PART II Guide to NRDF

1. User's guide

Any data included in NRDF can be retrieved on line at a TSS terminal which is connected to Hokkaido University Computing Center (HUCC). Data in NRDF consists of a table of numerical data and description terms like bibliography, experimental conditions and parameters given to the table.
Several description terms are defined as key terms for which users can specify its value or range of the values to be satisfied by retrieved data. Indices for the key terms are automatically looked up when a user enter a request of data. Rertieved data is displayed on the terminal when you enter DISPLAY command.

If you want to use the NRDF, you have to open a "TSS session" on the terminal. The search process is a sub-session of the TSS session which is started by entering a command "NRDF".
The following several sections describes procedures of using TSS at HUCC.

1.1 To be an authorized user of HUCC.

You have to be an authorized user of Hokkaido Univ. Computing Center (HUCC) to use computing facilities of the center.
An application form of using the center with necessary information filled is to be sent to the center. After authorization by the center you have your own ID (user ID, the center issues it) and password (you specify it).

1.2 Opening TSS session

1.2.1 Using TSS from out of Hokkaido Univ.

There are two routes of calling the computer:
(a) Call through the N1 netwrok of 7 university computer centers.
(b) Call through the public telephone line.
For calling HUCC through N1 network, do the following sequence,
(1) Open TSS session at a near host computer.
(2) Enter NTSS command to go into N1 network.
(3) Select HOKKAIDO as another host computer to be connected. Then you can enter LOGON command. (see how to LOGON)

```
+-------------------------------------------------------------------+
| open TSS session at a near host computer                          |
| .....                                                             |
| NTSS                                                              |
| ----                                                              |
| JCJ651I WHICH HOST ?                                              |
| HOKKAIDO                                                          |
| --------                                                          |
| JCJ662I ** HOKKAIDO CONNECTED                                     |
| LOGON userid S(3000)                                              |
| --------------------                                              |
| JET12026A ENTER PASSWORD FOR userid -                             |
| password                                                          |
| --------                                                          |
| JET10065I TSS userid STARTED TIME=xx:xx:xx DATE=xx-xx-xx          |
|     *** M-200H SYSTEM IS SERVICING THIS TERMINAL *** HOKKAIDO UNIV.|
| JET11060I USER COMMAND PROFILE BEING USE                          |
```

```
| READY                                                                |
+----------------------------------------------------------------------+
For calling HUCC through the public telephone line, you have to know
the following data.
   (a) The type of your TSS terminal.
       5212 for typewriter terminal, 80 characters/line, KSR type
       5215 for typewriter terminal, 80 characters/line, KSR/ASR type
   (b) Phone number of the HUCC for TSS terminal
       * Direct call from out of the Hokkaido Univ.
          011-731-2848              for baud rate  300bps (4 lines)
          011-731-5124              for baud rate 1200bps (2 lines)
       * Call through circuit switching at the university.
          011-711-2111-(ext.)-3466 for baud rate  300bps (2 lines)
          011-711-2111-(ext.)-3468 for baud rate 1200bps (2 lines)
Procedure is as follows:
   (1) Turn on power switch of accaustic coupler.
   (2) Dial the phone number.
   (3) Set hand set on the coupler.
   (4) It is followed by the next sequence:
+----------------------------------------------------------------------+
| JCT54022A ENTER TERMINAL TYPE                                        |
| terminal type                                                        |
| -------------                                                        |
| JCT54012A ENTER LOGON                                                |
| LOGON userid S(3000)                                                 |
| --------------------                                                 |
| JET12026A ENTER PASSWORD FOR userid -                                |
| password                                                             |
| --------                                                             |
| JET10065I TSS userid STARTED TIME=xx:xx:xx DATE=xx-xx-xx             |
|     *** M-200H SYSTEM IS SERVICING THIS TERMINAL *** HOKKAIDO UNIV.  |
| JET11060I USER COMMAND PROFILE BEING USE                             |
| READY                                                                |
+----------------------------------------------------------------------+

1.2.2 Using TSS within the HUCC. (terminal type H-9415 VDT is assumed)

(1) Turn on power switch of a terminal.
(2) Press interruption-key (red button) to break-in
    -----> following message will be displayed on the terminal.
+----------------------------------------------------------------------+
| JCT54012A ENTER LOGON                                                |
+----------------------------------------------------------------------+

(3) Enter LOGON command with your user-ID.
    -----> System will ask you to enter your password.
+----------------------------------------------------------------------+
| LOGON userid S(3000)                                                 |
| --------------------                                                 |
| JET12026A ENTER PASSWORD FOR userid -                                |
+----------------------------------------------------------------------+

(4) Enter your password.
    -----> Welcome message will be issued if you are an authorized user
+----------------------------------------------------------------------+
| password                                                             |
| --------                                                             |
| JET10065I TSS userid STARTED TIME=xx:xx:xx DATE=xx-xx-xx             |
|     *** M-200H SYSTEM IS SERVICING THIS TERMINAL *** HOKKAIDO UNIV.  |
| JET11060I USER COMMAND PROFILE BEING USE                             |
| READY                                                                |
+----------------------------------------------------------------------+
```

1.3 Entrance to and exit from subsession of NRDF retrieval.

1.3.1 Entrance

Now you are in the TSS session.
You can start subsession of on line retrieval of NRDF by entering a command "NRDF":
Prompting message for search command is issued by NRDF system.

```
+-----------------------------------------------------------------+
| NRDF                                                            |
| ----                                                            |
| ******* messages ********                                       |
| KEY-IN COMMAND, PLEASE.                                         |
| :                                                               |
+-----------------------------------------------------------------+
```

NOTE: If you have failed in entering to NRDF subsession (by rejection of the command "NRDF" for example), try the following:

```
+-----------------------------------------------------------------+
| EXEC 'SG1240.CLIB.CLIST(NRDF)'                                  |
| ------------------------------                                  |
| ******* messages ********                                       |
| KEY-IN COMMAND, PLEASE.                                         |
| :                                                               |
+-----------------------------------------------------------------+
```

1.3.2 Exit

You may want to exit from the session of NRDF in such case of ending the work of retrieval, or case of emergency usually caused by display command for unexppcted loarge number of data.
For normal exit from the NRDF session, there is "END" command.

```
+-----------------------------------------------------------------+
| END;                                                            |
| ----                                                            |
| *****                                                           |
| READY                                                           |
+-----------------------------------------------------------------+
```

Interruption is used for emergency exit which is done by pressing a key called:
"Interrupt key" or "attention key" or "warikomi botan".
In both way you can return to normal TSS session which is shown by a prompting message/mark for next TSS command:

```
+-----------------------------------------------------------------+
| READY                                                           |
| or                                                              |
| ----->                                                          |
+-----------------------------------------------------------------+
```

On end of whole work, you have to close the TSS session (log off) using "LOGOFF" command.
And you turn off the power switch after the system display an acount information of the session.

1.4 Closing TSS session

1.4.1 From out of Hokkaido Univ.

In case of using N1 network, do the following sequence,
(1) Enter LOGOFF command in ready mode of TSS.
(2) Press interrupt key to break in.
(3) Enter END for prompting from N1 controler "NTSS>>"

Then you return to TSS session of your near host computer.

(4) Close the TSS session in the manner of your host.

```
+-------------------------------------------------------------------+
| TSS session at HUCC                                               |
| .....                                                             |
| READY                                                             |
| LOGOFF                                                            |
| ------                                                            |
| JET11061I USER COMMAND PROFILE BEING STORED                       |
| * CPU  TIME=  x.xx(  x.xx)    *ELAPSED TIME=    xMIN xxSEC  *N1 ...|
| <DATASET>  *SPACE   xxxx      *NUMBER      xx    INTEGRAL       ...|
| <ACCOUNT>    (RYOKIN)   (YOSAN)  (RUISEKI)                        |
|   USER            xx    xxxxxx     xxxxxx                       |
|   GROUP           xx    xxxxxx     xxxxxx                       |
| JET10080I userid TSS SESSION ENDED TIME=xx:xx:xx DATE=xx-xx-xx+   |
| press interrupt key                                               |
| |                                                                 |
| NTSS>>END                                                         |
|      ---                                                          |
| JCJ653I ** HOKKAIDO DISCONNECTED                                  |
| .....                                                             |
| close TSS session of your near host computer                      |
+-------------------------------------------------------------------+
```

In case of using public telephone line, do the following sequence,

(1) Enter LOGOFF command in ready mode of TSS.

(2) Turn off power switch of TSS terminal.

(3) Turn off power switch of accaustic coupler.

(4) Return the hand set of the phone to holder.

```
+-------------------------------------------------------------------+
| TSS session at HUCC                                               |
| .....                                                             |
| READY                                                             |
| LOGOFF                                                            |
| ------                                                            |
| JET11061I USER COMMAND PROFILE BEING STORED                       |
| * CPU  TIME=  x.xx(  x.xx)    *ELAPSED TIME=    xMIN xxSEC  *N1 ...|
| <DATASET>  *SPACE   xxxx      *NUMBER      xx    INTEGRAL       ...|
| <ACCOUNT>    (RYOKIN)   (YOSAN)  (RUISEKI)                        |
|   USER            xx    xxxxxx     xxxxxx                       |
|   GROUP           xx    xxxxxx     xxxxxx                       |
| JET10080I userid TSS SESSION ENDED TIME=xx:xx:xx DATE=xx-xx-xx+   |
+-------------------------------------------------------------------+
```

1.4.2 Within the HUCC.

(1) Enter LOGOFF command in ready mode of TSS.

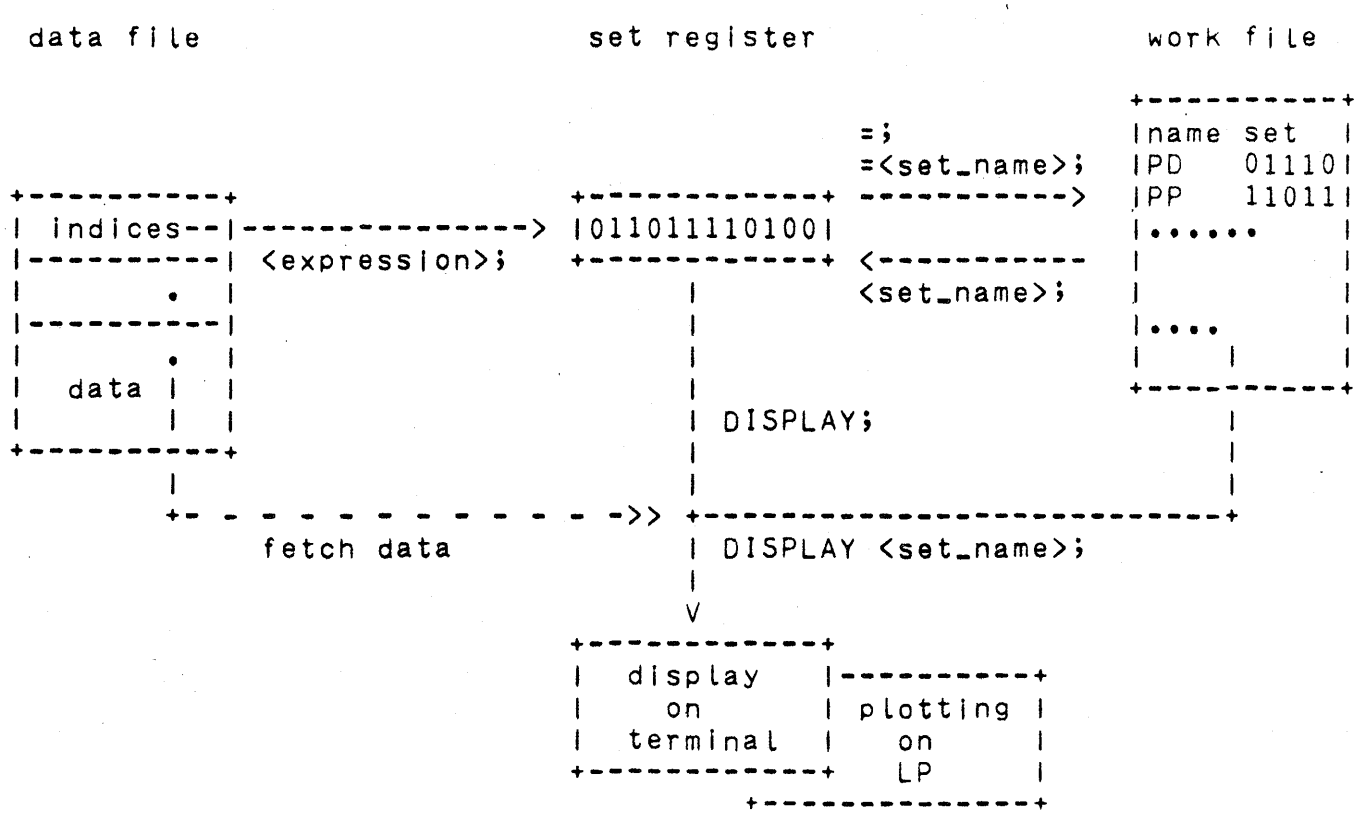
(2) Turn off power switch of TSS terminal.

```
+-------------------------------------------------------------------+
| TSS session                                                       |
| .....                                                             |
| READY                                                             |
| LOGOFF                                                            |
| ------                                                            |
| JET11061I USER COMMAND PROFILE BEING STORED                       |
| * CPU  TIME=  x.xx(  x.xx)    *ELAPSED TIME=    xMIN xxSEC  *N1 ...|
| <DATASET>  *SPACE   xxxx      *NUMBER      xx    INTEGRAL       ...|
| <ACCOUNT>    (RYOKIN)   (YOSAN)  (RUISEKI)                        |
|   USER            xx    xxxxxx     xxxxxx                       |
|   GROUP           xx    xxxxxx     xxxxxx                       |
| JET10080I userid TSS SESSION ENDED TIME=xx:xx:xx DATE=xx-xx-xx+   |
+-------------------------------------------------------------------+
```

1.5 How to retrieve CPND from NRDF

There are three parts of storage space used for retireval of data.

(1)	data file	keeps original data with indices.
(2)	set register	holds the last result set of search command.
(2)	work file	keeps sets created with in a session



1.5.1 Indices used in NRDF

Indexd fields for retrieval are:

field name	explanation	type of data	e.g.
ATH	author(s)	charecter string	e.g. A.B.JONES
REF	journal name	character string	e.g. PRL
YEAR	year of pulication	4-digit integer	e.g. 1982
TGT	target nucleus	particle name	e.g. 12C
PRJ	projectile	particle name	e.g. P, 12C
EMT	emmitted particle	particle name	
RSD	residual nucleus	particle name	
INC-ENGY	incident energy	integer or floating number with unit	
EXC-ENGY	excitation energy	integer or floating number with unit	
J-PI	spin-parity		e.g. 1/2+
TRNSF-L	transfered L		
TRNSF-J	transtered J		
PHQ	physical quantities	character string	e.g. XSECTN
ANL	analysis	character string	e.g. OPT-MODEL
INST-ATH	institute of author	institute code	e.g. 2JAPTIT
INST-ACC	institute of accelerator	institute code	e.g. 2JAPTIT
ACC	type of accelerator	charcter string	e.g. CYC

For the above fields you can specify its values or range of values in search commands.

1.5.2 Search command

The search command doesn't have any explicit command name. The system find it as a search command if the command has a sysntax of search conditions i.e. logical expression. For example,

```
(PRJ=P) * (EMT=T) ;
```

means "find data in which projectile(PRJ) is proton(P) and(*) emitted particle is triton(T), and report the number of hits. The elements of logical expression are "term" and "logical operater" The term has a form of :

(field_name relational_operater field_value)

where the field name should be that of one of the indexed fields. Relational operaters are:

=	for equal
¬=	for not equal
>	for greater than
>=	for greater then or equal
¬>	for not greater than (i.e. <=)
<	for less than
<=	for less than or equal
¬<	for not less than (i.e. >=)

The logical operater combines terms to express composite criteria. There are five logical oprerators:

¬	for logical "not" (this is a unary operater)
*	for logical "and"
+	for logical "or"
/	means "or not"
-	means "and not"

Formally, the search command is expressed by:

```
<command>          ::= ;
   or              ::= = ;
   or              ::= = <set_name> ;
   or              ::= <expression> ;
   or              ::= <expression> = ;
   or              ::= <expression> = <set_name> ;
   or              ::= <logical_operater> <expression> ;
   or              ::= <logical_operater> <expression> = ;
   or              ::= <logical_operater> <expression> = <set_name> ;
<logical_operater>
                   ::= +
  or               ::= -
  or               ::= *
  or               ::= /
<expression>       ::= <term>
   or              ::= <term> <logical_operater> <term>
   or              ::= <unary_logical_operater> <term>
<set_name>         ::= character_string_within_8_letters
<unary_logical_operater>
                   ::= ¬
<term>             ::= ( <field_name><relational_operater><field_value> )
   or              ::= ( <term> <logical_operater> <term> )
   or              ::= <set_name>
```

```
|   or              ::= #                                                |
| <field_name>      ::= name_of_indexed_field                            |
| <relational_operater>                                                  |
|                   ::= =                                                |
|   or              ::= >                                                |
|   or              ::= >=                                               |
|   or              ::= <                                                |
|   or              ::= <=                                               |
|   or              ::= ¬>                                               |
|   or              ::= ¬<                                               |
| <field_value>     ::= specified_value_of_the_field                     |
+--------------------------------------------------------------------+
```

"=" sign after the logical expression means to store the result set into work space. The content of the work space can be refered in other search command using a name attached to it.
According to the above syntax rule, the following form of search commands are possible for example:

```
+--------------------------------------------------------------------+
|     (PRJ=P);                                                       |
|     --------                                                       |
|           Find data such that projectile is P (proton).            |
|     (PRJ=P)=;                                                      |
|     ---------                                                      |
|           Find data such that projectile is P (proton),            |
|           and save the found set using a name isseued by the       |
|           system.                                                  |
|     (PRJ=P)=PROTON;                                                |
|     ---------------                                                |
|           Find data such that projectile (PRJ) is (=) proton (P),  |
|           and save (=) the found set using a name "PROTON".        |
|     (PRJ=P)*(EMT=D)=PD;                                            |
|     -------------------                                            |
|           Find data such that projectile (PRJ) is (=) proton (P)   |
|           and (*) emmited particle (EMT) is D (deutron).           |
|           And save (=) it as "PD".                                 |
|     (PRJ=P)*((EMT=P)+(EMT=D))=PPORPD;                              |
|     ---------------------------------                              |
|           Find data such that projectile is proton (P) and         |
|           emitted particle is proton (P) or deuteron (D).          |
|           And save it as "PPORPD".                                 |
|     *(INC-ENGY>=50MEV);                                            |
|     -------------------                                            |
|           Previous search condition "and" (*) incident energy      |
|           (INC-ENGY) is greater-than-or-equal-to (>=) 50MeV.       |
|     =PPORPD2;                                                      |
|     ---------                                                      |
|           Save (=) the previous relust set as "PPROPD2".           |
|     (INC-ENGY>=50MEV)*(INC-ENGY<=100MEV);                          |
|     -----------------------------------                            |
|           Specify a range of incident energy as                    |
|           50MeV<=Einc<=100MeV.                                     |
|     PROTON*((EXC-ENGY=0)+#);                                       |
|     ------------------------                                       |
|           result set PROTON and (Eexc=0 or previous result (#)).   |
|     =;                                                             |
|     --                                                             |
|           Save (=) the previous result set with a name which is    |
|           issued by the system automatically.                      |
+--------------------------------------------------------------------+
```

1.5.3 DISPLAY command

DISPLAY command displays contents of the result set of search.
The format is:

```
+-------------------------------------------------------------------+
|    DISPLAY set_name;                                              |
|    or                                                             |
|    DISPLAY ;                                                      |
|    or                                                             |
|    DISPLAY set_name  PLOT;                                        |
|    or                                                             |
|    DISPLAY PLOT;                                                  |
+-------------------------------------------------------------------+
```

where set_name is a name of set which is stored in work space by using "=" sign in search command.
If the set name is omitted, the system assumes the result set found by the last search command.
The last result set is always kept in "set register" which can be refered as "#" in search command:

If "PLOT" operand is specified, the system plots curves using numerical data table in the retrieved sets.
In such a case, the system will ask you on each data set:

(1) to plot or not to plot a curve.
(2) column names of the table to be assigned to X and Y axis.
(3) scaling method, i.e linear scale or log scale.
(4) maximum and minimum point along with X and Y axis. (optional)

The curves will be plotted on a line printer of the computing center.

1.5.4 DELETE command

DELETE command is used when the work space keeping sets by retrieval is reported to be full; it deletes a set in the work space. The set is specified by an operand of the command:

```
+-------------------------------------------------------------------+
|    DELETE set_name;                                               |
+-------------------------------------------------------------------+
```

1.5.5 END command

END command closes the seesion of on-line retrieval of CPND in NRDF.
The format is:

```
+-------------------------------------------------------------------+
|    END;                                                           |
+-------------------------------------------------------------------+
```

1.6 An example of retrieval.

```
NRDF                                                                    ----->
.....
KEY-IN COMMAND,PLEASE.                    ------------------------------>
:                                         ------------------------------>
(ATH=H.IKEGAMI)+(ATH=H.OHNUMA)=AUTHOR;                                  ----->
*COMMAND=                 (ATH=H.IKEGAMI)+(ATH=H.OHNUMA)=AUTHOR;        ----->
*NEW SET 'AUTHOR' CREATED                                               ----->
*HITCOUNT=                          104                                 ----->
KEY-IN COMMAND,PLEASE.                    ------------------------------>
:
(PRJ=P)*(EMT=D)=PD;                                                     ----->
*COMMAND=                 (PRJ=P)*(EMT=D);
*NEW SET 'PD' CREATED
*HITCOUNT=                          211                                 ----->
KEY-IN CMMAND,PLEASE.
:
(INC-ENGY>=50)*(EXC-ENGY>0.0)=ERANGE;                                   ----->
*COMMAND=                 (INC-ENGY>=50)*(EXC-ENGY>0.0)=ERANGE;
*NEW SET 'ERANGE' CREATED
*HITCOUNT=                           55                                 ----->
KEY-IN COMMAND,PLEASE.
:
AUTHOR*PD*ERANGE*(EXC-ENGY<=7.33MEV);                                   ----->
*COMMAND=                 AUTHOR*PD*ERANGE*(EXC-ENGY<=7.33MEV);
*HITCOUNT=                            3                                 ----->
KEY-IN COMMAND,PLEASE.
:
=SAVE1;                                                                 ----->
*COMMAND=                 =SAVE1;
*NEW SET 'SAVE1' CREATED
*HITCOUNT=                            3                                 ----->
KEY-IN COMMAND,PLEASE.
:
(TGT=12C)*(PRJ=P)*(EMT=P)*(RSD=12C);                                    ----->
*COMMAND=                 (TGT=12C)*(PRJ=P)*(EMT=P)*(RSD=12C);
*HITCOUNT=                          15                                  ----->
KEY-IN COMMAND,PLEASE.
:
*(EXC-ENGY>0)=SAVE2;                                                    ----->
*COMMAND=                 *(EXC-ENGY>0)=SAVE2;
*NEW SET 'SAVE2' CREATED
*HITCOUNT=                            2
KEY-IN COMMAND,PLEASE.
:
SAVE1+SAVE2=FINAL;                                                      ----->
*COMMAND=                 =FINAL;
*NEW SET 'SAVE1' CREATED
*HITCOUNT=                            5                                 ----->
KEY-IN COMMAND,PLEASE.
:
DISPLAY FINAL;                                                          ----->
*COMMAND=                 DISPLAY FINAL;

  0000000000000000000      DISPLAY  FINAL          0000000000 0000000000
|=================================================================
|       DATA SET        169
|=================================================================
|=================================================================
|      SECTION         248
|=================================================================
|  BIB  SECTION  | 169~174
```

```
TSS macro command to start on-line retrieval
some information may be displayed here sometime
message that the system is ready for NRDF cmmand
promting mark from the system.
query command; 'data authored by IKEGAMI or OHNUMA'
echo back from the system.
notify that a new result set 'AUTHOR' is created.
104 data sets are hit by the previous comma
the system is ready for next command.

command to find out (p,d) reactions.


211 hits for (p,d) reactions.


Einc >= 50MeV and Eexc >= 0.0Mev


55 hits, so the new set 'ERANGE' includes 55 data.


make join set of 'AUTHOR', 'PD' and 'ERANGE' with
   restriction by (Eexc<=7.33MeV)
3 data sets left.

save the previous result set as 'SAVE1'


certification for number of data sets in 'SAVE1'


specify a reaction 12C(p,p)12C

15 hits are saved on the set register


the previous result "and (*)" (EXC-ENGY>0)




make union of sets "SAVE1" and "SAVE2"


5 records are saved as "FINAL"


command to display the result set on a term


-----> starting message of display.

-----> header of a data set with data set No.
       data set 169 consists of sections:
         (248, 249, 250, 252)
-----> header of a section with section No.

-----> this BIB section belongs to data sets:
```

D#	D226	
TITLE	COMPARISON OF THE 12C(P,N)12N AND 12C(P,P) REACTIONS AT E(P)=62 AND 120MEV	
PURPOSE	TO PRESENT A COMPARISON OF THE 12C(P,P) AND 12C(P,N)12N REACTIONS LEADING TO ISOBARIC ANALOG STATES OBTAINED AT 62 AND 120 MEV BOMBARDING ENERRIES.	
ATH	C.A.GOULDING	1
ATH	M.B.GREENFIELD	1
ATH	C.C.FOSTER	2
ATH	T.E.WARD	2
ATH	J.RAPAPORT	3
ATH	D.E.BAINUM	3
ATH	C.D.GOODMAN	4
INST-ATH	1USAFSU	1
INST-ATH	1USAINU	2
INST-ATH	1USAOSU	3
INST-ATH	1USAORL	4
REF	NP/A	
VLP	331(1979)29	
RCTS	12C(P,P)12C	
RCTS	12C(P,P)12N	

SECTION	249
EXP SECTION	169~174

ENR	NAT	
CHM	X	1
COMMENT	'1' POLYSTYRENE FOR INC-ENGY-LAB=62MEV AND CARBON TAGRET FOR 120MEV	
THK-TGT	37.6MG/CM**2	1
THK-TGT	47.5MG/CM**2	2
COMMENT	'1' FOR INC-ENGY-LAB=62MEV '2' FOR 120MEV.	
POL-TGT	NO	
ALGN-TGT	NO	
ACC	CYC	
INST-ACC	X	
INC-ENGY-LAB-RA*	62MEV	
*NGE		
INC-ENGY-LAB-RA*	120MEV	
*NGE		
DELTA-INC-ENGY	XKEV	
BEAM-INTNSTY	XUA	
POL-PRJ	NO	
ANL	OPT-MODEL	
ANL	DWBA	
ANL	SHELL-MODEL	
PHQ	XSECTN	
PHQ	ANGL-DSTRN	
PHQ	ENGY-SPEC	
PHQ	DSIGMA/DOMEGA	
PHQ	EXC-ENGY	
PHQ	SPIN	
PHQ	PTY	
PHQ	OPT-POTL-PARA	

No169 -- No.174.
-----> D# is serial No. of papers.

-----> "1" of the last field is a flag

-----> author having flag "1" is with 1USAFSU

SECTION 250		
EXP SECTION	169,170,174	
RCT	12C(P,P)12C	
DET-PARTCL	P	
DET-SYS	MAG+PLST-SCT+X	1,2
COMMENT	'1' MAGNETIC SPECTROGRAPH	
COMMENT	'2' AN INTRINSIC DELAY-LINE HELICAL GAS CO	
	UNTER	
SOLID-ANGL	3.34MSR	
DRS-DET	44KEV	

SECTION 252		
DATA SECTION	169	
INC-ENGY-LAB	61.8MEV	
CMPD	13N	
RSD	12C	
EXC-ENGY	15.11MEV	
THTL	6~42DEG	
COMMENT	FIG.5-(A)	
COMMENT	D226 FIG 5-(A)	
COMMENT	SER#= 2	
COMMENT	XSCALE=LINEAR YSCALE=LOG	
COMMENT	XMAX= 6.000E+01 YMAX= 1.000E+00	
COMMENT	XMIN= 0.000E+00 YMIN= 1.000E-02	
COMMENT	FOLLOWING DATA ARE TAKEN FROM GRAPH	

TABLE

THTC (DEG)	DSIGMA/DOMEGA (MB/SR)
6.64	1.36E+00
8.85	1.26E+00
11.47	1.13E+00
13.69	1.01E+00
15.90	9.44E-01
17.56	8.34E-01
19.77	7.30E-01
22.40	6.26E-01
24.47	5.53E-01
26.41	4.98E-01
28.62	4.27E-01
30.69	3.74E-01
33.04	3.03E-01
35.53	2.73E-01
37.47	2.39E-01
39.82	2.03E-01
42.03	1.77E-01
43.69	1.44E-01
45.62	1.18E-01

DATA SET 170	
BIB SECTION	----> SEE SECTION 248

```
-----
  ┐
  |
  |----> these comments are parameters used
  |      in compilation step of conversion
  V      from analog data (fig.) to digital data.
-----

-----> header of a numerical data table

-----> heading line of data table
-----> unit line of data table
-----
  ┐
  |
  |
  |
  |
  |
  |
  |
data points
  |
  |
  |
  |
  |
  |
  |
  |
  V
-----

-----> data set 170 consists of sections:
         (248, 249, 250, 253)

-----> BIB section for this data set had
       appeared before as section No.248
```

EXP SECTION	----> SEE SECTION 249

EXP SECTION	----> SEE SECTION 250

SECTION 253

DATA SECTION	170

INC-ENGY-LAB	61.8MEV	
CMPD	13C	
RSD	12C	
EXC-ENGY	16.11MEV	
THTL	6~42DEG	
COMMENT	FIG.5-(B)	
COMMENT	D226 FIG 5-(B)	
COMMENT	SER#= 3	
COMMENT	XSCALE=LINEAR YSCALE=LOG	
COMMENT	XMAX= 6.000E+01 YMAX= 1.000E+00	
COMMENT	XMIN= 0.000E+00 YMIN= 1.000E-02	
COMMENT	FOLLOWING DATA ARE TAKEN FROM GRAPH	

TABLE

THTC (DEG)	DSIGMA/DOMEGA (MB/SR)
6.65	1.78E-01
8.73	1.96E-01
11.36	1.78E-01
13.58	2.18E-01
15.94	2.33E-01
17.74	2.75E-01
19.68	2.52E-01
22.59	2.85E-01
24.67	3.20E-01
26.47	3.05E-01
28.54	2.99E-01
30.90	2.99E-01
33.26	2.88E-01
35.47	2.85E-01
37.55	2.54E-01
40.18	2.36E-01
41.99	1.98E-01
43.93	1.75E-01
46.14	1.45E-01

DATA SET 313

SECTION 444

BIB SECTION	313~321

D#	D1
TITLE	EVIDENCE FOR THE FRAGMENTATION OF HOLE-STA
	TE ANALOGS IN 59NI AND 58CO
PURPOSE	TO FIND OUT THE EVIDENCE OF THE FRAGMENTAT
	ION OF HOLE-STATE ANALOGS

-----> see section No. 249 for EXP section

-----> see section No.250 for EXP section

-----> header of a numerical data table

----> data set 313 consists of sections:
(444, 445, 446)

-----> this BIB section is from another paper

ATH	H.IKEGAMI	1
ATH	T.YAMAZAKI	1
ATH	S.MORINOBU	1
ATH	I.KATAYAMA	1
ATH	M.FUJIWARA	1
ATH	Y.FUJITA	1
ATH	N.KOORI	2
INST-ATH	2JAPRCN	1
INST-ATH	2JAPKYU	2
REF	PL/B	
VLP	74(1978)326	
RCTS	60NI(P,D)59NI	
RCTS	59CO(P,D)58CO	

SECTION	445
EXP SECTION	313~319

RCT	60NI(P,D)59NI
ENR	99.79%
CHM	ELM
THK-TGT	0.317MG/CM**2
BAC	SELF
POL-TGT	NO
ALGN-TGT	NO
ACC	CYC
INST-ACC	2JAPRCN
INC-ENGY-RANGE	50MEV
DELTA-INC-ENGY	XKEV
ERS-PRJ	XKEV
BEAM-INTNSTY	XUA
POL-PRJ	NO
DET-PARTCL	D
DET-SYS	MAG+PS-PC+PLST-SCT+CNTR-TLSCP
SOLID-ANGL	3.4MSR
ERS-DET	9~15KEV
PHQ	ANGL-DSTRN
PHQ	ENGY-SPEC
PHQ	XSECTN-RATIO
PHQ	EXC-ENGY
PHQ	TOT-WDTH
PHQ	IAS
PHQ	TRNSF-L
PHQ	SPREAD-WIDTH

SECTION	446
DATA SECTION	313

INC-ENGY	50MEV
RSD	59NI
EXC-ENGY	7.287MEV
DELTA-EXC-ENGY	0.05MEV

TABLE

THTL (DEG)	DSIGMA/DOMEGA (REL)	DELTA-DSIGMA/DOMEGA (REL)

-----> header of a numerical data table

8	0.0200	0.0028
11	0.0247	0.0028
14	0.0371	0.0032
17	0.0374	0.0024
20	0.0412	0.0040
24	0.0523	0.0069

COMMENT	RELATIVE VALUES TO THOSE OF THE 7.341 MEV MAIN PEAK
COMMENT	NUMERICAL VALUES ARE OBTAINED FROM THE AUTHORS

DATA SET 314

BIB SECTION	----> SEE SECTION 444
EXP SECTION	----> SEE SECTION 445

SECTION 447

DATA SECTION	314
INC-ENGY	50MEV
RSD	59NI
EXC-ENGY	7.305MEV
DELTA-EXC-ENGY	0.050MEV
J-PI	7/2-
ISOSPIN	5/2
TRNSF-L	3
TRNSF-J	7/2-
TRNSF-ISOSPIN	1/2

TABLE

THTL (DEG)	DSIGMA/DOMEGA (REL)	DELTA-DSIGMA/DOMEGA (REL)
8	0.1073	0.0072
11	0.1035	0.0058
14	0.1028	0.0055
17	0.1088	0.0047
20	0.1300	0.0070
24	0.1395	0.0118

COMMENT	RELATIVE VALUES TO THOSE OF THE 7.341 MEV MAIN PEAK
COMMENT	NUMERICAL VALUES ARE OBTAINED FROM THE AUTHORS

DATA SET 315

BIB SECTION	----> SEE SECTION 444
EXP SECTION	----> SEE SECTION 445

----> data set 314 consists of sections:
(444, 445, 447)

-----> header of a numerical data table

----> data set 315 consists of sections:
(444, 445, 448)

```
|=================================================================|
|=================================================================|
|     SECTION        448                                          |
|=================================================================|
|  DATA SECTION  | 315                                            |
|=================================================================|
|INC-ENGY        | 50MEV                                          |
|RSD             | 59NI                                           |
|EXC-ENGY        | 7.330MEV                                       |
|DELTA-EXC-ENGY  | 0.050MEV                                       |
|-----------------------------------------------------------------|
|                          TABLE                                  |
|-----------------------------------------------------------------|
|          THTL          DSIGMA/DOMEGA      DELTA-DSIGMA/DOMEGA   |
|         (DEG)             (REL)               (REL)            |
|           8               0.2289              0.0113           |
|          11               0.1440              0.0070           |
|          14               0.1064              0.0057           |
|          17               0.1466              0.0051           |
|          20               0.1464              0.0090           |
|          24               0.2508              0.0171           |
|-----------------------------------------------------------------|
|COMMENT         | RELATIVE VALUES TO THOSE OF THE 7.341 MEV      |
|                | MAIN PEAK                                      |
|COMMENT         | NUMERICAL VALUES ARE OBTAINED FROM THE AUT     |
|                | HORS                                           |
|-----------------------------------------------------------------|

  0000000000 0000000000      END OF DISPLAY     0000000000 0000000000

*END OF DISPLAY                          ------------------------------>
KEY-IN COMMAND, PLEASE
:
END;                                                            ----->
*COMMAND=                        END;
*END OF RETRIEVAL SESSION                ------------------------------>
*BYE                                     ------------------------------>

READY                                    ------------------------------>
 .....
 .....
 .....
```

-----> header of a numerical data table

-----> trailer line of display.

display ended.

command to terminate the retrieval session.

notify that the NRDF retrieval session ended
final nessage from NRDF subsession.

you have returned to TSS mode

2. Coder's guide

2.1 Character set

Characters which can be used in coding of data for NRDF are as follows.
Alphabets: Upper case letters only.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Digits :

0 1 2 3 4 5 6 7 8 9

Symbols:

@ % ¥ * > < / + - ( ) ~ | & : ; ' ? = ¬ space , .

Usage of symbols and its meaning:

symbol	meacing & example of usage
~	about, e.g ~100 means about 100
	range, e.g 100~200 from 100 to 200
?	uncertain, e.g. 100? means "may be 100 but uncertain"
>	greater than, e.g. >100 means a value greater than 100
<	smaller than, e.g. <100 means a value smaller than 100
=	equal or is,
	usually this symbol is used to link a name of
	description term and its value. e.g. ATH=A.B.JONES;
'n'	association flag, information is linked to another
	piece which has the same flag.
	n can be one or two digit number for intra-section
	linkage.
	if n is one or two letter code of alphabet, it means
	inter-section linkage.
	multiple flags can be coded by delimiting by ","
/*text*/	comment, text should be written in english.
	text enclosed by "/*" and "*/" is a comment.
	the text is free from syntax rule of NRDF except that
	it shouldn't include "*/".
+-	erorrs when +error and -error are same each other.
¥¥	symbol for starting a section.
	e.g. ¥¥BIB starts a section of bibliography (BIB)
¥	symbol for starting and closing a data table
	symbol for starting a data table subsection
	e.g. ¥DATA; must be the first line of a data table.
	e.g. ¥END; must be the last line of a data table.
,	a delimiter for listing multiple values.
	is used for association flags in form of:
	'1,2,35,A,B'
	is used for values of description terms:
	ATH=(A.B.JONES,C.D.SMITH);
;	is delimiter for each statement.
	any statement should end with this symbol except for
	comments:
	e.g. ATH=A.B.JONES; /* text for comment */ .....
+	(1) arithmetical sign of plus.
	(2) concatination of instruments, sequential reaction
	e.g. DET-SYS=MAG+NAI

	e.g. RCT=26MG(P,N)26AL+26AL(,GAMMA)26AL;
	(3) positive parity e.g. JPI=2+;
-	(1) arithmetical sign of plus. (2) negative parity. e.g. JPI=1-; (3) hiphen, it is used for concatination of codes. e.g. DELTA-INC-ENGY-LAB=100KEV; * maximum length of the composit code should be less than or equal 32.
/	(1) arithmetical sign of division. (2) staring and closing symbol of a text as value of term, see /text/ next
/text/	text as a value of term. e.g. TITLE=/text_for_the_tile/;
@n@	pointer of text inclusion n is an integer which identifies a text written on end of source data with a symbol @@n; the symbol "@n@" will be replaced by the text when the source data is input to the system. see "@@n" next
@@n	header symbol of text identified by "n". e.g. @@10; line 1 of text "10" line 2 of text "10" ..... @@; ----> end of texts.
@@	trailer symbol of whole texts to be included. e.g. @@1; line 1 of text "1" line 2 of text "1" @@2; line 1 of text "2" ..... @@; ----> end of texts.

2.2 Coding

There are coding sheets layed out for entering information to be coded.

The next page is an example of coding sheets.

¥¥EXP , □ , □ , □ , □ , □ , □ , □ , □ , □ , □ , □ ;

Ⅱ. Reaction

	RCT=
	;

Ⅲ. Target

1. Enrichment

		ENR=
natural	□	NAT ;
enriched	□	% ;

2. Chemical form

		CHM=
element	□	ELM ;
others	□	;

3. Target thickness

THK-TGT=
mg/cm **2 ;

4. Backing

		BAC=
no	□	SELF ;
yes — material	□	;
yes — thickness	□	THK-BAC=
		mg/cm **2 ;

5. Target polarization

		PŌL-TGT=
yes	□	YES ;
no	□	NŌ;

6. Target alignment

		ALGN-TGT=
yes	□	YES ;
no	□	NŌ;

③

The information is entered according to the following manners:
(1) select one of branch printed on the sheet and check it by "X".
(2) enter a code in a box associated with printed name of the term.
(3) enter free text in a box.
(4) add comments and circle it by a box writen by yourself.
(5) enter lines of a table in free space of a sheet for tables.
(6) specify figure No. and curve ID as comment instead of data lines.
One of the above is employed for each description term of the sheets.

2.2.1 Examples of filling in coding sheets.

(1) Selection from candidates.

```
+-------------------------------------------------------------------+
|                                  +---------------------------+    |
| 5. Target polarization           | POL-TGT=                  |    |
|                          +--+    +---------------------------+    |
|                          |X |    | YES;                      |    |
|                          +--+    +---------------------------+    |
|                          |  |    | NO;                       |    |
|                          +--+    +---------------------------+    |
|                                                                   |
+-------------------------------------------------------------------+
```

(2) Entering vaules.

```
+-------------------------------------------------------------------+
|                                  +---------------------------+    |
| II. Reaction                     | RCT=                      |    |
|                                  +---------------------------+--+ |
|                                  | 12C(P,P)12C               |; | |
|                                  +---------------------------+--+ |
|                                                                   |
+-------------------------------------------------------------------+
```

(3) Specification of ID-No. oftext to be included.

```
+-------------------------------------------------------------------+
| I. Bibliography (1)                                               |
|                                  +---------------------------+    |
|  1. Title                        | TITLE=/                   |    |
|     +-------------------------------------------------------+    |
|     |                      @4@                              |    |
|     |                                                       |    |
|     +-------------------------------------------------------+--+ |
|                                                             |/;| |
|                                                             +--+ |
+-------------------------------------------------------------------+
```

(4) Adding extra comment box.

```
+-------------------------------------------------------------------+
|                                  +---------------------------+    |
|                                  | /* @5@ */                 |    |
|                                  +---------------------------+    |
|                                                                   |
+-------------------------------------------------------------------+
```

(5) Entering table lines.

```
+-------------------------------------------------------------------+
| +-------+                                                         |
| |¥DATA;|            (Angular distribution)                        |
| +-------+                                                         |
```

```
|         +--+ +-------                                                  |
|         |X | | THTC |   +----------------+   +----------------------+ |
|         +--+ +-------+   | DSIGMA/DOMEGA  |   | DELTA-DSIGMA/DOMEGA  | |
|         |  | | THTL |   +----------------+   +----------------------+ |
|         +--- +-------+                                                 |
|                                                                         |
|    +----------------+   +----------------+   +----------------------+  |
|unit| (   DEG      ) |   | (  MB/SR     ) |   | (        MB/SR     ) |  |
|    +----------------+   +----------------+   +----------------------+  |
|  ------------------------------------------------------------------     |
|        6.41                  46.6                   6.96                |
|        7.21                  56.5                   7.06                |
|        9.05                  40.9                   6.62                |
|       10.31                  49.4                   7.68                |
|       12.14                  48.3                   8.43                |
|       .....                  ....                  .....                |
|       .....                  ....                  .....                |
|       45.57                  32.9                   6.77                |
|       50.38                  19.8                   4.07                |
|       60.23                  14.5                   2.16                |
|  ------------------------------------------------------------------     |
|                                                                         |
| +-------+                                                               |
| |¥END; |                                                                |
| +-------+                                                               |
+-------------------------------------------------------------------------+
```

(6) Spcification of figure-curve ID as a comment.

```
+-------------------------------------------------------------------------+
| +-------+                                                               |
| |¥DATA;|              (Angular distribution)                            |
| +-------+                                                               |
|         +--+ +-------                                                  |
|         |X | | THTC |   +----------------+   +----------------------+ |
|         +--+ +-------+   | DSIGMA/DOMEGA  |   | DELTA-DSIGMA/DOMEGA  | |
|         |  | | THTL |   +----------------+   +----------------------+ |
|         +--- +-------+                                                 |
|                                                                         |
|    +----------------+   +----------------+   +----------------------+  |
|unit| (   DEG      ) |   | (  MB/SR     ) |   | (        MB/SR     ) |  |
|    +----------------+   +----------------+   +----------------------+  |
|  ------------------------------------------------------------------     |
|                                                                         |
|                     +------------------+                                |
|                     | /* Fig. 2-(2) */ |                                |
|                     +------------------+                                |
|                                                                         |
|  ------------------------------------------------------------------     |
|                                                                         |
| +-------+                                                               |
| |¥END; |                                                                |
| +-------+                                                               |
+-------------------------------------------------------------------------+
```

2.3 Format of particle representation.

2.3.1 Nuclide.

```
+-------------------------------------------------------------------------+
| AS
+-------------------------------------------------------------------------+
```

where A is mass number, and S is element symbol.
e.g. 4HE, 26AL, 235U
Note:
(1) Natural mixture of isotopes is represented by only the element symbol except for nitrogen (N) and phosphorate (P).
e.g. FE for natural mixuture of isotopes of Fe.
(2) Natural mixture of isotopes of nitrogen (N) and phosphorate (P) is represented as 999N and 999P respectively.
999 as mass number for the natural mixture can be used for any other elements if it is prefered.
(2) Information about meta-stable state and isomer state is not included in this coding format.
It may be attached as a comment linked by a flag:
RCT=26MG(P,N)26AL'1';
/* '1' meta stable state ..... */

2.3.2 Elementary particles.

The following particles can be coded.

code	name of the particle
ALPHA	alpha particle
BETA	beta ray
BETAP	positron ray
GAMMA	gamma ray
K0	kaon with neutral charge
KN	kaon with negative charge
KP	kaon with positive charge
MU	muon
MUN	muon with negative charge
MUP	muon with positive charge
PI	pion
PIN	pion with negative charge
PIP	pion with positive charge
P	proton
D	deuteron
T	triton
N	neutron
E	electron
EP	positron
X-RAY	X-ray
HE3	3He (identical to 3HE)
HE4	4He (identical to 4HE)
X	unidentified particle(s)

2.4 Format of coding reactions.

2.4.1 Usual two body reaction.

P + T ---> E + R

where
P is projectile
T is target nucleus
E is emitted particle
R residual nucleus
format is:

```
| T(P,E)R                                                              |
+----------------------------------------------------------------------+
 Note:
   (1) E is not necessarily means detected particle.
   (2) (mass of E) <= (mass of R)
   (3) detected particle is recorded explicitly using a term
       DET-PARTCL.
       e.g. DET-PARTCL=P;
```

2.4.2 Reaction with multiple different particles emitted.

```
+----------------------------------------------------------------------+
| P + T  ---> E1 + E2 + E3 +...+En + R                                 |
+----------------------------------------------------------------------+
 where
    P   is projectile
    T   is target nucleus
    E1...En
        is emited particle
    R   isresidual nucleus
format is:
+----------------------------------------------------------------------+
| T(P,E1,E2,E3,,,En)R                                                  |
+----------------------------------------------------------------------+
```

2.4.3 Reaction with multiple same particles emited

```
+----------------------------------------------------------------------+
| P + T  ---> E1 + E1 + ... + E1 + E2 + E2 + ... + E2 + R              |
+----------------------------------------------------------------------+
 where
    P   is projectile
    T   is target nucleus
    E1,E2
        is emited particle
    R   isresidual nucleus
format is:
+----------------------------------------------------------------------+
| T(P,X*E1,X*E2)R                                                      |
+----------------------------------------------------------------------+
 Note:
       In case of the multiplicity is definite use the multiplicity in
       stead of "X":
+----------------------------------------------------------------------+
| P + T  ---> E1 + E1 + E2 + E2 + E2 + R                               |
+----------------------------------------------------------------------+

format is:
+----------------------------------------------------------------------+
| T(P,2*E1,3*E2)R                                                      |
+----------------------------------------------------------------------+
```

2.4.4 Inclusive reaction.

```
+----------------------------------------------------------------------+
| P + T  ---> E + ...                                                  |
+----------------------------------------------------------------------+
 where
    P   is projectile
    T   is target nucleus
    E1,E2
        is emited particle
```

format is:

```
+-----------------------------------------------------------------+
| T(P,E)X'n'                                                      |
| /* 'n' inclusive reaction */                                    |
+-----------------------------------------------------------------+
```

Note:

X (unidentified) should be used as residual nucleus. Information that it is inclusive reaction is noted by comment linked by a flag.

2.4.5 Fission reaction.

```
+-----------------------------------------------------------------+
| P + T  ---> F1 + F2                                             |
+-----------------------------------------------------------------+
```

where

P is projectile
T is target nucleus
F1,F2 is fission product.

format is:

```
+-----------------------------------------------------------------+
| T(P,FISS)                                                       |
+-----------------------------------------------------------------+
```

Note:

"FISS" is not any particle name but is used at position of emitted particle to specify the reaction is fission reaction. To retrieve CPND from this type of reactions, you may use "FISS" as an emitted particle.

2.4.6 Fusion reaction.

```
+-----------------------------------------------------------------+
| P + T  ---> R                                                   |
+-----------------------------------------------------------------+
```

where

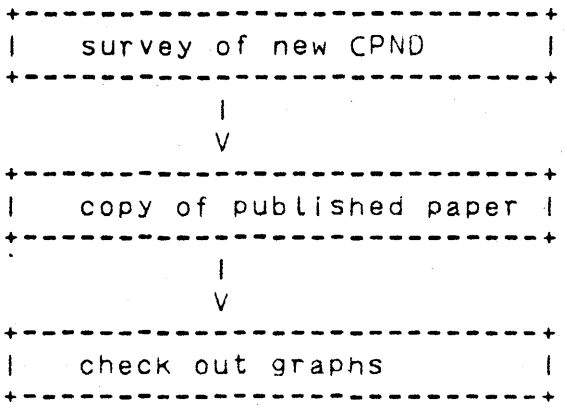
P is projectile
T is target nucleus
R is residual nucleus

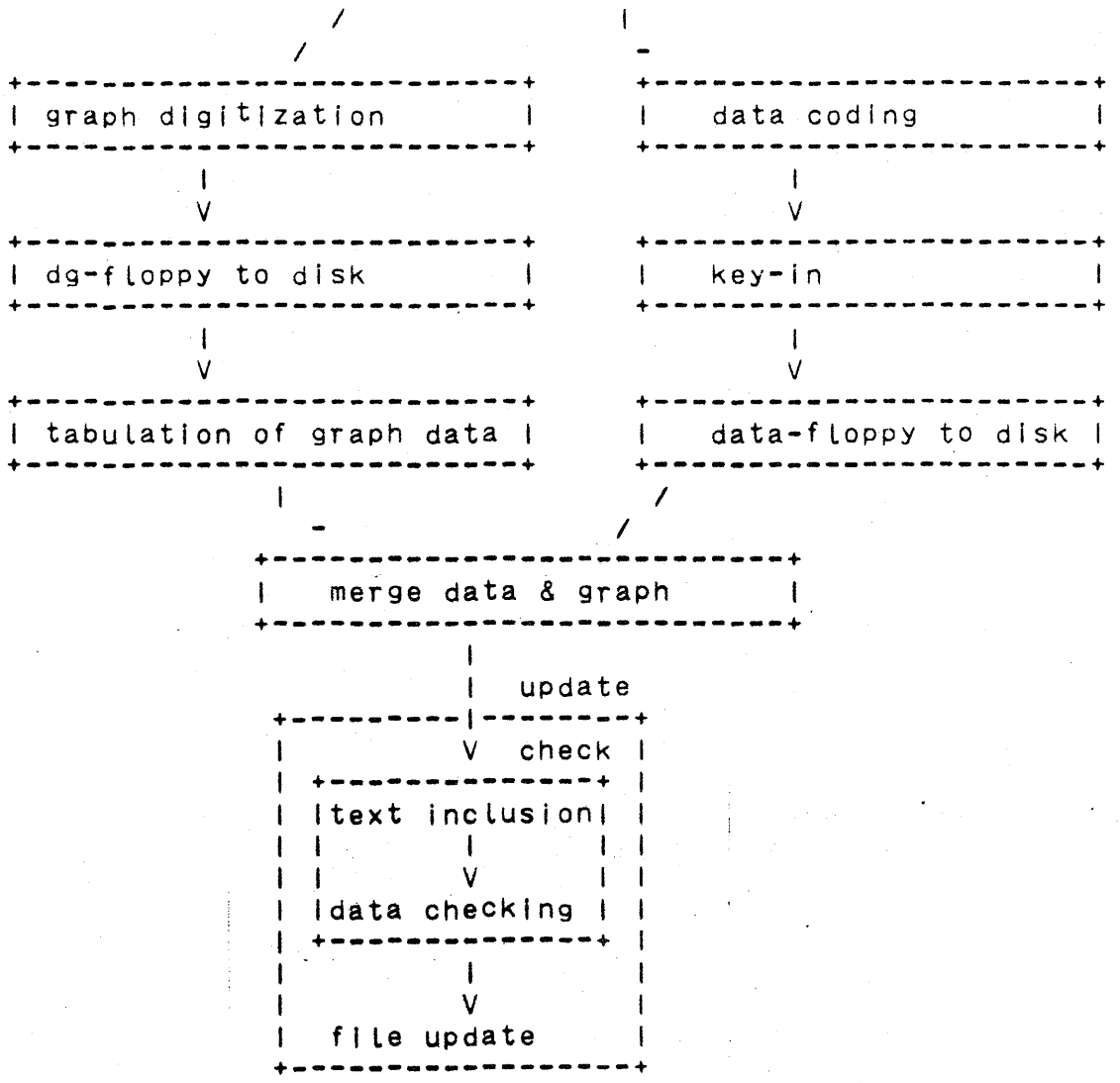
format is:

```
+-----------------------------------------------------------------+
| T(P)R                                                           |
+-----------------------------------------------------------------+
```

3. Operater's guide

3.1. Procedure flow of data entry





3.1.1 Files and materials.

(1)	candidate list	paper
(2)	copy of published paper	paper
(3)	digitized graph in floppy disk	floppy
(4)	log sheet of graph digitization	paper
(5)	digitized data	disk
(6)	digitized table	disk
(7)	coded data in coding sheet	paper
(8)	coded data in floppy disk	floppy
(9)	source file	disk
(10)	temporary input file	disk
(11)	monitor file	disk

3.2. Detail of steps

3.2.1 Survey of new CPND

(1) Function
Find out the year's new CPND which fall in our scope of data compilation:
(a) Japanese CPND
(b) World proton induced CPND

(2) Source
(a) Annual reports of:
Institute for Nuclear Science, The University of Tokyo
Research Centre of Nuclear Physics, Osaka Univ.

The university of Tokyo, (excepting I.N.S.)
Univ. of Tsukuba, Tandem Acc. Centre
Institute for Physical and Chemical Research

(b) Reference books:
Reaction List for Charged-Particle-Induced Nuclear Reactions from Atomic Data and Nuclear Data Tables
Recent References from Nuclear Data Sheets

(c) Others:
Private communications
Papers in preparation
Papers to be published
Others

(3) Products
A list of candidate CPND of the year each item of which consists of:
(a) Serial ID number of the data, i.e. Dnn.
(b) Bibliography of the data:
author
title
journal
volume, year, page
----> CANDIDATE-LIST

3.2.2 Making copy of published paper.

(1) Function
Make photo copies of published data for coding.
(2) Source
The list of candidate CPND (product of step 2.1).
(3) Products
Copies of the published papers each of which enclosed by a folding file with a label and log-sheet.
----> PAPER-FILE

3.2.3 Checking out graphs

(1) Function
Read the paper and check all graphs appear in it.
Mark graphs which include data worth being coded.
The following information should be written in space near the graphs:
(a) names of X and Y axis for headings of table after coding.
(b) units for headings.
(c) scaling method, e.g. linear scaling or log scaling.
(d) other notes, e.g. data points to be ommited.
(2) Source
Paper-file as product of step 3.2.2.
(3) Products
Paper file with marks on graphs to be coded.
----> PAPER-FILE

3.2.4 Digitization of praphs.

(1) Function
Read out X-Y coordinates of plotted points in marked graphs using 2-dimensional coordinate digitizer.
(2) Source
Paper file with marks on graphs.
(3) Products
(a) Digitized data in a floppy disk. One disk contains digitized data of all curves in a paper.

----> DG-FLOPPY

(b) Parameter data sheets.
One sheet corresponds to one curve of graph.
It contains:
1. fllopy disk ID.
2. paper ID
3. curve ID
4. scaling methods for X and Y coordinates.
5. ranges along with X and Y axis.
6. date and sign

----> DG-LOG
is in following form:

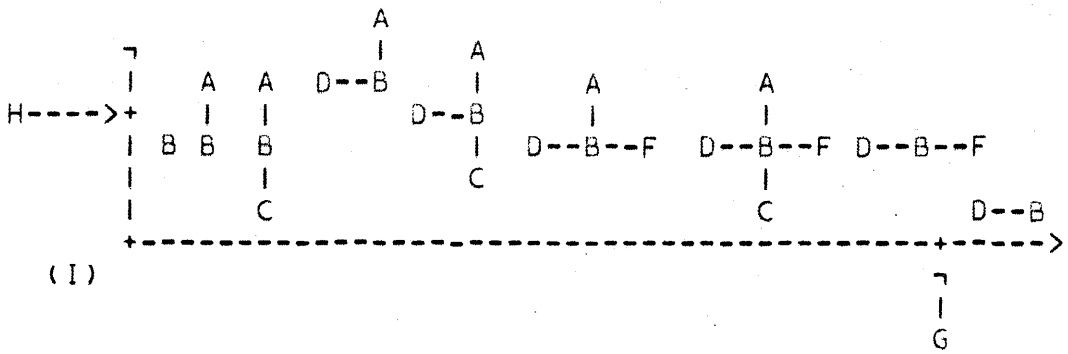
			No.
Floppy #			
D#			
Curve ID			
	X		Y
Scale			
Maximum point			
Minimum point			
points taken	AB /ABC / ABCD / ABCDF /ABDF / ABD / B / BD / BDF		
Date	198 - -		
Compiler			
Conversion	198 - -		
Data set ID			
Comment			
Comment			

CONTROL CHARACTERS USED IN DIGITIZER.

cursor layout

A	B	C
D	E	F
G	H	I
J	K	L

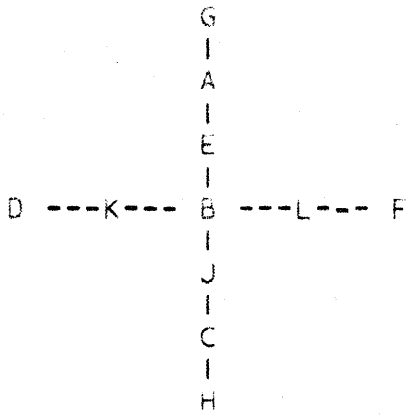
A -----> + error along Y-axis
B -----> data point
C -----> - error along Y-axis
D -----> - error along X-axis
F -----> + error along X-axis
G -----> maximum point along with X-axis
H -----> maximum point along with Y-axis
I -----> end of a curve



Dg-floppy and dg-log are added to the paper file.
Data point and its associated errors are coded as follows:

```
A -----> + error along Y-axis
         G -----> is used instead of "A" for very large error
         E -----> is used instead of "A" for very small error
B -----> data point
C -----> - error along Y-axis
         H -----> is used instead of "A" for very large error
         J -----> is used instead of "A" for very small error
D -----> - error along X-axis
         K -----> is used instead of "A" for very small error
F -----> + error along X-axis
         L -----> is used instead of "A" for very small error
G -----> maximum point along with X-axis
H -----> maximum point along with Y-axis
I -----> end of a curve
```

where "very large error" means long error bar with arrow pointing out of range of the figure, and "very small error" means that the error bar can't be figured and is assued to be shrinked within a data point.



3.2.5 DG-FLOPPY to DGDATA

(1) Function
Store content of dg-floppy into a disk file.
(2) Source
Dg floppy
(3) Products
dgdata 'SG1240.DGDATA.DATA(d#)'
----> DGDATA

3.2.6 Tabulation of graph

(1) Function
Convert the digitized data with real scale into table original values through scaling.
Add heading and unit lines to the table.
(2) Source
dgdata 'SG1240.DGDATA.DATA(d#)'
(3) Products
dgtable 'SG1240.DGTABLE.DATA(d#)'
(4) Command usage

```
+-------------------------------------------------------------+
| READY                                                       |
| DGCONV Dmm Dnn                                              |
| -------------                                               |
```

+--+

* Dmm is data ID (member name) of source 'SG1240.DGDATA.DATA'
* Dnn is data ID (member name) of product 'SG1240.DGTABLE.DATA'
Usually, Dmm and Dnn are same each other. However, Dnn may be some temporary names in case whole work for a series of curves is separated into several steps. In such a case, concatination of separated pieces of converted data is needed after the work. And the member stored in DGTABLE should finally have an identical name to Dmm.

(6) Detail of conversion operation

a. PARAMETERS

There are two classes of parameters to be set for the conversion; The first is identifiers of figure and curve, and the second for scaling parameters.
The former cantains:

(1)	D#	: literature ID in form of Dnn.
(2)	SER#	: serial number for a curve within FD.
(3)	HEADING	: heading line for a table to the curve.
(4)	UNIT	: unit line of the table.

The latter contains:

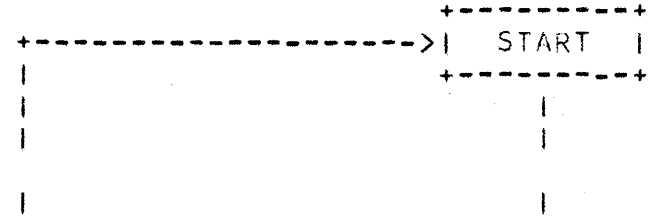
(1)	XSCALE	: scaling for X-axis, LINEAR or LOG scale
(2)	XFACTOR	: multiplication factor for the X-axis
(3)	YSCALE	: scaling for Y-axis, LINEAR or LOG scale
(4)	YFACTOR	: multiplication factor for the Y-axis
(5)	XMAX	: maximum value along with X-axis
(6)	YMAX	: maximum value along with Y-axis
(7)	XMIN	: mimimum value along with X-axis
(8)	YMIN	: mimimum value along with Y-axis
(9)	TYPE	: type of error bar B,AB,ABC, etc.

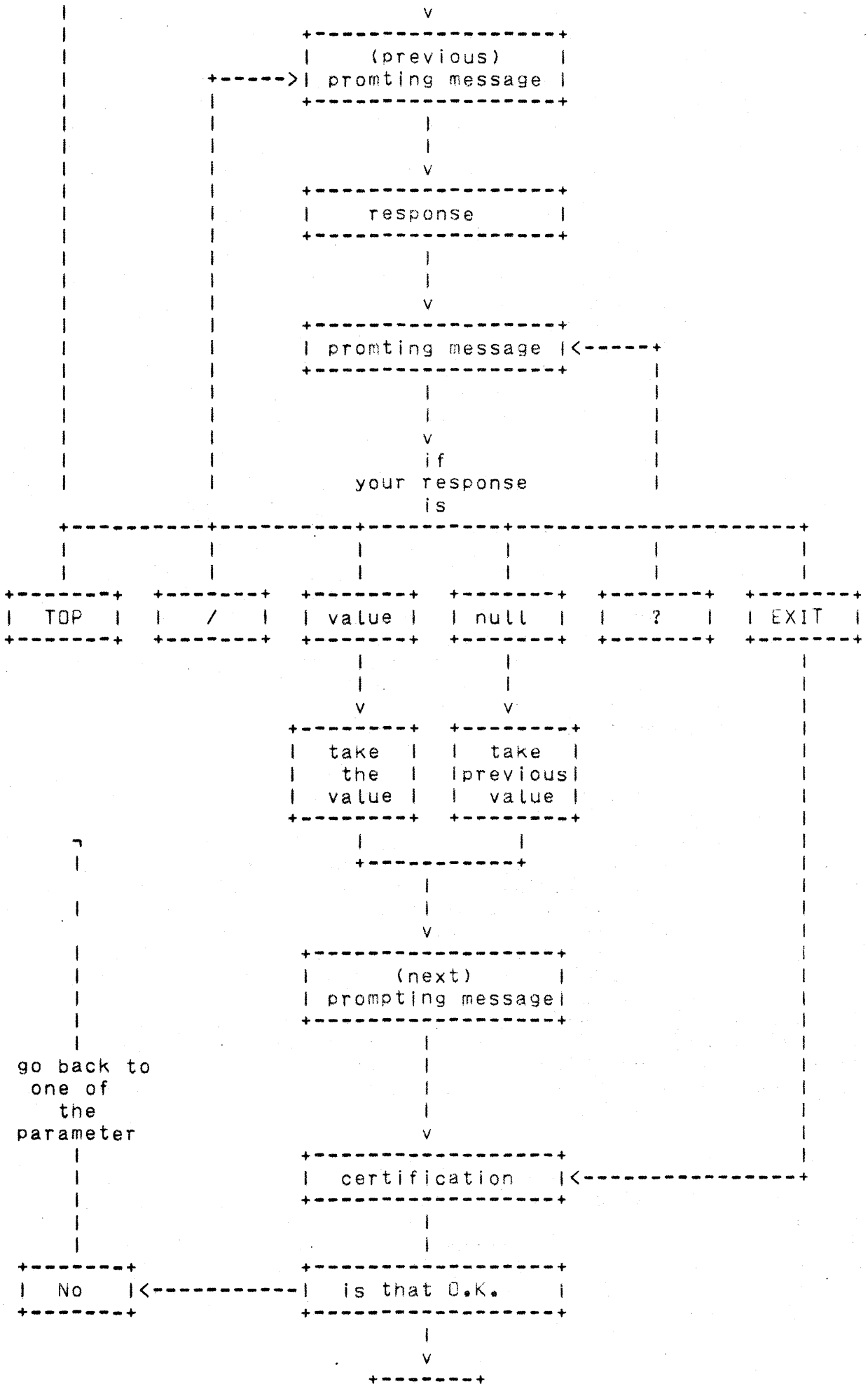
These parameters are recorded in a log of figitizing process which corresponds to each curve read.

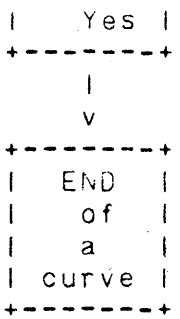
You read the dg log and enter the parameters according to prompting from computer.
In general, the computer will display the prompting message for entering a parameter , and you enter the corresponding value from key board. The value is set when you press carriage-return key or, say, send key. If the value is valid for the parameter, then the computer will ask you to enter the next parameter. Thus, a set of parameter for one curve is set one by one in some order. After that, echo back of the value set will be shown on end of entering whole the set for reconfirmation.
In case you noticed you misstook a value entered before, you can go back to the previous stage of parameter setting.
If you certify the values, actual conversion will start.
all lines to be put into file will be displayed on your terminal.

b. CONTROL FLOW OF ENTERING PARAMETER

The basic diagram of the flow for entering a parameter is as follows:




(previous)
promting message
response
promting message
if
your response
is
TOP
/
value
null
?
EXIT
take
the
value
take
previous
value
(next)
prompting message
go back to
one of
the
parameter
certification
No
is that O.K.



3.2.7 Data coding

(1) Function
Translate information contained in a paper into machine readable form of data.
Data entry forms (data sheets) for the coding is used.
(2) Source
A copy of published paper in the paper file.
(3) Products
A set of data sheets
----> DATA-SHEETS

3.2.8 Key in

(1) Function
Key-in data according to data sheets onto computer readable media.
(2) Source
Data sheets in a paper file.
(3) Products
Floppy disk containing coded data for a paper.
----> DATA-FLOPPY

3.2.9 Data-floppy to disk data set.

(1) Function
Store data in data floppy into data set 'SG1240.CPNDMT.DATA'
(2) Source
Data floppy
(3) Products
source file 'SG1240.CPND.DATA(d#)'

3.2.10 Merge of graph data and coded data.

(1) Function
Merge dgtable and source file
(2) Source
dgtable 'SG1240.DGTABLE.DATA(d#)'
source file 'SG1240.CPNDMT.DATA(d#)'
(3) Products
Output from GM command is saved on:
Data set 'userid.@CPND1.DATA(d#)' for checking result.
Finally, merged data is copied/moved to:
source file 'SG1240.CPNDMT.DATA(d#)'
(4) Command usage

```
+-------------------------------------------------------------+
| READY                                                       |
| GM Dnn                                                      |
| ------                                                      |
+-------------------------------------------------------------+
```

* Dnn is data ID (member name) of 'SG1240.DGTALBE.DATA'
and 'SG1240.CPNDMT.DATA'

* After merging them, it is necessary to eliminate duplicated lines in the product data set.
Because heading and unit lines are coded both in DGTABLE and CPNDMT. It was introduced for cross checking of errors.
And if there is no error, you have to copy product data set @CPND1.DATA(Dnn) to 'SG1240.CPNDMT.DATA(Dnn)'.
This process should be done in manuall operation.
like... COPY @CPND.DATA(Dnn) 'SG1240.CPNDMT.DATA(Dnn)'

3.2.11 Syntax check

(1) Function
Check syntactical validity of data to be entered into the NRDF.
Before checking, free text lines are included in places marked by "@" bymbol in the coded data.
Product of this preprocessing is kept in a temporary data set, namely input file 'userid.¥CPNDBUF.DATA(d#)'.

(2) Source
source file 'SG1240.CPNDMT.DATA(d#)'

(3) Products
(by product)
Source listing and diagnostic messages are printed on monitor file 'MM0561.CPNDMON.DATA(d#)'

(4) Command usage

```
+-------------------------------------------------------------+
| READY                                                       |
| #INPUT Dnn                                                  |
| ----------                                                  |
+-------------------------------------------------------------+
```

* Dnn is data ID (member name) of source file 'SG1240.CPNDMT.DATA'
If '%' is specified instead of d#, the system asks to enter d# from a TSS terminal repeatedly until space is entered. One d# for each line should be entered.
If a character string starts with '#' followed by seven or less characters is entered, the system takes a list of d# to be entered from a member of source file which is identified by the character string as a member name. The member should have a space line at end of it, and shouldn't have any sequence fields on rightmost part of each line.

3.2.12 File update (final process)

(1) Function
Update master file of NRDF with subordinate update of index files.
Certify that there is no error in source data before this process is performed.
In case of detecting some errors while the system is checking syntaxof source data, the process of update will abort and nothing will be added to NRDF.

(2) Source
source file 'SG1240.CPNDMT.DATA(d#)'

(3) Products
(partial update of files)
file definition table 'SG1240.FDFILE2'
file body for NRDF 'SG1240.NRDF2'
(by product)
Source listing and diagnostic messages are printed on the monitor file 'MM0561.CPNDMON.DATA(d#)'

(4) Command usage

```
+-------------------------------------------------------------+
| READY                                                       |
| #INPUT Dnn UPDATE                                           |
```

| ---------- |

* meaning of Dnn is same as that of data checking step.