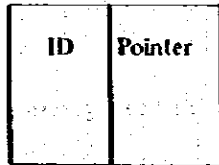
Define File (1000, 20, U, INDEX)

**(3) Equation File:** A file to maintain results of regression analysis in the form of equations used in simulation. It is capable of storing up to 1000 equations.

**Equation File**

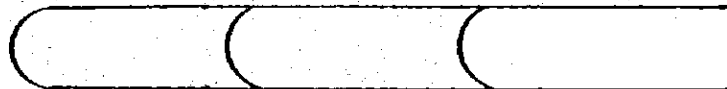
**1) Control File (S.A.M.)**

EHEAD Number of Equations  
IET 2 IET (2,1000)



**2) Equation File (D.A.M.)**

300 bytes/eq. (Record)



Define File (1000, 300, E, INDEX)

- (4) **Directive Data File:** A file to maintain data, other than equations, of existing simulator system. Instead of equations themselves, the file maintains ID of the equations. All the equations maintained in the equation file are controlled by ID (less than four characters). Equations of which ID are specified by this file are used in simulation. The structure is same as in the card format.

#### 5-4 Command of Regression Analysis System and Examples of the Use

##### (1) REG

– To instruct the use of the regression analysis function –

While this function is in use, following inquiries are made by the system.

- 1) Period of the use of data and input of equations. In accordance with equations input, the system automatically transfer appropriate variables from the sub-data bank to the private data bank.
- 2) Output option of the results of regression analysis.
- 3) If or not equations resulting from regression analysis should be maintained in the equation file.

##### (2) REV

– To instruct the use of the function to revise data in time series of the private data bank –

While this function is in use, following inquiries are made.

- 1) The name of variable of time-series data subject to the revision.
- 2) The period to be revised and the value resulting from the revision.

##### (3) DEF

– To instruct the use of the function to transfer definition equations used in simulation to the equation file –

While this function is in use, following inquiry is made.

- 1) Input of the definition equations.

##### (4) END

– To instruct the completion of the use of the regression analysis system –

(5) Examples of the use of the regression analysis system.

Characters underlined were typed in by the user.

```
EXEC REG
ENTER POSITIONAL PARAMETER DISPX -
NEW
ENTER POSITIONAL PARAMETER TS01DX -
??
FILE FT03F001 NOT FREED, IS NOT ALLOCATED
FILE FT04F001 NOT FREED, IS NOT ALLOCATED
FILE FT14F001 NOT FREED, IS NOT ALLOCATED
FILE FT16F001 NOT FREED, IS NOT ALLOCATED
TEMPNAME ASSUMED AS MEMBERNAME
```

YOU ARE CALLING REGRESSION PROGRAM  
PLEASE TYPE 0 (NOL) FOR INITIAL RUN

To inform the system that this is the first run for the preparation of the private data bank. Characters other than zero are typed in for the second run and afterwards.

PLEASE TYPE DAY, MONTH, YEAR (FORMAT DDMMYY)

010282 Run data (MDDYY)

TYPE IN FREQUENCY & PERIOD OF YOUR PRIVATE DATA BANK

FORMAT FREQ, STARTING-YEAR, END-YEAR

011971-1980 ← To instruct the data maintenance period in the private data bank. No inquiry of this type is made by the system for the second run and afterwards.

PLEASE TYPE IN THE FUNCTION CODE

REG OR REV OR DEF OR END

REG ← Regression analysis

PLEASE ENTER THE EQUATION

COL1	CONTINUATION	COL2	BLANK
COL3	-6 STARTING PERIOD	COL7	0 (NOL)
COL8	1	COL9	-12 END OF PERIOD
COL13	0 (NOL)	COL14	-80 EQUATION

Instructions made by the system in relation to input of equations.

"," VARIABLE SEPARATOR ":" END OF EQUATION

-----1-----2-----3-----4-----5-----6-----7  
19710-19800CEXP732=CW1N752 ← Period of the use of data and the equation.

CONTROL DATA AND ERROR REPORT ← Results of regression analysis.

DATE 1/ 2/82 PAGE 1

-----1-----2-----3-----4-----5-----6-----7  
19710 19800CEXP732=CW1N752

REGRESSION ANALYSIS REPORT PAGE ( 1 )

--- DEFINITIONS ---

OPV = CEXP73%  
 IDV1 = CWIM75%

YEAR	ESTIMATED	OBSERVED	RESIDUAL
1971	988.2414	890.8000	-97.4414
1972	1108.4191	1123.3999	14.9808
1973	1298.7346	1354.3000	55.5654
1974	1357.3577	1403.3999	46.0422
1975	1274.4482	1266.8000	-7.6481
1976	1483.6068	1425.2000	-58.4069
1977	1588.7096	1744.0000	155.2904
1978	1698.2092	1776.3000	78.0908
1979	1825.7143	1758.7000	-67.0143
1980	1804.3588	1684.8999	-119.4589

OPV = -428.97175+ 2.09368\*IDV1  
 ST = 7.3761  
 SD = 0.2231

R\*\*2 = 0.916593 SE = 91.7682 DWR = 1.4141

----- INPUT DATA -----

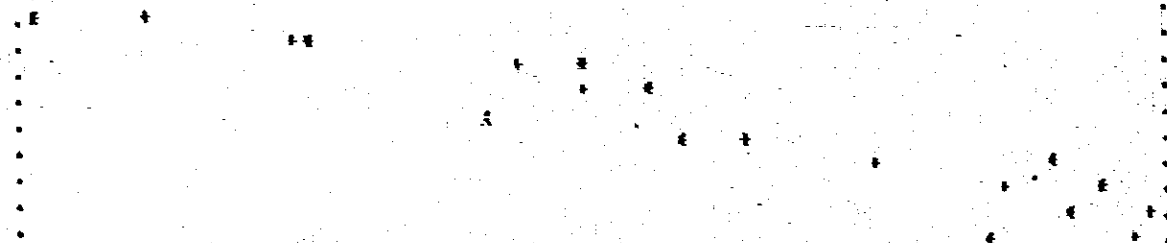
YEAR	OPV	IDV1
1971	890.800	676.900
1972	1123.400	734.300
1973	1354.300	825.200
1974	1403.400	853.200
1975	1266.800	813.600
1976	1425.200	913.500
1977	1744.000	963.700
1978	1776.300	1016.000
1979	1758.700	1076.900
1980	1684.900	1066.700

----- SIMPLE CORRELATION -----

	OPV	IDV1
OPV	1.00000	
IDV1	0.95739	1.00000

TYPE 1 FOR PRINT GRAPH ← An inquiry if the graph should be output.

\*=OBSERVED    +=ESTIMATED    X=COMMON



PLEASE TYPE IN - SAVE - An inquiry of the equation should be transferred to the equation file.  
 FOR SAVING THE REGRESSION RESULT ←  
 SAVE ← To answer 'No' when it is not needed to transfer the equation.

PLEASE ENTER EQUATION ID,FORMAT E...

E111 ← ID of the equation.

E111 NOW ADDED

CXP738=CON(- 428.97175)+CON( 2.09368)\*(CWIN758):

PLEASE TYPE IN THE FUNCTION CODE

REG OR REV OR DEF OR END

REV ← Revision of data

PLEASE TYPE IN THE REQUESTED VARIABLE NAME

CXP738 ← Name of the variable to be revised.

YOUR PRIVATE PERIOD IS 1971 1980

PLEASE TYPE IN REQUESTED YEAR AND NEW VALUE

FORMAT YYYY,VALUE

1972,1222.999 ← The year revised and the value revised.

YOUR PRIVATE WAS CHANGED

FROM 1123.3999010 1222.00000 ← Confirmation made by the system  
that data have been changed.

PLEASE TYPE IN THE FUNCTION CODE

REG OR REV OR DEF OR END

REV

PLEASE TYPE IN THE REQUESTED VARIABLE NAME

CXP738

YOUR PRIVATE PERIOD IS 1971 1980

PLEASE TYPE IN REQUESTED YEAR AND NEW VALUE

FORMAT YYYY,VALUE

1971,988.999

YOUR PRIVATE WAS CHANGED

FROM 398.8000510 988.00000

PLEASE TYPE IN THE FUNCTION CODE

REG OR REV OR DEF OR END

DEF ← Transfer of the definition equation to the equation file.

PLEASE TYPE EQUATION ID : E...

E234 ← ID of the definition equation.

PLEASE TYPE EQUATION

NOTE : CON(99) STAND FOR CONSTANT 99

TYPE "!" AT THE END OF EQUATION

\* PRESS ENTER AFTER EVERY LINE EQUATION

AAA=CON(199.200)+BBB\*CON(444.600):

E234 NOW ADDED

AAA=CON(199.200)+BBB\*CON(444.600):

PLEASE TYPE IN THE FUNCTION CODE

REG OR REV OR DEF OR END

END

\* END OF JOB \*  
READY



(6) Command procedure to operate the regression analysis system

```
30100 PROC 2 DISPX,TSOIDX
30200 FREE F(FT01F001,FT02F001,FT03F001,FT04F001,FT05F001)
30300 FREE F(FT06F001,FT10F001,FT12F001,FT14F001,FT16F001)
30400 ALLOC F(FT01F001) DA('FB9.SUBDB') OLD VOL(BTS001)
30500 ALLOC F(FT02F001) DA('TMPX') NEW SPACE (20,10) TRACKS DELETE
30600 ALLOC F(FT03F001) DA('&TSOIDX..PSUB') &DISPX SPACE(1000,100) BLOCK(80)
30700 ALLOC F(FT04F001) DA('&TSOIDX..EQFILE') &DISPX SPACE(20,10) TRACKS +
30800 VOL(CRCHK3)
30900 ALLOC F(FT05F001) DA(*)
31000 ALLOC F(FT06F001) DA(*)
31100 ALLOC F(FT10F001) DA(*)
31200 ALLOC F(FT12F001) DA('N0289.NETOS') OLD VOL(CRC001)
31300 ALLOC F(FT14F001) DA('&TSOIDX..NETOP') &DISPX SPACE(10,10) TRACKS +
31400 VOL(CRCHK1)
31500 ALLOC F(FT16F001) DA('&TSOIDX..EQHEAD') &DISPX SPACE(10,10) TRACKS +
31600 VOL(CRCHK1)
31700 CALL '&TSOIDX..REG02.LOAD'
31800 FREE F(FT01F001,FT02F001,FT03F001,FT04F001,FT05F001)
31900 FREE F(FT06F001,FT10F001,FT12F001,FT14F001,FT16F001)
END OF DATA
END SAVE
```

READY

### 5-5 Operation of the Simulator

The functions incorporated into the simulator are the same as those of the systems developed in the past. The improved point is that the group of equations specifying the system of the model and the group of directive data used in simulation are maintained in the equation file and the directive file, respectively, thereby it becomes possible to make changes in them from a terminal unit.

Presented below are JCL (Job Control Language) of the simulator under the new system and examples of directive data.

#### < JCL of the new system >

```
130012 //FBAX JOB (107599,J000000062,99998),DJOKO,MSGCLASS=X,NOTIFY=FBA
20011 //FOR04 EXEC FORTXCLG,PARM,FORT='MAP,XREF,GOSTMT'
30004 //FORT.SYSIN DD DSN=FB9,INSYS,FORT(FOR04),DISP=SHR
40003 //GO.FT01F001 DD UNIT=DISK,DSN=FB9,SUBDB,VOL=SER=BTS001,
50000 // DISP=SHR,SPACE=(3,(30000,100)),
60000 // DCB=(RECFM=F,BLKSIZE=12)
70003 //FT12F001 DD DSN=N0289.NETOS,VOL=SER=CRC001,UNIT=DISK,
80000 // DISP=SHR,SPACE=(TRK,(20,10))
90005 //FT03F001 DD DSN=&&JABRIG,SPACE=(TRK,(20,10)),UNIT=DISK,
100001 // DISP=(NEW,DELETE),DCB=(RECFM=F,BLKSIZE=964)
110003 //FT04F001 DD DSN=EQFILE,DISP=OLD,UNIT=DISK,VOL=SER=BTS001
120003 //FT16F001 DD DSN=EQHEAD,DISP=OLD,UNIT=DISK,VOL=SER=BTS001
130006 //SYSIN DD DSN=FB9,INSYS,FORT(0ATAF04),DISP=SHR
140001 //
END OF DATA
```

< Contents of the directive file >

```
00010 TITLE      * TEST FORECASTING READ FROM EQFILE JAN.82 *
00020 PERIOD      1981-2000
00030 TYPE        SIM=3OUT=2
00040 FOR.TYPE    ED 0 1980 5
00050 UNIT        80E
00060 EQTN ..... This is followed by ID of the equation.
00070 E111
00080 E808
00090 E222
00100 E444
00110 E999
00120 E909
00130 END
00140 EXOR
00150 CCG%         198105 20.0
00160 CCG%         198605 17.5
00170 CCG%         199110 15.0
00180 CHIM75%     198120 5.0
00190 CCF%         198120 3.0
00200 END
END OF DATA
```





JICA