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0120.000

EXPANDED FERMILAB PRESSURE VESSEL DIRECTORY PROGRAM

Al Tanner

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1. INTRODUCTION

Several procedures have been written to manage the information pertaining to the vacuum tanks and pressure vessels for which the laboratory is responsible. These procedures have been named TANK1 for the vessels belonging to the Accelerator Division, TANK2 and TANK3 for the vessels belonging to the Research Division and to Technical Support respectively, and TANK4 for the vessels belonging to the Business Division. The operating procedures are otherwise identical in every respect.

The information of interest resides on the Cyber disk at Fermilab as a data file, composed of an alphanumerically ordered sequence of logical records (AAA001 - ZZZ999) where each logical record represents an individual pressure vessel.

The procedure fetches six files from the Cyber disk, (1) a directory or masterfile, containing all the pertinent information, (2) a backup file, containing a copy of the current masterfile, (3) a special extract file to be explained later, (4) an icefile, (5) a batch file, and (6) a program.

The program, which has been used by the Accelerator Division for approximately six months has been revised as a result of the experience gained during that period of actual use, and the present documentation completely supersedes the information contained in TM 1062.

The revisions are as follows:

1. A new subroutine, BATCH, has been written to enable user to make certain alterations to more than one vessel at a time.

2. A new subroutine, NEXT, has been written to give user the next sequence number in any specified series.

3. A new subroutine, SAVE, has been written to enable the user to save the current masterfile. The current masterfile becomes the new backup file.

4. A new subroutine, RESTORE, has been written to enable the user, in case of error, to delete the current masterfile, replacing it with the backup file.

5. The subroutine ALTER has been rewritten to enable the user to go directly to the line he wishes to alter, perform the alterations, verify them, and exit, without having to step through the entire record, line by line and field by field.

6. The subroutine SPECIAL has been rewritten to enable the user to create a special file consisting of vessels which for any reason whatsoever are of interest to him.

2. TYPICAL RECORD

```
12345678901234567890123456789012345678901234567890123456789012345678901234567890
IND023  IND SIL1  GR  0 12  77  78  810110  U   D ACC      7          25275
***074
TITLE: LIQUID HELIUM DEWAR              DXL 060X0180  CRYENCO
FUNCTION: LIQUID HELIUM DEWAR
MAXIMUM ALLOWABLE WORKING PRESSURE 0050 AT 100 F  OPERATING PRESSURE 0013
INNER  SV   1X1   SET  0036  ORF 1     CFM 00166  ANDERSON GREENWOOD
INNER  RD   2X2   SET  0059  ORF 2     CFM 00320  BS&B
OUTER  SV   3X3   SET  0059  ORF 3     CFM 00480  CRYOLAB
NOTE: RELIEF VALVE TO COMPRESSOR SUCTION THRU-25 FT. OF 2 IN. PIPE.
NOTE: RUPTURE DISC TO OUTSIDE THRU-15 FT OF 6 IN. PIPE
NOTE: OPERATING PRESSURE RANGE: 11-13 (22 PSIG WHEN OFF).
NOTE: PERSON RESPONSIBLE: F. TURKOT
***
```

3. DATA STRUCTURE

The preceeding is an example of a typical data record, describing the characteristics of IND023, a vessel belonging to the Accelerator Division and located in the Industrial Building. Note! This record has been slightly altered for the purposes of illustration and does not correspond exactly to the actual data in the file!

Line 1	Columns 01-06	NAME OF VESSEL	IND023
Line 1	Columns 09-11	LOCATION PREFIX	IND
Line 1	Columns 13-17	LOCATION SUFFIX	SIL1
Line 1	Columns 19-20	SUBLOCATION	GR
Line 1	Columns 23-23	STATUS WORD	0
Line 1	Columns 25-26	LINE COUNTER	12
Line 1	Columns 29-30	YEAR MANUFACTURED	77
Line 1	Columns 33-34	YEAR RETESTED	78
Line 1	Columns 37-42	DATE TAGGED	810110
Line 1	Columns 45-47	ASME CODE- U,UM,DOT	U
Line 1	Columns 49-49	TYPE- DEWAR,ETC.	D
Line 1	Columns 51-57	OWNER- ACC,ETC.	ACC
Line 1	Columns 60-67	NATIONAL BOARD SERIAL NUMBER	7
Line 1	Columns 70-79	FERMILAB SERIAL NUMBER	25275
Line 2	Columns 01-03	ASTERISKS	***
Line 2	Columns 04-06	LOGICAL RECORD NUMBER	074
Line 3	Columns 08-35	TITLE (ITEM DESCRIPTION)	LIQUID HELIUM DEWAR
Line 3	Columns 41-43	DIAMETER (INCHES)	060
Line 3	Columns 45-48	LENGTH (INCHES)	0180
Line 3	Columns 51-79	MANUFACTURER	CRYENCO
Line 4	Columns 11-79	FUNCTION DESCRIPTION	LIQUID HELIUM DEWAR
Line 5	Columns 36-39	MAXIMUM ALLOWABLE WORKING PRESSURE (PSIG)	0050
Line 5	Columns 44-46	DESIGN TEMPERATURE (DEGREES FAHRENHEIT)	100
Line 5	Columns 70-73	OPERATING PRESSURE (PSIG)	0025
Line 6	Columns 08-09	TYPE OF PRESSURE RELIEF- SV,RD,RP	SV
Line 6	Columns 11-13	1ST DIMENSION OF RELIEF DEVICE (INCHES)	1
Line 6	Columns 15-17	2ND DIMENSION OF RELIEF DEVICE (INCHES)	1
Line 6	Columns 24-27	SET PRESSURE OF RELIEF DEVICE (PSIG)	0036
Line 6	Columns 34-38	ORIFICE SIZE OF RELIEF DEVICE	1
Line 6	Columns 44-48	CAPACITY OF RELIEF DEVICE (CFM)	00166
Line 6	Columns 51-79	MANUFACTURER OF RELIEF DEVICE	ANDERSON GREENWOOD
Line 7	Columns 08-09	TYPE OF PRESSURE RELIEF- SV,RD,RP	RD
Line 7	Columns 11-13	1ST DIMENSION OF RELIEF DEVICE (INCHES)	2
Line 7	Columns 15-17	2ND DIMENSION OF RELIEF DEVICE (INCHES)	2
Line 7	Columns 24-27	SET PRESSURE OF RELIEF DEVICE (PSIG)	0059
Line 7	Columns 34-38	ORIFICE SIZE OF RELIEF DEVICE	2
Line 7	Columns 44-48	CAPACITY OF RELIEF DEVICE (CFM)	00320
Line 7	Columns 51-79	MANUFACTURER OF RELIEF DEVICE	BS&B
Line 8	Columns 08-09	TYPE OF PRESSURE RELIEF- SV,RD,RP	SV
Line 8	Columns 11-13	1ST DIMENSION OF RELIEF DEVICE (INCHES)	3
Line 8	Columns 15-17	2ND DIMENSION OF RELIEF DEVICE (INCHES)	3
Line 8	Columns 24-27	SET PRESSURE OF RELIEF DEVICE (PSIG)	0059
Line 8	Columns 34-38	ORIFICE SIZE OF RELIEF DEVICE	3
Line 8	Columns 44-48	CAPACITY OF RELIEF DEVICE (CFM)	00480
Line 8	Columns 51-79	MANUFACTURER OF RELIEF DEVICE	CRYOLAB
Line 9	Columns 7-79	NOTES,REMARKS,COMMENTS!	TEXT
Line10	Columns 7-79	NOTES,REMARKS,COMMENTS!	TEXT
Line11	Columns 7-79	NOTES,REMARKS,COMMENTS!	TEXT
Line12	Columns 7-79	NOTES,REMARKS,COMMENTS!	TEXT
Line13	Columns 01-03	ASTERISKS	***

In reference to Line 1 Column 23 (Status Word):

0=OKAY
1=DOUBTFUL
2=DELETED
3=REVIEWED

In reference to Line 1 Columns 25-26 (Line Counter):

INTEGER=ONE LESS THAN THE NUMBER OF LINES IN THE RECORD

In reference to Line 1 Columns 37-42 (Date Tagged):

810110=(1981-JANUARY-10)

In reference to Lines 6-8 Columns 08-09 (Relief Device Type):

SV=SAFETY VALVE
RD=RUPTURE DISK
RP=RUPTURE PLATE

Note that the comment line is repeated whenever there occurs an extension of remarks. Up to twelve lines of remarks are premitted, but the bottom line of each record must always be three asterisks.

4. LOCATION CODING

BWH	SBWH	Batavia Warehouse.
CLB	SC	Central Lab.
CUB	SCUB	Central Utilities Building.
FMS	SF38S	Farm Site #38. Shop.
FMS	SF55S	Farm Site #55. Shop.
FMS	SFRS	Rail Siding.
FMS	SHLB	Helium Liquifier Building.
FMS	SUCP	Utility. Casey's Pond.
IND	SIL1	Industrial Lab #1.
IND	SIL2	Industrial Lab #2.
IND	SIB1	Industrial Barn #1. Machine Shop.
IND	SIB2	Industrial Barn #2. Paint Shop.
MES	SMSB1	M-1 Service Building.
MES	SMSB2	M-2 Service Building.
MES	SMSB3	M-3 Service Building.
MES	SMLDB	Meson Lab Detector Building.
MES	SMCCP	Meson Cryogenic Compressor Portakamp.
MES	SM115	M-1 Finger and Associated Structures at 1500.
MES	SM615	M-6 Finger and Associated Structures at 1500.
NEU	SNSB1	N-1 Service Building.
NEU	SNSB2	N-2 Service Building.
NEU	SNSB3	N-3 Service Building.
NEU	SNSTS	Neutrino Target Service Building.
NEU	SNLMU	Muon Building.
NEU	SNSCB	Compressor Building.
NEU	SNLA	Lab A.
NEU	SNLB	Lab B.
NEU	SNLC	Lab C.
NEU	SNLD	Lab D.
NEU	SNE**	Beamline Enclosures Where **=Last Two Digits.
PRO	SPS01	P-1 Service Building.
PRO	SPS02	P-2 Service Building.
PRO	SPS03	P-3 Service Building.
PRO	SPS04	P-4 Service Building.
PRO	SPSPO	Proton Service Building Pagoda.
PRO	SPWCP	Proton West. Cryogenic Group. Portakamp.
PRO	SPTP	Tagged Proton.
PRO	SPWE	Proton West Enclosure.
PRO	SPHI3	Proton Hi-Intensity Enclosure #3.
PRO	SPEE4	Proton East Pit.
RSB	SRS**	Ring Service Building Where **=Last Two Digits.
RSB	SRS12	B-12 Service Building.
SWY	SSSB	Switchyard Service Building.

```
VIL SVL**   ACCELERATOR DIVISION! Village Lab Where **=Last Two Digits.
VIL SVHW    ACCELERATOR DIVISION! Winnebago House (Helium).
VIL SVMS    ACCELERATOR DIVISION! Village Model Shop.
VIL SVVMG   ACCELERATOR DIVISION! Village Vehicle Maintenance Garage.
VIL SVFB    ACCELERATOR DIVISION! Village Fire Barn.
VIL SVB     ACCELERATOR DIVISION! Village Barn.

WES SVL**   RESEARCH DIVISION! Village Lab Where **=Last Two Digits.
WES SVHW    RESEARCH DIVISION! Winnebago House (Helium).
WES SVMS    RESEARCH DIVISION! Village Model Shop.
WES SVVMG   RESEARCH DIVISION! Village Vehicle Maintenance Garage.
WES SVFB    RESEARCH DIVISION! Village Fire Barn.
WES SVB     RESEARCH DIVISION! Village Barn.

XGA SXG     Cross Gallery.
```

5. PROGRAM FUNCTIONS

The program performs the following functions:

1. Permits user to enter additional information from the terminal or to change or correct existing data.
2. Permits user to enter new records from the terminal, eliminating the use of punched cards.
3. Finds and displays on the terminal all information regarding any designated vessel in the directory. If the vessel is not in the directory, a "NO SUCH VESSEL!" is printed.
4. Lists the complete directory on the terminal, with a pause at the foot of each page so that user may carefully scrutinize the record before directing the program to continue or to return.
5. Makes a partial listing on the terminal, including all vessels having the name prefix designated by user.
6. Makes an abridged listing, partial or complete, on the terminal. Headers only.
7. Creates special or extract files on disk which are subsets of the main directory.
8. Permits user to make certain modifications on more than one record at a time.
9. Sets, clears, and changes status bits indicating whether the vessel is okay, doubtful, deleted, or reviewed.

Permits user to replace directory with current backup file.
Permits user to save directory on current backup file.
Checks for formal errors and inhibits their admittance into the system.

6. GETTING STARTED

To use this procedure, user must first login on the Cyber computer at Fermilab. Login instructions, extracted from the Fermilab User's Guide, are appended as the last two pages of this relation.

After he has logged in, user must type: -TANK1.
or: -TANK2.
or: -TANK3.
or: -TANK4.

The procedure will then fetch the necessary files and enter the program. The program will call the subroutine (CLASS) which will cause the terminal to clear the screen and to print the following message:

```
TYPE (1) FOR ALL VESSEL MODE!
TYPE (2) FOR DEWAR MODE!
TYPE (3) FOR NON-DEWAR MODE!
TYPE CARRIAGE RETURN TO EXIT!
```

If you type (1), the program will allow you to access the records of all vessels, those of dewars and of non-dewars alike, without regard to the type of vessel represented by these records and for most purposes this is the recommended mode of operation.

If you type (2), the program will give you access to the records of dewars only. If you type (3) it will limit your access to the records of non-dewars. These restricted files have their uses, especially if you wish to make a listing on the terminal of if you wish to create one of those special extract files we'll be discussing later on.

In any case, the program will set the mode and cause the following message to be printed:

```
TYPE (ALTER) TO ALTER ANY RECORD!
TYPE (BATCH) FOR BATCH ALTERATIONS!
TYPE (CREATE) TO CREATE NEW RECORD!
TYPE (FIND) TO FIND ANY RECORD!
TYPE (LIST) TO LIST ANY FILE!
TYPE (NEXT) TO MERGE TWO FILES!
TYPE (RESTORE) TO RESTORE MASTERFILE!"
TYPE (SAVE) TO SAVE MASTERFILE!")
TYPE (SPECIAL) TO EXTRACT SPECIAL FILE!
TYPE CARRIAGE RETURN TO EXIT!
```

7. ALTER

If you type (ALTER), the terminal will ask you to enter the name of the designated vessel. When you have done so, it will look up that vessel in the masterfile, printing an error message if no such vessel is found. If the vessel does exist, it will print out the record and ask you whether you wish to make modifications, and if so, which line you wish to modify. It will then print that line and interrogate you, field by field, as to the changes you may wish to make. When these changes are made, it will reprint the line, as altered, and ask you yo verify it. If you aren't satisfied with the changes made, it will go back and give you another chance to make modifications and will continue to do so until you indicate that the changes are satisfactory. It will then allow you to exit or to go on to the rest of the record, which will be handled in much the same way. When all the desired changes have been made, it will type out the entire record and ask you again to verify it. Upon verification, it will replace the record, as altered, in the masterfile and print a message to that effect. Otherwise it will start all over again from scratch.

8. BATCH

If you type (BATCH) you will be able to perform operations on more than one pressure vessel at a time. This is especially convenient if the status or ownership of more than one vessel is to be changed, or if several vessels have been tagged at the same time, or if the same remarks are applicable to more than one record.

However, to use this facility, you must first prepare, using ICE, a permanent indirect access file on the Cyber disk with the name BTCH1 for the Accelerator Division, BTCH2 for the Research Division, BTCH3 for Technical Support, or BTCH4 for the Business Division. This file should contain the names of the vessels whose records you wish to modify and nothing else. The following is an example of such a file:

```
FMS001
FMS017
RSB014
XGA006
```

In any case, when you have typed (BATCH), the terminal will ask you to specify which category of alteration you wish to perform: status, date, class, owner, or remarks. After you have done so, the terminal will ask you to enter the new status, date, class, or owner, as the case may be, or to enter a line of remarks. The program will look up those vessels whose records are to be processed and make all the necessary alterations. It will then print a message to that effect.

9. CREATE

If you type (CREATE) to enter information regarding a new vessel, the terminal will ask you to enter the name prefix of that vessel. In order to eliminate possible errors, the second half of the name, a cardinal number, is set by the program. The terminal will then ask you to enter the location prefix, the location suffix, the sublocation, and the status word of that vessel. When these have been entered, the terminal continues through the record, line by line and field by field, asking for specific information. If you have this information, you should supply it; otherwise, you must type a carriage return and the field is left blank. The terminal will print each line as it's completed so that you can see what's there. You may then, as the situation requires, make corrections or proceed to the next line. When all the entries have been made the terminal will print the entire record and ask you to verify it. If you do so, the program will insert the new record, as created, into the masterfile and print a message to that effect, naming the vessel specifically. Otherwise, it will return to the beginning and you'll have to start from scratch.

10. FIND

If you type (FIND) to display any specific record on the screen, the terminal will ask you first to designate the appropriate data file, master, backup, or special, where the desired record is to be found, and then it will ask you to enter the name of the vessel. When this has been done, it will look up the vessel, printing an error message if it's not found in the designated file. Otherwise, it will clear the screen and print the record. You may examine the record at your leisure. In either case, to proceed, type a carriage return.

11. LIST

If you type (LIST) to list one of the data files on the screen, the terminal will first ask you to specify the desired file, and then it will ask what kind of listing you require, a complete listing which includes all the vessels in the file, or a partial listing including only those vessels having a common name prefix. When this has been established, the terminal will ask if you wish to dump all the data pertaining to the vessels or if you wish to list header records only. In either case it will make the required listing, pausing at the foot of each page so that you may examine the information at your leisure. To continue the listing type a carriage return, to exit enter an (x).

12. NEXT

If you type (NEXT) to get the name of the next vessel in any series, the terminal will ask you to designate the name prefix of the series in question. It will then return the name and number you require.

13. RESTORE

If you type (RESTORE), the program will replace the masterfile with the most recent version of the backup file. This should be done when for some reason the masterfile has been spoiled.

14. SAVE

If you type (SAVE) the program will replace the backup file with the contents of the masterfile. This, in effect, updates the backup file and insures you that a more recent version of the backup file will be available should things go wrong farther along.

15. SPECIAL

You must type (SPECIAL) to extract from the directory and put into a special file the records of vessels having certain characteristics or attributes. At present, the program provides six categories which may be used as a basis for classification, namely the property prefix, the location prefix, the location suffix, current ownership, status flags, and deletions, but this may be expanded. The records of these vessels, in any case, are copied from the masterfile into a special file whose purpose is to serve any purpose whatsoever.

You may also type (SPECIAL) to create a special file containing an arbitrarily selected list of vessels which for some reason or other may be of interest to you. To do this, you must first create, using ICE, a permanent file on the Cyber disk with the name VSSL1 for the Accelerator Division, VSSL2 or VSSL3 for the Research Division or for Technical Support respectively, and VSSL4 for the Business Division, containing the names of those vessels whose records you may wish to extract. The following is an example of such a file:

FMS001
FMS017
RSB014
XGA006

Anyhow, when you type (SPECIAL) the terminal will ask if you are using an icefile, and if not, which subset of the masterfile you require. As soon as you respond, the program will extract all the records pertaining to the vessels in that particular subset, or if so directed, it will extract all the records of the vessels whose names appear in the icefile. It will then copy these records into the special file, record by record, and print a message notifying you either that the special file has been successfully created or that an error condition existed.

When you exit from the program, the special file, so created, will become a permanent file on the Cyber disk with the name (SPECIAL). If you wish to save it, you should rename it, using the following sequence of instructions:

```
G,SPECIAL
C,SPECIAL,NEWNAME
R,*
SAVE,NEWNAME
```

Only one special file, the latest, will be saved per run. If you wish to extract more than one, you must extract the first, exit, rename and save it, run the procedure again, extract the second, rename and save it, run the procedure again, and so ad infinitum.

16. EXIT

If you enter a carriage return in order to exit from the procedure, the program, as a precautionary measure, will cause the terminal to type out the following message:

```
YOU ARE ABOUT TO EXIT!
TYPE (RECHECK) TO RECHECK FILES!
TYPE (REPLACE) TO REPLACE FILES!
TYPE (ABORT) TO ABORT PROCEDURE!
```

If you type (RECHECK), the program will recycle, putting you back in control of everything. You can recheck the files and make sure they're okay, or perform any other function. If you type (REPLACE), the program will exit, replacing the data files, as modified, on the Cyber disk. If you type (ABORT), the procedure will be aborted, and the data files will not be replaced.

17. OTHER PROCEDURES

Other procedures have been written to enable user to print out the directories and also to restore any files which may have been lost or truncated should the time limit have been exceeded. They have been named PRINT1 and RCVR1 for the Accelerator Division, PRINT2 and RCVR2 for the Research Division, PRINT3 and RCVR3 for Technical Support, and PRINT4 and RCVR4 for the Business Division. They are otherwise identical in every respect.

18. PRINT

To print out the directory user should type: -PRINT1
or: -PRINT2
or: -PRINT3
or: -PRINT4

19. RCVR

When user exceeds the time allotted, 64 CP seconds, the procedure is interrupted, and the terminal prints the following message:

```
*TIME LIMIT*
ENTER T TO CONTINUE OR CR KEY TO STOP:
```

User must enter a carriage return at this point. The program then closes and rewinds all files and exits from the procedure which is aborted. If the timeout occurred during a write operation there is a strong possibility that the file being written was truncated.

The terminal will print: REVERT CCL

User should immediately type: -RCVR1
or: -RCVR2
or: -RCVR3
or: -RCVR4

Note! It is important that this procedure be entered immediately, or in any case, before any of the files in the local area be returned or modified in any way!

The procedure will check the local masterfile to see if it has been truncated, and if such is the case, it will copy a new local masterfile from the scratch file. If the local masterfile and the scratch file both show evidence of truncation, the new local masterfile will be copied from the most recent version of the backup file.

Dialin

For hardwired termnals this step is not necessary; continue with the Port Selector step. For non-hardwired terminals the following steps are required:

1. Pickup phone receiver and listen for dial tone.

2. Dial computer number, 3500 (or from outside the lab -- 840-3500)

3. A constant high-pitched tone indicates that the call has been established.

4. Place receiver in suction cups of the acoustic coupler being sure to use the right orientation.

Port Selector

You are now connected to a data communications switch. Type a carriage return. The port selector will respond with

CLASS=

to which a CDC user responds 1 (one).

The port selector may then respond

GO	Connection completed. Type carriage return and go to the Login step.
UNAVAILABLE	The CDC is down.
message from operator	Message indicating the status of the computer.
BUSY WAIT? xx	The communication ports are busy. xx is the number of users waiting. You can be put in the queue by typing the letter Y and carriage return. N means you do not want to be put in the queue.
UNAUTHORIZED	The class requested is restricted or unavailable to the terminal requesting it.
UNASSIGNED	The class requested doesn't exist.

Login Sequence

When first accessed, the computer will type two introductory lines. The first line consists of the date, time and terminal name and the second the system release and installation date.

```
yy/mm/dd    hh.mm.ss.    termnam

FERMILAB CYBER 175 (EE) 79/07/30      NOS 1.3-485/485
```

Then the computer will ask for your user number by typing:

```
USER NAME:
```

Enter your user number on the same line followed by carriage return. The network responds with a request for your password:

```
PASSWORD:
```

The user enters his 4 to 7 character password followed by carriage return. The system types a line identifying the terminal:

```
TERMINAL:        nnn, NAMIAF
```

This means that this is terminal number nnn in the IAF configuration at Fermilab. Make a note of the terminal number so you can recover in case of accidental terminal disconnect or system crash and restart. After identifying the terminal by number, the system types:

```
RECOVER/CHARGE:
```

On the same line you must enter 'CHARGE,' followed immediately by your affinity code. Omit any leading zeros in the affinity code. For example, E87 would be valid but E087 would not.

If certain log-in errors are made, the system will start the login procedure over but from another point by typing:

```
FAMILY:
```

The user can hit carriage return to bypass this point and the system will then proceed normally by requesting

```
USER NAME:
```

The user should answer with the user number and carriage return as before.

PRESSURE VESSEL DATA

VESSEL NAME		LOCATION CODE: PREFIX		SUFFIX		NO.		STATUS	NO. OF RECORDS		YEAR BUILT		YEAR RETESTED		VERIFIED: YEAR	MONTH	DAY		DESIGN CODE		TYPE		OWNER CODE	NATIONAL BOARD NO.	FERMILAB I.D. NO.	
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
1																										
2																										
3	TITLE:														DXL			X								
4																										
5	FUNCTION:																									
6																										
7	MAXIMUM ALLOWABLE WORKING PRESSURE																AT			F		OPERATING PRESSURE				
8																										
9	INNER:			X			SET				OR F						CFM									
10																										
11	INNER:			X			SET				OR F						CFM									
12																										
13	OUTER:			X			SET				OR F						CFM									
14																										
15	NOTE:																									
16																										
17	NOTE:																									
18																										
19																										
20																										
21																										
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B CYKO 7 30 81